BRITISH COLUMBIA UTILITIES COMMISSION

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

And

Re: British Columbia Utilities Commission
Project No. 3698659/G-20-12

Generic Cost of Capital Proceedings

Vancouver, B.C.
December 21, 2012

PROCEEDINGS

BEFORE:

D. Cote,	**Panel Chair / Commissioner**
M. Harle,	**Commissioner**
L. O'Hara,	**Commissioner**
R. Giammarino	**Commissioner**

VOLUME 8

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INDEX

PAGE

Volume 2, December 12, 2012

INDEX

INDEX

INDEX OF EXHIBITS

INDEX OF EXHIBITS

INDEX OF EXHIBITS

VOLUME 6, DECEMBER 18, 2012

INDEX OF EXHIBITS

INFORMATION REQUESTS

Volume 2, December 12, 2012

For Mr. Wallace:
Pages: 130-131, 152, 179
For Mr. Hobbs:
Pages: 259, 259/260
For Mr. Fulton:
Pages: 293

Volume 3, December 13, 2012

For Mr. Fulton:
Pages: 328, 330-332, 333, 335-336
For Commission Panel:
Pages: 386
For Mr. Wallace:
Pages: 431, 491-492

Volume 4, December 14, 2012

For Mr. Hobbs:
Pages: 542-543, 544-545, 555-556
For Mr. Fulton:
Pages: 616-617, 669-679

Volume 5, December 17, 2012

For Mr. Fulton:
Pages: 682, 699
For Mr. Wallace:
Pages: 849, 867-868

Volume 6, December 18, 2012

For Mr. Wallace:
Pages: 961-962, 967, 972-973, 978, 1000, 1001
For Mr. Fulton:
Pages: 1059, 1063-1064, 1077-1078,

Volume 7, December 19, 2012

For Mr. Fulton:
Pages: 1209-1210, 1210-1211, 1235

For Mr. Bussoli:
Pages: 1267, 1285-1286, 1320

Volume 8, December 21, 2012

CAARS

VANCOUVER, B.C.

December 19th, 2012

(PROCEEDINGS RESUMED AT 8:02 A.M.)

THE CHAIRPERSON: Please be seated. And good morning, everybody.

ASSOCIATION OF MAJOR POWER CUSTOMERS OF B.C. PANEL

LAURENCE DAVID BOOTH, Affirmed:

THE CHAIRPERSON: Good morning, Mr. Wallace.

MR. WALLACE: Yes. Mr. Chairman, I had one simple matter. I simply wanted to clarify that yesterday the witness aids to Dr. Booth were emailed to us in the middle of the night. Unfortunately they got buried in a lot of other emails and that's why they were overlooked, and we had that little bit of a fuss yesterday. But we're in good shape.

THE CHAIRPERSON: Good. Excellent. Thank you. I appreciate the clarification, Mr. Wallace. Thank you.

CROSS-EXAMINATION BY MR. GHIKAS (Continued):

MR. GHIKAS: Q: Good morning, Commissioners, Dr. Booth.

DR. BOOTH: A: Good morning.

MR. GHIKAS: Q: Just picking up for a moment where -- towards the end of where we left off on Wednesday, I put you a little bit on the spot, Dr. Booth, with respect to your memories of 2009. And I just wanted to pursue that a little bit. And on page 1396 of the

1 transcript, that would be Volume 7, if I can summarize
2 what I heard from you on that page, and you can feel
3 free to look at that, the crux of what you recall
4 about the 2009 proceeding on the issue of shale gas,
5 because I understood it was that shale gas was in its
6 infancy. Nobody knew about the volume that was
7 actually developed, could cause a collapse in natural
8 gas prices. And secondly that there were dramatically
9 increasing natural gas prices. Does that essentially
10 sum up the gist?
11 DR. BOOTH: A: I think that's correct, except for the
12 fact that there were -- I didn't -- I don't think I
13 said there were dramatically increasing prices. I
14 think I said there were dramatically forecast to be
15 increasing prices. And that shale gas -- people
16 started to realize about shale gas, but it was still
17 in its infancy, and the glut of gas hadn't yet caused
18 a dramatic cline [*sic*] in gas prices the way that it
19 eventually did.
20 MR. GHIKAS: Q: Okay. Now, appreciating that people's
21 memories are what they are, Dr. Booth, I'm going to --
22 well, first of all, you were retained by Mr. Wallace's
23 client, the Joint Industry Electricity Steering
24 Committee, in that proceeding?
25 DR. BOOTH: A: That's correct.
26 MR. GHIKAS: Q: Okay. I'm just going to read an

1 excerpt from JIESC's final argument, and just ask
2 whether you agree with whether it accurately
3 summarized the evidence, okay?
4 "It is ludicrous to suggest that gas is
5 riskier today than in 2005. Prices are at
6 half the level, and huge shale gas finds
7 have been made throughout North America and
8 in particular in B.C. In 2005 there was
9 some risk gas prices would stay high.
10 Today, particularly with the recent shale
11 gas discoveries, there is little chance that
12 they will return to 2005 levels."
13 So is that a synopsis that you would agree fairly
14 summarized the evidence in that proceeding?
15 DR. BOOTH: A: I didn't review final argument. After I
16 testify, I rarely have any input on final argument.
17 So until you read that passage out, I wasn't aware
18 that that's what JIESC said in 2009. And I just
19 repeat that people were aware of shale gas, but in the
20 TQM hearing, about a year before, before the National
21 Energy Board, it was certainly not a factor
22 whatsoever. And in this hearing three years ago, and
23 I think I mentioned it in my testimony, it was
24 primarily a financial risk hearing. My focus was not
25 on business risk of TGI. My focus was on the capital
26 markets, because that was the elephant in the room,

the recovery from the financial crisis. And my recollection at that point in time was that there hadn't been the sizeable drop in natural gas prices that we've seen over the last three years. And I was reminded that TGI at that time was, in answer to a BCUC undertaking, by Ms. Des Brisay, was forecasting a dramatic increase in natural gas prices.

Proceeding Time 8:07 a.m. T2

MR. GHIKAS: Q: And really, Dr. Booth, what I am just trying to get at here is, your evidence today is based on what your recollection -- you've testified, both in your opening statement and in your evidence generally and on Wednesday at the proceeding, with respect to what the scenario was in 2009, and I'm assuming that it's that understanding that you have based your evidence in this proceeding on. Right?

DR. BOOTH: A: That is correct, and if you read my summary in 2009 --

MR. GHIKAS: Q: I don't think anyone has that yet, Dr. Booth, but feel free to read it out. That's fine.

DR. BOOTH: A: Sure. I say on page 4:

> "I do not see any increase in the relative riskiness of TGI since the BCUC increased the deemed common equity ratio from 33 to 35 percent in 2006. If anything, the drop in the price of natural gas may have marginally

1 decreased TGI's risk. However, I do not
2 regard this as material since natural gas
3 prices are volatile, and recommend that the
4 current deemed common equity ratio be
5 maintained. Since I regard the key issue in
6 this hearing to be the impact of the recent
7 stock market volatility, I relegate the
8 discussion of TGI's business risk and
9 financial health to Appendix H."
10 So it's difficult to put my head back into
11 exactly what I was saying in 2009, but I think that
12 summarizes what I was doing in 2009. There was a drop
13 in natural gas prices. I didn't see it as being
14 material because they were volatile. I don't think I
15 mentioned shale gas in my testimony in 2009. I saw
16 the 2009 hearing as we were coming out of the
17 financial crisis and it was primarily what's the state
18 of the capital markets, not the business risk of TGI.
19 MR. GHIKAS: Q: Irrespective of your view of it, would
20 you disagree with the statement that prices at that
21 time, the statement that I read to you from the JIESC
22 submission, that prices are half the level and huge
23 shale gas finds have been made throughout North
24 America, and in particular in B.C.? Do you disagree
25 with that?
26 DR. BOOTH: A: No, I don't disagree with the statement

that there were shale gas fines. I think I agree with the company that as of 2009 there were huge shale gas finds, but we didn't know what the marginal cost of production of shale gas was and we didn't expect to see the dramatic drops in prices that we've actually observed. The information was that there were declines in shale gas. I mentioned them in my testimony. I didn't regard them as material because natural gas prices were volatile and they were not a part of my recommendations in 2009.

MR. GHIKAS: Q: But you don't disagree, Dr. Booth, that there was evidence with respect to gas prices in that proceeding, correct?

DR. BOOTH: A: That's correct. I mentioned them in that summary. I said the natural gas prices have declined.

MR. GHIKAS: Q: Okay. Mr. Chairman --

DR. BOOTH: A: Particularly they're declined since 2008 when there was almost no competitive advantage for natural gas versus electricity.

MR. GHIKAS: Mr. Chairman, yesterday evening I circulated a further package of -- a small package of information to my friend Mr. Wallace, and it has been paginated in the lower right-hand corner with red numerals, and the front page says, "Fair return for Terasen Gas Inc.: Evidence of Laurence Booth Before the BCUC August

2009" and it's a compendium of excerpts from various documents, as was the previous one.

Don't be misled by the exhibit number in the upper right. That's from the previous proceeding. As I understand it, if we can mark this one as we did on the terms that Mr. Wallace and I spoke of on Wednesday, the next exhibit would be B1-51.

THE HEARING OFFICER: Marked Exhibit B1-51.

(COMPENDIUM OF EXTRACTS, FIRST PAGE ENTITLED "FAIR RETURN FOR TERASEN GAS INC (TGI)…AUGUST 2009", MARKED EXHIBIT B1-51)

MR. WALLACE: And Mr. Chairman, I have no complaint with that. I'd just like to add to Mr. Ghikas's statement that it's on the terms as with respect to B1-50 that were discussed on Wednesday.

THE CHAIRPERSON: Yes, I believe Mr. Ghikas said that.

MR. WALLACE: I just wanted to specify the exhibit number --

THE CHAIRPERSON: Oh, I'm sorry, okay.

MR. WALLACE: -- so that there is a relationship and anyone going back could find it.

MR. GHIKAS: Q: Okay. Now, Dr. Booth, are you aware that FEI's commodity rate is set quarterly by the Commission?

DR. BOOTH: A: Yes.

MR. GHIKAS: Q: Okay. And you're aware that's publicly

1 available information on the Commission website?
2 DR. BOOTH: A: Well, I wasn't aware but it doesn't
3 surprise me.
4 MR. GHIKAS: Q: Okay.
5 DR. BOOTH: A: I think it is in Ontario and most
6 places.
7 MR. GHIKAS: Q: Okay. Now, if we can turn to the new
8 package to page 9, red number 9 in the lower right-
9 hand corner, this is something that Fortis has
10 prepared for the purpose of this proceeding and it
11 just sets out the quarterly commodity price changes
12 from 2005 to 2012. Would you accept subject to check
13 that this is an accurate synopsis of the Commission
14 determinations?
15 **Proceeding Time 8:12 a.m. T03**
16 DR. BOOTH: A: Yes, I have no reason to disagree with
17 it, and as I said, I recognized in my testimony in
18 2009 there had been a decrease in the cost of natural
19 gas. But I didn't regard it as material because of
20 the volatility in natural gas prices.
21 MR. GHIKAS: Q: Okay. And thank you for that. And if
22 you can go over to the next page, this again is
23 something that Fortis has prepared for the purposes of
24 this proceeding. And you've given evidence with
25 respect to gas prices in this proceeding, and so what
26 Fortis has done is actually put NYMEX Prompt Month Gas

1 prices, tracked them as they were throughout the year
2 in 2005, which is the blue line; 2009, which is the
3 red line; and 2012, which is the green line. And I'd
4 just ask you to accept, subject to check, that those
5 are accurate reflection of the NYMEX Prompt Month Gas.
6 DR. BOOTH: A: I have no reason to disagree with them.
7 MR. GHIKAS: Q: Thank you.
8 DR. BOOTH: A: I don't track gas prices on a monthly
9 basis like this, but I have no reason to believe
10 they're not accurate.
11 MR. GHIKAS: Q: Thank you, sir. Now, if we just deal
12 -- pages 11 to 14 of that package, Dr. Booth, these
13 are IRs 22.1 and -- sorry. BCUC to Terasen Gas, now
14 Fortis, IR 22.1 and 33.2, from the 2009 proceeding.
15 And do you accept, subject to check, that these were
16 in fact in the record in 2009?
17 DR. BOOTH: A: I have no reason to believe that they're
18 not accurate.
19 MR. GHIKAS: Q: Thank you. Now, the --
20 DR. BOOTH: A: In particular, the decline in the
21 competitive advantage of natural gas to electricity
22 from 63 percent to 18 percent, that certainly is in
23 line with my thinking and perceptions of 2009.
24 MR. GHIKAS: Q: Now, Dr. Booth, on page 2 of your
25 opening statement, C6-22, just at the very top there
26 you make the point, "The company and its witnesses

1 stress that in the hearing -- the hearing was in late
2 2009, but the bulk of the evidentiary record was put
3 together in a period of real financial crisis and the
4 memory of this was very much in the -- uppermost in
5 people's minds."
6 Now, just dealing with -- in the package
7 that I have handed out last night, or distributed last
8 night to you, B1-51, the first document, which you
9 have already referred to, these are excerpts of the
10 overview and introduction of your evidence in 2009.
11 DR. BOOTH: A: That's correct.
12 MR. GHIKAS: Q: Okay. And just on page -- red page 3,
13 the first page of your executive summary, at line 27,
14 that's the synopsis of your view about how -- about
15 the financial conditions at the time you filed your
16 evidence, correct?
17 DR. BOOTH: A: That's correct.
18 MR. GHIKAS: Q: Okay. Now, just moving on to another
19 issue, Dr. Booth, I think you can put aside that
20 package for now.
21 DR. BOOTH: A: Well, just on that issue, I'm surprised
22 I didn't say it was the worst financial crisis for 70
23 years, because that's something that I was saying.
24 When I was putting together the opening statement, I
25 went back to 2009 and I read this, and I was surprised
26 that in 2009, right at the bottom of the red page 4,

1 my page 3, instead of my recommended ROE I actually
2 said
3 "My recommended ROE is less than the 2009
4 allowed ROE that results from the
5 application of the BCUC formula. However,
6 fairness has a variety of connotations and
7 I'd recommend that the BCUC maintain their
8 ROE formula indefinitely since like most
9 such formulae in Canada it has done a
10 remarkably good job of awarding ROEs that
11 were within a zone of reasonableness, while
12 minimizing repetitive testing. It is also
13 broadly consistent with awarding allowed
14 ROEs consistent with adjustment formulae
15 used elsewhere in Canada."
16 So partly that motivation for that
17 statement in the opening statement, which I went back
18 to what I said in 2009, and I was struck by the fact
19 that I was recommending that the BCUC keep its
20 formula, even though it was giving higher allowed ROEs
21 than my recommended ROE. And as far as I am aware,
22 I've never done that anywhere else. So, I may have
23 done it in other hearings about this time. But it
24 imprinted on my memory that although we were
25 recovering from the financial crisis in 2009, the fact
26 is the financial crisis in 2009 was certainly

1 uppermost in my mind. As I said in my testimony, I
2 saw that as the focus of my evidence. And despite the
3 improving financial market conditions, I didn't
4 recommend that the board -- the Commission accept my
5 recommendation. I recommended a higher rate that they
6 continue with their ROE formula. And as I said, I
7 don't think I've ever done that before.
8 **Proceeding Time 8:17 a.m. T4**
9 MR. GHIKAS: Q: So if we're going to get out of here
10 today, Dr. Booth, we're going to have to stick with
11 the questions, okay?
12 DR. BOOTH: A: Okay.
13 MR. GHIKAS: Q: Okay. Moving on to another issue with
14 respect to Gaz Métro, we were discussing on page 1391
15 of Volume 7 of the transcript, and I'm not going to
16 specifically cite anything. I just want to make sure
17 that the record is actually clear on this. You'd
18 agree with me, Dr. Booth, that the Régie awards
19 allowed preferred share return on the deemed preferred
20 shares, correct?
21 DR. BOOTH: A: That's correct.
22 MR. GHIKAS: Q: Okay. And because they're deemed
23 preferred shares, the utility can finance them with
24 debt.
25 DR. BOOTH: A: My understanding is it can finance it
26 any way they like. They can finance it with common

1 equity if they wanted to.
2 MR. GHIKAS: Q: Okay. And they do in fact finance them
3 with debt, correct?
4 DR. BOOTH: A: I'm not aware of the actual financing,
5 but it wouldn't surprise me. Deeming them is just
6 like having the utility shareholders own both the
7 preferred shares and the common shares in the sense
8 that they don't sort of generate any incremental risk
9 to the common shareholder.
10 MR. GHIKAS: Q: Now, we may not need to turn there, Dr.
11 Booth, but the way to determine how they finance them
12 would be to look at the actual capital structure
13 issues of the company, correct?
14 DR. BOOTH: A: Correct, except for the fact that for
15 most utilities there's a difference between the actual
16 capital structures and the regulated capital
17 structures in the sense that even for a company like
18 Enbridge Gas Distribution, there's intra-corporate
19 transactions that muddy the picture.
20 MR. GHIKAS: Q: Exactly, and what I'm referring to is
21 you would look at how they actually finance, their
22 actual capital structure, not the allowed. That's how
23 you would determine how they finance them.
24 DR. BOOTH: A: That's correct, subject to the caveat
25 that you can actually read the financial statements
26 and work out what they're financing, whether they're

1 financing the regulated utility assets versus some
2 non-regulated assets within the same corporate
3 structure.
4 MR. GHIKAS: Q: Well, we don't have to go there for our
5 purposes, Dr. Booth, but Ms. McShane I think sets out
6 in Schedule 5, page 2 of 2 of the actual market
7 capital structure. So we'll just leave it at that for
8 now, thank you, on that issue.
9 Now, we left off -- I sort of changed
10 course in the middle of looking at your capital
11 structure evidence, and maybe we can go back, Dr.
12 Booth, if you'll join me at page 43 of your evidence,
13 Exhibit C6-12, and back to line 13 where we were
14 discussing it, discussing previously how you had gone
15 about describing your analysis with respect to capital
16 structure.
17 And you'll recall yesterday that we
18 discussed how ATCO Gas hadn't made it into the passage
19 in lines 13 to 17. And what I want to deal with right
20 now is why that was the case, and you've provided an
21 explanation up on line 4 of page 43, and you indicate
22 there that
23 "I regard the increase in ATCO Gas's common
24 equity ratio as reflecting the extreme
25 capital market conditions of 2009 rather
26 than any increase in business risk."

1 And just before we dive into that, Dr.
2 Booth, ATCO was given a common equity ratio of 39
3 percent in 2009?
4 DR. BOOTH: A: That is correct.
5 MR. GHIKAS: Q: Okay. Now, first of all, in that
6 statement you make at line 4, you're not actually
7 quoting the decision, are you?
8 DR. BOOTH: A: No. I'm just saying that I was in that
9 hearing and again that hearing was in 2009. There was
10 nothing as far as I remember on the table of
11 significance in terms of changes in business risk.
12 It was a hearing like this one, dealing
13 with the impact of the financial crisis. And the AUC
14 increased the common equity ratios across the board by
15 one to two percent. And changed the allowed ROE. And
16 I regarded that as being in response to the financial
17 crisis.
18 **Proceeding Time 8:22 a.m. T05**
19 MR. GHIKAS: Q: And that's your interpretation of the
20 decision and if we want to see her reasoning, we'd
21 best look at the decision, correct?
22 DR. BOOTH: A: That's correct.
23 MR. GHIKAS: Q: Okay. Now, Dr. Booth, I am a little
24 perplexed by why you would be citing the decision in
25 2009 as reflecting extreme capital market conditions
26 and not mentioning in your evidence that ATCO had had

1 its 39 percent common equity ratio reaffirmed in 2011.
2 DR. BOOTH: A: Because 2009 was the date when they
3 changed the common equity ratio. Before that, it was
4 38 percent. And that was when they made this one to
5 two percent across the board increasing common equity
6 ratio.
7 MR. GHIKAS: Q: Dr. Booth, you would agree with me that
8 2011 was after you considered financial stress to have
9 disappeared form the system?
10 DR. BOOTH: A: I certainly think that it disappeared
11 from the system. I think that it disappeared from the
12 system now. But the AUC did not agree.
13 MR. GHIKAS: Q: Okay. And you would accept, and maybe
14 we can turn to pages 26 and 27 of the initial package
15 that I provided on Wednesday, Exhibit B1-50 -- this is
16 on pages 26 and 27 of that document. You would accept
17 that this is a reflection of your transcript before
18 the AUC in 2011?
19 DR. BOOTH: A: Correct.
20 MR. GHIKAS: Q: Okay. And if we look at lines 1 to 5,
21 that is your indication to the AUC that there is no
22 stress in the financial system.
23 DR. BOOTH: A: That's right. This is referring
24 obviously to Canada. "Two years later, as I have
25 discussed in my pre-filed testimony, I have been
26 proven correct in terms of the recovery in Canada. We

1 have recovered all the lost jobs due to the recession,
2 there is no stress in the financial system." That's
3 all with respect to Canada. And as you can see,
4 starting on line 9, in contrast, the stress is not
5 within Canada. The stress is from outside Canada.
6 That was the case in 2011 and it continues to be the
7 case now.
8 MR. GHIKAS: Q: And it wasn't just you in that
9 proceeding that was indicating that financial stress
10 had disappeared from the system and the crisis had
11 passed. The utilities' consumer advocate was also
12 making the same point, as I understand it. Correct?
13 DR. BOOTH: A: That wouldn't surprise me.
14 MR. GHIKAS: Q: I'm sure it wouldn't, Dr. Booth. I was
15 quoting your IR response.
16 DR. BOOTH: A: Okay, fine. The --
17 MR. GHIKAS: Q: The FBCU Utility Customer 12.1, if you
18 need to go there. But you would accept that --
19 DR. BOOTH: A: That's right.
20 MR. GHIKAS: Q: -- you were making that point.
21 DR. BOOTH: A: If I remember correctly, as I mentioned
22 before, Mr. Ghikas, I was asked specifically to look
23 at ATCO pipeline on behalf of the Canadian Association
24 of Petroleum Producers. I did not intervene and
25 provide recommendations in terms of capital structure
26 for all the AUC utilities. But my understanding is,

1 the Utility Advocate put forward evidence by Dr.
2 Kryzanowski and Dr. Robert, and they did suggest that
3 the common equity ratios be rolled back because the
4 impact of the financial crisis in Canada had
5 disappeared. And the AUC disagreed with them.
6 MR. GHIKAS: Q: Just for clarity, Dr. Booth, for those
7 who aren't familiar, the Utilities' Consumer Advocate
8 that you're referring to, that's a customer
9 representative group, not actually the utilities
10 group, correct?
11 DR. BOOTH: A: It's not the utilities, you're right.
12 MR. GHIKAS: Q: Right.
13 DR. BOOTH: A: I'm not quite sure who they represent.
14 I've never had any contact with them.
15 MR. GHIKAS: Q: Okay. I was just trying to clarify,
16 Dr. Booth, just because you were calling it the
17 utilities' advocate, and that may have made people
18 confused.
19 DR. BOOTH: A: Sorry. I'm sure that they must be some
20 body put forward by a legislature to advocate a
21 position on behalf of ratepayers and consumers. I
22 can't swear that that's what it is, but I'm sure it's
23 something like that.
24 MR. GHIKAS: Q: Now, Dr. Booth, if we go back to page
25 43 of your testimony, and back down at the bottom of
26 the page there, and just -- at this point, I'm just

1 trying to figure out what you're doing, and you'll
2 have an explanation of -- you can -- you will have an
3 opportunity to explain why it is you were doing it in
4 a moment, but just in terms of what you were doing.
5 So you indicate that you have compared --
6 you have gone through some comparators, Union, EGDI,
7 and Gaz Métro, and you indicate that FEI, based on
8 those comparators, would warrant a common equity ratio
9 of 37 percent. And then you indicate,
10 "However, I would recommend the same 35
11 percent I recommended in 2009."
12 And we'll -- and you go on.
13 "Capital market conditions are much improved
14 from 2009 and it's difficult to see how the
15 vast expansion in shale gas and consequent
16 collapse in natural gas prices has done
17 anything but reduce FEI's business risk."
18 So what you did there, Dr. Booth, is you
19 looked at the comparators which yielded 37 percent in
20 your mind, and then you rounded down to the nearest 5?
21 **Proceeding Time 8:28 a.m. T6**
22 DR. BOOTH: A: No. Can I explain?
23 MR. GHIKAS: Q: You may. You may.
24 DR. BOOTH: A: As I said on Wednesday, I've been
25 recommending 35 percent for gas electric distributors
26 for at least the last ten years. I recommended 35

1 percent for Union. I recommended 35 percent for
2 Enbridge. I recommend 35 percent for ATCO Gas. I'm
3 recommending 35 percent for FEI. The only one of
4 those that I don't recommend 35 percent for is Gaz
5 Métro because they had this tremendous competition
6 from electricity. And if I didn't say in 2009, I have
7 certainly said it elsewhere, I regard ATCO -- sorry, I
8 regard Gaz Métro as the riskiest of all of the major
9 utilities. I used to regard P&G as the riskiest
10 overall, but that's a tiny little utility, not on a
11 par with the big utilities in Canada.
12 So apart from Gaz Métro at 38.5, I've
13 recommended 35 percent for all of these other
14 utilities. That is my recommendation. On line 13 I
15 said, I'm basically talking about comparators, not
16 what I would recommend because I recommend 35 percent
17 for all of them. But based upon these comparators,
18 you've got 37 to 38.5 percent. So -- sorry, 36
19 percent Union and EGDI, because that's what they're
20 currently allowed, to 38.5 percent for Gaz Métro. And
21 even if you look at ATCO Gas at 39, I would regard
22 some of that as being part of the financial crisis.
23 And even if you knock off half of 1 percent you're
24 within that range.
25 MR. GHIKAS: Q: Now, Dr. Booth, what confuses me
26 somewhat about the analysis that you've cited here at

1 lines 15 to 17 is that on one hand, as I understand
2 it, you're maintaining that the improvement in capital
3 markets in 2011 has the basis for disregarding some of
4 the comparator analysis you've set out in that
5 paragraph, at the same breath in lines 4 and 6 as
6 maintaining the extreme capital market conditions of
7 2009 as the reason for excluding ATCO Gas in 2011,
8 even though the AUC had reaffirmed that. Do you not
9 see any inconsistency there?
10 DR. BOOTH: A: No. If I'd been asked to put in
11 testimony on ATCO Gas in 2011, I would have told the
12 AUC that the impact of the financial crisis had
13 disappeared within Canada, that the Canadian financial
14 system was functioning perfectly normally, that we'd
15 recovered all of our jobs, and the need for higher
16 common equity ratios had disappeared. And as a
17 result, I would have had the same recommendation as it
18 appears Drs. Kryzanowski and Roberts had, that I would
19 have recommended a rollback in those common equity
20 ratios.
21 In determining the capital structure, the
22 number one criteria for most regulators is the
23 business risk of the utility. The second criteria is
24 always capital market conditions. Even if the
25 business risk has gone down, so you say, well, give
26 them a lower common equity ratio, if the capital

1 market conditions means that that's not financeable,
2 then that's not a reasonable recommendation.
3 And all I'm saying here is consistent with
4 my business risk analysis, you look at the business
5 risk to determine the capital structure, but you also
6 have to look, is it financeable? What are the capital
7 market conditions?
8 MR. GHIKAS: Q: Okay. Dr. Booth, when you cite in
9 lines 15 to 17 "Capital market conditions are much
10 improved from 2009 and it's difficult to see how the
11 vast expansion in shale gas and consequent collapse in
12 natural gas prices has done anything but reduce FEI's
13 business risk as the basis for moving down to 35", you
14 don't mention that the Régie had reaffirmed Gaz
15 Métro's capital structure in 2011, do you?
16 DR. BOOTH: A: That's just a summary statement. All
17 I'm doing is saying there's two things that are
18 important here and I'm just summarizing those two
19 things. I don't go through and say anything other
20 than those things, that capital market conditions have
21 improved and the business risk has probably gone --
22 has gone down. I don't mention the Régie and I don't
23 mention a variety of decisions.
24 MR. GHIKAS: Q: Well, you chose to mention those, and
25 I'm asking you, wouldn't it have been relevant, if
26 you're using shale gas and improved market conditions

1 in 2009 as the basis for rounding -- sorry, reducing
2 from what the comparators indicated you cited,
3 wouldn't it have been relevant to mention that those
4 decisions -- those capital structures you're citing
5 for the comparators had been reaffirmed? That's not
6 relevant?
7 **Proceeding Time 8:33 a.m. T07**
8 DR. BOOTH: A: The Régie hasn't changed. Gas Métro is
9 38.5 percent common equity ratio for a long period of
10 time. I can't remember when they put that in place,
11 but it hasn't been a factor. I haven't recommended
12 that the 38.5 percent be changed. Before the Régie,
13 I've simply recognized that they recognized that the
14 deeming of the preferred shares is in fact an
15 adjustment for risk.
16 And I'll draw your attention to page 42,
17 where we had the comparison of the cost advantage of
18 natural gas against electricity. Quebec really is in
19 a totally different position to the other provinces,
20 the -- Hydro-Quebec is incredibly competitive. And
21 this comparison -- I've forgotten what years this
22 comparison was for, but this is after the reduction in
23 natural gas prices. There has been times in Quebec
24 where the Régie has had to take measures to protect
25 natural gas and the position of Gaz Métro.
26 So, as I've said, I don't know whether I

1 mentioned in 2009, but I have consistently said that
2 Gaz Métro I regard as the riskiest of the major
3 utilities in Canada.
4 MR. GHIKAS: Q: So, just breaking it down, Dr. Booth,
5 the Régie heard a Gaz Métro proceeding in 2011 and
6 that is after shale gas had increased supply and
7 lowered prices.
8 DR. BOOTH: A: That's correct.
9 MR. GHIKAS: Q: Thank you.
10 DR. BOOTH: A: And all -- the qualification I'm just
11 making there is that natural gas in Quebec is not as
12 competitive with electricity as it is elsewhere in
13 Canada. As we can see from the penetration data that
14 Ms. McShane put together, it's got the lowest
15 penetration. As we can see from the answer in terms
16 of -- on page 42, in terms of competitors for natural
17 gas. So, Gaz Métro is a different situation. As I
18 have said repeatedly, it's the only gas utility that I
19 do not recommend 35 percent common equity for.
20 MR. GHIKAS: Q: Dr. Booth, you testified before the
21 Régie in 2011, didn't you?
22 DR. BOOTH: A: Correct.
23 MR. GHIKAS: Q: Okay. If you can turn to page 14 of
24 the initial package, the particular one, B1-50, Dr.
25 Booth, this document marked "Fair return and capital
26 structure for Gaz Métro, evidence of Lawrence Booth,"

1 that -- these are carrying over to page -- I believe
2 it's 18. These are excerpts from your testimony in
3 that proceeding?
4 DR. BOOTH: A: That's correct.
5 MR. GHIKAS: Q: And if we turn over to page 16, I just
6 -- if you can just look at paragraph 1 of the
7 executive summary, Dr. Booth, I just want to confirm
8 that your evidence in 2011 was that
9 "Gaz Métro's business risk has continued to
10 decline. The development of shale gas over
11 the last few years is a game changer and
12 even with record high inventories the price
13 of natural gas has declined making it very
14 competitive in all markets, with both
15 electricity and fuel oil. Longer term
16 development of Quebec's shale gas reserves
17 will only enhance this, but this is far
18 enough away that I place no weight on it at
19 present."
20 That was your advice to the Régie in 2011, sir?
21 DR. BOOTH: A: That's correct.
22 MR. GHIKAS: Q: Okay.
23 DR. BOOTH: A: The natural gas actually had a
24 competitive advantage over electricity in Quebec. So
25 its position had improved. But, Mr. Ghikas, I first
26 testified in Gaz Métro with my late colleague, Dr.

1 Berkowitz. I think it was 1997. And I remember the
2 Chair of the Régie questioned us, and he asked us
3 point-blank, "Do you recognize enormous …" -- I mean,
4 I'm paraphrasing. This is going back 15 years. But,
5 "Do you recognize the enormous measures we have had to
6 take to protect this utility?" And that, the fact is
7 that the Régie has had to take deep measures to
8 protect Gaz Métro to make sure that they can earn
9 their allowed ROE.
10 So, I was pointing out here that shale gas
11 had made natural gas more competitive, but it is still
12 on the cusp of being competitive with electricity.
13 And is in a completely different position than the
14 other gas utilities in Canada. And as you notice, I
15 did not recommend that they change their capital
16 structure. I just recommended that they don't double
17 count the high business risk of Gaz Métro in both the
18 deemed common equity ratio and allow them an addition
19 to their ROE. I basically said keep the deemed
20 preferred equity and remove the premium to the ROE.
21 **Proceeding Time 8:38 a.m. T8**
22 MR. GHIKAS: Q: And in the face of your evidence the
23 Régie affirmed the capital structure it had put in
24 place in 2009.
25 DR. BOOTH: A: Correct. I never recommended they
26 change their capital structure. I never recommended

they remove the preferred shares and I never recommended that they change the 38.5 percent common equity.

MR. GHIKAS: Q: I understand, Dr. Booth, thank you. And in paragraph 3 on page 16, paragraph 3, you're indicating that financial stress had almost disappeared from the system, correct?

DR. BOOTH: A: That's correct. That was a 2011 hearing and same as the AUC. The financial stress had almost disappeared, it had disappeared. We can see that from the Financial Stress Index for the Kansas City Fed in the United States. We can see that from the Bank of Canada's Financial Conditions Index.

MR. GHIKAS: Q: And Dr. Booth, in the case of Union Gas, you also filed evidence in that proceeding?

DR. BOOTH: A: That's correct.

MR. GHIKAS: Q: Okay. And if you turn to page 23 of that package, there's a document or excerpts from a document Business Risk and Capital Structure, Evidence for Union Gas, Evidence of Lawrence Booth Before the OEB, May 2012. This is excerpts from your evidence in that proceeding?

DR. BOOTH: A: That is correct, and I think these excerpts are exactly the same in my testimony before this Commission.

MR. GHIKAS: Q: And I just want to confirm, Dr. Booth,

that before the OEB in the Union Gas proceeding, and I can refer you if you need, to page 24 of the package, line 9, you're referring in that proceeding as well to the emergence of shale gas as a game changer, correct?

DR. BOOTH: A: That is correct, and I use the phrase "game changer" because that actually was TransCanada's Pipeline's phase that they used before the Ontario Energy Board when they had a hearing in -- well, in this hearing referred in the bottom of page -- in the footnote 17. It was TransCanada that referred to shale gas as a game changer.

MR. GHIKAS: Q: Now, when it comes to --

DR. BOOTH: A: That's why it's in quotes.

MR. GHIKAS: Q: When it comes to FEI's access to natural gas supply, including the basins where shale gas is being developed, the infrastructure to get that gas to FEI's service area hasn't changed since 2005 in any material way, has it?

DR. BOOTH: A: No, it's still the Westcoast Transmission Line and it's still one line coming into the Lower Mainland, which is a huge advantage for Westcoast.

MR. GHIKAS: Q: You would agree with me, Dr. Booth, that for the Ontario LDCs like Union and Enbridge Gas Distribution, they have greater supply options due to the shale gas development in the United States, like

1 the Marcellus, correct?
2 DR. BOOTH: A: Absolutely. It's a really significant
3 change in Ontario. The parents of Union Gas and
4 Enbridge Gas Distribution, Spectra and Enbridge Inc.,
5 have plans for one BCF pipeline from Marcellus into
6 Dawn, and Gas Métro basically has indicated within the
7 next three years they'll decontract from Western
8 Canadian Sedimentary Basin and source all their gas
9 from Dawn. I referred this to the NEB in 2008. At
10 that time they rejected that argument, but now I think
11 it's a matter of fact, that all of the big eastern gas
12 distributors are moving away from Western Canada.
13 Western Canada gas might still get there because
14 they'll go to Dawn and then some of it will be picked
15 up. But Dawn is becoming a really viable hub for
16 natural gas in eastern markets.
17 MR. GHIKAS: Q: And as a result we're seeing
18 decontracting on the east-west TCPL mainline, correct?
19 DR. BOOTH: A: That's correct. The mainline basically
20 has got three zones. The prairie zone is viable. The
21 eastern triangle, which serves Quebec and Ontario, is
22 viable. But the northern Ontario line, which is the
23 middle line that takes it all away to Ontario,
24 probably is not viable. It's basically a peaking line
25 now rather than a pipeline that carries gas all the
26 time to eastern markets. That's why TransCanada is

1 before the NEB trying to basically write down those
2 assets and move the value of those assets elsewhere,
3 so it can recover the costs from other customers.
4 **Proceeding Time 8:44 a.m. T09**
5 MR. GHIKAS: Q: Can you confirm for me, Dr. Booth, that
6 no Canadian gas LDC has had its capital structure --
7 that has had its capital structure considered since
8 2009 has had its common equity ratio reduced due to
9 shale gas?
10 DR. BOOTH: A: No. I can think of a Canadian gas
11 distributor that's had their common equity ratio
12 reduced, which is Enbridge Gas Distribution. They had
13 it reduced from 50 percent to 45 percent. But the
14 Union -- the OEB confirmed the 36 percent. Enbridge
15 Gas, the decision hasn't come out. And Gaz Métro I
16 didn't recommend any reduction of the common equity
17 ratio.
18 MR. GHIKAS: Q: The utility, the Enbridge utility that
19 you just referred to, that's Enbridge Gas New
20 Brunswick, correct?
21 DR. BOOTH: A: Enbridge Gas New Brunswick, that's
22 correct.
23 MR. GHIKAS: Q: And that's a relatively new immature
24 utility?
25 DR. BOOTH: A: Oh, very immature. So immature -- it's
26 like Heritage Gas in Nova Scotia. They rolled out the

1 pipe in order to capture the gas market, thinking that
2 they were going to get all this gas from Sable off the
3 east coast, and then discovered it was incredibly
4 difficult getting people to switch from electricity.
5 So their penetration has come nowhere close to what
6 they anticipated.
7 MR. GHIKAS: Q: And the capital structure reduction
8 that you're referring to with respect to that utility,
9 sir, is just a function of that utility growing over
10 time, isn't it?
11 DR. BOOTH: A: That's correct. In fact, the utility
12 forecast that its common equity ratio was going to go
13 down to 40 percent. I think that would have been in
14 about -- I can't remember the exact dates, but it was
15 about five years from the time of the hearing, so that
16 would have put it about 2015. And I recommended that
17 that should be implemented straight away, and the
18 Board sawed it off and gave them 45 percent.
19 MR. GHIKAS: Q: So let me return, Dr. Booth, to the
20 question that I asked you first of all, which was -- I
21 asked you to confirm that no Canadian gas local
22 distribution utility that has had its capital
23 structure considered since 2009 has had its common
24 equity ratio reduced due to shale gas.
25 DR. BOOTH: A: That's correct. For the end -- the only
26 one, as I think I've pointed out, would have been

1 Union Gas. And there, I recommended 35 percent, the
2 same as I always recommend. And the Board confirmed
3 36 percent. And they did not cut it to 35 percent.
4 MR. GHIKAS: Q: And no Canadian gas LDC that has had
5 its capital structure reviewed since 2009 has had its
6 common equity ratio reduced due to improved financial
7 market conditions either. Right?
8 DR. BOOTH: A: Generally I recommend that the capital
9 structure is set based upon the business risk.
10 Capital market conditions should be reflected in the
11 return on equity. Some boards reflect capital market
12 conditions of both the common equity ratio and the
13 return on equity. Whenever you look at common equity
14 ratios that are mentioned, you have to look at capital
15 market conditions as well. The Alberta Board
16 specifically looked at interest coverage ratios in the
17 AUC in 2011. I do not recommend common equity ratio
18 changes unless there has been a significant change in
19 business risk. So the answer to that is, yes.
20 MR. GHIKAS: Q: Okay, hold on a second. I asked you
21 whether the common equity ratio of any local gas
22 distribution utility that has had its capital
23 structure reviewed since 2009 had a reduction in the
24 common equity ratio as a result of improved financial
25 conditions. The answer is no, right?
26 DR. BOOTH: A: Oh, sorry. Sorry. The answer is no,

because generally I don't recommend that common equity ratios be changed in response to capital market conditions. That's the job of the ROE. Common equity ratios should be in terms of business risk. So I'm sorry if I said yes instead of no, but I think my explanation was consistent with that answer.

