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File No. R-3807-2012
Dr. Booth's Responses to
Intragaz's Information Request no 1

Dr. Booth's Responses to

INFORMATION REQUEST NO. 1 FROM INTRAGAZ TO DR. BOOTH

1.   Reference: Piece numbers: C-ACIG-0010, C-ACIG-0012, C-ACIG-0013, and C-ACIG-0014.

Requests:

1.1.   If not otherwise requested in this set of Information Requests, please provide complete copies of any article, regulatory order, scholarly paper, investor service publication, financial media report, or other documents cited in the testimony of witness Booth.

1.1   As far as Dr. Booth is aware all data and materials have been provided in response to the 104 multiple part information requests.

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2.   Reference: Piece C-ACIG-0010, page 2, lines 3-6 and page 4, lines 18-20.

Preamble:

> *"In particular IGUA has asked me to recommend an allowed ROE and capital structure conditional on the Regie allowing cost of service regulation and a ten year contract for storage services between Gaz Metro and Intragaz."*

Requests:

2.1.   Please confirm that conducting an analysis of the fairness of cost of service based rates is not part of Dr. Booth's mandate to recommend an allowed ROE and capital structure conditional on the Régie allowing cost of service regulation.

2.2.   Please confirm that recommending an appropriate level of rate base is not part of Dr. Booth's mandate as stated in his evidence.

2.3.   Please confirm that calculating the long-run average cost of Intragaz's operations is not part of Dr. Booth's mandate as stated in his evidence.

===

2.1   Dr. Booth was specifically informed that the Regie was using an avoided cost basis for determining Intragaz' revenue requirement and that the Regie had had problems determining the rate base in previous hearings and that he should take this into account. The fairness of cost of service regulation is then inseparable from the fairness standard in terms of treating Intragaz' shareholders.

2.2   Dr. Booth has not determined an appropriate rate base and does not have the information to do so.

2.3   Dr. Booth has not determined the long run average cost of Intragaz's operations. The reference is there simply because this is the tendency towards which prices gravitate in a competitive market. In the case of Intragaz this would be proxied by avoided cost.

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3.   Reference:

(i)   Piece C-ACIG-0010, page 2, lines 27 to 29.
(ii)   Piece C-ACIG-0010, page 12, lines 14 and 15.

Preamble:

(i)   *"I recommend that Intragaz' storage asset have the same 46% equity ratio that Gaz Metro uses (common + preferred) since I regard these assets as* indistinguishable from other Gaz metro utility assets."

(ii)   *"If this cost of service revenue requirement is folded into Gaz Metro's rates it would have only a limited impact,…"*

Requests:

3.1.   Please confirm that Gaz Métro is regulated under cost of service regulation.

3.2.   Please provide examples of precedents where the Régie has reduced Gaz Métro's rate base because there were lower costs alternatives?

3.1   Confirmed
3.2   Dr. Booth is not aware of such disallowances and they are not part of, or necessary, for his recommendations for Intragaz.

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4.   Reference:

(i)   Piece C-ACIG-0010, page 8, line 20 through page 9, line 1.

(ii)   Piece C-ACIG-0010, page 21, line 20 through line 25.

Preamble:

(i)   "If the Régie had accepted the proposal all future commercial risks attached to storage, as well as the cost of all the past investments made by Intragaz, would have been shifted to Gaz Metro's ratepayers."

(ii)   "In particular, I note an inherent conflict of interest with cost of service regulation when Gaz Metro is both an owner in Intragaz and its sole customer. The conflict of interest is simply that as the sole customer, Gaz Metro can sign only a short term contract, which makes Intragaz look "risky" due to the lack of financing, leading to a higher ROE and common equity ratio under cost of service regulation, which benefits Gaz Metro as part owner!"

Requests:

4.1.   Who would bear the risk if Intragaz is unable to perform under the contract?

4.2.   Who would bear the risk if Intragaz incurs unforeseen costs?

4.3.   Who would bear the risk if the contract between Intragaz and Gaz Métro is not renewed?

4.4.   Do you know who is responsible for the working gas, and in the case of Pointe-du-Lac the cushion gas, while it is in the possession of Intragaz?

4.5.   Please confirm that if IGUA believes that a 15 year contract shifts all commercial risks to Gaz Métro's ratepayers, there is no reason why Gaz Métro should not sign a contract that covers the entire remaining useful life of the Intragaz's facilities (approximately 30 years).

4.6.   Please reconcile your statement in (i) that "all future commercial risks attached to storage, as well as the cost of all the past investments made by Intragaz, would have been shifted to Gaz Metro's ratepayers." with your statement in (ii) that "Gaz Metro can sign only a short term contract, which makes Intragaz look "risky"".

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4.1   This depends on the terms of the contract and the nature of the problem, but according to the GBR report <u>Intragaz asset usefulness analysis report</u>, GRB Engineering Ltd, there have been no material operating problems.

4.2   If Canadian precedents are relevant and the costs are material then under cost of service regulation they would invariably be shifted to rate payers after a hearing before the Regie.

4.3   Intragaz shareholders, one of whom is Gaz Metro who would make the decision not to renew the contract. However, given that these assets are regarded as important for Quebec the probability is low.

4.4   See page 15 of Dr. Booth's testimony.

4.5   That is a question that should be asked of IGUA, not Dr. Booth.

4.6   There is nothing to reconcile, one statement refers to what Intragaz asked for in 2011 and the second refers to the inherent conflict of interest faced by Gaz Metro.

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5.   Reference: Piece C-ACIG-0010, page 9, lines 26-27.

Preamble:

"… the economics of a fixed cost "service" industry are such that a single firm usually survives in the market with the potential for abuse of its dominant position."

Request:

5.1.   Please confirm that the following are fixed-cost service companies: commercial office buildings, movie theatres, ski slopes.

===

5.1   Dr. Booth has made no studies of those businesses, but would note that none of them have decreasing returns to scale such that a "single firm usually survives in the market." Dr. Booth is not aware for example of a tendency for the City of Montreal to end up with one gigantic movie theatre sitting thousands of people.

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6. **Reference:** **Piece C-ACIG-0010, page 10, lines 25-**

26. Preamble:

"To an economist, "fair and reasonable" means minimum long run average cost …"

Requests:

6.1. Please confirm that to an economist "long run" means the current capital costs and not the historic (or original) capital costs.

6.2. Prior to filing his evidence in this proceeding, did Dr. Booth conduct a study to determine the long-run average cost of service for Intragaz?

6.3. If Dr. Booth conducted a study of the long-run average costs of Intragaz, why did he not file such a study as part of his evidence in this proceeding?

6.4. If Dr. Booth conducted a study of the long-run average costs of Intragaz, please provide all engineering and cost studies that Dr. Booth relied upon in calculating the current long run capital costs of constructing Intragaz's storage facilities under present day conditions.

6.5. If he were to do a study of long-run average cost for Intragaz's storage facilities, how would Dr. Booth incorporate economies of scale into his calculations?

6.6. Please provide copies of regulatory decisions in which the regulated revenue requirement has been set using the current long-run average cost of the utility assets instead of using the original cost less depreciation of the utility's assets.

==

6.1 In a competitive market, correct, but then the return is invariably the real cost of capital if current capital costs are used, not the nominal one.

6.2 No, that is not relevant to Dr. Booth's recommendations.

6.3 See the answer to 6.2 above.

6.4 See the answer to 6.2 above.

6.5 See the answer to 6.2 above.

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6.6   Dr. Booth has not made any reference to regulatory decisions setting a revenue requirement based on long run average cost. He merely points out that this is the tendency towards which prices gravitate in a competitive market.

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7.   Reference: Piece C-ACIG-0010, page 11, line 27.

Preamble:

"However, regulation does not necessarily mean cost of service regulation and the paramount motivation for regulation is to protect the customer."

Requests:

7.1.   What do you mean by "paramount motivation"?

7.2.   Do you believe that there are other "motivations" for regulation?

7.3.   If so, indicate what they are and their degree of importance.

7.4.   Provide all sources, precedents and authorities in support of your answer.

7.1   Paramount means important and underlying.

7.2   Regulation is a legal act that flows from legislation and the votes that support that fact may be motivated by a variety of factors.

7.3   That is impossible to say, since it would require an analysis of the voting blocks and intentions that underlie every act of regulation and it is not relevant to Dr. Booth's recommendations. He admits however, that it would make a good thesis and provide a full time career for a political economist.

7.4   Please see the answer to 7.2 and 7.3 above.

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8.   Reference: Piece C-ACIG-0010, page 11, line 27 to page 12, line 1.

Preamble:

"As mentioned previously the OEB Act allows forbearance, which essentially means the suspension of direct regulation. In the case of Ontario storage facilities, the OEB decided to regulate in-franchise storage on a cost of service basis …"

Requests:

8.1.   Please confirm that Intragaz is the only in-franchise storage facility in Gaz Métro's service territory.

8.2.   Please confirm that the OEB Act does not apply to the Régie.

8.3.   Please confirm that the OEB regulates existing in-franchise storage under cost of service.

===

8.1   Currently that is Dr. Booth's understanding.

8.2   Of course not, and there is no implication of any of Dr. Booth's testimony to the opposite. Each act is specific and the regulator is required to implement their particular act.

