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October 20, 2009
File No.: 240148.00642

**VIA EMAIL & COURIER**

British Columbia Utilities Commission
6th floor, 900 Howe Street
Box 250
Vancouver, B.C. V6Z 2N3

**Attention: Erica M. Hamilton**
**Commission Secretary**

Dear Sirs/Mesdames:

**Re: Terasen Gas Inc., Terasen Gas (Vancouver Island) Inc. and Terasen Gas (Whistler) Inc. (the "Terasen Utilities")**
**Return on Equity and Capital Structure Application**

Enclosed is the Final Submission on behalf of the Terasen Utilities in the above application.

The requisite 20 hard copies of the Final Submission will follow by courier.

Yours truly,

**FASKEN MARTINEAU DuMOULIN LLP**

*Original signed by C.B. Johnson*

C.B. Johnson, Q.C.

CBJ/vde

cc: Registered Intervenors

Encl.

**BRITISH COLUMBIA UTILITIES COMMISSION**

**IN THE MATTER OF THE *UTILITIES COMMISSION ACT* (the "Act")**
**R.S.B.C. 1996, Chapter 473**

**and**

**IN THE MATTER OF AN APPLICATION**
**BY TERASEN GAS INC., TERASEN GAS (VANCOUVER ISLAND) INC. and**
**TERASEN GAS (WHISTLER) INC.**
**RELATING TO RETURN ON EQUITY AND CAPITAL STRUCTURE**

# SUBMISSIONS OF
# TERASEN GAS INC.
# TERASEN GAS (VANCOUVER ISLAND) INC. and
# TERASEN GAS (WHISTLER) INC.

**October 20, 2009**

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**IN THE MATTER OF AN APPLICATION**
**BY TERASEN GAS INC., TERASEN GAS (VANCOUVER ISLAND) INC. and TERASEN GAS (WHISTLER) INC.**
**RELATING TO RETURN ON EQUITY AND CAPITAL STRUCTURE**

# SUBMISSIONS OF
# TERASEN GAS INC., TERASEN GAS (VANCOUVER ISLAND) INC. AND TERASEN GAS (WHISTLER) INC.

In this proceeding Terasen Gas Inc. ("TGI") and Terasen Gas (Vancouver Island) Inc. ("TGVI") and Terasen Gas (Whistler) Inc. ("TGW") (collectively "the Terasen Utilities") request that the British Columbia Utilities Commission ("Commission" or "BCUC") determine an increased return on common equity ("ROE") for TGI for rate-setting purposes, and that the so determined return on equity for TGI be used in establishing the return on equity of TGVI and TGW used for rate-setting. The Terasen Utilities request that the revised return on common equity for TGI, TGVI and TGW be effective July 1, 2009.

The Terasen Utilities also request that the Commission eliminate the use of an automatic adjustment mechanism ("AAM") in the determination of return on equity for the Terasen Utilities. In replacement of the use of an AAM, the Terasen Utilities request that the return on equity determined in this proceeding to be appropriate for TGI be used as the benchmark or generic ROE ("Benchmark ROE") for the determination of the return on common equity of TGVI and TGW. Terasen Gas (Vancouver Island) Inc. and Terasen Gas (Whistler) Inc. request that the Commission continue to set their respective allowed returns on equity by adding to the Benchmark ROE established in this proceeding the company specific risk premium which the Commission has previously determined to be appropriate, which is 70 basis points for TGVI and 50 basis points for TGW.

Terasen Gas Inc. requests that the Commission alter and increase the common equity component of its capital structure for rate-setting purposes to 40 percent common equity, and

requests that the capital structure including the 40 percent common equity component be used for the setting of rates effective January 1, 2010.

## A. INTRODUCTION AND BACKGROUND

1. This is a very important application for the Terasen Utilities.

2. The Terasen Utilities are facing increased business risks, as discussed in Section B of this Submission. Government policies respecting climate change and concerns about greenhouse gases, new legislation and the introduction of carbon taxes have increased business risks. The Terasen Utilities face competition from electricity, most of which is generated by low-cost heritage hydro-electric resources. Government policies in this jurisdiction contribute to the public's perception that the use of natural gas may be part of the greenhouse gas or climate change problem. Investments by the Terasen Utilities in gas distribution facilities and other utility infrastructure are recovered over a long period. There is increased uncertainty in relation to the competitive and business environment in which the operation of these utility investments will occur over the long term.

3. Before 1994 the return on equity and capital structure of utilities regulated by the Commission were set in company-specific proceedings. This Commission was the first regulator in Canada to adopt an automatic adjustment mechanism for setting allowed returns for utilities, when it did so in 1994. The Commission has periodically reviewed and amended the mechanism with the last such hearing in November 2005. Throughout the fifteen years that the AAM has been in effect, the formula in the AAM has been linked to long-term Government of Canada bond yields.

4. The National Energy Board ("NEB") adopted a similar AAM in 1995 in its RH-2-94 proceeding, and since then most other utility regulators in Canada have adopted a similar formulaic automatic adjustment mechanism. However, in its Reasons for Decision dated October 8, 2009, the NEB has determined that the RH-2-94 Decision will not continue in effect, that is, the return on equity for the pipelines regulated by the NEB will not be determined by an automatic adjustment mechanism.

5. Since the mid-1990s when the automatic adjustment mechanism was first introduced, the returns on equity allowed on utility investments in British Columbia have significantly decreased as the yields on Government of Canada bonds have fallen.

6. Prior to the implementation of automatic adjustment mechanisms, returns on equity for Canadian utilities were determined through the application of a number of different tests to determine the fair return, as discussed at the top of page 45 of the Commission's March 2, 2006 Decision on the application of TGI and TGVI relating to return on equity and capital structure (the "2006 Decision" or "March 2006 Decision"). In the 1990s the equity risk premium approach, and its subset the capital asset pricing model ("CAPM"), became the predominant, and almost exclusive, methodology used by Canadian regulators for the determination of the fair return. All the AAMs in use for Canadian utilities are based on the equity risk premium methodology.

7. Since the mid-1990s the returns on equity for Canadian utilities, being tied to yields on long Canada bonds, have decreased significantly, while allowed returns on equity for U.S. utilities have decreased much less, resulting in a wide divergence between the returns allowed in the U.S. and those in Canada. Studies have concluded that there is no reasonable basis for this divergence.

8. For a number of years Canadian utilities have been raising concerns about the automatic adjustment mechanisms used in Canada, and the results of those mechanisms.

9. Analysts and other capital market participants have been studying and providing comments on problems with the formulaic adjustment mechanisms in Canada for several years, referring to their inherent shortcomings, suggesting that these AAMs have outlived their usefulness, and offering the view that the formulaic mechanisms used in Canada have resulted in allowed returns that are unfair.[1]

10. In its March 2009 Decision respecting Trans Québec & Maritimes Pipelines Inc. ("TQM") the NEB acknowledged that the formula approach no longer produced a fair return for TQM. The NEB adopted a methodology that translated into an increase to TQM's ROE and equity component of capital structure. As noted above, the NEB has since determined that its AAM will not continue in effect.

11. The Ontario Energy Board is undertaking a consultative process on the cost of capital for the utilities it regulates. There was also a recent generic proceeding in Alberta, and ongoing proceedings in Newfoundland and Québec.

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[1] See the reports referenced at pages 16 to 18 of the Application (Exhibit B-1), at pages 46 to 48 of the written evidence of Donald A. Carmichael (Exhibit B-1, Tab 2) and at pages 10 to 17 of the written evidence of Kathleen C. McShane (Exhibit B-1, Tab 3)

12. The Commission must provide the utilities it regulates with the opportunity to earn a fair return on their investment in utility assets. At page 6 of its March 2009 TQM Decision the National Energy Board summarized the fair return standard:

> "Therefore, the Board reaffirms the Fair Return Standard as articulated on page 17 of the RH-2-2004, Phase II Decision. The Fair Return Standard requires that a fair or reasonable overall return on capital should:
>
> - be comparable to the return available from the application of the invested capital to other enterprises of like risk (comparable investment requirement);
> - enable the financial integrity of the regulated enterprise to be maintained (financial integrity requirement); and
> - permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (capital attraction requirement)."[2]

13. Pages 6 and 7 of the Application address the fair return standard, where it says:

> "To properly serve the broad public interest, it is critical that British Columbia utilities are in a position to maintain their financial health. This is necessary to ensure that they can:
>
> - meet their customers' service needs at a reasonable cost;
> - attract investment capital at reasonable cost under all market conditions;
> - earn a fair and reasonable return on previously invested capital;
> - support the Energy and Environmental Policy objectives of the BC Government
> - pursue investments in efficiency; and
> - be sustainable in the face of ongoing and changing business risks."

14. Ms. McShane discusses the fair return standard in Chapter III of her written evidence, at pages 18 and 19. She says:

> "The legal precedents make it clear that the three requirements are separate and distinct. Moreover, none of the three requirements is given priority over the others. The fair return standard is met only if all three requirements are satisfied. In other words, the fair return standard is only satisfied if the utility can attract capital on reasonable terms and conditions, its financial integrity can be maintained and the return allowed is comparable to the returns of enterprises of similar risk."[3]

15. The Terasen Utilities submit that current returns on equity for the Terasen Utilities are inadequate and fail to meet the fair return standard. The Terasen Utilities submit that the

[2] National Energy Board Reasons for Decision in the RH-1-2008 proceeding, page 6

[3] Written evidence of Ms. McShane, page 18, line 483 to page 19, line 488

Commission must establish a return on equity that is a fair return; which in the submission of the Terasen Utilities is an 11% return on equity for TGI and as the Benchmark ROE. The Terasen Utilities submit that returns on equity should be determined through consideration of a number of methodologies, and not solely the equity risk premium methodology.

16. This Application is not based on the recent turmoil in financial markets. The events of the past year, that include the re-pricing of risk and flight of capital from corporate bonds and equity to government bonds, thereby driving down the long Canada bond yield, presented the Terasen Utilities with the scenario of a sub-8% ROE award under the current AAM. This was a factor that influenced the timing of the Application, but is not the cause of the Application. The Terasen Utilities are not seeking higher returns because of events in capital markets over the past year, although those events demonstrated, as it says in the Application, that the AAM formula is broken. The flight to quality by investors that occurred during late 2008 and the earlier parts of 2009 drove government bond yields lower while at the same time increasing the return that investors required on utility and other corporate bonds and increasing the return that investors required on equity investments. The formulaic AAM suggested the required return of investors in the common equity of utilities was decreasing, while the events in capital markets were demonstrating that the required return was increasing.

17. In this Application Terasen Gas Inc. is requesting an increase in the equity component of its capital structure to 40 percent. The need for an increased common equity component is addressed in Section C of this Submission. At the current level of 35.01 percent, TGI has the lowest equity ratio of the major Canadian gas distribution utilities. That common equity level is also far below TGI's U.S. peers.

18. This increase in the equity component of TGI is required because of the increased business risks being faced by the company, to ensure that financial integrity and flexibility is maintained, and to allow TGI to attract capital on a comparable basis to its utility peers in Canada and the U.S. TGI seeks the increase in its equity component to be effective January 1, 2010.

19. Restrictions on foreign investments by Canadians have been removed. Competition for capital is not constrained by provincial or national borders. Canadian and international capital markets have become more integrated than in the past. Large amounts of capital are required for infrastructure projects in Canada and around the world. TGI's capital structure and return on

equity must be comparable to other companies of similar risk to allow it to successfully compete for capital.

20. As set out at the beginning of the Section, this is an important Application for the Terasen Utilities. It is important that the return on equity for TGI and as the Benchmark ROE be established at a fair level, which the Terasen Utilities submit is 11 percent, and it is important that the common equity component of the capital structure of TGI be increased as requested in the Application.

## B. BUSINESS RISK

21. Business risk for the Terasen Utilities relates to the ability to recover (i) the investment made in gas distribution infrastructure to serve customers over the long term and (ii) an appropriate return on that investment.

22. The Terasen Utilities submit their business risks have increased since the Commission examined the business risks of TGI and TGVI in 2005. The Terasen Utilities further submit that they face greater competitive and long-term business risks than most other major utilities in Canada.

23. At page 17 of the 2006 Decision the Commission Panel said there was broad agreement between the Applicant and Intervenors on the definition of risk to a benchmark low-risk utility. The Commission then said:

> "Business risk is the risk that the utility will not be able to earn a return on its capital or of its capital. Dr. Booth summarized those elements that constitute business risk as:
>
> > "…stemming from uncertainty in the demand for the firm's product resulting, for example, from changes in the economy, the actions of competitors, and the possibility of product obsolescence. This demand uncertainty is compounded by the method used by the firm and the uncertainty in the firms' cost structure, caused, for example, by uncertain input costs, like those for labour or critical raw or semi-manufactured materials". [referring to an excerpt from Dr. Booth's written evidence in that proceeding]

24. Business risk has both short-term and long-term aspects. By their very nature, a gas utility's primary investments have a useful life that extends over a long period of time. Therefore, when evaluating the business risk of a gas distribution utility, it is the longer-term fundamental business risks that must be given primary consideration.

25. Page 24 of the Application sets out key drivers that have affected the business risks of TGI in recent years:

- Provincial climate change and energy policies has increased the risk inherent to TGI's core natural gas business;
- Natural gas' competitive position relative to electricity has been weakened;
- TGI is capturing a smaller percentage of new construction;
- Electricity is increasingly the choice of high-density housing;
- Alternative energy sources further weaken TGI's competitive position; and
- Fuel switching has also diminished demand for natural gas.

26. Residential and commercial space and water heating are the primary markets for the Terasen Utilities. Capital costs, including installation, are greater for natural gas than electricity for these applications. Figure 3.4 at page 31 of Tab 1 of the Application sets out a payback calculation showing that due to higher capital costs natural gas needs an operating cost advantage of $10.31 per gigajoule (GJ) over 18 years, when comparing natural gas heating in a home to heating by electricity in the home.[4]

27. Consumers do not require natural gas in their residences and businesses; but they do require electricity. Developers do not have to provide new construction with natural gas, but they do have to provide electricity. In almost all applications, electricity can be used as an alternate source of energy. For space heating, geo-thermal and other energy sources are competitors along with electricity.

28. It is the decisions of consumers and developers, together with government policy, legislation and regulatory requirements, that will determine the long-term viability of the natural gas distribution business in British Columbia.

29. British Columbia enjoys the benefit of very major, historic low-cost, hydro-electric resources. The cost of electricity in B.C. is significantly less than almost all other jurisdictions in North America. Figure 3.2 on page 26 of Tab 1 of the Application provides the annual average electric bill of BC Hydro to those in Alberta, Ontario, Washington, Oregon and Québec. Only Québec, also with a provincially owned electric utility and massive hydro-electric resources, has a similar average bill to that of BC Hydro; other jurisdictions are significantly higher. The marginal cost of new electric resources are higher than the historic costs embedded in BC

[4] See also the evidence of Mr. Thomson at Tr 2, 97, ll. 8 - 19

Hydro's rates, but the size of the existing resources means that low electricity prices (particularly as compared to other jurisdictions) will continue long into the future. As said by witnesses on Panel 1:

> "MR. JESPERSEN: Unfortunately the issue with respect to electricity pricing in this province is that we're dealing with B.C. Hydro's rates, driven primarily from 90 percent Heritage Hydro resources. So the response rate to that, as compared to gas to electricity or any other fuel type, in other market areas, is significantly dampened here, relative to elsewhere.[5]
>
> MR. JESPERSEN: It takes a lot of expensive resources coming into a base that's 90 percent Heritage Hydro resources to have much of a swing in terms of that competitive price positioning.[6]
>
> MR. THOMSON: Almost certainly, yeah. It's just it's going to take an awful long time for -- just like hydro, hydro rates, the dilution in hydro rates from 90 percent historic power takes a while for the impact of new customer additions to be felt."[7]

30. Going back many years, the cost of natural gas was much less than that of electricity, and gas enjoyed a competitive advantage in the markets where it competed with electricity. As stated at page 18 of Tab 1 of the Application:

> "As shown in Figure 3.1.1, Figure 3.1.2 and Figure 3.1.3 below [referring to the figures on pages 21 to 23], natural gas enjoyed a substantial price advantage versus electricity in the late 1990's throughout the three TGI regions (Lower Mainland, Inland and Columbia). In all three regions, the cost of natural gas to a customer in 1998 was less than half the cost of using electricity for the same applications.
>
> This price advantage relative to electricity has gradually declined as natural gas rates increased with rising commodity costs, while electricity rates remained relatively constant."[8]

31. It can be seen from the cost of gas portions (the yellow part of each bar) of the figures on pages 21 to 23 of Tab 1 of the Application (Figures 3.1.1 – 3.1.3) that in the first year of each figure the commodity cost of gas is a relatively small amount. By January 2001 the commodity cost of gas had increased substantially. Natural gas commodity prices became more volatile, as can be seen in the graph on page 8 of the BC Hydro Service Plan, August 2009 Update, Exhibit B-16 (re-produced below). Higher and more volatile natural gas commodity costs have

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[5] Tr 2, 136, ll. 3 - 9

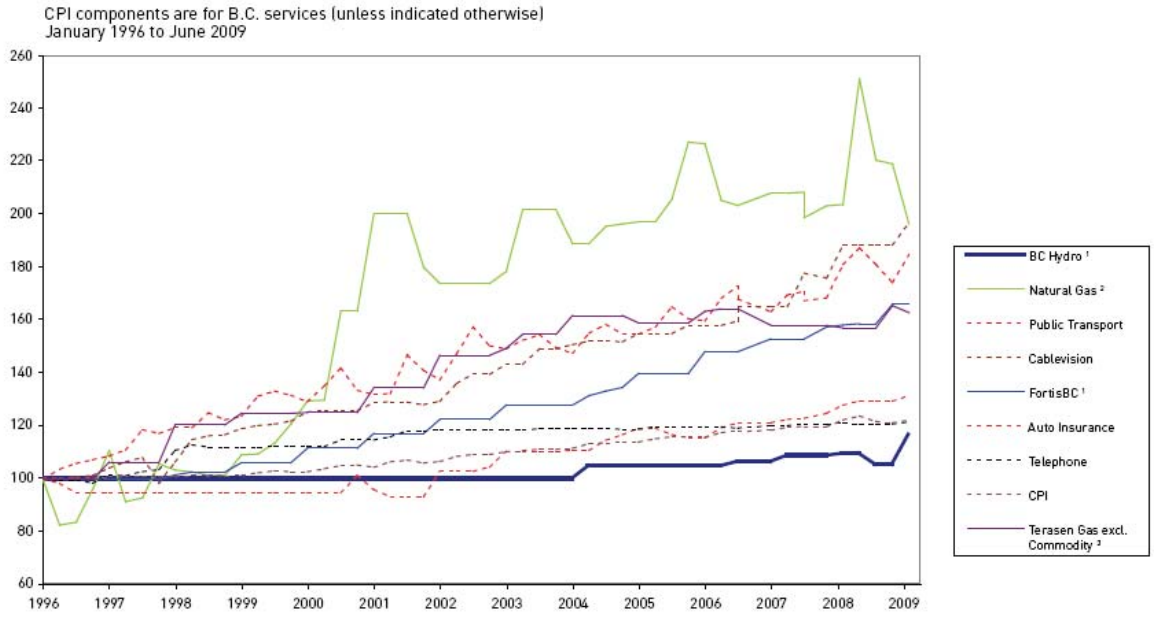
[6] Tr 2, 144, ll. 23 - 26

[7] Tr 2, 159, ll. 10 - 14

[8] Application, Exhibit B-1, Tab 1, page 18

two effects: decreased usage of natural gas, and increased public awareness of volatile market based pricing of natural gas and other fossil fuel energy sources.

BC HYDRO'S RATE VERSUS VARIOUS CONSUMER PRICE INDEX COMPONENTS AND OTHER SERVICE RATES




32. The graph in the electronic version of Exhibit B-16 on the Commission website shows the lines on the graph in colour, and with better resolution. In addition to showing changes in natural gas commodity prices since 1996, the graph at page 8 of Exhibit B-16 also shows that since 1996 BC Hydro rates have only increased by approximately 10 percent. As it says in the paragraph above the graph, "Over the last decade, BC Hydro's rate increases have been relatively low when compared to the rate of inflation, as measured by the Consumer Price Index (CPI), and increases in rates for the provision of other services". The graph depicts Terasen Gas rates, excluding commodity, indicating they have increased much more than BC Hydro rates. The gas commodity portion of TGI's rates relates to the gas commodity cost on the graph; even with recent decreases in spot natural gas commodity prices, the gas commodity price is at relative level of approximately 190 compared to 100 in 1996. The BC Hydro Service Plan Update provides a graphic description of the deteriorating competitive position of TGI.[9]

33. The use of gas per account of TGI continues to decline. This was a risk factor identified in the 2005 Application, and has continued to occur. As an example, the TGI normalized annual usage rate for Rate Schedule 1 customers (residential customers) has declined from 103.1 GJs

[9] See also evidence of Mr. Thomson at Tr 2, 145, ll. 5 - 18

in 2003 to 92.5 GJs in 2008; with the projected annual use rate for Rate Schedule 1 for 2010 being 89.7 GJs. This decline in use rate can be attributed to factors such as the price of natural gas compared to other energy prices, improved efficiency of natural gas appliances and changes in housing mix within the residential sector. It is expected that these factors will continue into the future.[10]

34. Decreasing use per account was discussed at pages 34 through 36 of Tab 1 of the Application:

> "The annual use of natural gas by residential customers has declined steadily since the 1990s and is forecast to continue to decline in the future. This decline is the result of a combination of factors such as advances in gas appliance and construction technology, changes in housing and building space choice, increased volatility in the price of natural gas, and also customers increasing their awareness for the need of energy conservation. The chart below (Figure 4.2) shows the extent of this trend, where a reduction in TGI Residential use rates of 21.1% occurred between 1997 and 2008. A further decline of approximately 2% is forecast to occur by 2010. This decline in use rates places upward pressure on customers' delivery rates, and contributes to the compression of natural gas and electricity rates.
>
> As discussed above, the trend of declining use rates is expected to continue into the foreseeable future. The main drivers for this trend are the replacement of lower-efficiency natural gas furnaces with higher efficiency models and the evolution of building codes from an energy efficiency perspective. Changes to the building code in 1990 mandated mid-efficiency furnaces as the minimum requirement for homes, and recent changes to building code legislation now stipulate that high efficiency furnaces are required for new construction as of 2008 and for furnace replacements beginning in 2010."[11]

35. Reductions in use per account and other declines in throughput occur without a corresponding reduction in the investment in gas distribution infrastructure (rate base).[12] The effect is an increasing cost per GJ in the margin for the delivery of natural gas, which further affects TGI's competitive position and its ability to recover its return on, and of, its investment in rate base. Mr. Thomson and Mr. Jespersen highlighted this in their oral evidence:

> "MR. THOMSON: Energy conservation reduces our throughput and has a direct impact on our delivery rates. Our rates are based on recovering a revenue

[10] Application, Exhibit B-1, Tab 1, page 1 and footnote

[11] Application, Exhibit B-1, Tab 1, pages 34 and 35

[12] As set out in the response to the undertaking at transcript page 157 (part of Exhibit B-28) TGI's normalized annual throughput has declined by approximately 12% (from 238 PJs in 1999 to 209 PJs in 2008)

> requirement over a certain amount of throughput. If that throughput goes down, then the rate itself goes up."[13]
>
> "MR. JESPERSEN: But the issue that I'm trying to point out is, for the plant that's already in service for Terasen, the throughput through that plant has declined."[14]

36. More stringent code requirements for natural gas appliances have two effects: they reduce consumption and they increase the capital costs associated with purchase and installation of the gas-fired equipment. Both of these factors affect the competitive position of natural gas.

37. In addition to declining use per customer, TGI is also affected by reduced customer additions. This is discussed at pages 32 to 34 of Tab 1 of the Application:

> "A shift in the housing market towards higher density housing types began in 1999, and multiple family dwellings have become the dominant housing type in BC (as illustrated in Figure 4.1 above [referring to the figure on page 33 of Tab 1]). With high building material and land costs, and also declining affordability, the pool of potential single-detached new home buyers is shrinking. The average MLS price for the Greater Vancouver area is now almost $600,000 which puts this type of housing out of reach for many potential buyers, including first time buyers, especially in today's challenging economy. First time homebuyers are typically purchasers with modest budgets that push them into the multiple family dwelling segments. Selection of electric space heating reduces upfront "non-visible" construction costs and allows higher expenditure allocations to aesthetic items. … Over the past five years, approximately two-thirds of all housing starts have been multiple units and Terasen's capture rate in this segment is currently only 18%."[15]

38. With housing affordability challenged in the Lower Mainland, a greater proportion of new housing in recent years has been, and into the future will be, multi-family dwellings for which electricity achieves the overwhelming heating market share. This is resulting in substantially lower customer additions at similar housing start levels. The impact is significant, particularly when new customer additions are required to assist in offsetting the declining use per account of TGI existing customer's base due to energy conservation and efficiency efforts.[16]

39. Figure 4.1.2, which is at the top of page 34 of Tab 1 of the Application shows the dramatic decline that has occurred in the proportion of new housing that is single family units.

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[13] Tr 2, 88, ll. 14 - 19

[14] Tr 2, 89, ll. 20 - 23

[15] Application, Exhibit B-1, Tab 1, page 33

[16] Application, Exhibit B-1, Tab 1, page 2

The proportion falls from 49 percent of the construction in 1999 to 27 percent in 2008. As said on that page:

> "Declining customer attachments are problematic for existing customers because new customers mitigate part of the impact of declining use rates, as discussed below. With customer attachments falling combined with declining average use per customer, Terasen is facing increased competitive challenges on a delivered unit cost basis. Speaking more generally, over the past decade the challenge to mitigate declining use per customer and throughput loss has become more pronounced, and the business risk profile has increased."

40. Reasons for the low capture rate in multi-family dwellings was discussed in the response to BCUC information request 37.1 (Exhibit B-3, page 113). Much of that response is below:

> "There are a number of factors that influence TGI's capture rate of multi-family dwellings, including the installation costs, physical space requirements, operational costs, and of course the demand associated with the particular energy source.
>
> The low capture rates experienced by TGI in the multi-family dwelling sector are a reflection of the behaviour exhibited by builders/developers, who in most cases choose to install electrical space heating equipment over natural gas. There are a number of factors that are influencing their decision, with the most significant being the higher capital and installation costs associated with natural gas space heating (as compared to electrical baseboards). Further, multi-family units are smaller than single family detached homes, and as such natural gas space heating in multi-family dwellings can be a more difficult installation. Lastly, in many cases it does not make sense for a developer to install gas heating appliances in individual suites as the heating equipment takes up valuable square footage that can be used for another purpose.
>
> Developers tend to install equipment that they believe meets customer desires and provides the greatest margin, or return on developers investment. Though the Tier 2 RIB rate is in effect, we do not believe, and have not seen evidence that, the price spread between the Tier 2 Rate and gas rates is enough to translate into increased demand from end use customers to limit the use of electricity for heating applications. Secondly, due to the smaller size of multi-family dwellings compared to single family detached buildings, there is less electricity used to heat a multi-family unit and therefore, a smaller portion of the customer's electricity bill would be priced at the Tier 2 RIB rate.
>
> Lastly, Developers are currently being encouraged by local policy to build projects that achieve some level of "green" certification, through rating systems such as LEED and Built Green. This results in additional construction costs to earn credits within the rating system to achieve the certification. These rating systems allow certification to be achieved with electric baseboard heating.
>
> Due to these factors, a developer is currently still incented to install the lowest cost heating application (electricity), as the margin on an electrically heated home is higher than that of a gas heated home. TGI is certainly working towards

> improving its capture rates in this customer segment, and continues to maintain ongoing communications with the builder/developer community, promoting the use of natural gas and increasing awareness with regards to natural gas being part of the long-term solution to climate change. Since 2004, we have increased and refocused our sales staff to focus on the multifamily and vertical subdivision sector. Our sales staff have been focused on meeting with, and putting on workshops for builders, developers, architects and engineers to educate and influence the choice of heating applications. We have changed our main extension test and added an option to "pipe to the suite", both having been approved by the BCUC, to help ensure that gas remains a competitive choice for both developers and end use customers."
>
> However, absent formal policies in British Columbia which identify the right fuel for the right application at the right time and that specifically encourage end use gas applications, it is reasonable to assume that British Columbian's will continue to view natural gas as a fossil fuel that is contributing to the global climate change issues. It is also reasonable to assume the significant difference in installation costs between natural gas space heating and electrical baseboard heating will continue. Given this, it is reasonable to assume that even with the high level of marketing efforts we continue to provide, and also the margin between gas and Tier 2 RIB rates, only marginal increases to capture rates for multi-family dwellings will occur.

41. In response to a question from Commissioner Cote regarding initiatives to improve the capture rate in multi-family dwellings, Mr. Jespersen said:

> "With explicit reference to how we contribute to bridge the economic gap, we are now basically putting into our rate base the capital cost associated with running a vertical main in a -- particularly in the vertical subdivisions. And that's where we have the greatest challenge.
>
> So that that cost was not left as a burden to -- or an economic barrier, if you wish, to the developers of high-rise complexes, vertical subdivisions. And the piping right through into the meter closets and what-not, again to dampen that. That has helped somewhat, but not particularly in a meaningful way yet. We'll keep working on it. The angst and concern primarily from the developer community is that where you see the bulk of the vertical subdivisions winds up being in districts where real estate is the most expensive. So the cost per square foot of meter closets, the cost per square foot for the stand-pipes, has been somewhat of a -- more of a barrier to them than what we had anticipated or what we had thought."[17]

42. TGI has been faced with declining use per account for a number of years, which is forecast to continue. Declining use per account increases the per unit delivery rate. TGI has been affected by a shift in the new construction market, with a greater proportion of multi-family dwellings being constructed. TGI's capture rate in multi-family dwellings is low compared to

[17] Tr 3, 276, l. 8 – 277, l. 3

single family dwellings. TGI has been adding customers, but at a lower rate than in the past.[18] The delivered price of natural gas to consumers has increased more than have BC Hydro's electricity rates. All of these factors contribute to an increase in the long-term business risks of TGI.

43. This Application addresses the long-term fundamental business risks of the Terasen Utilities. This Application does not suggest that there has been a significant increase in the short-term business risks of TGI or the other Terasen Utilities.

44. Information requests and cross-examination of Panel 1 addressed deferral accounts, including RSAM, which TGI has. There has been no significant change in TGI's deferral accounts since the last cost of capital hearing in 2005. TGI has deferral accounts in place respecting gas commodity costs, but as the Commission Panel found at page 25 of the 2006 Decision, "the vast majority of gas distribution companies in North America have some form of commodity deferral account, and that this protects both the utility from commodity risk and the customers from imprudent purchasing and from the utilities profiting from the purchase, transportation and storage of gas". The 2006 Decision also observes that for many of the other costs that have deferral account treatment "that TGI is not penalized for underestimating or rewarded for overestimating a cost over which it has little or no control".[19] TGI submits that this observation of the Commission Panel continues to be the case, the deferral accounts ensure that neither the company nor the customers gain from variances in uncontrollable costs (e.g. short-term interest rates) and further, the incentive to "mis-estimate" is eliminated.

45. In the 2006 Decision the Commission Panel specifically discussed the RSAM deferral account, referring to two facets of the account. The Commission Panel said the RSAM acts as a weather normalization account, and in this regard TGI is similar to a number of utilities in North America that can defer the effects of temperature on usage. The Commission Panel agreed with Dr. Booth and Ms. McShane that weather is a symmetrical risk, with equal odds of over and underachieving, that should not be taken into account when establishing return on equity. The Commission Panel described the second facet of the RSAM as enabling TGI to defer margin variances arising from residential and commercial customers consuming more or less gas than forecast. The Commission Panel considered this aspect of the RSAM to be a short-term business risk mitigant, which was not available to TGI's comparators. The

[18] Figure 4.1 on page 33 of Tab 1 of the Application depicts the mix of new construction and the decrease in customer additions

[19] Both quotes are from page 25 of the 2006 Decision

Commission Panel said "By "short-term", the Commission Panel means that it agrees with the Applicants that "the RSAM does not provide for recovery of the return on, or of, capital in the longer-term"".

46. The Terasen Utilities agree with the Commission Panel's conclusion that the RSAM (and as well other deferral accounts) does not provide for the recovery of, or on, invested capital in the longer-term. The RSAM does not mitigate the risk associated with forecast customer additions, as it only relates to use per account. With regard to the statement that margin variance accounts are not available to other utilities, the Terasen Utilities submit that other utilities do have decoupling protection, which is required to ensure that a utility is not "dis-incented" from undertaking energy conservation programs.[20] Per customer usage can vary from forecast because of weather, because of energy conservation, or because the per customer usage value accepted by the regulator is incorrect. It should be assumed that the per customer usage value accepted by the regulator is correct, or at least assumed that there is no symmetrical bias in the value accepted. With that assumption, it is submitted that neither facet of the RSAM should be taken into account when determining return on equity. Certainly the RSAM should not be taken into account in considering the long-term business risks of TGI.

47. In the 2006 Decision the Commission Panel said that it viewed PBR as a mechanism that acts to reduce the risk that TGI will not earn a return on its capital. The current PBR settlement of TGI expires at the end of 2009, and a renewal is not expected. To that extent the short-term risks of TGI have increased.

48. Much of what is discussed above in this Business Risk Section was also discussed in the 2005 Application that led to the Commission's March 2006 Decision. What this Application addresses are those continuing business risk issues, as well as new long-term business risks that have emerged, or increased in importance, since the 2005 hearing.