MR. GHIKAS: Q: And, Dr. Booth, just turning to your opening statement for a moment, at the bottom of page 1, you make a comment about six lines up from the bottom. You say,

> "Even after the carbon tax, the competitive position of FEI is only slightly behind that of Union Gas and EGDI in their markets."

And what I had -- and in speaking to that, Dr. Booth, you're referring to price competitiveness, correct?

DR. BOOTH: A: That's correct. I am referring specifically to the data provided in answer to an Information Request on page 42 of my testimony.

Proceeding Time 8:49 a.m. T10

MR. GHIKAS: Q: Okay. Can you go to page 42 for a moment, sir?

DR. BOOTH: A: I've never left it. It's been in front of me all the time.

MR. GHIKAS: Q: Thank you. So just looking at this graph here, in all cases the -- in case people are in

1 black and white, in all cases the taller bars are
2 electricity, correct?
3 DR. BOOTH: A: That is correct.
4 MR. GHIKAS: Q: Okay. And the lower bars are in all
5 cases natural gas.
6 DR. BOOTH: A: That is correct.
7 MR. GHIKAS: Q: Okay, and we're dealing with prices
8 here.
9 DR. BOOTH: A: That's correct. Well, natural gas --
10 MR. GHIKAS: Q: The difference between electricity
11 prices and natural gas prices.
12 DR. BOOTH: A: Well, it's consumption of natural gas
13 versus electricity based upon 100 GJs.
14 MR. GHIKAS: Q: Thank you. I take that correction.
15 You're absolutely right. Now, FEI is in B.C., right?
16 DR. BOOTH: A: Yes, I think we can agree on that.
17 MR. GHIKAS: Q: Right, okay, good. There's always --
18 DR. BOOTH: A: As I said, I prefer to call it BC Gas
19 but --
20 MR. GHIKAS: Q: We'll accept small miracles there,
21 okay. And in Ontario, that's Enbridge Gas
22 Distribution Inc. and Union Gas is in -- they're in
23 Ontario, right?
24 DR. BOOTH: A: That's correct.
25 MR. GHIKAS: Q: And so the difference in B.C. being 53
26 percent and the difference in Ontario being 76

1 percent, I believe, that is what causes you to say
2 that FEI is only slightly behind that of Union Gas and
3 EGDI and their markets, right?
4 DR. BOOTH: A: Yeah, you've got two things there.
5 You've got the cost of gas itself and you've got the
6 cost of electricity. And electricity is a bigger
7 competitor in B.C. than it is in Ontario, and also in
8 Alberta because you're lucky and you've got ample
9 hydro supplies, whereas we've run out of hydro and
10 we're -- so add cost of electricity is high in
11 Ontario. If you look at the gas, that's mainly, I
12 would suspect, the fact that Ontario is a lot further
13 away from Western Canadian Sedimentary Basin, and the
14 tolls on the TransCanada system are that much higher.
15 And the same for Gas Métro in Quebec. They're at the
16 end of the system so their tolls are even higher.
17 So I suspect that the natural gas, the main
18 factor -- I mean there's other factors as well,
19 weather and other costs, but a lot of that is
20 transportation costs.
21 MR. GHIKAS: Q: Dr. Booth, just before I dive into
22 individual aspects of the business risk analysis in
23 your evidence, if we can just go to page 27 here just
24 really high level, we'll keep it at a high level and
25 we'll dive into it in a middle, okay? So just at a
26 really basis level starting at page 27, that's your

business risk analysis. And the topics that you discuss, if I can say, you first essentially deal with the issue of allowed versus achieved ROEs?

DR. BOOTH: A: That's correct.

MR. GHIKAS: Q: Okay, and then if we flip forward, that carries on to 34, and then you turn to the issue of commodity prices and the shale gas -- the development of shale gas. Right?

DR. BOOTH: A: That's correct. Basically short-run risk return on capital, and then long-run risk return of capital.

MR. GHIKAS: Q: Okay. And that carries on through to, let's see --

DR. BOOTH: A: 43.

MR. GHIKAS: Q: -- to 39. Oh, there's -- yeah, to 39, but then you deal -- you focus in on an aspect of that on 39 dealing with customer attachments, right?

DR. BOOTH: A: Correct.

MR. GHIKAS: Q: And then you deal with loss of industrial customers on 40, right?

DR. BOOTH: A: Correct.

MR. GHIKAS: Q: And then you arrive at your conclusion on 41, right?

DR. BOOTH: A: Correct.

MR. GHIKAS: Q: Okay. So just let's go through some of these elements that you've dealt with. First of all

let's talk about -- let's talk about shale gas for a minute. You'd agree with me that your discussion with respect to shale gas is directed to commodity prices, right?

DR. BOOTH: A: That's correct. It's only one part of delivered cost of gas.

MR. GHIKAS: Q: Right. Well, that's what I want to get at here, because in all of that discussion I actually didn't see any reference to the fact that the delivered cost of gas contained in the other component. So let's just go through them if you will, Dr. Booth.

DR. BOOTH: A: Well, it's there in 42, because that's the cost of heating a residential home, so that includes everything.

Proceeding Time 8:54 a.m. T11

MR. GHIKAS: Q: Let's break it down, okay? For an FEI customer, their total bill includes a fixed charge, right?

DR. BOOTH: A: Correct.

MR. GHIKAS: Q: Okay. And the fixed charge being a fixed charge, doesn't fluctuate with commodity prices.

DR. BOOTH: A: That's why it's fixed.

MR. GHIKAS: Q: Right. And the customer's bill also includes a delivery rate.

DR. BOOTH: A: Correct.

MR. GHIKAS: Q: Okay. And the delivery rate isn't affected by the commodity prices either, right? In a direct sense.

DR. BOOTH: A: No, I have -- a delivered rate -- I thought you were talking about the quarterly rate that the Board sets for the cost of the gas.

MR. GHIKAS: Q: Okay. So let me back out. The delivery rate being the rate that's set in a revenue requirements proceeding. So we're talking about -- let's back up.

An aspect of what the customer sees on their bill is a charge that is levied, that is essentially taking the delivery system costs and dividing it by the amount of throughput in GJs to arrive at a delivery rate.

DR. BOOTH: A: Yes.

MR. GHIKAS: Q: Okay. And since that delivery rate is charged to the customer on a per-GJ basis, the bill impact that the customer sees with respect to the delivery charge depends on how much gas they consume. Right?

DR. BOOTH: A: That's correct. It depends how much of the total system costs are recovered in a flat rate fixed cost, and how much you put through as a commodity charge.

MR. GHIKAS: Q: Well, the commodity charge I'm going to

1 --
2 DR. BOOTH: A: Well, sorry. Use charge.
3 MR. GHIKAS: Q: Use charge, okay. Well, we'll refer to
4 it -- we refer to it here as a delivery charge, but I
5 think we're talking about the same thing.
6 DR. BOOTH: A: Okay.
7 MR. GHIKAS: Q: Now, in addition to that, the customer
8 in B.C. sees a carbon tax charged on the natural gas
9 commodity, right?
10 DR. BOOTH: A: Correct.
11 MR. GHIKAS: Q: And they don't pay that on electricity.
12 DR. BOOTH: A: As far as I know, no.
13 MR. GHIKAS: Q: Okay. Now, in FEI's case the customers
14 also pay what's called a mid-stream rate? Dealing
15 with mid-stream storage and the costs of that type of
16 thing as well.
17 DR. BOOTH: A: That's correct.
18 MR. GHIKAS: Q: Okay. Now, with respect to the peer
19 commodity now, we're back to the peer commodity, with
20 respect to that portion of the bill, can we agree that
21 the less gas a customer tends to consume on an annual
22 basis, the less the customer's bill will differ in
23 absolute dollar terms as a result of commodity price
24 changes?
25 DR. BOOTH: A: Is that a percentage-wise of that bill?
26 Or just in absolute sense?

1 MR. GHIKAS: Q: Well, on their bill. If they are, for
2 example, a customer who is only consuming ten GJs a
3 year, will be less affected in absolute dollar terms
4 by a change in commodity prices than someone with a
5 hundred GJs a year.
6 DR. BOOTH: A: Correct.
7 MR. GHIKAS: Q: Okay.
8 DR. BOOTH: A: Before Enbridge Gas, before the OEB, I
9 said, "I've got a gas hook-up on my condo. I don't
10 actually use it. I actually use no gas whatsoever,
11 but Enbridge bills me $20 plus HST every month." So I
12 pay for nothing. In that sense, I am paying a fixed
13 charge. My actual use of gas is zero. So I don't pay
14 any of the commodity component.
15 MR. GHIKAS: Q: And you, then, are unaffected by the
16 shale gas revolution, as it were.
17 DR. BOOTH: A: Absolutely. I mean, I keep meaning to
18 get that bill removed, but I've got to get the meter
19 removed in order to stop them billing me $20 plus
20 change every month.
21 MR. GHIKAS: Q: Okay. And you don't dispute, Dr.
22 Booth, I am assuming, that FEI's residential use per
23 customer has declined over time.
24 DR. BOOTH: A: No. I'd hope it has. I mean,
25 otherwise, what's the point of putting in high-
26 efficiency furnaces and making our homes more

1 insulated?
2 **Proceeding Time 8:58 a.m. T12**
3 MR. GHIKAS: Q: If we can -- I'm going to make
4 everybody go to a book here. This is Exhibit B1-37,
5 which was the response to Undertaking Number 2 filed
6 in this proceeding. This would be the second
7 undertaking that was filed. And, Dr. Booth, you'll
8 need a copy of that too.
9 Thank you. Okay, so what I'm actually
10 going to look at is, as everybody -- B1-37,
11 Undertaking Number 2? Okay. What I'm actually going
12 to refer to is the last page, which did a November
13 2009 to a November 2012 residential bill history
14 comparison, and you've got the coloured bars
15 consisting of various components of the customer's
16 bill. Do you see that, Dr. Booth?
17 DR. BOOTH: A: I do.
18 MR. GHIKAS: Q: Okay. Let me just walk through this
19 with you. So what we have is the purple is labelled
20 CCRA and that, just for clarity, is the commodity cost
21 reconciliation account and that effectively is the
22 commodity portion of their bill. And so we will see --
23 we see that since 2009 that portion of the customer's
24 bill has shrunk, right?
25 DR. BOOTH: A: Correct?
26 MR. GHIKAS: Q: Okay. And the other cost increases,

1 you'd agree with me, have muted the bill impact
2 associated with that reduction, right?
3 DR. BOOTH: A: That's correct. The commodity charge
4 has gone from about 45 percent of the total bill to
5 about 30 percent.
6 MR. GHIKAS: Q: I'll accept your math. You are the
7 finance --
8 DR. BOOTH: A: No, I'm just guessing. I did not
9 divide 4.953 by 11.003, I just approximated.
10 MR. GHIKAS: Q: I'm a simple man, I am just looking at
11 the picture, Dr. Booth.
12 DR. BOOTH: A: That's the point. The point is that
13 obviously if the commodity gas went to zero, there
14 would still be a gas bill.
15 MR. GHIKAS: Q: And if we look at just the pure
16 difference in absolute terms between the bill in
17 November '09 and November '12, 2012, the difference is
18 roughly 30 cents per gigajoule?
19 DR. BOOTH: A: That's correct.
20 MR. GHIKAS: Q: Okay. And will you accept subject to
21 check that the average existing residential customer
22 uses about 85 gigajoules in a year? I can give you a
23 reference to that if you want. It's page 33 of
24 Appendix H, but I don't think you'll have to -- just
25 take it subject to check and we can move on.
26 DR. BOOTH: A: I'll accept it subject to check. I

1 asked for a comparison of residential use and they
2 gave a hundred gigajoules, but I mean, 85, fine, I
3 have no problem with that.
4 MR. GHIKAS: Q: So in terms of the annual bill impact
5 for a person consuming 85 gigajoules a year, the rough
6 difference between 2009 in November and 2012 in this
7 diagram is roughly $25 for the whole year?
8 DR. BOOTH: A: I will accept that. I can't do that
9 math that quickly, but I mean if that's what it says,
10 I understand that. The point, however, Mr. Ghikas, is
11 not the absolute cost of gas, it's the cost of gas
12 relative to electricity. It's the competitive
13 situation of gas, not the absolute cost.
14 MR. GHIKAS: Q: I understand, sir. I am just focusing
15 on one aspect.
16 DR. BOOTH: A: Okay.
17 MR. GHIKAS: Q: And I think you were here earlier on.
18 You heard testimony that a number of Fortis customers
19 are on a equal payment plan, where that annual bill
20 would be divided equally. So if a customer paying a
21 $25 annual bill was on the equal payment plan they'd
22 be looking at a difference of $2 a month on their
23 bill, right? Roughly?
24 DR. BOOTH: A: Yes. Barely noticeable.
25 MR. GHIKAS: Q: Right. And for customers -- for new
26 customers, will you accept subject to check that new

1 customers being added to the system only consume 45
2 gigajoules per year on average, residential customers?
3 DR. BOOTH: A: That wouldn't surprise me, because they
4 probably got more high -- 90 percent high efficiency
5 furnaces, better maintained houses. You would expect
6 probably the multiple dwellings, four or five units to
7 a building. So I would expect them to use less.
8 MR. GHIKAS: Q: Right. And so for those customers,
9 they are looking at give or take, subject to check,
10 around $15 annually.
11 DR. BOOTH: A: Yeah, I would accept those numbers.
12 MR. GHIKAS: Q: Yeah, of difference and so 9, yeah.
13 And so for those on equal payment they are looking at
14 just over a dollar a month.
15 DR. BOOTH: A: I'd accept that.
16 **Proceeding Time 9:04 a.m. T13**
17 MR. GHIKAS: Q: Okay. Now, can we agree that with
18 respect to looking at business risk of the utility,
19 it's important not just to know what the customer is
20 seeing in terms of relative costs or differences
21 between gas and electricity over time. It's also
22 important to know how they're going to respond to that
23 when they see it. If their behaviour doesn't change,
24 then the change is effectively irrelevant from a
25 business risk perspective, right?
26 DR. BOOTH: A: A hundred percent agree. Most people

aren't going to suddenly change their furnace for $15-20 a year. That's why there's a lot of inertia in the system. It's why, even when the price of natural gas was not very competitive with electricity, we didn't see wholesale people ripping out natural gas. Most people, it takes a huge shock to get them to change unless they're in a situation where their furnace is burned out and they're going to face a big significant capital upgrade regardless.

MR. GHIKAS: Q: And the average person isn't going to say, "Oh, I see gas prices are low. I think I'm going to turn up the heat." Right?

DR. BOOTH: A: No, the whole of regulating it is that it's relatively price insensitive. That's why it's a natural monopoly. There's very little alternative choice.

MR. GHIKAS: Q: And customers' choices, whether short term or long term in terms of their energy choices, they are going to be influenced by things other than price. They're going to be influenced by things like GHG emissions.

DR. BOOTH: A: That's right. I'm sure that there's some environmentally conscious people who, regardless of the price of natural gas, they're going to install solar panels on their rooves, even though it's totally uneconomic.

1 MR. GHIKAS: Q: And their use and how they respond to
2 changes in price will also be affected by inherent
3 customer attitudes that they hold towards the use of
4 natural gas.
5 DR. BOOTH: A: True. Some people are going to perceive
6 natural gas as being environmentally unfriendly
7 because it's a carbon fuel. And that, I think,
8 differentiates to some extent B.C. from the rest of
9 Canada where -- in Ontario where -- viewed as a very
10 good fuel, way better than coal.
11 MR. GHIKAS: Q: And there will be -- another factor
12 that will influence people's decisions are government
13 policies, municipal policies and building codes and
14 things of that nature.
15 DR. BOOTH: A: Sure. I mean, as I think I mentioned on
16 Wednesday, I mean, in the U.K. they stopped having gas
17 for a lot of high-rises because you can get blow-outs
18 on gas that you don't get with electricity, and in
19 high-rises that poses problems. So if they impose
20 municipal restrictions saying you can't use gas -- I'm
21 just guessing here -- in anything bigger than say a
22 two or three-storey -- any -- you can't use gas more
23 than a two or three-storey building, then obviously
24 that's going to curtail the use of gas.
25 MR. GHIKAS: Q: Now, Dr. Booth, if we can go to page 39
26 of your evidence please.

DR. BOOTH: A: Yes.

MR. GHIKAS: Q: Exhibit C6-12. Now, here in the middle of the page, Dr. Booth, you deal with what about higher capital cost of natural gas versus electricity installations effectively, and you pose the question in the middle of the page and then you respond in the first line:

> "I have no reason to doubt FEI's discussion of higher capital costs of initial installations."

But then -- oh, I'm sorry, I'm in the wrong spot. I'm sorry. I'm getting my wires crossed here. I'm at line 15:

> "…isn't FEI having problems attaching new customers?"

Sorry, Dr. Booth. And your response is:

> "Not really as it is still growing its customer base."

Now -- you see that there?

DR. BOOTH: A: I do.

MR. GHIKAS: Q: Okay. And when you deal with this in your evidence in the lines there on the end of page 39 and the top of page 40, would you agree with me that what you're focusing on is the number of attachments net of disconnections being still a positive number?

DR. BOOTH: A: That's correct.

1 MR. GHIKAS: Q: Okay.
2 DR. BOOTH: A: And the answer there, as I say, is not
3 really. It's not that I'm saying no, this is
4 absolutely wrong. I'm just saying, well, it's not
5 really a problem. They're still attaching.
6 **Proceeding Time 9:09 a.m. T14**
7 MR. GHIKAS: Q: Okay. And you haven't addressed in
8 that section, you would agree with me, whether FEI is
9 adding fewer customers every year, as compared to what
10 it used to add annually.
11 DR. BOOTH: A: No, I quite accept that the growth is
12 slowing down. That's what you would expect.
13 MR. GHIKAS: Q: And you haven't addressed there
14 whether, despite those absolute numbers, what share of
15 the new housing market those customers represent.
16 DR. BOOTH: A: That's correct. My focus here is on
17 these risk factors, and as I mentioned, they're short-
18 and long-run risk factors. The short-run factors are,
19 can they earn their allowed rate of return? And that
20 hasn't been affected. The long-run risk factors are
21 basically the competitive position of natural gas.
22 So, I generally don't think that any of
23 these factors are material. They don't affect the
24 ability of the utility to earn their allowed ROE in
25 the short run. And in the long run, it's a question
26 of, is natural gas a transitional fuel, as was the

1 concern in 2009, or is it a foundational fuel that's
2 still going to be here in 30 years' time?
3 MR. GHIKAS: Q: And you don't have any basis to dispute
4 FEI's statistics that the residential capture rate is
5 declining, do you?
6 DR. BOOTH: A: No. I haven't disputed that, and I
7 would accept that. I would fully understand it. It
8 makes sense to me.
9 MR. GHIKAS: Q: And you haven't addressed in this
10 aspect of your evidence whether the residential
11 customers that are being added, net of disconnections,
12 are consuming as much natural gas as the ones that
13 were attached in the past?
14 DR. BOOTH: A: No, as I've said, I would very much hope
15 that they're using less natural gas. Otherwise,
16 what's the point of all of the promotions and the
17 emphasis on high-efficiency furnaces?
18 MR. GHIKAS: Q: And you would agree with me that if
19 using the numbers that I was taking you to a while
20 back, that if the existing customer base on average
21 has -- is at 85 GJs per year, and new customers are at
22 45 GJs per year, essentially you're going to have to
23 add almost two customers to make up what one customer
24 used to add. Right?
25 DR. BOOTH: A: That's probably true. Correct.
26 MR. GHIKAS: Q: Now, let's just go back on page 39 to

1 deal with the topic about higher capital costs. So,
2 at page 39, line 8, you indicate that you have no
3 reason to doubt FEI's discussion of the higher capital
4 costs. And then you go on to say, at lines 12 to 14,
5 "FEI has an installed base of 765,553
6 residential customers, and they are not
7 going to rip out their natural gas systems
8 and replace them with electricity, given
9 that their systems are a sunk cost and
10 natural gas is so much cheaper than
11 electricity."
12 And I just want to focus on that, Dr. Booth. When you
13 made that statement, you had no data whatever to back
14 that up, did you?
15 DR. BOOTH: A: No, I had the data that's on page 42,
16 that shows that natural gas has got a 53 percent
17 competitive advantage over electricity in British
18 Columbia. And I'd have to go back and check, but my
19 understanding is that that is based upon somebody who
20 has already got a system, a high-efficiency furnace,
21 already got a system in place. And it doesn't include
22 the capital cost. So all I'm saying there is, if
23 somebody has got a system and they've already
24 installed it, and the company says, an expensive
25 system, okay, well, they've installed it, and it's in
26 a new house, they're getting a 53 percent cost

advantage over electricity. They're not going to suddenly rip out that capital cost. It represents a barrier to getting out of the natural gas market, which is why, as I said, there is a lot of inertia in these markets. People just don't suddenly turn on a dime because of the competitive advantage or disadvantage of one fuel source.

MR. GHIKAS: Q: And, Dr. Booth, you have cited the figure of the full number of residential customers, 765,000 and so on, in your evidence. Wouldn't you agree with me that FEI's customer base is continually turning over?

DR. BOOTH: A: Well, there is always going to be at the margin some people that leave and there is new building. So there is constant turn-over in customers. I don't -- I wouldn't say -- it's not like a portfolio, where people sort of change the composition, say, 80 percent every year. I would suspect the vast bulk of those customers have been there for a long time.

MR. GHIKAS: Q: When you say you expect that, sir, you don't have any data on the average age of the housing stock in FEI's service area, do you?

DR. BOOTH: A: No, I don't. But all I'm saying is, there is a lot of inertia in the use of natural gas. I would suspect that there is more turn-over in FEI

than, say, a more stable residential community. But the increasing density both in Toronto and Vancouver is probably leading to a bigger turnover of customer use than, say, southwest Ontario for Union Gas.

MR. GHIKAS: Q: Dr. Booth, what you've just told me -- you're just speculating, aren't you?

Proceeding Time 9:14 a.m. T15

DR. BOOTH: A: No, I'm just looking out of the window and seeing the number of construction cranes, and every time you see a construction crane it means that there's another building going up, which means that you've got a lot of new people. So I'm just -- you can call it speculation. I would say an informed judgment. It is not part of my testimony. Nowhere do I discuss it in my testimony because I don't think it's material. But if you ask me, all I'm doing is saying that my informed judgment would be that.

MR. GHIKAS: Q: Would you agree with me, Dr. Booth, that there are some older houses somewhere in Vancouver that aren't quite as new as the condos you see out the window?

DR. BOOTH: A: Of course there are. All I'm saying is that if you go to southwest Ontario, you go to London or Windsor, you don't see all of the big tower blocks and all of the regeneration that we see in downtown

1 Toronto and we see in Vancouver. So without looking
2 at any statistics, I would suspect that you've got a
3 bigger churn or bigger turnover of customers in FEI
4 and probably Enbridge than you do in Union Gas or
5 possibly Gas Métro. So actually I'm just agreeing
6 with you, that I would suspect there is a big turnover
7 in FEI.
8 MR. GHIKAS: Q: Dr. Booth, don't you think that it's
9 important that if you're going to take it upon
10 yourself to say that 765,000 residential customers
11 aren't going to rip out their natural gas systems and
12 replace them with electricity, do you think it's
13 relevant to know whether those customers had an
14 appliance that was reaching the end of its life?
15 DR. BOOTH: A: Not really. All I'm doing here is sort
16 of stating some facts about FEI's customer base. But
17 as I've said repeatedly, I look upon the risk of FEI
18 based upon its short-run ability to earn its allowed
19 return and its long-run ability which is based upon
20 whether it's a transitional or a foundational fuel,
21 and that depends upon its cost-effectiveness.
22 MR. GHIKAS: Q: Should we then disregard all of the
23 evidence in this section of your testimony, or --
24 DR. BOOTH: A: No.
25 MR. GHIKAS: Q: -- did you include it so that the
26 Commission could rely on it?

1 DR. BOOTH: A: I included it because I think it's
2 important background material. But one point, every
3 time a utility used to put forward points about
4 increasing business risk, I used to take a point of
5 trying to rebut or at least comment on every single
6 one of those points. And I discovered about ten years
7 ago this really didn't make a lot of sense because it
8 basically just got down to a qualitative discussion of
9 business risk factors, when in fact the most critical
10 one is the objective fact that can they earn the
11 allowed rate of return?
12 MR. GHIKAS: Q: Dr. Booth, you'd agree with me that
13 what you did right here in this section was a
14 qualitative analysis that you did without any data
15 with respect to either the age of housing stock in
16 FEI's service area, or the age of appliances, right?
17 DR. BOOTH: A: Well, it's not a qualitative, it's a
18 quantitative. I just said that they're actually still
19 increasing the number of their customers, and I gave
20 the answer that repeated the answer to the information
21 request. I would agree that I didn't go beyond that.
22 MR. GHIKAS: Q: Dr. Booth, you've cited a figure of
23 765,000 residential customers. That number
24 dramatically exceeds the number of new customers,
25 right? The number of new customers being added in the
26 year?

1 DR. BOOTH: A: Of course, yeah. In 2009 it was 753, so
2 net there's about 12,000. But the net is the
3 difference between two numbers, which is the additions
4 and the subtractions.
5 MR. GHIKAS: Q: And so with respect to this number,
6 $765,000 [*sic*], I'd ask you to agree with me that you
7 put that number forward without any data about when
8 people have to make a decision as to whether to
9 replace their appliances. That's true, isn't it?
10 DR. BOOTH: A: That's true because that's not relevant.
11 All I'm doing here is saying is there growth in the
12 customer base? And all I'm saying is they're still
13 increasing their number of customers, and that was the
14 information provided by FEI in the information
15 request. And that's all it is. It's not a huge
16 point, Mr. Ghikas. It's one paragraph indicating that
17 FEI is still attaching customers.
18 MR. GHIKAS: Q: And Dr. Booth, the point that you were
19 making there is that people wouldn't rip out their
20 natural gas systems and -- because they're a sunk
21 cost.
22 Another factor that you haven't mentioned
23 at all in this paragraph, you'd agree with me, is the
24 extent to which there are appliances available that
25 are compatible with ductwork in people's homes.
26 **Proceeding Time 9:19 a.m. T16**

DR. BOOTH: A: That's correct. I mean, if I'm thinking about ripping out my gas heating, then I would say, well, what's my ductwork? Can I get say an electric heat pump that basically minimizes the cost of a different installation because hopefully I can use the same ductwork, the same -- otherwise you end up, if you put in baseboards -- and I'll admit, I've got this in my cottage. The previous owners ripped out the oil central heating and I've got the ductwork all over the place and I've got vents that basically pass cold air. And I've got baseboards and holes throughout my cottage. So if they had done it right, they would have chosen some alternative rather than putting in baseboards.

But again, Mr. Ghikas, it's got nothing to do with my testimony. It's not relevant to the business risk, my assessment of the business risk of FEI.

MR. GHIKAS: Q: Now, Dr. Booth, I'd like to turn to the issue that's on page 40 of your evidence, dealing with "Isn't the loss of industrial customers a worry."

Now, in this you've indicated over on the other side of the -- sorry, on page 41 you are referring to the numbers above, and you indicate that

> "Of importance is that since 2000 the industrial load has declined from 12.9

1 percent of revenues to 7.6 percent in 2005
2 to the current 6 - 7 percent level. Overall
3 this would indicate a similar risk profile
4 to 2009 but a substantial decline since 2000
5 particularly in view of the more
6 comprehensive RSAM that has been introduced
7 since…"
8 And you changed 2000 to 1996 in your direct,
9 "…to handle the impact of weather on
10 residential demand."
11 Now, just taking this in stages, Dr. Booth,
12 first of all, the -- here you are not talking about
13 changes in the actual rate stabilization account
14 mechanism, or revenue stabilization account mechanism
15 I believe it is. You are not talking about changes
16 itself, changes to the RSAM itself since 1996.
17 DR. BOOTH: A: That's correct.
18 MR. GHIKAS: Q: Okay, and you'd agree with me that the
19 RSAM hasn't actually changed materially since the year
20 2000.
21 DR. BOOTH: A: That's my understanding.
22 MR. GHIKAS: Q: Okay. So what you are saying
23 essentially here is that the FEI's risk has decreased
24 since 2000 because the amount of industrial revenues
25 as a percentage of the total revenues has almost
26 halved since 2000, and that means that in effect more

1 of the revenues are covered by the RSAM.
2 DR. BOOTH: A: No, I'm not saying that.
3 MR. GHIKAS: Q: Oh, okay. Maybe you can explain.
4 DR. BOOTH: A: I'm saying utility witnesses frequently
5 say that. If you read page 40, starting at line 10, I
6 say further,
7 "…utility witnesses have in the past stated
8 a gas distribution companies serving a heavy
9 industrial load are riskier since that
10 demand is more sensitive to the business
11 cycle than the residential load which is
12 heat sensitive. As a result, the short run
13 impact of a decline in industrial customers
14 and load is a more stable customer base and
15 less risk."
16 And then I put the answer that FEI gave and pointed
17 out the industrial load has gone down. I do not say
18 that the risk has gone down, I say that this is
19 frequently something that the industrial company
20 witnesses -- for example, Ms. McShane sitting next to
21 you, I've heard her say that many times. And all I'm
22 saying here is that the industrial compensation has
23 gone down.
24 I've always taken the position that a
25 balanced load is good because industry drives jobs,
26 and jobs drives homes and homes drive the demand for

natural gas and electricity and everything else. Particularly this is a concern not so much for Enbridge and FEI, which are in areas that are not heavily industrialized, but I would say the concern for industrial compensation is more relevant for a company like Union Gas, and particularly for Central Gas Ontario, that Union took over, where it has a lot of pulp and paper mills in Northern Ontario and these are basically one industry town. And if you lose the industry, you also lose the residential load.

But I don't think the residential load in Ontario, southern Ontario or FEI's area is that sensitive to the industrial composition.

Proceeding Time 9:25 a.m. T17

MR. GHIKAS: Q: So this is, if I can put it bluntly, this is hoisting Ms. McShane on her own petard if it were?

DR. BOOTH: A: Absolutely. This is not something that I've ever said, this is what the company witnesses. I don't say Ms. McShane, but I will say Ms. McShane. Ms. McShane has said this in the past, I have never agreed with it. If it is true, if there is any validity to it, this indicates the drop in risk for FEI. But I don't think anywhere in my testimony do I say that the loss of industrial load movement towards heat sensitive residential signifies a reduction in

1 the risk of FEI. I put the reduction in FEI's risk as
2 a long run risk based upon the fact that shale gas has
3 changed the competitive position of natural gas. And
4 I don't hear anybody in this hearing saying that
5 national gas is a transitional fuel.
6 MR. GHIKAS: Q: Okay, well let's look at this and see
7 how badly Ms. McShane got hoisted on her own petard.
8 The -- you have performed this calculation based on
9 total revenues, right?
10 DR. BOOTH: A: Correct.
11 MR. GHIKAS: Q: Would you agree with me that the RSAM
12 only covers delivery margin?
13 DR. BOOTH: A: That is correct, the commodity price of
14 gas is then passed through to the customer.
15 MR. GHIKAS: Q: As is the midstream?
16 DR. BOOTH: A: Yeah.
17 MR. GHIKAS: Q: Okay. And that means that -- well, let
18 me ask it this way. Don't you think that using
19 revenues in your calculation distorts the picture when
20 RSAM is only covering delivery margin and not all
21 residential and commercial revenues?
22 DR. BOOTH: A: It could be, but generally that is the
23 breakdown that utility witnesses point to when they
24 make comparisons based upon industrial residential
25 loads.
26 MR. GHIKAS: Q: Yeah, I'm not too sure about that, but

1 maybe we can go to Undertaking Number 10 that was
2 filed. It is B1-45. Does everybody have that? Okay.
3 Now, Dr. Booth, this was a request by
4 Commission counsel, Mr. Fulton, to Mr. Stout to update
5 the IR that you had asked, which was for Fortis to
6 provide the information based on total revenues, and
7 Mr. Fulton had asked then that this be updated based
8 on excluding the pass through commodity of gas, so we
9 are left with the delivery margin. Okay?
10 DR. BOOTH: A: Correct.
11 MR. GHIKAS: Q: Now, I am going to give you some
12 percentages, Dr. Booth, I am going to ask you maybe to
13 make a note of them beside and then I will ask some
14 questions and you can take the percentages subject to
15 check, okay?
16 DR. BOOTH: A: Yeah.
17 MR. GHIKAS: Q: Okay, so on the residential line, the
18 first one for 2012, let's put in a 60.6 percent, okay?
19 DR. BOOTH: A: 2012 residential?
20 MR. GHIKAS: Q: Yeah.
21 DR. BOOTH: A: 60.6?
22 MR. GHIKAS: Q: Yeah.
23 DR. BOOTH: A: Yeah.
24 MR. GHIKAS: Q: And then ’09 for residential, 61.3
25 percent.
26 DR. BOOTH: A: Okay.

1 MR. GHIKAS: Q: And then moving across to 2005, 60.7
2 percent.
3 DR. BOOTH: A: Yes.
4 MR. GHIKAS: Q: And 2000, 59.5 percent.
5 DR. BOOTH: A: What was the last one, sorry?
6 MR. GHIKAS: Q: 59.9.
7 DR. BOOTH: A: 59.9, yes.
8 MR. GHIKAS: Q: Now, moving down to the commercial,
9 you've got 27.2 percent for 2012.
10 DR. BOOTH: A: Yes.
11 MR. GHIKAS: Q: 26.7 percent for 2009.
12 DR. BOOTH: A: Yes.
13 MR. GHIKAS: Q: 27.3 percent for 2005.
14 DR. BOOTH: A: Yes.
15 MR. GHIKAS: Q: And 25.5 percent for 2000. And then if
16 we go down to industrial, we've got 12.2 percent for
17 2012 --
18 DR. BOOTH: A: Sorry, what was that one, I was just
19 writing? 25 --
20 MR. GHIKAS: Q: Sorry.
21 DR. BOOTH: A: What is it for 2012?
22 MR. GHIKAS: Q: 2012 for industrial is 12.2 percent.
23 DR. BOOTH: A: Okay.
24 MR. GHIKAS: Q: 2009 is 12 percent.
25 DR. BOOTH: A: Okay.
26 MR. GHIKAS: Q: 2005 is 12 percent?

DR. BOOTH: A: Okay.

MR. GHIKAS: Q: And 2000 is 14.6 percent.

DR. BOOTH: A: Okay.

Proceeding Time 9:30 a.m. T18

MR. GHIKAS: Q: Okay. Now, taking those figures subject to check, you would agree with me that the percentage of total delivery margin covered by the RSAM is unchanged since 2005, effectively. Right? That's the commercial --

DR. BOOTH: A: Sixty percent, that's correct.

MR. GHIKAS: Q: Well, the commercial and residential covered -- well, let me put it this way. The industrial is essentially unchanged between 2005.

DR. BOOTH: A: That is correct. That is similar to the statement I made on page 41. The drop basically was from 2000 to 2005 in terms of revenues. And the drop was the same in terms of margin for industrial, 14.6 to 12 percent. Since then, it's been reasonably constant.

MR. GHIKAS: Q: Okay. And on page 41, you're indicating that the industrial has dropped by almost half since 2000?

DR. BOOTH: A: That's correct. The percentage is different, obviously, but the big change occurred from 2000 to 2005. Since then, it's been reasonably constant.

1 MR. GHIKAS: Q: Okay. And so if we look at delivery
2 margin, the big change is reduced to approximately 2
3 percent.
4 DR. BOOTH: A: That's correct. 14.6 percent in 2000,
5 down to 12 percent in 2005, and since then it's been -
6 - I think I heard your numbers. 12 percent, 12.01,
7 12.2. So it's been around about 12 percent. The same
8 basic change as in the revenues. The only thing
9 different is the absolute numbers.
10 MR. GHIKAS: Q: Okay. All right, now let's go to a new
11 topic, Dr. Booth, which is the achievements of --
12 sorry, the actual ROE versus the allowed ROE. And
13 just before we jump into that, let me just clarify one
14 thing with you. There is a couple of references in
15 your document to you equating risk with the
16 probability of losing money. And I just want to
17 clarify with you that in the context of short-term
18 risk for a regulated utility, you're not actually
19 referring to experiencing a net loss or negative
20 earnings. What you're referring to is the ability to
21 achieve its allowed ROE.
22 DR. BOOTH: A: That's correct. That's reasonably
23 standard. Most utilities have agreed that short-run
24 risk is the ability to earn the allowed ROE. So, and
25 I've never seen any Canadian have a negative return on
26 equity. I mean, the argument is generally around

1 deviations from the allowed ROE.
2 MR. GHIKAS: Q: All right. And that was my
3 understanding, so I just wanted to clarify that as
4 well.
5 Now, if you go to page -- your evidence,
6 page 29, you say, at -- sorry. 29, lines 8 and 9,
7 that the sum total, if it can be reduced to a pithy
8 statement, I think we find it there on page 29, lines
9 8 and 9, which is,
10 "I would not regard a pattern of consistent
11 over-earning as indicative of any risk. So
12 in my judgment FEI faces no material short-
13 run risk, or the risk of return on capital."
14 And that essentially is the gist of it, in its
15 essence.
16 DR. BOOTH: A: That's correct. And in that respect,
17 FEI is exactly the same as just about every other
18 regulated utility in Canada. They tend to over-earn
19 their allowed ROEs on a consistent basis, which is
20 why, in fact, most witnesses on behalf of companies
21 have shifted to focusing on long-run risks. Because
22 those are more qualitative, and there is no objective
23 evidence in terms of those factors.
24 MR. GHIKAS: Q: And so if we go back to page 28, Dr.
25 Booth, you've got a diagram there of FEI's average
26 over-earning. And your dataset goes back to 1994,

correct?

DR. BOOTH: A: That's correct.

MR. GHIKAS: Q: Okay.

DR. BOOTH: A: And I use '94 because that was the beginning of the automatic ROE formula.

MR. GHIKAS: Q: Right, thank you. And so, you're not suggesting in this proceeding that what you're describing here is a new phenomenon that's arisen since 2009, correct?

DR. BOOTH: A: Absolutely not. I think no matter what happens, utilities need to earn their allowed ROE. No matter what the risks that are put forward in a business risk hearing, after the fact they earn their allowed ROE. So I don't judge most of the business risk factors to be material.

MR. GHIKAS: And in fact you made a similar argument, not surprisingly, in 2009, correct?

DR. BOOTH: A: Correct. The facts haven't changed.

MR. GHIKAS: Q: Okay. And I believe I included an excerpt from your evidence at -- in Exhibit B1-50, the bigger package, at -- starting at page 31 of that handout.

Proceeding Time 9:35 a.m. T19

DR. BOOTH: A: Yes, that's correct. I seem to remember in 2009 something I've already discussed. I thought the business risk was not a significant factor and it

was mainly the financial crises and I relegated the discussion to an appendix.

MR. GHIKAS: Q: Right. And if we go over to page 39 of the excerpt from your evidence, and if we go to -- yes, 39, we see that we had a -- Schedule 2 of your evidence at that time, right in the middle column you've got -- and it's a little tricky to follow, but you've got -- the allowed is the first column and then Terasen actual is the achieved?

DR. BOOTH: A: Actual is normally achieved. I don't remember whether it was achieved before or after sharing. But it's the actual.