8.3   Correct, part of the storage facilities have been reserved for in franchise customers, see Dr. Booth's evidence, page 7.

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9.   Reference:

(i)   Piece C-ACIG-0010, page 12, lines 13 and 14.
(ii)   Piece C-ACIG-0010, page 12, lines 20-21.
(iii)   Piece C-ACIG-0015, page 9, paragraphe 42.

Preamble:

(i)   "For Intragaz a requested revenue requirement of $20 million I am informed is about 1/3 in excess of avoided cost of about $15 million. "

(ii)   "... then it should first reduce the starting rate base such that on its allowed ROE and common equity the revenue requirement is equivalent to avoided cost."

(iii)   "Le point moyen de l'option retenue (Option 1) est de 15 million$ mais l'ACIG appuierait une entente à long terme pour les services d'Intragaz même si le revenu annuel requis uniforme approchait les 17 million $ en raison, entre autres, de l'aspect stratégique des sites d'Intragaz suite au déplacement proposé vers Dawn." (Nos soulignés)

Requests:

9.1.   Is Dr. Booth aware that IGUA's witness, M. Bernard Otis, took the position in his evidence that IGUA would support a long term agreement for Intragaz' services even if its its levelized revenue requirement was around $17 million (reference (iii)) rather than $15 million (reference (i))?

9.2.   Is Dr. Booth aware that Intragaz' annual levelized revenue requirement based on a 10 year term and IGUA's recommended ROE of 7.5% and a capital structure composed of 54% debt and 46% equity is approximately $17 million?

9.3.   Based on reference (iii) and the fact that Intragaz' annual levelized revenue requirement based on a 10 year term and IGUA's recommended ROE of 7.5% and a capital structure composed of 54% debt and 46% equity is approximately $17 million, why would Dr. Booth recommend the Régie "should first reduce the starting rate base such that on its allowed ROE and common equity the revenue requirement is equivalent to avoided cost" (reference (ii))?

===

9.1   That is Dr. Booth's understanding.

9.2   Dr. Booth did not have the data to make that calculation so he was not aware of it. However, he is happy that the recommendations are consistent.

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9.3   Dr. Booth is simply stating that since Intragaz is not a monopoly the revenue requirement should be set based on avoided cost. If this results in the same toll as cost of service regulation with Dr. Booth's recommendation then there is by definition no need to reduce the rate base. However, if the Regie accepts the Intragaz recommended financial parameters then there will be a need to reduce the rate base such that the revenue requirement is equal to avoided cost. Clearly there will be a set of financial parameters such that cost of service regulation equals the same as avoided cost; the question is whether those parameters are fair and reasonable.

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10.   Reference: Piece C-ACIG-0010, page 12, lines 24 to page 13, line 8.

Requests:

10.1. Please provide copies of those portions of Dr. Booth's testimony and hearing transcripts for the National Energy Board's hearing into TQM's cost of capital for 2007 and 2008 (RH-1-2008) where Dr. Booth made the arguments referred to on page 12, line 25 through page 13, line 8.

10.2. Please provide the citations to specific places in those documents where he made those arguments.

___

10.1   Dr. Booth does not keep copies of transcripts neither is he provided with them. However, as far as he is aware they are publicly available.

10.2   See the answer to 10.1 above.

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11.   Reference: Piece C-ACIG-0010, page 12, lines 20-21.

Preamble:

Dr. Booth recommends that the Régie *"… should first reduce the starting rate base such that on its allowed ROE and common equity the revenue requirement is equivalent to avoided cost.*"

Request:

11.1. Would Dr. Booth agree that if the starting rate base were to be reduced such that the revenue requirement is equivalent to avoided costs, as he is suggesting, then by definition Intragaz' rates would be set using avoided cost and would not be set using the cost of service method?

==

11.1   Initially yes, but not in the future. For example if the cost of equivalent service were to decrease, Intragaz would then be protected from a declining revenue requirement. As a result there is a reduction in risk.

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12.   Reference: Piece C-ACIG-0010, page 14, line 14.

Request:

12.1. Please provide the OEB report cited.

12.1   It is freely available for download on the OEB web page under EB-2005-0551 at
http://ontarioenergyboard.ca For convenience it is provided as booth answer
intragaz ir#12.1

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13.   Reference: Piece C-ACIG-0010, page 14, line 23 to page 15, line 1.

Preamble:

"S&P goes on to rate the operating risk of gas storage as tending to be lower than assets like power generation."

Requests:

13.1. Please confirm that this section of Dr. Booth's evidence is referring to pages 4-5 of the S&P report which states:

> "Operating risk tends to be lower with gas storage, as with much of the mid-stream space, compared with assets like power generation."

13.2. Please confirm that S&P considers gas storage to be part of the "mid-stream" segment of the energy industry.

13.3. Please confirm that Dr. Booth is aware that S&P ranks the risks of industries in the following order:

      i. Merchant Generation
     ii. Mid-stream (including Gas Storage)
    iii. Electric Generation
    iv. Gas Transmission
     v. Electric Transmission & Distribution
    vi. Gas Distribution

==

13.1   Yes

13.2   Yes the sentence specifically refers to mid-stream.

13.3   Dr. Booth was not aware of that ranking and would not agree with it, since it reflects US risk rankings. Further he would have to see the discussion that generates this risk ranking.

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14.   Reference: Piece C-ACIG-0010, page 15, line 25 to page 16, line 2.

Preamble :

"Storage is one way of arbitraging the differences to reduce natural gas price volatility. S&P refers to this seasonal as providing the 'intrinsic' value of storage and specifically points out that large capacity, low turn storage facilities are best suited to this type of storage, such as depleted reservoirs and aquifers."

Request
:

14.1. Please confirm that this section of Dr. Booth's evidence is referring to pages 4-5 of the S&P report which states:

The so called "intrinsic" value of storage comes from the resulting seasonal fluctuation in natural gas prices. Companies buy and inject gas from spring to fall, when prices are low, and withdraw gas and sell it in the winter, when prices are high. Large –capacity, low-turn assets are best suited to this type of injection/withdrawal profile, and the value of high deliverability does not earn a large premium. As a result, we typically see depleted reservoirs and aquifers as the primary providers of seasonal gas storage, although it is also a function of geography.

While there is a relatively consistent seasonal demand profile, a number of factors may narrow the seasonal gas price spread in the future. This would erode the market value of storage and <u>raise credit issues for projects that face recontracting risk</u>. (Our underlines)

14.1   Yes that is the major but not the only section.

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15. Reference: Piece C-ACIG-0010, page 16, line 10 to page 17, line 5.

Preamble:

"… storage facilities with a high exposure to "hub services" get lower credit ratings. For this reason S&P rated Bob Cat gas storage non-investment grade at B+ and SG resources slightly higher at BB."

Request
:

15.1. Please provide a list of all storage facilities that have an investment grade rating from Standard & Poor's.

_____

15.1 Dr. Booth's evidence is not based on all storage facilities, since the bulk are owned within pipelines and gas distribution utilities, and is specific to the materials provided by Dr. Gaske in response to information requests.

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16.   Reference: Piece C-ACIG-0010, page 17, line 9 and page 18, line 7.

Request:

16.1. Please define "operational" and "operating" risk as these terms are used throughout Dr. Booth's evidence.

_____

16.1   Operational and operating risk relate to problems that arise as a result of operating a storage facility.

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17. **Reference: Piece C-ACIG-0010, page 19, lines 17-21.**

Preamble:

"I conclude from this analysis that if the Regie does in fact allow Intragaz cost of service regulation and a long term contract, then if it awards Intragaz Dr. Gaske's recommended financial parameters there is negligible risk beyond a ten year contract period. De facto the shareholders will have got almost all the value of their investment out before the contract terminates."

Requests
:

17.1. Does this conclusion take into account Dr. Booth's recommendation that the Régie reduce the starting rate base?

17.2. If the Régie were to agree with Dr Booth's rate base recommendation would he still conclude that "the shareholders will have got almost all the value of their investment out"?

17.1 No. It is based on Dr. Gaske's data and financial parameters as is indicated on page 18 of Dr. Booth's testimony.

17.2 Yes, particularly given the information provided in Intragaz IR # 9.2

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18.   Reference: Piece C-ACIG-0010, page 21, line 25 to page 22, line 3.

Preamble:

"I would therefore recommend that the Regie ignore any financing "problems" facing Intragaz if it decides to allow cost of service regulation. Instead, I would recommend that either Gaz Metro and GDF Quebec guarantee the debt of Intragaz, or that Gaz Metro itself finance Intragaz on the same terms that it itself borrows at. The latter option is the standard approach taken by many utility holding companies in Canada for their 100% owned affiliates."