49. Before discussing new long-term business risks, the evidence of Dr. Booth relating to business risk is addressed. The Terasen Utilities submit that the business risk evidence of Dr. Booth is almost entirely limited to short-term considerations. At page 22 of Appendix H of his written evidence he says:

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[20] The response to BCUC IR 10.3 (Exhibit B-3, page 38) lists other utilities with decoupling mechanisms. In the response to JIESC IR 56 f) (Exhibit B-5, page 145) Dr. Vander Weide indicates the TGI has similar risk to his sample of U.S. utilities in respect of decoupling. In the response to BCUC information request 42.1 (Exhibit B-3, page 128) Mr. Carmichael identifies U.S. utilities that have decoupling accounts

> "I have focussed on TGI's short run risks and its ability to earn its allowed ROE …"[21]

As discussed below, the Application addresses Provincial energy policies and legislation, and the potential long-term impact these have for the natural gas business in British Columbia. Dr. Booth's consideration of the effect of such policies and legislations on long-term risks is limited to his statement:

> "I … doubt that provincial energy policy and carbon taxes will significantly dent the competitive advantage enjoyed by natural gas in B.C."[22]

50. The areas in which the long-term business risks of the Terasen Utilities have significantly changed are discussed below.

51. The provincial government has introduced policies and legislation that have profound implications for the Terasen Utilities. As stated in the Opening Statement of Mr Jespersen:

> "The evidence is clear. Given government policy pronouncements on climate change initiatives, new legislation and the introduction of carbon taxes, our business risks have increased. Tab 1 of the filed application discusses at length the policies and legislation that have the effect of favouring the use of electricity over natural gas, and will discourage the consumption of fossil fuels, including natural gas, because of concerns regarding greenhouse emissions specifically in B.C..
>
> The recent Provincial Speech from the Throne re-emphasized the risk the Terasen Utilities are facing because of policy initiatives. The Throne Speech said that the government will implement an aggressive new strategy on the challenge of climate change, that green energy will be a cornerstone of B.C.'s climate change plan, that electricity self-sufficiency will be integral to efforts to fight global warming, that this Commission will receive specific direction, and that phasing out Burrard Thermal is a critical component of the Province's greenhouse gas reduction strategy. In our view there can be no doubt that the result of such measures will be increased use of electricity and decreased use of natural gas."[23]

52. Pages 3 and 4 of Tab 1 of the Application discuss 2007 and 2008 provincial government measures:

> "The British Columbia Throne Speech delivered on February 13, 2007 outlined the province's Greenhouse Gas ("GHG") reduction target, coupled with a second announcement on February 19, 2008 that introduced the BC Carbon Tax. Together these two policies and subsequent implementation into law have increased TGI's business risk since the last ROE application that was before the BCUC in 2005.

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[21] Written evidence of Dr. Booth, Appendix H, page 22, line 6

[22] Written evidence of Dr. Booth, Appendix H, page 22, lines 1 to 3

[23] Opening Statement, Exhibit B-13, page 5

> The aggressive GHG reduction targets send a strong message to consumers and businesses in BC that over the long term they must do things differently than in the past to reduce GHG emissions. This is evident from the Carbon Tax, which directly taxes the consumption of carbon based fuels within British Colombia. With natural gas providing over 20% of the energy consumed in the province, the new legislation and government policy create challenges to the longer term recovery of investment in gas delivery infrastructure in the province, … .
>
> Since 2007, with the announcement of "The BC Energy Plan: A Vision for Clean Energy Leadership" ("Energy Plan"), the BC Provincial Government has taken a leadership role in the fight against climate change/global warming. Page 1 of the Energy Plan states:
>
> > *"This plan outlines the steps that all of us – including industry, environmental agencies, communities, and citizens – must take to reach these goals for conservation, energy efficiency and clean energy so we can arrest the growth of greenhouse gases and reduce human impacts on the climate."*
>
> By taking this leadership role, many policy initiatives introduced by the BC provincial government on behalf of residents of BC have increased TGI business risk over the long term. These policies relate to the need for more energy conservation, the legislating of aggressive GHG emission reduction targets, and the introduction of the BC Carbon Tax. These policy items have the potential to reduce natural gas throughput levels or use per account, which in turn negatively impacts TGI's competitiveness and its ability to recover its investment over the long term.
>
> In moving the policy items outlined in the 2007 Energy Plan forward, the BC Provincial Government in the Spring 2008 Legislative Session introduced the following bills: [pages 3 and 4 of Tab 1 list six pieces of legislation that have been enacted that relate to the Provincial policies on climate change and energy conservation]
>
> As an example, the Local Government Act was amended by Bill 27 (Local Government Statues Amendment Act, 2008) to help ensure the 2020 GHG reduction target are met by amending Section 877 of the Act to state:
>
> > *"An official community plan must include targets for the reduction of greenhouse gas emissions in the area covered by the plan, and policies and actions of the local government proposed with respect to achieving those targets.""*

53. Of the policy items introduced by the Provincial government the one that presents the most significant business risk to TGI's traditional business and rate base investment is the policy relating to the reduction of GHG emissions in the Province. As discussed on page 5 of Tab 1, it is estimated that approximately 17 percent of the B.C. total emissions for 2006 were operating emissions of TGI and TGVI and the emissions of their customers.

54. Page 5 of Tab 1 provides further information on provincial legislation:

> "The Province passed Bill 44 (2007 Greenhouse Gas Reduction Target Act) in the 3rd Session of the 2007 Legislative Session. Part 1 of Bill 44 outlines BC GHG emission targets levels as being:
>
> > *"By 2020 and for each subsequent calendar year, BC greenhouse gas emissions will be at least 33% less than the level of those emissions in 2007; and by 2050 and for each subsequent year, BC greenhouse gas emissions will be at least 80% less than the level of those emissions in 2007."*
>
> On November 25, 2008 GHG interim targets were set by Ministerial Order as follows:
>
> - 2012 – six per cent below 2007; and
> - 2016 – eighteen per cent below 2007 levels.
>
> As a further commitment to provincial GHG reduction targets, the Province and the Union of BC Municipalities on September 26, 2007 committed to a goal of becoming carbon neutral by 2012. As of March 31, 2009, 174 local governments have signed on to this agreement.
>
> These reduction targets ignore regional emissions impacts and focus on reducing consumption of carbon based fuels including natural gas in British Columbia even though this can lead to a net increase in climate change impacts in the region through importation of electricity generated by fossil fuel combustion."

55. British Columbia is not only unique in terms of the government policies and legislation that have been introduced, but also in the source of GHG emissions. As discussed at pages 6 through 10 of Tab 1 of the Application, the areas where GHG emissions can be reduced in B.C. are limited. Figure 1.2 on page 6 of Tab 1 displays the sources of GHG emissions in B.C. As Figure 1.2 shows, BC has only 2 per cent of its GHG emissions coming from the electricity sector. This is a much lower proportion compared to many other jurisdictions where a much higher proportion of the provincial or state emissions come from the electricity sector. For example, Alberta produces over 20 per cent of its emissions from producing electricity (see Figure 1.2.1 on page 7 of Tab 1); most of BC electricity is produced from hydro sources while Alberta produces most of its electricity from a combination of coal and natural gas. This is recognized by TGI customers as indicated in a submission on behalf of the British Columbia Old Age Pensioners Organization et al ("BCOAPO"),

> "As a natural gas utility, they are in an admittedly more difficult position here in British Columbia than they would in many other jurisdictions, both in North America and internationally, because they are fighting to survive in a jurisdiction where they aren't the clean generation option. That does not, however, justify overlooking the simple truth: we have cleaner options more in line with planetary

> imperatives and the public's desire to take positive action to reduce their carbon footprint." [24]

56. With many policy items in the BC Energy Plan targeted at stimulating growth in the B.C. oil and gas sector, it will be a significant challenge for B.C. to reduce GHG emission from the fossil fuel production sector (21 per cent in Figure 1.2 on page of Tab 1 of the Application). This leaves the transportation sector at 36 per cent, other industry at 14 per cent, and the residential and commercial sector at 12 per cent as the biggest areas for potential GHG reductions. This puts the natural gas businesses in B.C. at risk from the Province's GHG reduction targets policy.[25]

57. The continued use of natural gas by residential and commercial customers is dependent on natural gas being considered cost competitive, but also on the perception of these customers respecting the desirability of natural gas as a fuel and about its environmental impacts. In this regard, the policies of the provincial government can contribute to public perceptions. As said by Mr. Jespersen at page 5 of his Opening Statement (and also transcript pages 49 and 50):

> "The indirect impact of the general public's perceptions regarding the use of natural gas being a problem rather than part of the solution to climate change has significant potential to result in migration away from natural gas appliances in new applications as well as when capital stock turns over. This is significantly different than in other jurisdictions where consumers are encouraged to use gas in place of electricity and different from recent past when BC Hydro also provided incentives to consumers to use gas appliances rather than electricity."[26]

58. Increasingly, consumer decisions respecting energy sources are being driven by factors other than cost; environmental considerations can and do impact the use of natural gas. As Mr. Thomson discussed with Mr. Weafer:

> "MR. THOMSON: I think that the other three categories, making an initial investment decision, will look at the total costs of that investment more so than will people that have already made a sunk cost investment.
>
> MR. WEAFER: And would you agree with me that that was the case in 2005 as it is today?
>
> MR. THOMSON: The basic premise, but the circumstances have changed since 2005. I mean, I think that it's fair to say that the -- a number of things have happened, but what we have seen is that people are an awful lot more sensitive to climate change issues and greenhouse gas emissions, and people have

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[24] BCOAPO, Final Argument in BC Hydro 2008 LTAP, dated April 27, 2009, page 8, as set out at Application, Exhibit B-1, Tab 1, page 6

[25] Application, Exhibit B-1, Tab 1, page, 7

[26] Opening Statement, Exhibit B-13, page 5

> certainly indicated in surveys that they're interested in the environment even if it costs them more. So I think what -- there's a sentiment now out there that goes to people making decisions not only with their wallet, and the government policy is certainly in behind that to a large extent as well."[27]

59. The views of consumers in British Columbia regarding the desirability of natural gas have changed. Consumers are made aware every day of the price of gasoline and oil. Fossil fuels are contrasted with "clean" electricity. BCOAPO, a regular Intervenor in BCUC proceedings and an Intervenor in this proceeding, has made it clear that the use of natural gas for space heating should not be encouraged:

> "As a result the world is a very different place than in the 1970's when global warming was fodder for science fiction and fossil fuels were commonly thought to be our civilization's salvation. How then, BCOAPO asks, are we to reconcile Terasen's desire to increase natural gas use with the facts: we have very little time to effect large changes to cut GHG emission levels in order to make any sort of impact?
>
> British Columbia is blessed with a rich hydrology that lends itself well to hydroelectric generation projects, both large and small and as a result, we do not as a province rely on dirty coal or natural gas generation for our power as do most jurisdictions in the world. Why then, when governments across the continent and around the world are adopting strong messages to avoid a climate catastrophe, and our provincial government has set its own aggressive GHG emission reduction goals, and our population is concerned about air quality, pollution, and climate change, would we support our relatively clean hydroelectric utility embarking upon a program that would encourage their current and future customers to switch to natural gas? In short: we shouldn't, we wouldn't, and we don't."[28]

60. In the past BC Hydro encouraged the use of natural gas for space heating; this encouragement has ceased. As set out on page 8 of Tab 1 of the Application:

> " … before the release of the Energy Plan, BC Hydro, one of TGI's competitors for space and water heating, believed that natural gas was the best choice for space and water heating, as evidenced by the following public statement in 2006:
>
> > *"It is important to match your energy source to its best use. Electricity is best suited for lighting, and powering appliances and televisions, whereas natural gas is ideal for space and water heating." says Steve Hobson, Manager of Power Smart at BC Hydro."*

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[27] Tr 2, 113, l. 14 – 114, l. 6

[28] Application, Exhibit B-1, Tab 1, page 8, quoting from BCOAPO Final Argument in BC Hydro 2008 LTAP dated April 27, 2009, pages 7 and 8

BC Hydro used to have information on its website encouraging natural gas use, but during BC Hydro's 2007 Rate Design proceeding BC Hydro indicated it was reviewing this practice and the material on its website has since been removed. The BC Hydro change in position is addressed at pages 9 and 10 of Tab 1 of the Application where it says:

> "A demonstration of how the GHG policies in BC have shaped BC Hydro actions and therefore messaging to customers in BC, was the position that BC Hydro took in the Terasen Utilities 2008 Energy Efficiency and Conservation Programs Application that was submitted to the BCUC on May 28, 2008. In its final argument dated November 28, 2008, BC Hydro stated:
>
> > *"…that part of the EEC Application expenditures targeting fuel switching from electricity to natural gas is not in the public interest at this time..."*"

61. BC Hydro is an agent of the Province. The change in position of BC Hydro from encouraging the use of natural gas for space heating to saying that expenditures targeting fuel switching are not in the public interest, are reflective of the views of the provincial government. This change has increased and will continue to further increase the long-tem business risks of the Terasen Utilities.

62. The quotations from BCOAPO arguments set out on page 9 of Tab 1 of the Application reflect a view similar to that of BC Hydro:

> "It seems inevitable that climate change policies, carbon pricing, and the public drive for clean renewable energy will have some impact on Terasen's future operations…."[29]
>
> "the Commission may take notice of the general message of the provincial energy and GHG reduction policies as clear indication that a move from electricity generated in a province so rich in clean, renewable resources to any fossil fuel, including natural gas, is contrary to what is currently perceived as that optimal balance."[30]

63. Just as BC Hydro reacts to provincial policies, so do municipalities and other provincial institutions. In his Opening Statement Mr. Jespersen noted that "Municipalities, Universities, Schools and Hospitals are being compelled to reduce their carbon footprint and this sector's actions will further impact revenues and as a consequence our cost competitiveness".[31] As an example, Mr. Jespersen mentioned the City of Vancouver:

> "What we have referred to previous as well is, what is the public's and the municipal governments' view or perception of natural gas or fossil fuel. We need

[29] BCOAPO Final Argument in Terasen Gas Resource Plan, October 16, 2008

[30] BCOAPO Final Argument in Terasen EEC Application, November 28, 2008

[31] Opening Statement, Exhibit B-13, page 5

> only look at an article, I believe it was Sunday, yesterday, in the Province, where the City of Vancouver is contemplating the potential of conditioning permits for renovations that, if you require a city -- a permit from the city to proceed with the renovation, that they may very well impose a GHG reduction strategy upon you.
>
> With the call by the province to the municipalities and, I believe, 160-plus municipalities have signed up to the carbon-neutral challenge, the climate action piece, I would suggest to you that there's a lot of confusion in municipal governments' minds as to how they are going to achieve what they have committed to do, and to do so on a timeline that also is achieving some debate in the press, and within Victoria itself as to whether that's 2012 or 2014.
>
> But to the extent that we wind up with municipal governments who really don't care what this graph says, or what the ultimate economics are, are imposing things on people to reduce their footprint, it won't be an economic driver thing. And in fact, I suggest to you that it won't be necessarily a rational drive. And hence, back to the risk that we perceive that we face."[32]

64. Amongst the climate change and energy related legislative measures introduced by the Provincial government is the Carbon Tax. This tax reduces the competitiveness of natural gas relative to alternative energy sources that are not subject to the carbon tax, and provides a direct pricing signal to customers in relation to GHG emissions.

65. As stated at page 10 of Tab 1, according to the British Columbia Climate Action Plan (page 14):

> "A carbon tax is usually defined as a tax based on GHG emissions generated from burning fossil fuels. It puts a price on each tonne of GHG emitted, sending a price signal that will, over time, elicit a powerful market response across the entire economy, resulting in reduced emissions. It has the advantage of providing an incentive without favoring any one way of reducing emissions over another. By reducing fuel consumption, increasing fuel efficiency, using cleaner fuels, and adopting new technology, business and individuals can reduce the amount they pay in carbon tax, or even offset it altogether."

66. The Carbon Tax started at $10/tonne of GHG and will increase by $5/tonne each year to $30/tonne by 2012. By 2012, natural gas consumers in BC will be paying $1.50/GJ in carbon tax. The carbon tax beyond 2012 is unknown at the present time. In its report entitled "Meeting British Columbia's Targets: A report from the BC Climate Action Team", the Climate Action Team recommends the following:

> "After 2012, if required to achieve the emissions targets, increase the British Columbia carbon tax in a manner that aligns with the policies of other jurisdictions and key economic facts."[33]

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[32] Tr 2, 193, l. 19 – 194, l. 19

[33] Meeting British Columbia's Targets, A Report from the B.C. Climate Action Team, July 28, 2008, p. 3

67. As Mr. Thomson said at transcript page 155, there is uncertainty regarding the future level of the Carbon Tax, and this creates more uncertainty respecting the gas distribution business in the Province.

> "Well, we continue to see throughput declines. This was on a commodity-only pricing, so we were dividing our fixed costs, or our delivery rates, by a larger throughput. Throughput is going to continue to decline, so it's going to push the delivery cost up, under that -- on an equivalent basis. And again, carbon tax is uncertain after 2012. It's projected to go to $30 a tonne, and there are calls in the environmental -- from certain academics and others that say in order for the government to get the consumption of -- or the GHGs down, it's going to have to move to $300. So, that's $15 a GJ, not $1.50, on top of the commodity and the delivery rates.
>
> I don't know that that's going to happen, Mr. Weafer. But that's going to -- that's an uncertainty that we face going forward, and that contributes to business risk."[34]

68. Changes in code requirements for furnaces are discussed at paragraphs 34 to 36 above. Code requirements for furnaces require use of more costly, but more efficient gas furnaces. In addition code requirements changes also affect gas hot water heaters. As discussed in the response to BCUC information request 36.1 (Exhibit B-3, page 111) as a result of new code requirements for furnaces, venting for gas hot water heaters will not be able to share the venting for new high efficiency furnaces, requiring separate venting and significant additional cost for gas hot water venting. This discourages the use of gas for water heating.

69. While the increase in the proportion of multi-family dwellings was discussed in the 2005 proceeding, that proportion has increased further, as can be seen in the table on page 34 of Tab 1 of the Application (64% in 2005 compared to 73% in 2008).

> "And the majority of households that are being built are increasingly tipped towards multifamily dwellings."[35]

70. The market for multi-family dwellings does not value natural gas.

> "Operating costs, I would suggest to you, isn't terribly relevant if the natural gas space heating appliances aren't installed at the time of construction. And that's where we're getting a 20 percent capture today, and we're having the builder/developer community telling us that we shouldn't expect more than that. That natural gas heated home in that sector are very capital cost sensitive and that the marketplace isn't rewarding the developer for building facilities, multi-family homes that have natural gas in them.

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[34] Tr 2, 155, l. 12 – 156, l. 2

[35] Mr. Jespersen, Tr 2, 95, ll. 24 - 26

> So given that the developer is typically the one who's making the decision on design rather than the end-use consumer, they're designing the cost out of new stock with respect to multi-family."[36]

71. There were information requests, and cross-examination, relating to the BC Hydro Tier 2 rate. At page 9 of the BC Hydro Service Plan, August 2009 Update (Exhibit B-16), BC Hydro notes that "70 percent of our residential customers will pay the same or less than they would otherwise have under the flat-rate structure – even if they take no action to conserve". That rate increases the cost to consumers with high electric consumption levels, but does little to improve TGI's competitive position in the multi-family dwelling market where units tend to be small.[37]

72. Alternate or "green" energy sources are considered desirable. The message from the Premier in the BC Energy Plan says "The BC Energy Plan sets out a strategy for reducing our greenhouse gas emissions and commits to unprecedented investments in alternative technology based on the work that was undertaken by the Alternative Energy Task Force. Most importantly, this plan outlines the steps that all of us – including industry, environmental agencies, communities, and citizens – must take to reach these goals for conservation, energy efficiency and clean energy so we can arrest the growth of greenhouse gases and reduce human impact on the climate".[38]

73. The Terasen Utilities also face competition from other sources of energy. A greater number of competitive alternative energy sources are available now to prospective customers (i.e. heat pumps). This is evident by incentives being offered to customers through such programs as LiveSmart BC.[39]

74. Commission Panel information request 1.0 referred to a report entitled "A Technology Roadmap to Low Greenhouse Gas Emissions in the Canadian Economy: A sectoral and regional analysis." The Chairperson also referred to that report at transcript page 278. As stated in the response to Commission Panel 1.0:

> "The main premise behind the Report is to expand the use of electricity in all sectors of the economy (transportation –plug in vehicles, and ground source heat pumps and electric baseboards in residential/commercial buildings) that is

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[36] Mr. Jespersen, Tr 2, 152, ll. 1 - 15

[37] The response to BCUC information request 22.1 (Exhibit B-3, page 71) says that the RIB Step 2 rate is not necessarily a good comparison for the space heating requirements of a townhouse, condo or apartment, much of the space heating energy consumption for these types of dwellings may come from the RIB Step 1 rate.

[38] The BC Energy Plan is in Tab 1 of the Application, following page 37

[39] Application, Exhibit B-1, Tab 1, page 2

> produced from renewable generation sources. By doing this, fossil fuel consumption including natural gas is displaced. To meet the BC provincially-mandated GHG reduction targets by 2020 and 2050, immediate actions will need to be taken in all sectors of the economy given that many sources of GHG emissions (buildings/homes, fossil fuel-based electricity generation, transportation vehicles, oil and gas production) have useful lives that span many years. Therefore, the impact to natural gas LDC's would be felt well in advance of 2050."[40]

75. At transcript page 279 the Chairperson asked if Mr. Jespersen considered the scenario in the report to be a realistic scenario, or just one of many. Mr. Jespersen answered:

> "We think it's one of many. Our concern is what degree of influence it seems to be having in certain circles amongst policy makers. This is the exact kind of thing that we've raised with the various ministries within Victoria in terms of, and I believe some of the things that we've -- our lines of questioning before B.C. Hydro in their LTAP proceeding was if this is a realistic scenario, fast forward and tell us please how by 2016 B.C. Hydro becomes self sufficient in electricity."[41]

Mr. Jespersen's response is similar to a paragraph in the response to the information request:

> "Reports of this type to policy makers, with access by consumers, can and does shape the long-term view of policy makers and the broader community respecting a product (in this case, natural gas) and may well be influential in formulating public policy that has long-term negative impacts on the demand for that product (i.e. natural gas). The outcome identified in the Report would reduce throughput on the Terasen natural gas delivery systems, which all else equal, will increase the unit costs to the remaining natural gas customers. In the extreme, the Company could have stranded assets if the roadmap that is outlined in the Report materializes."[42]

76. While the Terasen Utilities consider the scenario painted in that report to be one of many, the influence that reports of this type can have on provincial policies creates uncertainty over the long-term natural gas business in B.C. A more immediate impact of provincial policy is on revenues from gas-fired electricity generation. The recent Throne Speech says phasing out of Burrard Thermal is a critical component of the Province's GHG reduction strategy. TGI has transportation revenues of approximately $9 million per year from Burrard Thermal and TGVI has approximate revenue of $18 million from ICP. The near term loss of the $9 million revenue appears inevitable while the $18 million has become more uncertain.[43]

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[40] Exhibit B-11, page 1

[41] Tr 3, 279, l. 25 – 280, l. 8

[42] Exhibit B-11, page 2

[43] Opening Statement, Exhibit B-13, and Tr 2, 142, ll. 7 - 16

77. During the appearance of Panel 1 there was cross-examination respecting natural gas commodity prices. Current spot prices are lower than at the time of the hearing in 2005, but greater than in the late 1990s. However, natural gas commodity prices are volatile, as stated by Mr. Jespersen in this discussion with Mr. Fulton:

> "MR. JESPERSEN: A: If we had gone back to September, '07, if memory serves me well, North Americans were thinking that their future natural gas supply was going to be totally reliant on LNG imports from around the world. Which would have had to have been competitive with oil equivalent on a BTU basis. And today, we are -- have an industrial demand level at very significant lows. We have not had hurricane damage to gas producing facilities. We have storage facilities that are nearly at record highs, and not much room left to put more in. So we're looking at a fear factor and a supply/demand factor that's temporary.
>
> And, I mean, I go back to the California energy crisis, when we had gas prices that were exceeding $15, and I turn the clock back only two years ago and it seems to me we were there again. At that juncture, we were talking about the prospect of biogas and landfill gas and what-not, that could satisfy Canadian residential and commercial demands at under $15. And we thought, "Well, that might be something to consider." And here we are today looking at something, as you say, that would be $2.67 on a monthly or a spot basis.
>
> I really don't see the long-term relevance in terms of competitiveness or risk, other than to indicate the huge uncertainty and volatility in gas prices.
>
> MR. FULTON: Q: Yes, but one of the positions that the company has adopted is that there's a comparative risk, as I understand it, between gas and electricity prices.
>
> MR. JESPERSEN: A: There is, and I mentioned earlier if we go to a forward market for 2011, the numbers were looking to be substantially higher than they are today, moving from the range of $4 to north of $6.50. So we can calculate data or find statistics that will make us either sleep or not sleep. The volatility and the variability is immense, and what we're saying is our risk on balance is higher today as we know it than it was historically. And we do know that we have to compete against roughly the lowest-priced electricity in North American given the high preponderance of Heritage Hydro resources in B.C. relative to other places."[44]

78. Mr. Thomson also discussed natural gas prices in cross-examination by Mr. Wallace:

> "Right now, given current market conditions, where there's a glut of natural gas, storage is full and prices have come off since the beginning of the year, we're up to on the RIB 2 rate, about $8. The service plan information that Mr. Wallace provided us shows that the projection for natural gas prices is, it's going up 75 percent. And again, our forward outlook in our gas pricing that we come to the Commission once a quarter with an outlook for the following year, but we project out into the future, and that information is included in here, shows an upward trend in natural gas commodity prices.

[44] Tr 2, 198, l. 12 – 200, l. 5

> Currently, the cost of gas in the spot market is below the finding and development costs, so the natural -- notwithstanding Horn River, and we're very thankful that we've got that resource in the province, the cost of developing and bringing that to market is much higher than what the cost of commodity in the spot market is today. So, gas prices will ultimately, we believe, trend to what it costs to produce them, at least, as a bare minimum. Presumably the producers want to earn a return and a profit on their investment, too. And so gas prices will be going back up and I put to you that this is a temporary phenomenon."[45]

79. The volatile nature of natural gas prices is shown in the graph at page 8 of the BC Hydro Service Plan August 2009 Update (Exhibit B-16, and re-produced above at paragraph 31). The table on page 34 of that exhibit also shows BC Hydro's assumptions used in preparing its Service Plan. BC Hydro is assuming that the natural gas price goes from forecast $4.20 in F2010 to $6.93 in F2012 – an increase of 65% over two years. The BCOAPO also recognizes the volatility of natural gas commodity markets:

> "Right now, customers choosing natural gas for space and water heating are seeing a definite financial benefit as compared to their electricity-using counterparts. However, given the volatile natural gas prices, this could change at any time and customers would again find themselves in a situation where natural gas is no longer even the most economic choice."[46]

80. Page 20 of the March 2006 Decision had a Section dealing with the Competitiveness of Natural Gas versus Electricity. The second paragraph under that heading referred to a slide from TGI's 2005 Annual Review that showed the five-year forward gas prices declining from approximately $13.50 Cdn/GJ in January 2006 to $7.00 Cdn/GJ in October 2010. The volatility of natural gas commodity prices is apparent by what has occurred since then. In the quotation at paragraph 77 above Mr. Jespersen refers to gas future prices "north of $6.50" and in the response to BCUC information request 22.1 (page 72 of Exhibit B-3) natural gas futures prices for 2012 and 2013 are above $7.00 Cdn/GJ. Forecast natural gas prices in the future are not significantly different than those in the slide referenced in the 2006 Decision.

81. Aboriginal issues are also noted in the Application as having greater risk than in 2005. With respect to those issues, there is a greater risk for utilities in B.C. as compared to other parts of Canada. B.C. has a disproportionately higher number of First Nations in British Columbia than in other provinces. The high number of aboriginal groups in British Columbia leads to overlapping territories and competing claims for aboriginal title. Since TGI's activities

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[45] Tr 2, 97 l. 16 – 98, l. 14

[46] BCOAPO Final Argument in BC Hydro 2008 LTAP, April 27, 2009, page 8; as appears on page 20 of Tab 1 of the Application (Exhibit B-1)

span large parts of British Columbia, the large number of different aboriginal groups whose interests may overlap increases business risk. There are very few treaties in British Columbia. Due to the small number of treaties in B.C., there are many unestablished claims for aboriginal rights or title. This leads to uncertainty both as to the scope of the right, and the area in which it is exercised. In addition, there is the practical reality that the duty to consult with respect to aboriginal rights arises most clearly on Crown, as opposed to private, lands. In B.C. approximately 95 percent of the land is Crown land. Many of TGI's facilities are located on land owned by the Crown. Recently the Court of Appeal has ruled that BCUC decisions could affect aboriginal rights, and that the BCUC must determine the adequacy of aboriginal consultation and accommodation before making such decisions. Uncertainty of the nature and extent of aboriginal rights and title in B.C. and the lack of treaties, create operational and regulatory complexity, and a risk of litigation, that is greater than that faced by utilities operating in other jurisdictions.[47]

82. Risks related to aboriginal rights and uncertainty were discussed between Mr. Bursey and Mr. Jespersen at transcript pages 165 to 167. At page 166 Mr. Jespersen said:

> "We wind up I think being unique, to my knowledge, but correct me if I'm wrong, that in B.C. that we have over 100 percent of the lands that are under dispute, a long claim dispute, which I believe puts us somewhat at a higher risk than in other jurisdictions."[48]

83. Provincial government policies and legislation, changing public perception, and other factors referenced above have created significant uncertainty respecting the long-term natural gas business in British Columbia. The Terasen Utilities submit that uncertainty and their long-term business risks have increased, but the Terasen Utilities are not suggesting that they will be out of business tomorrow. As Mr. Jespersen said:

> "We're not sitting before this Panel saying the sky is falling. Let us be clear on that. Chicken Little is not in the hearing room.
>
> The primary issue that we have in our application relates to the meeting of the fair return standard. Our discussion of risk is one of how is our risk today as compared to how it has been in the past and how it relates to other entities. But we're not here saying that this company is going out of business."[49]

[47] Application, Exhibit B-1, Tab 1, pages 14 and 15

[48] Tr 2, 166, l. 24 – 167, l. 3

[49] Tr 3, 227, l. 25 – 228, l. 8

While the sky is not falling, business risk and uncertainty have increased for the Terasen Utilities, which cannot be ignored. It cannot be assumed that energy usage does not change over time. As Mr. Jespersen said at transcript page 132 "If we go back to the origins of the company … the foundations of the company had been in street lighting. We have none of that today".[50]

84. At paragraph 23 above is an extract from the 2006 Decision in which the Commission quotes from Dr. Booth in describing business risk. The elements that constitute business risk were described as those "stemming from uncertainty in the demand for the firm's product resulting, for example, from changes in the economy, the actions of competitors, and the possibility of product obsolescence". The Terasen Utilities submit that the evidence in this proceeding demonstrates that there is much greater uncertainty regarding the long-term demand for the product of the Terasen Utilities than there was in the past as a result of provincial policies and legislation. There are changes in the economy in terms of public perception. BC Hydro, a major competitor, previously encouraged the use of natural gas for heating, but no longer does and considers measures to support fuel switching to natural gas are against the public interest. While the Terasen Utilities do not expect their product to be obsolete, there are others, such as the authors of the report "A Technology Roadmap to Low Greenhouse Gas Emissions in the Canadian Economy" who see a society that does not use natural gas.

85. In addition to the evidence in Tab 1 of the Application relating to business risk, Ms. McShane also considered TGI's business risk. At page 31 of her written evidence she says:

> "In the last cost of capital proceeding in 2005-2006, TGI applied for a common equity ratio of 38%, in part based on the increased longer-term risks that it was facing, largely related to a more competitive business environment. Since that proceeding, the competitive environment in which TGI operates has continued to evolve. As described in more detail in the Company's testimony:
>
> (1) The provincial energy policy introduced in early 2007 discourages the use of fossil fuels, including natural gas, and has imposed a carbon tax on the consumption of natural gas;
>
> (2) The competitive advantage of natural gas in British Columbia has been eroding over the past 15 years (since the BCUC first introduced the automatic adjustment formula);
>
> (3) The new construction market has been shifting from single-family to multi-family dwellings, for which electricity is the energy source of choice;

[50] Tr 2, 132, ll. 17 - 22

(4) Alternative energy sources have become increasingly available to customers (e.g., ground source heat pumps);

(5) Per customer usage has continued to decline."[51]

86. In the questioning of Panel 1 there were references to initiatives to move Terasen to a "piped energy utility".[52] Although the Terasen Utilities are pursuing these initiatives, they are a long way from fruition. If successful, the piped energy initiatives could share in some overhead type of costs, but even if successful these initiatives would have little impact on the business risks associated with recovery of the return on, and of, the investment in the existing natural gas delivery infrastructure.