MR. GHIKAS: Q: No, and I was just trying to make sure everybody is oriented to the same thing. The grouping underneath, the column that says "allowed" that's right under the title word that says "allowed", that's the one we are looking at, right?

DR. BOOTH: A: Oh, okay.

MR. GHIKAS: Q: And then Terasen. I just didn't want people to be confused as to which -- the alignment of the columns. Okay.

Now, so you'd agree with me, Dr. Booth, that it's affectively the same data set except that in this proceeding we -- sorry, in this proceeding we have two more years of data at the end, right?

DR. BOOTH: A: It should be the same data set, but

1 sometimes when I get the company's data in, it
2 indicates different numbers for previous years, and I
3 never question that. I always used their most recent
4 data.
5 MR. GHIKAS: Q: Okay.
6 DR. BOOTH: A: Some of it, in the case of Terasen, I
7 think they changed their year. There was a couple of
8 years when I think they moved from June to January, or
9 January to June for the fiscal year and as a result,
10 the data changed. I think that's why -- and then
11 there were years early on when it converted from
12 Inland Natural Gas when it wasn't under ROE
13 regulation.
14 MR. GHIKAS: Q: Oh, and sorry, you know what? I've --
15 yes, sorry, yes. And my question, though, Dr. Booth,
16 is that now in this proceeding you've added something
17 for 2008 and 2009 as well. And two thousand -- that
18 may be actually -- 2010 and 2011 actually.
19 DR. BOOTH: A: Yeah, I've used the most recent data
20 that was available in answer to an information
21 request, correct.
22 MR. GHIKAS: Q: Okay. And the new data that you've
23 got, FEI over-earned in one year and under-earned in
24 the other?
25 DR. BOOTH: A: Yeah, it seems that in 2010 there's a
26 very minor cross-over in 2010.

1 MR. GHIKAS: Q: Okay. And the two years that you
2 dropped from the front end that were in the 2009 data
3 set, 1992 and 1993 -- 1992 the allowed was 12.25 and
4 they achieved 9.06 in that year?
5 DR. BOOTH: A: That's correct. And I can't remember
6 whether that was when it was under ROE regulation or
7 whether that was the period when -- I seem to
8 remember, this is going back a long time, Mr. Ghikas,
9 and even my memory is not that good, but I seem to
10 remember that when Inland Natural Gas absorbed B.C.
11 Hydro's assets, it was under some sort of provisions
12 for a number of years, with a Lieutenant Governor that
13 amended -- it wasn't under hard ROE regulation. I
14 don't know whether that refers to that period or
15 whether that was just the change in the calendar year.
16 The note that I've got, "NA" for 1993. And I can't
17 remember what that was for, whether it was because of
18 the change in regulation or whether that was because
19 of calendar year.
20 MR. GHIKAS: Q: Okay, now if we go back to your
21 evidence in this proceeding, C6- -- anyway, your
22 testimony in this proceeding, Dr Booth.
23 DR. BOOTH: A: Yes.
24 MR. GHIKAS: Q: The pages 28 and forward you've got
25 graphs for several utilities in that section there.
26 And can we agree that of the utilities that you've

graphed, none of those utilities except FEI have under-earned since 1994.

Proceeding Time 9:40 a.m. T20

DR. BOOTH: A: Yes, I would think that's correct. I think Gaz Métro failed to earn its full allowed incentive ROE, but I think that statement is correct.

MR. GHIKAS: Q: Okay. And if you look at page 28, you've made the point at lines 2 to 4 that the graph above is depicting pre-sharing achieved ROE in the years when Fortis was subject to performance-based regulation, and you say that the intent is to understand FEI's ability to earn its ROE, not how it is allocated to FEI shareholders and ratepayers.

And my question to you, Dr. Booth, is that you'd agree with me that the other utilities that you've depicted in your evidence were also subject to performance-based ratemaking and earnings sharing during the periods you've graphed.

DR. BOOTH: A: That's correct.

MR. GHIKAS: Q: Okay. And would you agree with me, Dr. Booth, that if you're presenting FEI's data on a pre-sharing basis, and then you're presenting the data in the other utilities on a post-sharing basis, that that would tend to exaggerate FEI's financial performance relative to the other utilities that you've presented?

DR. BOOTH: A: I think that's correct. I think if I

1 put Union Gas, Enbridge -- Gas Métro is on a before
2 and after basis, I seem to remember, but Union Gas and
3 HEDI in particular, if you put it on a pre-sharing
4 basis, their performance over the last five years
5 under incentive regulation would be phenomenal. They
6 have totally hit the ball park -- what's the American
7 phrase? Hit the ball out of the ball park in terms of
8 their performance once they've been given an incentive
9 to be efficient.
10 MR. GHIKAS: Q: And Dr. Booth, you were asked an IR,
11 and just for reference, we don't have to go there
12 because it hardly says anything at all, but just for
13 reference it's the Utilities Commission to you
14 effectively, Dr. Booth, 1.17.1 and you were asked to
15 provide the source data for the graphs that you had
16 provided, and you provided that data. And it also
17 asked you where you got the data. And just very
18 briefly it says the data was provided by the companies
19 in answers to information requests in their most
20 recent GRAs.
21 DR. BOOTH: A: That's correct.
22 MR. GHIKAS: Q: And so if you go to page of the package
23 B1-50, the larger package, 42 please. And Dr. Booth,
24 what I've included here is an information request from
25 a proceeding relating to Gaz Métro where they break
26 out the allowed and the achieved, and just for

reference, the allowed is the left-hand column, the middle is an authorized or allowed ROE with an incentive. They have an incentive mechanism, correct?

DR. BOOTH: A: That is correct. That's Gaz Métro. That's on page 31 where I've got three lines, which is one is the base, one is the incentive, and one is the actual, which is why --

MR. GHIKAS: Q: Right, and the right-hand -- sorry.

DR. BOOTH: A: Which is why, as I mentioned, there was an occasion, I'm trying to remember which year, when it was my understanding that -- oh, here it is. In 2009, with incentive Gas Métro could have earned 8.94. I thought there was one in which they didn't quite earn their incented regulation.

MR. GHIKAS: Q: Okay, and just for the sake of completion, the right-hand column would be the achieved. The *realisé* is the achieved.

DR. BOOTH: A: That's correct.

MR. GHIKAS: Q: Okay. Now, if you go over to the next page, this is page 43 of the package and this is an attachment from information requests filed in the Union Gas proceeding in 2011. Do you recognize this as the source of your data?

DR. BOOTH: A: I do. This is the 2011 business risk hearing.

MR. GHIKAS: Q: Okay. And if we go over to the middle

of that, you'll see there's actual -- a column titled "Actual" and a column titled "Based on Normal Weather", and under each there is "After Earnings Sharing" and "Before Earnings Sharing". Right?

Proceeding Time 9:45 a.m. T21

DR. BOOTH: A: That is correct.

MR. GHIKAS: Q: Okay. And so when you prepared your graphs in this proceeding, you went to this document and you chose the information relating to post-earnings sharing.

DR. BOOTH: A: That's correct. And you're absolutely right. I could have used the before sharing. The one for Union Gas that raised all the eyebrows was in 2008, where they're allowed 8.54 and they earned 12.97. But if you're going to compare the ability of Terasen to earn a rate of return under incentive, then I think you're correct. I think I could have used it before sharing, to be consistent on that basis. But this is just to show that they have got an ability to earn their allowed ROE. And in fact there is an ability that is common across all the major gas utilities.

MR. GHIKAS: And just -- Mr. Chairman, just because we started early, I am prepared to keep going or stop. I just wasn't sure.

THE CHAIRPERSON: I thought we'd stop about 10 o'clock.

1 MR. GHIKAS: Perfect.
2 THE CHAIRPERSON: As close as you can. If you're a
3 little early, that's okay. Whatever.
4 MR. GHIKAS: No, that's fine, I'm happy to keep going.
5 THE CHAIRPERSON: Okay.
6 MR. GHIKAS: Q: I want to turn to a new topic, Dr.
7 Booth. If we can turn to page 28 of your evidence,
8 please.
9 On line 12, you refer to the significant
10 increase in the number of deferral accounts available
11 to FEI. Do you see that?
12 DR. BOOTH: A: I do.
13 MR. GHIKAS: Q: And you say in Schedule 3, FEI
14 indicates that in 2000 it had eight deferral accounts,
15 whereas in 2012 it now has 24. About the only things
16 not covered by deferral accounts are the O&M expenses
17 and the overall revenue requirement. And the rebuttal
18 evidence that FEI filed indicated that the information
19 it had initially provided you with saying that there
20 were eight in 2000 turned out to be incorrect, and the
21 number was 13. Correct?
22 DR. BOOTH: A: That's correct. So, I wouldn't regard
23 that as rebuttal. I would regard it as correction on
24 the part of FEI.
25 MR. GHIKAS: Q: Fair comment. Fair comment. And that
26 wasn't really my point. What I was trying to get to

1 was just in terms of the overall comment, point that
2 you're making here, you would agree with me that with
3 -- first of all with respect to your point of
4 reference being the year 2000, Dr. Booth, can we agree
5 that the Commission had evidence before it in 2005 and
6 2009 on FEI's deferral accounts?
7 DR. BOOTH: A: Sure.
8 MR. GHIKAS: Q: Okay. And can we just zero in on the
9 point where, Dr. Booth, you are referring here to a
10 change in the number of deferral accounts. Would you
11 agree with me that you can't assess changes in short-
12 term business risk just by counting the number of
13 deferral accounts.
14 DR. BOOTH: A: Absolutely correct. I'm just mentioning
15 it just as it's sort of typical in Canada. If a risk
16 crops up, utility goes before the regulator and quite
17 often there is another deferral account set up that
18 transfers those costs to the ratepayers. And it's
19 usually justified on the basis of making sure the
20 ratepayers pay the full cost of service. And I fully
21 recognize that some of these deferral accounts are
22 minor, and some of them are being given to FEI by the
23 board. It's just more indicative of the fact that in
24 Canada we seem to have a lot of deferral accounts.
25 MR. GHIKAS: Q: And so, Dr. Booth, we should really be
26 looking at the function they service and the amount of

1 costs or revenues that they are covered.
2 DR. BOOTH: A: Of course. I'm just using it as
3 indication of an attitude, not of anything more than
4 that.
5 MR. GHIKAS: Q: All right. And you would agree with me
6 that just using a simple example, if we have -- all
7 other things being equal, there is no difference in a
8 risk perspective between having one deferral account
9 covering a million dollars in costs and 10 deferral
10 accounts covering the same million dollars.
11 **Proceeding Time 9:51 a.m. T22**
12 DR. BOOTH: A: Of course not. I mean, the proof of the
13 pudding is, do these affect the utility's ability to
14 earn its allowed ROE, and there the evidence is
15 absolutely overwhelming that Canadian utilities earn
16 their allowed ROE. The major reason for that is
17 deferral accounts, and the increase in the number of
18 deferral accounts, as I mentioned, is more the result
19 of an attitude rather than anything else. I don't
20 think that FEI's ability to earn it's allowed ROE in
21 the short-run has changed in the slightest.
22 MR. GHIKAS: Q: Now -- okay. Now, let's turn to
23 government policy, Dr. Booth, and to do that I think
24 we're going to need to turn to an IR, which is Exhibit
25 C6-16 and this is the Utilities Commission to the
26 Utilities Customers.

Yes, so these are Dr. Booth's responses to IRs from the Commission, and Exhibit C6-16. And specifically I'm referring to page 31. And on that page you will fine IR 1.23.3.

Okay, so it is Exhibit C6-16, page 3 --

COMMISSIONER HARLE: That's IR 27.1.

MR. GHIKAS: Oh, is that right? Okay. I'm sorry. It's -- are you in -- I've got it here as BCUC Information Request to Dr. Booth No. 1.

COMMISSIONER HARLE: Yes.

MR. GHIKAS: Okay. On page 31. Oh, okay, well, the IR I want is 23.1 and I guess the pagination on what I was printing off was incorrect. Sorry. The IR I want is 23.1. All right. And I'm told it is 27. Thank you for that clarification, Mr. Wallace.

Okay, so it's actually not 23.1, I lied. It is 23.3. But it is on the same page, I think. I think it's on the same page, so let's stick with that.

THE CHAIRPERSON: There isn't a 23.3.

MR. WALLACE: I don't know if Dr. Booth is confused, but I am.

DR. BOOTH: A: I see a 23.1 and 23.2.

THE CHAIRPERSON: Do we want to take maybe a break now and sort out the numbers.

MR. GHIKAS: Maybe we should, Mr. Chair, and I'm sorry about that.

1 THE CHAIRPERSON: No problem. It's five to ten and
2 we'll recommence back at ten after ten.
3 MR. GHIKAS: Thank you.
4 **(PROCEEDINGS ADJOURNED AT 9:55 A.M.)**
5 **(PROCEEDINGS RESUMED AT 10:10 A.M.) T23/224**
6 THE CHAIRPERSON: Please be seated.
7 Ready to go?
8 MR. GHIKAS: Mystery solved, Mr. Chairman. I gave you
9 the wrong exhibit number. So it is C6-15.
10 THE CHAIRPERSON: Yeah, I wondered about that.
11 MR. GHIKAS: Not 16. Yes, and so the IR number and page
12 that I gave you is correct. So it is page 31 of that
13 exhibit, and the IR I want to refer to is 23.3. Did I
14 get it right? Okay, we're good.
15 MR. GHIKAS: Q: All right, Dr. Booth, in question 23.3,
16 the Commission posed the question to you,
17 "Has Dr. Booth considered B.C. Provincial
18 energy and environmental policies in coming
19 to his conclusions, and if so, how?"
20 And you'd agree with, Dr. Booth, that was a fair
21 question, because in your entire testimony you haven't
22 made any reference to government policy at all, have
23 you?
24 DR. BOOTH: A: That is correct, because it is a
25 bottomless pit in terms of political pressure and what
26 government policy is.

MR. GHIKAS: Q: Okay, and if we go to the response of 23.3, you say yes, you have considered it, and then you go on to say,

> "Government policy across Canada, both at the federal and provincial level, is concerned with greenhouse gases and sustainable energy policy. However, the primary focus is "off coal" and throughout North America there is a shift towards gas fire generation particularly for peaking purposes. This is not as strong in B.C. and Quebec due to the large hydro generation, but there are limits to the amount of hydro. Moreover, B.C. has significant shale gas reserves, and it is highly unlike these will not be exploited to the advantage of B.C. residents."

Now, just focusing for a moment, Dr. Booth, on your statement that the primary focus is getting off coal and shifting to gas fire generation particular for peaking purposes, you say that is not as strong in B.C. and Quebec. And I just ask you, Dr. Booth, do you know how many coal plants there are in B.C.?

DR. BOOTH: A: I don't think there are any.

MR. GHIKAS: Q: Okay, and so when you say the impetus

1 to get off coal is not as strong in B.C. it would have
2 been more accurate to say that there isn't any focus
3 at all in B.C. on getting off coal?
4 DR. BOOTH: A: That is correct. As I say, the -- in
5 Ontario and elsewhere, the primary concern is off
6 coal, because coal was perceived to be a dirty fuel,
7 and gas is perceived to be a clean fuel. But in B.C.
8 and in Quebec, this is -- I should -- I say that this
9 is not as strong. I should say this is non-existent
10 because of the -- similar in Quebec. I don't think
11 there is any coal fire plants in Quebec.
12 MR. GHIKAS: Q: And in terms of gas fire generation,
13 you'd agree with me that there are only two gas fire
14 generators in B.C. of any significance?
15 DR. BOOTH: A: At the current point in time, yes.
16 MR. GHIKAS: Q: Okay, and the largest of those two,
17 Burrard Thermal, has essentially been excluded from
18 B.C. Hydro's resource planning purposes for firm
19 capacity due to provincial policy on GHG emissions,
20 right?
21 DR. BOOTH: A: I wasn't aware of that. But that would
22 make sense. We have had the similar problem -- well
23 not problems, but similar reaction elsewhere.
24 MR. GHIKAS: Q: And do you know how many gas fired
25 peakers have been under development since 2009 in
26 B.C.?

1 DR. BOOTH: A: No I don't, but my understanding is the
2 LNG plants, they are going to be gas fired generations
3 for those plants.
4 MR. GHIKAS: Q: Okay, but in terms of peaking resources
5 that you have referred to, there are none of any
6 significance, anyway?
7 DR. BOOTH: A: That is true. I think there is some
8 propane plants, I mean, in FEIs portfolio. Sometimes
9 propane is used for peaking purposes.
10 MR. GHIKAS: Q: Okay, so I am going to unfortunately
11 have you go to Fortis' evidence, Appendix H, the
12 business risk appendix. And the page number I'm
13 looking at is page 47.
14 **Proceeding Time 10:15 a.m. T25**
15 DR. BOOTH: A: Page 47 of Appendix H?
16 MR. GHIKAS: Q: That's correct. And there should be a
17 Figure 32 on there.
18 DR. BOOTH: A: Yes, there is.
19 MR. GHIKAS: Q: Okay. Now, just looking at this and I
20 think you've alluded to this, Dr. Booth, that this
21 breaks out the GHG emission profile for jurisdictions
22 in Canada, and you have no reason to disagree with
23 this data, do you?
24 DR. BOOTH: A: No, I have no reason at all.
25 MR. GHIKAS: Q: Okay.
26 DR. BOOTH: A: The basic fuel energy sources in the

1 province differ significantly across Canada.
2 MR. GHIKAS: Q: Right. And so if we look at Alberta,
3 for example, the largest there is electricity and heat
4 generation, and that would be the coal largely.
5 DR. BOOTH: A: That is correct.
6 MR. GHIKAS: Q: Okay. And then if we look at the red
7 bar, that's the residential, essentially the
8 residential use generating GHG emissions.
9 DR. BOOTH: A: Well, you're lucky. Mine's not in
10 colour but --
11 MR. GHIKAS: Q: Oh, okay, well, it's this --
12 DR. BOOTH: A: But I would take your point, yes.
13 MR. GHIKAS: Q: It's the second bar up.
14 DR. BOOTH: A: So that's that little one?
15 MR. GHIKAS: Q: Yes.
16 DR. BOOTH: A: Between about 38 and 39 or 40?
17 MR. GHIKAS: Q: The one below that. It's between 30
18 and 35. It may be difficult for you to see the two
19 bars, but anyway --
20 DR. BOOTH: A: So we're talking about Alberta and the
21 base is electricity and heat generation.
22 MR. GHIKAS: Q: The base is, if you look at the bottom
23 one -- I'll give them to you. The bottom bar goes up
24 to just below 30 is transport. And then there's 5
25 percent of residential, and a few, 3 or 4 percent of
26 commercial and institutional. And then from about 40

to 60 there's fossil fuel production and refining. And then the last bar on top of that which goes from about 63 or 64 up to 100 is electricity and heat generation. Now --

DR. BOOTH: A: I don't want to be difficult but I don't see that at all.

THE CHAIRPERSON: We've only got four on Alberta on ours, and I don't think it's a colour variation. It's hard to tell even with that, but --

MR. GHIKAS: Okay, all right. That's fine.

THE CHAIRPERSON: The first one just, you know, goes to about 35, and I think you said 30. So there's something in between the top. That's probably where that other bar is that you can't see on these.

MR. GHIKAS: That's correct. Do you have five little things in your index down the right-hand side?

THE CHAIRPERSON: On the right-hand, yeah. The index is correct.

MR. GHIKAS: The index is correct. It's just hard to see. Okay, all right.

THE CHAIRPERSON: Yeah, there only appears to be four bar --

MR. GHIKAS: All right.

THE CHAIRPERSON: Sorry.

MR. GHIKAS: No, no, that's quite all right. I'm glad you pointed that out.

1 MR. GHIKAS: Q: Let's do it without looking at this.
2 You've already alluded to the fact, Dr. Booth, that
3 elsewhere in Canada, like Ontario and Alberta as well,
4 natural gas is conceived of as clean relative to coal.
5 DR. BOOTH: A: That is correct.
6 MR. GHIKAS: Q: Okay. And if --
7 DR. BOOTH: A: In fact I go further than that. Most of
8 the -- particularly in the U.S., the demand for
9 natural gas when they do forecasts, most of the
10 increased demand doesn't come from residential, it
11 comes from electricity generation, gas-fired cogen
12 plants.
13 MR. GHIKAS: Q: Right. And let me pose it to you this
14 way, Dr. Booth. If there is no coal generation, no
15 coal-fired generation in B.C. and there's minimal
16 natural gas-fired generation, and there's no oil sands
17 in B.C., and government is committed to natural gas
18 production in northern B.C., can we agree that the
19 residential heating sector is a more likely target of
20 emissions reduction policies than would be the case in
21 Alberta and Ontario?
22 DR. BOOTH: A: That's correct. If you've already got a
23 clean province that doesn't use coal, that doesn't use
24 other dirty fuels, fuel oil, and you look around and
25 say that we want to reduce greenhouse gases, then
26 you're going to try and reduce them in areas where

other provinces are going to say this is what we're going to actually use more of rather than less of.

So I take your point and entirely agree that if provincially they say, well look, we've got to reduce greenhouse gases, there's no coal there to reduce, and heavy fuel oil there's less of it. So you're forced to look in areas that other provinces would be happy to use rather than reduce.

Proceeding Time 10:20 a.m. T26

MR. GHIKAS: Q: Thank you, Dr. Booth. Now I am going to really switch gears here and we can talk a little bit about the CAPM, which is one of my favourite topics.

DR. BOOTH: A: I think it was Mr. Johnson's favourite topic as well, and I can see what's coming.

MR. GHIKAS: Q: And I can sense the excitement in your voice, Dr. Booth.

DR. BOOTH: A: Well, I wish Mr. Johnson were here. I hope he's enjoying his retirement.

MR. GHIKAS: Q: Just to start off this, Dr. Booth, if we can just go first of all to Ms. McShane's evidence, if you have that handy. Do you? This would be tab F of the Exhibit B-1-9, the Fortis evidence.

DR. BOOTH: A: I don't have it with me.

MR. GHIKAS: Q: Well, I was just going to read something out to you. I'm at page 69.

1 DR. BOOTH: A: Yes?
2 MR. GHIKAS: Q: Okay. And Dr. Booth, I'm at line 1784
3 here where Ms. McShane has quoted from the Ontario
4 Energy Board's report to the board on the cost of
5 capital for Ontario's regulated utilities dated
6 December 12, 2009, at pages 45 and 46. And let me
7 just read out the quote there. It says:
8 "The Board's current formulaic approach for
9 determining ROE is a modified capital asset
10 pricing model methodology, and in his
11 written comments Dr. Booth recommended that
12 this practice be continued. Dr. Booth
13 recommended that the Board base its fair ROE
14 on a risk-based opportunity cost model with
15 overwhelming weight placed on a CAPM
16 estimate. This view was not shared by other
17 participants in the consultation who
18 asserted that the Board should use a wide
19 variety of empirical tests to determine the
20 initial costs of equity deriving the initial
21 ERP, equity risk premium, directly by
22 examining the relationship between bond
23 yields and equity returns and indirectly by
24 backing out the implied equity risk premium
25 by deducting forward looking bond yields
26 from ROE estimates."

1 And then the next part of the quote is:
2 "The Board agrees that the use of multiple
3 tests to directly and indirectly estimate
4 equity risk premium is a superior approach
5 to informing its judgment than reliance on a
6 single methodology. In particular, the
7 Board is concerned that CAPM, as applied by
8 Dr. Booth, does not adequately capture the
9 inverse relationship between equity risk
10 premium and the Long Canada bond yield. As
11 such, the Board does not accept the
12 recommendation that it place overwhelming
13 weight on a CAPM estimate in the
14 determination of the initial equity risk
15 premium."
16 Now, with that in mind, Dr. Booth, your
17 recommendation in this proceeding is based on the
18 CAPM, isn't it?
19 DR. BOOTH: A: In part, yes, but also I would say that
20 that decision by the OEB, and particularly those
21 comments are totally unfair. And they didn't reflect
22 the evidentiary basis of the consultation.
23 And when they talk about the other experts,
24 there wasn't a litigated hearing, there was very
25 limited intervenor funding, and I was asked to
26 specifically address some questions, and I did not put

in ROE testimony. I answered the questions that the Board put on the issues list, and I reproduced the table that's on page 70 of my evidence here, that indicated overwhelmingly U.S. chief financial officers use the CAP as a pricing model.

And what happened in that hearing was the utilities put in full ROE testimony, and I was actually away at a conference and I got panic calls from my sponsor saying, "Look, the utilities are putting in full ROE testimony and we don't have anything to counter that." And in my presentation I put in one overhead that illustrated the impact of the CAP as a pricing model. And there was no discussion, as far as I can remember, on inverse relationships. But if there was an inverse relationship, it's a question of how the CAP as a pricing model is used, not the model itself. It's a question of how you adjust the market risk premium.

So I would say those comments are totally unfounded and I was very annoyed when I saw them, because they did not reflect the basis of the technical conference, which I thought was totally unfair to start with.

Proceeding Time 10:25 a.m. T27

MR. GHIKAS: Q: Okay. Well, let's -- why don't we leave that behind, then, and focus on what you're

1 doing here.
2 DR. BOOTH: A: No, but we can't leave it behind,
3 because you put it on the record. And the record is
4 what the Board said. And as I say, it wasn't a
5 litigated hearing, and I did not put in ROE testimony,
6 whereas the Board witnesses did. Sorry, not the
7 Board. The utility witnesses did. And the end result
8 was, they just averaged three sets of ROE
9 recommendations by the utilities with my one-page
10 PowerPoint slide, and I don't think that was a
11 legitimate exercise. And I don't think any reasonable
12 person would think that was a legitimate exercise.
13 MR. GHIKAS: Q: Now, just in terms of what you did in
14 this proceeding, Dr. Booth, apart from doing what you
15 regard as reasonableness checks, the core of your
16 testimony is based on risk premiums desired from the
17 CAPM, right?
18 DR. BOOTH: A: No.
19 MR. GHIKAS: Q: So, did you do discounted cash flow,
20 use discounted cash flow methodology as a separate
21 methodology that you used to arrive at a final ROE
22 recommendation?
23 DR. BOOTH: A: That's correct, I did.
24 MR. GHIKAS: Q: Okay. Well, let's go to page 94 of
25 your evidence, Dr. Booth. Okay. So in this, you have
26 summarized. You start -- actually, it starts over on

1 page 93. And there is a summary table. With respect
2 to your conclusions on the fair ROE, and over on page
3 94 you see, under CAPM, which is the first three
4 numbers, your point estimate is 7.5 percent?
5 DR. BOOTH: A: That's correct.
6 MR. GHIKAS: Q: Okay. And your final recommendation,
7 sir, is 7.5 percent, correct?
8 DR. BOOTH: A: That's correct.
9 MR. GHIKAS: Q: And the numbers below do not fall
10 particularly close under DCF and comparable earnings?
11 Those numbers don't fall particularly close or even
12 remotely close to the 7.5 percent that you recommended
13 in this proceeding.
14 DR. BOOTH: A: That is correct. But there was no
15 simple weighting. If you read my testimony, what I
16 did was look to discounted cash flow. In particular,
17 I looked at discounted cash flow in the market to
18 assess what a reasonable market rate of return is.
19 And I used the discounted cash flow to look at --
20 suppose we take an naïve DCF on the market, and we
21 take a naïve market return as a risk premium over long
22 bond yield, and we look to see what's happened over
23 the last 30 years, to assess which of these two
24 approaches derives reasonable numbers. And what I've
25 found out was that in my judgment, at the current
26 point in time, DCF estimates are significantly

exceeding the risk premium method. And that's largely, as I explained, as a result of the very low real yield in the Long Canada bond. And that was part of my testimony, part of my evidence, on how I determined the fair return on the market and whether I should adjust the Long Canada bond yield, which is what I did. Which is the Operation Twist adjustment.

So, if you ask me, did I do a separate DCF test and did I weight them all in, then the answer is no. If you ask me, did I do a DCF test and did that inform my judgment as to what a fair ROE is, and did that inform my judgment as to the parameters in a risk premium model, then the answer is yes, it did. I wouldn't have been able to make some of my adjustments without looking at discounted cash flow evidence.

MR. GHIKAS: Q: Essentially what you did, Dr. Booth, as I understand it, is that the magnitude of the Operation Twist adjustment that you use in your CAPM model was corroborated using DCF, right?

DR. BOOTH: A: That's correct. I wouldn't say corroborated. I would say that I did all these things at exactly the same time. And if you look at my testimony, in terms of -- let's see, where is it? I think the critical thing is on page 90 of my testimony, where I look at DCF -- and I say CAPM, but it's actually just a simple risk premium model, based

upon a risk premium over the Long Canada bond yield. And that's -- I think it's important to assess why is it that we're not getting the same fair rate of return estimates at a risk premium models as we're getting out of DCF models. And that is important in my assessment -- not the only one, but it's important in my assessment in terms of why have I adjusted the risk premium model in order to get results that I think are consistent with the discounted cash flow model.

So, unlike Ms. McShane who looks at a series of estimates and averages them, basically I look at market indicators to come up with my assessments of certain values that I then put in to a risk premium model. But my evidence is based upon all of this evidence.

MR. GHIKAS: Q: Okay, understood, I am just -- let's just focus in here. What you are using DCF for is in arriving at a market return that you use in your CAPM analysis?

DR. BOOTH: A: That is correct. I mean, that census is entirely consistent with Talbot Watson, TD Economics, BMO Capital Markets. And the reports I don't think we are allowed to refer to.

MR. GHIKAS: Q: You'd agree with me, Dr. Booth, that DCF is one of the two basic models for estimating fair returns?

1 DR. BOOTH: A: That is correct, there are only two
2 basic methods. One is to sort of work from first
3 principles in terms of risk premiums, assuming there
4 is a market tradeoff between risk and return on the
5 part of an individual investor. The other is to look
6 at a stream of cash flows and imply, or try and work
7 out what is the discount rate they are using to set
8 the present value of those cash flows equal to the
9 market price?
10 MR. GHIKAS: Q: And I included in the package B1-50,
11 the larger of the two packages, Dr. Booth. If you
12 could turn to page 44. You will see there is some
13 transcript in here from September 16th, 2011, Volume 7,
14 before the Regie. And you testified in that
15 proceeding?
16 DR. BOOTH: A: I did.
17 MR. GHIKAS: Q: Okay, and so if we go to page 45 there
18 is a beginning of an excerpt starting at page 38, and
19 just -- you start referring to DCF, there is a
20 discussion at question 71.
21 DR. BOOTH: A: Yes.
22 MR. GHIKAS: Q: And it goes on to the end of question
23 73 on page 46. And I just ask you to -- if you need
24 to read it, that is fine, but I just ask you to
25 confirm that that is your view of the discounted cash
26 flow model?

1 DR. BOOTH: A: That is correct, it is one of the two
2 basic models I discuss in my textbook. In fact, what
3 we generally do is talk about the discounted cash flow
4 model after we talk about valuation under certainty.
5 Simple present value calculations. Then we go to the
6 DCF, because it is a straight extension of simple bond
7 valuation. And then we go to risk premium models,
8 risk adjustments, and this discussion here simply
9 refers to the data that is on page 70 of my testimony
10 that indicates dividend discounts model to use by 10
11 to 20 percent of CFOs in the United states, whereas
12 the CAT payment is used by over 70 percent.
13 MR. GHIKAS: Q: And Dr. Booth, in past years you
14 yourself have used DCF as applied to utilities as one
15 of your primary tests, not just as a means of
16 verifying your market return and your CAPM, correct?
17 DR. BOOTH: A: That is correct. As part of this
18 hearing, I went back to the 1993 original hearing that
19 the BCUC had to set up an adjustment mechanism.
20 Because at that time, my late colleague Dr. Burkowitz
21 and I were using four techniques. One was the CAPM,
22 one of was risk premium over preferred stock yields,
23 and we were using direct DCF estimates. But at that
24 point in time, we had lots of -- well not lots, but at
25 least we had -- well no, I say it will lots. We had
26 lots of pure play utilities in Canada, where you could

1 do a DCF. In particular, all the local telephone
2 companies were still regulated by the CRTC on a rate
3 of return rate based method, and we had Island
4 Telephone traded, Maritime Tel traded, NewTel traded,
5 Bruncor Traded, Bell Canada traded, B.C. Tel traded.
6 So we had a lot of traded rate of return regulated
7 utilities that we could actually do DCF tests on.
8 Unfortunately, they don't exist anymore.
9 MR. GHIKAS: Q: Now, Dr. Booth, if you can turn to page
10 47 of that B1-50, the thicker package. In here, on
11 page 47 there is some transcript from the 2009
12 proceeding in this commission . Have you had a chance
13 to read through that?
14 **Proceeding Time 10:35 a.m. T29**
15 DR. BOOTH: A: Walk down memory lane, Mr. Ghikas, yes.
16 MR. GHIKAS: Q: All right. And then if you go through
17 -- so that continues through to page 51, and then page
18 52 there is the cover page of financial theory and
19 corporate policy third edition, and there's an Exhibit
20 B-21 in the upper corner. Do you see that?
21 DR. BOOTH: A: Yes, I do.
22 MR. GHIKAS: Q: And carrying on, there's a few pages of
23 Copeland and Weston, and then there is some transcript
24 starting at page 55 and over on 56 which is actually
25 from the 2005 proceeding, and that was part of Exhibit
26 B-21 in the 2009 proceeding, right?

DR. BOOTH: A: That's correct. I am surprised you didn't put the 1993 transcript, because Mr. Johnson asked me the same questions at that time.

MR. GHIKAS: Q: Mr. Johnson was a keen fan of these and I wouldn't want to let him down, Dr. Booth. So in -- if you go for a moment to -- first of all, in 2009 you confirmed that the 2005 evidence you gave you would be your testimony again in 2009, correct?

DR. BOOTH: A: Yes. Financial theory. It hasn't changed. It hasn't changed since 1993. The only think I'll add is that we found it very difficult to test the CAPM. We also find it very difficult to test discounted cash flow models. So any criticism of testability basically applies to DCF as well.

MR. GHIKAS: Q: Right. And I would be remiss if I didn't read you the passage from -- the quote from --

DR. BOOTH: A: *Peanuts*?

MR. GHIKAS: Q: From *Peanuts,* Lucy and Schroeder and at the top of page 53 in the financial theory and corporate policy, I'll take it from the 2005 transcript on page 55 of it. And Mr. Johnston reads to you.

> "…I'll ask you if you agree with something, Dr. Booth.
>
> 'LUCY: I've just come up with the perfect theory. It's a theory that Beethoven would

1 have written even better music if he had
2 been married.
3 SCHROEDER: What's so perfect about that
4 theory?
5 LUCY: It can't be proved one way or the
6 other.'"
7 And Mr. Johnson asked you, Dr. Booth, whether you
8 agreed with that, and you indicated that that was
9 absolutely true and that there were enormous empirical
10 tests of the asset pricing -- I believe that's "model"
11 over the last 40 years. And that would still be your
12 evidence today, correct.
13 DR. BOOTH: A: Well, it would be quite different. I'd
14 now say over the last 43 years. Some of my
15 colleagues keep running these tests and some of them
16 find positive, some of them find negative results and
17 they end up in journals and that's the nature of
18 academic inquiry.
19 MR. GHIKAS: Q: And some lawyers keep coming back to
20 the same questions, Dr. Booth.
21 DR. BOOTH: A: Exactly. I'm waiting for the negative
22 correlation.
23 MR. GHIKAS: Q: You are in luck.
24 DR. BOOTH: A: I know. I know it's going to come.
25 MR. GHIKAS: Q: Okay. So if we go to page 57 there is
26 some further -- 57 of B1-50, the thicker package. And

again, Dr. Booth, there is some excerpts from the 2009 proceeding, Volume 5, and you've had a chance to review that excerpt?

DR. BOOTH: A: That's correct, and I wouldn't change one word of it. Oh, except for "Emira" rather than "Amira" on page 64.

MR. GHIKAS: Q: Okay, and over on page 68 of the package.

DR. BOOTH: A: Is the infamous graph.

MR. GHIKAS: Q: The infamous Charlie Brown shirt graph. That was Exhibit B-23 in the 2009 proceeding, and then attached to that, as part of Exhibit B-23 in 2009 there was some excerpts from the 2005 proceeding and Dr. Booth, your evidence from 2005 again would be the same today.

DR. BOOTH: A: The same as in 2009, the same as in 2005, the same as in 1993, that if you can actually come up with a security that's negatively correlated and you know it's negatively correlated, it's not just after the fact it happened to be negatively correlated, but going forward, if you absolutely know it's negatively correlated, then you can use that to reduce the risk in the portfolio. And that's just the basis, as I said then, of the whole derivatives industry. It's fundamental to risk management.

Proceeding Time 10:41 a.m. T30

1 MR. GHIKAS: Q: Now, when you and Mr. Johnson had -- I
2 won't belabour this, because you have agreed with the
3 transcript, but when you and Mr. Johnson walked
4 through this page 68, the zig-zag Charlie Brown shirt
5 graph here, you were talking about beta. And just for
6 my benefit, Dr. Booth, the market, which is the pink
7 zig-zagging line, and the individual stock, which is
8 the green zig-zagging line, let's -- in this
9 simplified diagram, the market has a beta of 1,
10 correct?
11 DR. BOOTH: A: Correct. By definition, when you value
12 weighted average of all betas in the market, they come
13 up with 1.
14 MR. GHIKAS: Q: Okay. And the risk-free rate has a
15 beta of zero?
16 DR. BOOTH: A: The risk-free rate we normally talk
17 about is the default rate -- default-free rate. And
18 the default-free rate that's got zero correlation with
19 the market, we talk about it as the zero beta
20 portfolio. And that's taken to be a government bond
21 yield.
22 MR. GHIKAS: Q: Okay. And an individual stock that
23 moves exactly with the market, along the pink line,
24 also has a beta of 1.
25 DR. BOOTH: A: Yes. This is -- I mean, this is -- I
26 think this is correlation rather than betas, but if

1 the security going forward you know it's going to move
2 exactly the same with the market, there's correlation,
3 you know it's going to be one, and it's got the same
4 variability, the variance of the market, then it will
5 have a beta of 1 and it will get the market return.
6 That's the basis of the CAPM.
7 MR. GHIKAS: Q: And a stock that moves exactly along
8 the green lines, assuming it's perfectly negatively
9 correlated, that under the CAPM would have a beta of
10 negative 1.0.
11 DR. BOOTH: A: If one existed, yeah.
12 MR. GHIKAS: Q: Yeah.
13 DR. BOOTH: A: But we've never found one. After the
14 fact, we can find instances of negative correlation,
15 or we can find instances where utilities can have
16 earned more than the market as a whole, as we got with
17 the BMO index. After the fact, you can find all sorts
18 of anomalies. But this is based upon *ex ante* going
19 forward.
20 MR. GHIKAS: Q: Right. And that just --
21 DR. BOOTH: A: And there is no evidence of any security
22 existing in the capital market -- And what we call a
23 fundamental security, not a derivative. But a
24 fundamental security with a negative beta coefficient.
25 MR. GHIKAS: Q: And there are -- well, we've referred
26 to Homestake Mining, I believe, in 2009.

DR. BOOTH: A: Well, actually we referred to it in 1993, because that was in the textbooks as the only example of a security with a beta -- I don't even think that's got a beta coefficient of negative any more, because the gold stocks are basically moving with the market.

MR. GHIKAS: Q: Okay. Well, I'm more interested in the theory here of how things are working in the CAPM, Dr. Booth. But if there was a perfect -- if there was such a thing as a perfectly negatively correlated stock, it would have a beta of negative one.

DR. BOOTH: A: That's correct.

MR. GHIKAS: Q: Okay.

DR. BOOTH: A: Assuming that the standard deviation, the variance of that portfolio, was the same as that of the market. And all that means is that we're in a world like insurance, where you can take a negative beta security, add it to a positive beta security, and remove all risk. And that's the basis of insurance. That you pool all the risks, so the risk disappears.