Requests:

18.1. Please confirm that Gaz Métro does not own 100% of Intragaz.

18.2. Please confirm that loan guarantees, or loans from the various owners, are not the standard approach for financing when a company is not 100% owned by a single parent company.

18.3. Please describe Dr. Booth's understanding of the standard approach for loans to companies with more than one owner, and provide the basis or support for his understanding.

18.4. Is Dr. Booth aware that the Régie regulates the capital structure of Gazifère as if it were a stand-alone company, despite the fact that it is owned by Enbridge and obtains its financing through Enbridge?

18.1   Correct Gaz Metro owns 50%.

18.2   Generally a loan guarantee is of a 100% owned subsidiary.

18.3   Dr. Booth is not aware of a situation like this, where a 50% owner is also the only customer and where they originally requested to develop the facility within the rate base as a 100% owner. So Dr. Booth would reject the analogy with "more than one owner."

18.4   Yes. However. Gazifere is a local distribution company and Enbridge is not the sole customer so the comparison has no relevance.

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19.   Reference: Piece C-ACIG-0010, page 22, lines 19-25.

Request:

19.1. Please provide a copy of the NSPI settlement agreement and the regulatory approval on which Dr. Booth is relying.

Provided as booth answer intragaz IR 19.1

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20.   Reference: Piece C-ACIG-0010, pages 25, 27- 29, 31, 32 and 34.

Request:

20.1. Please provide backup data in Excel for the charts appearing on the referenced pages.

===

Series provided as Booth answer to Intragaz IR # 20.1 followed by the series names

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21.   Reference: Piece C-ACIG-0010, page 31, footnote 24.

Request:

21.1.   Please provide the cited DBRS report.

Provided as Booth answer intragaz IR # 21.1

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22.   Reference: Piece C-ACIG-0010, page 36, footnote 27.

Request:

22.1.   Please provide the cited IMF report.

There is not one, but several. However, Dr. Booth has now updated this part of his testimony and the new table is as follows from IMF Fiscal trends October 2012 provided as booth answer intragaz ir # 22.1

Government Deficits as a % of GDP

	2007	2008	2009	2010	2011	2012	2013
Japan	2.4	4.1	10.4	9.4	9.8	10	9.1
US	2.7	6.7	13.3	11.2	10.1	8.7	7.3
Italy	1.5	2.7	5.4	4.5	3.8	2.7	1.8
Ireland	-0.1	7.3	13.9	30.9	12.8	8.3	7.5
Greece	3.7	9.9	15.6	10.5	9.1	7.5	4.7
France	2.7	3.3	7.6	7.1	5.2	4.7	3.5
Portugal	2.7	3.7	10.2	9.8	4.2	5	4.5
Germany	-0.2	0.1	3.2	4.1	0.8	0.4	0.4
Spain	-1.9	4.2	11.2	9.4	8.9	7	5.7
UK	2.7	5.1	10.4	9.9	8.5	8.2	7.3
Canada	-1.6	0.4	4.9	5.6	4.4	3.8	3
Advanced	1.3	4.3	9.6	10.2	7.1	6.0	5.0

Source IMF Fiscal Monitor October 2012

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23. **Reference: Piece C-ACIG-0010, page 39, lines 3-4.**

Request:

23.1. Please provide the RBC Financial Markets Monthly, June 3, 2011, report that is cited.

Provided as Booth answer intragaz IR # 23.1

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24.   Reference: Piece C-ACIG-0010, page 40, footnote 29.

Request:

24.1. Please provide documentation or calculations in support of the forecast of a reduction of 2.5% in U.S. GDP.

US Fiscal Drag

- **Expiring tax cuts**
  - Unemployment insurance   50
  - Payroll tax cut: 110
  - Other tax provisions (AMT)   24
  - Other   52
  - Recovery act   125
- **Built in tax increases**
  - Bush tax cuts: 255
  - 3.8% medicare tax: 21
  - $1.2 trillion cuts (super comte) 109
- **Total: (2.6% of GDP)   746**
- **Deadline December 31, 2012**
- *Loose monetary policy to offset fiscal drag (UK as well)*
  - Source Economist Nov 26, 2011

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25.   Reference: Piece C-ACIG-0010, pages 41 – 43, 45.

Request:

25.1. Please provide the sources, as well as the backup data in Excel for the charts appearing on page 41, page 42, page 43, and page 45.

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Provided as Booth answers to Intragaz IR 25.1 with sources in the individual files

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26.   Reference: Piece C-ACIG-0010, graph of default spreads on page 41.

Request:

26.1. Would Dr. Booth agree that the required risk premium tends to be significantly more volatile for riskier securities?

_____

26.1   Yes higher risk, absent tax differentials, results in higher expected rates of return

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27.   Reference: Piece C-ACIG-0010, page 41, footnote 31.

Preamble:

"… it was the behaviour of Tea Party members in Congress arguing that the U.S. should default that so frightened global investors in 2011."

Requests:

27.1. Please provide documentation to support the statement in the preamble.

27.2. Please confirm that Dr. Booth believes that investors become frightened when authorities or interveners argue that investors should not be allowed to recover their investment.

27.3. If investors become frightened, do such fears tend to raise the cost of capital?

27.1   That was Dr. Booth perception from newspaper reports that members of the Tea Party in Congress were willing to see the US default, rather than extend the debt ceiling.

27.2   Dr. Booth cannot so confirm. He assumes that this is related to a regulated firm's inability to recover costs in rates. If so Intragaz is not cost of service regulated at the current point in time. Further interveners have been suggesting before the NEB that the TransCanada Mainline write off a substantial portion of its rate base and yet the TransCanada stock price does not seem to have been affected so far.

27.3   No, it can raise it for some and lower it for others. For example, the actions of the Tea Party members in the US contributed to the rush to safety lowering the cost of capital for Governments and low risk companies.

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28.   Reference: Piece C-ACIG-0010, page 43, lines 14-16.

Request:

28.1.   Please provide a copy of the source document for the Kansas City "Financial Stress" Index.

Provided in answer to 25.1. Note the data can be downloaded from the web site of the Kansas City Federal Reserve Bank at http://www.kansascityfed.org

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29.   Reference: Piece C-ACIG-0010, page 43, lines 4-6.

Request:

29.1. Please provide citation references for the cited testimony and provide copies of that testimony.

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There may be pagination problems, but Dr. Booth can find no references to testimony in the discussion on page 43 related to the Kansas City Stress Index.

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30.   Reference: Piece C-ACIG-0010, page 45, lines 5-9.

Request:

30.1. Please provide copies of the Bank of Canada's Financial System Review (December 2011) and the Monetary Policy Report (July 2012) cited.

These are freely downloadable from the Bank of Canada web site at
http://www.bankofcanada.ca under publications and research

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31.   Reference: Piece C-ACIG-0010, page 46, lines 15-17.

Preamble:

"The fact is any investor would have loved to hold a diversified portfolio of Canadian utilities through the last five years rather than the TSX Composite!"

Request:

31.1.   Given that fact, please explain why any investors held any investment other than Canadian utilities prior to the last five years.

The verb is "would have" ie., looking back after the fact. Before the fact investors did not anticipate that the problems in the US and Europe would be as severe as they have become.

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32.   Reference: Piece C-ACIG-0010, page 47, footnote 37.

Request:

32.1. Please provide a copy of the cited article from the Calgary Herald.

_____

This is freely available for download at http://www2.canada.com/calgaryherald/news/

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33.   Reference: Piece C-ACIG-0010, page 48, lines 17-18.

Preamble:

"As long as the market risk premium is approximately correct the estimate will be in the right 'ball-park'."

Request:

33.1. Given that required risk premiums for common stocks are constantly changing, how would one know whether the estimated market risk premium is "approximately correct"?

The historic risk premium has been 5.0-6.0% this constrains someone who forecasts that it would be say 10%. That is, knowledge of the past value for the market risk premium constrains the possible range for it even when market conditions indicate that it is changing.

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34.   Reference: Piece C-ACIG-0010, page 48, lines 26-27.

Request:

34.1. Please provide a copy of the Graham and Harvey survey cited.

Provided as booth answer to Intragaz IR # 34.1

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Intragaz's Information Request no 1

35.   Reference: Piece C-ACIG-0010, page 51, footnote 39.

Request:

35.1.   Please provide a copy of the cited article by Richard Roll.

Provided as Booth answer to Intragaz IR #35.1

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Intragaz's Information Request no 1

36.   Reference: Piece C-ACIG-0010, page 51, footnote 40.

Request:

36.1.   Please provide a copy of the cited article by Levy and Roll.

Provided as Booth answer to Intragaz IR #36.1

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37.   Reference: Piece C-ACIG-0010, page 51, lines 16-25.

Request:

37.1. Please describe the "sample parameters" to which Dr. Booth is referring.

The sample parameters mainly refer to the expected rate of return, but also the variance covariance matrix.