87. The Terasen Utilities submit that the business risks described above as relating to TGI also relate to TGVI and TGW. All three companies are in the natural gas distribution business in British Columbia, and all three are subject to the provincial policies and legislation, and other factors that have increased the risk of TGI. This was discussed between Mr. Thomson and Mr. Fulton starting at transcript page 247:

> "MR. FULTON: Q: Now, TGI is proposing to have the ROEs for Vancouver Island, Terasen Gas (Vancouver Island), Terasen Gas (Whistler), set off the new TGI ROE, correct?
>
> MR. THOMSON: A: That's correct.
>
> MR. FULTON: Q: And in support of that request, not only is TGI submitting that its risk profile has changed, but also that there are significant changes for the other utility since 2005.
>
> MR. THOMSON: A: That's right. I think that the key differentiators that we brought forward in the application were the fact that climate change policy, energy policy, have provided -- have created challenges, additional business risks, for the Terasen Utilities. And those policies apply to Terasen Gas, Terasen Gas (Vancouver Island) and Terasen Gas (Whistler). And the aboriginal issues that we cited also apply equally to all three utilities."[53]

> "MR. FULTON: I mean you've talked about First Nations issues that you say are common. Are there other factual bases that you can point to us in the application that would support the change in the ROE for Terasen Gas (Whistler) and Terasen Gas (Vancouver Island)?
>
> MR. THOMSON: A: Well, we're not asking for a change in the risk premia related to those individual utilities. We're asking for a continuation of the additional 50 basis points for Whistler, and the 70 basis points for TGVI. Terasen Gas (Whistler) just went through -- recently went through a revenue requirement

[51] Written evidence of Ms. McShane at page 31, lines 787 to 807

[52] See Tr 2, 132, l. 7 – 133, l. 2, Tr 3, 277 l. 4 – 278, l. 16 and Tr 3, 285 ll. 7 - 17

[53] Tr 3, 247, l. 15 – 248, l. 6

> application and the risk premium was heard by the -- evidence was heard by the Commission and recently confirmed. We didn't believe that circumstances have changed dramatically over the course of a couple of months that would warrant re-examining that decision by the Panel. And as I have noted, they operate the same time of business Mr. Fulton pointed out, that they're now a natural gas rather than a propane distribution utility.
>
> So given that the Commission's recently decided that 50 basis points was appropriate, I see no reason in reploughing that ground here. As it happens, even though they're a natural gas utility, their rates are still about 10 percent higher than the B.C. Hydro RIB 2 rate, just because of the investment and rate base in the utility.
>
> Terasen Gas (Vancouver Island) again has exactly the same incremental business risks that we've laid out for TGI [the transcript incorrectly says "TGVI"]. So really it's -- do they warrant a continuation of the risk premium that was determined in 2006 by the Commission? And I would put it to you that we've recovered the accumulated deficit, as had been projected and anticipated, that was in front of the Commission at the time, where a few years down the road that expectation has borne out. We're also facing the elimination of royalty subsidies. We also anticipated that in 2006. That hasn't changed and other than that it's two years away from us now. And we base the uncertainty that that gives with respect to a rate increase that again will, based on the information that we've put in evidence, is going to take us up above the RIB 2 rate for residential customers on Vancouver Island. So we won't be cost competitive on a full cost of service recovery basis on Vancouver Island.
>
> Again, that's no different than the outlook that we have in 2006."[54]

88. The response to Commission Panel information request 6.0 also provides information on the additional risks that TGVI faces as compared to TGI. After discussing the additional risk, and presenting evidence of Ms. McShane from 2005, the response concludes with:

> "Today, TGVI faces competition from a greater array of alternative energy choices for customers than it did in 2005 and with public sentiment more finely tuned to the climate change messages being touted by government and the media. As noted above, TGVI is not seeking to increase the equity in its capital structure and has not sought to increase its utility specific equity risk premium from that set by the Commission in its 2006 decision.
>
> Given the incremental business risks set out in the Application which are faced by TGI also impact TGVI and the risk differentiators that existed in 2005 continue to substantially exist today, the 70 basis point risk premium approved by the Commission for TGVI in its 2006 decision represents a conservative premium for TGVI's business risk relative to TGI."[55]

[54] Tr 3, 249, l. 2 – 250, l. 24

[55] Exhibit B-11, pages 13 to 17

89. In summary, the business risks of all of the Terasen Utilities have increased since the 2006 Decision. The increase in business risk should be recognized by the Commission in its determinations in this proceeding.

90. As well as considering changes in business risk over time, the business risks of TGI can be considered relative to other peer utilities. In JIESC information request 34 f) Ms. McShane was asked if TGI has greater lesser or equivalent business risk to EGDI, Union Gas and ATCO Gas. She concludes her response by saying "On balance, TGI faces somewhat lower short-term revenue risks, but higher competitive risks than the other three LDCs".[56] In response to JIESC information request 56 f) Dr. Vander Weide provides his assessment of the business, regulatory and financial risks of TGI relative to his sample of U.S. utilities. With regard to business risks, Dr. Vander Weide assesses TGI as being more risky in exposure to competition, and similar in most other categories, with an overall assessment of business risks being similar. With regard to regulatory risk, Dr. Vander Weide states that TGI is faced in some instances with less risk and in some instances more risk, but overall, TGI faces slightly more regulatory risk. His overall assessment with regard to financial risk is that TGI has greater financial risk.[57]

## C. CAPITAL STRUCTURE

91. In this Application Terasen Gas Inc. is seeking a 40 percent common equity component in its capital structure allowed for rate-making purposes. No change is sought to the capital structures of TGVI or TGW. The increase in the common equity component of TGI is sought to be effective January 1, 2010.

92. TGI is requesting an increase in its common equity component to 40% to address two fundamental concerns:

- Meeting the fair return standard of comparability, financial integrity and capital attraction; and
- Responding to the increase in business risk faced by TGI, by reducing financial risk.

93. As stated at page 8 of the Application:

> " … the Commission should establish a capital structure for TGI that more appropriately reflects the business and financial risks of the company, and which is in line with its North American peers. Canadian utilities generally are thinly capitalized compared to the US utilities with whom they compete for capital. It is

[56] Exhibit B-5, page 88
[57] Exhibit B-5, page 145

> not sufficient to simply increase TGI's equity thickness to bring it in line with the increases in equity thickness granted to other Canadian utilities in recent years."

94. At 35.01 percent, TGI has the lowest level of common equity of major investor-owned Canadian utilities. Higher leverage (that is, more debt and less equity) increases financial risk, which impacts credit ratings, degrades financial ratios and debt covenant ratios and affects the ability to attract capital on reasonable terms and in sufficient quantities under all market conditions. The table on page 13 of the Application provides a comparison of the common equity component of TGI and other utilities in Canada.

95. Global competition for capital means that TGI's capital structure must be comparable to its North American peers. The recent National Energy Board Decision respecting TQM recognizes this capital requirement, which should also be recognized by this Commission. At pages 66 and 67 of the Reasons for Decision the NEB said:

> "In the Board's view, global financial markets have evolved significantly since 1994. Canada has witnessed increased flows of capital and implemented tax policy changes that facilitate these flows. As a result, the Board is of the view that Canadian firms are increasingly competing for capital on a global basis. The Board notes that Canada has been diversifying its business partners such that there is currently proportionally less Canadian foreign direct investment in the United States than there was in the 1990's. Nonetheless, the evidence is also clear that the United States is the single most important recipient of Canadian investments."

and

> "TQM needs to compete for capital in the global market place."[58]

96. As discussed in the preceding section of this Submission, TGI's business risk has increased. A necessary response to this increase in business risk is a higher equity component to reduce financial risk.

97. Capital structure and return on equity are inextricably linked and need to be set in relation to each other to address both the level of the business risk and the financial risk. The increased equity ratio sought for TGI addresses the increase in business risk; helps maintain current credit ratings; and addresses comparability against North American peers with whom TGI competes for capital.

[58] March 2009 Reasons for Decision of the National Energy Board in RH-1-2008, at pages 66 and 67

98. In Chapter V of her evidence (commencing at page 25) Ms. McShane addresses the capital structure of TGI. She says the following principles should be respected when establishing both the cost of capital generally and a reasonable capital structure for TGI:

1. The Stand-Alone Principle
2. Compatibility of Capital Structure with Business Risks
3. Maintenance of Creditworthiness/Financial Integrity
4. Ability to Attract Capital on Reasonable Terms and Conditions
5. Comparability of Returns.

99. With regard to the stand-alone principle Ms. McShane notes that TGI is a stand-alone regulated entity that raises its own debt on the strength of its own business and financial risk profile, and accordingly the application of the stand-alone principle is not an issue.

100. On compatibility of capital structure with business risks Ms. McShane says that the capital structure of a utility should be consistent with its business and regulatory risks. The business risk of a utility is the risk of not earning a compensatory return on the invested capital and of a failure to recover the capital that has been invested. The fundamental business risks of a utility include demand, competitive, supply, operating, technology-related and political risks. Regulatory risk relates to the framework that determines how the fundamental business risks are allocated between the utility's customers and its investors.[59]

101. Ms. McShane's third principle relates to maintenance of the creditworthiness and financial integrity of the utility. It is the opinion of Ms. McShane that the capital structure of TGI, in conjunction with the returns allowed on its sources of capital, should provide the basis for a stand-alone investment grade debt ratings in the A category. Debt ratings in the A category assure that TGI should be able to access the capital markets on reasonable terms and conditions during both robust and difficult, or weak, capital market conditions. Utilities are required to provide service on demand, and must access the capital markets when service requirements demand it. The need to maintain credit ratings in the A category arises from both market access and cost factors. Even a utility with split-ratings (that is, an A rating and a BBB rating) will face a higher cost of debt and lesser market access relative to a utility with only A ratings. Issuers with BBB ratings can be closed out of the market at times; TGI needs to maintain the financing flexibility required to be able to access debt with terms to maturity in the range of 10 to 30 years in both strong and weak capital market conditions. If a utility

[59] Written evidence of Ms. McShane at page 26, lines 672 to 678

experiences a downgrade, it increases the cost of the new debt, but also affects outstanding debt. An increase in the cost of debt to a utility increases the required yield on the outstanding debt and reduces the value of that debt. Since existing holders are the most likely purchasers of future issues, a debt rating downgrade, with resulting negative impact on the value of their existing holdings, would likely make them less willing to purchase future issues.[60] [61]

102. Ms. McShane's fourth principle is the ability to attract capital on reasonable terms and conditions. A higher cost of debt for TGI translates into a higher cost of debt to ratepayers. The relative cost of A rated debt versus BBB rated debt varies with market conditions, but ratings in the BBB category can be costly to ratepayers. As the recent global market crisis has demonstrated, capital markets can deteriorate rapidly. At page 28 of her written evidence Ms. McShane presents a table showing how indicative spreads for utility companies with ratings in the BBB category increased during the recent financial turmoil. The table underscores the potential magnitude of the incremental costs that are associated with being a BBB rated issuer, and the importance from both a cost and market access perspective of maintaining ratings in the A category. In the case of a downgrade, the increased cost of debt will be borne by ratepayers over the full life of the issues. In assessing the importance of maintaining an A rating, it is important to consider the relatively small size of the BBB market in Canada. As discussed by Ms. McShane at pages 28 and 29 of her evidence, the market for BBB debt is a small portion of the total market and is mainly limited to issues with terms under 10 years. Many institutional investors such as pension funds face limits on the proportion of BBB rated debt they are allowed to hold in their portfolios or cannot invest in BBB rated debt at all.[62] TGI will be competing for capital in markets that may be characterized by an unprecedented requirement for infrastructure capital. Its peers are increasingly global, not solely Canadian. In its 2008 World Energy Outlook, the International Energy Agency estimated that between 2007 and 2030 close to $4.3 trillion in investment would be required by the gas transmission and distribution ($1.6 trillion) and electricity ($2.6 trillion) industries in North America. To compete successfully for the required capital TGI will require financial metrics (which reflect the combination of capital structure and return on equity) that are competitive with those of its peers. Competition for

[60] Written evidence of Ms. McShane at page 26, line 682 to page 27, line 707

[61] In the response to CEC information request 15.1 the Terasen Utilities discuss direct and indirect costs should TGI be downgraded to a BBB credit

[62] See also the response of Mr. Carmichael to JIESC information request 19 a), Exhibit B-5, page 47

capital to address infrastructure investment requirements in North America (and globally) supports a strengthening of TGI's financial parameters.[63]

103. The fifth principle of Ms. McShane is that of comparability of returns. As Ms. McShane says at page 30 of her written evidence the "combination of the adopted capital structure and return on capital should be comparable to the returns of comparable risk companies". TGI competes for capital not only with other Canadian regulated companies, but with regulated companies globally, as well as with unregulated companies. In the footnote on page 30 Ms. McShane refers to a 2004 Briefing of the Conference Board of Canada that relates to electricity restructuring, and which said "Investors are discouraged by limitations on the regulated cost recovery for transmission upgrading. Transmission companies are simply not seeing favourable risk/return ratios on their investments, and know that they can realize better returns in the United States, where regulated rates of return are much higher."[64] As Ms. McShane noted, the comments of the Conference Board with respect to electric transmission are no less true of other utility sectors, including natural gas distribution. Competition for capital is not constrained by provincial or national borders; TGI's capital structure and return on equity must be comparable to other companies of comparable risk.

104. Ms. McShane's conclusion regarding TGI's request for a 40 percent equity component is summarized at page 2 of her written evidence, where she says:

> "TGI has proposed a capital structure with a common equity ratio of 40.0%. The proposed capital structure is reasonable in light of the increase in the Company's business risks, the importance of maintaining the existing credit ratings, the trend toward stronger capital structures among other Canadian utilities, and the stronger capital structures and credit metrics of TGI's U.S. peers, with whom TGI competes for capital and whose total returns form a basis for satisfying the comparable returns standard."[65]

105. At pages 39 to 41 of her written evidence Ms. McShane also says:

> "Within a reasonable range, the capital structure for a particular utility is appropriately a decision for management, because management is in the best position to assess its business risks, financing requirements and access to debt and equity capital. In my opinion, the capital structure proposed by TGI, containing 40.0% common equity, is within a reasonable range, albeit at the lower end …"[66]

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[63] Written evidence of Ms. McShane at page 27, line 709 to page 30, line 769

[64] Written evidence of Ms. McShane at page 30, lines 771 to 782, and her footnote 28

[65] Written evidence of Ms. McShane at page 2, lines 60 to 66

[66] Written evidence of Ms. McShane at page 39, lines 966 to 970

Ms. McShane then goes on to summarize seven reasons why the capital structure including 40 percent common equity is reasonable for TGI:

1. TGI's level of business risk has increased
2. There have been material increases in the allowed common equity ratios of some of TGI's Canadian utility peers
3. TGI's credit metrics are weak for its credit ratings, and in isolation fall below investment grade guidelines
4. Lower allowed ROEs and lower corporate income tax rates have placed downward pressure on interest coverage ratios; further reductions in income tax rates are expected
5. The debt rating agencies continue to view the capital structure ratios of Canadian utilities as weak. A 40.0% common equity ratio for TGI lies at lower end of Moody's guideline range for an investment grade rating on this credit metric
6. The further global integration of the Canadian capital markets warrants a strengthening of TGI's financial parameters
7. The forecast North American and global investment requirements for infrastructure point to significant competition for capital going forward. TGI should be positioned so that it can compete successfully. At the existing capital structure, TGI's credit metrics compare unfavourably to those of its U.S. peers.[67]

106. At page 40 Ms. McShane notes that at the proposed 40 percent common equity component TGI's common equity ratio will be materially lower than its U.S. peers. Her recommended return on equity of 11 percent would be higher to compensate for higher financial risks if the approved common equity ratio were less than 40 percent. She says:

> "At the existing common equity ratio of 35%, the recommended ROE would be approximately 55-90 basis points higher than the ROE at a 40.0% common equity ratio."[68]

107. The evidence of Mr. Carmichael also addresses the capital structure of TGI. His conclusion is at page 52 of his written evidence where he states:

> "I believe that the common equity base of Terasen Gas should be increased to at least 40% in order to achieve reasonable credit metrics and maintain the current A- credit rating. This equity capitalization is still well below comparable gas distribution utilities in the U.S. with which the Company competes for debt and equity funding."[69]

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[67] Written evidence of Ms. McShane, page 39, line 972 to page 40, line 1000

[68] Written evidence of Ms. McShane, page 40, line 1009 to page 41, line 1011

[69] Written evidence of Mr. Carmichael at page 52, lines 5 to 8. The written evidence of Mr. Carmichael is at Tab 2 of the Application, Exhibit B-1.

108. In his evidence Mr. Carmichael discussed changes in capital markets during the past five years. At pages 32 to 35 of his evidence he says the following:

> "The globalization of Canadian capital markets and the removal of various personal and institutional restrictions on foreign investment have caused the Canadian and international capital markets to become substantially more integrated than in the past. Canadian institutional and retail investors have been freed from restrictions regarding their ability to invest in foreign securities as a result of pension fund legislation passed in 2005."
>
> "Following the changes in 2005, many of Canada's largest institutional investors could invest in foreign securities without limit and, as a result, have become major players on international stock markets and non-Canadian private equity situations."
>
> "To date, many of these infrastructure investment opportunities have been outside of Canada and have included assets such as gas and electricity transmission, gas and electricity distribution systems in the United States, Europe and South America …"
>
> "The market in Canada for the new issuance of foreign bonds and debentures has grown rapidly reflecting the Canadians lenders desire to diversify their portfolios with new issuers and to achieve higher returns with similar or, in some cases, stronger credit metrics than those available from domestic issuers."
>
> "The funding requirements for announced infrastructure projects in Canada will be massive and will compete with utility funding going forward. It is reasonable to anticipate that projects such as toll roads, bridges and urban transportation systems will be privately debt financed with some limited support by governments and will be directly competitive with debt and equity financing for utilities."[70]

109. Dr. Vander Weide also recommends a 40 percent equity component for Terasen Gas Inc. In his summary and recommendations section of his evidence, at page 38, he says:

> "I conservatively recommend that TGI be awarded an allowed ROE of 11.0 percent on an equity base of 40 percent, that is five percent above its last allowed deemed equity ratio."[71]

110. In Section V of his written evidence Dr. Vander Weide compares the allowed common equity ratio to those of comparable risk U.S. utilities.[72] The average approved equity ratio for U.S. electric utilities during the period 2006 through 2008 is 48 percent and for U.S. natural gas utilities, 49 percent (his Exhibit 4). The average market value equity ratio for U.S. electric

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[70] Written evidence of Mr. Carmichael; extracts from pages 32 to 35

[71] Written evidence of Dr. Vander Weide at page 38, lines 19 to 21. The written evidence of Dr. Vander Weide is at Tab 4 of the Application, Exhibit B-1.

[72] See the written evidence of Dr. Vander Weide at pages 35 and 36 and in his Exhibits 4 and 10

utilities at March 2009 is 55 percent, and 63 percent for natural gas utilities (his Exhibit 10). As discussed at pages 16 and 17 of his written evidence, Dr. Vander Weide believes that the business risk of TGI is approximately equal to the average business risk of U.S. electric and natural gas utilities. At page 36 of his evidence Dr. Vander Weide is asked how the financial risk of TGI compares to the average financial risk of U.S. electric and natural gas utilities. His response is:

> "Since TGI has an allowed equity ratio of 35 percent, and the U.S. electric and natural gas utilities have average allowed equity ratios of 48 percent and 49 percent, the financial risk of U.S. electric and natural gas utilities is significantly less than the financial risk of TGI. This conclusion is further supported by the observation that the average market value equity ratio for U.S. electric utilities is 55 percent, and for natural gas utilities, 63 percent. This observation is important because financial risk is best measured using market value equity ratios rather than book value equity ratios."[73]

111. At page 58 of her written evidence Ms. McShane refers to U.S. utilities and says "the operating environments are similar, the regulatory model in the U.S. is similar to the Canadian model, and the Canadian and U.S. capital markets are significantly integrated".[74] In a footnote on that page Ms. McShane notes that the LDCs in her proxy sample of U.S. utilities are considered by Moody's to have slightly better regulatory support, on average, than TGI. In the response to JIESC information request 42 a) Ms. McShane provided specific considerations that cause her to conclude that her U.S. utility sample are of comparable risk to TGI.

112. The Terasen Utilities submit that there are no fundamental differences in business risks that justify such a discrepancy in capital structure between TGI and U.S. utilities. The lower common equity component and higher debt component of TGI significantly increases financial risk. A further ground that distinguishes Canadian utilities such as TGI from their U.S. counterparts is the use of flow-through taxes for rate-making in Canada and the use of normalized taxes for rate making in the U.S.[75]

113. U.S. utilities, and their comparison to Canadian utilities, are further discussed in the Section of this Submission entitled "Allowed Returns on Equity for U.S. Utilities".

114. As discussed by Ms. McShane in her written evidence at pages 32 and 33, since this Commission's March 2006 Decision there have been a number of changes in the capital structures allowed for rate-making of other Canadian regulated companies. The allowed

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[73] [73] Written evidence of Dr. Vander Weide at page 36, lines 17 to 25

[74] Written evidence of Ms. McShane, page 58, lines 1445 to 1447

[75] Tr. 3, 285, ll. 23 – 26, Tr. 4, 529, ll. 19 – 22, and the response of Dr. Vander Weide to JIESC information request 56 f) at Exhibit B-5, page 145

common equity ratios for a number of the NEB-regulated pipelines have increased; Foothills and the TCPL-BC System have negotiated common equity ratios of 36 percent, or six percentage points higher than they were at the time of the Commission's hearing in 2005. In May 2007, the NEB approved a settlement that increased TCPL's deemed common equity ratio from the 36 percent which existed in 2005 to 40 percent. Westcoast has also negotiated increases in its deemed common equity ratio for its transmission mainline. In 2005, the deemed common equity ratio of Westcoast was 31 percent; for 2007 it was 36%. Westcoast filed a negotiated settlement with the NEB in August 2008 which would maintain the transmission mainline common equity ratio at 36% from 2008-2010. It is the opinion of Ms. McShane that in isolation, the increases in the deemed common equity ratios of the NEB regulated pipelines (and maintaining the same differential with TGI) would increase the common equity ratio for TGI by approximately five percentage points. Ms. McShane also notes that the Ontario Energy Board has approved increases for a number of the gas and electric utilities under its jurisdiction.[76]

115. A TGI capital structure with a 40 percent common equity component should adequately reflect the increased business risks and appropriately address, with the requested return on equity of 11 percent, the fair return standard. The current capital structure and allowed return on equity of TGI do not meet that standard:

- Comparability is currently not being met as TGI has an unfairly low return on equity, the lowest equity component of major Canadian utilities and a much lower equity component than its U.S. peers
- The current capital structure directly impacts Financial Integrity as TGI has credit metrics that as stated by Moody's are currently below the A-rated category that should be considered as the minimum to meet the Financial Integrity requirement
- While Capital Attraction has not yet been constrained, in an era of increasing competition for both debt and equity, the lower financial metrics and common equity ratio, which may lead to a downgrade, will potentially result in higher borrowing costs for TGI relative to its peers. The much higher financial risk relative to peers associated with the lower common equity component, with comparable business risk; and low allowed return on equity, will hinder TGI's ability to attract equity capital.

116. The Terasen Utilities submit that the Commission should ensure, to the extent it can, that the financial integrity of TGI and the other public utilities it regulates is not reduced to the point where the utility may have difficulty accessing capital markets; the appropriate capital structure for each utility should be in place to ensure problems do not occur. It is not

[76] Written evidence of Ms. McShane, page 32 line 812 to page 33, line 842

appropriate to wait until after credit access issues arise to address those issues. There is no dispute in the evidence of this proceeding that utilities need to be able to access capital markets even under difficult market circumstances.

117. In its 2006 Decision the Commission recognized that in terms of capital structure, the least possible equity component was not the objective:

> "As for the JIESC's lowest cost argument, the Commission Panel shares the view of the NEB, which recognized that "lowest possible" was not the appropriate test when it stated, at page 25 of its RH-2-94 Decision on generic cost of capital:
>
> > "Contrary to what some parties advocated during the hearing, the Board is of the view that it is not appropriate to over-leverage a pipeline in order to identify the minimum acceptable deemed common equity ratio possible."[77]

118. As discussed by Ms. McShane in her evidence referenced above, TGI submits that meeting the financial integrity means TGI having an allowed capital structure and return on equity in place that permits the utility to maintain a credit rating that at a minimum is in the A category. A credit rating that at a minimum is an A rating should allow TGI to access capital in all market conditions on reasonable terms. As said at page 34 of the Application:

> "TGI interprets the financial integrity standard to mean a capital structure and return on equity that in tandem will allow the utility to maintain a minimum credit rating in the A category, which will allow TGI access to the capital markets on reasonable terms and pricing in all economic conditions. This credit rating is critical if the utility is to maintain financial flexibility.
>
> TGI has a significant requirement for capital, stemming from its obligation to ensure system deliverability, reliability and safety, support customer growth, and meet both the challenges and opportunities from emerging situations. TGI does not have the ability to defer financing its existing or new assets, therefore, its need to access capital occurs during both strong and weak economic conditions and when financial markets are robust and when they are challenging."[78]

119. In CEC information request 3.3 the Terasen Utilities were referred to Terasen saying that financial integrity is being able to maintain an A rating and then asked if Terasen has a view with respect to the range of variability which would be involved in determining whether or not Terasen's financial integrity is being maintained. The response was:

> "TGI interprets the financial integrity standard to mean a capital structure and ROE in combination that will allow a utility to maintain a minimum credit rating in the A category. As explained in the response to BCUC IR#1 Q18.1 and 18.2, TGI is not aware of a combination of ROE and equity thickness that will guarantee a minimum A rating, as a number of factors determine a credit rating.

[77] March 2006 Decision, page 8

[78] Application, Exhibit B-1, page 34

> Terasen believes that an ROE of 11% and capital structure with 40% equity is appropriate. There is no guarantee that a credit rating downgrade will not occur, however, in the light of increased business risks and weak credit metrics, the requested ROE and capital structure will make a downgrade more remote and will more adequately address the financial integrity requirement within the Fair Return Standard."[79]

120. In his oral evidence Dr. Booth supported the desirability of an A credit rating for TGI. At transcript page 660 Dr. Booth said:

> "And what we see in a normal business cycle is that whenever we go into a recession, spreads go up on BBB bonds. They go up on A and AA bonds, but nowhere near the way they go up on BBB. What happens is that the lower the quality of the bond, the bigger the impact on the yield spread. And that's what I show in my graphs, that that's why BBB bonds sometimes in a recession, the issuers have to issue short-term debt. They suffer financial access problems, if you're a BBB. Whereas A generally has less problems, AA has almost no problems and AAA doesn't have any problems whatsoever. So the spreads vary with the business cycle."[80]

And at page 706 of the transcript:

> "So, what happens is, small utilities or utilities with BBB, BBB-high bond ratings, they do get cut out of the long-term bond market. There's no question about that. What they should do is issue shorter-term debt, and that's generally what happens is, the markets get into turmoil. The yields go up on longer-term debt, and also it becomes more difficult to issue longer-term debt. So the natural response is to issue shorter-term debt, five-year debt, and then roll it over when the markets improve. And the fact is, markets always rebound. Booms follow busts, busts follows booms.
>
> So, I wouldn't say that you have to preserve an A bond rating. I would say that there are going to be some companies that, no matter what you do, they're going to be a BBB rated company, primarily smaller companies. I would be concerned if Terasen became a BBB, because it's a big utility and there's no reason for it to be a BBB. And given its size and given its credit metrics, it should be an A-rated utility."[81]

121. As indicated in the evidence, TGI has concerns respecting its Moody's credit ratings. The current Moody's rating for the senior unsecured debt of TGI is A3, the lowest A rating level and only one level above Moody's Baa rating category. While TGI has not received reports that it's A3 rating is in jeopardy, in its May 28, 2009 Credit Opinion Moody's Investor Service says, as it has in the past, that "TGI's financial metrics are materially weaker than those of its A3 rated

[79] Response to CEC information request 3.3, Exhibit B-4, page 7

[80] Tr 5, 660, l. 22 – 661, l. 8

[81] Tr 5, 706, l. 11 – 707, l. 5

global LDC peers …"[82]. Moody's notes on the second page of that credit opinion that "It is Moody's view that TGI's weaker metrics are partially offset by the supportive regulatory environment in which TGI operates". But at the bottom of page 2 of that report and over the page Moody's says:

> "However, in the context of the current low interest rate environment and weaker economy, Moody's is becoming concerned that TGI's credit metrics could deteriorate to levels that, despite the relative supportiveness of TGI's regulatory environment, are not commensurate with the company's existing A3 senior unsecured rating and therefore could lead to a negative rating action. Moody's notes that on May 15, 2009, TGI filed a cost of capital application with the BCUC seeking an 11% ROE on a 40% deemed equity thickness, a meaningful increase from the 8.47% ROE on a 35.01% equity base currently utilized for rate-making purposes. Moody's acknowledges that in the context of the National Energy Board's precedent setting March 19, 2009 decision in the Trans Québec and Maritimes Pipelines' rate cases, there is some reason to believe that TGI's cost of capital application could result in changes which would be positive for TGI's financial profile. Accordingly, Moody's will be following the progress of TGI's cost of capital application and its pending application for 2010 rates to determine their impact on TGI's financial profile."[83]

122. In its May 27, 2008 report, as quoted at page 35 of the Application, Moody's had said:

> "Notwithstanding TGI's relatively low risk business profile, its financial profile is considered weak at the A3, senior unsecured rating level. Accordingly, further sustained weakening of TGI's financial metrics, for instance ROE below 8%, EBIT to Interest below 2x, RCF to Debt below 5% and/or Debt to Book Capitalization (Excluding Goodwill) above 65%, would likely lead to a downgrade of TGI's rating."

123. Mr. Carmichael noted TGI's poor Moody's financial metrics when he said at page 39 of his written evidence:

> "Over the past three years, Terasen Gas has averaged an FFO (Funds from Operations) to Debt Ratio of 9.5%, an (FFO + Interest) to Interest ratio of 2.4x and an RCF (Retained Cash Flow) to Capex (Capital expenditures) ratio of 70%, which are clearly substantially below the levels achieved by other A3 utilities. Moody's classifies Terasen Gas financial performance in the Ba credit category and indicates its methodology implied credit rating is Baa1."[84]

124. Ms. McShane discusses bond ratings and credit metrics at pages 33 to 39 of her written evidence. Table 4 of that evidence, at page 35, shows that TGI's implied ratings in three of four of Moody's Financial Strength and Flexibility categories, including capital structure, are below

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[82] The May 28, 2009 Credit Opinion of Moody's Investor Service is in Exhibit B3-3, and was filed in electronic format as part of Attachment 86.2 in response to BCUC information request 86.2

[83] Also quoted by Mr. Dall'Antonia at Tr 4, 428, ll. 4 - 21

[84] Written evidence of Mr. Carmichael, page 39, lines 3 to 8

investment grade; on average, it is Baa rated on Financial Strength and Flexibility. Ms. McShane notes "With its existing approved regulated capital structure of 64.99% debt and 35.01% common equity ratio, TGI falls below Moody's investment grade guideline range (50-65% for a Baa rating on the Debt/Book Capitalization factor). An increase to the common equity ratio to 40.0% (debt ratio of 60.0%) would, in isolation, place TGI within the investment grade guidelines".[85] [86] Ms. McShane compares TGI's financial metrics to U.S. utilities when she says:

> "In comparison to the U.S. gas distribution utilities which are included in the proxy sample of U.S. utilities used to estimate the cost of equity (See Chapter VI), TGI compares unfavourably in Moody's Financial Strength and Flexibility Factors. On average, the implied Financial Strength and Flexibility rating for the proxy LDCs is A, compared to the Baa implied ratings of TGI. It is also of note that, while superior regulatory support is frequently cited as the reason Canadian utilities are rated higher than their U.S. peers, the median regulatory support rating of the proxy U.S. LDCs, at Aaa/Aa, is higher than the Aa implied rating of TGI."[87]

125. Ms. McShane presents Table 5 at page 38 of her written evidence. Table 5 compares key credit metrics of TGI with those of the universe of Canadian utilities with rated debt and with those of A rated U.S. electric and gas utilities. With respect to Table 5 Ms. McShane says:

> "As the table above demonstrates, the credit metrics of TGI and Canadian utilities generally compare unfavourably to their U.S. peers. In other words, they are competing for capital with U.S. utilities with stronger financial metrics. Moreover, as utility debt yield spreads between Canada and the U.S have converged, Canadian utilities no longer have a built-in domestic cost advantage in raising capital. In setting the allowed return, (the capital structure as well as the ROE), the BCUC needs to recognize that Canadian utilities generally and TGI specifically should be allowed to achieve a degree of financing flexibility which is comparable to that of its North American peers."[88]

126. In BCUC information request 48.2 the Terasen Utilities were asked if they agree with Moody's description of the supportiveness of the business and regulatory environments in which TGI operates. The response was:

> "The Terasen Utilities believe that Moody's reference to the supportive business environment is a reference primarily to the robust economic environment enjoyed by BC over the past number of years, as well as provincial government support for TGVI in the form of the royalty revenue payments, whereas the reference to the regulatory environment is primarily a reference to both the constructive

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[85] Written evidence of Ms. McShane at page 36, lines 892 to 896

[86] At Tr 3, 292, l.13 – 293, l. 10 Mr. Thomson discusses Moody's metrics, saying that increased metrics from the requested increase in common equity in the capital structure will not guarantee a rating upgrade but will help ensure that TGI is not downgraded. Mr. Thomson also noted that the 2009 Moody's report indicates Moody's is watching this proceeding because of its concerns

[87] Written evidence of Ms. McShane at page 37, line 920 to page 38, line 927

[88] Written evidence of Ms. McShane at page 38, line 949 to page 39, line 956

> relationship with the regulator and intervenors in the province that has seen the adoption of positive regulatory constructs such as PBR and certain deferral accounts. With respect to the above understanding, Terasen Utilities does agree for the most part with Moody's comments.
>
> However, the business and regulatory environment is not static. As noted in the Application, Terasen Utilities believes the business environment has become more challenging, with the recent action by the BC government with respect to environmental legislation and the carbon tax examples of increased business risk. The continuation of a low ROE and equity thickness are factors that the Terasen Utilities believe are examples of a less supportive regulatory environment. Terasen Utilities believes that the increasing business risk and a continuation of low ROE and equity thickness may over time diminish Moody's view of the supportive operating environment facing Terasen Utilities."[89]

127. Moody's, and other credit rating agencies and financial analysts are aware of the National Energy Board's TQM Decision, and will be aware of the October 8, 2009 Reasons for Decision of the NEB to cease the use of its automatic adjustment mechanism established in the RH-2-94 proceeding. Mr. Carmichael addressed this awareness during his cross-examination by Commission Counsel when, starting at transcript page 424 he said:

> "I don't think I have said anywhere in my evidence that Terasen has had difficulty accessing the credit markets. They have been smart, they have been opportunistic, they have done a good job in terms of accessing the market. And they have been generally well-received.
>
> I guess what I'm concerned about is the A3 rating of Moody's, and what their ability to access funds would be if they were to lose that. And going to that issue, it's really about -- first of all, on the one hand, the weak credit metrics of Terasen Gas and the fact that in order to achieve the A3 rating, the Moody's is depending very heavily, it seems, on two factors.
>
> The first factor is the business environment and the economy of British Columbia. In that regard, I'm concerned about the impact of the recession, about the potential deterioration of the business environment. So that puts a shake on one of these pillars supporting the credit rate.
>
> The other aspect is the support of the regulatory environment and I think this regulatory Commission, which I think has been commendable through the piece, but at this juncture regulation in Canada may be changing. And I look as -- I look at the National Energy Board TQM decision as maybe a first step.
>
> Last week, I participated in the stakeholders' conference that the Ontario Energy Board is carrying on. There is obviously a proceeding in Alberta.
>
> What I'm concerned about is whether -- well, I am -- my sense and my feedback from various participants in the industry is -- and when I say "industry", I'm talking about the capital markets. That people are now almost expecting change in the regulatory environment, change in the regulatory process. And I'm concerned

[89] Exhibit B-3, page 140

> that credit rating agencies and others, including large institutions, will start grouping people into status quo versus willing to innovate.
>
> And I'm concerned that if Terasen falls into the status quo camp, that this notion of strong regulatory support might also be eroded, therefore weakening the second foundation of the two foundation credit rating. That's basically I think where I'm coming from."[90]

128. While TGI has generally been able to access debt capital, it was the evidence of Mr. Dall'Antonia that during part of the financial turmoil of the last year TGI was not able to access debt capital on reasonable terms:

> "From a debt perspective, at the depth of the crisis which we take sort of the October to December/January period, I'd argue we were not able to access the debt markets on reasonable terms at that period of time. And one of our concerns here is able to attract capital markets. The market conditions improved and we took advantage of a window in February to get our debt deal done."[91]

129. A significant concern that could impact TGI's credit ratings is the impending loss of incentive earnings. Incentive earnings in the past have allowed TGI to realize an actual ROE greater than the allowed ROE, which assisted TGI's financial metrics. At transcript page 73 Mr. Dall'Antonia pointed out that TGI's weak metrics, absent a change to return on equity or capital structure, will be further weakened by the loss of incentive earnings. Incentive earnings since 2005 have averaged more than $8 million per year from the PBR rate settlement.[92] The PBR rate settlement terminates at the end of 2009, and those incentive earnings will no longer be available to TGI.