So when we price life insurance, for example, we can pool all the risks of everybody sort of aged 40, and pretty much we know when they're going to die. So you remove market risk. The point about the CAPM is when you add all these securities together, you cannot remove market risk. If there

1 weren't a lot of these negative beta securities, it
2 would be like an insurance market. And there would be
3 no risk.
4 MR. GHIKAS: Q: And, Dr. Booth, if -- I take what
5 you're saying. If a person was only investing in one
6 stock, and it was the green stock, that person would
7 be experiencing, we'll assume, exactly the same level
8 of volatility as the market would be, but it would
9 have a negative beta.
10 DR. BOOTH: A: That's correct. The beta is the
11 correlation coefficient times the standard deviation
12 of the security over the standard deviation of the
13 market. Assuming a beta of 1, a correlation of 1, and
14 we've got the same standard deviation, if you held
15 that security in isolation, you would end up with
16 exactly the same total risk, the same variability, but
17 every time the market went up, your portfolio would in
18 turn go down. If you were to do that, which violates
19 all assumptions and -- not just assumptions, but the
20 practical experience in terms of holding diversified
21 portfolios, you would have a negative beta security.
22 **Proceeding Time 10:45 a.m. T31**
23 MR. GHIKAS: Q: Okay, but the CAPM is based on
24 portfolio theory. That's right?
25 DR. BOOTH: A: That's correct, yeah.
26 MR. GHIKAS: Q: Okay.

1 DR. BOOTH: A: It's based upon portfolio theory and the
2 empirical observation, which is that people generally
3 hold more than 20 securities, and past 15 or 20
4 securities you basically hold the market portfolio
5 anyway. Unless you are silly enough to invest in all
6 tech stocks or all bank stocks or all resource stocks
7 or all negative beta stocks.
8 MR. GHIKAS: Q: Now, Dr. Booth, if we look at FEI
9 itself, it's not investing in a portfolio of stocks,
10 is it?
11 DR. BOOTH: A: That's correct, but we're not really
12 looking at an FEI. We're looking at -- according to
13 the legal standard, the investor in a utility and what
14 they do with their money elsewhere, invest in other
15 securities with equivalent risk.
16 MR. GHIKAS: Q: I'm sure Mr. Wallace and I will have a
17 spirited debate about that, but let's -- leaving the
18 legal standard aside, what FEI is doing is investing
19 in hard assets to provide natural gas service, right?
20 DR. BOOTH: A: That's right. With capital that it's
21 raising through Fortis, which comes from the capital
22 market. Ultimately all the money comes from us.
23 MR. GHIKAS: Q: And the new assets that FEI invests in
24 are going to be regulated by the same regulator as all
25 its other assets?
26 DR. BOOTH: A: I would assume so, yes. I mean unless

1 -- I mean FEI, my understanding has very few non-
2 regulated assets, so I would assume that it's all
3 regulated assets.
4 MR. GHIKAS: Q: And the new investment you'd expect
5 would be subject to the same general business risks as
6 the rest of the invested assets?
7 DR. BOOTH: A: As far as I'm aware, yes. I mean we've
8 got a moral-line business, basically. That it's
9 difficult to think of any investments they'd make that
10 would be different from overall provision of
11 distribution of gas in the province.
12 MR. GHIKAS: Q: And it would be subject to, you'd
13 assume, the same allowed rate of return.
14 DR. BOOTH: A: Yes.
15 MR. GHIKAS: Q: Now, if you can turn to page 76 of
16 package B1-50.
17 DR. BOOTH: A: Yes.
18 MR. GHIKAS: Q: All right, and you've had a chance to
19 review this excerpt from the BCUC 2009 proceeding,
20 Volume 5?
21 DR. BOOTH: A: I have.
22 MR. GHIKAS: Q: Okay. And Mr. Johnson and you were
23 discussing in this, this discussion -- this passage,
24 pardon me, the portfolio approach still. And you'd
25 agree with me, you'd give the same answers today,
26 correct?

DR. BOOTH: A: Correct. I don't see anything that I'd disagree with. I've been saying the same thing for a long time.

MR. GHIKAS: Q: Okay. And if we go down to the end of 79 of the package, Mr. Johnson asked you some similar questions to what I had just asked you, and he indicated that if -- or he asked you with respect to if Terasen, in this case FEI is investing $25 million in its overall system, what would it add or subtract to the overall risk of Terasen Gas's investment portfolio being the system? And you indicated that

> "In that case it would have no impact on its risk whatsoever. It may have some marginal impact in terms of spreading fixed costs over more assets. There may be some sort of reduction in the overall margin and competitiveness in some way, but it would be very marginal impact."

And you would agree with that today.

DR. BOOTH: A: That's correct. I don't see a $25 million project as changing the risk profile of FEI. So I would basically give it the same allowed rate of return and the beta would be the same. Everything would basically be the same.

MR. GHIKAS: Q: Okay. Thank you, sir, and if you go over to page 81, again a further exhibit from -- or

sorry, excerpt from Volume 5 in 2009. Have you had a chance to read page 82?

DR. BOOTH: A: I did, yes, I have.

MR. GHIKAS: Q: And the answers would still be the same?

DR. BOOTH: A: Yes. The FEI is regulated on historic book value at a fair rate of return, and that's the opportunity cost plus a flotation allowance, and the opportunity cost comes from the capital market.

Proceeding Time 10:50 a.m. T32

MR. GHIKAS: Q: Thank you. And if --

DR. BOOTH: A: Are you going to end now after Mr. Johnson ended on that point?

MR. GHIKAS: Q: Oh, you wish. And maybe it's not just you that wishes, actually.

Can you go to C6-15? This is the same IR set that I mixed up with earlier. C6-15. This is Commission IRs to the Utility Customers and I'm looking at page 81 of that, please.

DR. BOOTH: A: Yes, I have them.

MR. GHIKAS: Q: Thank you, okay. And what I want to zero in on is 36.1. So this is -- Mr. Chairman, it's page 81 of Exhibit C6-15.

THE CHAIRPERSON: I've got it, sorry.

MR. GHIKAS: No, that's okay. That's okay.

THE CHAIRPERSON: My fingers are getting numb.

MR. GHIKAS: The exhibit numbers in this proceeding are really difficult with the number of parties.

MR. GHIKAS: Q: Okay, Commission staff asked in 36.1:

> "If so many adjustments to the CAPM result are required to make it reasonable in the current economic and financial environment, how much weight should be given to it in determining a fair ROE for the FBCU? Please explain."

And then you go on to provide your answer in 36.1 and I just want to focus on the lower half of that where it starts:

> "Risk premium models are the basic way of determining the opportunity costs and fair ROE. They are also directly consistent with the legal standard in Canada of Mr. Justice Lamont, whereas DCF and other models are not."

And just focusing in on that, Dr. Booth, Mr. Justice Lamont that you are referring to is a judge of the Supreme Court of Canada in the *Northwestern* case?

DR. BOOTH: A: That is correct. My understanding or recollection is that he's gave a definition of the fair ROE in a minority report, and then that was the definition that was adopted in the *B.C. Electric* case in 1961.

1 MR. GHIKAS: Q: And the *Northwestern* decision was in
2 1929 or thereabouts?
3 DR. BOOTH: A: That's correct.
4 MR. GHIKAS: Q: Okay.
5 DR. BOOTH: A: In my understanding the Board changed
6 the ROE without -- by considering conditions in the
7 capital market but not on an evidentiary basis and it
8 went to the Supreme Court.
9 MR. GHIKAS: Q: And what I'd like to ask you about
10 that, Dr. Booth, is you seem to be equating CAPM and
11 the legal standard, but you'd agree with me that the
12 *Northwestern* case concerned assessment. At that time
13 they were looking at assessment of an overall return
14 on rate base as a whole, not just ROE.
15 DR. BOOTH: A: I'll accept that. In fact the legal
16 standard, in my understanding, is that the overall
17 return be fair and that the cost of raising capital be
18 a fair and reasonable charge to the ratepayer included
19 in rates.
20 MR. GHIKAS: Q: And the CAPM is used to calculate ROE?
21 DR. BOOTH: A: That's correct.
22 MR. GHIKAS: Q: Okay. And the CAPM did not exist until
23 well after the *Northwestern* case.
24 DR. BOOTH: A: Well, that's correct. The CAPM in a
25 sense that a formalized model based upon
26 diversification and betas didn't exist, but the basic

1 principles of the CAPM have existed for centuries.
2 You can see the idea of a risk premium in Adam Smith
3 and John Stewart Mill, that the risk premium -- the
4 fair rate of return is a risk-free rate plus the risk
5 premium. What the CAPM has done is basically taken
6 that risk premium divided into its two components, the
7 market risk premium and then the relative risk
8 adjustment.
9 But the basic idea of a risk-return trade-
10 off which underlies the CAPM has been there for eons.
11 MR. GHIKAS: Q: And Dr. Booth, comparable earnings was
12 a standard test for utility cost of capital for
13 decades after the northwestern decision, wasn't it?
14 **Proceeding Time 10:56 a.m. T33**
15 DR. BOOTH: A: There, I wouldn't be able to answer,
16 because I didn't provide testimony at the 1930s and
17 '40s, and I have no recollection of what they did at
18 that point in time.
19 MR. GHIKAS: Q: But we do know it wasn't the CAPM,
20 because --
21 DR. BOOTH: A: Oh, I do know they didn't estimate
22 betas. Absolutely correct. Because when I was a
23 graduate student, estimating betas was a lot of work.
24 You had to get each individual item and you basically
25 calculated them by hand. A lot of this work is
26 available now simply because of computers. Apart from

1 the technical derivation of the beta. I mean, I would
2 hate to go back to 1929 and have to calculate beta by
3 hand.
4 MR. GHIKAS: Q: Okay. And just very, very briefly, Dr.
5 Booth, at pages 90 and -- 90 through 92, there is a
6 transcript excerpt from the Utilities Commission
7 proceeding in 2009, Volume 5. And again, without
8 dwelling on it, Dr. Booth, your evidence today would
9 be the same as you gave in 2009.
10 DR. BOOTH: A: Well, in fact, I just note I said "eons"
11 in 2009. Exactly the same as I just said. So, I'm
12 more predictable than even I thought.
13 MR. GHIKAS: Q: Okay. Now, I want to turn to a new
14 topic, Dr. Booth. And the -- turn to the topic of
15 automatic adjustment mechanisms.
16 First of all, Dr. Booth, you would agree
17 with me that any sort of formula that the Commission
18 were to -- if the Commission were to rely on some sort
19 of automatic adjustment mechanism, any formula they
20 arrived at is going to be an abstraction of reality.
21 DR. BOOTH: A: Yes. Models and formulas are always
22 abstractions.
23 MR. GHIKAS: Q: And the simpler the model, the more it
24 is an abstraction.
25 DR. BOOTH: A: Not necessarily. You can think of a
26 complicated model where people have added all sorts of

1 things that don't add anything. So the important
2 thing is to capture the important things. And you can
3 have a simple model that does that. And more
4 complicated models obfuscate the issue.
5 MR. GHIKAS: Q: You would agree with me that whatever
6 the formula looks like, it can't be expected to be
7 accurate a hundred percent of the time in arriving at
8 the fair rate of return.
9 DR. BOOTH: A: That's correct. That's been -- I have
10 noticed that, for example, before the OEB, they said,
11 "We want to make the formula as accurately as
12 possible, so that every year it's more -- it's a
13 better estimate." Whereas the Régie was more
14 concerned with long-run -- was more concerned with
15 stability and long-run accuracy. So, I would say
16 that's part of the decision of the regulator, in terms
17 of how accurate the formula has to be on a year-to-
18 year basis.
19 MR. GHIKAS: Q: And you regard, Dr. Booth, a formula as
20 a compromise between utilities and customers.
21 DR. BOOTH: A: That's correct. I think one of the
22 reasons I think the formula has basically been
23 generous is to offset the advantages to the ratepayer
24 in terms of lower evidentiary costs and savings in
25 terms of those costs that are passed on to ratepayers,
26 versus the -- a slightly higher ROE than I would

1 regard as fair.
2 MR. GHIKAS: Q: The formula that you're recommending
3 today in this proceeding is based on changes in the
4 forecast long Canada bond yields, and also changes in
5 credit spreads, correct?
6 DR. BOOTH: A: That is correct.
7 MR. GHIKAS: Q: Okay. If we can go to the small
8 package of materials that I handed out --
9 THE CHAIRPERSON: B1-51?
10 MR. GHIKAS: B1-51, that's right.
11 **Proceeding Time 11:01 a.m. T34**
12 MR. GHIKAS: Q: And the first document in that, you
13 will recall, was your evidence before the BCUC in
14 August, 2009. And what I would like to focus on is
15 something that you said which is on page 7 of your
16 evidence but page 8 of the red paginated page numbers
17 that we've added.
18 In lines 11 to 20 you deal with the
19 automatic adjustment mechanism, and what I would like
20 to focus in on -- first of all in that proceeding you
21 were recommending a formula that was just reliant on
22 Long Canada Bond yields?
23 DR. BOOTH: A: That's correct. I was recommending that
24 BCUC maintain its then existing formula.
25 MR. GHIKAS: Q: Okay, and you also at line 18 you
26 indicated:

1 "I also judge it to be bad regulatory
2 practice to link allowed ROEs with default
3 risky corporate bond yields, since doing so
4 injects considerable volatility into allowed
5 ROEs that benefits nobody."
6 DR. BOOTH: A: That's correct.
7 MR. GHIKAS: Q: Thank you. Now --
8 DR. BOOTH: A: And I said that before the Régie, and I
9 said that in my judgment, if you base the credit
10 spread on the difference from the average over the
11 business cycle, it would not change the ROEs that come
12 out of the ROE formula the Régie use and this
13 Commission uses, and what it will do is introduce more
14 year-to-year volatility. But on average, obviously a
15 spread is going to be average. So it's not going to
16 change the basic ROE. And I introduced that in 2010
17 before the NEB and the Régie in response to the credit
18 spreads that the boards clearly introduced in 2009,
19 and I did so with great reluctance. As I said before
20 the Régie and I've said elsewhere, it does generate
21 more volatility, but over a business cycle it
22 shouldn't change the average ROE at all.
23 MR. GHIKAS: Q: And where in your evidence in this
24 proceeding do you indicate that you're putting forward
25 your evidence with great reluctance?
26 DR. BOOTH: A: I don't think I have said it in this

1 case. But the first time that I did put it before the
2 ROE, that's very clear and I think you've got a
3 passage somewhere in here from the Gaz Métro decision
4 where -- I can't remember whether it's in this
5 package, but that was certainly what I did before the
6 Régie.
7 MR. GHIKAS: Q: Okay.
8 DR. BOOTH: A: Because what you've got with the credit
9 spread is just the deviation of the actual yield on a
10 corporate bond from the normal yield on the corporate
11 bond, and over the full business cycle that should
12 average out to zero. But in the intervening period
13 it's going to make the ROE more sensitive to capital
14 market conditions. It's going to go up when the
15 yields on corporate bonds go up, and go down when
16 market conditions are good and the yields go below the
17 average. So it introduces that volatility at the
18 expense -- but the overall ROE, as I mentioned, should
19 be exactly the same.
20 And the Régie looked at that and they
21 admitted that it added more volatility, but they
22 eventually decided that that was a good thing. And as
23 I said, it's a question of whether the Commission
24 wants to trade off the stability in the ROE over the
25 business cycle versus this increased volatility on a
26 year-to-year basis.

MR. GHIKAS: Q: Okay, well, let's dive into how your formula works because I want to make sure I understand it. Page 100 of your evidence. And I'm in particular zeroing in at line 4 and I'm not going to try to interpret that equation. What I'm going to focus on is the layman's explanation below:

> "In words, the ROE is 7.5 percent and will change by 50 percent of the change in credit spreads from 1.86 percent and increase by 75 percent of the change in the forecast long-term Canada yield above 3.8 percent. However, my enhanced formula is not tied to my own recommended ROE and the BCUC can use it with its own starting fair ROE."

So let me just drill down a little bit and make sure I understand the individual components, okay?

DR. BOOTH: A: Yeah. Now, I'd just qualify that I did change the 1.86 to 1.80 percent.

MR. GHIKAS: Q: Oh, thank you.

DR. BOOTH: A: That was in answer to an information request. Simply that in the course of developing my testimony the spread changed.

Proceeding Time 10:20 a.m. T35

MR. GHIKAS: Q: Right. I recall that now. Thank you. I just made a note.

So with respect to the long-term Canada Bond forecast, the current forecast long-term Canada yield is below 3 point -- sorry, below 3 percent, right?

DR. BOOTH: A: That's correct. I think we are still witnessing the effect of the Federal Reserve basically saying that they expect to keep pumping 85 billion a month in bond buying until 2015. They don't expect the U.S. unemployment rate to get down to 6.5 percent until 2015, and I think this has had an impact in terms of bond yields.

MR. GHIKAS: Q: And I didn't include a reference in my notes but I seem to recall the number that was being discussed about where it stands today is 2.35 percent or somewhere in that range?

DR. BOOTH: A: I think it is 2.42 if you read the newspaper, but I mean, it's something like that. It's just an incredibly low interest rate when you take into account 2 percent inflation and the fact that you pay tax on that 2.4 percent. So nobody in their right minds should buy Long Canada bonds because you are getting a negative after-tax yield, which is why I guess the two reports I'm not allowed to mention indicate that it's not an equilibrium yield and it's not a target yield. It just doesn't make any sense.

MR. GHIKAS: Q: Now, Dr. Booth, the impact of --

because you've included the 3.8 percent floor, as it were, in your formula, the impact of a rising forecast Long Canada bond yield will only kick in as an upward influence on the ROE once the forecast Long Canada yield exceeds 3.8 percent, correct?

DR. BOOTH: A: That's correct. I think that my assessment is simply that -- and this is something we put to Mr. Engen. I mean, we do have foreign official flows of money coming into Canada because we are a triple A rate country and they are basically buying Canadian government bonds, pushing up prices, pushing down yields, and pushing them down to a value that I do not think reflects the proper trade-off between risk and return by "an ordinary private investor" making these decisions. It reflects the global policy maker.

MR. GHIKAS: Q: And over time the expectation, broadly speaking the expectation is that Long Canada bond yields are going to rise from more or less where they are today, but there is more upside than further down side?

DR. BOOTH: A: I don't think there's any down side. I think -- I agree a hundred percent -- can I mention the two reports that were *in camera?* I'm not quite sure.

MR. WALLACE: I take the guidance of the Commission here,

1 but I think Dr. Booth could just say the confidential
2 reports that are filed in this matter.
3 THE CHAIRPERSON: I think that's acceptable as long as
4 you aren't giving any detail.
5 MR. GHIKAS: Q: That's fine by me, Dr. Booth.
6 DR. BOOTH: A: I agree a hundred percent with those
7 confidential reports, that the current interest rates
8 in Canada are consistent not just with those
9 confidential reports, but the TD Economics and Tallis
10 Watson Reports that are on the record, that current
11 Long Canada bond yields are not equilibrium yields.
12 And sooner or later, the EU and U.S. will pull out of
13 their problems and we will see private capital going
14 back into equity securities and into other forms of
15 securities than Long Canada bonds, and we will expect
16 the Long Canada bond yield to revert to normal.
17 At the moment it is not normal, and I would
18 not base a risk premium or any return for a regulated
19 utility off the Long Canada bond that I don't think
20 reflects ordinary investors trading off risk and
21 return. It reflects policy makers.
22 I was looking at something just a couple of
23 days ago. 90 percent of the U.S. government deficit
24 is being funded by the Fed Reserve, and that's not the
25 actions of a risk/return trading off investors. The
26 actions of the Fed Reserve.

1 MR. GHIKAS: Q: Now, Dr. Booth, just sticking with
2 understanding how the formula you proposed works, can
3 we agree that because of the 3.8 percent floor on the
4 Long Canada forecast yields, the only thing under your
5 formula that can affect the ROE until we get above the
6 3.8 percent is the credit spreads.
7 DR. BOOTH: A: That's correct. And in fact, given the
8 forecast Long Canadas I would say basically that's
9 almost a fixed rate forecast or fixed rate ROE for say
10 the next three years. Because we are getting more and
11 evidence that we do not expect to see Long Canada bond
12 yields above 3.8 percent over the next two or three
13 years.
14 MR. GHIKAS: Q: Okay. And so if the credit spreads
15 drop or tighten before we get to that point where the
16 Long Canadas are above 3.8 percent, under your formula
17 the impact will be for the ROE to drop further from
18 whatever it is that the starting point is.
19 **Proceeding Time 11:11 a.m. T36**
20 DR. BOOTH: A: That's correct. But I see the bulk of
21 the credit spread not as being caused by the yield on
22 corporate bonds. I see it as being caused by these
23 very low Long Canada bond yields. And it's noticeable
24 that that spread is bigger in Canada than it is in the
25 United States. And I think that simply reflects the
26 amount of money that's come into the Canadian

1 government bond market.
2 MR. GHIKAS: Q: And the spreads have, in fact, I
3 believe, your correction showed they are marginally
4 tightening since you filed your initial evidence.
5 DR. BOOTH: A: That's correct. It was actually -- I
6 should have had 180 at the time I filed my testimony.
7 I was sort of changing bits and pieces of it, and I
8 changed it in terms of my recommendation. I didn't go
9 back and change it in terms of the ROE adjustment
10 model. And in fact, when I was asked this in an
11 Information Request, at that time, two weeks ago, the
12 spreads have tightened a little bit more to 177 basis
13 points. And these are generic spreads. The old
14 Scotia Capital A bond yields are over there -- the
15 index of Government of Canada bonds.
16 MR. GHIKAS: Q: Now, in your CAPM analysis, Dr. Booth,
17 you have added a 40 basis point adder, effectively, to
18 your CAPM results, or to account for abnormally high
19 credit spreads, correct?
20 DR. BOOTH: A: That's correct. And to come back to the
21 reference in my 2009 testimony, at that point it was
22 the discussion of whether you should build the whole
23 risk premium of the bond yields. And I didn't agree
24 with that. But in 2010, in response to testimony that
25 Ms. McShane filed and before the NEG, which she
26 recommended this formula, and in response to the OEB

formula -- a response to the decisions of regulators, I decided to add a 50 percent change to the credit spreads because it would make the formula perhaps a little bit more accurate on a year-to-year basis. But with no great gain over the business cycle.

MR. GHIKAS: Q: And that's my next question to you, Dr. Booth. The 40 basis points effectively for the credit spread adjustment that you have used, you have indicated that you expect that to even out to zero over a business cycle, right?

DR. BOOTH: A: Well, that's correct. The average on the business cycle up until three years ago, the average was 100 basis points. And that was what was regarded as a typical spread for an A bond. Utilities would be a little bit lower than that, because generally they trade as a higher grade than an A, for example. And then we've got the evolution since the financial crisis. In 2009, I was before this Commission basically saying, "Well, we're through the worst." Wipe my brow. And we've recovered. The Canadian economy has recovered. The capital markets are recovered. I think we can go back to normal. And I think that was a correct assessment until the summer of 2011, when the Euro-crisis and the Fed started their bond-buying program. And the only significant change is that it's driven down the yield of

1 government bond yields, and brought down progressively
2 Government of Canada bonds, then to a lesser extent
3 corporate bonds, then to a lesser extent preferred
4 stock yields. So the impact of that program and the
5 Euro-crisis have primarily been felt in the government
6 bond market.
7 MR. GHIKAS: Q: Okay. And if you've added a 40 basis
8 point spread adjustment to your CAPM results, and
9 you're expecting that credit spread adjustment to even
10 out to zero over a business cycle, I'd suggest to you
11 for that to occur, credit spreads are going to have to
12 shrink over the remainder of the business cycle.
13 DR. BOOTH: A: That's correct. I mean, that's the --
14 as I said, I don't really see it as being the
15 corporate bond yield. What I see happening is, we've
16 got news today of some sort of agreement on the
17 financial -- fiscal cliff in the United States. There
18 is clear evidence that the Euro-crisis is past its
19 worst stage. The deficit to GDP ratios are going
20 down. They have taken harsh medicine. I fully expect
21 that we're through the worst, and that we will
22 recover. There is light at the end of the tunnel.
23 We're not going to be in this stage forever. We will
24 see a recovery in Europe. We will see the United
25 States slowly recovering. And we would see capital
26 going out of the bond market back to where it should

be, which is in the equity market financing productive investments. And as a result, I fully expect to see a return to normal, or -- oh, I shouldn't say a return to normal. Return to average. And currently not in a situation I would regard as being average in the long-term Canada Bond market.

MR. GHIKAS: Q: Okay, and now changing gears for a second, Dr. Booth, in your opening statement you indicate on the second page that in the financial market context that times have now changed:

> "According to the Governor of the Bank of Canada, our financial system is now firing on all cylinders, and the limited output gap that remains is expected to disappear in 2013."

And you make the same reference on page 2 of your testimony itself.

And you were asked to produce the entire media release from which you were quoting, and I'd just like to go there. This is Exhibit C6-16 and I believe this one really is C6-16. And this is the very first page of that and it's IR 1.1 effectively. And there's a photo of Mr. Carney at the top of the page there.

DR. BOOTH: A: Okay, I see it.

MR. GHIKAS: Q: Okay. All right. Now, you'll see --

so this is from August of 2012 and you'll see your quote where you're quoting from is on the next page, page 2 of the IRs, and it's in the third paragraph there. And you haven't, you'll agree with me, referenced anything from the section that is below the heading Very Dangerous Place?

DR. BOOTH: A: That is correct. That's the Global Capital Markets impact and I was talking primarily about Canada. And I noticed Tim Lane's presentation, I think it was in New Brunswick, where he said basically the same thing, that the output gap in Canada has almost disappeared. And if we could cut Canada off from the rest of the world, which of course we can't, everything in Canada looks pretty good. The economy has recovered. Little output gap left, perhaps a year's worth of growth. All of the pressure is coming from outside Canada, which is why we've got this official flows into the Long Canada Bond market. If the rest of the world was in better shape, they wouldn't be investing in Long Canada Bonds and I wouldn't have to make an Operation Twist adjustment.

MR. GHIKAS: Q: Now, we've included in Exhibit B1-50, the thick package, a more up-to-date document from the Bank of Canada. Excerpts from it, pardon me. It's the whole overview from that document and it's at page 96 of the package. And this is a Bank of Canada

1 Financial System Review December 2012. Do you have
2 that there, Dr. Booth?
3 DR. BOOTH: A: I do.
4 MR. GHIKAS: Q: And you've had a chance to review the
5 excerpt we've included?
6 DR. BOOTH: A: Yes, and I a hundred percent agree with
7 it and I think it's entirely consistent with what the
8 governor said in August. It's essentially the United
9 States, the problem with the fiscal cliff and the
10 problems in Congress and the evolution of the Euro
11 crisis, the problems. The only thing we face in
12 Canada is that our housing market has been too hot,
13 and yet we've seen within the last week or so the
14 housing starts have slowed down and sales of real
15 estate have slowed down even though prices haven't
16 changed.
17 So there's a sign that the housing market
18 has adjusted in response to government policy. But
19 apart from -- with that qualification, I a hundred
20 percent agree with everything that's in this report.
21 MR. GHIKAS: Q: And so just for the context of
22 everybody, Dr. Booth, so this is a document that the
23 Bank of Canada produces every six months?
24 DR. BOOTH: A: That's correct. It's an overall review
25 of the financial system where they highlight a list of
26 the Canadian financial system, and generally they look

at liquidity, whether the banks can raise capital, the capital adequacy of the banks, the international imbalances in terms of payments, the state of economic growth around the world, and the last one is the household sector in Canada. Those are the five risks factors they've been looking at for about the last six years.

Proceeding Time 11:21 a.m. T38

MR. GHIKAS: Q: And if you go over to page 98 you'll see reference to the committee governing council including Mr. Carney and Timothy Lane, who I believe was speaking in Moncton in -- I believe Mr. Fulton referred to that earlier to Ms. -- I think it was Ms. McShane.

Now, in the page 101, if you go in the overview here, there's a discussion of -- in the second paragraph it zeros in on Canada's financial system and goes on to talk about the banks. And so the financial system, that's the banks, right?

DR. BOOTH: A: That's correct. Everything in Canada starts with the banks and ends up with the banks.

MR. GHIKAS: Q: Okay. Now, it carries on then in the next paragraph judging that the risk and stability of Canada's financial system remain high, and then there is sort of a nice coloured chart on the next page, 102, where you see their risk assessment.

DR. BOOTH: A: That's correct.
MR. GHIKAS: Q: Okay, and their overall risk assessment is high, right?
DR. BOOTH: A: That's correct. But as I said, it's all coming from outside Canada. The only ones in Canada really are the Canadian Household Finances and since -- I know this is dated December, but the last week or so we've seen evidence that the housing market is slowing down in Canada, that Canadians have taken the warnings of the Bank of Canada and the Department of Finance into account.
MR. GHIKAS: Q: And we've also seen, since that time, six Canadian financial institutions being downgraded by S&P.
DR. BOOTH: A: That's right, but only one, the Laurentian Bank -- I'm trying to remember the -- it was only one of the big Canadian banks that was down graded.
MR. GHIKAS: Q: It would be Bank of Nova Scotia and National I think are the two.
DR. BOOTH: A: National, I always thing -- I hope this is not going out to Quebec, but it's half a bank in the sense that I tell my students we've got five and a half banks in Canada because National is so much smaller than the smallest other bank, CIBC. And I think -- I can't remember who referred to it, I think

it's Flaherty referred to it as basically a risk -- the perception of risk is all related to the housing market, the mortgage market in Canada. And the downgrades, I think, almost entirely focussed on the fact that the Canadian banks are exposed to the mortgage market, and there is, was, some concern and still is some concern that Canadian households are over-levered.

But I just point out that this statement says:

> "Canada's financial system continues to be robust."

I don't think there's much difference between "continues to be robust" and "firing on all cylinders". The fact is credit is easily available in Canada to anybody with a reasonable need and a good balance sheet.

MR. GHIKAS: Q: And Dr. Booth, in your evidence, if we wanted more -- well, let's put it this way. You've referred to the qualitative assessment that's been made in terms of the Canadian financial system firing on all cylinders, but in your evidence in response essentially to the indicators that Mr. Engen had put forward, you included something called -- results for something called Bank of Canada's Canadian Financial Conditions Index. Right?

1 DR. BOOTH: A: That's correct. I wouldn't say it's in
2 response to Mr. Engen. This is part of my testimony
3 that is there even when Mr. Engen isn't there. It's a
4 broad-brush assessment by the Bank of Canada and the
5 Kansas City Fed on overall financial market
6 conditions. And I supplement that with direct
7 information from the Bank of Canada on conditions in
8 the loan market.
9 MR. GHIKAS: Q: And if we go to page 64 of your
10 evidence, you are referring to, right at the bottom of
11 that page 16, so you've just spoken about the Kansas
12 City Fed index and then you say that
13 "The Kansas City Fed index follows
14 pioneering work done by researches at the
15 Bank of Canada who have developed a simpler
16 financial conditions stress index which is
17 graphed below.:
18 And then over on the next page you say:
19 "The Bank of Canada indicator similarly
20 attracts the enormous stress in the
21 financial markets during the financial
22 crises. However, unlike the KCFSI index,
23 reflects marginally loose or easy financial
24 market conditions."
25 **Proceeding Time 11:26 a.m. T39**
26 And then you go on to say

1 "The performance of the Canadian financial
2 conditions index mirrors the assessment of
3 the Bank of Canada in its financial system
4 review, December, 2011, where it indicated
5 that credit conditions are changed little in
6 Canada since -- in Q3, 2011. The graph
7 below supports that assessment and recent
8 data from the monetary policy report showing
9 the credit conditions for Canadian firms
10 remain relatively easy."
11 So in your evidence, Dr. Booth, you were
12 relying on the Canadian financial conditions index in
13 support of the market assessment, correct?
14 DR. BOOTH: A: Yeah, I was looking at the Kansas City
15 Fed, the -- I mean, this all follows. Remember, the
16 spread data that I introduced beforehand, because
17 traditionally we look at spread data, short-term
18 spreads in the money market to indicate can the banks
19 and major corporations access capital on what would be
20 regarded as normal terms. And we can see -- I mean,
21 we don't have to turn to it, but during the financial
22 crisis those spreads rocketed. And then the second
23 thing is we normally look at is long-term spreads. So
24 we look at the spreads in long-term bonds, A, Triple-B
25 and Double-A bonds. So that's the normal way of
26 looking at this.

1 And then the financial crisis -- I mean,
2 there is other things as well. We can look at the
3 volatility index. We can look at the behaviour of
4 bank share prices. So there is a variety of other
5 indicators that we can look at. And the Canadian
6 financial conditions index -- I'm not saying it was
7 the first, but one of the first to basically say,
8 "Let's see, can we put all of these indicators
9 together in one composite?" And that's what the
10 Canadian financial conditions index does.
11 And then the U.S. Kansas City Fed --
12 actually a more sophisticated approach in terms of the
13 econometrics and the statistics, but they basically
14 said, "Let's try and do the same thing." So, I
15 wouldn't way I've only looked at those condition
16 indicators. I look at the spreads in the state of the
17 markets interest rates, and then I add these at the
18 end in terms of sort of overall indicators, because
19 they incorporate volatility index, share price
20 behaviour, spreads. So, in one composite number. And
21 I finish up by looking at the long market, because
22 that's more a market, in the sense that we can look at
23 prices. The long markets rely upon the Bank of
24 Canada's senior loan officers' survey.
25 MR. GHIKAS: Q: And, Dr. Booth, you include the
26 Canadian financial conditions index because you

1 believe it is a good reference point for the Canadian
2 financial markets, correct?
3 DR. BOOTH: A: Absolutely. I mean, people at the Bank
4 of Canada put it together, and that's their
5 assessment. And I would have to do a lot of work to
6 replicate what they've already done, to no great
7 benefit.
8 MR. GHIKAS: Q: And you indicated that it's not
9 specifically in response to Mr. Engen. That is, in
10 fact, something that you use in all your testimony,
11 correct?
12 DR. BOOTH: A: That's correct. I think -- I can't
13 remember when I first started using it. I used to put
14 in a volatility index and other measures, and then I
15 became aware of this financial conditions index. I
16 think it was about three years ago. And it was in
17 response, actually, to the Kansas City Fed's financial
18 stress index. Because even though they back-date
19 these with numbers going back earlier, these are
20 relatively recent measures. And I mean, the credible
21 thing is just to show the huge stress the financial
22 system was under during the financial crisis where the
23 numbers spike. And I suspect the reason why the
24 financial stress index in the U.S. was a little bit
25 more stressed than in Canada was mainly the U.S.
26 banks. Because one of the measures is the volatility

1 of share prices of the banking sector. And our banks
2 are a lot more stable than they are in the United
3 States.
4 MR. GHIKAS: Q: Well, if you go -- if you're looking at
5 page 65, Dr. Booth, you say -- you have just alluded
6 to the fact that what it indicates is the enormous
7 stress in the financial markets during the financial
8 crisis. The part that you've left out in your answer
9 here is that unlike the KCFSI, the index reflects
10 marginally looser, or easy recent financial market
11 conditions. That too, was a reason you included that
12 index, wasn't it?
13 DR. BOOTH: A: No, I've had both of these indexes in my
14 testimony for a long period of time.
15 MR. GHIKAS: No --
16 DR. BOOTH: A: I can't ever remember putting one in
17 without the other one in.
18 MR. GHIKAS: Q: You're misunderstanding, Dr. Booth.
19 DR. BOOTH: A: Oh, sorry.
20 MR. GHIKAS: Q: You indicated in your previous response
21 that -- as I understood it, you were saying the import
22 of what this graph is saying, for the purposes of your
23 testimony, was to show the stress in the financial
24 crisis. And I am suggesting to you that that was one
25 of the points that you have identified here. But
26 there was another one, which was to emphasize the

1 marginally looser or easy financial -- recent
2 financial market conditions. You would accept that
3 that was one of the things you were pointing out with
4 respect to this graph.
5 **Proceeding Time 11:31 a.m. T40**
6 DR. BOOTH: A: That's true. I was just saying that if
7 you look at the numbers -- I mean these are really
8 tiny differences, but if you look at the numbers, the
9 Canadian Financial Stress Index basically almost
10 hasn't gone above zero except for this one tiny data
11 point; whereas the U.S. index did go above zero in
12 response, and that was basically summer of 2011-12.
13 So all I'm doing is pointing out that -- I mean these
14 are indexes.
15 MR. GHIKAS: Q: And you've been placing -- as I
16 understood your testimony today, you've been
17 continuously, while we were talking about financial
18 conditions, emphasizing the Canadian financial markets
19 as opposed to the international and other markets,
20 right? Your focus is on the Canadian financial
21 markets, which is what --
22 DR. BOOTH: A: We're determining a fair rate of return
23 in the context of the Canadian economy, Canadian
24 capital markets, and the opportunity cost to investors
25 where they can put their money.
26 MR. GHIKAS: Q: And that's why you see value in this

1 Canadian Financial Conditions Index.
2 DR. BOOTH: A: I think it's a broad -- I wouldn't
3 overemphasize this, Mr. Ghikas. I just think it's a
4 broad-brush measure of conditions in the capital
5 market. And it's there simply to look at the overall
6 conditions in the capital market rather than pointing
7 to one particular index. It's produced by the Bank of
8 Canada. And the major message is simply how
9 horrendous the conditions were during the financial
10 crisis. I wouldn't put too much emphasis on the
11 month-to-month volatilities or changes in the indexes.
12 It's just a broad-brush measure of the financial
13 market conditions.
14 MR. GHIKAS: Q: And how marginally loose or easy recent
15 financial market conditions are.
16 DR. BOOTH: A: That's correct. That's what the indexes
17 indicate.
18 MR. GHIKAS: Q: You've read, I presume, Dr. Booth, Mr.
19 Engen's rebuttal evidence on this point?
20 DR. BOOTH: A: I remember looking at the rebuttal but
21 I'll be actually frank, I didn't pay that much
22 attention to it.
23 MR. GHIKAS: Q: Okay, so --
24 DR. BOOTH: A: But if you can point me to something --
25 MR. GHIKAS: Q: Well, I'm happy to do that, but will
26 you -- do you recall that he included an updated

1 Canadian Financial Conditions Index Indicator that
2 shows the conditions are worse today than at the time
3 of the 2009 ROE proceeding?
4 DR. BOOTH: A: I think he mentioned that. I seem to
5 remember that because if you look at the Canadian
6 Financial Conditions Index, we've got the huge spike
7 in -- to 4 during the financial crisis, and then
8 you've got the response. You've got the response of
9 the Bank of Canada and the Government of Canada, and
10 you see that it drops dramatically because the way in
11 which to respond to the financial crisis is to try and
12 make money as freely available as possible to lower
13 interest rates to try and stimulate the economy.
14 So if you look at the numbers, it's quite
15 clear that in 2009 the Canadian -- the Financial
16 Stress Index was low because that was the policy of
17 the Bank of Canada, to flush the system with liquidity
18 to try and get the system going. And thankfully we
19 don't have to have that any more. The Canadian
20 financial markets have recovered.
21 MR. GHIKAS: Q: And Dr. Booth, I am completely changing
22 gears on you here. If you can turn to page 92 of
23 Exhibit B1-50, which is the thicker package, there's a
24 page from the transcript of the October 1st, 2009
25 Volume 5 transcript from the 2009 proceeding, and I'm
26 sorry I didn't put a cover page on it but you'd agree

with me that this excerpt on page 92 was part of your evidence in 2009.

DR. BOOTH: A: That is correct.

MR. GHIKAS: Q: Okay, and you --

DR. BOOTH: A: Are we on the same page? This one is page 91, page -- the red 91-92 in your package?