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38. **Reference: Piece C-ACIG-0014, Refer to Appendix C, page 11, lines 7-8.**

Preamble:

"The average beta estimate by the Royal Bank of Canada was 0.29 or slightly lower than my estimate (Booth) of 0.32 derived using data up until December 2011."

Request
:

38.1. Please confirm that the beta range that Dr. Booth decided to use in his CAPM estimate, 0.45-0.55, is between 40 percent and 72 percent higher than the estimate of 0.32 that Dr. Booth derived using data up until December 2011.

Arithmetically .45/.32 is 1.40 and .55/.32 is 1.70, correct, but Dr. Booth does not judge immediate historic beta estimates to be valid predictors of future beta estimates which is what is required for the CAPM estimates.

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39.   Reference: Piece C-ACIG-0010, page 53, lines 1-2.

Preamble:

"… I continue to judge the relative risk of a Canadian utility to be 45%-55% of that of the market as a whole."

**Request
:**

39.1. Please confirm that Dr. Booth's estimated range for the current level of utility betas is based on his opinion and is not based on any quantified measurement of the current value of beta.

Not confirmed. Dr. Booth's beta range is based on the analysis contained in Appendix C, where there is a time series of betas in Schedule 2 and the Gombala and Kahl evidence that betas tend to revert to their long run average levels. He also notes that his beta range is consistent with beta adjustment models on page 14 of Appendix C.

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40.   Reference: Piece C-ACIG-0010, page 63, lines 17-19.

Preamble :

"The estimates for 2014 may be marginally high since I am adding my 1.20% credit spread and Operation Twist adjustments while forecasting that the long Canada bond yield will increase from the current 2.2% to 4.0%."

Request
:

40.1. Please confirm that Dr. Booth added 200 basis points to his CAPM estimate of the current cost of equity capital for Canadian utilities (120 basis points for credit market conditions, and 80 basis points by forecasting that the current Canada bond yield will increase to 3.0 percent in 2013).

Not correct.

For utility regulation the CAPM estimate is based on the forecast long Canada bond yield which is where the 3.0% forecast comes from. Dr. Booth did not add an additional 0.80% to this forecast.

It is correct that he does not regard 3.0% to be an equilibrium yield based on investors trading off risk versus return consistent with the CAPM. Instead it is being determined by policy makers outside Canada. This is his "Operation Twist" adjustment of 0.80%. The 0.40% credit market adjustment is consistent with the Regie's decision in Gazifere and Gaz Metro to adjust the CAPM result by changes in credit market conditions. This is consistent with a conditional CAPM where the risk premium is conditional on the state of financial markets.

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41.   Reference: Piece C-ACIG-0010, page 64, lines 25-26.

Preamble:

"Hence the big advantage of the CAPM is that it is difficult to make big mistakes."

Requests:

41.1. Please confirm that without applying adjustments based on Dr. Booth's subjective judgments, his current measured CAPM would produce a range of 3.8% to 4.1% as the cost of common equity for Canadian utilities:

$$2.2\% + (0.32 \times 5.0\%) = 3.8\%$$
$$2.2\% + (0.32 \times 6.0\%) = 4.1\%$$

41.2   If Dr. Booth is unable to confirm (a), please indicate what estimates the CAPM would produce without using subjective judgments

---

41.1   Not correct. Dr. Booth has never taken recent beta calculations as an input into a CAPM recommendation and the credit market and Operation Twist adjustments are not just Dr. Booth's "subjective judgment." He notes that most major actuarial firms and investment banks like Mercer, Aon Hewitt and RBC similarly do not consider current long term Canada bond yields to be equilibrium rates, whereas both the Regie and OEB, as well as almost every board in Canada in 2009, made credit market adjustments. The above calculation would be similar to that produced by an undergraduate student without any knowledge of the state of financial markets.

41.2   The CAPM as used in tests is normally used with the Treasury Bill yield and the immediate beta coefficient so it is just as easy to say the fair return for CU should be the T. Bill yield of about 0.95% plus a risk premium of CU's beta of 0.03 (Appendix C, Schedule 4) times a 4.6% historic Canadian market risk premium (Appendix B, Schedule 8) to get a fair return of 1.1%. As with any formula if you put in silly numbers you get out silly results. Dr. Booth is not aware of any expert witness who simply slavishly puts numbers into an equation without the exercise of judgment.

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42.   Reference: Piece C-ACIG-0010, page 52, lines 9 - 13.

Preamble:

Dr Booth states:

"While the Canadian data points to a market risk premium of under 5.0%, I give weight to the US evidence for two main reasons. First, most of the restrictions on keeping Canadian capital within Canada have been removed resulting in significant capital outflows and higher expected returns on Canadian investments. Second, Canadian governments have moved to a primary surplus on their budgets."

Requests:

42.1. Indicate what weight Dr. Booth gave to the US data and provide all data, sources, precedents and authorities in support of this assertion.

42.2. Indicate when you began to believe it is justified to give this weight to the US data and provide all data, sources, precedents and authorities in support of Dr. Booth's assertion.

42.1   Dr. Booth gives weight to the US evidence mainly due to the survey results of Dr. Fernandez that indicates that market participants judge the market risk premium to be in this range. This is supported by the analysis in Appendix B where the foreign property rule has been removed and long Canada bond yields have dropped to below those in the United States.

42.2   Dr. Booth's Appendix B has been substantially in this form for the last four or five years, previously he had a separate appendix on the US market risk premium, which he treated as a separate data series and a check on the Canadian data. The problem is that there is a survivorship bias to the US results. However the Fernandez survey data in 2008 marked the major change to incorporate US data.

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43.   **Reference: Piece C-ACIG-0010, page 52, line 27 to page 53, line 2.**

Preamble:

Dr Booth states:

« On a going forward basis I do not expect the US financial system to collapse again, as it did in 2008/9, and trigger a global meltdown. As a result, I believe that the relative risk of Canadian utilities will move back to their historic range reflecting normal market risk This is why I continue to judge the relative risk of a Canadian utility to be 45-55% of that of the market as a whole. »

Request:

43.1.   Indicate the elements that form the basis for Dr. Booth's assertion that the risk of a Canadian utilitiy is 45-55% of that of the market as a whole and provide all the data and the sources, precedents and authorities in support of this assertion.

The data sources and rationale are in Dr. Booth's Appendix C that has an extensive discussion justifying the 0.45-0.55 beta range.

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44. Reference: Piece C-ACIG-0010, page 53, lines 12 - 14.

Preamble:

Dr Booth states:

"Q.   DO YOU USE THIS SIMPLE CAPM ESTIMATE FOR YOUR RECOMMENDATION?

A.   No. The CAPM estimate is appropriate under "normal" circumstances, […]."

Requests:

44.1. Describe in detail all the circumstances that would not be "normal" and for which CAPM would not be appropriate.

44.2. Provide all the sources, precedents and authorities in support of this assertion.

44.1   The CAPM is always appropriate, it is almost tautological that the fair return is equal to a risk free rate plus a risk premium and with major institutions dominating the market with diversified portfolios the measure of risk is the beta coefficient. The correct question is, when is a naïve or simple application of the CAPM inappropriate. Here Dr. Booth's analysis on pages 86-90 are relevant. Since the DCF and Risk premium models should give the same answer we can examine conditions when they don't to determine when a simple CAPM or DCF is likely to be biased. Dr. Booth's analysis shows that the key factor is the size of the real interest rate. When it is high the DCF is biased low and when it is low the risk premium approach is biased low.

44.2   Please see pages 86-92 of Dr. Booth's testimony. He is not aware of anyone who has analysed this in the detail that Dr. Booth has. However, the discussion of regulatory decisions in 2009 indicates that regulators were dealing with the same problem and moving towards the same solution.

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45.   **Reference: Piece C-ACIG-0010, page 55, lines 10-14.**

Request:

45.1. Please provide the Board of Commissioners of Newfoundland and Labrador
        decision cited.

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Provided as booth answer to intragaz IR # 45.1

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Intragaz's Information Request no 1

46.   Reference: Piece C-ACIG-0010, page 56, footnote 41.

Request:

46.1. Please provide a copy of the Garcia and Yang study.

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Provided as booth answer intragaz ir # 46.1

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Intragaz's Information Request no 1

47.   Reference: Piece C-ACIG-0010, page 58, lines 9-10.

Preamble:

"… liquidity in the equity market generally increases during a flight to quality."

**Requests
:**

47.1. Please define "liquidity."

47.2. Please provide any evidence that supports Dr. Booth's opinion that liquidity in the equity market generally increases during a flight to quality.

47.1   Liquidity is the ability to sell significant amounts of an item at close to its true market price, that is, without affecting the market price.

47.2   Trading volumes in the equity market generally increase in times of crisis as there is greater disagreement about the future and disagreement generates trading volumes.

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48.   Reference: Piece C-ACIG-0010, page 59, lines 14 – 15 and page 63, lines 9-12.