130. The impact of the loss of incentive earnings on TGI's debt issuance capacity (constraints imposed by the issuance test in TGI's trust indenture) is graphically displayed in the response to CEC information request 17.[93] A comparison of the chart in the question with the chart in the response to 17.3 shows the effect of the loss of TGI's incentive earnings. The chart in the response to 17.3 includes incentive earnings, with other parameters the same as those in the chart in the question. The PBR incentive earnings have contributed significantly to debt issuance capacity.

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[90] Tr 4, 424, l. 26 – 426, l. 21

[91] Tr 3, 256, ll. 9 – 16. See also 256, l. 21 – 257, l. 2

[92] The response to BCUC information request 91.1 in Exhibit B-6, page 5, sets out the incentive earnings

[93] Exhibit B-4, pages 43 and 44

131. In addition to borrowing debt capital, TGI's A credit rating is an important factor in the company's gas supply procurement. As set out at page 37 of the Application:

> "From an operational perspective, an A rating plays a key role in TGI's gas supply and hedging strategies. In a typical year, TGI will purchase in excess of $1 billion of natural gas depending on market prices. In addition, TGI utilizes commodity derivatives to hedge the price volatility of natural gas faced by consumers. Derivatives are placed on underlying gas supply for amounts in excess of $300 million in a typical year. Currently, counterparties to TGI do not require collateral in the form of letters of credit, nor has TGI experienced any restrictions on the amount of unsecured credit counterparties have extended to TGI. Such restrictions would limit TGI's ability to pursue its gas supply and hedging strategies. This lack of restrictions to date is due in part to the counterparties' view of TGI as a strong investment grade entity, based on the minimum A credit rating.
>
> A credit rating downgrade below the A rating category could lead to TGI being required to post letters of credit with its counterparties, which would incur a direct cost in the form of letter of credit fees. In addition, and of more concern, would be the potential restriction this could place on TGI's hedging activities. The commodity hedges can extend out three years, and given the volatility in gas prices, the mark to market exposure on a derivative can vary significantly. TGI, when it enters into financial hedges, restricts its activities to A rated or higher counterparties. As a BBB rated entity, TGI could face similar restrictions and be constrained in pursuing its hedging activity, to the potential detriment of its customers."

**CONCLUSIONS RESPECTING CAPITAL STRUCTURE**

132. The Terasen Utilities submit that the Commission should conclude that a 40 percent common equity component is appropriate for Terasen Gas Inc. for rate-making purposes. The 40 percent common equity component is recommended by each of the expert witness called by the Terasen Utilities: Ms. McShane, Mr. Carmichael and Dr. Vander Weide.

133. The requested 40 percent common equity component is well below the average of U.S. utilities of comparable risk. The current common equity ratio of TGI is lowest of any major investor-owned Canadian utility, and the requested common equity component would not cause TGI to be out of line with other Canadian utilities.

134. TGI's financial metrics are weak, and lower than other Canadian utilities, as demonstrated by Table 7.4 on page 40 of the Application.

135. Moody's says that TGI's weaker metrics are partially offset by the supportive regulatory environment in which TGI operates, but the regulatory environment cannot protect TGI from the government policies and legislation, and public perception regarding natural gas and other fossil

fuels, discussed in the Section above dealing with business risks. Moreover, the regulatory environment across Canada is changing, and for Moody's and others involved in capital markets to retain their view of a supportive regulatory environment there must be recognition by this Commission that the financial circumstances of TGI require improvement.

## D. RETURN ON EQUITY

136. The Terasen Utilities request that the Commission establish a return on equity for Terasen Gas inc. of 11 percent, and that rate of return on equity be used as the Benchmark ROE for establishing the return on equity of TGVI and TGW. The Terasen Utilities request that the revised returns on common equity for TGI, TGVI and TGW be effective July 1, 2009. In the Application the increased returns on equity were sought to be effective July 1, 2009, and Commission Order no. G-78-09 effected interim relief, which will allow the returns on equity established in this proceeding to be effective as of that date. As said by Mr. Thomson:

> "The company's position is that we're asking the Commission to set an appropriate ROE and based on the evidence that the current formula isn't producing an appropriate ROE. In other words, when we applied in May, it wasn't right. So why would we wait? Once we've identified a problem, why would we wait once we've put information in front of the Commission? If it's not fair, then it should be dealt with."[94]

137. At page 6 of the March 2006 Decision the Commission Panel referred to court decisions cited by parties to that proceeding and to submissions of those parties. At page 7 the Commission Panel said:

> "The Commission's mandate is to ensure that ratepayers receive safe, reliable and non-discriminatory energy services at fair rates from the public utilities it regulates, and that shareholders of those public utilities are afforded a reasonable opportunity to earn a fair return on their invested capital. The process to establish a fair return and just and reasonable rates is enshrined in the UCA where "the commission must consider all matters that it considers proper and relevant affecting the rate" and in doing so it must have due regard to the setting of a rate that "is not unjust or unreasonable" within the meaning of section 59 (of the Act) [*UCA*, s.60 (1)(a) and (b)(i)]."

The Commission Panel referred to the judgments of Locke J. and Martland J. in the *B.C. Electric Railway* case, and then at page 8 said:

> "The Commission Panel does not accept that the reference by Martland J. to a "balancing of interests" to mean that the exercise of determining a fair return is an exercise of balancing the customers' interests in low rates, assuming no

[94] Tr 3, 246, ll. 5 - 12

> detrimental effects on the quality of service, with the shareholders' interest in a fair return. In coming to a conclusion of a fair return, the Commission does not consider the rate impacts of the revenue required to yield the fair return. Once the decision is made as to what is a fair return, the Commission has a duty to approve rates that will provide a reasonable opportunity to earn a fair return on invested capital."

138. The Terasen Utilities submit that the excerpts quoted above are a good summary of the Commission's obligation to provide the utilities it regulates with the opportunity to earn a fair return on invested capital, with one minor exception. This Commission regulates and sets rates for public utilities, not the shareholders of those public utilities. Paraphrasing the words quoted above, the Terasen Utilities submit that the Commission's mandate is to ensure that ratepayers receive safe, reliable and non-discriminatory energy services at fair rates from the public utilities it regulates, and that those public utilities are afforded a reasonable opportunity to earn a fair return on their invested capital.

139. The Terasen Utilities submit that to earn a fair return, each of the three requirements of the fair return standard are to be met, and the key to determining the fair return on equity is reliance on multiple methodologies and multiple tests. There are three different approaches or methodologies that have traditionally been used to estimate the fair return on equity: discounted cash flow, equity risk premium and comparable earnings. Each of these is based on different premises and brings a different perspective to the fair return on equity. None of the individual approaches or methodologies is, on its own, a sufficient means of estimating the fair return; each has its own strengths and weaknesses. Individually, each approach can be characterized as a relatively inexact instrument; no single approach can pinpoint the fair return. Moreover, different approaches and tests may be more or less reliable depending on prevailing economic and capital market conditions. These considerations not only emphasize the importance of reliance on multiple approaches and tests, but also of benchmarking, or testing the reasonableness of the results themselves against other relevant information.[95]

140. In Appendix A of her written evidence Ms. McShane discusses the fair return standard. At page A-2 she says:

> "The fact that the allowed return is applied to an original cost rate base is key to distinguishing between the capital attraction/financial integrity standards and the comparable returns standards. The base to which the return is applied determines the dollar earnings stream to the utility, which, in turn, generates the return to the shareholder (dividends plus capital appreciation)."

[95] Written evidence of Ms. McShane, page 42, lines 1023 to 1034

141. At pages 42 and 43 of her written evidence Ms. McShane says:

> "Moreover, the criteria that define a fair return, …, give rise to separate standards of capital attraction and comparable returns. A fair and reasonable return gives weight to both the cost of attracting capital standard and comparable returns standard. The requirements of the two standards are met using different types of tests. The equity risk premium and discounted cash flow tests establish the cost of attracting capital. The comparable earnings test is one measure of the comparable returns standard. To establish a fair return on equity for TGI, I have applied all three."[96]

142. At page 48 of the March 2006 Decision the Commission Panel said:

> "The Commission Panel accepts the relevance of two separate standards namely the capital attraction standard and the comparable returns standard in establishing a fair return on equity for a benchmark low-risk utility. One standard does not trump the other, neither is one subsumed by the other. Accordingly, the Commission Panel will seek to give weight to each of the three methods placed before it in determining a suitable return for a benchmark low-risk utility."

143. The Terasen Utilities submit that the Commission should give weight to all three methods of estimating the fair return on equity for Terasen Gas Inc. and as the Benchmark ROE for TGVI and TGW. The Terasen Utilities have presented evidence relating to the equity risk premium, discounted cash flow and comparable earnings methods of determining the fair return, and the Terasen Utilities submit that such evidence should be relied on by the Commission, with the three methods given weight in the Commission's determinations

144. The 1929 *Northwestern Utilities* and the 1960 *B.C. Electric Railway* cases of the Supreme Court of Canada that are referenced in evidence in this proceeding, and to which the Commission Panel referred at page 7 of the 2006 Decision, do not prescribe any specific approach or test to be used for the determination of the fair return on equity. In fact, both of those cases discuss return on rate base, not return on equity. As noted at the top of page 45 of the 2006 Decision, up until the 1960's comparable earnings was the principal methodology used to determine fair rates of return, and by the 1980s all of the comparable earnings, discounted cash flow and equity risk premium methodologies were in use in Canada. The Supreme Court of Canada in its 1929 and 1960 judgments certainly did not prescribe the use of the capital asset pricing model, as that model was not developed until later.

[96] Written evidence of Ms. McShane, pages 42 and 43, lines 1036 to 1042

145. As further discussed by the Commission Panel at page 45 of the March 2006 Decision:

> "In the early 1990s capital markets in Canada fell into considerable turmoil, causing DCF and CE to give unreliable results, which resulted in the ERP becoming the main, if not the sole, methodology used by regulatory bodies in Canada to establish fair rates of return. The concept became embedded in Canadian regulatory methodology with the adoption by many regulatory bodies of the AAM whereby an individual utility's return on equity could be adjusted each year by reference to the change in the Risk Free cost of capital (namely the forecast long Canada bond yield).The DCF and CE methods have never managed to restore themselves to favour in regulatory bodies' eyes with the result that in Canada's most recent generic cost of capital hearing, neither method was accorded any weight by the AEUB in its determination of a generic return on equity. In the United States the DCF and CAPM methods got their start in the 1970s and have survived nearly unchanged as the primary rate of return methods, with the DCF the virtual default method in practically all U.S. regulatory jurisdictions."

146. As set out at paragraph 138 above, the Commission has an obligation to provide each of the Terasen Utilities with the opportunity to earn a fair return on its investment in utility assets. As will be discussed further below, the Terasen Utilities submit that a return on equity based on the capital asset pricing model fails to meet that obligation. The CAPM methodology does not, and is not intended to, relate to the business risk associated with an investment in utility assets. The CAPM methodology is intended, and does, relate to how the investment in one asset (usually a security) affects the overall riskiness of a basket (or portfolio) of investments. The CAPM assumes that an investor has a diversified portfolio of investments. The CAPM assumes that risk is measured only by reference to the impact that a specific investment has on the overall diversified portfolio; the CAPM is not attempting to measure the business risk of a utility or other company.

> "MR. JOHNSON: Q: Now, the capital asset pricing model is a theory in which the rate of return on a risky asset is said to be its co-variance with a market portfolio?
>
> MR. BOOTH: A: That's correct. It assumes that investors diversify their portfolios and, as a result, risk is best measured relative to the diversified portfolio."[97]

> "MR. JOHNSON: Q: Thank you. As your evidence discusses, the CAPM makes use of beta as the measurement of risk. Is that correct?
>
> MR. BOOTH: A: That's correct.
>
> MR. JOHNSON: Q: And in fact beta is the sole risk factor taken into account in the capital asset pricing model?
>
> MR. BOOTH: A: In the capital asset pricing model, yes."[98]

[97] Tr 5, 584, ll. 8 - 15

As Dr. Booth says at page 52 of his written evidence "The CAPM is a single factor model, where all that matters is the risk of holding securities in a diversified portfolio".[99] At page 35 of his written evidence he makes a similar statement "…the CAPM measures the right thing: which is how much does a security add to the risk of a diversified portfolio, which is the central idea of modern portfolio theory".[100]

147. The task of the Commission in this proceeding is to determine the fair return on investments in utility assets; the task of the Commission is not to determine the extent to which a security [it is not clear which security] would add or subtract from the risk of some diversified portfolio. There is nothing in the Utilities Commission Act or in cases such as the *Northwestern* and *B.C. Electric Railway* cases that prescribe or even remotely suggest a portfolio approach be used in determining a fair return.

148. Moreover, Dr. Booth said that an investment by Terasen Gas in pipeline assets would have no material affect on Terasen Gas' investment portfolio. The reason is that Terasen Gas does not have a diversified investment portfolio.

> "MR. JOHNSON: Q:… So the capital asset pricing model, it's looking at how an investment adds or subtracts from the overall risk of a diversified portfolio.
>
> MR. BOOTH: A: That's correct.
>
> MR. JOHNSON: Q: Okay. When Terasen Gas invests, let's just say $25 million in a pipeline project, does Terasen Gas's investment of that $25 million in a pipeline project add to or subtract from the overall risk of Terasen Gas's investment portfolio?
>
> MR. BOOTH: A: It depends on where the pipeline is and how it is regulated and a whole bunch of factors.
>
> MR. JOHNSON: Q: Okay. Well let's just assume the pipeline is in British Columbia, it's regulated by the same commission, it's just part of it's integrated transmission system.
>
> MR. BOOTH: A: In that case it would have no impact on its risk whatsoever. It may be 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 a very marginal impact."[101]

Modern portfolio theory does not apply to the determination of the fair return for Terasen Gas; Terasen Gas is not investing in a diversified portfolio. The investments upon which the

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[98] Tr 5, 594, ll. 9 - 16

[99] Written evidence of Dr. Booth, page 52, lines 17 and 18

[100] Written evidence of Dr. Booth, page 35, lines 16 and 17

[101] Tr 5, 612, l. 9 – 613, l.3

Commission is to provide an opportunity to earn a fair return are investments in gas distribution facilities and associated utility assets. Portfolio theory and the co-variance between an investment in a security and a market portfolio have nothing to do with determining a fair return on an investment in gas distribution facilities and associated utility assets.

149. The return on equity recommended by Dr. Booth is based primarily on CAPM.

> "MR. JOHNSON: Q: Is it fair to say that the return on equity you recommend, and I think this sort of just follows on what you were saying in your direct evidence, that the return on equity you recommend is based primarily on the capital asset pricing model?
>
> MR. BOOTH: A: That's correct. I do a number of what I regard as reasonableness checks, but the core of my testimony is based upon risk premiums.
>
> MR. JOHNSON: Q: Thank you. And at page 62 of your evidence, line 24, you say partway through that line: "…the fair ROE is based on the CAPM and is equal to the investors required rate of return and is an expected rate of return." That's sort of a summary of your approach to return on equity, is it?
>
> MR. BOOTH: A: That's correct. …" [102]

150. Dr. Vander Weide and Ms. McShane are not reliant, as is Dr. Booth, on the CAPM. While Ms. McShane uses a variant of the capital asset pricing model, she also uses other methodologies in her determination of a fair return for TGI.

151. Ms. McShane uses the equity risk premium approach, the discounted cash flow approach and the comparable earnings approach. Based on the results of those three approaches Ms. McShane concludes that a fair return on equity for Terasen Gas Inc. at a common equity ratio of 40 percent is approximately 11 percent.[103] Dr. Vander Weide uses the equity risk premium approach and the discounted cash flow approach, and based on his analyses Dr. Vander Weide recommends that Terasen Gas Inc. be awarded an allowed return on equity of 11 percent on an equity base of 40 percent.[104]

152. The Terasen Utilities submit that accepting the evidence of Dr. Vander Weide and Ms. McShane respecting the appropriate return on equity for TGI, approving a common equity component of 40 percent for TGI, and incorporating the utility-specific equity risk premiums for

[102] Tr 5, 583, l. 14 – 584, l. 4

[103] Written evidence of Ms. McShane at page 73, lines 1825 and 1826

[104] Written evidence of Dr. Vander Weide, page 38, lines 19 and 20

TGVI and TGW, will provide the Terasen Utilities with the opportunity to earn a fair and reasonable return.

**AUTOMATIC ADJUSTMENT MECHANISM**

153. In 1994 the British Columbia Utilities Commission adopted an automatic adjustment mechanism by which the annual return on equity for the benchmark public utility would be set through use of a formula.

154. In its RH-2-94 Multi-Pipeline Cost of Capital Decision of March 1995 the National Energy Board also adopted an automatic adjustment mechanism for the determination of the annual return on equity of the major pipelines the NEB regulates. As indicated above, and discussed further below, the NEB AAM is no longer in effect.

155. The Commission's AAM has been adjusted from time to time, but it continues to be based on the forecast yield for 10 year Government of Canada bonds from the publication Consensus Forecasts, adjusted for the yield spread between 10 year and 30 year Canada bonds. Both the current BCUC AAM and the AAM adopted by the NEB in its RH-2-94 Decision make use of a scale by which for every 100 basis point movement in the forecast yield of long Canada bonds the return on equity moves by 75 basis points. The results are returns on equity that are almost the same.

156. Most other regulators of utilities in Canada have adopted similar mechanism, at various times since 1995.

157. The adoption of automatic adjustment mechanisms in the mid-1990s coincided with the almost exclusive use of equity risk premium and CAPM approaches for the determination of allowed returns on equity for Canadian utilities (as discussed by the Commission at page 45 of the 2006 Decision quoted in paragraph 145 above). This was discussed by Ms. McShane in response to questions from the Chairperson at transcript pages 564 to 566. As indicated by Ms. McShane, other than this Commission proceeding in 2005 that led to the March 2006 Decision, there has been a movement towards equity risk premium and even more narrowly to the capital asset pricing model version of the equity risk premium approach.[105] Ms. McShane agreed that the crossover between Canadian and U.S. utility returns started when regulatory commissions in Canada started to put almost all the weight on the CAPM and equity risk premium tests

[105] Tr 4, 564, ll. 8 - 11

(which in effect would tie the ROE to changes in long-term Canada bond yields even without an AAM). As Ms. McShane noted at page 566, the use of a particular type of adjustment to adjust returns on equity from year–to-year should not constrain the variety of tests used to determine the fair return.

158. Since the AAMs were first adopted in the mid 1990s, yields on long Canada bonds have steadily decreased and allowed returns on equity for Canadian utilities have decreased to unprecedented low levels.

159. The returns on equity allowed for U.S. utilities have not fallen as precipitously as those in Canada, with the divergence of allowed returns beginning in approximately 1996/97.[106] The divergence in returns is not explained by differences in the costs of equity between the two countries. As discussed further in the Section below on Allowed Returns on Equity for U.S. Utilities, the formulistic setting of returns on equity in Canada with the strong tie between allowed returns and Government of Canada bond yields has driven Canadian utility returns on equity to unfair low levels.

160. Analysts' reports have criticized the automatic adjustment mechanisms in use in Canada and their resulting returns on equity. Reports such as those included in the Appendices to the Application have concluded that the use of automatic adjustment mechanisms has resulted in unduly low allowed returns on equity for Canadian utilities.

161. Earlier this year the return on equity allowed for the benchmark utility in British Columbia, if based on the then current monthly edition of *Consensus Forecasts*, would have been below 8 percent.[107] These sub-8 percent returns on equity as calculated by the automatic adjustment mechanism used in B.C. were at a time when the required returns on the common equity and the corporate debt of utilities in Canada were increasing.

162. The Terasen Utilities submit that the evidence is clear and without doubt: the automatic adjustment mechanism in effect in British Columbia is flawed and does not produce fair results.

163. Pages 5 through 17 of the written evidence of Ms. McShane relates to it being time for a new benchmark return on equity, and discusses evidence of the inadequacies of the current

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[106] See the chart appearing as Figure 1 on page 8 of the written evidence of Ms. McShane. A similar chart is also at page 43 of the written evidence of Mr. Carmichael and page 14 of the Application. See also the evidence of Ms. McShane at Tr 4, 508, l. 17 – 510, l. 1

[107] Tr 2, 67, ll. 1 - 12

AAM. While a short quotation does not adequately summarize her evidence set out on those pages, she says at page 7:

> "As a result of reliance on a formula which has been governed solely by changes in the long-term Canada bond yield, rather than the composite of factors that bear on equity return requirements, the allowed ROEs have fallen below levels commensurate with a fair return. The extent to which the formula ROEs have diverged off course from a fair and reasonable level over time can be assessed by a comparison of the allowed ROEs of Canadian and U.S. utilities."[108]

164. Yields on long-term Canada bonds can be driven by events that do not relate to the appropriate return on equity for utilities. Ms. McShane at pages 6 and 7 of her written evidence refers to imbalance in supply and demand and scarcity of long-term Canada bonds, leading to abnormally low long-term yields. Ms. McShane also notes at page 7 of her written evidence that a flight to quality, such as occurred earlier this year and in 2008, puts downward pressure on the yields of default-free securities, such as long-term government bonds.

165. Ms. McShane also says at page 2 of her written evidence:

> "The sensitivity of the cost of equity to government bond yields is materially lower than the existing automatic adjustment mechanism implies. In addition, the cost of equity moves in the same direction as the utility cost of debt; this relationship has not been reflected in the automatic adjustment mechanism. As a result, the allowed ROEs have decreased over time to a much greater extent than is justified and recently have moved in the wrong direction. The application of the formula in current circumstances would produce a lower ROE at the same time that the utility debt costs and required credit premiums have increased, an outcome which is illogical."[109]

166. Dr. Vander Weide was asked by Terasen Gas to assess the validity of the AAM adopted by this Commission.[110] Dr. Vander Weide performed six tests of the validity of the AAM. The six tests and a summary of their results are set out on pages 9 and 10 of his written evidence:

> First, I have examined evidence on the experienced returns achieved by equity investors in two groups of Canadian utilities compared to interest rates on long-term Canada bonds. My studies indicate that the average experienced equity risk premium on an investment in Canadian utility stocks is approximately 5.5 percent.
>
> Second, I have examined evidence on the allowed rates of return on equity and allowed common equity ratios for U.S. electric and natural gas utilities. My studies indicate that allowed rates of return on equity and allowed equity ratios

[108] Written evidence of Ms. McShane, page 7, lines 182 to 187

[109] Written evidence of Ms. McShane, page 2, Executive Summary, lines 34 to 42

[110] Written evidence of Dr. Vander Weide, page 4, lines 7 to 10

> for U.S. utilities average approximately 10.4 percent and 49 percent, respectively. Since the AAM ROE Formula currently produces a 7.98 percent ROE on an allowed equity ratio of 35 percent, this evidence supports the conclusion that the AAM ROE Formula fails to provide returns that are commensurate with returns on other investments of comparable risk.
>
> Third, I have examined evidence on the sensitivity of the forward-looking, or ex ante, required equity risk premium on utility stocks to changes in interest rates. Specifically, while the ROE adjustment formula implies that the cost of equity for TGI declines by 75 basis points for every 100-basis-point decline in the yield to maturity on long Canada bonds, my evidence supports the conclusion that the cost of equity declines by less than 50 basis points for every 100-basis-point decline in the yield to maturity on long Canada bonds. From my ex ante risk premium studies, I find that the forward-looking required equity risk premium on utility stocks is in the range 7.5 percent to 8.0 percent. Since the risk premium implied by the AAM ROE Formula is currently 4.29 percent, this evidence supports the conclusion that the AAM ROE Formula is not working.
>
> Fourth, I have examined evidence on the sensitivity of the equity risk premium implied by U.S. utility allowed rates of return on equity to changes in the interest rate on long-term government bonds. My studies indicate that U.S. utility allowed equity risk premiums are significantly less sensitive to changes in interest rates on long-term government bonds than the allowed equity risk premium implied by the AAM ROE Formula. Specifically, while the ROE adjustment formula reduces the allowed ROE by 75 basis points when the yield to maturity on long-term government bonds declines by 100 basis points, U.S. regulators typically reduce the allowed ROE by less than 50 basis points when the yield to maturity on long-term government bonds declines by 100 basis points. This evidence also supports the conclusion that the AAM ROE Formula is not working.
>
> Fifth, I have examined evidence on the volatility of returns on Canadian utility stocks compared to the volatility of returns on the Canadian market index. My studies indicate that the volatility of returns on Canadian utility stocks exceeds or approximates the volatility of returns on the Canadian market index. Because investors demand a higher return for bearing more risk, this evidence also supports the conclusion that the equity risk premium on Canadian utility stocks is higher than the equity risk premium implied by the AAM ROE Formula.
>
> Sixth, I have examined whether the AAM ROE Formula produces an ROE result that is consistent with the increased risk associated with today's highly uncertain economic and capital market conditions. I conclude that, contrary to a reasonable expectation, the AAM ROE Formula produces a lower ROE estimate at a time when the increased risks of highly uncertain economic and capital market conditions are causing capital costs to increase dramatically.

Pages 10 through 26 of the written evidence of Dr. Vander Weide discuss in further detail the six tests summarized above. The evidence of Dr. Vander Weide demonstrates that the AAM in use in British Columbia does not produce appropriate results.

167. The studies of Dr. Vander Weide referenced in the above description of the fourth test confirm that there is an inverse relationship between equity risk premiums and the yield to

maturity on long-term government bonds. The data for his study and the regression results are in Exhibit 7 of his written evidence. Dr. Vander Weide found that when the yield to maturity on long-term government bonds decreases by 100 basis points, the allowed equity risk premium tends to increase by approximately 55 basis points.[111] Ms. McShane refers to the same type of studies at page 9 of her written evidence, where she says:

> "Since allowed ROEs in the U.S. are determined using various cost of equity tests, they can be used, retrospectively, to test the sensitivity of the utility cost of equity to changes in long-term government bond yields. When the quarterly allowed ROEs from 1994 (the year the formula was first introduced in Canada) to 2008 are regressed against long-term Treasury bond yields and utility/Treasury bond yield spreads lagged by six months, the result indicates that the allowed ROEs changed by approximately 55 basis points for every one percentage point change in long-term government bond yields and was positively related to the utility/government bond yield spread. By comparison, the typical automatic adjustment formula relied upon in Canada assumes that the ROE changes by 75 basis points for every one percentage point change in long-term government bond yields and includes no other explanatory variables. The analysis strongly indicates that, with the benefit of hindsight, the cost of equity is significantly less sensitive to changes in long-term government bond yields than the automatic adjustment formulas assume."[112]

168. That evidence of Dr. Vander Weide and Ms. McShane demonstrates that allowed returns for Canadian utilities should not have decreased to the extent they have with decreasing long Canada bond yields. Further proof that the allowed returns on equity should not have decreased as they have is found in a response of Dr. Booth to an information request from the Commission. In response to BCUC information request 1.1 Dr. Booth says:

> "As long as the Bank of Canada maintains its 1.0-3.0% target inflation range, Dr. Booth expects the forecast long Canada bond yield to remain within a relatively narrow range and only fluctuate due the normal fluctuations of the business cycle"

and also says

> "However, external macroeconomic factors may upset this orderly state of affairs such as a collapse in commodity prices and consequent hit to the foreign exchange rate and government finances. The reason for this is that regulation applies a nominal rate of return to an original cost rate base and the main driver of this nominal rate of return is the forecast inflation rate."[113]

Exhibit B-19 (introduced at Tr 4: 461) is a table that summarizes the *Consensus Forecasts* twice yearly survey of inflation forecasts since April 1994; April 1994 being approximately when the

[111] Written evidence of Dr. Vander Weide, page 21, lines 13 to 32

[112] Written evidence of Ms. McShane, page 9, lines 221 to 233

[113] Response to BCUC information request 1.1 in Exhibit C11-6

1994 BCUC proceeding that led to the introduction of the AAM was held. The long-term inflation forecasts have varied little over that time frame, averaging quite close to 2%. The evidence of Dr. Booth is consistent with this; at page 16 of his written evidence he says:

> "Since then [the early 1980s] it [inflation] dropped to plateau at the 4.0% level through the 1980s before the effects of the major slow down in the early 1990s caused it to drop to its cyclical low in 1994/5, where it almost touched price stability. Since that time changes in the consumer price index have remained close to the middle of the Governor of the Bank of Canada's 1-3% range."[114]

Dr. Booth is saying that the main driver for the rate of return on equity that should be allowed utilities [the nominal rate of return in the quotation above] is the forecast inflation rate. Exhibit B-19 is evidence that the forecast long-term inflation rate has not changed to any material extent since the mid-1990s when both this Commission and the National Energy Board established their automatic adjustment mechanisms. Since forecast inflation has not varied, the returns on equity allowed for utilities should not have varied, but the benchmark return allowed in British Columbia has decreased from 10.75% to the low 8% level, and is currently at 8.47%. Based on the forecast inflation information in Exhibit B-19, the allowed return on equity for TGI should be at the level requested in this Application, which is approximately the same as awarded in 1994.

169. As set out on pages 31 and 32 of the Application, the Terasen Utilities request that the use of an automatic adjustment mechanism by this Commission be eliminated.

170. Dr. Booth proposes that the current AAM continue, and that the current AAM be used to set the benchmark ROE allowed for 2010.[115] In response to BCUC information request 13.1 Dr. Booth indicated he "would support a trigger for a review of the BCUC ROE formula, if the formula generated a utility risk premium less than twice the current spread on TGI's long-term debt over equivalent maturity long Canada bonds".[116] Such a trigger would have been triggered at the time of the Alberta proceedings earlier this year, but conveniently Dr. Booth did not propose a trigger of that type in his appearance in Alberta. Moreover, the trigger he says he would support would also be triggered by his return on equity recommendation in this proceeding of 7.75%.[117]

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[114] Written evidence of Dr. Booth, page 16, lines 14 to 18

[115] Cross-examination of Dr. Booth at Tr 5, 687, ll. 16 - 25

[116] Exhibit C11-6, page 13

[117] Cross-examination of Dr. Booth at Tr 5, 688 l. 4 – 692 l. 17

171. The Application refers to the National Energy Board's March 2009 Decision relating to TQM. As stated at page 5 of the Application:

> "In the RH-1-2008 Decision the NEB discarded the ROE determination from the RH-2-94 formula, and effectively increased the allowed ROE for TQM, at the previously approved capital structure, by almost 300 basis points over what the RH-2-94 formula produced for 2007 and 2008. The magnitude of the variance provides a strong indication that the formula had veered dramatically off course.
>
> Although this recent Decision is only applicable to TQM, the NEB made a number of determinations that are applicable more generally. In the TQM Decision the NEB accepted a number of factors and arguments that TGI and other Canadian utilities have previously put forward in cost of capital proceedings but which had not previously been given weight by their respective regulators. These factors, which will be discussed further below, were instrumental in forming the TQM Decision and are widely applicable in informing a fair return for Canadian utilities generally and for TGI specifically."

172. Following the TQM Decision the NEB initiated a review of its RH-2-94 Decision that implemented its automatic adjustment mechanism. In Reasons for Decision released October 8, 2009 the National Energy Board provided the results of its review. Excerpts from the Reasons for Decision are below:

> "The initial decision that the Board must address is whether there is a doubt as to the correctness of the RH-2-94 Decision."
>
> "The Board notes that since 1994, there have been considerable changes in financial and economic circumstances."
>
> "Based on these considerations, the Board is of the view that there is doubt as to the ongoing correctness of the RH-2-94 Decision."
>
> "The Board is of the view that the circumstances surrounding cost of capital decisions today are different from those which faced the Board and industry prior to 1994."
>
> "Whatever the reason, given the vast experience the industry has gained in reaching negotiated settlements over the past 15 years, the Board is of the view that it is neither necessary nor appropriate to replace the RH-2-94 Decision with another multi-pipeline cost of capital decision at this time. Accordingly, the RH-2-94 Decision will not continue to be in effect."