MR. GHIKAS: Q: Oh, I'm sorry, I did put a cover page in. Okay. Yeah, page 90 is the cover page and then there's the transcript on page 91 and over on 92. Yes, thank you, Dr. Booth. So you'd agree with me you were asked those questions and you gave those answers in 2009.

DR. BOOTH: A: That is correct.

MR. GHIKAS: Q: And they were true, I presume.

DR. BOOTH: A: Well, as far as I was concerned when I answered them they were true at that time. Just let me have a quick glance through to see if I'd change anything.

MR. GHIKAS: Q: Sure, sure, and I'll ask you whether you'd give the same answers today.

Proceeding Time 11:36 a.m. T41

DR. BOOTH: A: Oh, yes, I think Mr. Johnson is asking me about the *Northwestern Utilities* case. And this is again -- I thought we'd dealt with this, where I have the quote "diversification has existed for eons". So I wouldn't change anything up. I said that.

1 MR. GHIKAS: Q: Fair enough. Changing gears again,
2 what I'd ask -- my next series of questions, Dr. Booth
3 are based on a response to an IR that the Fortis
4 Utilities asked you, so that would be C6-16, I
5 believe. And the IR I want to look at is on page 74.
6 And it should be IR 58.1.
7 MR. WALLACE: Sorry, what number?
8 MR. GHIKAS: It should be IR 58.1. Do you have that?
9 There's a table on the top there.
10 MR. GHIKAS: Q: Before diving into that, Dr. Booth,
11 let's just keep it at a high level for a moment. The
12 CAPM, like any model, essentially, is -- if you put
13 low numbers into a model you get low numbers out.
14 Like when you do --
15 DR. BOOTH: A: Garbage in, garbage out.
16 MR. GHIKAS: Q: Garbage in, garbage out. Okay. Now,
17 and the inputs in the model are subject to judgment,
18 correct?
19 DR. BOOTH: A: That's correct. This is one of the
20 criticisms when the OEB made those statements. I
21 thought, "How on earth could they say that, because
22 the CAPM doesn't have anything in it about inverse
23 relationship, it just says you make your assessment of
24 the market risk, you assessment of beta, your
25 assessment of the appropriate risk free rate." It's
26 the numbers that go in that are important that assess

1 any inverse relationship or anything else.
2 MR. GHIKAS: Q: And the judgment comes in, it
3 influences effectively the determination of beta,
4 right?
5 DR. BOOTH: A: That's correct. Beta you've got
6 historic estimates and if something unique has
7 happened during that period, stats of those historic
8 estimates are either extremely or extremely low. If
9 you don't expect those events to be replicated in the
10 future, then you shouldn't use those historic beta
11 estimates. Because we are looking for future, and we
12 look at the past to guide the future, but this
13 Commission should be interested in what do I think is
14 the relative risk of a benchmark utility going
15 forward, not how is that benchmark utility behaved in
16 the worst financial crises for 70 years.
17 MR. GHIKAS: Q: And there's judgment also that goes
18 into the determination of the market risk premium.
19 DR. BOOTH: A: Correct. There's not as much judgment
20 in terms of the market risk premium because there we
21 do have 85 years of capital market history that in
22 fact covers the period of great depression and
23 economic circumstances similar to what we are in at
24 the moment.
25 I'd have to say that ten, fifteen years ago
26 I discounted the period prior to 1956 because I felt

1 we were sensible enough that we would never have a
2 great depression experience again. But as the Prime
3 Minister of Canada pointed out, the Americans made
4 some fundamental mistakes and unfortunately we are
5 living with the consequences of those.
6 MR. GHIKAS: Q: And in your application of the CAPM,
7 would it be fair to say that you take a look at the
8 overall result and see whether it passes the smell
9 test, as it were?
10 DR. BOOTH: A: No, I don't use the smell test. I think
11 the smell test was originally Pierre Trudeau that made
12 the reference to a smell test. I don't use a smell
13 test. I do use judgment in terms of what I would
14 regard as reasonable given my knowledge of what's
15 going on in the capital markets. But I do not have a
16 pre-ordained number that I then work my numbers
17 towards. What I have is an assessment of what the
18 market risk premium is in a range and then I go
19 through a discussion of current capital market
20 conditions consistent with the changed conditions in
21 the capital market coming out of the *Northwestern*
22 *Utilities* decision to make sure that my
23 recommendations are not just historic averages but are
24 consistent with the state of the capital markets.
25 **Proceeding Time 11:41 a.m. T42**
26 MR. GHIKAS: Q: All right. Well, let's explore this in

1 a little more detail by reference to IR -- your
2 response to IR 58.1 on page 74. Now, this question
3 simply put data in a table in the preamble and asked
4 you to confirm that the table is accurate, and your
5 response was:
6 "Dr. Booth does not track his past evidence
7 but has no reason to believe that the data
8 is not correct."
9 So you accept effectively the accuracy of the table.
10 DR. BOOTH: A: Yes, I can't see any problems with it.
11 As I said, when this hearing is over I close my files
12 and I go back to my day job. I do not track either
13 decisions or what I've done in the past.
14 MR. GHIKAS: Q: Okay. Now, these results were the
15 product of a -- your recommendations ultimately were
16 the product of a similar analysis that you've
17 undertaken in this proceeding?
18 DR. BOOTH: A: That is correct.
19 MR. GHIKAS: Q: Okay. Now, if you look at the second
20 to last column, the adjustments to base ROE and
21 reasons for adjustments, these are -- what appears
22 there are explicit adjustments that you've made to the
23 results of either a component of the CAPM model you
24 applied or the ultimate result, correct?
25 DR. BOOTH: A: That's correct.
26 MR. GHIKAS: Q: Okay. And nothing in the CAPM analysis

1 theory, as it were, dictates the adjustments that
2 you've made here.
3 DR. BOOTH: A: CAPM theory just says that investor
4 trades of risk against return and the risk premium as
5 a result of that tradeoff is the tradeoff between the
6 market, expected market return and the risk-free rate,
7 and that every security within that portfolio gets a
8 return based upon their relative risk. It says
9 nothing about where does that market risk premium come
10 from. It does say a lot about the risk-free rate,
11 because there's been several papers saying there's no
12 such thing as a risk-free rate, and that's where
13 Fisher Black's, what we call zero beta model came from
14 in terms of using a risk-free rate higher than the
15 Treasury Bill yield. But there's nothing in the CAPM
16 -- the CAPM simply says, as I said, the investor's
17 tradeoff risk versus return, and we get a model of the
18 risk-free rate and the market risk premium and the
19 beta coefficient. It says nothing about where those
20 numbers come from.
21 MR. GHIKAS: Q: Okay, and so we can agree in simple
22 terms effectively, this is the product of the judgment
23 you've exercised in applying the model.
24 DR. BOOTH: A: Yeah, I think to be fair, when you say
25 judgment, I have consistently said that judgment, my
26 judgment is judgment constrained by the facts. And by

1 that I mean I look at the historic risk return
2 tradeoff in Canada, and my evidence is that's about
3 4.6 percent, that's come down because of the bad
4 equity markets the last few years. The evidence in
5 the U.S. is about 5.7 percent. So the historic
6 evidence is there's a 1 percent spread. And then in
7 2008 Pablo Fernandez at IEC Business School in
8 Barcelona started surveying academics. And for the
9 first time ever we got this comprehensive survey of
10 thousands of -- first of all finance professors that
11 placed the market risk premium in a certain range, and
12 then he extended it to financial analysts and
13 companies.
14 So Terasen Gas, I'd have to go back to my
15 testimony, but at that point I've got a .25 percent
16 margin of error and I'm a hundred percent certain that
17 margin of error is because I was putting weight on the
18 market risk premium results coming out of Fernandez's
19 survey.
20 MR. GHIKAS: Q: And I can confirm your recollection
21 about that. So what happens, I think what you're
22 saying is that the --
23 DR. BOOTH: A: Is you move that .25 into the risk
24 premium of the Long Canada Bonds.
25 MR. GHIKAS: Q: Correct.
26 DR. BOOTH: A: And you've got a consistent 2.7, should

be 2.75. I don't know why there's 2.775. Now I look at it I think that's an error, but it should be 2.75.

MR. GHIKAS: Q: And so that 25 gets moved over to the market risk premium the next time you go and do something in June 2010 before the Régie, that appears in the market risk premium, correct?

DR. BOOTH: A: That's right. So what I did, instead of calling it a margin of error, I just said, well, okay, let's go to my Appendix B and directly incorporated Fernandez's survey data and said, look, my estimate of the market risk premium is 4.6. I think 5 percent is reasonable and I still hold that 5 percent is reasonable. But let's take into account not the opinion of one person, me, or the opinion of one person, Dr. Vander Weide or the opinion of one person, Ms. McShane. Let's look at these thousands and thousands of responses by companies and everybody else and I'm willing to accept that other people place the market risk premium slightly higher than me.

So I had a margin of adjustment in 2009. I incorporate directly into the market risk premium estimate now of 5 to 6 percent.

MR. GHIKAS: Q: Okay.

DR. BOOTH: A: I would regard that as judgment constrained by the facts.

Proceeding Time 11:46 a.m. T28

1 MR. GHIKAS: Q: And that actually, I appreciate the
2 clarification there, that actually wasn't what I was
3 going to zero in on, on this chart. What -- in June
4 2010, what you did, if you can confirm, you added a 50
5 basis point crisis premium, correct?
6 DR. BOOTH: A: Yeah, I can't remember whether I called
7 it crisis premium, or a credit spread adjustment, but
8 it effectively exactly the same. It is an adjustment
9 -- before the AUC in 2009, we were talking about
10 credit spreads, and I said credit spreads are 50 basis
11 points higher than they should be at this stage in the
12 recovery, and lo and behold, in the AUC's decision,
13 they added 50 basis points. So, I interpreted the AUC
14 as adopting my credit spread directly into their
15 adjustment.
16 Other boards that I discuss in my testimony
17 added things, and in 2010, actually it wasn't the
18 Regie, it was before that, I think it was the Line 9
19 hearing, I started adding a credit spread adjustment
20 for the reasons I have given earlier, that overall it
21 doesn't add anything, but it does make the estimate a
22 little bit more sensitive to capital market
23 conditions, which the OEB felt was a good thing.
24 MR. GHIKAS: Q: And we see that appearing in July 11,
25 before the Regie Gaz Métro proceeding, where you have
26 got a 32 and a half basis point spread adjustment,

1 right?
2 DR. BOOTH: A: That is right. At that time, it was
3 before the summer of 2011, which is when things
4 started to change. At that point we were still
5 looking at Long Canada bond yield forecasts of four
6 and a half, 4.55 percent, credit spreads had come down
7 in 2011. And that was where the 25 to 40 basis points
8 came from.
9 MR. GHIKAS: Q: Okay, and then in September 11, before
10 the Nova Scotia Board, Heritage Gas, the crisis
11 premium reappears at 50 basis points?
12 DR. BOOTH: A: That is right, again it is a spread
13 adjustment, and I'll have to remember that. I think
14 -- yeah, that was still based upon the forecast of --
15 so it is 4.5 -- four percent forecast for the Long
16 Canada bond yield. It is before the impact of
17 Operation Twist really had a -- started to show up in
18 capital market yields.
19 MR. GHIKAS: Q: And then in March 2012, in your NEB
20 proceeding there, this is where we see the credit
21 adjustment now, instead of being 50 basis points it is
22 40 basis points, and you are making an adjustment to
23 the market returns effectively for Operation Twist of
24 80 basis points, correct?
25 DR. BOOTH: A: That is correct. So basically, those
26 are all credit spread adjustments. When I did -- when

1 I started putting my CAP testimony together, January,
2 February 2012, it was quite evident that forecast Long
3 Canada bond yields had come down significantly since
4 the summer of 2011, and whether that was because of
5 the euro-crisis, or whether it was because of
6 Operation Tryst [*sic*], it is impossible to work out.
7 But the fact is, forecast Long Canada bond yields
8 collapsed, and that is when I started looking at other
9 market indicators to see whether the traditional
10 practice of just taking the forecast Long Canada bond
11 yield made sense in terms of an opportunity cost. And
12 I decided at that point, that it didn't make sense.
13 MR. GHIKAS: Q: And that was a decision you made in the
14 application of the model?
15 DR. BOOTH: A: That was a decision I made in terms of
16 what is the correct risk free rate in terms of
17 ordinary investors trading off risk and return, not in
18 terms of a global policy maker pushing down bond
19 yields for non -- for public policy reasons, rather
20 than a basis for an equity cost.
21 MR. GHIKAS: Q: And I think you conceded in your
22 testimony on page 85, I believe, that it was difficult
23 to precisely estimate the impact of Operation Twist?
24 DR. BOOTH: A: Absolutely. There was original
25 Operation Twist in 1961, and it generated academic
26 research papers for the next 10 years, and I'm sure we

1 will be seeing research on the new Operation Twist for
2 the next 20 years. And if we haven't solved the
3 problem of testing the CAPM, I think trying to work
4 out the impact of the Euro-crisis versus Operation
5 Twist is going to take a number of years, and I am
6 sure we are going to find some people that say it had
7 no impact whatsoever.
8 MR. GHIKAS: Q: Now, Dr. Booth, we can leave that
9 behind, I just want to turn to exhibit B1-50. Again,
10 that is the thick bundle of documents I put together,
11 and turn to page 83.
12 **Proceeding Time 11:52 a.m. T44**
13 DR. BOOTH: A: Page 53?
14 MR. GHIKAS: Q: 83.
15 DR. BOOTH: A: 83. So this is red 83.
16 MR. GHIKAS: Q: Red 83, that's right. Now, this one
17 you appeared before the AUC in 2011, correct?
18 DR. BOOTH: A: Correct.
19 MR. GHIKAS: Q: And you've had a chance to review the
20 transcript excerpt we've put in here?
21 DR. BOOTH: A: Yes. And I 100 percent agree with it.
22 I'm on page 85, as I point out, the credit spread
23 adjustment, I would expect it to average out to zero,
24 so I'd regard it as a minor tweak.
25 MR. GHIKAS: Q: Right. And --
26 DR. BOOTH: A: Perhaps the word "tweak" isn't

1 appropriate, but it's a minor adjustment.
2 MR. GHIKAS: Q: A minor tweak, and the minor tweak is
3 now at 120 basis points, right?
4 DR. BOOTH: A: No, no, no. It's not. The minor tweak
5 is 40 basis points.
6 MR. GHIKAS: Q: Oh, and that --
7 DR. BOOTH: A: Because this is a credit spread
8 adjustment.
9 MR. GHIKAS: Q: Right. And then there is the 80 on top
10 of that for the market returns.
11 DR. BOOTH: A: That's correct. I would -- but I would
12 be -- I would qualify that. The credit spread
13 adjustment will average out to zero in a normal
14 business cycle. So I regard that as a minor
15 adjustment. The Operation Twist is not a minor
16 adjustment. That's a major adjustment. And it's a
17 major adjustment for the fact that Long Canada is
18 looked upon as a safe haven, and as I've said
19 repeatedly, not just me but the Royal Bank of Canada,
20 Mercer, Aon Hewitt -- I'm not aware of anybody out
21 there that thinks that the current Long Canada bond
22 yield is an equilibrium bond yield, and if it's not an
23 equilibrium bond yield, it is not the appropriate bond
24 yield to use in a risk/return trade-off.
25 MR. GHIKAS: Q: Now, Dr. Booth, if you can turn over to
26 page 86 of the transcript -- 86 of the bundle, Exhibit

1 B1-50, and that should be at page 955 of the
2 transcript. And you'll see there is -- you're
3 discussing here with the lawyer, the 25 basis points.
4 And he calls it essentially a plug number. And you
5 disagree with him. And you say, starting at line 6:
6 "No, I didn't say that. I said the CAPM is
7 a formula, and it's a formula that basically
8 accounts for two of the three iron laws of
9 finance: the time value of money, and the
10 risk value of money. And it doesn't adjust
11 for the tax value of money, but it does
12 adjust for two of the basic principles in
13 finance. But it's a formula. It's a
14 question of the judgment that goes into the
15 model. And as I have said money times, and
16 I say it to my students, if you've got a
17 choice between a good model and bad
18 judgment, and good judgment and a bad model,
19 you should always go with good judgment.
20 Q: To supplement a bad model?
21 A: No, basically the models are
22 descriptions of reality. Reality is a way
23 -- is way more complicated than any model we
24 can come up with."
25 And you were asked,
26 "Do you ever tell your students that if you

1 get enough exceptions to a rule, you define
2 a new rule?"
3 And my question to you, Dr. Booth, is whether you have
4 incorporated that into your teachings yet.
5 DR. BOOTH: A: Yes. In fact, this last October I
6 taught my Masters in Finance students, and I went
7 through an example of the cost of capital. And I
8 actually included an Operation Twist adjustment. And
9 there were -- I mean, involved at the moment with the
10 third edition of my textbook. And it's replete with
11 discussions of the financial crisis. And the fact is
12 -- and I maintain that if this Board just wants, well
13 what are the estimates, you can crank them out. A
14 statistician can do that. But that's not what this
15 Board wants, or at least I hope it's not. What they
16 should want is somebody that could guide them into
17 what has caused the things that result in the
18 estimates that people put before them. And hopefully
19 my testimony is based upon my judgment. But it's
20 based upon my interpretation and assessment of the
21 economic conditions that have generated the results
22 and the estimates. I think that's way more valuable
23 than just plugging in numbers to a formula.
24 MR. GHIKAS: Thank you very much, Dr. Booth. Those are
25 my questions to you. And, Mr. Chairman, thank you.
26 Just in passing, we have colour copies made

now of that chart that everybody was having trouble seeing. And so we will, over the lunch break, we will distribute those and you can add them to your book.

THE CHAIRPERSON: That's excellent.

MR. GHIKAS: Thank you.

THE CHAIRPERSON: Thank you, Mr. Ghikas. We will break for lunch now. Back at one o'clock.

(PROCEEDINGS ADJOURNED AT 11:57 A.M.)

CAARS

VANCOUVER, B.C.

December 19th, 2012

(PROCEEDINGS RESUMED AT 1:02 P.M.) **T45/46**

THE CHAIRPERSON: Please be seated.

Good afternoon, Mr. Fulton.

MR. FULTON: Good afternoon, Mr. Chair, Dr. Booth.

CROSS-EXAMINATION BY MR. FULTON:

MR. FULTON: Q: In the course of my questions to you this afternoon, Dr. Booth, I'm going to refer to Exhibit C6-12 which is your evidence, C6-15 which are the AMPC and B.C. Utilities Customer responses to BCUC IR; B1-9-6, tab F, which is the evidence of Ms. McShane; and B1-32, the rebuttal evidence of the FortisBC Utilities.

DR. BOOTH: A: I have those.

MR. FULTON: Q: Thank you. And I would like to begin with your evidence and start at page 71 of your evidence.

DR. BOOTH: A: Well, that's good. Does that mean the first 70 pages I don't get any questions on them?

MR. FULTON: Q: Well, I wouldn't be that optimistic, sir.

DR. BOOTH: A: That was the same answer Mr. Ghikas gave as well.

MR. FULTON: Q: And in lines 7 to 14 you're discussing

1 the ECAPM and the CAPM, and I want to focus on your
2 discussion about the CAPM beginning at line 11 where
3 you say:
4 "To the extent that LTC yields have averaged
5 a maturity premium of about 1.25 percent
6 over the Treasury Bill yield, the use of the
7 CAPM automatically increases the risk-free
8 rate and lowers the slope in the same way as
9 the ECAPM. In this way it adjusts for the
10 basis noted in these early tests on the
11 CAPM."
12 Now, by way of clarification, when you say
13 that "the CAPM is used with the LTC bond yield, it
14 automatically increases the risk-free rate and lowers
15 the slope in the same way as the ECAPM", do you mean
16 also that it increases the risk-free rate and lowers
17 the slope by the same amount of the difference between
18 the ECAPM and the CAPM results?
19 DR. BOOTH: A: Yes, the diagram on page 70 indicates
20 that the empirical results themselves are highly sort
21 of debatable, but those results relied upon by utility
22 witnesses to justify the ECAPM indicates a higher
23 risk-free rate than the Treasury Bill yield that they
24 use in the tests, which means that low-risk securities
25 get a higher return, and high-risk securities get a
26 lower return than predicted by capital asset pricing

1 model. And I point out there that in these tests,
2 essentially what they do is they estimate the beta and
3 then put the betas into portfolios -- the actual betas
4 that are estimated, put them into portfolios, and then
5 run a regression of the excess return -- against the
6 excess return on the securities against the beta
7 coefficients to see whether the intercept at zero and
8 whether the coefficient on the beta indicates the
9 market risk premium. And those tests indicate the
10 ECAPM results, but they're using normally the 30-day
11 rate on the 91-day Treasury Bill yield. So they're
12 using a very very short-term interest rate.
13 So at the moment, consistent with those
14 tests, if I was to use the ECAPM consistent with those
15 tests, then you'd be using 95 to 100 basis points
16 which is the Treasury Bill yield, and I'm not using
17 that. I'm using the forecast Long Canada rate of 3
18 percent. So basically already the way that we use it
19 in regulatory hearings increases the intercept by 2
20 percent over what we would do if we used the CAPM in
21 the way that the ECAPM is tested.
22 MR. FULTON: Q: Thank you. Page 72 of your evidence.
23 DR. BOOTH: A: Yes.
24 MR. FULTON: Q: And at this point you will need
25 Appendix F to Exhibit B1-9-6, Ms. McShane's evidence.
26 DR. BOOTH: A: Yes.

MR. FULTON: Q: And page A24 to A26 of that evidence.

Proceeding Time 1:07 p.m. T47

DR. BOOTH: A: Yes, I have that.

MR. FULTON: Q: And on page -- well, I'll ask you to read page 72, lines 8 to 11.

DR. BOOTH: A: Do you want me actually to --

MR. FULTON: Q: No. Read them to yourself.

DR. BOOTH: A: Okay, fine.

MR. FULTON: Q: Sorry.

DR. BOOTH: A: Yes, correct. Yes.

MR. FULTON: Q: After those lines, you ask yourself the question, "Is there any other support for the CAPM?" And you refer to a study by Moshe Levy and Richard Roll, and say that, at lines 18 to 19, that they found that even slight variations within the normal estimation bounds make the proxies efficient. Do you see that?

DR. BOOTH: A: Correct.

MR. FULTON: Q: Okay. Are the adjustments that you make the same as the slight variations within normal estimation bounds that Levy and Roll used in their study?

DR. BOOTH: A: No. It's a completely different answer to the question of whether the capital asset pricing model is relevant. In the first case I just point out that the way we use the CAPM in regulatory hearings is

1 not consistent with the way the CAPM was tested to
2 justify the empirical CAPM. So, that's a completely
3 separate issue. We use long-term Canada bond yields,
4 we use forecast long Canada bond yields. And we use
5 some form of beta that isn't the actual beta, but is
6 some sort of judgment or adjusted beta, to come up
7 with our recommendations. And that is entirely
8 inconsistent with the way the CAPM was tested to
9 justify the empirical CAPM.
10 The second question here deals with Roll's
11 critique in 1977, which was after all of these initial
12 tests of the CAPM were done. And Roll pointed out
13 that if you get the correct market portfolio, by
14 definition all the securities will map along the
15 capital asset pricing model. So the critical question
16 is, is the capital asset pricing model efficient? And
17 is that the correct proxy?
18 That hinges on the basic assumption that we
19 use when we test the CAPM, or any model, that on
20 average what we expect is what was actually observed.
21 So we look at these models and say, "Well, suppose the
22 security lost two percent?" Well, we take that two
23 percent as if that two percent was expected, and then
24 we test the models using the actual *ex post*
25 realizations.
26 Then when we actually look at the market

1 portfolio, we discover that it's got long and short
2 positions in it. Which means to say that the official
3 market portfolio consists of negative positions in
4 some stocks, positive positions in others. Because
5 when we look at these actual returns, if you've got a
6 negative return or a low return, you want to sell it.
7 You want to sell it short. So the *ex post* efficient
8 market portfolio is one that involves long and short
9 positions. Then, the question is, CAPM isn't measured
10 against that portfolio, it's measured against the
11 actual S&P 500, or the TSX 300.
12 And the question is, how bad is that
13 assumption that the actual returns were equal to those
14 expected? How big of changes can we make to the
15 actual returns to get expected returns such that the
16 market portfolio is efficient? And Levy and Roll
17 point out that you only have to make reasonable
18 changes to the parameters, the returns and the
19 variants/covariants matrix to end up with the market
20 -- actual market portfolio being efficient.
21 Now, that's a long answer, Mr. Fulton, and
22 I don't expect you to fully understand it, but the
23 question is -- the only question is, if I'm measuring
24 betas against a market portfolio, is that an efficient
25 portfolio? And we then use as expected rates of
26 return actual rates of return. And the fact is there

is so much uncertainty in those rates of return that it's not a very good assumption. But it's the only one that we've got.

Proceeding Time 1:12 p.m. T48

MR. FULTON: Q: Okay. Given the length of your answer, tell me whether or not your adjustments are consistent with the findings of Levy and Roll.

DR. BOOTH: A: No, they're nothing to do with Levy and Roll.

MR. FULTON: Q: Okay, thank you.

DR. BOOTH: A: Levy and Roll -- sorry.

MR. FULTON: Q: That's fine.

DR. BOOTH: A: I expected this question from one of the Commissioners.

MR. FULTON: Q: Well, I extend my apologies to the Commission, then. I've anticipated their questions.

If we go to Ms. McShane's evidence, and you are familiar with Appendix A to her evidence?

DR. BOOTH: A: I have read it. I don't think it -- I didn't read this particular appendix this time, but I think it's the same as what I've seen before, so --

MR. FULTON: Q: Would you agree with me that at pages A-24 to A-26, Ms. McShane discusses the adjustments that -- or the type of adjustments that we've just been talking about.

DR. BOOTH: A: Yes, that's exactly right. On page A-

25, she talks about adjusting the risk-free rate and the betas.

MR. FULTON: Q: yes. And she summarizes the adjustment on page A-26, beginning five lines up from the bottom of the paragraph.

> "The total adjustment to the utility equity return of approximately 1.7 percent, 0.625 percent for the difference between the long-term and short-term risk-free rates and 1.1 percent for the difference between the adjusted and raw betas is materially lower than the total 2.8 percentage point under prediction for the lowest beta portfolio identified in the Fama and French study."

Would you agree with me that her results would not be the same as your results?

DR. BOOTH: A: I don't have results. Currently my risk-free -- using the expected Long Canada yield of 3 percent would add 2 percent over the Treasury bill yield. The actual beta estimates, I think, are .3 in my testimony or thereabouts, whereas I am using .5. So .2 times, say, 5.5 percent adds 110 basis points because of the beta that I'm using. So you add those two together. You've got 3.2 percent. And I'm not quite sure. She says 1.7 and 1.1 lower than the 2.8 under prediction by Fama/French. Using my betas, and

1 the Long Canada rate instead of the Treasury bill
2 yield would add about 3 percent, 3.2 percent. So I
3 don't see -- I mean, 3.2 is bigger than 2.8.
4 MR. FULTON: Q: Thank you. Page 5 of your Appendix E,
5 please, is next. And, Mr. Chairman, that is right at
6 the back of Dr. Booth's evidence.
7 And at lines 4 to 17, you say that you
8 regard looking at corporate ROEs as largely being
9 irrelevant, and you list six basic problems with
10 looking at ROEs, the last of which is that the average
11 ROE varies with the firm selected in the comparable
12 earnings sample. Correct?
13 DR. BOOTH: A: That is correct.
14 MR. FULTON: Q: And then on page 6, beginning at line
15 10, you point to your schedule 5 in Appendix E, and
16 that schedule, as I understand it, graphs a portfolio
17 you formed by starting with the lowest risk firm and
18 successfully adding more risky firms until you had a
19 sample of the entire population. Correct?
20 DR. BOOTH: A: That's correct. I took the *Financial*
21 *Post* firms, worked out their ten-year average ROEs,
22 and then said, "Suppose I do a comparable earnings to
23 find the lowest variable ROE firms, and then I
24 progressively added all the firms until I had all the
25 firms in the *FP* database. And the result is this
26 graph, where the average ROE falls as you introduce

1 firms that have got more variability in their ROE.
2 **Proceeding Time 1:37 p.m. T49**
3 MR. FULTON: Q: And at line 22 on page 6 you say:
4 "The upshot is that to get a high ROE from a
5 sample of comparable earnings firms simply
6 means coming up with reasonable screens to
7 narrow down the sample and exclude those
8 firms with significant losses."
9 DR. BOOTH: A: That's correct.
10 MR. FULTON: Q: Okay.
11 DR. BOOTH: A: The overall sample average is quite low,
12 and in order to get rid of all of these highly
13 variable firms, we basically just have to come up with
14 what appear to be reasonable screens to remove firms
15 that actually don't earn very much money.
16 MR. FULTON: Q: Do I take it from what is stated at
17 lines 22 and 24 that you don't believe the screens
18 need to be unreasonable to lead to incorrect results?
19 DR. BOOTH: A: Well, I don't believe in the approach at
20 all. My problem is that when you lead evidence it
21 appears to be reasonable, it appears to be let's
22 remove these oil and gas rows, let's remove these
23 firms who are involved in M&A, let's remove these
24 firms that have cut their dividends, let's remove
25 these firms that have done all of these things. So
26 you look at the screens and they appear to be

reasonable, and then you come up with a sample and you say, well, this sample has earned X percent. All I'm saying is if you look at the total universe of firms, then -- which was what I've done, or in fact what I did three years ago because this is directly taken from my testimony three years ago -- then you realize that what all these screens have done is remove all of the low earning firms and you're left with the firms that are earning a relatively high ROE.

So what appears to be a reasonable screen, in practice what it does is remove low earning, low ROE firms.

MR. FULTON: Q: If one were to adopt your approach of deriving a result from corporate Canada, do the other basic problems that you've listed on page 5, problems 1 to 5, not undermine the usefulness of the comparable earnings approach?

DR. BOOTH: A: Well, I'd have to say that this appendix deals with accounting ROEs, and what is new in this appendix, and I've never done it before, is the first five pages, and I was strongly influenced by Jack Bogle's paper that's referenced in footnote 1. Jack Bogle is one of the grand old men of finance. He founded Vanguard and he founded a whole series of no-load or very load -- low-load index funds, and he gave this paper -- and I'm on the Investments Committee,

1 the Pension Committee of the University of Toronto and
2 this was given to us, and he pointed out what is in
3 fact obvious. That over long periods of time the rate
4 of return we earn on our investments comes from the
5 rate of return on corporations. And as he pointed
6 out, this is what Keynes pointed out almost 100 years
7 ago. So it's not exactly new.
8 The only way we can deviate that is looking
9 at the changes in the capitalization rate, which is
10 the change in the price earnings multiple and which
11 Keynes called the speculative motive. And I was struck
12 by this because it basically brings into line what
13 rates of returns firms earn and what rates of return
14 we as investors earn, because they should be the same.
15 And Warren Buffett, I'll reference Warren Buffett
16 because he says exactly the same thing, so there's no
17 great new insights here.
18 But what it means is that the rate of
19 return that we earn in the stock market should be
20 related to the rate of returns that firms earn. And I
21 look to the rate of return that Statistics Canada
22 produces for corporate -- they don't call it Corporate
23 Canada, they just say ROE, but it's Statistics
24 Canada's estimate of the ROE for Canada. And I looked
25 at Jack Bogle's estimate of the fair ROE using a
26 dividend growth model, just to indicate what this

speculative return was and what this long-run corporate return was. I would view that as the correct way of looking at long-run rates of return earned by companies and long-run rates of return earned in the capital market. Essentially they should be the same.

I then go on and talk about what has been dubbed comparable earnings, which is looking at a sub-sample of all of these firms in terms of their return on equity.

So I don't think my testimony is directly undermining my own testimony. The part where I deal with forming portfolios, creating sub-samples of firms, deals with the selection of what is regarded as a small group of firms that are comparable to regulated utilities. Whereas the first half deals with the basic results that this rate of returned earned by Corporate Canada or Corporate U.S. has to be related to the return that we as investors earned, and there's a lot of evidence as to what that rate of return is.

Proceeding Time 1:23 p.m. T50

MR. FULTON: Q: Thank you. Could you turn next to Exhibit C6-16 the responses of AMPC and the B.C. Utility Customers to BCUC IR 1.22.1 which is at page 30 of that exhibit. Now, in your response --

1 MR. WALLACE: He hasn't got it yet. What was the one you
2 were referring to?
3 MR. FULTON: It's Exhibit C6-15, the responses of the
4 AMPC and B.C. Utilities Customers to BCUC IR 1.22.1.
5 MR. WALLACE: And it was in 15 or 16?
6 MR. FULTON: 15.
7 MR. WALLACE: 22.1.
8 MR. FULTON: Yes, page 30 at the bottom of the page.
9 MR. WALLACE: Business risk?
10 MR. FULTON: Yes.
11 DR. BOOTH: A: Okay, I have it.
12 MR. FULTON: Q: And in your response you say that Moody
13 points out that there have been seven utility
14 bankruptcies in the U.S., most were seemingly caused
15 by late rate relief. And in the balance of the
16 response you discuss the actions taken by Canadian
17 regulators to avoid utility bankruptcies.
18 Is it your evidence, Dr. Booth, that there
19 have been no bankruptcies of a Canadian utility in the
20 last say 20 years?
21 DR. BOOTH: A: I wasn't aware of any, Mr. Fulton. If
22 it's okay to ask that question, has caused me to
23 think. PNG was in serious financial trouble.
24 Enbridge Gas New Brunswick may be in trouble at the
25 moment, but --
26 MR. FULTON: Q: Neither of them have gone bankrupt.

DR. BOOTH: A: I can't think of any Canadian companies that went bankrupt.

MR. FULTON: Q: And given that there haven't been any Canadian utility companies that have gone bankrupt that you can think of, is it your view that would be evidence of a significant difference in business risk between U.S. and Canadian utilities?

DR. BOOTH: A: I would say it's evidence of a different attitude on the part of the regulators. That I've stressed for many years now that that if there's a problem in Canada, what happens is the company brings it to the regulators and the regulators of the company and intervenors have a hearing and invariably what happens is the problem gets worked out to the greatest extent possible. We saw that in the actions of this Commission towards Pacific Northern Gas. We are seeing it right now in the Mainlines hearing before the National Energy Board. We saw it in the Top Gas hearing which was at least twenty years ago now when the Mainline and it's merchant function signed Take or Pay contracts that turned out to be disastrous financially.

So we saw these things worked out in Canada. So it's not that the underlying business risk may be different. We've had situations that have been imperiled utilities in Canada, but the regulators, and

with the support of interveners, have resolved most of those problems, so the companies have survived.

Whereas my perception of the Moody's report is essentially that some regulators in the United States didn't grant rate relief quickly enough to save the utility from having to file for bankruptcy. So it's not so much the business risk, it's the actions of the regulators who are responding to the business risk.

MR. FULTON: Q: Now, if you turn forward to page 96 in that same exhibit, and it's the response to IR 50.1 relating to U.S. comparables, and you indicate that Moody's doesn't name the public utility failures, but that in a 2010 special comment Moody's referred to the seven utility bankruptcies and then you say what they stated. Can you undertake to provide a copy of that special comment?

DR. BOOTH: A: Sure.

Information Request

Proceeding Time 1:28 p.m. T51

MR. FULTON: Q: Thank you. Page 99 of Exhibit C6-15, your response to BCUC IR 53.1. And in your response to that question, you state you no longer include the two-factor model estimates. Can you explain why you chose no longer to include those?

DR. BOOTH: A: Well, as the BCUC noted in a Commission

1 decision three years ago, if the beta -- they didn't
2 mention this, but it gives the same results if the
3 beta coefficient is .5 and the sensitivity on the
4 return on the Long Canada bond is 0.5. Because as
5 long as those coefficients are both .5, the two-factor
6 model gives exactly -- with interest rates, gives
7 exactly the same results as the two-factor CAPM. It
8 would only give different results if I wasn't using .5
9 for the beta coefficient and I wasn't using .5 for the
10 interest sensitivity.
11 So, basically as long as it was given the
12 same results -- I can't remember when I stopped using
13 it, but I started focusing more on other things that I
14 thought were more important, since it doesn't change
15 my estimates. If I was to give a two-factor model
16 estimate now, it would be 7.5 percent, because I'm
17 usually exactly -- I would use exactly the same .5 for
18 the beta and .5 for the sensitivity of the long Canada
19 bond.
20 MR. FULTON: Q: Okay. But you started your answer with
21 reference to the 2009 ROE decision as being the reason
22 for that change. And then you seemed to change and
23 provide another answer. Just so that the record is
24 clear, was it as a result of the 2009 ROE decision
25 that you decided to change?
26 DR. BOOTH: A: No. No.

MR. FULTON: Q: Okay.

DR. BOOTH: A: I never -- with due respect to some members of the Commission, I never pay that much attention to what Board members or Commissioners tell me, or what they say about my testimony. I think you heard this morning, I was extremely critical of the Ontario Energy Board. I thought they got it completely wrong.

MR. FULTON: Q: Yes. We don't have to go back there.

DR. BOOTH: A: But, no. But the point is that when I look at the Commission, sometimes, probably my fault, they say things which I totally disagree with. So I'm not going to respond to those sorts of comments.

In this case, it is true what the Commission said three years ago, that the two-factor model gives exactly the same results as the CAPM with those coefficients. So I thought, well, what's the point in -- keep saying this, the critical things are the credit adjustments, the state of the financial markets, and the Operation Twist adjustment. And to be honest, I can't remember when I stopped doing the two-factor model. I suspect it was in 2010.