Preamble:

Dr Booth states:

"However, I still regard the resulting ROE as an under estimate <u>at the current point in time</u>.

[…
]

<u>At the current point in time</u> I would upwardly adjust my CAPM ROE estimate for 2013 by 0.40% for the credit spread adjustment and by 0.80% for the impact of Operation Twist. In total I would add 1.20% to the simple CAPM estimates. This produces a fair ROE in the following range."

Requests:

48.1. Indicate what period is covered by the expression "*at the current point in time*" used in the above excerpts.

48.2. Provide all sources, precedents and authorities in support of this assertion.

48.1   At the time that Dr. Booth was writing the report, that is what "current" means.

48.2   Please see the analysis on pages 58-62 of Dr. Booth's testimony.

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49.   Reference: Piece C-ACIG-0010, page 62, chart.

Request:

49.1. Please provide the backup data and documentation, as well as any Excel file, used in preparing the "Preferred and A Spreads" chart appearing on page 62.

Provided as Booth answer Intragaz IR # 49.1

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50. **Reference: Piece C-ACIG-0010, page 64, lines 26-27 and page 67, line 2 and lines 16-17.**

Preamble:

"The CAPM also avoids one of the big problems with DCF estimates in that the forecast inflation rate is automatically incorporated into the long Canada bond yield."

Requests:

50.1. Please confirm that the forecast inflation rate is incorporated into the common stock prices, dividend yields and forecasted growth rates of analysts.

50.2. Please provide any evidence of which Dr. Booth is aware that common stock investors do not incorporate inflation expectations in their stock price, dividend yield and growth rate estimates.

50.3. Please confirm that on p. 67 Dr. Booth's "naïve" estimate of investors' expected growth rate is the inflation rate plus the long-run average growth rate in real GDP.

50.4. Please confirm that on p. 67, lines 16-17, Dr. Booth states: "whereas the DCF estimate directly captured the year over year inflation rate, the LTC yield did not

50.1 It is difficult to know what is incorporated into the three items mentioned, but stock prices should reflect all available information, whether they do or not is an open empirical question.

50.2 There is a huge body of literature on this that Dr. Booth cannot survey in the time available, further it is not relevant to Dr. Booth's testimony or his recommendations.

50.3 Correct.

50.4 Correct.

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51. **Reference: Piece C-ACIG-0010, page 65, lines 1-4.**

Preamble:

"This is currently not a significant problem, since inflation is so low, but part of the reason the DCF model fell out of favour was that it was giving bad signals when applied mechanically in the 1990s, when there was a structural break in the forecast inflation rate."

Requests:

51.1. Please identify who Dr. Booth is referring to when he says that the DCF model fell out of favor in the 1990s.

51.2. Please indicate any Canadian regulators that ceased using the DCF model because there was a structural break in the forecast inflation rate.

51.3. Please define "a structural break in the forecast inflation rate" and explain how Dr. Booth thinks that it affected the results of the DCF model in the 1990s.

51.4. Please describe what Dr. Booth means by a "mechanical" application of the DCF model.

51.5. What were the "bad signals" in the 1990s?

51.1   It fell out of favour before regulatory boards in Canada and was given very little if any weight after the early 1990's.

51.2   Boards generally did not give reasons, but starting in 1993 with the BCUC Canadian regulators moved towards risk premium methods.

51.3   The structural break occurred in 1981 when very high interest rates were used to generate a recession that broke the rate of inflation. This is obvious in the graph on page 66 of Dr. Booth's testimony.

51.4   Mechanical means without the exercise of any judgment

51.5   By bad signals Dr. Booth means not very accurate estimates of the fair rate of return.

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52.   **Reference: Piece C-ACIG-0010, pages 66-68.**

Request:

52.1. Please provide backup data in Excel for the charts appearing on page 66, page 67, and page 68.

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Provided as Booth answer Intragaz IR # 52.1

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Dr. Booth's Responses to
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53.   Reference: Piece C-ACIG-0010, page 69, lines 18 - 19.

Preamble:

Dr Booth states:

"The analysis also helps explain why DCF estimates fell out of favour in the 1990s while the validity of recent CAPM estimates has recently been questioned."

Requests:

53.1. Indicate who questioned the recent CAPM estimates.

53.2. Indicate when the recent CAPM estimates were questioned.

53.3. Indicate how the recent CAPM estimates were questioned.

53.4. Provide all sources, precedents and authorities in support of this assertion.

53.1   Dr. Booth is specifically thinking of the OEB and the BCUC.

53.2   In 2009

53.3   The CAPM estimates were felt to be too low

53.4   The decisions of both the OEB and BCUC are provided as Booth answers Intragaz IR # 53

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54. Reference: Piece C-ACIG-0010, page 70, footnote 46.
Request:

54.1. Please provide a copy of the TD Economics report

54.1   The report as indicated is freely downloadable. For convenience Dr. Booth attaches it
        as Booth answer to Intragaz IR # 54.1 TD

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55 **Reference: Piece C-ACIG-0010, page 70, line 2-3.**

   Requests:

55.1   In Dr. Booth's opinion, do investors require the same rate of return for (i) Canadian equities, (ii) U.S. equities, and (iii) other international equities?

55.2   Please explain why (or why not) Dr. Booth believes the risks and required returns are identical for all three categories of equities.

==

   55.1   The evidence seems to be that US equities have earned a higher risk premium than Canadian equities indicating their higher risk. However currently Canadian interest rates are lower than US interest rates so overall Dr. Booth would judge that the US expected market return is slightly higher than in Canada. This is discussed in detail in Appendix D of Dr. Booth's testimony

   55.2   This is TD Economics forecasts. Dr. Booth has no opinion on returns outside North America.

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56   **Reference: Piece C-ACIG-0010, page 71, lines 24 - 29.**

Preamble:

Dr Booth states:

"DCF:

Canadian equity market return:	9.30%
US SP500 Electric Utility risk premiums	3.00-3.50%
Low risk US sample Median DCF:	8.73%

Comparable earnings

Market return:	9.28%."

Request:

56.1   Confirm whether the return that Dr. Booth proposes is based on his analysis of the discounted cash flow (DCF) model.

56.1   Dr. Booth's DCF analysis in Appendix D is an integral part of his judgment as to the long run return on the equity market which is the lynch pin of the CAPM analysis. So to that extent Dr. Booth's analysis is based in part on his DCF analysis.

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57   **Reference: Piece C-ACIG-0010, page 77, footnote 49.**

Request:

57.1   Please provide the cited Moody's report on rating methodology.

Provided as Booth answer to Intragaz IR # 57.1 a and b

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58   **Reference: Piece C-ACIG-0010, page 77, footnote 50.**

Request:

58.1   Please provide the cited Infrastructure Finance report.

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Provided as Booth answer to Intragaz IR # 58.1

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59   **Reference:**

(i)   Piece C-ACIG-0010, page 3, lines 29-20
(ii)   Piece C-ACIG-0010, page 78, lines 13-16 and page 12, lines 13-21.

Preamble :

(i)   "I would discount the use of estimates from the US since Moody's and other
        rating reports indicate there is greater regulatory protection in Canada."

(ii)   "Moody's further states 'as is characteristic of the US, the ability to recover costs
        and earn returns is less certain …' this reflects a less protective regulatory
        environment than we have in Canada."

Requests:

59.1.   Dr. Booth recommends that the Régie "… should first reduce the starting rate
        base such that on its allowed ROE and common equity the revenue requirement
        is equivalent to avoided cost."

59.2.   Would Dr. Booth agree that if the Régie adopts his rate base recommendation,
        Moody's and investors should no longer view Québec as a protective regulatory
        environment that allows companies to recover costs?

59.1   There is no question here

59.2   No. Intragaz is currently regulated on an avoided cost basis and Dr. Booth is
        essentially recommending no change in the determination of its revenue
        requirement.

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60   **Reference: Piece C-ACIG-0010, page 79, footnote 52.**

Request:

60.1   Please provide the S&P Corporate Ratings Criteria report cited in this footnote.

Provided as Booth answer to Intragaz IR # 60.1

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61   **Reference: Piece C-ACIG-0010, page 81, lines 3 - 6.**

Preamble:

Dr Booth states:

"The upshot is that even US utilities with an excellent business risk profile, similar to that of Canadian utilities, will have poorer financial market access unless they are in a regulatory jurisdiction that mimics the degree of protection Canadian utilities experience and are structurally insulated or "ring fenced" from their aggressive parents."

Requests:

61.1   Indicate what Dr. Booth means by "the degree of protection Canadian utilities experience".

61.2   Explain in detail how Dr. Booth believes this protection applies to Intragaz.

61.1 As Moody's indicates

"Moody's views the regulatory risk of US utilities as being higher in most cases than that of utilities located in some other developed countries, including Japan, Australia and Canada. The difference in risk reflects our view that individual state regulation is less predictable than national regulation; a highly fragmented market in the US results in stronger competition in wholesale power markets; US fuel and power markets are more volatile; there is a low likelihood of extraordinary political action to support a failing company in the US; holding company structures limit regulatory oversight; and overlapping and unclear regulatory jurisdictions characterize the US market. As a result no US utilities, except for transmission companies subject to federal regulation, score higher than a single A in this factor."