173. In the past, the Terasen Utilities have supported the use of an automatic adjustment mechanism to adjust annual allowed ROEs between cost of capital reviews. The Terasen Utilities recognize that cost of capital reviews entail considerable time, effort and money for testimony preparation, information requests, a hearing and submissions. An automatic adjustment mechanism can be an administratively efficient means of avoiding annual ROE reviews for utilities under the jurisdiction of the Commission, while providing regular changes in

the allowed return on equity. In addition to the reduction in regulatory burden, automatic adjustment mechanisms result in increased predictability of the allowed returns. However, the current automatic adjustment mechanism is flawed and does not produce a fair result. While the Terasen Utilities recognize the administrative efficiency of a formula, the desire for efficiency cannot override the requirement for a fair result. At this time the Commission must establish a benchmark return that allows the Terasen Utilities an opportunity to earn a fair return on their investments in utility assets, and the Terasen utilities submit that the fair return is 11% for TGI and as the Benchmark ROE.

174. The Terasen Utilities will continue to work towards developing a proposal for an adjustment mechanism in the future. By that time additional information may be available from the reviews that are underway in Ontario, Alberta, Québec and Newfoundland to assist in developing a workable proposal. Further, the Terasen Utilities are not in a position to commit to a formula until they understand the base ROE that a formula would start from.

## APPROACHES TO DETERMINATION OF A FAIR RETURN ON EQUITY

175. The Terasen Utilities submit that in determining the fair return on equity for Terasen Gas Inc. the Commission should consider all the evidence, and all the approaches or methodologies, and all the tests, which are before it.

176. The Terasen Utilities submit that the Commission should not limit its consideration to those tests or methodologies that have been most commonly used by Canadian regulators in recent years, and which have led to the unfairly low returns on equity for utilities across Canada. The Terasen Utilities submit that the Commission should put little weight on tests that make use of the capital asset pricing model, for the reasons set out in paragraphs 146 to 148 of this Submission, and as further discussed in the discussion of Dr. Booth's evidence below.

177. The approaches to determination of return on equity, and the tests used in those various approaches, are addressed below.

**DISCOUNTED CASH FLOW APPROACH**

178. Exhibit B-20 is an article from *Public Utilities Fortnightly* written by Jeff D. Makholm, Ph.D. entitled *In Defense of the "Gold Standard*. As it says at page 3 of the exhibit (page 16 of the article):

> "The DCF method has endured for most of the past two decades for three basic reasons:
>
> - It rests on a solid, straightforward theoretical base;
> - It capitalizes on the depth of U.S. capital markets-meaning analysis can use "proxy groups" of publicly traded companies in the same industry to manage the variability of individual company DCF calculations; and
> - It makes use of company growth projections from disinterested industry analysts-a key attribute for a method to gauge the opportunity cost of capital in the mind of investors.
>
> It is difficult to overstate the practical importance of these three attributes of the DCF method. The CAPM, by comparison, is abstruse as a piece of theory. Further, because most of the components of the calculation are common to all companies (i.e., the risk-free rate and the market risk premium), the CAPM cannot make use of the law of large numbers. That is to say, the problems associated with which risk-free rate to pick, or which market risk premium to adopt, hinder the result, no matter how many companies the calculation are performed upon. Finally, the CAPM has no tie to disinterested company analysts that not only reflect, but also shape, the opinions of investors. It is thus no surprise that the CAPM is vastly less popular among U.S. regulatory commissions as a rate of return method."

179. The discounted cash flow approach for the determination of the return on equity of regulated utilities is an approach that has been widely accepted, and widely used for many years, even though in recent years the use of the DCF approach by Canadian regulatory tribunals has been limited. The Terasen Utilities submit that this Commission should make use of the DCF approach, as it did in its 2006 Decision.

180. The evidence of Ms. McShane and Dr. Vander Weide respecting their DCF analyses are discussed below. In his Appendix C Dr. Booth undertakes a DCF analysis, but the purpose of that analysis is to determine a utility equity risk premium. That test and its results are discussed in the equity risk premium section of this Submission.

### 1. DCF Evidence of Ms. McShane

181. At page 55 of the March 2006 Decision the Commission Panel said that it "will give weight to Ms. McShane's first DCF test". The reference to "Ms. McShane's first DCF test" is to the test using a sample of relatively low-risk U.S. utilities. Ms. McShane continues to use a sample of low-risk U.S. utilities; the sample used in her 2009 evidence was selected in the same manner, and analyzed in the same manner, as in 2005.

182. The evidence of Ms. McShane relating to the discounted cash flow approach is at pages 63 to 68 and in Appendix D of her written evidence. The DCF analysis is based on the sample of 13 low risk U.S. utilities (listed in Schedule 15) that meet the selection criteria for the low-risk benchmark U.S. utilities that are set out on page C-1. A sample of U.S. utilities is used because there are only six publicly-traded Canadian utilities with conventional corporate structures, there are insufficient forward-looking estimates of long-term growth rates for these companies, and the U.S. utilities are reasonable proxies for estimating the cost of equity of TGI.[118]

183. Ms. McShane explains the DCF approach at page 63 of her written evidence, where at line 1578 she says:

> "The discounted cash flow approach proceeds from the proposition that the price of a common stock is the present value of the future expected cash flows to the investor, discounted at a rate that reflects the risk of those cash flows. If the price of the security is known (can be observed), and if the expected stream of cash flows can be estimated, it is possible to approximate the investor's required return (or capitalization rate) as the rate that equates the price of the stock to the discounted value of future cash flows."

184. Ms. McShane uses two models in her DCF analysis: As noted at page 65 of her evidence, to the extent feasible, one should rely on estimates of longer-term growth readily available to investors, rather than superimpose on the analysis one's own view of what growth should be. In applying the DCF test, Ms. McShane relied on published forecast growth rates that are readily available to investors. In applying her constant growth model, Ms. McShane relied primarily on the consensus (mean) of analysts' earnings growth rate forecasts as the proxy for investors' long-term growth expectations.

[118] At page 58, lines 1434 to 1452, of her written evidence Ms. McShane provides the reasons for choosing U.S. utilities

185. At page 65 of her evidence Ms. McShane acknowledges that the reliability of earnings growth forecasts as a measure of investor expectations has been questioned by some Canadian regulators. Ms. McShane's response to this issue is at line 1620 of her evidence:

> "…as long as investors have believed the forecasts, and have priced the securities accordingly, the resulting DCF costs of equity are an unbiased estimate of investors' expected returns. That proposition can be tested indirectly. For the sample of low risk utilities used in the DCF test (as well as the DCF-based equity risk premium test), the average expected long-term growth rate, as estimated using analysts' forecasts, for the entire 1991-March 2009 period of analysis was 5.0%. That growth rate is lower than the expected long-term nominal growth in the economy as a whole has been over the same period. An expected growth rate that is close to that of the economy as a whole would not be out-of-line with the level of growth investors could reasonably expect in the relatively mature utility industries over the longer-term.
>
> In addition, I incorporated *Value Line* forecasts of earnings growth in addition to the I/B/E/S consensus forecasts. As an independent research firm, *Value Line* has no incentive to "inflate" its estimates of earnings growth in an attempt to make stocks more attractive to investors. Incorporating *Value Line* estimates of earnings growth is a means of assessing the reasonableness of the results obtains through use of the I/B/E/S consensus estimates."

186. As noted by Ms. McShane at page 66 of her written evidence, the mean and median *Value Line* expected long-term earnings growth rate for the utility sample were both 6.0%; the corresponding I/B/E/S forecasts were 5.7% and 5.4%. This comparison suggests no upward bias in the I/B/E/S forecasts.[119]

187. The two DCF models of Ms. McShane, and their results, are:

1. A Constant Growth model. This model is described commencing at page D-1. The constant growth model rests on the assumption that investors expect cash flows to grow at a constant rate throughout the life of the stock. For the expected growth rates both I/B/E/S consensus (mean) earnings growth forecasts and Value Line forecasts of earnings growth were used by Ms McShane. The results of the use of this model are set out in Table D-1 on page D-4, ranging from 10.9% to 11.3%.
2. A Two-Stage model. This model is described commencing at page D-2. The two-stage model is based on the premise that investors expect the growth rate for the utilities to be equal to the company-specific growth rates for the near term, but in the longer-term (from year 6) to migrate to the expected long-run rate of growth in the economy (GDP growth). This model relies on the I/B/E/S consensus forecasts for the first five years and the consensus long-run nominal rate of growth of GDP of 5.0%. As

[119] Written evidence of Ms. McShane, page 66, line 1637 to 1639

> set out on page D-5, the mean and median estimates of the cost of equity for the low-risk U.S. utility sample are 10.3% and 10.5%.

188. The results of the two DCF models indicate a required "bare-bones" return on equity of approximately 10.4% (two-stage model) to 11.0% (constant growth model). These are returns on current market value of utility common equity investments. As noted by Ms. McShane at page 66 of her written evidence, *Value Line* anticipates the return on average common equity for the sample of low-risk U.S. utilities over the period 2012 to 2014 will be approximately 11.6 to 12.3% (Schedule 15 of Ms McShane's written evidence). The addition of an allowance for financing flexibility of 50 basis points (as discussed below) to the "bare-bones" return on equity estimate of 10.4% - 11.0% derived from both the DCF models, results in a DCF estimate of the fair return on equity of 10.9% - 11.5%.

### 2. DCF Evidence of Dr. Vander Weide

189. Dr. Vander Weide also estimates the cost of equity for Terasen Gas Inc. with the discounted cash flow method. As he says at page 29, line 24, of his written evidence, the "DCF method assumes that the current market price of a firm's stock is equal to the discounted value of all expected future cash flows".

190. The DCF model used by Dr. Vander Weide and its results are described at pages 33 to 35 of his written evidence, with further information in Exhibits 8 and 9. He applies the DCF model to a group of comparable U.S. utilities, being the *Value Line* electric and natural gas companies shown in Exhibits 8 and 9; selected as set out and explained on page 33 and 34.

191. Dr. Vander Weide's DCF results were summarized at page 34 of his written evidence where he says:

> "My application of the DCF model to my comparable group of natural gas companies produces a result of 11.5 percent, and to my comparable group of electric companies, 12.4 percent (see Exhibit 8 and Exhibit 9). The average DCF result for my two comparable groups is 11.9 percent."[120]

192. In BCUC information request 107.1 Dr. Vander Weide was asked to update his DCF analysis to the end of July and to indicate the adjustments he would make to each variable in his DCF analysis. In responding to the information request Dr. Vander Weide noted:

> " … that he does not "adjust" the variables in his DCF analysis. Rather, to update his DCF studies, Dr. Vander Weide employs the same methodology described in

[120] Written evidence of Dr. Vander Weide, page 34, lines 27 to 31

> his written evidence at pages 33 – 34. Thus, when Dr. Vander Weide performs his DCF analyses, he identifies a set of comparable companies, as described in his written evidence, and obtains each company's stock price, dividend, and growth data necessary to perform the DCF analysis. The stock price, dividend, and growth data for each company are the marketplace data, and no "adjustments" are made to these data inputs."[121]

193. The response to BCUC IR 107.1 also sets out that Dr. Vander Weide's DCF results in the Application were based on data available though the end of February 2009. When Dr. Vander Weide updated for data available through the end of July the DCF result for the *Value Line* electric utilities was 11.5 percent and the DCF result for the *Value Line* gas utilities was 11.9 percent. The average of those two values is similar to the average value in Dr. Vander Weide's written evidence.

194. The Terasen Utilities submit that the results in Dr. Vander Weide's discounted cash flow evidence represent a reasonable estimate of the cost of equity of TGI.

### 3. Suggestions of Forecast Bias

195. At page 84, lines 5 and 6, of his written evidence Dr. Booth says that he does not have any analysts' "forward looking" estimates and then goes on to say "It is generally accepted that analysts' earnings forecasts are biased high." Dr. Booth then refers to a past concern about conflict within investment banking firms that he concedes was "possibly moderated by subsequent rules" (line 24 on page 84) and which may never have applied to utility stocks; at page 88, lines 1 and 2, Dr. Booth says "I can also accept that the bias is probably lower for lower risk stocks like utilities simply because such bias becomes more blatant when there are hard facts to the contrary …". Dr. Booth accepts at line 28 on page 88 "that *Value Line* is free of conflict of interest cause of the over optimism bias, since it does not solicit investment banking business", but then Dr. Booth goes on to suggest, without any evidence whatsoever to support the suggestion, that *Value Line* analysts may be biased because of "standard behavioural biases that affect all individuals". When asked in an information request to explain these alleged behavioural biases he responded with an answer that provided no support for his suggestion of bias on the part of *Value Line* analysts.[122]

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[121] Response to BCUC IR 107.1, Exhibit B-6, page 27

[122] See the response to Terasen Information Request 47.1 in Exhibit C11-7

196. The Commission Panel in the 2006 Decision at page 42 referred to Ms. McShane's use of forecast earnings growth where it said:

> "To determine investors' growth expectations, Ms. McShane uses both Value Line (an independent research firm) forecasts of earnings growth as well as I/B/E/S (the major data base that provides long term consensus forecasts) consensus forecasts of utility equity analysts. Ms. McShane found no evidence of upward bias in the I/B/E/S consensus forecasts; indeed, she cites studies which find that investment analysts' forecasts serve as a better surrogate for investors' expectations than historic growth rates."

The Commission Panel also noted at page 48 of the 2006 Decision the statement of Dr. Booth about it being generally accepted that analysts' earnings estimates are biased high. At page 55 of the Decision the Commission Panel said:

> "The Commission Panel does not find Dr. Booth's comments helpful in that his observations mostly cover U.S. technology analysts and the scandal on Wall Street concerning inappropriate analyst behaviour in an investment banking milieu. The Commission Panel finds that Dr. Booth's use of DCF estimates for U.S. Utilities covered by Standard & Poors, which included "multi-utilities" and energy marketing firms, should not be used as representative of U.S. utility returns. The Commission Panel is more persuaded by Ms. McShane's evidence which compares Value Line and I/B/E/S forecasts and finds no upward bias in the latter. Accordingly, the Commission Panel will give weight to Ms. McShane's first DCF Test …"

197. At pages 86 and 87 of his written evidence Dr. Booth refers to a 2001 article of Claus and Thomas and a more recent article of Easton and Sommers in support of his contention that analysts' forecasts are biased. It should be noted that neither of those articles refers to forecasts from *Value Line*. Dr. Vander Weide was cross-examined by counsel for Dr. Booth with respect to Dr. Booth's contention of bias and the articles referenced at pages 86 and 87 of Dr. Booth's evidence. Dr. Vander Weide disputed the contention of bias, as appears in the discussion from the transcript below.

> "MR. WALLACE: Q: With the -- well, I'll leave it at that. There is evidence that analysts are overly optimistic also too, isn't there?
>
> MR. VANDER WEIDE: A: There were some articles that have indicated that they were overly optimistic. However, there are statistical errors in those models in two regards. One, those articles failed to reflect the fact that analysts are forecasting normalized earnings, that is earnings that don't account for onetime write-offs; whereas actual earnings include the effect of one-time write-offs. And since you can't -- you can only write your assets down, you can't write them up for accounting purposes. If you include onetime write-downs, you're necessarily going to bias your studies toward the hypothesis that analysts are optimistic. But

if you correct for the unexpected one-time write-offs, there is no evidence of optimism."[123]

"MR. WALLACE: Q: I'm sorry, you're right. Easton and Sommers. There are two of them and I started with -- again mixed them.

So if we can go first to the paragraph before, two paragraphs before, there's Claus and Thomas paper, and they noted the bias in forecasts but did not reduce them, but they did comment on the bias?

MR. VANDER WEIDE: A: They commented on the bias, but they were referring to articles that did not correct for the fact of one-time accounting write-offs. And that has a profound effect because if a company all of a sudden writes off a billion dollars of its assets, and that's going to flow through to its earnings in that period, its earnings in that period are going to be very much less than what the analysts were forecasting because it's impossible to forecast onetime write-offs."[124]

"MR. WALLACE: Q: Okay, and -- but the fact is, write-offs are part of earnings, aren't they?

MR. VANDER WEIDE: A: Well, write-offs are part of earnings, but there's a bias, because as I suggested earlier, if your assets go up in value you're not allowed to write them up for accounting purposes. So if we could adjust our assets either -- both up and down, there wouldn't very likely -- you wouldn't likely see a bias. But it's also unfair to criticize the analysts when they say that right from the get-go that they are forecasting normalized earnings. That is, the earnings that are not reflecting the impact of one-time write-offs."[125]

"MR. VANDER WEIDE: A: In addition, I would say that I personally have done considerable studies of whether analysts' forecasts are highly correlated with stock prices. The DCF model requires the use of investors' growth estimates whether or not they are accurate, because those are the ones that affect the stock price. So if investors use analysts' forecasts, and those forecasts affect the stock price, then that's what should be used in the DCF model. And my studies indicate very strongly, and it's been replicated many times by others, that analysts' forecasts are highly correlated with stock prices, whereas historical and retention growth rates are not. Or are not as highly correlated, let's say."[126]

198. Investors make use of analysts' forecasts, both the type included in the I/B/E/S forecasts and *Value Line*. Ms. McShane and Dr. Vander Weide use a sample of low-risk U.S. utilities for their DCF tests. There is no evidence that analysts forecasts relating to U.S. utilities are biased; and as stated by Ms. McShane at lines 1622 to 1626 of her written evidence, the average

[123] Tr 3, 369, ll. 2 - 20

[124] Tr 3, 370, l. 12 – 371 l. 2

[125] Tr 3, 371, ll. 14 - 26

[126] Tr 3, 372, ll. 10 - 23

expected long-term growth rate for the entire 1991 – March 2009 period, as estimated using analysts' forecasts was lower than the expected growth rate in the economy as a whole over the same period, which would not be out of line with the level of growth investors could reasonably expect in the relatively mature utility industries over the longer-term.

### 4. Conclusions Respecting DCF Approach

199. In its 2006 Decision the Commission gave weight to DCF related evidence of Ms. McShane. The Terasen Utilities submit that the Commission should continue to give weight to DCF related evidence, in this proceeding that of both Ms. McShane and Dr. Vander Weide. The two DCF models used by Ms. McShane support a cost of equity, before adjustments for financing flexibility, in the range of 10.5 percent to 11 percent. After adjusting for financing flexibility Ms. McShane's results are in the range of 11 percent to 11.5 percent. The average DCF result for Dr. Vander Weide's two comparable groups (natural gas and electric utilities) is 11.9 percent.

200. The Terasen Utilities submits that the Commission should accept that the DCF results of Ms. McShane and Dr. Vander Weide are reasonable estimates of the cost of equity for Terasen Gas Inc., and should give weight to those results in the determination of the fair return for the Terasen Utilities.

## EQUITY RISK PREMIUM APPROACH

201. The equity risk premium test is derived from the concept that there is a direct relationship between the level of risk assumed and the return required. Since an investor in common equity takes greater risk than an investor in bonds the equity investor requires a premium above bond yields in compensation for the greater risk. Equity risk premium tests are a measure of the market-related cost of attracting capital, that is, a return on the market value of the common stock, not the book value.[127]

202. Equity risk premium tests, similar to the other tests used to arrive at a fair return, are intended to be forward-looking, that is, they are intended to estimate investors' future equity return requirements. The magnitude of the differential between the required/expected return on equities and the risk-free rate is a function of investors' willingness to take risks and their views of such key factors as inflation, productivity and profitability. Because equity risk premium tests

[127] Written Evidence of Ms. McShane, page 43, lines 1049 - 1054

are forward-looking, historic risk premium data need to be evaluated in light of prevailing economic and capital market conditions. If available, direct estimates of the forward-looking risk premium should supplement estimates of the risk premium made using historic data.[128]

203. The Commission's task is to determine prospectively the fair return. The fair return must be determined taking into account the economic conditions that are expected when the allowed return will be in effect; history can be a source of information but historic averages cannot be used to determine the appropriate return. Economic circumstances have varied historically, and will vary in the future.

204. The capital asset pricing model is an equity risk premium model or test, but it is not the only equity risk premium test. As Dr. Booth says at page 52 of his written evidence, all that matters in the CAPM is the risk of holding securities in a diversified portfolio. As discussed above, the concept of how the holding of a security affects the overall risk of a diversified portfolio is not applicable to the determination of the fair return for investments in gas distribution assets. Other equity risk premium tests do not necessarily suffer from the same fundamental flaw.

205. Ms. McShane's uses three equity risk premium tests to estimate the fair return on equity for TGI: Risk-Adjusted Equity Market Risk Premium, DCF-Based Equity Risk Premium and Historic Utility Equity Risk Premiums**.** The results of those tests as set out in the written evidence of Ms. McShane indicate a utility cost of equity of approximately 10.25 percent after inclusion of a 50 basis point allowance for financing flexibility.[129] After updating one of the two versions of her DCF-Based Equity Risk Premium test to reflect more recent bond spreads (as discussed in paragraph 272 below) the results of the three equity risk premium tests indicate a utility cost of equity of approximately 10.1 percent including the allowance for financing flexibility.

206. Dr. Vander Weide uses two equity risk premiums methods or tests to estimate the cost of equity for TGI: Ex Post Risk Premium and Ex Ante Risk Premium. Dr. Vander Weide's risk

[128] Written Evidence of Ms. McShane, page 43, lines 1056 - 1064

[129] The written evidence of Ms. McShane respecting her equity risk premium tests is at pages 43 to 63 of Tab 3 of Exhibit B-1

premium methods produce required returns on equity in the range of 10.7 to 11 percent for the Ex Post method and 11.2 to 11.7 percent for the Ex Ante method.[130]

### 1. Equity Market Risk Premium

207. Ms. McShane and Dr. Booth both presented evidence to the Commission respecting the market risk premium that should be accepted by the Commission for the period when the return on equity allowed by the Commission will be in effect.

208. The Terasen Utilities submit that the components that are used to derive those estimates should be separately examined to determine the appropriate equity market risk premium.

209. The evidence of Ms. McShane respecting the equity market risk premium is at pages 45 to 51 and Appendix B (pages B-3 to B-19) of her written evidence.

210. In considering the equity market risk premium Ms. McShane examined both Canadian and U.S. markets, with focus on the post World War II period. Her reasons for examining U.S. data are set out under the heading "Globalization and Relevance of U.S. Equity Market Experience" commencing at page 45 of her written evidence, as further discussed in Appendix B. Amongst those reasons:

- The historic Canadian equity and government bond returns incorporate various factors that make them questionable as a realistic representation of expected risk premiums (e.g., capital held captive in Canada as a matter of policy, lack of equity market liquidity and diversity, and the higher risk of the Government of Canada bond market historically, which has since dissipated).
- Of particular importance has been the historic impact of the Foreign Property Rule (FPR), which capped the proportion of foreign investment that could be held by individuals (in RRSPs) and by pension funds. This cap was reduced over time and was removed entirely in 2005. Historic Canadian equity returns therefore are likely to understate investor return requirements.
- Equity investment outside of Canada grew rapidly as the barriers to foreign investment (in terms of transactions and information costs as well as the foreign investment cap) declined. Foreign stock purchases by Canadians increased almost ten-fold between 1995 and 2007. Although purchases declined in 2008, they were still almost $750 billion during the first eleven months of the year. In mid-2008, although the total percentage of foreign assets in trusteed pension funds was less than 30%, the percentage of foreign equity to total equity was close to 45%.

[130] The written evidence of Dr. Vander Weide respecting his equity risk premium tests is at pages 29 to 33 of Tab 4 of Exhibit B-1

- The relevance of the U.S. experience to the estimation of the risk premium from a Canadian perspective has increased as the relationship between Canadian and U.S. interest rates has changed. Historically, much of the difference between the achieved risk premiums in Canada and the U.S. arises from higher interest rates in Canada. The differential between Canadian and U.S. government bond yields and returns that existed historically has been substantially reduced. Over the period 1926-1996, the difference between long-term government bond yields in Canada and the U.S. averaged close to 100 basis points. Between 1997 and 2008, the difference was approximately -20 basis points.
- Recent consensus forecasts of long-term government bond yields anticipate that 10-year government bond yields will be virtually identical in the two countries. With similar interest rates in the two countries going forward, the U.S. historic equity market risk premium is a relevant benchmark in the estimation of the forward-looking equity market risk premium for Canadian investors.[131]
- The Canadian equity market composite is dominated by two sectors, financial services and energy. In contrast to the S&P/TSX Composite, the historic U.S. equity returns have been generated by a more diversified and liquid market. In addition, the U.S. equity market has historically been the principal alternative for Canadian investors to domestic equity investments. Approximately 47% of Canadian portfolio investment in foreign equities at the end of 2007 was in the U.S. The diversified nature of the U.S. equity market and the close relationship between the Canadian and U.S. capital markets and economies warrant giving significant weight to U.S. historical equity risk premiums in the estimation of the required equity risk premium for Canadian utilities.

211. Ms. McShane's reasons for focusing on the post World War II period are provided under the heading "The Post-World War II Period" at page 48 of her written evidence. As Ms. McShane explains, the estimation of the expected/required market risk premium from achieved market risk premiums is premised on the notion that investors' return expectations and requirements are linked to their past experience. Basing calculations of achieved risk premiums on the longest periods available reflects the notion that it is necessary to reflect as broad a range of event types as possible to avoid overweighting periods that represent "unusual" circumstances. On the other hand, the objective of the analysis is to assess investor expectations in the current economic and capital market environment. Consequently, Ms. McShane focused on post-World War II returns, that is, 1947-2008, a period more closely aligned with what today's investors are likely to anticipate over the longer-term. However, Ms. McShane has also taken account of achieved returns and risk premiums over longer periods.[132]

[131] At the time of the hearing the yields on 10 year and 30 year Canada and U.S. government bonds were almost the same – see Tr 5, 620 l. 17 – 621 l. 8

[132] Written evidence of Ms. McShane at page 48; lines 1181 to 1190

212. Dr. Booth examines returns from the 1924 to 2008 period for Canada (he also provides data on the 1924 to 1956 and 1957 to 2008 sub-periods) and from the 1926 to 2008 period for the U.S. (he also provides data on the 1924 to 1956 and 1957 to 2008 sub-periods). His reason for using a long period of time, is set out at page 1 of Appendix E of his written evidence, where he says:

> "I estimate the market risk premium by examining realised rates of return on different broad classes of securities over long periods of time. The reason for doing this is that if the underlying relationship generating these returns has remained reasonably constant then these realised returns can be used as a forecast of the market's future requirements."[133]

213. In some past Commission proceedings there has been discussion respecting whether arithmetic means or geometric means should be used to estimate market returns. Ms. McShane uses arithmetic means. Her discussion of why arithmetic means (averages) should be used is at page 49, and pages B-9 through B-13 of her written evidence. Dr. Booth also uses the arithmetic mean to estimate the market risk premium, as can be seen page 57, line 6 of his written evidence. At page 53 of the 2006 Decision the Commission Panel accepted the use of the arithmetic average for the purposes of determining the market risk premium in that proceeding.

***Equity Market***

214. Ms. McShane finds that during the 1947 to 2008 period equity market returns averaged 11.6% in Canada and 12.2% in the U.S.[134] Ms. McShane analyzed the trends in price/earning ratios and equity market returns and found no evidence of trends up or down in equity market returns over the post World War II period. As she says at page B-15:

> "The rolling ten-year averages in both Figures B-3 and B-4 suggest that there has been no upward or downward trend over time in equity returns over time. On average, equity market returns in Canada have been approximately 11.5% from 1947-2008."[135]

And as she says at page 50:

> "The increase in price/earnings ratios experienced during the market bubble of the 1990s has not resulted in a higher and unsustainable level of equity market returns. The arithmetic average equity returns in both Canada and the U.S. from 1947-1988 (prior to the increase in P/E ratios commencing in 1989) are actually higher than the average returns for the full 1947-2008 period.

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[133] Written evidence of Dr. Booth, Appendix E, page 1, lines 3 to 6

[134] Written evidence of Ms. McShane at page B-18, first full paragraph and B-17, second paragraph

[135] Written evidence of Ms. McShane, Appendix B, page B-15

> An analysis of rolling 10-year average equity returns reveals no upward or downward trend in equity market returns in Canada or the U.S. over the post World War II period."[136]

215. When equity market returns from an older period (from 1924 in Canada and 1926 in the U.S.) are included the equity market have averaged in the 11.3 percent (Canada) to 11.7 percent (U.S.) range, as shown in the following table from page 51 of Ms. McShane's written evidence.

**Table 7**

| | Canada | | U.S. | |
|---|---|---|---|---|
| | 1924-2008 | 1947-2008 | 1926-2008 | 1947-2008 |
| Equity Market Return | 11.3% | 11.6% | 11.7% | 12.2% |

Source: Schedule 8.

216. There is no evidence that nominal equity market returns should be lower in the future due to lower average expected inflation in future versus historic inflation; average equity market returns were higher during periods of lower inflation than during periods of higher inflation.[137]

217. Dr. Booth's estimate of the equity market return in Canada over the 1924 to 2008 period is 11.31 percent.[138] Dr. Booth's estimate of the equity market return in the U.S. over the 1926 to 2008 period is 11.66 percent.[139]

218. In comparing market risk premiums between Canada and the U.S., in Appendix F Dr. Booth says "The difference between the equity market returns can partly be explained by the previous effects of Canadian government policy to deliberately segment the Canadian equity market from that in the US, as well as by the historically lower risk of the Canadian market."[140] With regard to the former, the Foreign Property Rule that limited Canadian investment outside the country is no longer in effect. With regard to the latter, although Dr. Booth says the Canadian equity market has been less risky than the U.S. equity market, the difference in the volatility (measured by the standard deviations of returns) of the two markets historically has

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[136] Written evidence of Ms. McShane at page 50, lines 1237 to 1246, see also pages B-14 to B-17

[137] See the response to JIESC information request 38 b (Exhibit B-5 at page 101-102) and Tr 4, 454, l. 13 - 455, l. 16

[138] Written evidence of Dr. Booth, Appendix E, Schedule 1. The 11.31 percent is the arithmetic mean

[139] Written evidence of Dr. Booth, Appendix F, Schedule 1. The 11.66 percent is the arithmetic mean; as Dr. Booth uses to estimate the market risk premium

[140] Written evidence of Dr. Booth, Appendix F, page 2, lines 13 to 15

been very similar. There is no basis to conclude that the U.S. equity market and Canadian equity market returns should differ systematically going forward.[141]

219. At page 8 of Appendix E of his written evidence Dr. Booth referred to a 1999 journal article of which he was the author. At that page Dr. Booth said:

> "In my judgement the riskiness of the equity market is relatively stable. In fact, going back as far as 1871, there is substantial evidence that the real return on US equities has been constant at just under 9.0%."[142]

In cross-examination Dr. Booth agreed that to obtain a nominal market return inflation would have to be added to the real equity market return. Dr. Booth accepted 3 percent as representative inflation over the 1871 to 1999 period, saying "I'll accept 3 percent. I don't think it's 5 percent, and I don't think it's any lower than 3 percent."[143] If 3 percent is added as inflation, the nominal U.S. equity market returns over the period from 1871 were approximately 12 percent.

220. The Terasen Utilities submit that the evidence of Dr. Booth supports Ms. McShane's estimates of the equity market returns in Canada and the U.S. As Dr. Booth says at page 50 of his written evidence "… she looks at the nominal equity returns in the US and Canada from 1924, which she estimates at 11.3% for Canada and 11.7% for the US. Again there is little dispute as to the estimates since I estimated them to be 11.1 and 11.66% respectively in my Appendix F".[144]

221. The Terasen Utilities further submit that the Commission should accept the evidence of Ms. McShane that the 1947 to 2008 period equity market returns averaged 11.6% in Canada and 12.2% in the U.S. The Terasen Utilities further submit that those equity returns should be the basis for estimating the forward-looking market risk premium.

***Bond Market***

222. At page 49 of her written evidence Ms. McShane distinguishes between bond income returns and bond total returns. As she says:

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[141] Volatility of the U.S. and Canadian stock markets, as measured by the standard deviation of returns, is set out in Schedules 1 and 2 of Appendix F of the written evidence of Dr. Booth. It can been seen that the volatility of the two markets is very similar

[142] Written evidence of Dr. Booth, Appendix E, page 8, lines 25 to 25

[143] Cross-examination of Dr. Booth, Tr 5, 623 to 625, particularly 625, ll. 2 - 11

[144] Written evidence of Dr. Booth at page 50, lines 5 to 8

> "While government bonds are considered default-free, they are not risk-free; they are subject to interest rate risk. The total bond returns experienced include capital gains and losses resulting from changes in interest rates over time. The bond income return, in contrast, reflects only the bond coupon payment portion of the total bond return; it represents the riskless component of the bond return. In principle, using the bond income return more accurately measures the historic equity risk premium above the risk-free rate."[145]

In her evidence Ms. McShane provides information on both bond income returns and bond total returns.

223. Dr. Vander Weide uses bond yields, which are similar to Ms. McShane's bond income returns, in his equity risk premium analyses. In cross-examination by Mr. Wallace of Dr. Vander Weide the following exchange took place:

> "MR. WALLACE: Q: Why didn't you use actual returns or achieved returns in estimating the Canadian market risk premium?
>
> MR. VANDER WEIDE: A: I didn't use achieved returns because the risk premium is the premium on the -- either the market or the utilities, in my case the utilities, compared to the risk-free rate of interest. And these returns, as you can see, are not risk-free because the investor is purchasing a long-term Canada bond and only holding it for one year. And so there is a large capital gain or loss. The only return that's risk-free for a long-term investor in long Canada -- for an investor in long Canada bonds is the yield to maturity. That is, they will -- they are virtually guaranteed to get their yield to maturity if they hold the long Canada bond to maturity, and so that's the closest approximation to the risk-free rate for long-term investors."[146]

224. While equity market returns have been relatively steady over time, Ms. McShane and Dr. Booth agree that there have been significant difference in bond total returns depending on the time period examined.