MR. FULTON: Q: Thank you. In response to IR 62.2 in Exhibit C6-15, page 108, the reference was discounted cash flow estimates. And in paragraph number 1, in part, you said the bias is highest the further away

1 the estimate. Do I understand you to mean with that
2 statement that you mean the bias in analysts' growth
3 forecasts?
4 **Proceeding Time 1:33 p.m. T52**
5 DR. BOOTH: A: That's correct. What happens is the
6 analysts sit down and they make a forecast, and then
7 up until very recently, and some firms have stopped
8 doing this, companies give guidance to the in their
9 quarterly statements. And if you're making a forecast
10 say for 2014, you might make a forecast now, but each
11 quarter you get closer to the actual date in which
12 your estimate is for, you get more guidance from the
13 company. So if the company keeps telling you, well,
14 if you forecast say $2 a share, earnings per share and
15 then after six months the company on its conference
16 call says $1.80, then you tend to revise your
17 estimates closer to $1.80, and then three months
18 before those earnings have become, he says, actually
19 it's $1.90, you see the estimates on the part of the
20 analysts getting closer and closer to the guidance, to
21 the company issue, because a lot of the uncertainty is
22 being resolved.
23 So part of the problem with analysts'
24 forecasts, if you actually look at them, some of them
25 are exactly the same, quarter by quarter by quarter,
26 because there's one analyst and he's saying, well,

1 this is my forecast and nothing's been changed.
2 Others, they start gravitating towards sort of a
3 consensus number. So the closer you get to the date
4 that you're forecasting, the less dispersion there is
5 in the forecast.
6 MR. FULTON: Q: And so by bias do you mean bias *per se*
7 or do you mean forecasting error?
8 DR. BOOTH: A: I'm just -- yeah, that's that not -- in
9 this case I'm not talking about bias in the sense the
10 analysts deliberately over or underestimate. I'm just
11 saying statistically the biased will get less if you
12 get closer to the point for which you are forecasting.
13 So that's the statistical sense of bias.
14 MR. FULTON: Q: Forecasting error.
15 DR. BOOTH: A: Forecasting error, yes.
16 THE CHAIRPERSON: Excuse me, Dr. Booth, are you using it
17 as range narrows basically?
18 DR. BOOTH: A: Exactly that. That's better, the range
19 narrows.
20 MR. FULTON: Q: And shouldn't one expect greater
21 forecast error the further away the estimate is?
22 DR. BOOTH: A: That's exactly right, and that's as Ms.
23 Mackenzie shows, they sort of zero in on the right
24 number eventually after they get enough guidance from
25 the company. Because the fact is all the information
26 comes from the company. Well, not all the

1 information. The vast bulk of the information comes
2 from the company. They've got their quarterly
3 earnings and their revenues. They know whether the
4 sales forecast is going to be missed. And they give
5 guidance to the analysts. And it used to be this was
6 the major purpose of an analyst was to listen to the
7 company's guidance and then quickly knock out a
8 morning comment to your clients saying, "Buy or sell."
9 Now those forecasts and now that guidance is available
10 to anybody on the web.
11 MR. FULTON: Q: And so what you meant by the statement,
12 if I can paraphrase it this way, is that that the
13 greater the forecast error the further away the
14 estimate.
15 DR. BOOTH: A: That's right. If you're forecasting for
16 2015, obviously there's more error than for 2014 or
17 2013. And in 2012 I can be pretty accurate what the
18 growth range of GDP is for 2012.
19 MR. FULTON: Q: Still in your response to that
20 question, you referred to McKinzie, and I'm not sure
21 whether the document that you're referencing McKinzie
22 for is on the record at this point. Do you know
23 whether it is?
24 DR. BOOTH: A: No. What's on the record is my
25 testimony is --
26 MR. FULTON: Q: Okay, if I can stop you there because

1 we don't need to go into what's on the record.
2 DR. BOOTH: A: Okay, so the answer is no.
3 MR. FULTON: Q: Could you ask you by way of undertaking
4 to provide the McKinzie document?
5 DR. BOOTH: A: No, I don't have it. I would assume
6 that it's a private document. I don't have that
7 document. I've just got the newspaper report
8 referring to that document.
9 MR. FULTON: Q: Okay, so you were basing that comment
10 on newspaper reports.
11 DR. BOOTH: A: That's correct. What I do is I
12 reference academic research into this question, and
13 then I refer to the newspaper article simply to sort
14 of stress this is not exactly new. It's not something
15 that's hidden amongst academics like a secret, the
16 analysts are biased. It's in the public domain. We
17 see newspaper articles referring to it.
18 MR. FULTON: Q: Sorry, I didn't appreciate that was a
19 newspaper article and I may have missed --
20 DR. BOOTH: A: It's a newspaper article referring to
21 the McKinzie study, and in fact an update of the
22 McKinzie study.
23 MR. FULTON: Q: You also then note that McKinzie points
24 out that eventually analysts zero in on the right
25 number. That was taken from the same newspaper
26 article?

Proceeding Time 1:38 p.m. T53

DR. BOOTH: A: Yes, I think so. I think it is in the newspaper -- the critical graph is in my Appendix D. I talk about discounted cash flow models, where I extract -- admittedly a poor quality, but I extract the newspaper article -- one newspaper article that refers to this. This is -- I can't remember -- oh, this was the *Globe and Mail*. And it is a very difficult to read article, I'm afraid. But the critical thing is, if you can see it on the -- on page 30 in my Appendix D, analysts' forecasts over time for each year. And it shows the hump and the curve as the forecasts get closer to the actual numbers.

MR. FULTON: Q: In point 2 to the answer to 62.2, you say that bias is probably highest in hard-to-analyze industries, growth stocks and less in standalone rate regulated utilities and value stocks.

Is it fair for me to conclude from that that the issue of analysts' bias, or forecast error, is not really an issue for DCF analysis for rate-regulated utilities and value stocks?

DR. BOOTH: A: No, I wouldn't say that. What I would say is that if you're looking at -- I remember during the tech bubble, Qualcomm, there was analysts' forecasts for Qualcomm. They have one of these cell phone technologies. And it was a growth stock.

1 Everyone got very excited about it. Had very little
2 earnings. But some analysts predicted that if one in
3 four people in the world buys a cell phone, and half
4 of the people buy TDSM -- or I think it was TDSM --
5 owned by Qualcomm, then they would generate, oh,
6 billions of dollars of money.
7 So when you've got those sort of forecasts
8 of a growth stock, and you don't have any fundamental
9 cash flows, you get forecasts that are all over the
10 place.
11 When you deal with mundane companies that
12 produce a tangible commodity and have actual cash
13 flows, then the year-to-year and the quarter-to-
14 quarter earnings don't fluctuate as much, so the
15 analysts can't come out with some of these ridiculous
16 forecasts. So when you -- and this is a problem we
17 had when we look at growth stocks versus value stocks.
18 Value stocks are much easier to value. And the
19 analysts don't have the same -- they don't have the
20 same -- I think I referred this morning to judgment
21 constrained by the facts. If you are a really
22 optimistic bullish analyst, you can't be really that
23 bullish about some value stocks, because you're
24 constrained by the quarter-to-quarter EPS and the
25 actual economics of the business. Whereas if you're
26 dealing with a growth stock, it's very easy to get

gung ho enthusiastic and come up with a forecast that, on reflection, doesn't make a lot of sense. So I would say in this, all I'm saying is that the bias in terms of the optimism of the analysts, and I would say this is human nature. People tend to be optimistic. It's why we get growth in the economy. It's why people take risks. That optimism bias is probably more evidence in growth stocks than it is in value stocks, and it's less evident in utilities than in other areas. But, analysts are people. And that optimism bias is still there. But it's probably not as great as it is for some of the other sectors of the economy.

MR. FULTON: Q: Thank you. Page 109, the response to 63.1. And just a preliminary question. I had understood you to say that "corporate Canada" was not your term, a little bit earlier this afternoon. Was I incorrect in that understanding?

DR. BOOTH: A: No, I think that's correct.

MR. FULTON: Q: But that's not what this answer says.

DR. BOOTH: A: Say that again?

MR. FULTON: Q: Well, this answer --

DR. BOOTH: A: I said "corporate Canada" is Dr. Booth's term.

MR. FULTON: Q: Yes.

DR. BOOTH: A: Isn't that what I said earlier?

1 MR. FULTON: Q: Oh, okay. Well, then, I'll check the
2 record on it. I misheard.
3 DR. BOOTH: A: Yes, as I say here, Statistics Canada
4 surveys Canadian companies, and they actually report
5 the aggregate net income for Canada. They report the
6 aggregate book value. And they report the aggregate
7 return on equity. But they're dealing with the
8 aggregates, the total amount of net income, the total
9 amount of book equity.
10 And as far as I'm aware, Statistics Canada
11 doesn't call it Corporate Canada, but that's what it
12 is. It is the total aggregate book value and the
13 total aggregate income for Canadian corporations.
14 **Proceeding Time 1:43 p.m. T54**
15 MR. FULTON: Q: In that response, when you refer to
16 Statistics Canada, are you referring to Statistics
17 Canada data for both public and private Canadian
18 companies?
19 DR. BOOTH: A: Yes, it's an aggregate amount. It's
20 V634673, which is the aggregate after-tax profits and
21 the aggregate book equity, V634628.
22 MR. FULTON: Q: If you could turn to Ms. McShane's
23 rebuttal evidence in Exhibit B1-32 on page 17. Page
24 17.
25 DR. BOOTH: A: Yes, I have it.
26 MR. FULTON: Q: And I want to take you in particular to

lines 463 to 466 where she states that:

"The S&P and TXS Composite is not equivalent to Corporate Canada. The addition of a dividend yield applicable to the S&P TXS Composite which is comprised of specific companies to a single long term generic earnings growth rate based on all of Corporate Canada is a mismatch."

Why did you chose to use the Stats Canada data and population of company that it implies rather than the S&P TSX Composite?

DR. BOOTH: A: The Statistic Canada data is aggregate data. It is also from what -- I'd have to check this but I think it comes from -- oh, it does come from taxation statistics. And there's a lot of problems with the return on equity data reported by corporations. And I tell my students this. I said, "Look, you've got two choices. You've got information the company files with the tax authorities and you've got information they've filed for their financial statements. Which ones do you believe?" And I then give them a hint that if they file information with the tax authorities and it is wrong, there can be problems. There's a tendency to under-report income for tax purposes if anything. But the information reported to tax authorities has to be correct. The

information they report in their financial statements, as we know, there's frequent misstatements. They go back and they make prior period adjustments and things.

So this is the information that comes from the financial returns to the tax authorities. So I tend to believe it is more reliable. It's an aggregate figure for the whole of Canada. So I think that aggregate aggregate return on equity is more accurate.

When you deal as I did in Appendix E where I had the total companies in the *Financial Post* data bank, not just the 300 for the TSX but what they call a full reporting companies, over 500, you end up with much lower ROEs if you average them in. Because what you have to do is you have to come up with some sort of value weighting and put them on the same basis. So we are looking at an aggregate return on an aggregate amount of investment.

So that's a long answer, Mr. Fulton, but --

MR. FULTON: Q: Yes.

DR. BOOTH: A: I would say looking at Corporate Canada's ROE data from the taxation returns compiled by Statistics Canada, is a more accurate estimate of a typical return on equity than is looking at the accounting GAAP based returns of the TSX composite or

1 the TSX -- the 500 or so surveyed by the *Financial*
2 *Post.*
3 The *Financial Post* data is a lot more
4 volatile.
5 **Proceeding Time 1:48 p.m. T55**
6 MR. FULTON: Q: Because the Statistics Canada data
7 includes information for both publicly and privately
8 traded companies, doesn't that make it less relevant
9 to what the Commission needs to decide in this
10 proceeding?
11 DR. BOOTH: A: I don't see why. It includes not just
12 public and private. It also includes all of the
13 subsidiaries of foreign corporations. So it will
14 include for example Falconbridge, Inco, all of these
15 subsidiaries that used to be Canadian companies that
16 have now basically been taken over by foreign
17 organizations. What we're left with on the TSX is
18 really a subset of Canadas. It's the bit of Canada
19 hasn't been taken over by foreign corporations. So I
20 would say it's less representative of a typical return
21 on equity earned by a Canadian company.
22 MR. FULTON: Q: If you could turn to Ms. McShane's
23 evidence in Appendix F of B1-9-6, page 93, and would
24 you read lines 2347 to 2355 to yourself and then I'll
25 focus in on those parts, that passage of Ms. McShane's
26 evidence that I want to ask you about.

DR. BOOTH: A: So this is page 93 with the Table 18 on it?

MR. FULTON: Q: Yes, it is.

DR. BOOTH: A: Okay.

MR. FULTON: Q: And I'm asking you to read lines 2347 to 2355.

DR. BOOTH: A: Okay. Yes.

MR. FULTON: Q: First of all, at lines 2350 to 2351 she states, "The intercept in the equation should in principle represent the risk-free rate." Do you agree with that statement?

DR. BOOTH: A: I think she put that in because I criticized her for not explaining with the intercept should be before the Alberta Utilities Commission.

MR. FULTON: Q: Okay.

DR. BOOTH: A: It should be whatever the appropriate risk-free rate is, and --

MR. FULTON: Q: Do you agree with the statement?

DR. BOOTH: A: Should it be the Treasury Bills? If she's looking at excess returns over T-Bills, then the answer is yes.

MR. FULTON: Q: And then at lines 2353 to 2355 she states:

> "The difference between the calculated intercept and the average 30-day Treasury Bill return of approximately 3.9 percent

1 represents a component of the utility return
2 incremental to what the CAPM would predict."
3 Do you agree with that statement?
4 DR. BOOTH: A: No. What it indicates is the excess
5 return earned by utilities over this long period that
6 can't be explained by the return on the TSX or can't
7 be explained by the return on the Long Canada Bond,
8 the excess returns of both of those. It's not what
9 cannot be explained by the CAPM because you're just
10 looking back and -- well, first of all, that's a two-
11 factor model, not the CAPM, and secondly, you are just
12 looking at a regression to estimate the parameters.
13 And all this indicates is over this period of time
14 there was an unexplained component to the return on
15 the TSX Utilities Index.
16 **Proceeding Time 1:53 p.m. T56**
17 MR. FULTON: Q: Thank you. I would ask you to turn to
18 the rebuttal evidence, B1-32, and pages 6 and 7 of
19 that evidence of Ms. McShane.
20 DR. BOOTH: A: Yes.
21 MR. FULTON: Q: And lines 153 to -- well, 152 to 157,
22 she discusses the key Moody's metrics that she says
23 should be focused upon?
24 DR. BOOTH: A: Correct.
25 MR. FULTON: Q: And then beginning at line 159, she
26 addresses the question, "Would a downgrade by Moody's

be likely at those indicated credit metrics?" And she is referring back to the credit metrics in lines 152 to 157. And at line 161 and then continuing over to page 7, line 177, she says that a downgrade by Moody's would be likely at those indicated credit metrics, and gives the reasons why she believes that is so. Correct?

DR. BOOTH: A: Correct.

MR. FULTON: Q: And do you agree with her assessment?

DR. BOOTH: A: Absolutely not.

MR. FULTON: Q: Okay. Could you tell us why not?

DR. BOOTH: A: There are several things here. First of all, Ms. McShane, we put to Ms. McShane why she never asked -- why she never assessed the change in the common equity ratio in the allowed ROE in 2009 as a reduction in regulatory risk. And she said she didn't perceive it -- I think I'm correct in saying she didn't perceive it as a risk. And the next question was, if the BCUC reverted to where it was in 2009, would that be an increase in risk? Because obviously if increase in the common equity ratio didn't reflect a decrease in regulatory risk, then going back to where it was in 2009 shouldn't reflect an increase in regulatory risk. So, I reject 173 to 175. I regard it as being inconsistent.

Secondly, the critical thing to recognize

1 in bond ratings is that DBRS and Moody's look at this
2 exactly the same as everybody else. These are
3 regulated utilities. They earn their allowed ROE,
4 they're very low-risk. As I have indicated in my
5 testimony, the bond yields are lower than the ratings
6 indicate, so in my judgment they are basically a notch
7 -- most utilities are really a notch higher than their
8 actual ratings. Otherwise we wouldn't see the lower
9 yields on utility bonds.
10 And when you're looking at this, you should
11 bear in mind the Moody's place is 50 percent weighted
12 on regulation, only 40 percent on the credit metrics.
13 And in terms of the credit metrics, I'm recommending
14 that essentially they go back to where they were three
15 years ago. And even there, I am saying, or reminding
16 the board, that when you look at a credit metric, my
17 recommendation of 7.5 percent flows from my adjusted
18 Long Canada bond yield, flows from the current credit
19 spreads. There is an interest coverage ratio implicit
20 in those recommendations. And which is that you
21 should be using the current cost of debt. So if
22 everything is entirely consistent, you should then
23 look at what I call the marginal interest coverage
24 ratio, which is essentially just the interest coverage
25 ratio consistent with all of the other factors in the
26 economy. That is well above the two times interest

1 coverage ratio. I forget the exact numbers, but I
2 think it's 2.35 to 2.7.
3 The major reason the coverage ratios are
4 not at that level is the fact that FEIs go to 6.6
5 percent embedded cost of debt, and the market cost of
6 debt is 4 percent.
7 **Proceeding Time 1:58 p.m. T57**
8 So I say in my testimony, suppose there is
9 an access problem and it's caused because of the high
10 embedded cost of debt, and supposed you've got two --
11 I don't go through this example, but suppose you've
12 got two utilities, they are absolutely identical. One
13 has got a current cost of debt of 4 percent, the other
14 one has got a cost of debt of 6.6 percent. So the one
15 with the 6.6 percent embedded debt cost has got to
16 allow a coverage ratio. Do you then look at this and
17 say, "Well, forget about the fair return standard,
18 forget about opportunity cost, we are going to give a
19 higher rate of return to the one with a high embedded
20 debt cost." Or "We're going to give more equity to
21 the one with the high embedded debt cost."
22 That's totally incorrect. You're rewarding
23 the equity holders because their utility has a high
24 embedded debt cost. So ratepayers in effect pay once
25 through a higher embedded debt cost and then pay
26 secondly because you then increase the ROE or the

common equity ratio because of the high embedded debt cost.

My answer to that problem is if the Commission looks at this and says, “Well, three years ago we didn’t like the fact that FEI had a two times interest coverage ratio. We don’t want to put them there again." The answer to that is not to reward the equity holders, the answer to that is to give them preferred shares. And in 2005 or ‘6, the decision, this Commission noted that unlike other utilities like Union Gas and Enbridge who had some preferred shares, TGI as it then was, didn’t have any preferred shares. So that was part of the decision at that point in time.

So I would recommend, instead of rewarding the equity holders for something totally unrelated to risk, totally unrelated to the opportunity cost, then if this Commission feels that there are some access problems and they want to see the interest coverage ratio a little bit higher, then either deem some preferred shares, or recommend that FEI issues some preferred shares.

And I seem to remember there is some information requests indicating that Fortis basically raised it’s preferred shares and finances its subsidiaries partly by raising equity itself and

1 partly by raising preferred shares. So I don't think
2 there's any problem with FEI using some preferred
3 shares, if this Commission feels there's an access
4 problem.
5 But I am fundamentally opposed to something
6 which doesn't make any sense in terms of financial
7 theory or practice which is to reward the common
8 shareholders because the utility simply has a high
9 embedded debt cost.
10 MR. FULTON: Q: Page 18 of her rebuttal evidence, lines
11 484 to 486 as a start. Ms. McShane says that because
12 your sample only has six utilities it is unreasonably
13 small and there significantly more U.S. utilities of
14 comparable risk to the benchmark utility than the six
15 that you selected. Do you agree that there are
16 significantly more U.S. utilities of comparable risk
17 to the six that you chose?
18 DR. BOOTH: A: No. When I started doing this, I think
19 it was about four or five years ago, in response to
20 increasing U.S. evidence being presented in Canada, I
21 felt I had to go out and check that the results that
22 were being presented were correct. So what I did was
23 I didn't want to go out and say -- people saying, "Why
24 did you chose this sample? What do you about these
25 utilities?" I deliberately went out and looked at the
26 samples used by Ms. McShane and used by Dr. Vilbert of

1 the Brattle Group, the same Brattle Group that did the
2 review for the BCUC. I looked at their samples and
3 then looked at the nexus of their two samples to get
4 what I would regard as the lowest risk of the lowest
5 risk. So I am using the intersection of two samples
6 created, one by Ms. McShane and the other by the
7 Brattle Group, so that I could basically say, "Look,
8 these really aren't my samples. I am choosing what
9 would, consensus-wise, would be regarded as the lowest
10 risk U.S. utilities."
11 And I agree with Ms. McShane and with
12 Moody's that the typical U.S. utility is riskier than
13 the typical utility in Canada because of the different
14 regulatory protection. So you can't use all the
15 utilities because you are dragging in a lot of
16 utilities in the United States which Ms. McShane and I
17 at least agree on, are riskier than the typical
18 Canadian utility.
19 So I've tried to use a sample of the lowest
20 risk of the lowest risk, and now Ms. McShane accuses
21 -- or criticizes me for basically partly using a
22 sample based on Ms. McShane's sample. So I disagree
23 with that assessment.
24 **Proceeding Time 2:03 p.m. T58**
25 MR. FULTON: Q: Can you tell us how you selected the
26 six that you selected for your sample?

1 DR. BOOTH: A: Sure. I looked at the sample of Ms.
2 McShane -- and I'm trying to remember what hearing it
3 was, but I think it was in 2010 or 2011. I just
4 looked at all of the companies she used. I looked at
5 all the companies that Dr. Billwood used, and I just
6 included the ones that were in both samples. So that
7 way they would be the unanimously lowest-risk regarded
8 U.S. utilities. And I could say to the Commission, "I
9 didn't choose these utilities. These are ones that
10 the companies' witnesses have sort of basically
11 unanimously agreed are the lowest-risk utilities."
12 MR. FULTON: Q: Thank you. If you could read to
13 yourself that portion of Ms. McShane's rebuttal
14 evidence that begins at line 495 on page 18 and
15 continues over to line 506 on page 19.
16 DR. BOOTH: A: Yes. Yes.
17 MR. FULTON: Q: And in that passage that I've asked you
18 to read, she says that you attempt to show that the
19 growth rates for the six utilities are problematic by
20 comparing earnings growth forecasts for the six
21 utilities extracted from Yahoo to historic five-year
22 earnings growth rates taken from the same source. And
23 then she refers to the comparative data that she
24 presents.
25 If you look at her Table 2, in your view do
26 the results in that table change your conclusion that

1 the growth rates were problematic?
2 DR. BOOTH: A: No. I specifically asked Dr. Vander
3 Weide to produce the five-year past growth rates to
4 compare them with the future five-year growth rates,
5 and I specifically asked him to provide the DPS,
6 develop the share earnings per share, book value per
7 share, so we could assess the historic record and
8 compare them with the forecast. Because when I looked
9 at the data from Yahoo, which the data is provided by
10 S&P Capital IQ, which is one of the basic databases
11 that we use, all I could see when I looked at them was
12 that there was a big difference between the past and
13 the future. And Ms. McShane in her testimony has got
14 four different series of analysts' forecasts, and we
15 went through why these are different. And there are
16 significant differences depending upon which service
17 you use to get the analysts' forecasts. So clearly
18 they survey different analysts and so there's a wide
19 dispersion amongst these analysts' forecasts.
20 So all I'm saying here is that I'm
21 uncomfortable with using analysts' forecasts because a
22 lot of statistical work shows that they are
23 optimistic. We did get Ms. McShane and the Alberta
24 Utilities Commission to look at historic earnings and
25 dividend growth rates for her sample, which didn't
26 match GDP, and yet the analysts were forecasting

higher growth, which at least is not strong statistical evidence, but at least leads to a suspicion that if they haven't matched GDP in the past, what makes anybody suspect they'll be able to match GDP in the future?

And then this actual data that I got from Yahoo, I'm extremely skeptical about it. As I say in my testimony, I like the phrase from the McKinzie study or the newspaper article that a broken clock tells the right time twice a day. And these estimates may be in the right ball park but they don't give me a great deal of confidence.

Proceeding Time 2:08 p.m. T59

MR. FULTON: Q: If you could turn forward in her rebuttal evidence to page 27.

DR. BOOTH: A: Yes.

MR. FULTON: Q: At lines 723 to 726, she responds to the question, "How do the Moody's debt ratings of your U.S. utility sample compare to the Moody's ratings for Canadian utilities?" And the "your" in that case is her U.S. utility sample. And she says, in the answer, as she noted in her testimony at page 75, "The median Moody's rating for my U.S. utility sample is B-double-A-1, equal to the median of the ratings that Moody's has assigned to Canadian gas and electric utilities. Consequently for Moody's, i.e., bondholders'

1 perspective, the sample of U.S. utilities is no more
2 risky than the Canadian utilities rates."
3 In your view, Dr. Booth, is a bond holder's
4 perspective the same as an equity investor's
5 perspective?
6 DR. BOOTH: A: No. In fact, during the Internet bubble
7 there was a lot of concern because you had the bond
8 desk saying "Sell, the debt is risky," while the
9 equity desk was saying, "Buy, because this company has
10 great growth potential". So, people who buy debt tend
11 to be more conservative and, I would suspect, the
12 analysts that rate the debt tend to be more
13 conservative. The equity side is -- the analysts, I
14 think, are more optimistic and the equity holders are
15 more aggressive.
16 So, I would agree, and I think Ms. McShane
17 says this as well, and that there is no reason to
18 believe that the bond holders and the equity holders
19 have a similar perspective on the firm.
20 I would note in this that the comparison to
21 Moody's with Moody's Canadian sample is a bit flawed,
22 because Moody's doesn't rate all the companies in
23 Canada. Moody's has -- basically rates a smaller
24 subsection. Standard * Poor's bought out the Canadian
25 Bond Rating Service, I think it was 1999, and then
26 they harmonized their ratings. So, S&P are regarded

as the Canadian rater, because they rate almost everything in Canada, except FEI. Because FEI ceased to pay for a rating. DBRS rates everything. Moody's does not rate everything. So the sample of Canadian utilities, the Moody's rates, is not a comprehensive sample.

MR. FULTON: Q: I'd like to move away from the rebuttal evidence of Ms. McShane now and move to the rebuttal evidence of Dr. Vander Weide. And if you could turn to page 5 of Dr. Vander Weide's evidence -- and actually you can turn away from page 5 and turn forward to page 10. Thank you.

DR. BOOTH: A: Yes.

MR. FULTON: Q: And at question 24, he is asked, "In addition to producing costs of equity estimates which are 300 to 600 basis points less than the average allowed ROE for Canadian utilities, are there other reasons why beta estimates in the range negative .05 to 0.54 are unreasonably low?" And he responds "Yes," and at line 5, and then goes on to expand his answer.

So if you could read lines 5 to 18 to yourself, and then I'll ask you my questions.

DR. BOOTH: A: Yes, I'm familiar with that paragraph.

MR. FULTON: Q: Okay. Now, he states that the beta should be significantly higher than what you estimate, Dr. Booth. Agreed?

DR. BOOTH: A: That's correct. He's looking at the *ex post* or after the fact returns on the Canadian Utilities Index, and basically he is saying if these were expected, then the beta should be a lot higher than my range of .45 to .55.

MR. FULTON: Q: Now, are you familiar enough with his evidence to agree or disagree with his finding that the realized risk premium on Canadian stocks has been significantly higher than the realized risk premium on S&P -- on the S&P/TSX composite?

Proceeding Time 2:14 p.m. T60

DR. BOOTH: A: Correct. I refer to that as the excess return rather than risk premium because when we put information to him, the gist of the cross-examination questions was, first of all, are the utilities intra-sensitive and the answer to that is clearly yes. They are highly sensitive to returns on Government of Canada bonds because they are fixed income securities to a great extent; and secondly, in particular for the Bank of Montreal index that starts 1983. It starts in a period where interest rates were very very high and as a result yields have come down, not ever year, but pretty much consistently from 1983 through to now. Those declining interest rates have caused huge gains on bond portfolios and have caused huge gains on the utility stocks, such that the returns on the utilities

have exceeded the returns on the Toronto stock exchange. Was that anticipated? I don't think it was. As Dr. Vander Wiede says, the yield on the Long Canada bond -- and I agree with him on this -- is what was expected at that particular point in time. But we happen to have an evolution where the Government of Canada actually said what it was going to do. People didn't believe it at the time, but they said they were committed to bringing down interest rates and inflation and that's exactly what they've done.

So investors in utility stocks have reached -- have reaped very significant capital gains, and I don't think that was anticipated or expected and I do not judge that experience or *ex poste* return on the utilities relative to the TSX as measuring in any way a beta coefficient.

MR. FULTON: Q: At lines 13 to 16 on page 10 where he states:

> "I present data in my written evidence demonstrating that the realized risk premium on Canadian utility stocks in fact has been significantly higher than the realized risk premium on the S&P/TSX Composite."

Oh, pardon me, I've asked you that question.

Well, let me try it this way. Does that statement indicate a beta that is, in your opinion,

1 somewhat lower than one, or higher than one or
2 neither?
3 DR. BOOTH: A: In my opinion you cannot look at utility
4 rates of return that have been earned during this
5 period of declining interest rates as an estimate of
6 what investors expected in utility stocks. So as a
7 result, I would not, by any stretch of the
8 imagination, take the average return on utility
9 stocks, divide by the average return on the TSX, or
10 the excess returns and say that that is, in fact, what
11 investors expected and as a result, that was what was
12 expected as a beta coefficient. I think that is
13 totally incorrect.
14 We happened to have lived through a period
15 where we absolutely know what has happened to the
16 return on bonds as a result of looking at the yields
17 on the Long Canada bond. And since utilities are
18 highly sensitive to those interest rates, you've got a
19 pretty good idea how much of those returns were
20 expected and how much were unexpected. And the vast
21 bulk were unexpected.
22 You wouldn't expect bond investors, for
23 example, to earn a half a percent more than the TSX,
24 which is in fact what has happened since 1983.
25 MR. FULTON: Q: Page 12 of Dr. Vander Wiede's rebuttal
26 evidence. At question 30 he says that your 5.5

1 percent midpoint estimate of the expected risk premium
2 on the market portfolio is based in part on your
3 reported 5.7 percent U.S. historical risk premium
4 which you state that you have obtained from Ibbitson,
5 SBBI and he refers to your evidence, and then asks
6 himself the question: "Does Ibbitson SBBI recommend
7 use of a 5.7 percent market risk premium?" And he
8 answers no, and expands on that answer at lines 6
9 through 33. So if you could read that answer and then
10 I'll ask you my questions.
11 DR. BOOTH: A: You can ask the question. I know what
12 that paragraph says.
13 MR. FULTON: Q: Okay. Is Dr. Vander Wiede correct in
14 his statement that you mis-identified the source of
15 your 5.7 percent historical risk premium?
16 **Proceeding Time 2:19 p.m. T61**
17 DR. BOOTH: A: No, he is -- sorry, he is totally
18 incorrect. I did not record that it was from SBBI. I
19 said that the data I got from the U.S. stock market
20 was from the S&P 500. I have nowhere referred to
21 SBBI.
22 Ibbitson reports the return on the S&P 500
23 in their data, and I have not used 6.62 percent, which
24 Ibbitson has as the premium over yields, bond yields
25 rather than the premium over returns. About six years
26 ago I started noticing that utility witnesses stopped

1 producing risk premium estimates of returns over
2 returns and starting shifting to returns over yields.
3 I continue to look at returns over returns, primarily
4 because the changes in those yields in the bond market
5 returns is also reflected in the equity returns. And
6 unless you compare returns to returns, there's a
7 mismatch.
8 So Dr. Vander Weide here is absolutely
9 incorrect. I do not say I got the risk premium from
10 Ibbitson or SBBI. I used the S&P 500 return. And
11 that is not owned by Ibbitson, it's owned by Standard
12 & Poors.
13 I hope you're going to take me through all
14 of this, Mr. Fulton.
15 MR. FULTON: Q: Pardon me?
16 DR. BOOTH: A: I hope you're going to take me through
17 all of this, all of this rebuttal because there's a
18 number of things in here that are categorically
19 incorrect.
20 MR. FULTON: Q: Well, I don't think I will, Dr. Booth,
21 as much as you may like me to.
22 DR. BOOTH: A: Well, when I read it obviously I was
23 rather annoyed, but you sort of get used to it.
24 MR. FULTON: Q: Pages 17 and 18 of Dr. Vander Weide's
25 evidence.
26 DR. BOOTH: A: Yes.

1 THE CHAIRPERSON: Evidence?
2 COMMISSIONER HARLE: Evidence or rebuttal?
3 MR. FULTON: Q: Pages 17 and 18.
4 THE CHAIRPERSON: Evidence or rebuttal.
5 MR. FULTON: Of the rebuttal evidence, I'm sorry. B1-32.
6 MR. FULTON: Q: And in footnote 4 he cites an article
7 of yours which he says you acknowledge the wide use of
8 the DCF approach for estimating a company's cost of
9 equity. Is that a fair representation in your view?
10 DR. BOOTH: A: The quote is correct. If you're looking
11 at forecasts, if there's serial correlation in the
12 growth rates, then what happens is the expected growth
13 rate with serial correlation is higher than the simple
14 average of those growth rates. So that's absolutely
15 correct. And that paper, I think it was that paper
16 that got the highest download award or whatever for
17 the journal, I forget exactly what but -- so that's
18 absolutely correct. The problem is whether or not
19 that's empirically useful, and I'm afraid it's not
20 that empirically useful.
21 So there's things that we as academics like
22 because it represents a nice technical point, and
23 that's how we get our academic brownie points, but
24 whether it's empirically useful is another question.
25 And if you notice, he doesn't say anything about,
26 well, Dr. Booth said this and here is what his paper

1 says and here is what the adjustment would be. That's
2 noticeably missing.
3 MR. FULTON: Q: I take it from your answer then, that
4 because it wasn't empirically useful, you did not
5 place more reliance on the DCF model in your evidence.
6 DR. BOOTH: A: That's correct. It must be the sources
7 of error in using the DCF model and serial correlation
8 growth rates.
9 MR. FULTON: Q: Page 19 of Dr. Vander Weide's rebuttal
10 evidence.
11 DR. BOOTH: A: Yes.
12 **Proceeding Time 2:24 p.m. T62**
13 MR. FULTON: Q: And there, he -- lines 3 through 31 in
14 his response to question 48, he identifies three major
15 problems with your DCF analysis. Agreed?
16 DR. BOOTH: A: Yes.
17 MR. FULTON: Q: Okay. And the first major -- in his
18 discussion of the first major problem, he says, at
19 lines 11 through 15,
20 "Since Dr. Booth relies on Standard & Poor's
21 composite stock prices to estimate the
22 dividend yield component of his DCF model
23 and Standard & Poor's retention ratios and
24 ROEs to estimate the growth component of his
25 DCF model, Dr. Booth's composite stock
26 prices are not properly matched with the

1 composite cash flows that are being valued
2 in the marketplace."
3 Do you agree with his statement that your
4 composite stock prices are not properly matched with
5 the composite cash flows being valued in the
6 marketplace?
7 DR. BOOTH: A: No.
8 MR. FULTON: Q: Okay. Why not?
9 DR. BOOTH: A: Because I'm doing here exactly the same
10 thing as what every other top-down analyst does, such
11 as Royal Bank of Canada in their analysis. You
12 basically look, what is a reasonable growth rate in
13 earnings and dividends, and for that I have used sort
14 of measures of the retention rate and measures of the
15 return on equity, as well as other measures to come up
16 with a range of growth for the overall. And I'm using
17 a two percent -- I forget what it was for the S&P 500,
18 but I'm using a representative dividend yield.
19 So, I'm not looking at the individual
20 companies in the S&P 500. I'm deliberately looking at
21 some sort of aggregate measure. And the proof of the
22 pudding is essentially in the eating. Does my
23 recommendation for the aggregate return on the U.S.
24 stock market, is it out of line with that produced by
25 Towers Watson, Mercer, Aon Hewitt, TD Economics, or
26 any of the others that have done a similar analysis.

1 So, there may be problems, sort of
2 technical problems, but they're the same technical
3 problems that all of us have to deal with in terms of
4 coming up with an aggregate return on the stock
5 market, whether U.S. or Canada. And as I said, the
6 proof of the pudding is that my estimate is directly
7 in line with those of all of the organizations I've
8 just mentioned. My estimates are not, by any stretch
9 of the imagination, sort of underestimates of expected
10 returns on the U.S. stock market, or the Canadian
11 stock market.
12 MR. FULTON: Q: At lines 16 to 24, he identifies what
13 he describes as the second major problem with your use
14 of composite data. And that is that it includes
15 information for companies that are not dividend paying
16 companies, and therefore which the DCF -- and
17 therefore for which the DCF does not apply.
18 In your view, is that -- is Dr. Vander
19 Weide making a correct observation about your data?
20 DR. BOOTH: A: No. My data is not my data. It's
21 Standard & Poor's, and S&P, what they do is, they
22 calculate a value-weighted average of all of the
23 stocks in the S&P 500. They use that value weight to
24 come up with the index value. They use that value
25 weight to come up with a dividend on the S&P 500. And
26 use those value weights to come up with a dividend

yield on the S&P 500. So it's correct to say that there are going to be some companies without a zero dividend. That's absolutely correct. And it's correct to say that if I was going to do a DCF analysis and the company didn't have any dividend, I couldn't do one. So he's absolutely correct in that way. But he's totally incorrect in terms of looking at the aggregate data on the S&P 500. Because we're looking at the aggregate data. We're looking at the aggregate earnings, and the aggregate dividends, value-weighted according to the 500 firms in the S&P 500 index. And that's about 80 percent of the market value of the U.S. stock market.

MR. FULTON: Q: The third problem that he identified was that it was difficult to verify the validity of the data. But I take it from what you've just said that it is not difficult to verify?

Proceeding Time 2:29 p.m. T63

DR. BOOTH: A: No. I think anybody in this room Googles S&P 500 dividend yield, they will get the dividend yield on the S&P 500. In terms of verification, that's the simplest thing that we can do.

It's certainly simple, more simple than going through and looking at all the individual companies.

1 MR. FULTON: Q: Pages 20 to 22 of his rebuttal
2 evidence. At line 29, question 51, he asked himself
3 "How does Dr. Booth estimate the growth component of
4 his DCF model?" And then in the answer he says that
5 you rely primarily on the retention growth method for
6 estimating the growth component of the DCF model.
7 Do you agree with that statement?
8 DR. BOOTH: A: No. I used three different methods.
9 One of them is to use the return on equity actually
10 earned by the company and its retention rate at that
11 point in time, which will be equivalent to using the
12 very latest financial data. So that's my first
13 estimate of the utility risk premium. That suffers
14 the problem that if the firm has a very very bad ROE,
15 what tends to happen is that the ROE goes down, they
16 have a constant dividend payout -- sorry, constant
17 dollar payout on dividends, so the result is that the
18 retention rate goes down, and a result the growth rate
19 goes down. That I would regard as individually it
20 would create some problems for any one year. When
21 your average overall of the years the problem is
22 minimized. But to correct for that, I'd use two other
23 methods.
24 I use a typical retention rate, the median
25 retention rate for all the companies in the index, so
26 it's not affected by a particularly bad year's ROE

1 causing the retention rate to go down, and similarly I
2 use another method which simply takes the ROE as the
3 Treasury bill yield plus a premium over the Treasury
4 bill yield, so it is not affected by changes in the
5 ROE.
6 So I've got three different measures of the
7 utility risk premium, two of them are there
8 specifically to address some of the problems with
9 using realized data. So I've done the best I think I
10 can in using two alternative methods that don't --
11 that are not sensitive to this criticism.
12 MR. FULTON: Q: If I could next ask you to read the
13 questions and answers to questions 53 and 54, lines 6
14 through 29 on page 21.
15 DR. BOOTH: A: Yes. This is totally inappropriate.
16 Ms. McShane does exactly the same thing. Everybody
17 does exactly the same thing.
18 MR. FULTON: Q: No, just wait --
19 DR. BOOTH: A: Sorry.
20 MR. FULTON: Q: Wait for my summary and then my
21 question, okay, please, Dr. Booth?
22 DR. BOOTH: A: Sorry, I'm eager to get there.
23 MR. FULTON: Q: So you've read those lines that I've
24 asked you to read?
25 DR. BOOTH: A: Oh, several times.
26 MR. FULTON: Q: Thank you. And would you agree with me

1 that at lines 6 to 18 Dr. Vander Wiede says that "when
2 the B times R or the retention growth method is
3 applied to a regulated company, it is logically
4 circular." And then he goes on at lines 19 through to
5 line 29 to provide an illustration to demonstrate what
6 he considers the logical inconsistency, and he says
7 that in applying your retention growth method, you
8 assume that if groups of S&P gas and S&P electric
9 Utilities will earn average ROEs of a certain amount,
10 and then you use these assumptions to calculate
11 average costs of equity. And he states that since
12 your sample of USF utilities is regulated, your method
13 is logically inconsistent.
14 Now, first of all, would you agree with my
15 paraphrasing of those lines that I've referred you to?
16 DR. BOOTH: A: Yes, Mr. Fulton.
17 MR. FULTON: Q: Okay. And do you -- and I take it from
18 what you began to say before I put the summary to you,
19 that you do not agree with Dr. Vander Wiede that there
20 is a circularity or logical inconsistency in your
21 methods.
22 DR. BOOTH: A: Correct. First of all I deal with it in
23 my appendix, Appendix D. I deal with the question
24 that some people claim that it is circular, and that's
25 been in that appendix for at least ten years. There
26 is no circularity. It's a well-accepted method for

1 estimating cost of equity capital. It was originally
2 developed by Myra Gorden in an AT&T case in the 1950s.
3 So it's a standard sort of model in an equity cost
4 analyst's toolkit.
5 **Proceeding Time 2:34 p.m. T64**
6 And in fact it's in the same toolkit that
7 Ms. McShane uses, where she uses BR as a growth
8 estimate. It's called the sustainable growth rate.
9 So I don't accept that criticism and I would assume
10 neither would Ms. McShane.
11 And secondly, when we're dealing with the
12 S&P 500 companies, we're dealing with very big
13 companies as a minimum market CAP size to get into the
14 S&P 500, and most of them, as Dr. Vander Weide also
15 pointed out, contain multiple divisions of firms. So
16 its not just one regulated firm. There are multiple
17 divisions with different regulations, with different
18 lag. So we're dealing with sort of average
19 relationships here. So I reject that criticism
20 completely.
21 MR. FULTON: Q: Page 22 of Dr. Vander Weide's rebuttal
22 evidence. At question 56 he asks himself whether he
23 agrees with your use of the companies that you use
24 composite report of retention ratio and rate of return
25 on equity for the last year as a proxy for the
26 company's expected future composite retention ratio

1 and rate of return on equity, and he responds no, and
2 explains why he disagrees with you.
3 So if you could read lines 13 to 30 to
4 yourself and I'll ask my questions once you tell me
5 you finish reading those lines.
6 DR. BOOTH: A: I'm done, Mr. Fulton.
7 MR. FULTON: Q: Thank you. Now, would you agree with
8 me that in summary what he states is that to be
9 consistent with the forward-looking nature of the
10 retention growth method, you should have used
11 estimated future growth using forecasted retention
12 ratios and rates of return on equity rather than the
13 reported values of these valuables for the last year?
14 DR. BOOTH: A: It would be very nice if that data were
15 available, yes.
16 MR. FULTON: Q: But would you agree with me that that
17 was his position?
18 DR. BOOTH: A: Was preferable. Preferable, yes.
19 MR. FULTON: Q: Do you agree that you should estimated
20 future growth using forecasted retention ratios and
21 rates of return on equity?
22 DR. BOOTH: A: If the data were there I would have used
23 them, but the data is not there. So there's lots of
24 things I would like to do if the data were available,
25 but if the data is not available you have to deal with
26 the data that is available. So that's where I came up

with these two alternative ways of estimating both the return on equity and the retention rate, to get a better estimate of what might be regarded as a forecast growth rate. So I specifically attempted to address that in my true second methods for estimating a utility risk premium.