For the reason given above Moody's rates the ability to earn its allowed ROE as higher in Canada than most US states. This is a major factor in Moody's 50% weight to the value of regulatory protection.

61.2 Currently it doesn't, as Intragaz is not regulated on a cost of service basis.

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62   **Reference: Piece C-ACIG-0010, page 83, lines 17 - 23.**

Preamble:

Dr Booth states

"**Q   PLEASE SUMMARISE YOUR RECOMMENDATIONS.**

A. I judge Intragaz as warranting a 46% common equity ratio, the same as Gaz Metro. I judge a fair ROE for a benchmark utility as being 7.50% for 2013 and would recommend an ROE adjustment model that adjusts by 50% of the change in utility credit spreads and 75% of the change in forecast LTC yields subject to a minimum forecast LTC yield of 3.80%. Alternatively I would recommend a fixed rate ROE of 8.25% for the term of the contract with Gaz Metro, should the Regie allow a ten year contract."

Requests :

62.1   Confirm whether Dr. Booth took into consideration his rate of return calculation based   on   the   DCF   analysis   in   reaching   the   above   findings   and recommendations.

62.2   If so, describe in detail how Dr. Booth took the DCF analysis into consideration.

62.3   If not, please explain why not.

62.4   Confirm whether Dr. Booth took into consideration the US benchmark distributors identified in your report in reaching the above findings and recommendations.

62.5   If so, describe in detail how you took the US benchmark distributors into consideration.

62.6   If not, please explain why not.

62.1   Dr. Booth took into account all of the analysis in his testimony. Otherwise it would not be there.

62.2   Please see Dr. Booth's answer to Intragaz IR # 55.1

62.3 N/A

62.4 Confirmed they are part of Dr. Booth's analysis

62.5   Dr. Booth looks at the risk of US utilities as a check since they are invariably used by the US witnesses favoured by Canadian utilities

62.6   N/A

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APPENDIX B

63   **Reference: Piece C-ACIG-0012, Appendix B, Schedules 1-9.**

Requests:

63.1   Please provide the backup data and calculations in Excel with cells unlocked and original formulas in place for Schedules 1-9 that appear in Appendix B.

63.2   Please provide sources for all data included in these schedules.

___

63.1 & 2   All data is provided in Booth answer to intragaz IR # 62.1 and the series with documentation as to the series in the spreadsheet

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64   **Reference: Piece C-ACIG-0012, page 1, footnote 1.**

Request:

64.1   Please provide a copy of each of the cited papers, "Equities Over Bonds: But By How Much?" and "Equity Risk Premiums in the U.S. and Canada," published by the Canadian Investment Review.

64.1   These papers are available for download on Dr. Booth's web page at www.Rotman.utoronto.ca/~booth

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65   **Reference: Piece C-ACIG-0012, page 2, lines 23-24.**

Requests:

65.1   Please provide any academic or theoretical basis for the assumption that a one-year holding period is the appropriate time period for estimating utility investor required returns.

65.2   Please provide copies of any academic peer reviewed treatises or papers that support this view of utility investment returns.

==

65.1   There is no theoretical or academic (?) basis for this. It is a convention as far as Dr. Booth is aware in that he has never seen any expert report look at anything other than one year holding periods. Dr. Booth would assume that the convention comes from the fact that Canadian utilities at least tend to be regulated each year on the basis of a forward test year, so the ROE is changed on an annual basis. Note that as the holding period is lengthened beyond one year the market risk premium goes down since it approaches the market risk premium estimated from compound returns.

65.2   N/A

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66   **Reference: Piece C-ACIG-0012, page 5, footnote 3.**

Request:

66.1   Please provide a copy of the cited article by Dr. Booth, "Estimating the Equity Risk Premium and Equity Costs: New Ways of Looking at Old Data," published in the Journal of Applied Corporate Finance.

66.1   This   is   available   for   download   on   Dr.   Booth's   web   page   at www.rotman.utoronto.ca/~booth

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67   **Reference: Piece C-ACIG-0012, page 6, lines 17-30, of Appendix B.**

Requests:

67.1   Was Canada insulated from the rest of the world during the periods that did not include the dummy variables?

67.2   If yes, please provide documentation in support of this conclusion.

67.1   To a greater extent than now, yes.

67.2   The foreign property rule was only eliminated in 2005, prior to that there were serious restrictions on tax preferred investments buying foreign securities. There were also with-holding tax restrictions that segmented the bond market from that in the US that were only recently removed. Canada's trade was obviously restricted until the passage of the Free Trade Act in 1989, prior to that the National Energy Plan restricted investment in the Canadian energy industry, while the FIRA restricted investments in other industries. Canada also had a statist approach that required government approval and a number of "national champions" such as Petro Canada, while the Auto Pact with the US which regulated the allocation of car plants between the US and Canada. There were also restrictions that required a domestic float for foreign controlled companies so Dupont Canada, Goodyear Canada. CIL etc all had Canadian floats traded on the Toronto Stock Exchange, but where foreign controlled. Effectively all these restrictions have now been removed. Any Canadian expert witness would be familiar with all of the above.

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68   **Reference: Piece C-ACIG-0012, page 6 lines 17-30, of Appendix B.**

Requests:

68.1   Did Mr. Booth consider other specification of his regression?

68.2   If so, please provide those specifications, backup data, and the results of those regressions.

68.3   Did Mr. Booth consider a dummy variable to reflect the recent, "dire shape of the rest of the developed world, " as stated on page 9 line 7?

68.1 No, often it is difficult explaining ordinary least squares regression to regulatory bodies, and lawyers can attempt to explain more sophisticated analysis as "manipulation."

68.2 N/A

68.3 There are not enough time periods of the current financial crisis to attempt that at the moment and too many dummy variables reduces the power of the model. Perhaps when 2012 data is available in might increase the explanatory power, since "Operation Twist" and the Euro crisis really only flared up in late Summer 2011.

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69   **Reference: Piece C-ACIG-0012, Schedule 6 of Appendix B.**

Requests:

69.1   Please provide the backup data and statistics in support of the regression results provided as Schedule 6 of Appendix B.

69.2   Also, please indicate whether the "Deficit" variable, defined as "aggregate government lending as a % of GDP" should actually be defined as "aggregate government borrowing as a % of GDP."

69.3   Please indicate the normal sign of the variable, such that a coefficient -0.25 would produce an increase in real Canada yields, as indicated on p.7, line 22.
==

69.1   Provided in answer to intragaz ir # 63.1 real yield regression. The statistics are in Appendix B.

69.2   No, this is the way that Statistics Canada defines it as any Canadian expert witness should know, although Dr. Booth would agree that it is usually borrowing

69.3   Dr. Booth does not understand this question. As he explains the deficit variable is in practise related to the uncertainty variable. However, on its own, a 1% change in the deficit has historically been associated with about a 0.25% change in real yields.

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70   **Reference: Piece C-ACIG-0012, Schedule 8 of Appendix B.**

Requests:

70.1   Please indicate the source of the data.

70.2   Did Dr. Booth use the income return of the long government bond yield to calculate his estimate of the excess equity return?

70.3   If not, why not?

70.4   What would his excess equity return estimates be if he had calculated them by subtracting only the income return?

70.1   Indicated in the spread sheet in answer to intragaz ir # 63.1

70.2   No, it is a basic mistake in ex post return analysis to match a return with a yield: they are two different animals.

70.3   Interest rate changes affect the equity market, so whereas a change in the yield is captured in the equity market return it is not captured in the yield itself. Instead you have to include the return on the bond, otherwise there is a serious mismatching. Returns have to be matched with returns and this was standard practice until about six years ago when utility analysts switched to using yields as the export return exceeded the average ex post yield. However, Dr. Booth has never seen any academic or independent research use anything except returns.

70.4   Dr. Booth has no idea, since such a calculation is in error. To match the yield on the bond (euphemistically called income "return" by utility analysts) you should correctly use the dividend yield on the stock market, then yields are correctly matched with yields, However, Dr. Booth would not recommend this.

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71   **Reference: Piece C-ACIG-0012, page 9, lines 4-5 of Appendix B.**

Request:

71.1   Please indicate when and to what degree Canada was insulated from the rest of
        the world.

71.1   Canada has never been completely insulated from the rest of the
       world. Canadians have always invested in US equity markets from
       non-registered investment plans. It is simply a matter of degree.
       Recently there has been significant inflow of investments into the
       Canadian bond market, since we are a AAA rated country and there
       are very few of AAA rated countries left, even the US and France are
       no longer AAA. The removal of with-holding taxes in bilateral tax
       treaties has encouraged this.