225. Ms. McShane provides historic information on bond returns in Appendix B, at pages B-14 to B-19, of her written evidence. Referring to her study period of 1947 to 2008, at page B-15 Ms. McShane says:

> "By comparison, bond returns (both Total and Income returns) exhibited an increase throughout much of the period, before beginning to decline in the early to mid-1990s. The pattern in the bond returns results from:
>
> - rising bond yields in the 1950s through the mid-1980s, which produced capital losses on bonds and low bond total return;

[145] Written evidence of Ms. McShane, page 49, lines 1215 to 1220

[146] Tr 3, 329 l. 10 – 330, l. 1

- high bond income and income returns in the 1980s, reflecting the high rates of inflation; and,
- high bond total returns in the 1990s and first half of the 2000s, reflecting the decline in long-term government bond yields, resulting in capital gains and total returns well in excess of the yields.

The resulting average income and total return on long-term government bonds in Canada has been approximately 7.0% during the post-World War II period (1947-2008), well in excess of the long-term Canada bond yields which are forecast to prevail going forward."[147]

226. Ms. McShane notes in footnote 10 on page B-16, "The bond yield is, in fact, an estimate of the expected return".

227. As indicated by Ms. McShane at page B-19, and also at page 47 of her written evidence, the forecast yield on long-term Canada bonds (which is the expected income return and the expected risk free rate) is 4.25% for 2010 and 5.25% over the longer (2011 to 2019) term.[148]

228. Looking forward, as the equity risk premium test is to do, the reasonable expected bond return is the forecast yield (4.25 percent in 2010, and 5.25 percent longer-term). Historical average bond returns overstate the expected bond returns. Ms. McShane address this at page B-18 where she states:

> "Over the entire 1947-2008 period, the average income total return on long-term Canada bonds was approximately 7.0%. With interest rates currently at historically low levels (approximately 3.75% at the mid-April 2009), and more likely to increase rather than decrease further, the 1947-2008 average bond returns of approximately 7.0% overstate the forward-looking expected bond return indicated by current and forecast 30-year Canada bond yields. A reasonable expected value of the long-term Canada bond return for the purpose of estimating the forward-looking equity market risk premium is the forecast long-term Canada bond yields, rather than the historic average bond returns."[149]

229. Dr. Booth agrees that historical average bond returns overstate the expected bond returns. In cross-examination Dr. Booth was asked if he would agree that with long Canada bond yields at the current level it cannot be expected that annual bond returns will be similar to what has been seen over the last ten years. He responded at transcript page 622 by saying:

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[147] Written evidence of Ms. McShane, pages B-15 and B-16

[148] The yield for Canada referenced at page 47 of the written evidence is a long-term forecast for 10 year government bonds yields.

[149] Written evidence of Ms. McShane, pages B-18 and B-19

> "I think bond yields will go up and anyone holding long Canada bonds is going to lose money and get a less than expected rate of return over the next couple of years."[150]

230. In cross-examination Dr. Booth confirmed that his forecast for long Canada bonds is 4.5 percent. The following exchange then occurred:

> "MR. JOHNSON: Q: And so that would -- that forecast would indicate that people that are holding long bonds today are going to suffer a loss on the bonds. There's a negative return, correct?
>
> MR. BOOTH: A: That's correct. And it's similar to the forecast that we put to Mr. Carmichael yesterday, from Scotia Capital. Just about everybody's forecasting that long Canada bonds will increase, and that's what we would expect with the return of the economy to a growth pattern, return of inflation to 2 percent range. We should be back to where we were two or three years ago, which is where long Canadas will be in the high fours, low fives."[151]

231. The quotation from transcript page 622 two paragraphs above indicates that Dr, Booth also regards the bond yield as the expected bond return, since he says that what investors in bonds will receive by way of return (taking into account the capital loss on holding those bonds) is less than their expected return, that is, less than the current yield on the bond.

232. Dr. Booth agrees that bond returns have varied over his study period. Schedule 1 of Appendix E of his written evidence shows that during the 1924 to 1956 period the long Canada total returns were approximately 4 percent, while in the 1957 to 2008 period those total returns were approximately 8 percent. Schedule 2 of Appendix F shows similar variation for the total bond returns in the U.S.

233. The Terasen Utilities submit that there is general agreement between Ms. McShane and Dr. Booth that bond total returns have been higher in the more recent past than can be expected in the future. The difference between historic bond returns and the expected or forecast bond yields (which are the expected bond returns) is important when considering the forward-looking market risk premium.

***Market Risk Premium***

234. Ms. McShane provides her estimate of the forward-looking equity market risk premium at page 51 of her written evidence (also discussed at pages B-14 through B-19) where she says:

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[150] The discussion starts at Tr. 5, 621, l. 22, with the quotation from 622, ll. 11 - 14

[151] Tr 5, 622, l. 19 – 623, l. 5

> "Given the absence of any material upward or downward trend in the historic equity market returns, a reasonable expected value of the future equity market return is a range of 11.0%-12.0%, based on both the Canadian and U.S. equity market returns. Based on both the near-term (2010) and the longer-term forecasts for long-term Canada bond yields of 4.25% and 5.25% respectively, and an expected equity market return in the range of 11.0%-12.0%, the indicated equity market risk premium is approximately 6.75%."[152]

235. Ms. McShane's forward-looking equity market risk premium of 6.75 percent takes into account expected future equity market returns and the returns that are expected in the bond market, which is the forecast yield on long-term Canada bonds. The Terasen Utilities submit that Ms. McShane's forward-looking market risk premium estimate is reasonable, and should be accepted by the Commission.

236. In contrast to Ms. McShane, Dr. Booth develops his equity market risk premium by examining historic equity returns and historic total bond returns, and then judgmentally adjusting the calculated historic information to account for increase in bond market total returns that has occurred in the more recent years of his study period. He estimates the market risk premium at 5 percent, which he then increases for a "margin of error" to 5.5 percent because of a survey of finance professors.[153]

237. The Terasen Utilities submit that there is nothing in Dr. Booth's estimate of the equity market risk premium that links his equity market risk premium estimate to expected equity market returns and forecast (expected) bond yields. Dr. Booth's equity market risk premium is an academic exercise that is not anchored in the reality of the expected long Canada bond yields of 4.25 to 4.5 percent that both he and Ms. McShane forecast for 2010.

238. At page 50 of his written evidence Dr. Booth questions Ms. McShane's procedure to derive her 6.75 percent forward-looking equity risk premium, saying:

> "I don't believe you can subtract the current LTC yield from a long run average equity return since it mismatches the underlying inflationary environments".[154]

239. The Terasen Utilities submit that the statement in that quotation is the only basis on which Dr. Booth suggests that Ms. McShane's forward-looking equity risk premium of 6.75 percent is incorrect. Recall that on the same page of his written evidence Dr. Booth says there

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[152] Written evidence of Ms. McShane, page 51, lines 1273 - 1278

[153] See the written evidence of Dr. Booth at page 52, lines 6 to 15 and Tr. 5, 626, ll. 7 - 12

[154] Written evidence of Dr. Booth at page 50, lines 11 to 13

is “little dispute” between his equity return estimates and those of Ms. McShane.[155] With regard to his suggestion that there is a mismatching of inflationary environments, Dr. Booth says that the current long Canada yield reflects the current inflationary forecast of 2.0 percent. He then goes on to say:

> “In contrast the average return of 11.3% in Canada [referring to Ms. McShane’s historic Canadian equity return over the 1924 – 2008 period] reflects the entire inflationary period from 1924. My Appendix E shows that inflation averaged not 2.0% but over 3.0% during this period, so her procedures may over estimate the market risk premium by at least 1.0%.”[156]

Note that Dr. Booth does not say that Ms. McShane’s forward-looking equity risk premium “does” over estimate the market risk premium, only that in his view it “may” over estimate.

240. A premise that is crucial to Dr. Booth’s suggestion that a mismatching of the underlying inflationary environments may cause Ms. McShane’s forward-looking equity risk premium to be over estimated is the premise that equity market returns are lower when inflation is lower. If this premise is not correct then there is no foundation for Dr. Booth’s suggestion that Ms. McShane’s forward-looking equity risk premium may be over estimated. In examining whether or not equity market returns are lower when inflation is lower the first point to be noted is that Dr. Booth does not refer to any factual evidence in support of the premise. Dr. Booth refers to different levels of inflation, but does not point to any evidence that indicates that equity market returns are lower when inflation is lower.

241. The second item to consider in the examination of whether or not equity market returns are lower when inflation is lower is the evidence at transcript pages 454 and 455 where Ms. McShane addressed the quotation of Dr. Booth set out in paragraph 238:

> “Essentially the way I understand Dr. Booth's comment is that he's suggesting that the nominal historic returns going forward should be lower than they were historically because the rate of inflation is expected to be lower in the future than it was in the past. And what I would ask you to do if I could is turn to the response to JIESC 1, number 38B, [Exhibit B-5] and what I wanted to point out in the response to 38B was the relationship between the nominal equity return and the average rate of inflation. And if you look at the table at the top of page 102, what you see is that essentially the lower the rate of inflation the higher the real equity return has been over time. So the fact that inflation going forward might be 2 percent as opposed to someone over 3 percent over the full period should not result, based on history, in a lower return than we'd seen in the past.”[157]

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[155] Written evidence of Dr. Booth at page 50, lines 5 to 8

[156] Written evidence of Dr. Booth at page 50, lines 15 to 18

[157] Tr 4, 454, l. 13 – 455, l. 16

The table from the response to JIESC information request 38 b) is produced below.

| Inflation Range | Nominal Equity Return | Average Rate of Inflation | Real Equity Return |
|---|---|---|---|
| Less than 1% | 14.5% | -1.5% | 16.0% |
| 1-3% | 12.8% | 1.9% | 10.9% |
| 3-5% | 4.8% | 4.1% | 0.7% |
| Over 5% | 12.5% | 9.2% | 3.3% |

As is stated in that response "The historic data indicate that the real rate of return on equities has generally been lower at higher rates of inflation". The facts do not support an assertion that equity market returns are lower when inflation is lower; the facts support the opposite.

242. The cross-examination of Dr. Booth is a third consideration in the examination of whether or not equity market returns are lower when inflation is lower. Exhibit B-24 is a page from the written evidence of Ms. McShane in 2005[158] Dr. Booth said he had no reason to doubt the data in the exhibit, he had never found any errors in Ms. McShane's data so far.[159] In cross-examination Dr. Booth was referred to the data in Exhibit B-24 respecting the 1950s when equity market returns were high (17 percent in Canada and 20.8 percent in the U.S.). Dr. Booth said that period was the golden age for the stock market and went on to say "It was a period in which inflation was relatively low".[160] Dr. Booth was then referred to the 1980s when bond returns were high (13.7 percent in Canada and 13.5 percent in the U.S.) and equity market returns were not too bad (13.1 percent in Canada and 18.2 percent in the U.S). Dr. Booth indicated inflation was at 12 or 13 percent in 1980 and declined during the decade.[161] Schedule 2 of Dr. Booth's evidence shows that while inflation may have peaked in 1981, by 1990 the inflation rate was still over 4 percent. By Dr. Booth's evidence, the low inflation of the 1950s had associated with it high equity market returns and the 1980s, a period of relatively high inflation, had associated with it quite reasonable equity market returns. These facts do not support the premise that equity market returns are lower when inflation is lower.

[158] The Canadian data in Exhibit B-24 is in the table on page 47 of the March 2006 Decision
[159] Tr. 5, 617, ll. 1 - 12
[160] Tr 5, 617, l. 25 – 618, l. 12
[161] Tr 5, 619, l. 15 – 620, l. 10

243. A fourth consideration in the examination of whether or not equity market returns are lower when inflation is lower is the broader consideration of the correlation between bond returns and equity returns. Underlying Dr. Booth's suggestion that Ms. McShane's forward-looking equity risk premium may be over estimated is the implicit inference that equity market returns must decrease when bond returns decrease, that is, in a period of lower than average bond returns there should be lower than average equity returns. However, there is no evidence before the Commission to support such an inference. Exhibit B-22 is an extract from a 2008 paper co-authored by Dr. Booth. At page 17 the authors state "Table 5 also shows that equity returns in general display low correlations with bond returns". This lack of correlation (which can also be seen in Exhibit B-24) indicates there is no basis to infer that equity market returns are lower when bond returns, or expected bond returns (yields), are lower.

244. The Terasen Utilities submit that the evidence demonstrates that there is no factual support for Dr. Booth's sole basis for suggesting that Ms. McShane's forward-looking equity risk premium may be over estimated. The Terasen Utilities submit that the evidence supports Ms. McShane's conclusion that that there has been no upward or downward trend in equity returns over time. The Terasen Utilities further submit, based on an expected equity market return in the range of 11 percent to 12 percent, and the near-term and the longer-term forecasts for long-term Canada bond yields of 4.25 percent and 5.25 percent, that Ms. McShane's estimate of the forward-looking equity market risk premium of 6.75 percent should be accepted by the Commission. Dr. Booth's estimate of a market risk premium of 5 percent or 5.5 percent does not reasonably reflect a forward-looking equity market risk premium that is consistent with the forecast long Canada bond yields of 4.25 percent to 5.25 percent.

### 2. Relative Risk Adjustment

245. Ms. McShane's addresses the appropriate adjustment to the market risk premium to reflect the lower risk of TGI at pages 52 to 57 and B-19 to B-24 of her written evidence. She concludes that the relative risk is in the range of 0.65 to 0.70.[162]

246. Ms. McShane's analysis of the relative risk starts with a recognition that investors are not perfectly diversified, do look at the risks of individual investments, and require compensation for assuming company-specific or investment-specific risk. Her analysis also recognizes that, while investors can diversify their portfolios, the stand-alone utility to which the allowed return is

[162] Written evidence of Ms. McShane at page 57, lines 1409 – 1410

applied cannot.[163] A risk measurement that reflects those considerations is relevant for estimating the utility equity risk premium. These considerations support focusing on total market risk. Ms. McShane considered beta, which is intended to measure solely non-diversifiable risk. As she says in her evidence, the drawbacks of beta as the sole measure of risk, as well as the absence of an observable relationship between "raw" betas and the achieved market returns on equity in the Canadian market, provide support for reliance on other measures of risk to estimate the required equity return.[164]

247. The standard deviation of market returns is the principal measurement of total market risk. To compare the relative total risk of Canadian utilities to the total market, Ms. McShane calculated the standard deviations of monthly total market returns for each of the ten major Sectors of the S&P/TSX Index, over five-year periods ending 1997 through 2008 (Schedule 10). To translate the standard deviation of market returns into a relative risk adjustment, utility standard deviations must be related to those of the overall market. The relative market volatility of Canadian utility stocks was measured by comparing the standard deviations of the Utilities Index to the simple mean and median of the standard deviations of the ten Sectors. The ratio of the standard deviation of the Utilities Index to the mean and median standard deviations of the ten major Sector Indices suggests a relative risk adjustment for a Canadian utility in the range of 0.55-0.85, with a central tendency of approximately 0.65-0.70.[165]

248. Ms. McShane also considered utility betas. Schedule 11 of her written evidence summarizes the "raw" betas she calculated for publicly-traded Canadian regulated gas and electric companies, the TSE Gas/Electric Index, and the S&P/TSX Utilities Sector. As Schedule 11 indicates, there was a significant decline in the calculated "raw" betas of the individual Canadian utilities between 1993 and 1998 and between 1999 and 2005 (from approximately 0.50-0.60 to 0.0 and slightly negative). Following an increase in 2007 to 0.50, the utility betas again declined in 2008 to approximately 0.25. Ms. McShane's analysis indicates that the betas of traded Canadian utility shares and of the utility index explain a relatively small percentage of the actual achieved market returns over time. A regression of the monthly returns on the TSX Utilities Index against the returns on the TSX Composite over the period 1970 to 2008 shows that only 32 percent of the variability in utility stock prices is explained by volatility in the equity

[163] The evidence of Dr. Booth at transcript page 594, as discussed in paragraph 148 above, is consistent with the inability of a stand-alone utility to diversify

[164] Written evidence of Ms. McShane at page 52, lines 1284 to 1300

[165] Written evidence of Ms. McShane at page 52, line 1302 to page 53, line 1310. See also Schedule 10 of Ms. McShane's written evidence

market as a whole. That means 68 percent of the monthly volatility in share prices remains unexplained. When government bond returns are added as a further explanatory variable in the regression analysis more of the observed volatility in utility stock prices is explained (43 percent versus 32 percent). While the second regression equation suggests that utility shares have had approximately 40 percent of the volatility of the equity market and over 50 percent of the volatility of the bond market, the equation still leaves more than half of the utility shares' volatility unexplained. The average actual annual return for the utility index over the 1970 to 2008 period was 12.2%; of this average return, 2.25 percentage points was explained neither by volatility in the equity market nor returns of the government bond market.[166]

249. The Commission Panel in its 2006 Decision recognized the shortcomings of reliance on beta values when it said at pages 47 and 48:

> "Impediments to reliance on beta as the sole relative risk measure, as the CAPM indicates, include:
>
> - the assumption that all risk for which investors require compensation can be captured and expressed in a single variable;
> - the only risk for which investors expect compensation is non-diversifiable equity market risk; no other risk is considered (and priced) by investors; and
> - the assumption that the observed calculated betas (which are simply a calculation of how closely a stock's or portfolio's price changes have mirrored those of the overall equity market) are a good measure of the relative return requirement.
>
> Use of beta as the relative risk adjustment allows for the conclusion that the cost of equity capital for a firm can be lower than the risk-free rate, since stocks that have moved counter to the rest of the equity market could be expected to have betas that are negative (Exhibit B-1, Tab 2, Appendix A, p. 5)."[167]

250. The "raw' betas of approximately 0.25 for Canadian utilities provide virtually no explanatory power in terms of capturing utility investors' return expectations. While that is clear, the more difficult task is to determine if and how the "raw" beta values can be translated into a relative risk adjustment that does provide an indication of the return requirements of utility investors. In order to arrive at a reasonable relative risk adjustment, the normative ("what should happen") CAPM needs to be integrated with what has been empirically observed ("what does or has happened"). Empirical studies have shown that stocks with low betas (less than the equity market beta of 1.0) have achieved returns higher than predicted by the single variable

[166] Written evidence of Ms. McShane at page 54, line 1333 to page 55, line 1369

[167] March 2, 2006 Decision, pages 47 and 48

(that is, equity beta) CAPM. Conversely, stocks with betas higher than the equity market beta of 1.0 have achieved lower returns than the model predicts. Information relating to such studies is provided at pages B-20 and B-21 of the written evidence of Ms. McShane.

251. As Ms. McShane sets out at page 56 of her evidence, the use of betas that are adjusted toward the equity market beta of 1.0, rather than the calculated "raw" betas, takes account of the observed tendency of low (high) beta stocks to achieve higher (lower) returns than predicted by the capital asset pricing model. Adjusted betas are a standard means of estimating betas, and are widely disseminated to investors by investment research firms, including Bloomberg, *Value Line* and Merrill Lynch. Their methodologies give approximately 2/3 weight to the calculated "raw" beta and 1/3 weight to the equity market beta of 1.0. At page 56 Ms. McShane provides a table that includes the recent three-year Bloomberg betas for the five major Canadian utilities. The Bloomberg betas suggest that the relative risk adjustment based on recent Canadian utility betas is approximately 0.65. The reported *Value Line* betas for the sample of low risk U.S. utilities show similar values. The average reported *Value Line* beta for the sample, and the beta more likely to be relied upon by analysts and investors, was 0.66 (Schedule 15 of Ms. McShane's written evidence).[168]

252. In its 1999 Decision the Commission noted that evidence presented in the proceeding indicated that a strict reliance on the "raw" beta may under-estimate the relative riskiness of utilities. In that Decision the Commission adopted a relative risk for a benchmark utility of 0.6.[169] In the March 2006 Decision the Commission Panel accepted the use of a beta or relative risk factor of 0.50, noting that the five-year data ending December 31, 2004 would give unreliable results given the technology boom followed by the bust in the years 2000 and 2001. As the evidence in this proceeding demonstrates, beta values based on more recent data are still unreliable.

253. Dr. Vander Weide's evidence supports the conclusion that the relative risk for Canadian utilities is materially higher than indicated by their betas values. At page 10 of his written evidence Dr. Vander Weide says:

> "I have examined evidence on the volatility of returns on Canadian utility stocks compared to the volatility of returns on the Canadian market index. My studies

[168] Written evidence of Ms. McShane at page 55, line 1371 to page 57, line 1405

[169] Pages 16 and 17 of the August 26, 1999 Commission Decision

> indicate that the volatility of returns on Canadian utility stocks exceeds or approximates the volatility of returns on the Canadian market index."[170]

At page 22 of his evidence Dr. Vander Weide was asked what conclusion he drew from his evidence that the standard deviation of annual returns on Canadian utility stocks has exceeded or approximated the standard deviation of returns on the Canadian market as a whole. He responded by referring to the risk of Canadian utility stocks being greater than assumed by the automatic adjustment mechanism, and then said:

> " my evidence indicates that Canadian utility stocks have approximately the same risk as the Canadian stock market as a whole."[171]

254. The evidence of Dr. Vander Weide indicates, based on the relative standard deviations of utility stocks to the S&P/TSX composite, that the relative risk of utilities is significantly higher than the observed "raw" betas of Canadian utilities, significantly higher than the 0.50 beta used by Dr. Booth, and approximately the market beta of 1.0. In the response to BCUC information request 14.5.1.1 Dr. Vander Weide said:

> "… beta is only a measure of risk in the context of the CAPM. If the CAPM fails to predict the relationship between risk and return in the Canadian marketplace, beta is an unreliable indicator of risk. Dr. Vander Weide's testimony provides strong evidence that the CAPM fails to predict the relationship between risk and return in the Canadian marketplace, and, therefore, that the utility beta is not a reasonable measure of risk."[172]

255. Dr. Booth measures the relative risk of utilities compared to the equity market by means of beta. The beta value he uses is 0.5.

256. The betas values set out in the table at page 38 of Dr. Booth's evidence for what he describes as "major Canadian utility holding companies" are almost universally lower than the 0.50 value he uses, and in quite a few cases the beta values are negative.[173]

257. At page 40 of his written evidence Dr. Booth says "It is important to remember that betas are simply a statistical estimate of the extent to which a stock moves with the general market

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[170] Written evidence of Dr. Vander Weide at page 10, lines 11 to 15. The table containing the standard deviations of the BMO CM utilities data set, the S&P/TSX Utilities Index and the TSX Canadian Market is at page 23

[171] Written evidence of Dr. Vander Weide at page 22, line 23 to page 24, line 2

[172] Response to BCUC information request 14.5.1, Exhibit B-3, pages 51 and 52

[173] In the CAPM a negative beta indicates that the investors' required return for that security is less than the risk free rate of return

over a particular period of time".[174] At page 42 he says "… statistics like betas tell the truth".[175] And at page 43 he says "Overall it is difficult to see any statistical evidence that the risk of Canadian UHCs for the last 10 years has consistently been within their "normal" range of 0.40-0.60 experienced in the mid to late 1990s".[176] Dr. Booth is in effect saying betas are simply statistics, that betas tell the truth, but that the truth they tell does not provide any support for the beta value of 0.50 that he has chosen to use.

258. The Terasen Utilities submit that there is no evidence to support Dr. Booth's relative risk of 0.50. Dr. Booth suggests the beta values for Canadian utilities should be 0.50, but there is no evidence to support that value as being reasonable. The Terasen Utilities submit that Dr. Booth simply picks a number, and calls it beta.

259. With regard to Dr. Booth's beta value of 0.50, in cross-examination by Mr. Wallace at transcript page 337 Dr. Vander Weide observed:

> "… a beta of .5 suggests that one would have thought that the risk premium on the utilities would have been half as large as the risk premium on the market, and instead we see that it was greater, 4.85 versus 3.39, than the risk premium on the market.
>
> That suggests to me that either we are grossly underestimating the beta when we assign it a beta of .5, or that the capital asset pricing model doesn't predict the relationship between risk and return in the Canadian marketplace. And I think that's a very important piece of information for this proceeding."[177]

260. The Terasen Utilities submit that the Commission should accept that the relative risk to be used in assessing the market risk of TGI as compared to the overall equity market is in the range of 0.65 to 0.70. The Terasen Utilities submit that the evidence of Ms. McShane demonstrates that such a relative risk is reasonable, and the evidence of Dr. Vander Weide indicates that the relative risk is higher than that range. The Terasen Utilities submit there is no evidence to support Dr. Booth's use of a beta value of 0.50 as indicative of the relative risk.

### 3. Equity Risk Premium Evidence of Ms. McShane

261. Ms. McShane's uses three equity risk premium tests: Risk-Adjusted Equity Market, DCF-Based and Historic Utility. Each of the three tests is discussed below.

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[174] Written evidence of Dr. Booth, page 40, lines 21 and 22

[175] Written evidence of Dr. Booth, page 42, line 25

[176] Written evidence of Dr. Booth, page 43, lines 27 to 29

[177] Tr 3, page 337, ll. 1 – 12. See also the third item noted in the response of Dr. Vander Weide to the BCUC information request 14.5.1 at page 52 of Exhibit B-3

***Risk-Adjusted Equity Market Risk Premium Test***

262. Ms. McShane's risk-adjusted equity market premium test is addressed at pages 44 to 57 of her written evidence, with further information provided in Appendix B.

263. The estimates of equity market returns, bond market returns, and market risk premium developed by Ms. McShane have been discussed in the Sections immediately above.

264. Ms. McShane conclusion respecting her risk-adjusted equity market risk premium test is set out at page 57 of her written evidence, where she says:

> "I previously estimated the equity market risk premium at the 2010 forecast long Canada yield of 4.25% and at the longer-term yield of approximately 5.25% at approximately 6.75%. At an equity market risk premium of 6.75% and a relative risk adjustment of 0.65-0.70, the indicated utility equity risk premium is approximately 4.5%. The cost of equity based on the risk-adjusted equity market risk premium test at the 2010 forecast long-term Canada bond yield of 4.25% is 8.75%, before any adjustment for financing flexibility."[178]

265. With the addition of a 50 basis point allowance for financing flexibility Ms. McShane's estimate of the return on equity for TGI from this test is 9.25 percent.

***DCF-Based Equity Risk Premium Test***

266. As Ms. McShane says at page 57 of her evidence, the risk-adjusted equity market risk premium test discussed above estimates the required utility equity risk premium indirectly. That is, it estimates an equity risk premium for the equity market as a whole, and then adjusts it for the relative risk of the utility. Ms. McShane's DCF-Based Risk Premium Test, which is discussed in Section B.4 of Ms. McShane's written evidence at pages 57 through 61, and the Historic Utility Equity Risk Premium Test discussed in Section B.5 of Ms. McShane's written evidence, estimate the utility equity risk premium directly by analyzing utility equity return data.

267. Ms. McShane's DCF-based equity risk premium is a forward-looking test that uses the discounted cash flow model and long-term government bond yields to estimate expected utility returns and risk premiums over time. Monthly cost of equity estimates were constructed for the period 1991 to March 2009, using the DCF model and a sample of low risk U.S. gas and electric utilities as a proxy for TGI. U.S. utilities were chosen by Ms. McShane for the reasons set out in paragraph 182 above and discussed at page 58 of her evidence.

[178] Written evidence of Ms. McShane at page 57, lines 1414 to 1419

268. The monthly DCF costs of equity were estimated as the sum of the consensus of analysts' forecasts of long-term normalized earnings growth, plus the expected dividend yield. The equity risk premium is equal to the difference between the sample average DCF cost of equity and the corresponding month-end 30-year Treasury bond yield. The DCF-based risk premium test indicates an average risk premium over the full 1991 to March 2009 period of 4.3% (Schedule 12 of Ms. McShane's written evidence); the corresponding average long-term government bond yield was 5.9%, approximately 175 basis points higher than Ms. McShane's 2010 forecast long-term Canada bond yield of 4.25%.[179]

269. The data analyzed by Ms. McShane suggest that there has been an inverse relationship between the long-term government bond yield and utility equity risk premiums over the 1991 to March 2009 period. Expressed in terms of return on equity, the equity return rose by 30 basis points when the long-term government bond yield rose by 100 basis points. Conversely, the equity return fell by 30 basis points when the long-term government bond yield fell by 100 basis points. This analysis indicates that the return on equity is much less sensitive to changes in the long-term Canada bond yield that the Commission's automatic adjustment mechanism assumes. The existing AAM formula assumes that utility return on equity increases or decreases by 75 percent of the increase or decrease in the long-term Canada bond yield. The DCF-based risk premium analysis indicates that the increase or decrease in return on equity has been only 30 percent of the increase or decrease in long-term Canada bond yields.[180]

270. At Ms. McShane's 2010 forecast 30-year government bond yield of 4.25 percent, the indicated utility equity risk premium is approximately 5.4 percent. The indicated utility cost of equity would be 9.7 percent before any adjustment for financing flexibility, but this analysis does not incorporate all factors that impact the utility cost of equity, as discussed by Ms. McShane at pages 60 and 61 of her written evidence.

271. The magnitude of the spread between corporate bond yields and government bond yields is frequently used as a proxy for changes in investors' perception of risk, or willingness to take risks. To capture this factor in her analysis, Ms. McShane tested the relationship among utility equity risk premiums and the spreads between long-term utility and government bond yields in conjunction with the change in the yield on long-term government bond yields. A regression analysis over the same 1991 to March 2009 period (Schedule 12 of Ms. McShane's

[179] Written evidence of Ms. McShane, page 59, lines 1454 to 1462
[180] Written evidence of Ms. McShane, page 59, lines 1464 to 1479

evidence, page 2) indicated that, while the utility risk premium has been negatively related to the level of government bond yields, it has been positively related to the spread between utility bond yields and government bond yields. The regression analysis showed that the equity risk premium has increased or decreased by approximately 40 basis points when the government bond yield has decreased or increased by 100 basis points and has increased or decreased by 12 basis points for every 10 basis point increase or decrease in the utility/government bond yield spread. The inclusion of the utility/government bond yield spread as a second explanatory variable also supports the conclusion that the utility cost of equity changes by significantly less than 75% of the change in long-term government bond yields.[181]

272. In her written evidence Ms. McShane noted that as of the end of March 2009 the spread between A rated Canadian utility bonds and 30-year Canada bonds was approximately 345 basis points. When preparing her evidence Ms. McShane forecast that spread to decrease to approximately 225 to 250 basis points. In her direct examination at page 452 of the transcript Ms. McShane noted that the spreads have declined more than she had anticipated; now being approximately 170 basis points. Using the spread of 170 basis points, the indicated utility cost of equity before any adjustment for financing flexibility is 9.5 percent. As stated by Ms. McShane in direct examination the revised estimate due to the lower spread makes about a 5 basis point difference in her ultimate recommended return on equity, so it does not change her recommendation of 11 percent.[182]

273. The average utility cost of equity based on both the single variable and two variable DCF-based equity risk premium approaches is 9.6 percent before any allowance for financing flexibility.

***Historic Utility Equity Risk Premiums***

274. Ms. McShane's historic utility equity risk premium test discussed in Section B.5 (pages 62 and 63) of her written evidence, is another test that estimates the utility equity risk premium directly. It does so by analyzing historic experienced returns for utilities. Use of achieved equity risk premiums for utilities as an indicator of what investors expect for the future is based on the proposition that over the longer term, investors' expectations and experience converge. The more stable an industry, the more likely it is that this convergence will occur.[183]

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[181] Written evidence of Ms. McShane, page 60, lines 1485 to 1499

[182] Written evidence of Ms. McShane, page 61, lines 1518 to 1527 and Tr 4, 452 l. 4 – 453 l.4

[183] Written evidence of Ms. McShane, page 62, lines 1534 to 1539

275. Ms. McShane analyzed data over the 1956 to 2008 period (the longest period for which Canadian utility data is available from the TSE) for Canadian electric and gas utilities over the post-World War II period (1947 to 2008) for U.S. gas and electric utilities (see Schedule 13 of Ms. McShane's written evidence). The achieved equity returns, and the bond returns are summarized in the following table from page 62 of Ms. McShane's evidence.

**Table 9**

| | Utility Equity Returns | Bond Total Returns | Bond Income Returns |
|---|---|---|---|
| **Canadian Utilities** | 12.0% | 7.9% | 7.8% |
| **U.S. Gas Utilities** | 12.1% | 6.6% | 6.0% |
| **U.S. Electric Utilities** | 10.8% | 6.6% | 6.0% |

Source: Schedule 13.

276. Ms. McShane's analysis of the data indicates there has been no upward or downward trend in the achieved utility equity returns (Schedule 14 of her evidence); with the achieved utility returns in both the U.S. and Canada being clustered in the range of 11 to 12 percent, with a mid-point of approximately 11.5 percent. However, as discussed above, the achieved bond returns are well above the forecast returns for the longer-term. The forecast long-term Canada bond yield for the longer-term is approximately 5.25 percent.[184] Compared to an achieved utility return of approximately 11.5 percent, the indicated utility equity risk premium is approximately 6.25 percent. Using Ms. McShane's forecast 2010 long-term Canada bond yield of 4.25 percent and a utility risk premium of 6.25 percent, the indicated utility cost of equity, before adjustment for financing flexibility, is 10.5 percent.[185]

[184] The 5.25 percent forecast is from the April 2009 Consensus Forecasts of long-term 10 year bond yields, with an adjustment for the spread between 10 year and 30 year bonds, as explained in footnote 45 on page 44 of the written evidence of Ms. McShane

[185] Written evidence of Ms. McShane, page 63, lines 1555 to 1564

***Cost of Equity Based on Ms. McShane's Equity Risk Premium Tests***

277. Ms. McShane's estimated utility cost of equity based on her three risk premium methodologies are summarized in the following table.

| Risk Premium Test | Cost of Equity |
|---|---|
| Risk-Adjusted Equity Market | 8.75% |
| DCF-Based | 9.6%[186] |
| Historic Utility | 10.5% |

278. Ms. McShane's three risk premium tests indicate a utility cost of equity of approximately 9.6%. As discussed further below, an allowance for financing flexibility must be added to these results.