So Dr. Vander Weide may disagree with that, but what he can't state is that I didn't recognize the problem and I didn't try to deal with it.

MR. FULTON: Q: Thank you. And he also says beginning at line 22 that there appear to be discrepancies in your composite data. How do you explain the apparent discrepancies that he describes?

DR. BOOTH: A: The Standard & Poors 500 data is not a time series, which means to say that you can't go from 19 -- whatever the date is, 1995, and then say that each year sort of represents the same group, same company's data throughout those time periods. What happens with S&P is that if a company goes out of existence, either goes bankrupt or it gets taken over, it periodically has to rebalance the index. And it rebalances the index by bringing in a group of new companies and then matches the price series by changing the value weight so that you've got a consistent price series.

So for example, for the gas utilities, and

1 I mention this in the paper, we start out with -- I
2 think there's 11 gas utilities. By the end of 2011
3 there's only two gas utilities.
4 So each year is a consistent set of data
5 for the companies who are in existence for that year.
6 So each year is a consistent estimate of the DCF
7 equity cost. But what you can't go through and say,
8 well, the year -- and people do this, analysts do this
9 all the time, but conceptually you can't say the year-
10 to-year changes are for a particular company. They're
11 not. Because some companies disappear, some companies
12 come in, and the number of firms in the gas sub-index,
13 as I mentioned, has changed year by year.
14 So when he says he can't understand why the
15 composite dividend per share for gas utilities 992
16 went to 19-06, I can. All that happened was that some
17 utilities dropped out of the index and some utilities
18 were added to the index. But that fact has got
19 nothing to do with the estimate of the cost of capital
20 for each particular year. So in that sense it's not a
21 time series.
22 **Proceeding Time 2:39 p.m. T65**
23 MR. FULTON: Q: All right, thank you. I'd like to
24 change topics now, and ask some questions about the
25 automatic adjustment mechanism issue in this
26 proceeding. And for my questions, you'll need to have

1 Volume 5 of the transcript.
2 DR. BOOTH: A: I have that.
3 MR. FULTON: Q: And have you reviewed the transcript as
4 it relates to the evidence of Mr. Coyne?
5 DR. BOOTH: A: I was there when Mr. Coyne was cross-
6 examined. I haven't reviewed the transcript. But I
7 think I can speak to my knowledge of the cross-
8 examination.
9 MR. FULTON: Q: All right. And would you agree with me
10 generally that while Mr. Coyne did not recommend an
11 automatic adjustment mechanism, he did offer some
12 advice on how such a mechanism could limit risk of an
13 awarded ROE falling out of fair return in intervening
14 years between a full cost of capital review?
15 DR. BOOTH: A: Based upon his comparison base, yes.
16 MR. FULTON: Q: And do you recall whether one of his
17 concerns with an AAM was that it could become
18 entrenched and difficult to displace as the fall-back
19 ROE?
20 DR. BOOTH: A: I thought that was an interesting idea.
21 I can't say either way. I think only the members of
22 this Commission can say, well if we use -- well, first
23 of all, they rejected the --
24 MR. FULTON: Q: Can I just stop you here for a minute?
25 And I'll let you answer.
26 DR. BOOTH: A: Okay.

MR. FULTON: Q: Answer more fully. But do you recall him expressing that concern?

DR. BOOTH: A: Yes, I do.

MR. FULTON: Q: That it would become entrenched in terms of making it difficult to displace once it was in play.

DR. BOOTH: A: I agree that that was his concern, yes.

MR. FULTON: Q: All right. So, if you wanted to say what you were about to say when I stopped you, that's fine. Otherwise, we can move on.

DR. BOOTH: A: It assumes that the members of this Commission decided to suspend the ROE formula in 2009. They did that because it was litigated here and there was information presented to them, and they decided that at that point in time it wasn't appropriate. They looked at what they regarded as a fair ROE. They saw what came out of their formula, and they said, "Look, this doesn't seem to work."

That same analysis was done by the National Energy Board in 2001, and it did work. So they kept their formula. That same analysis was done in 2004 by the Ontario Energy Board, and they said, "Look, it does work." And that same analysis was done by previous members of this Commission, when the ROE formula was reviewed, and they made changes to it.

So I would say that the commissioners have

shown, not just this Commission, but other boards have shown that when presented with information in a litigated hearing, they're not hide-bound in terms of the fact that it is a formula and they're not allowed to change it. They look at it on the basis of the facts, and they make their own determination.

And I'd also say that they may take implicitly into account the result of formulas in other jurisdictions. But they base it on the evidentiary record before them. And I can't believe this is now the 7th day of this hearing, I can't believe at the end of this, the Commission is just going to say, "Well, nobody else has brought back a formula, so we're not going to do it." So the argument works in reverse.

I believe that they will look at the facts on the basis, and make a decision based upon the evidence before them.

MR. FULTON: Q: Do you recall the discussion that he had with Commissioner Giammarino?

Proceeding Time 2:44 p.m. T66

DR. BOOTH: A: If you can point me to it on the transcript I'd --

MR. FULTON: Q: I'll take you to it, yes. If you'd go to page -- the exchange begins at page 830 and continues on until page 836. But let me try

1 providing you a summary and if you agree with the
2 summary, fine. If you don't, then that's fine too,
3 and I anticipate that there may be argument in any
4 event in terms of what the exchange was.
5 So let me try it this way. Quite apart
6 from the entrenchment issue, do you agree that Mr.
7 Coyne seemed to accept that a fixed period to review
8 the fair ROE from first principles would partly
9 alleviate his concern about entrenchment?
10 DR. BOOTH: A: Yes. I've said to Commissions
11 basically that's a free option for the utility. If
12 the formula gives it above average or above fair rate
13 of return it's highly unlikely that the interveners
14 will intervene and say it's too high. It's possible
15 the Commission may do that, but generally they've got
16 some sort of timeline in mind. But the company can do
17 that. So the fact that the company can call a hearing
18 and say the ROE is too low, I would say that's
19 primarily to the benefit of the utility and it doesn't
20 happen on the part of intervenors. So that is what we
21 call a free option, which is a value to the utility.
22 MR. FULTON: Q: All right. So you would agree that
23 there should be -- if an automatic adjustment
24 mechanism was introduced that there should be a fixed
25 period after which the fair return on equity would be
26 reviewed from first principles to avoid undue

1 preference given to the results of the mechanism.
2 DR. BOOTH: A: That's correct. The Alberta Utilities
3 Commission had a five-year sort of sunset clause and
4 the Ontario Energy Board has a five-year sunset
5 clause. So in 2009 when the AUC reviewed its formula,
6 it was because it was five years since the date where
7 they established it in 2004, and the OEB formula was
8 put in -- the new one was put in place 2009 and that's
9 going to be reviewed, in my understanding, in 2014.
10 MR. FULTON: Q: Okay. Now, what about an automatic
11 adjustment mechanism that has two off ramps? The
12 first a full review at the lesser -- or the two off
13 ramps would be a full review at the lesser of five
14 years or if the Long Canada bond yield fluctuates by
15 more than 3 percent from the Long Canada bond yield
16 used by the Commission in forecasting the CAPM risk-
17 free rate.
18 DR. BOOTH: A: I wouldn't think that that makes any
19 sense.
20 MR. FULTON: Q: Okay, and why not?
21 DR. BOOTH: A: Well, currently the forecast rate is
22 about 3 percent, so a 3 percent deviation from 3
23 percent means zero on the down side. And given my
24 testimony, I do not think that's an equitable Long
25 Canada rate, and I would not accept an ROE that came
26 out of a formula of say a zero percent or 1 percent

Long Canada bond yield. So on the down side I would say it offers -- that's too wide. That's why I've got a flow in my recommended formula.

On the up side, I see nothing wrong with that. If the Long Canada rate goes from 3 percent to say 5 percent or even 6 percent, I think everybody in this room should sort of breath a huge sigh of relief that the capital markets would obviously be indicating very strong growth. The capital markets would be back to sort of average. So 6 percent I would regard as the peak of the business cycle when interest rates have been pushed up and things are going very very strong.

So on the up side I see nothing wrong with Long Canada bonds yields at least up to 6 percent. On the down side I would suggest that would not offer a fair ROE.

Proceeding Time 2:44 p.m. T67

MR. FULTON: Q: Okay. Moving forward first in his evidence, he had an exchange with the chair and at page 838, line 26, over to line 12 on 839, he says that:

> "…I feel that it as though this Commission needs to have a formula. What would you recommend?"

1 And then he says what he would recommend. As the next
2 best option in lieu of periodic rate hearings, and
3 that would be to have a formula that includes the
4 types of suggested changes that he recommended, links
5 to bond yields, and a link to equity input that at
6 least gives you some weight to what's going on in
7 equity markets. And either way, he thought that
8 revisiting the result every three to fives years was
9 important.
10 Would you agree that the inclusion of an
11 equity return factor is desirable?
12 DR. BOOTH: A: I was thinking of that when I heard Mr.
13 Coyne's answers, and I was thinking, if I had to write
14 my testimony again would I include the preferred stock
15 yield from the Toronto Stock Exchange, as a valid
16 indicator, and I mention that simply because in 1993
17 before this Commission, my late colleague and I did
18 present a risk premium of preferred stock yields. The
19 advantage being that in Canada we have shareholder's
20 equity and one class of that is commonly referred to
21 as preferred shares, but they are equity. They are
22 treated for tax purposes exactly the same as what we
23 regard as common equity. They are primarily owned
24 within Canada because of the very high dividends and
25 the dividend tax credit. They are not going to be
26 susceptible to foreign capital inflows the way that

1 Long Canada bond yield has, and they are the most
2 obvious component of equity. So until recently we
3 didn't have a reasonable preferred share index in
4 Canada because Bank of Montreal stopped publishing
5 their preferred share quarterly and we stopped getting
6 a good series.
7 But as I was listening to this, I agree
8 with, obviously with the Long Canada bond yield
9 because that is a measure of the expected return under
10 normal circumstances. I agree with the credit spread,
11 because that will average out to zero over the
12 business cycle, but is sensitive to business
13 conditions, and I was thinking that if I had this over
14 again to do, I might look at a component with a
15 preferred share yields, because that is the made in
16 Canada interest rate that reflects the equity market,
17 even if it is a subcomponent of the equity market.
18 MR. FULTON: Q: Quite apart from the issue of whether
19 an equity return factor may or may not be desirable,
20 in your view, would the use of such a factor be
21 feasible?
22 DR. BOOTH: A: The only two Canadas I can think of are
23 the dividend yield on the TSX, which is only a small
24 part of the return on the TSX, or a preferred stock
25 yield, because I reject the idea of looking at other
26 litigated returns, particularly those in the United

1 States because that is evidently circular and U.S.
2 returns obviously reflect the typically high risk of
3 U.S. utilities.
4 So it would be nice to get an objective
5 agreed upon indicator of the equity market to adjust
6 the allowed ROE. Until I decided to start looking at
7 the preferred stock yields, I couldn't think of one.
8 And as I said, I'd hate to introduce new evidence at
9 this stage, but in the future, in the new year, I'll
10 probably look at the preferred stock yields in more
11 detail.
12 MR. FULTON: Q: So perhaps we'll see that at the next
13 ROE.
14 DR. BOOTH: A: In five years' time hopefully.
15 MR. FULTON: Q: A page 763 of the transcript, Mr. Coyne
16 --
17 THE CHAIRPERSON: Mr. Fulton, are you nearing a spot
18 where a break might be appropriate?
19 MR. FULTON: Well, I'm nearing a spot where I'm finished,
20 Mr. Chairman, so --
21 THE CHAIRPERSON: Why don't you go ahead and finish and
22 then we'll have a break.
23 MR. FULTON: Thank you.
24 Q: Page 763 of the transcript. Mr. Coyne was
25 responding to some cross-examination by Mr. Wallace
26 and at lines 11 through 21, he provided an answer to a

1 question by Mr. Wallace, and stated in part that -- or
2 suggested that a 50 percent weighting be given to the
3 USRRA Index. Do you see that?
4 **Proceeding Time 2:54 p.m. T68**
5 DR. BOOTH: A: I do.
6 MR. FULTON: Q: Okay. Do you consider that to be an
7 appropriate consideration?
8 DR. BOOTH: A: Absolutely not.
9 MR. FULTON: Q: Okay, why not?
10 DR. BOOTH: A: First of all I agree with Ms. McShane
11 that the typical U.S. utility is riskier than the
12 typical Canadian utility. So anything that flows out
13 of the typical U.S. litigated ROE by definition is
14 going to be higher.
15 Secondly, we have made huge changes in
16 Canada. When I started testifying Canada bond yields
17 were higher than those in the United States, so a
18 significant risk in the economy, significant deficits
19 at the federal level. We’ve solved all of those
20 problems. The American’s haven't. So we’ve moved
21 from a situation where bond yields were higher in
22 Canada than they were in the United States, to now the
23 bond yields in Canada were lower than they are in the
24 United States.
25 So for the life of me I can’t understand
26 why we’d throw away all of the objective information

of the cost of capital in Canada has decreased significantly below that in the United States or relative to those in the United States over the last 15 years, and instead link our allowed ROEs to those in the U.S.

So I think we should take into account the opportunity cost in the Canadian capital market and the fact that we've got it right in Canada, whereas in the United States, as we know full well, whether they fall off the fiscal cliff or not, they've got huge adjustments that are still coming down the pike in terms of the budget deficit.

So I don't see why we would hitch allowed ROEs in Canada to a jurisdiction that has fundamentally different problems than we have in Canada.

MR. FULTON: Q: And I take it from your response that supplementing the USRRA Index with Canadian ROE awards wouldn't provide the answer.

DR. BOOTH: A: Well, I seem to remember that's an example of a nail and rabbit stew, which is the old story about -- well, never mind, but it's adding a small number of Canadians to a large number of U.S. isn't going to make that much of a difference.

MR. FULTON: Q: Okay. Page 827 of the transcript, Mr. Coyne, beginning at line 14 of 827 is responding to a

1 question that I asked them, that was
2 "If the Commission were to adopt an AAM for
3 the intervening period in the form of an AAM
4 similar to that of the OEB and the Régie
5 AAMs, what advice would you give to the
6 Commission in terms of adjustments that it
7 should make to those forms?"
8 And he went on beginning at line 14, page 827 through
9 829 to line 2 to provide the advice that he would
10 give, and he, as I take his evidence at lines 17 to 24
11 of page 27, suggested that if that was to be the case,
12 the Régie's AAM be amended to use a 50 percent factor
13 for changes in the Long Canada Bond rather than 7.5
14 percent.
15 In your evidence you have recommended 75
16 basis points but you say you can live with 50 basis
17 points.
18 DR. BOOTH: A: That's correct.
19 MR. FULTON: Q: What is the realistic impact of such a
20 change if the Commission directs that there will be a
21 full review in five years?
22 DR. BOOTH: A: Not very much. So let's get the record
23 completely straight here. The Régie said the .75 was
24 appropriate because they wanted to be consistent with
25 past decisions of the Régie. So if you go back and
26 you get higher interest rates, then the Régie is

1 saying, "Well, look, whatever we do -- we're not going
2 to say that whatever we did in the past was wrong. So
3 the formula has to basically map out so that the
4 results that we gave in the past were correct."
5 **Proceeding Time 3:00 p.m. T69**
6 And I think that's a legitimate question.
7 The only adjustment to that is that we put
8 in place adjustment mechanisms -- this Commission did
9 in 1993 for 1994, the NEB in 1994 for 1995, the
10 Manitoba PUB in 1994. That was a period where Long
11 Canada bond yields were in the 9 percents. And we had
12 significant -- I mean, I hate to take everyone back to
13 the early 90s, we had huge budget deficits in Canada.
14 The Government of Canada couldn't convince people that
15 they were bringing down the deficit.
16 So at that point in time, the critical
17 question was, "How much of an inflation or risk
18 premium is there in the Long Canada bond yield? And
19 *ex post*, I think the Manitoba PUB, this Commission and
20 the NEB, got it right.
21 But we're no longer in a situation of 9
22 percent bond yields, we're in a position of two -- of
23 .4 percent bond yields. And not just that, the
24 critical factor is that the Bank of Canada has now
25 established credibility, that it will not see the rate
26 of inflation in Canada outside of the 1 to 3 percent

1 range, with a mid-point of 2 percent.
2 So that really constrains the Long Canada
3 bond yield in terms of the way in which you would
4 expect it to vary over the business cycle. I don't
5 think we are going to see 9 percent bond yields in our
6 lifetime, because the Bank of Canada has committed so
7 much capital to basically keeping inflation at 2
8 percent, that I just don't see inflation getting out
9 of that 1 to 3 percent range. And as a result, I
10 don't see bond yields getting back to the level that
11 we saw when this Commission instituted the adjustment
12 mechanism.
13 So whereas I agree with the Régie that it's
14 nice to use .75 to be consistent with previous
15 periods, I don't see it as being such a significant
16 factor now, because I can't see Long Canada bond
17 yields ever getting back to the position of those
18 previous hearings.
19 So whereas I think .75 is conceptually
20 correct, in terms of what happens with a .75
21 adjustment and a beta coefficient of .5 to the market
22 risk premium, as I have discussed in my testimony, I
23 think .75 is correct. Do I think it's really
24 material, has a big difference in terms of the allowed
25 ROE? Current point in time, my answer would be no.
26 It's not as significant as it was 10, 15 years ago.

1 And this Commission got it right when it
2 had a hundred percent adjustment, because there was
3 that huge inflation risk premium, and -- in the Long
4 Canada bonds. That disappeared, and the Commission
5 lowered the adjustment of .75. So, and those, I
6 think, were the right decisions.
7 MR. FULTON: Thank you. Thank you, Dr. Booth. Thank
8 you, Mr. Chairman. Those are my questions.
9 THE CHAIRPERSON: Thank you, Mr. Fulton. Let's break for
10 15 minutes. Back at 3:20.
11 **(PROCEEDINGS ADJOURNED AT 3:03 P.M.)**
12 **(PROCEEDINGS RESUMED AT 3:20 P.M.)** **T70/71**
13 THE CHAIRPERSON: Please be seated.
14 I think a few of the Commissioners have
15 some questions. I might just start off with a few,
16 Dr. Booth, if you don't mind.
17 DR. BOOTH: A: Sure.
18 THE CHAIRPERSON: Sticking with the talk about the AAM, I
19 was a little confused. Well, not confused. I'm not
20 absolutely certain I understand your floor of 3.8
21 percent. Could you explain that?
22 DR. BOOTH: A: The base for risk premium models is
23 essentially that you've got an investor, saying,
24 "Well, these are my alternatives." And they buy and
25 sell securities, and effect the prices to determine
26 the risk premium. So in the cap asset pricing model,

1 what we do is, we look at our whole group of
2 investors. We look at the cash flows on risky
3 investments. We look at the risk-free, and then we
4 solve for an equilibrium, where there is an
5 equilibrium price for the equities, equivalent
6 expected return for the equities. And an equilibrium
7 risk free rate. And that's the basis for all risk
8 premium models, not just the CAPM but Fama -- I mean,
9 all of the risk premium models. We've got some sort
10 of private sector trading off risk and return. That's
11 not what we've got at the moment.
12 As I mentioned, the current estimates are
13 85 billion a month by the Federal Reserve out until
14 the U.S. unemployment rate drops to 6.5 percent. And
15 we've got all this sovereign debt that doesn't exist
16 in the capital asset pricing model, or almost any
17 model that models expected returns. In the CAPM, when
18 you sum up all of the debt, it's zero. Because people
19 who issue debt are offset by people who buy debt. And
20 that's private sector debt.
21 But now, what's driving everything in the
22 capital markets is not privacy sector debt, it's
23 public sector debt. And it's the actions of central
24 banks, and they're not in the cap asset pricing model
25 either.
26 So what we've got at the moment is interest

1 rates on Long Canada bonds that are below what any
2 reasonable person would regard as being an equilibrium
3 interest rate derived from a private investor trading
4 off risk versus return. Because it's not private
5 investors that are driving the Long Canada bond yield.
6 It's investors -- official investors. In terms of
7 buying Government of Canada bonds, like central banks,
8 reserve management institutions, and a lot of money
9 coming out of the Eurozone.
10 So we've got a unique situation, that's
11 only really been here since the summer of 2011. Up
12 until then, we expected Long Canada bond yields to get
13 back to 4.4, 4.56 percent. Essentially the Royal Bank
14 was predicting that Canada would be back to normal by
15 2012, with Long Canada bond yields of 4.55 percent.
16 That didn't happen. And it didn't happen because of
17 events in Canada. It didn't happen because of
18 Operation Twist and the Euro crisis.
19 So, I can't in all honesty say to you, use
20 the cap asset pricing model and use this 2.4 percent
21 we've got at the moment, or 3 percent forecast Long
22 Canada bond yield as a base. Because in my judgment,
23 it does not reflect the actions of private investors
24 trading off risk versus return. It represents the
25 actions of what the Royal Bank of Canada calls the
26 global policy-maker. And in this I agree with Mercer,

1 Aon Hewitt and just about anybody that's looked at it.
2 Now, how much the true weight should be, as
3 I said, it's a difficult exercise. I don't think that
4 three percent is an equilibrium interest rate. And
5 it's not really an equilibrium interest rate in terms
6 of "a normal economy", which is what Mercer looked at
7 and what Aon Hewitt looked at. It's really what an
8 interest rate should be at this stage in the business
9 cycle.
10 So what I've tried to do is clear off the
11 behaviour of the preferred stock yields since the
12 summer of 2011, to get an estimate of how far down
13 international investors have pushed the Long Canada
14 bond yield. And my estimate for that is about 80
15 basis points. Is that 100 percent accurate? The
16 answer to that is no. It's just looking at that
17 information, at that time of the 3 percent forecast
18 Long Canada bond yield, I assessed that 80 basis
19 points of Long Canada bond yield was below where I
20 would have expected, looking t the preferred stock
21 yields. So that's why I'd say 3.8 percent I would
22 regard as a true Long Canada bond yield, without the
23 impact of Operation Twist.
24 Is this going to go away in a hurry? The
25 answer to that is no. I think just last week when we
26 saw the Fed saying it's going to keep buying U.S.

1 bonds and more -- securities, until the U.S.
2 employment rate drives down to 6.5 percent, and they
3 forecast that's 2015.
4 **Proceeding Time 3:25 p.m. T72**
5 If we are looking at the test year for
6 2013, 2014 and 2015, as Ms. McShane wants to suggest,
7 I don't think we are going to see very much increase
8 in the Long Canada bond yield over those periods.
9 Towards the end I hope you start seeing interest rates
10 go up, but I suspect we could be in for 3 percent for
11 forecast Long Canada bond yields for at least the next
12 two years. So I would not base a CAPM estimate off
13 those bond yield forecasts.
14 THE CHAIRPERSON: Okay. You commented on the high
15 instance of over-earning ROEs through-out Canada was
16 made in utilities over this recent period. That
17 aside, in your estimate, what do you think the extent,
18 in terms of weight that the Panel should put on this
19 in our decision?
20 DR. BOOTH: A: The short-run versus long-run risk, all
21 risk eventually becomes short-run and it's a question
22 of how you think you will react to a long-run risk
23 becoming a short-run risk for FEI. In a sense that,
24 amongst the four of you, in discussions, you should
25 say, "Well, are we going to sit blindly by if any of
26 these long-run risks come back to seriously harm FEI?"

1 Now, I know what you did for Pacific
2 Northern Gas. I know there is significant regulatory
3 protection that you afforded PNG. I know the
4 significant actions I've seen elsewhere in Canada. I
5 know that the NEB is looking at this at exactly this
6 point in time, which is to say how much risk do you
7 really let the utility bear. And I've yet to see any
8 regulator in Canada not take measures to try and
9 protect the utility and pass all costs to the
10 ratepayers.
11 Now do I disagree with that? No, I don't.
12 I think that's part of the regulatory bargain that we
13 do in Canada, that basically we protect regulated
14 utilities. In return they get lower allowed returns
15 and they get more debt financing than in the United
16 States and the overall cost of service is lower. So
17 there is a trade-off.
18 All I object to is that we have this
19 regulatory compact in Canada, and then the utilities
20 want the regulatory protection, plus the higher
21 return, plus the more common equity. Noticeably
22 before the NEB at the moment, TransCanada is reducing
23 its comparisons with the U.S. Pipelines and instead
24 has made a big play on the regulatory compact. That
25 is the duty of the NEB to protect the TransCanada
26 Mainline. And this is one of the elements that the

1 NEB has to deal with, which is that this has been the
2 practice in Canada, and it's part of this dynamic of
3 regulation that when things happen, the practice in
4 Canada has been to protect the utility.
5 So in the short run, I don't see any risk
6 in any of the Canadian utilities earning their allowed
7 ROEs. Even the riskiest in terms of variability
8 around the ROEs was generally Nova Scotia Power
9 because of purchased fuel costs for its cogenerating
10 plants. They have now put in place a fuel adjustment
11 mechanism to basically remove that risk. So that
12 there's a huge homogeneity across the Canadian
13 utilities.
14 I agree with the NEB that the only real
15 risk out there is the fundamental market risk that
16 basically makes the utility not viable. And this is
17 what the NEB has to deal with with the TransCanada
18 Mainline at the moment. And it's only a problem for
19 the Mainline because there's a bullet pipeline
20 connecting Western Canada to Central Canada, and
21 unfortunately for TransCanada, we've now got Marcellus
22 and we've got other gas plays that mean that that
23 bullet pipeline is at risk. But for a gas
24 distribution utility I don't see any risk.
25 Have I answered your question?
26 THE CHAIRPERSON: I think you started to and then you --

1 but it's close enough. On a final point, can you
2 comment on additional risk in the United States versus
3 Canada with respect to regulatory lag?
4 **Proceeding Time 3:30 p.m. T73**
5 DR. BOOTH: A: My understanding, and this I'd have to
6 say, I've been questioned by lawyers on the part of
7 utilities saying, "Are you an expert on the United
8 States?" And my answer to that is "No." What I've
9 learned about the United States mainly comes from the
10 bond rating agencies and from the limited information
11 I've gained from different utilities.
12 What we do see in the United States is that
13 some of the utilities are still on historic cost
14 rather than a forward test year basis. We do see that
15 some of them suffer significant regulatory lag. They
16 get their allowed ROE and then nothing happens for
17 four or five years because there's no pressure to
18 bring them in on an annual basis.
19 So as I mentioned in my testimony
20 somewhere, it sort of acts like price cap regulation.
21 If they're a stable utility with a declining rate
22 base, so the rate should come down. If you're on
23 historic test year in the United States, you're not
24 going to come in for a rate hearing because you'll
25 earn a higher rate of return. And then when you look
26 at the actual ROEs earned by U.S. utilities and put

1 some information in answer to an information request
2 from -- I think it was board staff on electric
3 utilities in the U.S., they're significantly riskier
4 than the electric utilities in Canada. Their ROEs are
5 much more variable.
6 So there's objective evidence in terms of
7 the greater variability of allowed returns in the U.S.
8 compared to Canadian utilities, and this is what
9 Moody's refers to, the ability to earn the allowed
10 ROE. If that's high, it means that there's the money
11 to support the interest payments, and as a result the
12 debt is less risky. And that's why they generally
13 give higher ratings for Canadian utilities than U.S.
14 utilities, or equivalently, they offset the greater
15 regulatory protection in Canada with the lower ROEs
16 and the lower common equity ratios.
17 But ultimately the bond holders are just
18 interested in the next six months when we get our
19 interest payments, how uncertain is the money that's
20 available to the utility to make those payments? And
21 the greater regulatory protection, the more sure they
22 can be that they are actually going to get paid, and
23 as a result they get a higher bond rating.
24 THE CHAIRPERSON: Okay, fair enough. Commissioner
25 O'Hara.
26 COMMISSIONER O'HARA: Dr. Booth, do you recall late

1 yesterday you had a fairly long exchange with Mr.
2 Ghikas about Gaz Métro and those deemed preferred
3 shares?
4 DR. BOOTH: A: Yes, I do.
5 COMMISSIONER O'HARA: That were allowed in -- included in
6 the Régie decision. So I am just asking for the
7 record, I think it would be very helpful just to
8 clarify the record, if you provide it as an
9 undertaking an illustration on the pre- and after-tax
10 working. So out of the outline but I think but might
11 work as that illustration, but you can feel free still
12 to improve, enhance on that. But so for starters, am
13 I correct in that Gaz Métro case there was 38.5
14 percent equity and 9.2 percent ROE allowed?
15 DR. BOOTH: A: Yes, there was 38.5 percent common
16 equity, 7.6 percent deemed preferred equity.
17 COMMISSIONER O'HARA: And at what rate?
18 DR. BOOTH: A: I can’t remember what rate it was.
19 COMMISSIONER O'HARA: But you have to figure -- assume a
20 rate, whatever that rate, right?
21 DR. BOOTH: A: That’s true.
22 COMMISSIONER O'HARA: And then the balance was debt at
23 embedded.
24 DR. BOOTH: A: Embedded cost.
25 COMMISSIONER O'HARA: Yes, so again you had to assume a
26 rate, whatever that embedded cost of debt would be.

1 DR. BOOTH: A: Yeah.
2 COMMISSIONER O'HARA: So that's your starter. So as of
3 sort of Scenario 1, I'm asking you to, in your
4 exercise, show a weighted after-tax average cost of
5 capital. And two ways. The first way being based on
6 this 7 and a half percent preferred and the deemed
7 rate that was in the decision. And the second way
8 would be then that assuming that Gaz Métro actually
9 then, rather than having preferred shares, they went
10 out and debt financed that 7 and a half percent at 5
11 percent debt. So is that -- that what it refers to.
12 DR. BOOTH: A: Yes, so you wanted to do the weighted
13 average cost of capital for Gaz Métro.
14 COMMISSIONER O'HARA: After-tax cost of -- yeah.
15 DR. BOOTH: A: After-tax.
16 COMMISSIONER O'HARA: Yeah.
17 DR. BOOTH: A: So this is using the book value, the
18 weights.
19 COMMISSIONER O'HARA: Yes.
20 DR. BOOTH: A: Using the actual allowed ROE.
21 COMMISSIONER O'HARA: Yeah.
22 DR. BOOTH: A: Using the embedded interest cost.
23 COMMISSIONER O'HARA: Yeah.
24 DR. BOOTH: A: And the only thing different being the
25 actuals rate on the 7 and a half preferred shares that
26 was deemed versus assuming that 7 and a half percent

1 was financed with debt at 5 percent?
2 COMMISSIONER O'HARA: Correct. And it doesn't have to be
3 the -- either you can do it at Gaz Métro at their rate
4 base. You can just use a hypothetical, hundred for a
5 rate base, whatever is easier.
6 **Proceeding Time 3:35 p.m. T74**
7 DR. BOOTH: A: I will see if the information is in the
8 2011 hearing. As you are probably aware it is in
9 French.
10 COMMISSIONER O'HARA: Yes, but you can also --
11 DR. BOOTH: A: And my understanding of French was high
12 school English, which means it is awful.
13 COMMISSIONER O'HARA: So that's now the scenario 1.
14 Then the scenario 2 with these same assumptions then I
15 would like you to show the net income that's remaining
16 for the shareholder. Again on these two ways. One is
17 that the 7 and a half percent deemed preferred are
18 also financed at that deemed preferred rate. And the
19 other way is rather than the deemed preferred it would
20 be actually debt financed at 5 percent.
21 DR. BOOTH: A: Well, if the only thing that is changing
22 is you've got 7 and a half percent preferred shares,
23 and if, for example the deemed rate on the preferreds
24 is 5 percent, then on a before --
25 COMMISSIONER O'HARA: I just want it on the record. I
26 don't need the answer now. I think it will just be

1 helpful for all of us to have the illustration on the
2 record. And then, one more scenario, scenario 3, then
3 using all these same numbers, also showed the pre-tax
4 interest coverage that flows out of these
5 alternatives.
6 DR. BOOTH: A: Okay, that's fine.
7 **Information Request**
8 COMMISSIONER O'HARA: Okay, thank you.
9 COMMISSIONER HARLE: Just a couple of questions, Dr.
10 Booth. I'm looking at your multi-year, over ten year
11 recommendation for 35 percent equity thickness for all
12 gas distribution utilities except for Gaz Métro, and
13 I'm just -- I'd like you to explain the basis of
14 coming up with 35 percent as opposed to 40 or 30 or --
15 where does the 35 comes from?
16 DR. BOOTH: A: It comes from a ranking of the
17 utilities. I think you heard Ms. McShane say that she
18 regarded the gas transmission as the lowest risk.
19 Then I think she went to electric and gas
20 distributors, and I can't remember whether she put one
21 higher than the other, and then she went with
22 integrated electric and then we asked about gas
23 transmission.
24 So before the National Energy Board, the
25 NEB gave 30 percent for the gas transmission, 45
26 percent to the oil pipelines, and that's because at

that time the gas was backstopped with long-term contracts whereas the oils get monthly nominations and they are putting different batches of liquid down the pipeline all the time. So it's a little bit more complex running an oil pipeline than a gas pipeline.

So 30 percent was regarded as the low risk. I put electric transmission about 30 percent and I've been recommending that partly because it's what is finance-able. Most of these utilities are extremely low risk and you would say, well, they can be financed with 25 percent common equity ratio. And we did have 25 percent for TQM, 28 percent for Foothills and the old Alberta Natural Gas which became the B.C. system or the TransCanada system.

So at one point we went down to 25 percent, 28 percent but in '94 the NEB harmonized all of those at 30 percent. I would regard in the current environment 30 percent as being the lowest, and it's feasible for the pipelines because they are not subject to any interest coverage restriction. The only restriction in the pipelines is generally they can't have more than 75 percent debt.

So 30 percent is feasible for the pipelines. TransCanada has obviously got a lot riskier and these common equity ratio has moved up. So I used that as the floor.

1 I then look at the electric transmission,
2 and the AUC has moved that up. They moved it up to 32
3 percent for taxable transmission, 34 percent for non-
4 taxable transmission and then in 2009 they moved those
5 up a little bit more. So you've got a floor of around
6 35 percent based upon the AUC's decision, 30 percent
7 for natural gas transmission based upon the NEB which
8 subsequently moved that up. 36 percent for Union Gas
9 and Enbridge Gas. And these are all for big
10 utilities. They are the big utilities that can access
11 the capital markets.
12 **Proceeding Time 3:40 p.m. T75**
13 And then you start to look at what is
14 financeable for smaller utilities, where they
15 generally issue secure secured debt rather than
16 unsecured debt, and they generally have to have higher
17 coverage ratios in order to access the capital markets
18 on reasonable terms.
19 So it's partly the business risk, the risk
20 ranking of the different utilities, and it's partly a
21 question of what's financeable on fair and reasonable
22 returns. And we have lots of evidence that Enbridge
23 Gas, for example, was an A-rated utility on 36 percent
24 common equity and it has been for a long, long time.
25 Union Gas the same. FEI, DBRS has rated it A for even
26 when it was on 33 percent common equity. DBRS rated

1 Union Gas as an A-rated utility when it was on 29
2 percent common equity.
3 So we're looking at ranges of the common
4 equity ratio in the low 30s as being low, and 35
5 percent I think is a reasonable number for -- in fact
6 I recommend it for gas utilities and also for electric
7 utilities, because we've removed a lot of the
8 commodity charge, we've changed the commodity element
9 in rates, and I don't see a whole lot of difference
10 between most electrical utilities and gas utilities
11 either on a long run basis for capital recovery or
12 short run basis in terms of earning their allowed ROE.
13 So the 35 percent comes out of that sort of
14 analysis that's remained reasonably constant for a
15 long period of time, and I a hundred percent agree
16 with the Ontario Energy Board on that, that capital
17 structures only should be changed in the face of
18 significant changes in business risk. And then the
19 ROE reflects capital market changes and opportunity
20 costs. And overall, apart from the TransCanada
21 Mainline, I don't see any great changes in the
22 business risk of Canadian utilities.
23 This Commission bumped up FEI three years
24 ago and I'm not going to harp on the same thing, but
25 even the president of FEI, or TGI as it then was, had
26 to explain we're not a transitional fuel. We're a

1 foundational fuel because there were concerns about
2 the role of natural gas in British Columbia at that
3 time, and that was unique to British Columbia. And
4 that I regard as having passed now.
5 So given the cost competitiveness of
6 natural gas, I don't see a huge difference between FEI
7 and Union and Enbridge. I'll regard Enbridge as being
8 a little bit lower risk, Union as being a bit more,
9 but overall these are relatively minor differences.
10 COMMISSIONER HARLE: By and large 35 percent assumes that
11 there's common risk against all of them. I presume
12 your recognition of the unique of Gaz Métro relates to
13 them being in a riskier situation then by and large.
14 DR. BOOTH: A: Yeah, you have to go to Quebec to
15 realize everybody uses electricity.
16 COMMISSIONER HARLE: Yeah.
17 DR. BOOTH: A: They even have a wind deferral account
18 for Gaz Métro because the wind actually causes changes
19 in gas consumption. I've never quite worked that one
20 out, but they have a wind deferral account. Not just
21 weather, but wind.
22 COMMISSIONER HARLE: What about --
23 DR. BOOTH: A: Régie has resorted to a number of
24 measures to protect Gaz Métro. And as Ms. McShane's
25 data on penetration points out and on gas
26 competitiveness points out, Gaz Métro is in a

1 different position from FEI, ATCO Gas, Union and
2 Enbridge.
3 COMMISSIONER HARLE: What about recognition of any
4 uniqueness or a premium associated with uniqueness of
5 small utilities?
6 DR. BOOTH: A: That's an interesting question. That
7 came up in the Ontario Energy Board hearing when they
8 had all of these little electric distributors and at
9 the same time they had Toronto Hydro, Hydro One
10 Networks, it's a major distributor, Ottawa Hydro, and
11 at the time they had a difference, 35 percent for the
12 big ones and 40 percent for the small ones. And I
13 testified, I think it was the 2006 hearing and said:
14 Look, this is not good on a public policy basis. I
15 know that the legal standard is to give a rate
16 equivalent to the risk, but on a public policy
17 standard why should somebody being served by a big
18 utility like Toronto Hydro get essentially a lower
19 cost of capital, lower rates, than somebody who
20 happens to live in a smaller jurisdiction where
21 there's a smaller utility, when in fact the basic idea
22 of regulation is that it's surrogate for competition,
23 and if there were competition a lot of these small
24 utilities would go out of business. They'd be taken
25 over by big ones.
26 So I saw a premium for smaller utilities as

being not in the public interest, because it encourages small utilities to exist that wouldn't exist in the competitive market.