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72 **Reference: Piece C-ACIG-0012, page 11, footnote 8 of Appendix B.**

Request:

72.1 Please provide a copy of the Survey published by Professor Fernandez in 2009.

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72.1 Provided as Booth answer Intragaz IR # 72.1

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Intragaz's Information Request no 1

73   **Reference: Piece C-ACIG-0012, page 13, footnote 9 of Appendix B.**

Request:

73.1   Please provide a copy of the cited updated survey published by Professor Fernandez in 2010.

73.1   Provided as booth answer Intragaz IR # 73.1

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Intragaz's Information Request no 1

74   **Reference: Piece C-ACIG-0012, page 14, footnote 11 of Appendix B.**

Request:

74.1   Please provide a copy of the updated survey published by Professor Fernandez
         in 2011, cited in this footnote.

Reference: Piece C-ACIG-0012, page 15, footnote 12 of Appendix B.

  74.1   Provided as booth answer Intragaz IR # 74.1

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Requests:

75.1. Please provide copy of the TD Economics Report cited.

Provided as booth answer Intragaz IR # 75.1

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Intragaz's Information Request no 1

76.   Reference: Piece C-ACIG-0012, page 16, footnote 13 of Appendix B.

Request:

76.1.   Please provide a copy of the cited Credit Suisse Yearbook.

Provided as booth answer Intragaz IR # 76.1

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77.   Reference: Piece C-ACIG-0012, page 17, footnote 14 of Appendix B.

Requests:

77.1. Please provide a copy of the cited RBC, "U.S. Equity Strategy Weekly" Report.

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Provided as Booth answer Intragaz IR # 77.1

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<u>APPENDIX C</u>

78.   Reference: Piece C-ACIG-0013, Appendix C, Schedules 1-9.

Request:

78.1. Please provide the backup data and calculations in Excel with cells unlocked and original formulas in place for Schedules 1-9 that appear in Appendix C. Also, please provide sources for all data provided.

78.1   Provided as Booth answer Intragaz IR # 78.1 with the series numbers

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79.   **Reference: Piece C-ACIG-0013, page 1, footnote 1 of Appendix C.**

Request:

79.1.   Please provide a copy of the cited article by William Sharpe.

79.1   This article is in the public domain and was published 48 years ago and should already be in the possession of any expert financial witness, including that of Intragaz.

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80.   **Reference: Piece C-ACIG-0013, page 1, footnote 2 of Appendix C.**

Request:

80.1. Please provide a copy of the cited article by Fisher Black.

80.1   This article is in the public domain and was published 40 years ago and should
        already be in the possession of any expert financial witness, including that of
        Intragaz.

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81.   **Reference: Piece C-ACIG-0013, page 1, footnote 3 of Appendix C.**

Request:

81.1.   Please provide a copy of the cited article by Eugene Fama and Ken French.

81.1   This article is in the public domain and was published 20 years ago and should already be in the possession of any expert financial witness, including that of Intragaz.

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82.   Reference: Piece C-ACIG-0013, page 1, footnote 4 of Appendix C.

Request:

82.1. Please provide a copy of Estrada's three factor model practitioners guide, cited in this footnote.

82.1   Provided as Booth answer Intragaz IR # 72.1

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83.   Reference: Piece C-ACIG-0013, page 3, lines 5-6 of Appendix C.

Request:

83.1. Please provide documentation in support of the statement, "By convention, betas are estimated over a five-year period."

All the classic tests of the CAPM used monthly holding periods and five years of data for the beat estimates. Presumably when these tests were conceived 40 years ago, 60 observations were viewed as a reasonable tradeoff between the desire for current beta estimates reflecting current risk, versus the statistical need for sufficient observations to reduce estimation error. Regardless 5 years of monthly observations is the standard or convention in asset pricing tests. Dr. Booth is aware that now weekly and even daily data is available these shorter time periods have been used in event studies.

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84. **Reference: Piece C-ACIG-0013, page 3, footnote 6 of Appendix C.**

Request:

84.1. Please provide a copy of the cited Study by Gombola and Kahl.

Provided as Booth answer Intragaz IR # 84.1

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Intragaz's Information Request no 1

85.   Reference: Piece C-ACIG-0013, page 5, footnote 10 of Appendix C.

Request:

85.1.   Please provide a copy of the cited RBC Morning Comment.

Provided as Booth answer Intragaz IR # 85.1

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Intragaz's Information Request no 1

86. **Reference: Piece C-ACIG-0013, page 5, line 27 of Appendix C.**

Request:

86.1. Please provide a copy of the cited information request response (BCUC IR#1. 19.0).

This is available on the BCUC web site at
http://www.bcuc.com/Documents/Proceedings/2012/DOC_32155_B-2_FBC-BCUC-IR1-Response.pdf

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87.   Reference: Piece C-ACIG-0013, page 7, lines 5-6.

Request:

87.1. Please provide the backup data for the chart that appears on page 7 of Appendix
         C.

Provided in answer to Intragaz IR # 78.1

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88.   Reference: Piece C-ACIG-0013, page 8, footnote 12 of Appendix C.

Request:

88.1.   Please provide a copy of the cited article by Shaun Polczer.

88.1   Please see the answer to Intragaz IR # 32.1

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89.   Reference: Piece C-ACIG-0013, page10, line 16 of Appendix C.

Request:

89.1. Please provide the analysis, or study which supports that the Canadian utility "grand mean" beta is 0.50

This question is in error Dr. Booth says "0.50 or so" This is Dr. Booth's assessment from the betas in Schedule 1 to Appendix C prior to the two major stock market crashes in the 2000. The actual average for the old utility index ending in 2002 was 0.53.

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90.   Reference: Piece C-ACIG-0013, page10, footnote 13 of Appendix C.

Request:

90.1.   Please provide a copy of the cited Study by Marshall Blume.

90.1   This article is in the public domain and was published 37 years ago and should already be in the possession of any expert financial witness, including that of Intragaz.

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91.   Reference: Piece C-ACIG-0013, page 11, lines 5-6.

Requests:

91.1. Please provide copies of the backup documentation in support of the table appearing on page 11 of Appendix C.

91.2. Please describe the methodology of calculating the specific betas which appear in this table for each of the sources, including such data as the dates, intervals, market portfolio and formulae used in the calculations.

91.3. Please provide any academic studies or peer reviewed papers of which Dr. Booth is aware which utilize RBC, Google, or Booth betas to estimate investors' forward-looking required equity returns.

===

91.1   The data has been provided in answer to booth answer intragaz ir # 78.1. The RBC beats aqre in Scheduled 10 of Appendix C, the Google's betas were screen captures on the indicated date as reported on page 11 of Appendix C.

91.2   Dr. Booth's betas are standard five year betas estimates on monthly data. The Yahoo betas are from Capital IQ (Standard and Poors) but like RBC and Google no data on how they are calculated is on the web page. They are provided simply to confirm Dr. Booth's own estimates and the fact that standard beta estimates are not "adjusted."

91.3   Dr. Booth is not aware of anyone using someone else's beta estimates in an academic peer reviewed article. Like Dr. Booth's own research in this area (on his web site at http:www.rotman.utoronto.ca/~booth) academics generate their own betas to match their samples. RBC, Yahoo and Google's betas are for the benefit of investors, not academics.

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92. Reference: Piece C-ACIG-0013, page11 footnote 14.

Request:

92.1. Please provide the name of the data provider that is the source for Google Finance betas.

_____

There is no mention on Google's web page, just as there is no mention in most services providing estimates to investors.

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93.   Reference: Piece C-ACIG-0013, page 12, lines 3-4.

Request:

93.1. Please provide copies of the RBC Capital Markets Research in support of the
table appearing on page 12 of Appendix C.

Provided as Booth answer Intragaz IR # 93.1

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94.   Reference: Piece C-ACIG-0013, page 13, lines 2-3.

Requests:

94.1. Please provide copies of the backup documentation in support of the table appearing on page 13 of Appendix C.

94.2. Please describe the methodology of calculating the specific betas which appear in this table for each of the sources, including such data as the dates, intervals, market portfolio and formulae used in the calculations.

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91.4   The data has been provided in answer to booth answer intragaz ir # 78.1. The RBC beats aqre in Scheduled 10 of Appendix C, the Google's betas were screen captures on the indicated date as reported on page 11 of Appendix C.

91.5   Dr. Booth's betas are standard five year betas estimates on monthly data. The Yahoo betas are from Capital IQ (Standard and Poors) but like RBC and Google no data on how they are calculated is on the web page. They are provided simply to confirm Dr. Booth's own estimates and the fact that standard beta estimates are not "adjusted."

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95.   Reference: Piece C-ACIG-0013, page13, lines 13-15, of Appendix C.

Request:

95.1. Please provide any peer reviewed papers or studies of which Dr. Booth is aware where the Financial Posts' Utility Analyzer raw betas were utilized to estimate investors' forward- looking required equity returns.

===

95.1   Dr. Booth is not aware of anyone using any particular beta estimates and has not done any research into this. Academic researchers use their own beta estimates in their research. The reference to the Financial Post is simply because the FP is the major provider of data to investors in Canada as any Canadian expert witness should know.