**4. Equity Risk Premium Evidence of Dr. Vander Weide**

279. Dr. Vander Weide uses two equity risk premium tests: Ex Post and Ex Ante premium methods. As Dr. Vander Weide says "The equity risk premium method is based on the principle that investors expect to earn a return on an equity investment that reflects a "premium" over and above the return they expect to earn on an investment in a portfolio of bonds. This equity risk premium compensates equity investors for the additional risk they bear in making equity investments versus bond investments".[187] Each of Dr. Vander Weide's equity risk premium methods is discussed below. Each of these methods estimates the utility cost of equity directly, rather than indirectly as in the CAPM.

***Ex Post Risk Premium Method***

280. Dr. Vander Weide's ex post risk premium method is described at pages 30 to 32, pages 10 to 14, and Exhibits 1 and 2 of his written evidence. As he says at page 30:

> "My ex post risk premium method measures the required risk premium on an equity investment in TGI from historical data on the returns experienced by investors in Canadian utility stocks compared to investors in long-term Canada bonds."

[186] Table 10 at page 63 of the written evidence of Ms. McShane sets out a 10.0% value for the DCF-Based test, which is 9.6% after updating for the reduced spreads between A rated utility bonds and Canada bonds

[187] Written evidence of Dr. Vander Weide, page 29, line 29 to page 30, line 2

281. Dr. Vander Weide measured the return experienced by investors in Canadian utility stocks from historical data on returns earned by investors in: (1) the S&P/TSX utilities stock index; and (2) a basket of Canadian utility stocks created by BMO Capital Markets (BMO CM).[188] The companies in the S&P/TSX utilities stock index and in the BMO CM basket of utility stocks are described at page 11 of Dr. Vander Weide's written evidence, since the same data was used in one of his tests of the validity of the automatic adjustment mechanism. The S&P/TSX utilities stock index return data covers the period 1956 through 2008, and the BMO CM stock return data covers the period 1983 through 2008. Dr. Vander Weide analyzes the investors' experienced returns over long time periods because experienced returns over short periods can deviate significantly from expectations. Dr. Vander Weide went back as far in history as he could obtain reliable data. Dr. Vander Weide chose two sets of Canadian utility stock return performance data because each data set provides different information on Canadian utility stock returns. The S&P/TSX utilities index is valuable because it provides information on the returns experienced by investors in a portfolio of Canadian utility stocks over a relatively long period of time. However, six of the nine companies included in the S&P/TSX utility index operate mainly in non-traditional utility markets. The BMO CM utility stock return database is valuable because it provides information on the experienced returns for a sample of Canadian companies that receive a significantly higher percentage of revenues from traditional utility operations than the companies in the S&P/TSX index. However, the time period covered is not as long as the period covered by the S&P/TSX utility index.[189]

282. Dr. Vander Weide calculated the experienced returns on an investment in each utility data set from the historical record of stock prices and dividends for the companies in the data set. From the historical record of stock prices and dividends, the index sponsors construct an index of investors' wealth at the end of each period, assuming a $100 investment in the index at the time the index was constructed. An annual rate of return is calculated using that information. Dr. Vander Weide uses the interest yield earned on long-term Canada bonds in his ex post risk premium study.

[188] Written evidence of Dr. Vander Weide, page 30, lines 18 to 21
[189] Written evidence of Dr. Vander Weide, page 11, line 3 to page 13, line 2

283. The results of Dr. Vander Weide's ex post risk premium method are summarized in the table on page 13 and on page 31 of his evidence:

**EX POST RISK PREMIUM RESULTS**

| COMPARABLE GROUP | PERIOD OF STUDY | AVERAGE STOCK RETURN | AVERAGE BOND YIELD | RISK PREMIUM |
|---|---|---|---|---|
| S&P/TSX Utilities | 1956 – 2008 | 11.84 | 7.54 | 4.3 |
| BMO CM Utilities Stock Data Set | 1983 – 2008 | 14.31 | 7.66 | 6.6 |
| **Average** | | | | **5.5** |

284. As indicated in the table above, Dr. Vander Weide has used average bond yields on long-term Canada bonds in his calculation of the risk premiums. At transcript page 329 Dr. Vander Weide was asked by Mr. Wallace why he used bond yields, rather than bond returns, in his estimation of market premiums. The question and answer, and the explanation for why Dr. Vander Weide used bond yields, is quoted at paragraph 223 above.

285. At question 93 on page 31 of his written evidence Dr. Vander Weide was asked what conclusions he drew from his ex post risk premium analyses about his comparable companies' cost of equity. In response he says:

> "My studies provide evidence that investors in these companies require an equity return equal to at least 5.5 percentage points above the interest rate on long-term Canada bonds. The Consensus Economics forecast interest rate on long-term Canada bonds for 2010 as of April 2009 is 3.69 percent. Adding a 5.5 percentage point risk premium to an expected yield of 3.69 percent on long-term Canada bonds and including a 50-basis allowance for flotation costs and financial flexibility produces an expected return on equity equal to 9.7 percent from my ex post risk premium studies."

286. Dr. Vander Weide was then asked if he had any evidence that 9.7 percent is a conservative estimate of the required return on utility stocks based on experienced risk premiums. His response is:

> "Yes. During periods of greater uncertainty in economic and capital market conditions such as we have experienced in recent months, the return on utility stocks moves more in line with utility bond yields than with government bond yields. My studies indicate that the required risk premium on utility stocks compared to utility bonds based on experienced risk premium studies is in the range 4.2 percent to 4.5 percent. Adding a 4.2 percent to 4.5 percent risk

> premium to an approximate yield of 6.0 percent on Canadian utility bonds, and including 50 basis point allowance for flotation costs and financial flexibility produces a required return on equity in the range 10.7 percent to 11.0 percent.
>
> In addition, my ex ante risk premium studies indicate that the required equity risk premium increases when interest rates on long-term government bonds decline. Since the interest rate on long Canada bonds is significantly below the average interest rate on long Canada bonds over my ex post risk premium study period, the required equity risk premium can reasonably be expected to be greater than the 5.5 percent equity risk premium I obtain from my ex post risk premium studies."[190]

***Ex Ante Risk Premium Method***

287. Dr. Vander Weide's ex ante risk premium method is described at pages 32 and 33, 17 to 21, and Exhibit 5, Exhibit 6, and Exhibit 13, Appendix 3[191] [the reference on page 33, line 14 should be to Exhibit 13, not Exhibit 14] of his written evidence. As he says at page 32:

> "My ex ante risk premium method is based on studies of the expected return on comparable groups of utilities in each month of my study period compared to the interest rate on long-term government bonds."

288. Dr. Vander Weide's ex ante risk premium cost of equity study use the same forward looking, or ex ante, risk premium data that are described at pages 17 to 21 of his written evidence where he discusses in his analysis of the sensitivity of the forward looking required equity risk premium on utility stocks to changes in interest rates. As set out on page 17, Dr. Vander Weide studied the sensitivity of the forward-looking required equity risk premium on utility stocks to changes in interest rates in two steps. First, he estimated the forward-looking required equity risk premium on utility stocks in each month of the study period.[192] Second, he performed a regression analysis of the relationship between changes in the required equity risk premium and changes in interest rates.

289. Dr. Vander Weide used two sets of comparable U.S. utilities, an electric utilities group and a natural gas utilities group. For his electric group, Dr. Vander Weide used the Moody's group of 24 electric companies because they are a widely-followed group of utilities, and the use of this constant group greatly simplified the data collection task required to estimate the ex ante risk premium over the months of the study. For his natural gas group, Dr. Vander Weide

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[190] Written evidence of Dr. Vander Weide, page 31, line 23 to page 32, line 14

[191] As noted in the direct examination of Dr. Vander Weide at transcript pages 298 to 300, Exhibit 13, Appendix 3 was replaced by the revised version in Appendix 78.2 of the responses to BCUC information request number 1

[192] The study period for natural gas utilities commences June 1998 and for the electric utilities commences September 1999; the period ends for both February 2009

selected all the utilities in Value Line's natural gas company groups that were within the criteria set out on page 19 of his written evidence. Dr. Vander Weide used U.S. utilities rather than Canadian utilities in his ex ante risk premium studies because the studies rely on the DCF model to determine the expected risk premium on utility stocks. The DCF model requires estimates of investors' growth expectations, which are best measured from the average of analysts' growth forecasts for each company. There are very few, if any, analysts' growth forecasts available for each Canadian utility over the 10-year time period of Dr. Vander Weide's study.[193]

290. From his ex ante risk premium studies Dr. Vander Weide obtains an ex ante risk premium for his electric utility comparable group of 8.0 percent, and for his natural gas comparable group an ex ante risk premium of 7.5 percent.[194]

291. In the ex ante risk premium method, the expected interest rate on long-term government bonds must be added to the estimated risk premium to calculate the utility cost of equity. Dr. Vander Weide estimated the expected yield on long-term government bonds using the April 2009 *Consensus Forecasts* forecast interest rate on long-term Canada bonds of 3.69 percent. Adding this 3.69 percent interest rate to the 8.0 percent and 7.5 percent ex ante risk premium estimates, Dr. Vander Weide obtains utility cost of equity estimates of 11.7 percent and 11.2 percent, with an average estimate of 11.4 percent. If Ms. McShane's' long-term Canada bond forecast of 4.25 percent, or Dr. Booth's forecast of 4.5 percent had been used, the utility cost of equity estimate would have been correspondingly higher.

### 5. Equity Risk Premium Evidence of Dr. Booth

292. Dr. Booth makes use of two equity risk premium tests, and a discounted cash flow test that he uses as a "check" on his equity risk premium results. At transcript page 583 Dr. Booth acknowledged that his return is based primarily on the capital asset pricing model.[195] At page 62 of his written evidence he says "… the fair ROE is based on the CAPM",[196] and at page 52 he says that the CAPM is a single factor model, where all that matters is the risk of holding securities in a diversified portfolio.[197]

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[193] Written evidence of Dr. Vander Weide, page 19, lines 11 to 19
[194] Written evidence of Dr. Vander Weide, page 32, lines 29 to 31
[195] Tr 5, 583, ll. 17 - 21
[196] Written evidence of Dr. Booth, page 62, line 24
[197] [197] Written evidence of Dr. Booth, page 52, line 17

***Dr. Booth's "Classic" CAPM Approach***

293. At page 37 of his written evidence Dr. Booth says he will refer to his CAPM model that uses the long Canada bond yield as the "classic" CAPM, although he goes on to note that "this is not the way it is discussed in the finance text books or tested".[198]

294. Dr. Booth's classic CAPM model relies on his determination of historical risk premiums (which he adjusts somewhat for the fact that achieved bond returns have been high in recent years) and beta.

295. The CAPM was developed in a hypothetical world. Some of the underlying hypothetical assumptions are set out on page 194 of *Copeland and Weston*, which is part of Exhibit B-21.[199] The *Copeland and Weston* text and the hypothetical world of the CAPM was discussed with Dr. Booth at transcript pages 795 and 796 in the 2005 hearing that led to the March 2006 Decision. Those transcript pages are also part of Exhibit B-21, and were discussed with Dr. Booth at transcript pages 591 and 592 of this proceeding. At 2005 transcript page 795 Dr. Booth acknowledged the lack of empirical evidence establishing the validity of the model in cross-examination in the following passage:.

> MR. JOHNSON: Q: If I could ask you to turn to page 193 of the Copeland [and] Weston [text] and I'll ask you if you agree with something, Dr. Booth.
>
> > "LUCY: I've just come up with a perfect theory. It's my theory that Beethoven would have written even better music if he had been married.
> >
> > SCHROEDER: What's so perfect about that theory?
> >
> > LUCY: It can't be proved one way or the other."
>
> Do you agree with that, Dr. Booth?
>
> DR. BOOTH: A: Absolutely true. There has been enormous empirical tests of asset price immortals [should be models] over the last 40 years. In fact, I've got -- amongst my junior colleagues I've got two very, very, very good econometricians, which are economists that are expert in specifics. They have developed --
>
> MR. JOHNSON: Q: Those are the things I don't understand.
>
> DR. BOOTH: A: That's okay, I don't understand them either. But they are very very powerful statistical tests but they basically can't prove anything. The specifics [should be statistics] we have and are very very difficult to prove the central proposition of the capital asset pricing model, which is the market portfolio is efficient. And if it's not an efficient portfolio, most of the tests of the capital

[198] Written evidence of Dr. Booth, page 37, lines 6 to 8

[199] See also the written evidence of Ms. McShane at pages B-1 and B-2 where she lists assumptions on which the CAPM is based

> asset pricing model are without power. So there's been 40 years' worth of empirical tests and it's still no resolution of the validity of the model.[200]

296. The CAPM is based on a portfolio investment theory. It relies on the premise that an investor requires compensation for non-diversifiable risks only. Non-diversifiable risks are those risks that are related to overall market factors (e.g., interest rate changes, economic growth). Company-specific risks, according to the CAPM, can be diversified away by investing in a portfolio of securities; therefore, the investor requires no compensation to bear those risks. In Dr. Booth's classic CAPM model all risk is captured in the beta, which, in theory, is a forward-looking measure of the co-variance of a particular security compared to the variance of the market.

297. Exhibit B-23 is a chart with a pink line representing the market and its volatility, and a green line representing an individual stock and its volatility, together with seven pages of transcript from the 2005 hearing. At transcript page 595 Dr. Booth confirmed that if he was asked the same questions that are in the transcript excerpt from 2005 he would give the same answers. In the 2005 transcript Dr. Booth agreed that based on the CAPM a utility regulated by this Commission whose stock performed as on the green line on Exhibit B-23 (as a mirror image to the market) should receive a return lower than the yield on a risk free government bond, even though the stock of that utility would experience the same volatility as the market, although at different times.[201] The CAPM clearly does not produce a return on equity for a utility (which is the entity that is regulated by this Commission) that reflects the risks of that utility.

298. At page 47 of his written evidence Dr. Booth identified Pacific Northern Gas ("PNG") as the riskiest Canadian utility.[202] The table of page 38 of Dr. Booth's written evidence displays beta values for PNG of 0.24 and 0.20 for the periods ended December 31, 2007 and 2008, respectively. Those values are below the average utility values for the same periods shown in the last column of the table, and below the 0.50 value that Dr. Booth uses in his classic CAPM model. Examining the beta values for the riskiest utility in Canada that are set out in the table on page 38 demonstrates that "raw" beta values have no evidentiary value in determining the appropriate return on equity for a utility regulated by this Commission. Dr. Booth does not use

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[200] Dr. Booth acknowledged the corrections to the transcript at Tr 5, 591, l. 14 – 592, l. 1

[201] Dr. Booth also confirmed that the CAPM would say that for a stock that followed the green line the investor's required return would be less than the risk free rate at Tr 5, 596, ll. 21 - 26

[202] Written evidence of Dr. Booth at page 47, line 6 and at Tr 5, 601, ll. 8 - 12

the “raw” beta values shown on the table on page 38, but does not provide any other support for the value of 0.50 that he does use.

299. The Terasen Utilities submit that the Commission should put no weight on the results of the classic CAPM model of Dr. Booth.

***Dr. Booth’s Two-Factor Model***

300. At page 52 of his written evidence Dr. Booth says he has estimated another risk premium model, and then discusses his two-factor model over the next four pages. As acknowledged by Dr. Booth at page 54 of his written evidence and at pages 630 and 631 of the transcript, this is the same model, without adjustment, respecting which the Commission Panel in the 2006 Decision said:

> “Dr. Booth’s two-factor model is not helpful in assisting the Commission Panel in determining an appropriate MRP.”[203]

301. Dr. Booth puts the same weight on his two-factor model estimate as he does on his classic CAPM estimate.[204]

302. Dr. Booth says his two-factor model “partly adjusts for the known estimation problems of the CAPM”.[205] In making that statement Dr. Booth acknowledges the problems with the CAPM and acknowledges that in his view his two-factor model only goes part way to solving those problems.

303. Dr. Booth’s two-factor model estimates the equity return based on the sensitivity of utility share prices to changes in long-term Canada bond yields and to the sensitivity of utility share prices to changes in the equity market composite. Dr. Booth’s two-factor model produces an estimate of the required utility return on equity of 7 percent. The 7 percent estimate reflects an equity beta of 0.50, an interest rate risk beta of 0.50 (referred to by Dr. Booth as a “gamma”), a long-term Canada bond yield forecast of 4.50 percent, an estimate of the market risk premium of 5.0 percent and an interest rate risk premium of 1.38 percent. Dr. Booth’s application of the model understates the utility equity return requirement, for two reasons. First, the two-factor model makes use of a market risk premium which is even lower than that used by Dr. Booth in

[203] March 2, 2006 Decision, page 53
[204] Written evidence of Dr. Booth, page 57, line 1
[205] Written evidence of Dr. Booth, page 53, line 7

his classic CAPM approach (5.0% vs. 5.5%), and the latter market risk premium, as discussed in the Section of this Submission above on Equity Market Risk Premium, is too low.

304. Second, in applying the model, other factors which have generated utility returns are ignored. When Ms. McShane tested the sensitivity of utility equities to interest rates and the equity market, she found that the two factors used by Dr. Booth explained less than 50 percent of the variation in utility share prices. Historically, ignoring the other factors which generated utility returns would have understated the actual utility market returns by close to 20%. In other words, the model would have predicted a return of just under 10% when the actual average return was 12.25%.[206]

305. The Terasen Utilities submit that the Commission should put no weight on the results of Dr. Booth's two-factor model.

***Dr. Booth's Discounted Cash Flow Estimates For US Utilities***

306. At page 78 of his written evidence Dr. Booth says that he provides a discounted cash flow estimate in Appendix C. As set out in Appendix C, the DCF estimate of Dr. Booth is used to provide a utility equity risk premium. Dr. Booth's DCF estimate is only used by Dr. Booth as a "reasonableness check", his recommended return on equity is primarily based on the CAPM.[207]

307. Page 1 of Appendix C says the discounted cash flow model is to replicate the actions of an investor in valuing the firm's securities.[208] "K" in the equations on pages 1 and 2 of that Appendix represents the discount rate or investor's required rate of return.[209] At page 2 of Appendix C Dr. Booth says that the "investor's required rate of return can be estimated as the expected dividend yield plus the expected growth rate in dividends", and "each dividend is expected to grow at the rate *g*".[210] As Dr. Booth says on that page, the discounted cash flow model is intended to look at what the investor "expects", which should be the long-term expectation of the investor.

308. Although Dr. Booth says on page 2 of Appendix C that the model is to be based on the "expected growth rate", his model fails to examine investor expectations respecting growth in dividends. A review of Schedules 4 and 5 at pages 16 and 17 of Appendix C shows that the

[206] See the written evidence of Ms. McShane at page 54, line 1346 to page 55, line 1369
[207] Cross-examination of Dr. Booth, Tr 583, ll. 14 - 21
[208] Written evidence of Dr. Booth, Appendix C, page 1, lines 3 to 5
[209] Written evidence of Dr. Booth, Appendix C, page 1, line 14
[210] Written evidence of Dr. Booth, Appendix C, page 2, lines 16 and 17, and line 6

growth rate "*g*" used to calculate the investor's required rate of return "K" is a calculated value, which in each year is "B", the percentage of earnings retained, multiplied by "ROE" the achieved return on equity. This calculated value is nothing more than a mathematical calculation; there is nothing that supports it being indicative of investors' long-term expectation of growth. The fact that Schedules 4 and 5 of Appendix C show negative growth expectations in some instances and negative calculated utility risk premiums in a significant number of instances is further evidence that Dr. Booth's growth rate and resulting utility risk premiums do not reflect investors' expectations. A negative utility risk premium, as calculated by Dr. Booth, means that the DCF result is less than the yield on U.S. Treasury bonds.[211]

309. Exhibit B-25 was introduced during the cross-examination of Dr. Booth. It includes Moody's bond yield information from Exhibit B-17 and the cost of equity, or investor's required return "K" as calculated by Dr. Booth and set out in Schedules 4 and 5 of Appendix C. As set out on page 2 of Exhibit B-25, Dr. Booth's cost of equity (investor's required rate of return) for U.S. gas utilities over the period 1993 to 2008 ranges by year from a negative 0.12 percent to a positive 16.33 percent. As discussed above, the "K" values are intended to represent the investor's required rate of return (as stated by Dr. Booth at page 1 of Appendix C). The Terasen Utilities submit that it is illogical to conclude (or calculate as Dr. Booth does) that the expectations of investors varied so wildly over that period.

310. Further, as set out in Exhibit B-25, when the results of Dr. Booth's DCF analysis are compared to the yields of Moody's A rated and Baa rated utility bonds, Dr. Booth's DCF results are demonstrated to be unreasonably low. The first page of Exhibit B-25 shows that Dr. Booth's DCF result was less than the yield on A-rated and Baa-rated utility bonds in 13 of 31 years, and that the average of Dr. Booth's DCF results over the period 1978 to 2008 is less than the yield on Baa utility bonds over that period.

311. The Terasen Utilities submit that Dr. Booth's DCF results, and the utility risk premiums that he estimates using the DCF approach, should be rejected by the Commission. DCF results that indicate that investors in the equity of U.S. utilities had a required rate of return that was less than the yield on bonds of U.S. utilities cannot be considered reasonable.

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[211] Schedule 5 has a negative utility risk premium for one U.S. electric utility and for seven U.S. natural gas utilities. In cross-examination at Tr. 5, 655, ll. 4 – 19 agreed a negative utility premium in the Schedule means that the DCF result is less than the yield on U.S. Treasury bonds

312. It is of interest to note that while Dr. Booth objects to comparisons to U.S. utilities throughout most of his written evidence, he undertakes his DCF analysis using U.S. utility data.

### 6. Conclusions Respecting Equity Risk Premium Approach

313. Equity risk premium tests should be forward-looking. If historic risk premium data is used in an equity risk premium test that historic data has to be evaluated in light of economic and capital market conditions expected to be in effect when the return on equity will be in effect. Equity risk premium tests that make use of historic data to estimate market risk premiums and then apply a relative risk factor estimate the utility equity risk premium indirectly. Other equity risk premium tests estimate the utility equity risk premium directly by analyzing utility equity return data.

314. Ms. McShane's uses three equity risk premium tests to estimate the fair return on equity for TGI. Her Risk-Adjusted Equity Market Risk Premium test is an indirect test. Her DCF-Based Equity Risk Premium and Historic Utility Equity Risk Premiums test are direct tests. The results of the three tests of Ms. McShane indicate a utility cost of equity of approximately 10.1 percent including an allowance for financing flexibility.

315. Dr. Vander Weide uses two equity risk premiums methods or tests to estimate the cost of equity for TGI, his Ex Post Risk Premium method and his Ex Ante Risk Premium method. Both of these methods are direct tests, in that they analyze utility equity return data. Dr. Vander Weide's risk premium methods produce an estimate of the required return on utility equity in the range of 10.7 to 11 percent for the Ex Post method and 11.2 to 11.7 percent for the Ex Ante method.

316. The Terasen Utilities submit the equity risk premium evidence of Ms. McShane and Dr. Vander Weide should be accepted by the Commission.

## FINANCING FLEXIBILITY ADJUSTMENT

317. As discussed by Ms. McShane at pages 66 and 67 and Appendix E of her written evidence, an adjustment to the discounted cash flow and equity risk premium results is required for financing flexibility because the measurement of the return requirement based on market data results in a "bare-bones" cost. At page 66, commencing at line 1660, she says:

> "The financing flexibility allowance is an integral part of the cost of capital as well as a required element of the concept of a fair return. The allowance is intended to cover three distinct aspects: (1) flotation costs, comprising financing and

> market pressure costs arising at the time of the sale of new equity; (2) a margin, or cushion, for unanticipated capital market conditions; and (3) a recognition of the "fairness" principle."

318. In Appendix E Ms. McShane provides further discussion of the need for a financing flexibility adjustment. At pages E-1 and E-2 she says:

> "Fairness dictates that regulation should not seek to keep the market value of a utility stock close to book value when unregulated companies of comparable investment risk have been able to consistently maintain the real value of their assets considerably above book value.
>
> The financing flexibility allowance recognizes that return regulation remains, fundamentally, a surrogate for competition. Competitive unregulated companies of reasonably similar risk to utilities have consistently been able to maintain the real value of their assets significantly in excess of book value, consistent with the proposition that, under competition, market value will tend to equal the replacement cost, not the book value, of assets.
>
> Utility return regulation should not seek to target the market/book ratios achieved by such industrials, but, at the same time, it should not preclude utilities from achieving a level of financial integrity that gives some recognition to the longer run tendency for the market value of unregulated companies to equate to the replacement cost of their productive capacity. This is warranted not only on grounds of fairness, but also on economic grounds, to avoid misallocation of capital resources. To ignore these principles in determining an appropriate financing flexibility allowance is to ignore the basic premise of regulation. The adjustment for financing flexibility recognizes that the market return derived from the equity risk premium test needs to be translated into a return that is fair and reasonable when applied to book value. The concept of a financing flexibility or flotation cost allowance has been accepted by most Canadian regulators."

And at page E-2:

> "Further, the financing flexibility allowance should also recognize that both the equity risk premium and DCF cost of equity estimates are derived from market values of equity capital. The cost of capital reflects the market value of the firms' capital, both debt and equity. The market value capital structures may be quite different from the book value capital structures. When the market value common equity ratio is higher (lower) than the book value common equity ratio, the market is attributing less (more) financial risk to the firm than is "on the books" as measured by the book value capital structure. Higher financial risk leads to a higher cost of common equity, all other things equal."

319. Ms. McShane incorporates a financing flexibility allowance of 50 basis points in her return on equity recommendations that are based on the discounted cash flow and the equity risk premium approaches (page 67, lines 1683 to 1685 of her written evidence).

320. The quantification of the financing flexibility adjustment is addressed in Appendix E of Ms. McShane's written evidence. As said at page E-3:

> "Two approaches can be used to quantify the range of the impact of a change in financial risk on the cost of equity. The first approach is based on the theory that the overall cost of capital does not change materially over a relatively broad range of capital structures. The second approach is based on the theoretical model which assumes that the overall cost of capital declines as the debt ratio rises due to the income tax shield on interest expense."[212]

321. Schedules 23 and 24 of the written evidence of Ms. McShane set out the formulas and inputs for estimating the change in the cost of equity under each of the two approaches for quantification of the financing flexibility adjustment. They show that a recognition of the difference in financial risk between the market value and book value capital structures of the publicly-traded Canadian utilities and the low risk U.S. utilities results in an increase in the cost of equity in the approximate range of 100 to 150 basis points. A minimal recognition of the higher financial risk in the book value capital structures supports an adjustment of no less than 50 basis points. The financing flexibility allowance should be adequate to allow a utility to maintain, at a minimum, its market value at a slight premium to book value, that is, in the range of 1.05 to 1.10. At this level a utility will be able to recover actual financing costs, as well as be in a position to raise new equity (under most market conditions) without impairing its financial integrity. A financing flexibility allowance adequate to maintain a market/book in the range of 1.05 to 1.10 is approximately 50 basis points.[213] As Ms. McShane says at page E-4:

> "The financing flexibility allowance should be, at a minimum, 50 basis points. As this financing flexibility adjustment is minimal, it does not fully address the comparable earnings standard."

322. Dr. Vander Weide also recognizes the requirement for an adjustment, as indicated in his response to questions 93 and 94 of his written evidence where he includes a 50 basis point allowance for flotation costs and financial flexibility.

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[212] As set out in footnote 24 on page E-3 of the written evidence of Ms. McShane: The second approach does not account for any of the factors that offset the corporate income tax advantage of debt, including the costs of bankruptcy/loss of financing flexibility, the impact of personal income taxes on the attractiveness of issuing debt, or the flow-through of the benefits of interest expense deductibility to ratepayers. Thus, the results of applying the second approach will over-estimate the impact of leverage on the overall cost of capital and understate the impact of increasing financial leverage on the cost of equity.

[213] Written evidence of Ms. McShane, pages E-3 and E-4

323. Dr. Booth also recognizes the requirement for a financing flexibility allowance in his evidence commencing at line 16 on page 59 where he says "regulated firms should be allowed to recover their issue costs in the allowed return in the same way that issue costs attached to debt are included in the embedded debt cost." At page 60 Dr. Booth says "… I normally add 50 basis points as a cushion to the direct estimates in line with this practice of many regulators. This is mainly to ensure that there is no dilution and stock prices are more variable than a 10% flotation cost allowance would indicate."[214]

324. The Terasen Utilities submit that the Commission should accept the addition of a 50 basis point financing flexibility allowance to the "bare bones" results of the DCF and equity risk premium approaches to the determination of the fair return on equity for TGI.

**COMPARABLE EARNINGS APPROACH**

325. In the Executive Summary of the 2006 Decision the Commission Panel said "It [the Commission Panel] is unable to give any weight to the Comparable Earnings of low-risk Canadian industrials in this proceeding, although it believes that this approach may play a role in future hearings". The Commission Panel also said, at page 45 of that Decision "The evidence is that up to the 1960s the principal methodology to determine fair rates of return was CE [Comparable Earnings]".

326. The evidence of Ms. McShane respecting the comparable earnings tests is at pages 67 to 72 and Appendix F of her written evidence. The comparable earnings test is the only test that explicitly recognizes that return on equity awarded by regulators is applied to an original cost rate base. At page 67 Ms. McShane describes the test:

> "The comparable earnings test provides a measure of the fair return based on the concept of opportunity cost. Specifically, the test arises from the notion that capital should not be committed to a venture unless it can earn a return commensurate with that available prospectively in alternative ventures of comparable risk. Since regulation is a surrogate for competition, the opportunity cost principle entails permitting utilities the opportunity to earn a return commensurate with the levels achievable by competitive firms facing similar risk. The comparable earnings test, which measures returns in relation to book value, is the only test that can be directly applied to the equity component of an original cost rate base without an adjustment to correct for the discrepancy between book values and current market values. Neither the equity risk premium results nor the DCF results, if left without adjustment, recognizes the discrepancy."[215]

[214] Written evidence of Dr. Booth, page 60, lines 18 to 21

[215] Written evidence of Ms. McShane, page 67, line 1689 to page 68, line 1700

327. In cross-examination by Mr. Fulton, Ms. McShane was asked about her reference on page 67 of her written evidence to the comparable earnings test as providing a measure of fair return based on the concept of opportunity cost. Ms. McShane pointed out that she had gone on to say specifically "the test arises from the notion that capital should not be committed to a venture unless it can earn a return commensurate with that available prospectively in alternative ventures of comparable risk" and then went on to say:

> "Yes. And I'm not the only one. I mean, it's – the comparable earnings test has often been characterized in terms of opportunity cost."[216]

328. As Ms. McShane discusses at page 68 of her written evidence, the comparable earnings test is an implementation of the comparable return standard; the comparable earnings test recognizes that utility costs are measured in vintaged dollars and that rates are based on accounting costs, not economic costs. As the Commission Panel stated at page 1 (Executive Summary) of the 2006 Decision:

> "The Commission Panel determines that both the comparable earnings standard and the capital attraction standard are equally relevant in establishing a fair return."

329. The comparable earnings test is the only test that explicitly recognizes that, in the North American regulatory framework, the return is applied to an original cost (book value) rate base. The concept that regulation is a surrogate for competition means that the combination of an original cost rate base and a fair return should result in a value to investors commensurate with that of competitive ventures of similar risk. This concept implies that the application of a fair return determined through the regulatory process to an original cost rate base should result in a value to investors commensurate with that of competitive ventures of comparable risk.[217]

330. In the 2006 Decision, at page 55, the Commission Panel noted that on cross-examination, "Dr. Booth agreed that some of the "problems" with the CE test also appear in the process of setting rates under regulation, notably that both use an accounting rate of return; it is an average, not a marginal, return; it is based on historic book equity; and based on non-inflation adjusted numbers." Exhibit B-27 is the response by Dr. Booth to the Terasen Gas information request 70 in the 2005 Return on Equity and Capital Structure proceeding. That information request contains the agreement of Dr. Booth to the four items identified in the

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[216] Tr 4, 536 l.14 – 537, l. 12

[217] Written evidence of Ms. McShane, page 68, lines 1710 – 1717 and page 69, lines 1724 - 1726

quotation from the Decision earlier in this paragraph. At transcript page 680 Dr. Booth agreed that he would give the same answers today to the questions in Exhibit B-27 as he gave in 2005.

331. Pages 55 and 56 of the 2006 Decision identify sample selection and possible adjustment for differences in market to-book-ratios as remaining issues respecting the comparable earnings test, and "for these reasons" it gave little or no weight to Ms. McShane's comparable earnings results in the 2006 Decision.

332. With regard to sample selection, Ms. McShane selected a sample of unregulated companies of reasonably comparable risk to a Canadian utility. As she says at page 70, line 1751, of her written evidence, the "selection should conform to investor perceptions of the risk characteristics of utilities, which are generally characterized by relative stability of earnings, dividends and market prices". The criteria used by Ms. McShane to select comparable unregulated companies are detailed in Appendix F. The selection started with the recognition that unregulated companies generally are exposed to higher business risk, but lower financial risk, than the typical utility. The selection of unregulated companies focused on total investment risk, that is, the combined business and financial risks. The unregulated companies' business risks are offset by a more conservative capital structure than those of utilities, that is, higher equity ratios, thus permitting selection of a sample of unregulated companies of reasonably comparable investment risk to utilities.[218] The selection began with unregulated industries that are characterized by relatively stable demand characteristics, as well as consistent dividend payments and relatively low earnings and share price volatility. Companies were then removed that did not meet the criteria set out at the bottom of page F-1 and the top of F-2. The universe of Canadian unregulated companies is sufficiently large to produce a representative sample of sufficient size, and therefore the focus of Ms. McShane's comparable earnings analysis was on Canadian firms. The application of the selection criteria to the Canadian universe produced a sample of 27 companies. This sample is considerably larger than the sample of 17 companies that were used in the 2005 proceeding. The sample of 27 companies is also more than four times the size of the six publicly-traded Canadian utility companies that is available for the application of any other test for the determination of a fair return on equity.