Now, the OEB bought my argument, but instead of doing what I recommended, which is move them all down to 35 percent common equity, they actually moved them all up to 40 percent. So even Hydro One Networks, which is a province-wide gas transmission -- sorry, electric transmission company, gets 40 percent common equity.

So they bought my argument but I think 40 percent for Hydro One is excessive

Proceeding Time 3:46 p.m. T76

COMMISSIONER HARLE: Thank you.

THE CHAIRPERSON: Commissioner Giammarino.

COMMISSIONER GIAMMARINO: Thanks. Professor Booth, I want to take you back, and with your permission I'd like to refer to it as the Linus and Lucy quote. Will we all be clear on what that means or do we have to go back to the --

DR. BOOTH: A: I certainly know.

COMMISSIONER GIAMMARINO: Okay. So I have great respect for the Copeland Weston text that that comes out of and I've always found that quote amusing, but I was a little surprised to hear you, in this context, agreeing with it.

1 Now, I'm not asking -- I want to get to the
2 specific question around that surprise. Can I sort of
3 lay out what I think some of the context is and you
4 can tell me where I'm wrong or right on that.
5 So you know, the quote is something along
6 the lines of, "I have a perfect theory. It can neither
7 be proved or disproved." Now, I'd suggest that the
8 DCF model, the Gordon Growth model is a theory, and
9 let me back up for a sec. So a theory would be a
10 proposition that is implied by a set of assumptions,
11 logically implied. So the dividend growth model
12 would have some basic assumptions about an initial
13 dividend, a growth rate, opportunity costs, the term
14 structure of the opportunity costs and then the
15 proposition is that the price of the stock would be D1
16 divided by R minus G. And that's provable or
17 disprovable, is it not?
18 DR. BOOTH: A: That's a theory. It's provable, but
19 that is subject to the same problems as proving the
20 CAPM.
21 COMMISSIONER GIAMMARINO: I'm only talking about
22 theoretical. Yeah. And that was my next -- so you
23 would agree that in fact it is proved. That's been
24 proven by mathematicians. That's solution to an
25 infinite series, and all that kind of stuff. Would
26 you agree?

1 DR. BOOTH: A: That's true. But that's the elegance of
2 the theoretical result.
3 COMMISSIONER GIAMMARINO: That's right.
4 DR. BOOTH: A: The same as the CAPM. It's a very
5 elegant theoretical result.
6 COMMISSIONER GIAMMARINO: You've anticipated my next
7 question. If that's the answer to the first one,
8 unless you want to say something more about the
9 dividend growth.
10 DR. BOOTH: A: No, look, I mean, I've gone on the
11 record many times saying that a good theory is never
12 disproven by empirical facts, and the discounted cash
13 flow model is an elegant theory because first of all
14 it flows directly out the pricing of bonds. We see
15 them every day in the newspaper, priced to the
16 discounted cash flow model. So the model works for
17 bonds. And I always talk to my students and say,
18 "What's the difference about pricing bonds versus
19 pricing equities? What makes it so difficult to prove
20 the DCF model for equities?" And the problem is the
21 growth rate and forecasting those future cash flows.
22 COMMISSIONER GIAMMARINO: Okay. I do want to get to
23 that. But I do want to -- if I can just ask some
24 intermediate questions.
25 So the CAPM similarly is a model that
26 theoretically -- so proof is a theoretical statement.

1 It says we have these assumptions and it implies this
2 conclusion, and you know, the proposition might be
3 wrong. Someone can come up and say the dividend
4 growth model, all those assumptions imply the price is
5 equal to 55 times the dividend, and then we'd say,
6 "No, that's not proven." So the CAPM similarly is
7 proven. So I'm
8 **Proceeding Time 3:49 p.m. T77**
9 DR. BOOTH: A: That's correct.
10 COMMISSIONER GIAMMARINO: Unlike the quote, it's really
11 not a question of whether we can prove or disprove the
12 CAPM. CAPM is a theory.
13 DR. BOOTH: A: It's a theory. The CAPM is a very -- I
14 mean, DCF and CAPM are both elegant theories that
15 combine a huge amount of the real world of finance, in
16 terms of what they're modeling, which is why both of
17 them are so widely used. If they weren't widely used,
18 and everybody said, "Well, they don't capture things
19 that are important," then we wouldn't be here talking
20 about them.
21 COMMISSIONER GIAMMARINO: That's true.
22 DR. BOOTH: A: So they're both very, very elegant
23 theories. The question is, can we prove them in an
24 empirical sense? We can certainly prove them on the
25 blackboard. I do that all the time.
26 COMMISSIONER GIAMMARINO: Okay. But I guess -- and this

is maybe where you and I might have a different interpretation. I always understood from graduate school and whatnot that you can't prove a theory empirically. You can support it or you can reject it, but no matter how much support, you don't know that there isn't an observation out there that's going to just not be inconsistent with your theory. So we look for support.

And the reason -- I don't mean to belabour -- I should clarify. I don't mean to belabour a sort of a trivial point, but there is a lot of discussion and a difficult question about how much weight to put in different models. And I fear the Linus and Lucy quote kind of leaves things hanging in a way that I'm not clear about.

So, we've got -- we've established the theories are provable or not. Whether they have support or not in the data, would you agree that you -- that that is a preferable term than prove or disprove empirically?

DR. BOOTH: A: Absolutely. As I indicated, the DCF model hasn't been proven in that empirical sense as well.

COMMISSIONER GIAMMARINO: Right.

DR. BOOTH: A: But I think the proof of the pudding is the fact that in the survey done by Campbell Harvey

1 and John Graham, the vast bulk of U.S. CEOs use the
2 CAPM. And that was years after all of these empirical
3 tests that have cast doubt on the CAPM. And years
4 after the Roll critique that said, "Well, is the
5 market portfolio efficient?" And it's used because it
6 captures the right information. And that's the most
7 important thing. It captures the right information
8 and allows people to make the right sorts of
9 decisions.
10 So I'm not worried about the empirical
11 asset pricing tests. I've got colleagues that run all
12 sorts of different empirical tests, as in fact you do
13 as well. And they add different factors. They add
14 momentum. They add liquidity. They add skewness,
15 they add turn of the year effects, and they're all
16 fighting over which asset pricing model is the best
17 predictor.
18 I don't personally think that that research
19 is a great deal of value.
20 COMMISSIONER GIAMMARINO: Right.
21 DR. BOOTH: A: As a corporate finance person, I tend to
22 use the capital asset pricing model to value -- to
23 estimate discount rates. And that tends to be the
24 practice amongst corporate finance people estimating
25 discount rates.
26 **Proceeding Time 3:52 p.m. T78**

1 COMMISSIONER GIAMMARINO: I guess the bottom line, I just
2 want to be clear, because when you said, "I agree with
3 the statement, it can't be proven or disproven", the
4 bottom line on that is just to be clear that the
5 testability is a real challenge with all models, and
6 we make careers out of trying to test these models.
7 But that doesn't prove -- that doesn't say anything
8 about the fundamental soundness of the underlying
9 theories that are involved?
10 DR. BOOTH: A: That's correct. And just to reiterate,
11 the DCF hasn't been empirically proven either, and the
12 durability of the model is whether it is factual found
13 to be useful in practice, and the CAs have found it
14 useful in practice, as have Mercer and other people.
15 It's the standard model in finance.
16 So if someone says, "Well, I'm not going to
17 use it because it can't be tested", well, there's
18 whole industries and careers out there with people
19 using the capital asset pricing model. And that I
20 would say is the more valid indicator of whether the
21 model is useful.
22 COMMISSIONER GIAMMARINO: Now, the CAPM has -- I wanted
23 to ask a follow-on question. The CAPM, of course, has
24 been examined intensely for decades, since it first
25 came out I guess. The DCF, have you examined the
26 evidence on that? Any research that's tested the DCF?

1 DR. BOOTH: A: No, there doesn't tend to be that much
2 evidence on the DCF model. First of all, it is not
3 the premium model for estimated rates of return, and
4 secondly, unlike asset pricing models it doesn't
5 appeal to econometricians. We have these massive data
6 banks in finance who has returns going back for long
7 periods of time, and there's a certain type of finance
8 academic who likes to do the asset pricing test,
9 because there's massive amounts of data that they can
10 do all sorts of sophisticated econometric techniques
11 on them. Whereas the DCF model, I'm not aware that
12 there is standardized data bank that people can use to
13 run models of can they predict the return over the
14 next 30 days using a DCF model, which is essentially
15 all they do with the CAPM tests.
16 COMMISSIONER GIAMMARINO: Now, just before we leave that,
17 there is some implied -- it's under the title of
18 "Implied Cost of Capital" some recent studies that you
19 might take a look at, but I don't think they are very
20 conclusive. And my main point was just that we've got
21 one model that's been studied to death, if I could use
22 that term, and you know, some have argued that we
23 should just abandon that in favour of another one, and
24 I just wondered -- you know, the other one I don't --
25 my impression has not been examined nearly as
26 carefully.

DR. BOOTH: A: That's right. In fact, I would extend that and say that the implied cost of capital literature was finance literature. The finance people have looked at that. That's essentially done by accountants now, which is the Eastern and Summers paper that I referenced, and when -- I remember going through the seminar when Eastern presented that paper. And they were all accountants there and I said, "This is Gordon Growth Model. How come you haven't referenced the financial literature. They've looked at this exhaustively back in the '50s and the '60s," and they just wanted to ignore that literature.

So it's primarily in accounting literature. They do look at implied cost of capital. I would say -- I've referenced that more in line with the growth rate, is the growth -- are the growth rates coming out analyst's forecasts realistic or not. So I'm aware of that literature, but it's not so much an asset pricing literature. Can these estimates be used compared to actual rates of return as it is a growth rate literature.

Proceeding Time 3:56 p.m. T79

COMMISSIONER GIAMMARINO: Okay. Now, there was also a discussion of negative betas, and I just want to return to that very briefly. I just have a couple of questions on that. So you stated that it's very hard

1 to find, if not impossible, a negative beta stock.
2 Now, a cash outflow that has, if I -- I'm not sure
3 that this is the right way of saying it, but a cash
4 outflow that has a positive beta. Does that make
5 sense to you? So it by itself is positive, but if
6 it's a cash outflow then it's negative. So it's like
7 going short.
8 DR. BOOTH: A: If it's a cash outflow then it's got a
9 negative value. So all else constant, it'd still have
10 a positive rate of return.
11 COMMISSIONER GIAMMARINO: So I just wonder if that's an
12 example of a negative beta.
13 DR. BOOTH: A: No, I actually wrote a paper on it in
14 the *JFQA* in 1984, because a lot of people were saying
15 negative cash flow stocks have got negative rates of
16 return, and the answer to that is no, negative cash
17 stock has got a negative value and you've still got a
18 positive rate of return.
19 COMMISSIONER GIAMMARINO: I'm sorry.
20 DR. BOOTH: A: Well, it depends on the correlation in
21 the market.
22 COMMISSIONER GIAMMARINO: No, I'm sorry, I didn't mean to
23 imply the whole company. I just meant a portfolio
24 that has a short position, that component of the
25 outflows would be negative beta.
26 DR. BOOTH: A: That's correct, and it's part of a

1 portfolio that would be used to go for all risk of the
2 portfolio.
3 COMMISSIONER GIAMMARINO: Right. So operating -- fixed
4 operating, or operating costs can be thought of as a
5 negative beta component of the company.
6 DR. BOOTH: A: That's true. If you went through the
7 whole cash flow stream for a firm, you can take the
8 revenues, you can take the cash outflows, and you can
9 sort of take a weight average of all of those to come
10 up with the beta coefficient of the stock.
11 COMMISSIONER GIAMMARINO: Right. Now, if -- so this gets
12 -- you have a comment on page 19. You don't have to
13 turn to it if you don't want to. But you describe
14 operating costs and revenues as being relatively
15 stable.
16 DR. BOOTH: A: For utilities.
17 COMMISSIONER GIAMMARINO: Yeah.
18 DR. BOOTH: A: Relative to most companies, yes.
19 COMMISSIONER GIAMMARINO: Right. And I guess my point
20 there is that is you're short a low beta stock, it
21 increase the risk of the firm. And I think in your
22 textbook probably you have a section on operating
23 leverage that says much the same thing, but I'm not
24 sure.
25 DR. BOOTH: A: Yeah, I talk about operating leverage.
26 What happens is that -- put it this way. If you never

had any costs, your revenue stream would be riskier. So the fact that you've got costs offsets the variability in the revenue stream. And this also comes down to a lot of the consumption asset pricing tests which don't take into account the costs for companies. But I mean certainly the existence of positively correlating costs with positively correlated revenues reduces the risk to the firm as a whole.

Proceeding Time 3:59 p.m. T80

COMMISSIONER GIAMMARINO: That is right, so the reason that that struck me as somewhat important is to clarify. When you talk about the fixed operating costs, you seem to imply, in my reading, that this is safer, and from this negative beta perspective, it is no, it is riskier. It would be a lot better if we had costs that varied with the business cycle, for instance.

DR. BOOTH: A: Oh, that is a sensitive issue. I had a big -- we are going to get into technical issues here, but I had a big argument with Stewart Meyers about that, because if in fact the firm has got a flexible production function, so that as a result of a higher price it can actually produce more, and it will then actually have more labour, so labour is an *ex post* flexible factor of production, then what happens is

1 that more price uncertainty generates more flexible
2 production, higher revenues, and more volatile cash
3 flows, because basically the high price means to say
4 you make a lot more money if you can actually change
5 the labour and generate more clash flows to the firm.
6 Whereas with a utility, where there is not the ability
7 to sort of dramatically ramp up output in response to
8 prices, because it is not like a manufacturing firm
9 where you just hire more labour and then produce more.
10 You don't get the big increase in profitability.
11 So, for utilities, in fact the labour
12 capital ratio, the amount of operating leverage is not
13 an indicator of high risk, whereas in fact Stewart
14 Myers says the opposite. The higher operating
15 leverage means high risk for utilities.
16 COMMISSIONER GIAMMARINO: Okay, I think I should leave
17 that there. There are some papers that certainly
18 argue that operating leverage increases the risk, and
19 there is I think some empirical support, but this is
20 not a seminar, so (inaudible) --
21 DR. BOOTH: A: My own paper in the *JFQA* in 1991 says
22 that.
23 COMMISSIONER GIAMMARINO: But in terms of your testimony,
24 your position is that safer expenses are in fact risk
25 reducing.
26 DR. BOOTH: A: Yeah, my position is simply that when

1 you look at utilities you can't see any risk.
2 COMMISSIONER GIAMMARINO: Okay.
3 DR. BOOTH: A: That they would constantly earn their
4 allowed ROE, and if you get dragged into looking at
5 "fundamental factors" you get into a discussion of is
6 it this one or is it that one, when you just have to
7 look at the experience ROE versus the allowed. And so
8 it doesn't matter talking about all of these issues.
9 The fact is, no matter what, they earn their allowed
10 ROE.
11 COMMISSIONER GIAMMARINO: Okay, I want to move on to your
12 adjustments to the ROE, you have two of them. And I
13 don't want to revisit sort of the rationale behind
14 Operation Twist or anything like that, I just need to
15 put these in a certain place in my head, so if you can
16 help me with that.
17 So the Operation Twist adjustment is
18 essentially an adjustment -- and now I am going to --
19 in the context of the CAPM, this is an adjustment to
20 the default free opportunity cost?
21 DR. BOOTH: A: That is correct, it would apply to any
22 risk premium model regardless of the CAPM or Fama
23 French, or anything.
24 COMMISSIONER GIAMMARINO: Q: DCF?
25 DR. BOOTH: A: Yeah.
26 COMMISSIONER GIAMMARINO: Q: The second one is the

1 credit spread adjustment. And am I correct in
2 thinking of, I think you use these terms, but I just
3 want to make sure. This is, you are doing an implied
4 adjustment for the -- sorry, not for the -- for the
5 conditional risk premium.
6 **Proceeding Time 4:02 p.m. T81**
7 DR. BOOTH: A: That's right. Essentially, I mean, I
8 refer to it as conditional capital asset pricing
9 model. Rather than taking the historic risk premium
10 and saying, "That's it," does the risk premium vary
11 with the business cycle? And in fact there's a paper
12 by Campbell Harvey that basically says that higher
13 credit spreads, the risk premiums tend to go up. So,
14 in 2009 before this Commission, I said there is not
15 enough evidence to indicate that the increased credit
16 spreads at that time were not the result of the
17 financial crisis and the lack of liquidity. In fact,
18 reflecting increased risk. And I was reluctant to add
19 a credit spread adjustment. But since then, the work
20 by the Bank of Canada, I've decided that it makes a
21 conditional CAPM, it makes a little bit more sense to
22 the business cycle. But over the overall cycle, it's
23 not going to amount to much.
24 COMMISSIONER GIAMMARINO: Okay. Are you okay if I split
25 the risk premium from the beta? You're putting them
26 together in that term.

1 DR. BOOTH: A: Sure.
2 COMMISSIONER GIAMMARINO: I want to talk about the risk
3 premium just for a second. So, I kind of surmised
4 that when you presented it. And I guess my question
5 is, when I think about -- there is two questions.
6 When I think about the conditional risk premium
7 studies that I know of, they include things like -- so
8 the credit spread is there, the term spread is there,
9 the dividend price ratio is there. I'm not sure if
10 the kitchen sink is in some of these, but you know
11 what I mean, that there are -- there is sort of a
12 well-established set of suspects. You've looked at
13 one.
14 DR. BOOTH: A: Correct.
15 COMMISSIONER GIAMMARINO: So why not look at all?
16 DR. BOOTH: A: Two reasons. First of all, with all due
17 respect to the Commission, it's a question of getting
18 things to the Commission in an understandable way
19 through cross-examination. And KISS works. That a
20 simple way of looking at these things, I think, makes
21 sense. The only time, for example, I saw a company
22 put forward the Fama French model was before the Gaz
23 Métro. And the witness had a real tough time with the
24 more complicated model. And the Régie was very
25 reluctant to adopt a more complicated model.
26 COMMISSIONER GIAMMARINO: Right.

1 DR. BOOTH: A: So when you get down to conditioning,
2 you're absolutely correct. You think about Chandrell
3 and Ross, and you think about economic factors
4 affecting security returns, you can go to more
5 measures. Does the addition of more measures make the
6 testimony more saleable to a Commission? And the
7 answer to that is generally no. It may make it more
8 saleable in an academic seminar but it's easier, I
9 think, to pick on one thing that people can relate to
10 – credit spreads – that was picked up in most of the
11 hearings in 2009, which seems to make sense, and seems
12 to be consistent with the academic literature, than to
13 go through a more complicated model with term
14 structure, yield parameters, dividend yields or other
15 conditioning variables. So, I pick one, the credit
16 spread.
17 COMMISSIONER GIAMMARINO: Right.
18 DR. BOOTH: A: I think it makes sense. I think it's
19 easily understandable. It's been adopted by the
20 Ontario Energy Board.
21 **Proceeding Time 4:05 p.m. T82**
22 And there may be a little bit of a
23 movement. Perhaps in five years' time we can make
24 more conditional variables. But it tends to be the
25 regulators, with all due respect, don't move that
26 quickly. It's taken a long time to get certain models

1 accepted, and to throw a kitchen sink of academic
2 research would invite huge amount of cross-
3 examination, and I think the end result would be
4 difficult to convince most boards. Perhaps this board
5 is unique because of your presence, but believe me,
6 most boards, it's difficult.
7 COMMISSIONER GIAMMARINO: I am just -- it's in terms of
8 your analysis that I am concerned with. And so as an
9 expert bringing this forward, it's important, isn't
10 it, to recognize that if you have omitted variables
11 the results might be wrong. You know, if we'd throw in
12 one variable and we know there should be three, that
13 we may have -- you know, and if we don't at least warn
14 -- so your job is to advise us, I believe, and to give
15 us guidance and understanding of this. So throwing in
16 a new -- and I'm not talking about factors yet. This
17 is just about the conditional risk premium. So to
18 throw in an additional explanatory variable of the
19 conditional risk premium, has to come with a warning,
20 or would you agree?
21 DR. BOOTH: A: I think that what has to come -- I mean,
22 I've included preferred stock yields in the way in
23 which I generated the operation twist adjustment, so
24 that is looking at dividend yields or equity market
25 data, and I'm looking at -- as I've discussed in my
26 testimony, the yield spread, treasury bills versus

1 long Canada bond yields, as well as looking at credit
2 spreads in the money market and long-term spreads in
3 the long-term market. So all of those conditioning
4 variables are there in my testimony. I can't think of
5 many others that I would not include. So that they
6 are in the discussion of capital market conditions.
7 If I was doing some form of extended asset pricing
8 test, then you are probably correct. In terms of
9 looking at the state of the capital markets and
10 conditioning my fair return recommendations based upon
11 those capital markets, I don't think you are correct,
12 because I think I've included most of those variables.
13 The one I would suggest for the adjustment
14 mechanism, the most important one, is the credit
15 spread. And I think there's a lot of estimation area
16 attached to, say, looking at dividend yields, although
17 in reference to the comments with Mr. Fulton I said,
18 "Well, perhaps that's something. The preferred stock
19 yields in particular, I may revisit because there's a
20 huge tax problem comparing bond yields with looking at
21 preferred stock yields and looking at the fair return
22 on equity for a utility.
23 COMMISSIONER GIAMMARINO: So just a last point on the
24 conditional risk premium, when I talked to my
25 colleagues that work in that area, and I say, "As a
26 practical matter, do you think that's a good thing to

1 use?" And they often would say, "Not now." Because
2 of the reasons you are saying. There's a lot of
3 estimation errors. We haven't quite settled down.
4 And would that suggest to you that maybe the
5 unconditional risk premium is better, as an
6 operational matter?
7 **Proceeding Time 4:09 p.m. T83**
8 DR. BOOTH: A: As I mentioned --
9 COMMISSIONER GIAMMARINO: Q: For the task of this
10 committee right now.
11 DR. BOOTH: A: In 2009 I said conditioning -- I didn't
12 say conditioning CAPM based upon bond yields. I
13 didn't use that phrase, but I was reluctant to base
14 anything on bond yields. In particular it was because
15 I said at the time I couldn't unravel the liquidity
16 premium involved in bonds, versus the risk premium
17 involved in bonds, versus the pure loss premium
18 involved in bonds. I am more willing to do that now,
19 based upon the work of the bank of Canada, even though
20 that only says 37 percent is actually related to a
21 possible risk premium in corporate bond spreads.
22 Because there is that evidence, and because I looked
23 at it and said, well, this is clearly something that
24 boards want to do, it makes sense, no need to stand on
25 purity, credit spreads are certainly related to fair
26 rates return in a broad sense. If I had a 50 percent

adjustment, does it matter very much? And the answer to that is no, over the full business cycle it is going to average out to zero. And I said that before the Régie. I was reluctant to make a conditional estimate based upon bond spreads. But I am comfortable with the fact that over the business cycle it would average out to zero. So I don't think that there is a significant error in doing that, it does generate a little bit more uncertainty, volatility in the allowed ROE.

COMMISSIONER GIAMMARINO: Q: Okay. Now, you've got a conditional risk premium, but you have a unconditional beta?

DR. BOOTH: A: Well, I've got my recommended beta. I think coming up with conditional betas is extremely difficult.

COMMISSIONER GIAMMARINO: Q: Okay, I just wondered what you were doing with that. Now, if I could just move on. You talked a lot about non-equilibrium rates, and as you might imagine, I have difficulty understanding exactly what that means. Now, so it -- a price that is not an equilibrium price is a price that we'd observe with air perhaps, or there is some restriction in the market that isn't allowing people to trade or to supply or something? Is that what is going on?

DR. BOOTH: A: No, the problem is, that most people in

1 finance derive models where there is no government.
2 And we are having to deal with in this instance with
3 the problem of governments. So, when I look at the
4 capital asset pricing model or any equilibrium model
5 pricing security returns and look at risk premiums,
6 there is never a government there. The only papers I
7 can think of are ones by Stapleton and Subrahmanyam in
8 the late '70s, and there they just assume, well, you
9 as an investor owned your proportional share of
10 whatever the public sector is, but they weren't
11 dealing with the actions of a central bank, within an
12 equilibrium pricing model. So, my fundamental concern
13 is that most of the time that doesn't matter.
14 **Proceeding Time 4:12 p.m. T84**
15 This point in time it does matter. It's
16 the elephant in the room. The elephant in the room is
17 simply that these are not equilibrium prices in my
18 judgment that are being determined by investors
19 trading off risk versus return. When 90 percent of
20 the government bonds are being purchased by the
21 Federal Reserve, they're doing that not for
22 equilibrium risk return relationships, they're doing
23 it because the U.S. economy is in such dire shape.
24 So to take a CAPM model that is an elegant
25 equilibrium model and apply it to a situation where
26 the major factor isn't in that model, I think results

in highly misleading estimates. And I would love to be able to derive or see an equilibrium model where we actually have a government that does what government does, which is stimulate the economy in a recession and slow it down in a recovery, but I have yet to see that model. Certainly not in the finance literature.

COMMISSIONER GIAMMARINO: There are some. But you referred to the '60s and Operation Twist, and I vaguely remember some of this, the Modigliani and Sutch analysis, and I thought that did take into government action. And so the fact that the feds are buying today means inflation is going to go up, for instance, and it's not so much the CAPM, it's more rational expectations that's at question here, isn't it? And don't we have -- I don't remember that literature but since you're focusing on Operation Twist, didn't that tell us something about what to expect on this one?

DR. BOOTH: A: No, I don't think it did. In 1961 the fed tried to twist the yield curve.

COMMISSIONER GIAMMARINO: That's right.

DR. BOOTH: A: Lower long-term rates in order to stimulate the U.S. economy. I remember the Modigliani and Sutch paper, but my recollection was that was an inconclusive literature. This time it is totally different. The fed wasn't dealing with Operation

1 Twist at that time because the U.S. financial system
2 had almost collapsed and they had to bail out all of
3 the big banks in the United States. The housing
4 market had dropped by 40 percent. The wealth of
5 Americans had been decimated and they were probably
6 looking at a great depression. The Operation Twist
7 we're now seeing is in a completely different economic
8 environment, and the big problem with economics is
9 that we're not physicists and a lot of economists
10 pretend that we're physicists, which is when you drop
11 an apple it falls to the ground every time and you can
12 measure that. We can't do that. Every time the
13 economy is constantly changing. And the current point
14 in time is closest to the Great Depression, and in my
15 judgment we're seeing the fed implement an Operation
16 Twist in a completely different economic and financial
17 environment. And I don't think it's appropriate to
18 ignore that in unconditional estimates.
19 COMMISSIONER GIAMMARINO: Now, to go back to the CAPM,
20 really this is -- the CAPM is based on these two
21 funds, right, so one is a risk-free and one is the
22 market. And all that matters, really, is what is the
23 opportunity cost in terms of buying the security that
24 will pay off a dollar for sure. A dollar for sure.
25 **Proceeding Time 4:15 p.m. T85**
26 DR. BOOTH: A: True.

1 COMMISSIONER GIAMMARINO: And that would be a strip bond.
2 And we don't really care how the price got determined.
3 That is the opportunity cost to the investor.
4 DR. BOOTH: A: Not if nobody's -- no private investors
5 are buying it. It's an opportunity cost in the sense
6 there is an alternative.
7 COMMISSIONER GIAMMARINO: Right.
8 DR. BOOTH: A: But if the alternative is not actually
9 being purchased by ordinary investors because the
10 market is being made up by the government, that is
11 basically an irrelevant opportunity cost. And I'll
12 just go back to the fact that in the capital market
13 equilibrium with a CAPM, you aggregate over all of the
14 debt and the debt disappears. There is no debt in the
15 CAPM. All the long debt is offset by short debt.
16 That comes back to some Chicago economists that
17 basically said the same thing with government debt.
18 That you add up all of the government debt. We as
19 taxpayers owe that money, and as a result we make
20 offsetting balance sheet adjustments to take into
21 account the public debt. That's a concept called
22 "Ricardian equivalence". It's a concept that was
23 popular with Dick Barro about 20 years ago. It's a
24 concept that denies the ability of governments to
25 control the economy. Because anything they do in
26 terms of deficit financing is perfectly offset by

private investors. It's a very elegant model that has no empirical validity whatsoever. It implies that the public debt outstanding and government policy, Keynesian or monetary policy, has no impact.

COMMISSIONER GIAMMARINO: But the question was just -- that would be the opportunity cost. Investors -- any investor could buy a strip bond and get a payoff. And you've asserted something about the empirical -- you know, if there are any investors that actually see it that way. But --

DR. BOOTH: A: That's right, I mean, my --

COMMISSIONER GIAMMARINO: The question is, in terms of the CAPM, what we need is that opportunity cost to implement.

DR. BOOTH: A: If the investors see that as a correct trade-off for their risky investment. And my argument would be that they don't.

COMMISSIONER GIAMMARINO: I see.

DR. BOOTH: A: Because they're not actually buying those bonds.

COMMISSIONER GIAMMARINO: I see.

DR. BOOTH: A: The only people buying those bonds are official government investors and the Federal Reserve.

COMMISSIONER GIAMMARINO: Now, I know some fixed-income investors who have got them, in pretty big numbers and should we -- they're holding for pension funds and

1 mutual funds, and that sort of thing.
2 DR. BOOTH: A: Yeah, but they're not buying the new
3 debt. At the moment, the Fed, with 90 billion, 85
4 billion dollars, is basically buying the U.S.
5 government deficit every month.
6 COMMISSIONER GIAMMARINO: But these markets are
7 integrated. So the bonds that they hold are being
8 affected. They could sell them if they didn't like
9 what was going on.
10 DR. BOOTH: A: There is a market in government bonds,
11 that's correct. And the Fed as yet doesn't own all of
12 the government bond market. The Bank of England, I
13 think, now owns about 40 percent of the British
14 government debt.
15 COMMISSIONER GIAMMARINO: Okay.
16 DR. BOOTH: A: I mean, they are the elephant in the
17 room.
18 COMMISSIONER GIAMMARINO: Okay. Can I move on to just
19 some, I think, straightforward questions about your
20 CAPM? Did you adjust the market index? You took the
21 S&P. Did you use anything else? Did you include
22 bonds or broader portfolios?
23 DR. BOOTH: A: No. The --
24 COMMISSIONER GIAMMARINO: Okay.
25 DR. BOOTH: A: I mean, the S&P is actually a levered
26 index. Because they're levered returns on the

1 companies. But to try and go through and unlever the
2 S&P return to get a pure market risk premium would be
3 incredibly difficult. And in terms of the estimates,
4 I go through a look at these historic estimates and I
5 look at the important question, is what do people use
6 as the market risk premium, which is the results of
7 the survey data.
8 **Proceeding Time 4:18 p.m. T86**
9 COMMISSIONER GIAMMARINO: Yeah, that's the risk premium.
10 No, I'm onto the betas now.
11 DR. BOOTH: A: Sorry.
12 COMMISSIONER GIAMMARINO: And actually I was asking if
13 you used a broader index in estimating your betas than
14 the S&P. So I was going to ask you second if you
15 adjusted for leverage but you've answered that. So
16 you didn't adjust for leverage. Did you try another
17 market?
18 DR. BOOTH: A: If you run the betas of the Canadian
19 companies looking against the U.S. index, the betas go
20 down even more because of the foreign exchange risk,
21 because the fact is the exchange rate keeps changing.
22 That introduces -- disrupts the correlation with the
23 U.S. market. So I used to, as a regular information
24 request, ask Ms. McShane to estimate the betas over
25 Canadian companies against the Canadian index and
26 against the U.S. index. And I didn't do that this

1 time, but the betas always go down. And you end up
2 with betas of .1, .15.
3 COMMISSIONER GIAMMARINO: I'm doing a bad job of asking
4 the questions. That was my third question you've now
5 answered. But the first question is still: Did you
6 add things to the S&P like bonds or real estate or
7 anything like that, look at a broader index.
8 DR. BOOTH: A: No. I used the S&P 500 which is 80
9 percent of the U.S. equity market, but you are
10 correct, you can make adjustments. You can make lots
11 of adjustments, but the question is, at the end of the
12 day if you make all these adjustments, are they going
13 to change your estimate of the market risk premium?
14 And the answer to that is no.
15 COMMISSIONER GIAMMARINO: Okay. You said that risk is
16 the chance of losing money. Now, when you talked
17 about investors in the CAPM trading off risk and
18 return, is that the risk you meant?
19 DR. BOOTH: A: The probability of losing money is the
20 down side risk. In the capital asset pricing model we
21 assume quadratic utility or normality so that the down
22 side risk is exactly the same as the total risk. In
23 which case the beta is the correct measure of risk.
24 In a world where you've got non-normal returns, and
25 you don't have quadratic utility, you will not
26 generate the CAPM, and you get some sort of deviation.

1 And in that world you are really looking at down side
2 risk.
3 COMMISSIONER GIAMMARINO: I think this is my last
4 question. It relates -- now, it was an earlier
5 question that you received and I just am not clear on
6 your answer to it. It was about total company risk
7 and FEI as a corporation not investing in a portfolio.
8 Do you remember that exchange?
9 DR. BOOTH: A: I do. I think it was the same question
10 as Mr. Johnston has asked me for several hearings.
11 COMMISSIONER GIAMMARINO: So I just want to clarify with
12 my own question on it, if I could. So if we had an
13 investor that decided that they would hold -- they
14 would start a utility and that was the only asset they
15 would own, their entire savings was going to go into
16 that, would it be appropriate for this Commission --
17 so that they clearly do not have a portfolio, and they
18 are clearly not diversified, is it your opinion that
19 we should -- the opportunity cost for that individual
20 should account for total risk, or again, only non-
21 diversifiable risk?
22 **Proceeding Time 4:22 p.m. T87**
23 DR. BOOTH: A: No, what happens in a competitive market
24 is the person that is willing to pay the highest price
25 wins. Somebody can diversify, can remove risk for
26 free. It is about the only free lunch that there is.

1 Diversify removes risk. Diversification removes risk,
2 removes the fair rate of return, as a result you are
3 willing to pay a higher price. Somebody who has got
4 an undiversified portfolio by definition has got a
5 higher required rate of return. They are willing to
6 pay a lower price, and they should not exist in a
7 capital market equilibrium, because their expected
8 rates return, required rates return are too high. So,
9 in any form of equilibrium, anybody -- and it is a
10 paper by Levy on this, that he put any constraint on
11 the number of securities you hold, then you are going
12 to come out with a form of a CAPM that is very, very,
13 very similar, but overall rates of return are going to
14 be high, because idiosyncratic risk counts a little
15 bit. But if you only have a subset of the investors
16 that do that, then they won't hold any securities,
17 because they are not going to meet -- or they are
18 going to hold a lesser portfolio, because there
19 expected or required rates return are higher than the
20 equilibrium rates.
21 COMMISSIONER GIAMMARINO: Q: Can I just rephrase that
22 last part. They wouldn’t pay as high a price as a
23 diversified investor would, and therefore they
24 wouldn’t win the auction as it were for the utility?
25 DR. BOOTH: A: That is exactly right.
26 COMMISSIONER GIAMMARINO: Q: Okay. Okay, I really do

1 have only one more question. You've used B times R
2 which is a standard kind of textbook estimate of
3 growth.
4 DR. BOOTH: A: Yeah, that is Myron Gordon's extension
5 back in 1956.
6 COMMISSIONER GIAMMARINO: Q: Now, it is sometimes
7 called organic or sustainable, but it does imply that
8 companies do not go to the capital markets to raise
9 money, does it not?
10 DR. BOOTH: A: It implies that have actually got a B,
11 which is retention, and as a result they can finance
12 internally, correct. So, you then look at an
13 additional term, V times S, where you are looking at
14 the ability of the utility to sell stock above market
15 value -- above book value, sorry, in order to enhance
16 the return. This is what Mr. Engen refers to as
17 accretion. Now, this wouldn't apply to FEI because it
18 is basically a stable cash flow utility. In fact,
19 most of the utilities in Canada, except the oil
20 pipelines are free cash flow positive, which means
21 they are not going to the capital market. In fact,
22 they very rarely go to the capital markets to finance
23 their underlying distribution business.
24 COMMISSIONER GIAMMARINO: Q: Sure, and my question was
25 just a straight forward about that model. That
26 assumes that you only invest what you retain, so if

you have a positive NPV investment, and you don't retain anything, it just goes by, you don't issue equity, and you know, we are not selling shares and issuing equity.

DR. BOOTH: A: Yeah, it actually assumes that all incremental net present values are the same as the net present value of the overall rate base. Because you've got a constant rate of return, R.

Proceeding Time 4:25 p.m. T88

COMMISSIONER GIAMMARINO: Okay, I'm not sure about that one but I think I got your question. Your answer, sorry. Those are my questions, thank you.

THE CHAIRPERSON: Thank you, Commissioner. Mr. Wallace, do you have any redirect?

MR. WALLACE: No, I do not, thank you.

THE CHAIRPERSON: Thank you, Mr. Wallace. Dr. Booth, you are excused but if you could perhaps stay there for a couple of moments until we finish up. That would be great.

DR. BOOTH: I'm in no hurry. I'm on an 11:35 flight to Toronto.

(WITNESS ASIDE)

THE CHAIRPERSON: Okay. Mr. Fulton, do we have any other business to conduct?

MR. FULTON: Yes, Mr. Chairman, I have my standard motion at this point in the proceedings. Only the dates have

1 been changed from the usual motion.
2 And my motion is as follows: That I move
3 closure of the evidentiary record for this hearing
4 subject to the filing of outstanding undertakings on
5 the following schedule:
6 (1) interveners file their outstanding undertakings on
7 or before Thursday, January 17th, 2013; and
8 (2) the affected utilities file their outstanding
9 undertakings on or before January 31st, 2013.
10 THE CHAIRPERSON: Consider the record closed, with those
11 provisions.
12 MR. FULTON: Thank you, Mr. Chairman.
13 THE CHAIRPERSON: I'd like to make a couple of closing
14 comments before we break up. I'd like to start by
15 thanking our final panel, Dr. Booth, who has just
16 finished. You've obviously done a lot of work to
17 prepare for this, and the Panel is very appreciative
18 and you made our job quite a bit easier by the
19 information you've given us.
20 On a broader basis, we've just completed a
21 very lengthy oral hearing which has encompassed a
22 total of eight witness panels. I think I represent
23 the views of the other panel members in saying that
24 collectively the panels as a whole have been very very
25 helpful and very very informative. I've said this
26 before at other times, but the written word is no

match for listening to somebody provide detailed explanation verbally, and that's real value to us in this type of hearing.

I'd like to thank all the parties for their contribution: utilities, the lawyers, the interveners, and the Commission Staff who have spent a great deal of effort thinking about the issues. It really showed.

I'd like to thank Mr. Bemister and his crew at Allwest. In spite of the long days, they've soldiered on without complaint.

Over this past nine days something else has occurred which is worthy of note. Commissioner O'Hara has taken on yet another title: Grandma. As of last evening. Please accept our congratulations.

So in closing I'd like to thank you all. And for those of you travelling I wish you all a very safe journey. Happy holidays, Merry Christmas, and thank you. We are now adjourned.

(PROCEEDINGS ADJOURNED AT 4:28 P.M.)