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APPENDIX D

96.   Reference: Piece C-ACIG-0014, Appendix D.

Request:

96.1. Please provide the backup data and calculations in Excel with cells unlocked and original formulas in place for Schedules 1-11 that appear in Appendix D.

_____

96.1   Data provided as booth answer intragaz ir # 96.1 with reference to specific schedules.

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97.   Reference: Piece C-ACIG-0014, Appendix D, Schedule 12.

Request:

97.1.   Please provide a legible copy of the article attached as Schedule 12.

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That is the only copy in Dr. Booth's possession, but he attaches a copy of another equivalent article as booth answer Intragaz IR # 97.1since there have been many articles pointing out the biased nature of analyst forecast. Note this article points out the popular view of analysts as shills for the underlying stock.

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98.   Reference: Piece C-ACIG-0014, page 3 lines 19-23 of Appendix D.

Request:

98.1. Please provide documentation to support these conclusions.

98.1   Suppose we start with generic valuation where for any security

$$V = \frac{C1}{(1+k)} + \frac{C2}{(1+k)^2} .... \frac{CT}{(1+k)^T}$$

This simply says that the value of any security is the cash flow expected in time period 1 (C1) discounted back one period at the required rate of return k, plus the same for period 2 discounted back two periods and so on up until time period T.

For bonds, the cash flows are fixed by the par value (Par) and the coupon (fixed interest) rate *(i)* and the maturity date. Consequently, if we substitute these particular restrictions into the general DCF equation we get the standard bond valuation equation.

$$V = \frac{Par * i}{(1+k)} + \frac{Par * i}{(1+k)^2} .... \frac{Par * (1+i)}{(1+k)^T}$$

If we ignore any minor issue cost then the bond would normally be sold at par so that the coupon rate (i) is exactly equal to that required by the investor (*k*) and the market price divided by the par (or book value when issued) is equal to 1.0. The market value of the bond would stay at par unless the investor's required rate of return changes. Similarly the market price divided by the income or earnings (interest) is commonly referred to as a multiple or capitalization rate.

If the required rate of return drops, due to market wide drops in interest rates, then with a lower *k*, it is obvious that the market price of the bond increases. In this case, we say the bond sells at a premium to book value or if we wanted we could simply say the market to book ratio increases to above 1.0. Similarly since the interest is constant the capitalisation rate or price earnings ratio increases. Conversely, if the required rate of return goes up, due to market wide increases in interest rates, then the market price would drop below par value and we would say the bond is selling at a discount or a market to book ratio less than 1.0. In this case the capitalisation rate or price-earnings ratio falls.

These relationships are completely standard and fall out of the arithmetic of the DCF model. There is a discussion of these bond pricing relationships in any *elementary* finance textbook. The major insight is that when the coupon rate on a bond is above (below) the market's required rate of return the bond sells at a premium (discount) or a market to book greater (less) than 1.0. Since the par value of most bonds is $1,000 any bond analyst can tell immediately whether the coupon rate is above (below) the current required rate of

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return simply by looking at whether its market to book is above or below 1.0, that is, whether it is selling at a premium or discount to par. For the same reason the analyst can tell whether the capitalization rate or price earnings ratio for the bond has increased since the time of its issue.

We don't normally refer to the market to book or price earnings ratio of a bond simply because it is easier to simply say they are selling at a premium or discount. However, the information is there nevertheless and can provide clues as to what is happening to these ratios for other securities.

We regulate utilities as if they were (nominal) bonds. This is because we estimate a fair rate of return and apply it to the book value of the rate base. If we estimate the rate of return correctly, the investor gets a fair return and the market value of the shares should remain equal to their book value. If the utility is on an automatic ROE adjustment mechanism tied to interest rates then the shares are actually very close to floating rate preferred shares. The only difference is that not all of the income is paid out as a dividend. As a result we can use a variation of the DCF model to value utility shares.

To see this all we do is go back to the original model and instead of assuming that the cash flows are those in the bond contract, assume a forecast dividend (*D*) that is assumed to grow at the constant rate *g* forever. In this case, we get what is commonly referred to as the Gordon growth model and which in regulatory circles is the DCF model.

$$V = \frac{D}{k-g}$$

It is important to note that this equity DCF model is just the general DCF model using slightly different assumptions than those used to derive the bond pricing model, but the arithmetic and intuition is exactly the same.

To derive a market to book ratio or PE multiple out of this we can define the dividend as the earnings per share (*E*) times the dividend payout rate, which is one minus the retention rate (*b*). Once we recognise that the earnings are simply the equity book value (*B*) time the ROE, we can substitute *D = b*ROE*(1-b)* and get the market to book ratio,

$$\frac{P}{B} = \frac{ROE*(1-b)}{k-b*ROE}$$

Where the growth rate is what is commonly referred to as the sustainable growth rate which si the amount retained (*b*) times the ROE on those retentions.

This version of the Gordon growth model was explicitly developed by the late Professor Myron Gordon of the University of Toronto and applied in an early AT&T case. Why it is important is that we can see immediately that if the expected ROE is equal to the investors required rate of return we can factor *k=ROE* and the market to book is equal to 1.0, exactly the same as it was for when a bonds coupon rate equals the investors required rate of return. In fact, this is a perfectly general result, whenever the forecast rate of return is expected to equal the investors required rate of return the market value will

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always equal the book value. This applies to bonds, equities in fact all securities and it applies to companies and also new investments or acquisitions.

The forerunner of the AUC, the AEUB recognized this in a TransAlta decision. If the ROE is the allowed ROE and the utility is expected to earn this allowed ROE then the market to book ratio will equal 1.0, and market values equal the book values, only *if* this allowed ROE is fair, that is equals the investors required rate of return. As the AEUB stated (Decision U-99099, page 300)

> "The Board observes that the intrinsic long-run value of a pure play regulated entity is best represented by book value. In other words, the present worth of future regulated earnings, discounted at the allowed return, is by definition equal to book value assuming achieved regulated earnings on average equal allowed regulated earnings. Accordingly, the Board considers that book capitalization represents the best indicator of the long-run market capitalization for a pure play regulated firm."

If the ROE exceeds the fair rate of return, then we can see from the Gordon model the market to book ratio goes above 1.0 just as it does for a bond when the coupon rate exceeds the market interest rate. If a Board then accepted a high market to book ratio in any way, it is then implicitly indicating that it is awarding unfair allowed ROEs and is being derelict in the exercise of its statutory responsibilities. The only qualification to this is that we normally accept market to books slightly in excess of 1.0 so that the utility can always net out book value and not dilute the shareholder`s equity.

The above derivation is completely standard and any expert witness should be aware of it. In fact I have yet to come across an expert witness even one on behalf of a utility who denies these relationships, since they are basic arithmetic. I attach as booth answer intragaz ir # 98.1 an extract from Dr. Kolbe's textbook, where he explains why a regulator should choose a market to book ratio of 1.0 and Dr. Kolbe invariably appears as an expert witness on behalf of utilities as part of the Brattle group team.

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99.   Reference: Piece C-ACIG-0014, page 8 lines 20-21 of Appendix D.

Requests

99.1. Please provide documentation in support of the statement that analysts "key" dividend growth forecasts off earnings forecasts.

99.1   This is a matter of simple arithmetic and common sense as without any earnings there are no dividends and similarly for growth. It is a matter of simple arithmetic that without any earnings growth the dividend cannot grow forever!

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100.   Reference: Piece C-ACIG-0014, page12, line

10. Preamble:

"As a result, forecast growth was negative …"

Requests :

100.1. Please identify the analysts or forecasting services that were forecasting negative long-term growth for the S&P Electric Utilities.

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100.1 This question is in error, nowhere does Dr. Booth say that any forecasting services were forecasting negative long-term growth.

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101.   Reference: Piece C-ACIG-0014, page 14, line 1.

Request:

101.1. Please provide copies of all backup data for the chart that appears on page 14 of Appendix D.

_____

Provided as Booth answer Intragaz IR # 101.1

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102.   Reference: Piece C-ACIG-0014, page 15, line 1.

Request:

102.1. Please identify the sources and provide copies of the backup documentation in support of the table appearing on page 15 of Appendix D.

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102.1 As indicated on page 14 this data was extracted from the web on October 26, 2012. The source was RBC's Direct Investor web page

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103.　　Reference:　　**Piece C-ACIG-0014, page 16 footnote**

10. Request:

103.1. Please provide a copy of the cited study by Easton and Sommers.

Provided as Booth answer Intragaz IR # 103.1

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104.   Reference: Piece C-ACIG-0014, Refer to Schedule 11 of Appendix D.

Request:

104.1. Please provide the formulas and data used to calculate the values shown in the columns labeled URP, URP2, and URP3.

104.1 The formulae are explained at the bottom of Schedule 11 and discussed in the text on pages 11-13 of Appendix D.