333. Although the focus of Ms. McShane's comparable earnings analysis is on the sample of Canadian unregulated companies. Ms. McShane also selected a sample of low risk unregulated U.S. companies to corroborate the reasonableness of the Canadian results. The

[218] Page F-1 of written evidence of Ms. McShane

selection criteria were similar to those used for the Canadian unregulated company sample (see page F-4 for details). The larger U.S. market resulted in a sample of 81 U.S. unregulated companies. The existence of the U.S. sample, and its corroboration of the results of the analysis of the Canadian sample, should put to rest any concerns respecting the selection process or the size of the Canadian sample.

334. The conclusion of the Commission Panel in the 2006 Decision that there was not enough evidence respecting possible adjustment for market-to-book ratios is addressed by Ms. McShane commencing at pages F-6 through F-10 of her written evidence. Ms. McShane sets out the arguments that have been used for a downward adjustment, and responds to those arguments at page F-6 where she says:

> "The argument that a downward adjustment to the comparable earnings test results for market/book ratios has been made on the following bases:
>
> a. The market/book ratio of utility common shares should be approximately 1.0 times, i.e., that the fair market value of utility shares is equal to their book value.
>
> b. Market/book ratios of unregulated firms well in excess of 1.0 times is evidence that the companies are earning returns in excess of their cost of capital, and thus are exerting market power.
>
> Both of these arguments are without merit. With respect to the notion that the market/book ratio of utility shares should be approximately 1.0 times, that conclusion is incompatible with the standard of comparable returns. The comparable returns standard requires that a utility have the opportunity to earn a return commensurate with returns on investments in other enterprises having corresponding risks.
>
> Regulation is intended to be a surrogate for competition. If unregulated competitive enterprises of corresponding risks to utilities are able to maintain market/book ratios in excess of 1.0, it would be patently contrary to the to the objective of regulation and to the comparable earnings standard to reduce the returns of unregulated comparable firms in order to target a particular market/book ratio for a utility.
>
> With respect to the second rationale, the question that needs to be addressed is whether the market/book ratios of the sample of comparable unregulated companies are evidence of market power."

At pages F-7 through F-10 Ms. McShane then addresses the question of market power, concluding at page F-10 with:

> "Based on almost three decades of data, the market/book ratio for the Canadian equity market has varied around an average of close to 1.8 times, not 1.0 times. For the S&P 500, the market/book ratios were approximately 2.5 and 3.1 times, respectively, over the same two periods. Over the period 1991-2007 the

> market/book ratio for the sample of comparable Canadian unregulated companies averaged 2.1 times, approximately equal to the average for the S&P/TSX Composite and considerably lower than the market/book ratio of the S&P 500. The similar to lower average market/book ratio of the low risk unregulated Canadian companies relative to the Canadian and U.S. equity market composites permit the inference that the sample average returns are not characterized by market power. Thus, the comparable earnings results do not warrant an adjustment for market/book ratios."

This conclusion is also set out in Ms. McShane's written evidence at page 71, line 1797, to page 72, line 1810.

335. In examining the returns on equity of unregulated companies, the fact that their returns on equity tend to be cyclical must be taken into account, and therefore an appropriate period for measuring their returns must be determined. The period selected should encompass an entire business cycle, covering years of both expansion and decline, and the cycle should be representative of a future normal cycle; the historic and forecast cycles should be similar in terms of inflation and real economic growth. It is the evidence of Ms. McShane that the full business cycle 1991-2007 provides an appropriate proxy for the next business cycle, as the average experienced rates of inflation and economic growth were reasonably similar to the rates projected by economists over the next business cycle. The experienced returns on equity of the sample of 27 Canadian low risk unregulated companies over this period were in the range of 12.5%-12.75% (see Appendix F and Schedule 20 of the written evidence of Ms. McShane).[219]

336. To recognize the somewhat higher risk of the unregulated companies a downward adjustment of 75 to 100 basis points was made to their returns by Ms. McShane, resulting in a comparable earnings result in the range of 11.5% to 11.75%.[220]

337. As discussed above, a sample of 81 low risk unregulated U.S. companies was also selected by Ms. McShane to corroborate the reasonableness of the Canadian results. The experienced returns of the U.S. unregulated companies over the same 1991 – 2007 period were approximately 15.5%, and after adjusting for the higher risk of those companies compared to utilities, the adjusted return is approximately 14%. The returns of the larger U.S. unregulated company sample underscore the reasonableness of the comparable earnings results for the sample of unregulated Canadian companies.[221]

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[219] Written evidence of Ms. McShane, page 70, lines 1764 to 1773

[220] Written evidence of Ms. McShane, page 70, line 1775 to page 71, line 1781

[221] Written evidence of Ms. McShane, page 71, lines 1783 to 1795, page F-4 and Schedule 21

338. The Terasen Utilities submit that the comparable earnings test is a meaningful test that should be considered by the Commission in its determination of a fair return. The comparable earnings test is the only test that recognizes that utilities in British Columbia, and generally elsewhere in North America, are regulated on the basis of historic book value rate base. The discounted cash flow and equity risk premium tests use market values to estimate a fair return, and then apply the market value-derived estimates to an accounting concept, rather than a market concept, for rate base. The Terasen Utilities do not suggest that the comparable earnings approach be the only one used by the Commission, but the Terasen Utilities do submit that the comparable earnings approach should once again be given weight in the determination of the fair return for TGI and as the Benchmark ROE.

**ALLOWED RETURNS ON EQUITY FOR U.S. UTILITIES**

339. There is a wide divergence between the returns on equity allowed by the regulators of U.S. utilities and the allowed returns on equity for utilities in Canada. The Terasen Utilities submit that there is no sound or reasonable basis for the divergence. The Terasen Utilities submit that the returns on equity allowed U.S. utilities should be considered in this proceeding and given weight in the determination of the fair return.

340. As said by Ms. McShane at page 2 (Executive Summary) of her written evidence:

> "Satisfying the comparable return standard requires consideration of returns available to comparable utilities in the U.S., given the similarity of operating and regulatory environments, the integration of the two capital markets, the small number of Canadian utilities with equity market data and the obvious circularity of comparisons limited to utilities that are all subject to the same ROE automatic adjustment mechanism."

341. In her discussion of the need for a new Benchmark ROE Ms. McShane said the following with respect to U.S. Utilities:

> "The extent to which the formula ROEs have diverged off course from a fair and reasonable level over time can be assessed by a comparison of the allowed ROEs of Canadian and U.S. utilities.
>
> This comparison is germane given (1) the significant integration of the Canadian and U.S. capital markets, (2) the similarity in the business (or operating environments) for distribution utilities in Canada and the U.S., and (3) the similarity in the regulatory models in the two countries."[222]

[222] Written evidence of Ms. McShane, page 7, line 185 to page 8, line 192

342. Dr. Vander Weide expressed similar views at page 28 of his written evidence, where in response to the question of what conclusions did he draw from his investigation of alternate groups of comparable companies, he said:

> "I conclude that the BC Utilities Commission should give significantly greater weight to the cost of equity results for the U.S. utilities groups than it has previously. The U.S. utilities are more involved in traditional utility operations than the companies included in the Canadian utilities indices. In addition, the sample of U.S. regulated utilities is significantly larger than the sample of Canadian regulated utilities, and the data required to estimate the cost of equity is more readily available for the U.S. utilities than for the Canadian utilities. Furthermore, Canadian investors have greater access to international stock market investments, including investments in the U.S., than they did prior to the elimination of the foreign property rule in 2005. For these reasons, the U.S. data provide important information on the cost of equity for TGI."[223]

343. Mr. Carmichael expressed the view that U.S. utilities should be given very significant weight in the Commission's considerations:

> "COMMISSIONER HARLE: Just one question, and it has to do with the comparability of U.S. comparators to Canadian utilities. And I'd like to get your sense of proportion or relative weighting that this Panel should give to U.S.-related data.
>
> MR. CARMICHAEL: A: Well, I think U.S. data and U.S. investment in U.S. companies is becoming more and more and more important. And it's developing because of a number of factors. I've mentioned the changes to tax laws that allow large institutions and pension funds to move out beyond Canada to a much greater extent. And the major pension funds. And I'm going to focus principally on equity, because equity is the more important.
>
> The pension funds in particular have huge issues surrounding the -- extending the -- a mismatch of their assets and liabilities. That is, their liabilities have a much longer life than most of their assets. They're looking for long-term utility-like infrastructure projects that they can invest in. And up to this point in time, they have been almost exclusively going offshore to make those investments. They're investing in the U.S., in various facilities in the U.S., but they're also investing in Europe and in South America.
>
> I think it's very important that you weigh the returns from utilities operating in the United States quite heavily, because that's really the next closest look that they will take in terms of returns, and they will look at, just as I was having this discussion there, they'll look at a rate of return of 8 -- I think it was suggested 8-15 would be the formula's result today, versus a rate of return between 10 and 11 in the U.S. And they'll just say, "Why is there such a wide difference? And doesn't that incent us to invest in the U.S.?"

[223] Written evidence of Dr. Vander Weide, page 28, line 22 to page 29, line 4

So I would give it some very significant weight."[224]

344. As discussed at pages 10 and 11 of the Application, in March 2008 the Honourable John C. Major, former Justice, Supreme Court of Canada, and Roland Priddle, former Chair of the National Energy Board, published "*The Fair Return Standard for Return on Investment by Canadian Gas Utilities*" which included the following:

> "A wide and unprecedented gap has developed between Canadian gas utility ROEs and those of USA utilities and of North American low risk industrials. This is factual ground for concluding that the FRS [Fair Return Standard], essentially the opportunity cost of capital needed to ensure financial integrity and capital attraction, is no longer being achieved by the generic ROE approach."[225]

and

> "Finally, in an era of North American economic and business integration, the question must be asked "Can Canadian gas utilities successfully compete for capital if their regulators continue to award lower returns on generally thinner equity shares than those enjoyed by the American industry?"[226]

345. Also as noted in the Application, in 2007 Concentric Energy Advisors ("Concentric") was commissioned by the Ontario Energy Board to compare the returns allowed Ontario utilities to those allowed by American regulators. The Concentric paper noted that the average allowed returns on equity awarded to comparable risk U.S. gas utilities was 160 to 200 basis points higher than those awarded by the automatic adjustment formula to Union Gas and Enbridge in Ontario. Concentric said in its conclusion that "On the whole, there are no evident fundamental differences in the business and operating risks facing Ontario utilities as compared to those facing U.S. companies or other provinces' utilities that would explain the difference in ROEs."[227]

346. Appendix 4 of the Application is a February 2008 study prepared by National Energy Research Associates, Inc. entitled "Allowed Return on Equity in Canada and the United States", commissioned by the Canadian Gas Association. The purpose of the report was to analyze the root causes of the disparity between Canadian and US ROEs and in doing so address the question of whether Canadian utilities face sufficiently less risk than their U.S. counterparts. The findings are summarized in the Executive Summary at pages 7 and 8, where it is said:

- "We find that the regulatory institutions and customs for setting regulated prices for investor-owned Canadian and US utilities are very alike. That is, in

[224] Tr 4, 439, l. 7 – 440, l. 18

[225] Appendix 1 of Application, Exhibit B-1, page 5

[226] Appendix 1 of Application, Exhibit B-1, page 25

[227] A Comparative Analysis of Return on Equity of Natural Gas Utilities, prepared for: The Ontario Energy Board; by Concentric Energy Advisors, June 14, 2007, Appendix 3 of Application, Exhibit B-1, page 57

> accounting, administrative procedures, regulatory legislation, and basic constitutional protections of private property, little or nothing separates the average Canadian from the average US regulatory jurisdictions, unlike newly-privatized utilities in new regulatory jurisdictions overseas, where regulatory institutions are young (and largely untested). There are of course differences in regulatory treatment from province to province and from state to state. But we find generally that there is no persistent difference in regulatory legislation or rule making between Canada and the US. As such, the cost of equity capital is comparable between the two countries as long as the risk of gas distributors is the same or similar on both sides of the border.
>
> - We examine the definition of risk to investors of placing their capital at the use of the public, for which the ROE provides compensatory payment. We look at how those risks could be different in Canada versus the US. What we find is that the basic sources of risk—regulatory, business and financial—are comparable with respect to both jurisdictions. Objective and disinterested analyses of the relative risks between Canadian and US utilities are rare, but what we have found points to no smaller risks in Canada. As such, we conclude that there is no objective evidence showing that business or regulatory risks are sufficiently lower in Canada to account for the divergences shown in Figure 1. [Figure 1 is a chart showing Allowed Return Differential]
>
> With this analysis, our conclusion is inescapable. The Canadian ROEs produced by the generic Canadian ROE formula are biased downward. The formula has, since its inception, ridden on autopilot the declining Canadian long-bond interest rates (the cost of a kind of debt) with no independent check on the cost of equity. The generic Canadian formula might not always be biased, and indeed in an era of stable interest rates and equity markets it may have held a true course for many years. But it has been overtaxed by the relatively unprecedented decline in interest rates since the late 1990s. The uncorrected, un-calibrated formula—not risk differences or inherent Canadian regulatory differences—has driven the divergence between observed Canadian and US ROEs."[228]

347. In its information request 5.0 the Commission Panel requested that the Terasen Utilities comment on the difference on rate setting methodologies between the *Value Line* LDCs and TGI. The response stated:

> "The rate setting methodologies of the Value Line US LDCs and TGI are quite similar. Both the Value Line US LDCs and TGI are subject to rate of return regulations which are designed to provide the companies an opportunity to recover prudently incurred costs and earn a fair rate of return on their investments. In addition, the US LDCs and TGI both benefit from the availability of cost recovery mechanisms that are designed to reduce regulatory lag. Specific information on state regulatory practices for US LDCs is summarized in the analysis provided in Attachment 5.0. Also see response to BCUC IR No. 1, 62.1, page 169, and response to BCUC IR No. 1, 74.3, page 199."[229]

[228] Appendix 4 of Application, Exhibit B-1, pages 7 and 8

[229] Exhibit B-11, page 11

348. The National Energy Board's March 2009 Decision relating to TQM considered the issue of whether or not U.S. utilities (in this case pipelines) should be taken into account when cost of capital matters are being reviewed by a Canadian regulator. At pages 66 and 67 the NEB said:

> "In the Board's view, global financial markets have evolved significantly since 1994. Canada has witnessed increased flows of capital and implemented tax policy changes that facilitate these flows. As a result, the Board is of the view that Canadian firms are increasingly competing for capital on a global basis. The Board notes that Canada has been diversifying its business partners such that there is currently proportionally less Canadian foreign direct investment in the United States than there was in the 1990's. Nonetheless, the evidence is also clear that the United States is the single most important recipient of Canadian investments.
>
> A fair return on capital should, among other things, be comparable to the return available from the application of the invested capital to other enterprises of like risk and permit incremental capital to be attracted to the regulated company on reasonable terms and conditions. TQM needs to compete for capital in the global market place. The Board has to ensure that TQM is allowed a return that enables TQM to do so. Comparisons to returns in other countries would be useful, but challenging, in terms of differences in business risks and business environment. As a result, the Board is of the view that pipeline companies operating in the U.S. have the potential to act as a useful proxy for the investment opportunities available in the global market place."

At page 67 of that Decision the NEB also found that the regulatory environment in the U.S. and Canada was similar and the NEB was "not persuaded that the U.S. regulatory system exposes utilities to notable risks of major losses due to either unusual events or cost disallowance", where that has happened in the past it related to unique events, and "such instances are not likely to weigh significantly in investors' perceptions today, and would thus have little or no impact on cost of capital".

349. There are no differences in the cost of capital between the United States and Canada that would account for, or explain, the divergence in allowed returns on equity between the two countries. A recent study of the Bank of Canada found an insignificant difference in the cost of equity financing between Canada and the U.S. As Ms. McShane said in the response to BCUC Information Request 52.1:

> "Over the period since cross-over (1998-2008) on Figure 1 [referring to Figure 1 on page 8 of Ms. McShane's written evidence], the difference in long-term government bond yields in Canada and the U.S. has been approximately 8 basis points. On this basis, in isolation, the average difference in ROEs should have been less than 10 basis points. The actual difference between the allowed returns in Canada and the allowed returns in the U.S. over that period was 1.4 percentage points. All other things equal, the impact of the expected exchange rate on cost of capital should be accounted for in differences in the long-run

> expected rate of inflation. Over the period 1998-2008, the consensus forecasts of the long-term rate of CPI inflation in the U.S. have averaged 2.4% compared to 2.0% in Canada. Thus, all other things equal, the cost of capital would be higher by 0.4% in the U.S. than in Canada. A recent study by the Bank of Canada, however, found that since government bond yields have converged in the two countries, the difference in cost of equity financing between the two countries is statistically insignificant (Lorie Zorn, *Estimating the Cost of Equity for Canadian and U.S. Firms*, Bank of Canada, Autumn 2007)."[230]

350. In cross-examination of Mr. Carmichael and Ms. McShane, Commission Counsel pursued the divergence between the returns on equity of U.S. utilities and Canadian utilities, appearing to suggest that changes in currency exchange rates over the years had to be taken into account. With respect, that line of questioning misses the inherent "unfairness" of an equity investment in utility assets by a Canadian utility earning a significantly lower return than an investment in utility assets by a U.S. utility, when there is no difference in the cost of equity financing between the two countries. This was addressed in the re-examination of Ms. McShane:

> "MR. JOHNSON: Q: Okay. Now, just from the perspective of the two utilities and the returns they earn, is there any need to consider currency exchange rates?
>
> MS. McSHANE: A: No. All I was trying to do here is to look at, from the point of view of the utility whose return it is being set, not from the point of view of an investor who's going to the U.S. or Canada but just from the point of view of the two utilities or two countries' utilities, whether their returns should be from a fundamental business risk and from a fundamental cost of capital basis similar. And the answer is there is no reason they shouldn't be similar, but yet we have this divergence and we had a discussion about why I believe that divergence has taken place."[231]

351. Dr. Booth resists the use of U.S. utility information in Canadian regulatory proceedings. In response to BCUC information request 16.1 Dr. Booth said that he "has not followed US utilities since by and large he continues to believe they are not relevant for considering the fair ROE for Canadian utilities".[232] Dr. Booth has never appeared as an expert witness in a U.S. regulatory proceeding relating to a public utility.[233] At page 1 of Appendix G of his written evidence he says that "Canadian utilities seem to be regulated on a much more pro-active basis" (lines 17 and 18) and that "Canadian utilities also seem to make more use of deferral accounts" (line 19 and 20). The use of the words "seem to" indicates lack of actual knowledge,

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[230] Response to BCUC IR 52.1, Exhibit B-3, page 147

[231] Tr 4, 575, ll. 8 - 22

[232] Exhibit C11-6, page 16

[233] Tr. 5, 634, ll. 22 - 25

and when asked in information request 62.1 of the Terasen Utilities to provide any studies to support his conclusions at line 17 to 20 of page 1 of Appendix G, Dr. Booth did not provide any studies or reports, but instead said it was his understanding based on answer provided by witnesses such as Ms. McShane.[234] As noted in paragraph 341 above, Ms. McShane concludes that the regulatory models are similar in the two countries.

352. Dr. Booth cites Enron, Worldcom and Duke Energy as examples of light-handed U.S. utility regulation and how U.S. utilities differ from Canadian utilities, saying "We are also coming up to the anniversaries of the Enron and Worldcom frauds, both built on regulated operations and a little further ahead are the stock market disasters represented by pipelines like Duke Energy".[235] Dr. Vander Weide was cross-examined by Mr. Wallace respecting Enron and Worldcom, suggesting to Dr. Vander Weide that Enron and Worldcom were U.S. utility holding companies. Dr. Vander Weide disagreed, saying:

> "No, that's not true at all. Enron was -- is not a U.S. utility holding company. Enron was involved in many different businesses. Although it had some natural gas pipeline activities, at the time it got into trouble Enron was noted primarily for its market trading activities.
>
> It traded in a variety of commodities, not just energy-related commodities. And it was not included as a utility in anyone's list of utilities that I'm aware of.[236]
>
> WorldCom was never a regulated utility. It was not a utility holding company. WorldCom operated in the competitive long distance market. AT&T was the regulated – at one time a regulated telecommunications monopoly. When they introduced competition into the long distance market in the late 1970s and early 1980s, WorldCom and Sprint were allowed in as competitors but they were not regulated. And there were a host of competitors that were allowed into the long distance market soon after WorldCom and Sprint entered the market. None of those were subject to rate of return regulation. None of them were subject to tariff filings. And as time went on, even by 1984 at the time of the divestiture of the local exchange operating companies from AT&T, long distance service as a whole was deregulated.
>
> So not AT&T or WorldCom or Sprint's long distance business were regulated, and WorldCom's never were."[237]

As the evidence of Dr. Vander Weide demonstrates, Dr. Booth's attempt to use Enron and Worldcom as examples of light-handed U.S. utility regulation fails; neither Enron nor Worldcom were U.S. utilities or utility holding companies.

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[234] Exhibit C11-7, page 74

[235] Written evidence of Dr. Booth, page 102, lines 17 to 19

[236] Tr 3, 309, ll. 14 – 19 and ll. 21 - 24

[237] Tr 3, 311, ll. 4 - 23

353. With regard to Duke Energy, which Dr. Booth also cited, apparently to distinguish U.S. utilities and their regulation from Canadian utilities and their regulation, in cross-examination Dr. Booth acknowledged that Duke Energy was a holding company that owned a number of utilities as well as energy trading and other operations. Dr. Booth agreed that at the time of the problems that Dr. Booth referenced, Duke Energy owned Westcoast Energy and Union Gas in Canada, the former regulated by the National Energy Board and the latter regulated by the Ontario Energy Board. Dr. Booth also agreed that whatever problems Duke Energy had, they did not affect either Westcoast or Union.[238] Dr. Booth refers in his evidence to "stock market disasters represented by pipelines like Duke Energy" while acknowledging that Duke Energy was not the pipeline utility. Duke Energy owned utilities in the U.S. and utilities in Canada. Dr. Booth has presented no evidence that stock market problems of Duke Energy had any effect on its U.S. utility subsidiaries or its Canadian utility subsidiaries. None of Enron, Worldcom and Duke Energy support an argument that this Commission should not consider U.S. utilities in its determination of a fair return on equity.

354. At page 55 of his written evidence Dr. Booth refers to a 2001 article by Maureen Howe of RBC Dominion Securities and at line 29 on that page says that Ms. Howe "provided four reasons as to why the market was valuing the Canadian and US utilities differently". In Terasen Utilities information request 31.1 Dr. Booth was asked to provide a copy of the article, and in response 2 pages were provided (following page 77 of Exhibit C11 – 7). It is not clear if the article was longer than 2 pages (see Dr. Booth's response to Undertaking Number 1 in Exhibit C11-17, which refers to a date of November 2003), but it is clear that Ms. Howe's article is not discussing comparative valuations of Canadian and U.S. utilities. The title of the article refers to "Prices of U.S. Energy Companies …" and the tables on page two refer to Top 20 North American Gas Marketers and Power Marketers.

355. The comparative returns of Canadian and U.S. utilities are graphically displayed at page 8 of Ms. McShane's written evidence, with the source data in her Schedule 22 (located immediately following page G-6). In the most recent ten year period (1998 – 2008) the average allowed return for U.S. utilities was 10.83 percent, and for Canadian utilities was 9.46 percent. For 2008 the average allowed return for U.S. utilities was 10.42 percent and for Canadian utilities was 8.77 percent, with TGI's allowed return being 8.47 percent.

[238] Tr 5, 638, l. 13 – 639, l. 18

356. At page 15 of his written evidence Dr. Vander Weide provides information on returns allowed U.S. utilities. He says:

> "Since January 2006, the average allowed ROE for electric utilities is 10.4 percent, and for natural gas utilities, 10.3 percent. In 2008, the average allowed ROE for electric utilities is 10.5 percent, and for natural gas utilities, 10.4 percent (see Exhibit 3)."[239]

Exhibit 3 of Dr. Vander Weide lists returns for 101 electric utilities and 82 natural gas utilities. In the response to Commission Panel information request 5.0 (Exhibit B – 11, pages 11 and 12) Dr. Vander Weide provided information on the actual returns on equity of the *Value Line* LDCs over the past five years, which information was revised in his response to an undertaking in Exhibit B-28. The average actual returns for the five years 2004 to 2008 as set out in the response to the undertaking was 12.1 percent.

**CONCLUSIONS RESPECTING RETURN ON EQUITY**

357. Evidence was presented on behalf of the Terasen Utilities in this proceeding respecting three approaches to the determination of the return on equity for a regulated utility: the discounted cash flow ("DCF") approach, the equity risk premium approach; and the comparable earnings approach. Evidence was presented on behalf of the Terasen Utilities by two experts on the fair return on equity, Ms. McShane and Dr. Vander Weide. The Terasen Utilities submit that their evidence should be accepted, and that 11 percent should be determined to be the fair return for TGI and as the Benchmark ROE.

358. At page 48 of the 2006 Decision the Commission Panel said it would seek to give weight to each of the three methods placed before it in determining a suitable return. The three methods are before the Commission in the evidence of the witnesses for the Terasen Utilities, and it is submitted that the Commission should give weight to each of the methods.

359. At page 35 of his written evidence Dr. Vander Weide was asked what is his conclusion regarding his comparable risk companies' cost of equity based on his application of the equity risk premium and DCF methods. He responded by referring to his Table 5, and saying:

> "I conservatively conclude that my comparable companies' cost of equity is 11.0 percent. As shown below, 11.0 percent is the simple average of the cost of equity results I obtain from my cost of equity models. However, my comparable companies' cost of equity is likely to be above 11.0 percent because, as noted

[239] Written evidence of Dr. Vander Weide, page 15. lines 7 to 11

above, the results of my ex post risk premium method very likely understate the cost of equity for my comparable companies.

**SUMMARY OF COST OF EQUITY RESULTS**

| METHOD | COST OF EQUITY |
|---|---|
| Ex Post Risk Premium | 9.7 |
| Ex Ante Risk Premium | 11.4 |
| Discounted Cash Flow | 11.9 |
| Average | 11.0 |

360. Ms. McShane's evidence on the fair return for TGI was summarized at page 73 of her written evidence where she said: [240]

> "The results of the three tests used to estimate a fair return on equity for TGI are summarized below.
>
> **Table 11**
>
> | **Test** | **Cost of Equity** | **Fair Return on Equity** |
> |---|---|---|
> | **Equity Risk Premium** | 9.75% | 10.25% |
> | **Discounted Cash Flow** | 10.5-11.0% | 11.0-11.5% |
> | **Comparable Earnings** | N/A | 11.5-11.75% |
>
> In arriving at a reasonable return for a benchmark utility, I have given primary weight to the cost of attracting capital, as measured by both the equity risk premium and DCF tests. The "bare-bones" cost of attracting capital based on these two tests is approximately 9.75-10.75%. Including the allowance for financing flexibility, the indicated return on equity is 10.25-11.25%. However, the results of the comparable earnings test are also entitled to significant weight when setting a fair return. A fair ROE for TGI, at its proposed common equity ratio of 40.0%, based on all three tests is approximately 11.0%."[241]

361. In addition to the conclusions of Ms. McShane and Dr. Vander Weide respecting the fair return for TGI the Commission has before it evidence of allowed returns of U.S. utilities. This evidence should be considered and given weight by the Commission; that evidence supports

[240] Table 11 is reproduced from the written evidence of Ms. McShane. As discussed at paragraphs 277 and 278, after updating for the reduced spreads between A rated bonds utility bonds and Canada bonds the estimated required return from the DCF-Based test is 9.6%, which results in the cost of equity from the Equity Risk Premium Test to be 9.6% and the Fair Return on Equity from the Equity Risk Premium Test to be 10.1% after addition of an allowance for financing flexibility. As explained at transcript pages 452 and 453 the change makes about a 5 basis point difference in her ultimate cost of equity, so it does not change Ms. McShane's recommendation of 11%.

[241] Written evidence of Ms. McShane, page 73, lines 1815 to 1826

the reasonableness of the recommended return on equity of 11 percent by Ms. McShane and Dr. Vander Weide.

362. The Terasen Utilities submit that the increased return on equity requested for TGI, and as the Benchmark ROE, should be made effective July 1, 2009.

363. The Terasen Utilities submit that the company specific premiums over the Benchmark ROE for each of TGVI and TGI should continue. As stated commencing at page 29 of the Application:

> "At present, the allowed ROE of TGVI and TGW are set with reference to the annual determination for the benchmark utility, which has been TGI. The allowed ROEs for TGVI and TGW, and the other investor-owned utilities regulated by the BCUC, have been determined by adding to the benchmark ROE a company specific risk premium. With the establishment of a new Benchmark ROE pursuant to this application, the company specific premia for TGVI and TGW, as previously determined by the Commission, should continue to be used in the determination of their allowed ROEs.
>
> Section 4 and Tab 1 of the Application present evidence respecting the increase in TGI's business risks over time and how new risk factors have manifested themselves since 2006. These new business risk factors also apply to TGVI and TGW, and accordingly continuation of the use of a Benchmark ROE that is used in establishing the allowed ROEs for all the Terasen Utilities is appropriate."[242]

364. The recent Decision of this Commission (April 7, 2009), which considered the conversion of the gas distribution in the Resort Municipality of Whistler from propane to natural gas, also considered the appropriate company specific return on equity risk premium for Terasen Gas (Whistler) Inc. At page 57 of that Decision the Commission said:

> "Accordingly, the Commission Panel orders that the ROE for TGW be established at 50 bps over the benchmark low risk utility."

The relative risk of TGW as compared to the benchmark utility (TGI) since the proceeding that led to the April 2009 Decision has not changed. TGW requests that the return on equity allowed for TGI be considered as the Benchmark ROE, and that the 50 basis points differential for TGW determined in the April 7, 2009 Decision be added to the Benchmark ROE (the return on equity allowed for TGI) in establishing TGW's allowed return on equity.

365. Similar to TGW, no request is being made in this Application to adjust the company specific premium for TGVI. Evidence was presented in the 2005 TGI and TGVI cost of capital proceeding that demonstrated that TGVI's business risks were greater than TGI, the benchmark

[242] Application, Exhibit B-1, page 29

utility. Commission Panel Information Request 6.0 asked about the additional risks faced by TGVI. The response to that information request provides information on the additional risks that TGVI faces as compared to TGI and is discussed at paragraph 88 above.

366. In the March 2006 Decision, at page 57, the Commission said:

> "The Commission Panel determines that a suitable premium to TGVI over the benchmark low-risk utility ROE is 70 basis points."

The relative risk of TGVI as compared to TGI has not changed since 2005. TGVI requests that the return on equity allowed for TGI be considered as the Benchmark ROE, and that the 70 basis points differential for TGVI determined in the March 2, 2006 Decision be added to the Benchmark ROE (the return on equity allowed for TGI) in establishing TGVI's allowed return on equity.

## E. SUMMARY and CONCLUSION

367. The evidence before the Commission demonstrates that the business risks of TGI have increased. The increased business risks should be reflected in the capital structure of TGI and in its allowed return on equity.

368. The evidence establishes that the capital structure of TGI should contain a common equity component of 40 percent. The evidence establishes a return on equity for TGI of 11 percent is fair and reasonable.

369. Mr. Carmichael, Ms. McShane and Dr. Vander Weide have provided evidence relating to the matters in issue in this proceeding. Their evidence should be accepted.

370. The witnesses from the Terasen Utilities, Messrs. Jespersen, Thomson and Dall'Antonia, provided valuable insight into the business risks facing the Terasen Utilities, and the other issues in this proceeding. Their evidence should be accepted.

371. In 1994 this Commission was the first to adopt an automatic adjustment mechanism. The evidence demonstrates that the automatic adjustment mechanism that has been used by the Commission no longer produces a fair return on equity for the utilities regulated by this Commission. The Terasen Utilities submit that this Commission should take a leadership role by setting aside use of the AAM, and by providing the fair returns that have been requested by the Terasen Utilities.

372. The relief requested in this Application is balanced and reasonable. As said by Mr. Jespersen in his Opening Statement:

> In this application, the Terasen Utilities are not seeking unreasonable returns. The requested return is not put forward as a bargaining position with the expectation that the regulator will determine something in the middle between the companies' position and that of intervenors. The Benchmark proposal of 11% ROE on 40% deemed equity is a balanced request. It is well below the 2008 average US regulated LDC capital structure of 50.4% equity and 10.4% return on equity.[243]

373. To further quote from the Opening Statement of Mr. Jespersen:

> The Terasen Utilities have lost ground as a result of allowed return being tied to declining government bond yields in both an absolute and a relative sense.
>
> The current automatic adjustment mechanism is flawed and does not produce a fair result. We recognize the administrative efficiency of a formula, but that efficiency cannot override the need for a fair result. We will continue to explore an alternate formula, and the other reviews of cost of capital that are occurring in Canada may provide some guidance. At this time, however, the Commission must establish a benchmark return that allows the Terasen Utilities an opportunity to earn a fair return on their investments in utility assets, that fair return is 11 percent on the requested capital structure.
>
> The business risks of the Terasen Utilities have in fact increased.
>
> The application requests an increase in the equity component of Terasen Gas Inc. to 40 percent of its capital structure. This increase in the equity component is required because of the increased business risks being faced by the company, to ensure that financial integrity and flexibility is maintained, and to allow Terasen Gas to attract capital on a comparable basis to its utility peers in Canada and the United States.[244]

**All of which is respectfully submitted.**

*Original signed by C.B. Johnson*

C.B. Johnson Q.C.

*Original signed by T.A. Ahmed*

T. A. Ahmed

Counsel for

Terasen Gas Inc., Terasen Gas (Vancouver Island) Inc. and Terasen Gas (Whistler) Inc.

October 20, 2009

[243] Exhibit B-13 and Tr 2, 46, ll. 2 – 12

[244] Exhibit B-13 and Tr 2, 50, l. 12 – 51, l. 12