

RÉGIE DE L'ÉNERGIE
DECISION D-2009-156/FILE R-3690-2009
SECTION 4.5

Régie de l'énergie

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English Version

“Section 4.5 Rate of return”

Note: This document provides a translation of pages 43 to 72 of Decision D-2009-156 rendered on December 7, 2009. It in no way replaces the Decision. Only the full French text of Decision has legal force.

4.5 RATE OF RETURN

[171] The section of the Application pertaining to the rate of return, and the extensive comments made at the hearing by the participants and their experts respecting the setting of a “fair and reasonable” rate of return, require the Régie to define its role and its powers in this regard.

4.5.1 LEGAL FRAMEWORK FOR DETERMINING RATE OF RETURN

[172] In his closing argument¹, counsel for Gaz Métro noted that in its recent decision concerning TQM² (the TQM Decision), the National Energy Board (NEB) applied, for the purpose of establishing the fair return standard, three criteria that have historically been recognized by regulatory agencies and the courts as the basis for the fair return standard, and in particular by the Supreme Court of Canada in the *Northwestern Utilities Ltd. (Northwestern)* case³, namely the comparable investment, financial integrity and capital attraction requirements.

[173] Based on these three criteria, a reasonable return on equity should:

- be comparable to the return available from the application of the invested capital to other enterprises of like risk (comparable investment requirement);
- permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (capital attraction requirement);
- enable the financial integrity of the regulated enterprise to be maintained (financial integrity requirement).

[174] Counsel for Gaz Métro further argued that the Régie ought not consider the rate impact of its decision concerning the rate of return, basing himself on the TQM Decision and on the Federal Court of Appeal decision in the *TransCanada Pipelines Limited* case⁴.

¹ Exhibit A-22-13, pages 74-77.

² *Gazoduc Trans Québec & Maritimes Inc.*, RH-1-2008.

³ *Northwestern Utilities Ltd. v. Edmonton (City)* [1929] S.C.R. 186.

⁴ *TransCanada Pipelines Ltd. v. National Energy Board* (2004 FCA 149).

[175] Under the agreement among the stakeholders representing the various customer classes to submit joint expert evidence on the rate of return issue, this matter was addressed primarily by IGUA.

[176] In his testimony, Murray Newton, the President of IGUA, stated that IGUA fully agrees with determining the rate of return on the basis of the fair return standard:

*“We absolutely agree that investors should have an opportunity to recover their investment in regulated facilities, and I absolutely agree with the fair return standard as enunciated by the National Energy Board and I think by -- practiced by this board. And I believe that the existing rate of return that’s produced by the formula that the Régie revises each year provides Gaz Métro’s investors with a fair return, I believe that.”*⁵

[177] Mr. Newton also denied that IGUA’s sole motivation for appearing and opposing the Application was related to the rate impact of a higher rate of return:

*“However, one point needs to be made very clear. Although the rate impact of Gaz Métro’s ATWACC proposal has clearly caught our attention, that is not why IGUA is opposed to it. Industrial gas users oppose the application for higher cost of capital because it’s excessive, it’s unnecessary and it violates the fair return standard.”*⁶

[178] Pursuant to section 31 of the Act, the Régie regulates natural gas distribution activities in Québec, including those under the responsibility of Gaz Métro when carrying on distribution activities in Québec. Therefore, when it is called upon to determine a reasonable return on the rate base, the Régie must do so solely with respect to the company’s regulated natural gas distribution activities in Québec.

[179] The Régie notes the provisions of the Act stipulating that, when it fixes natural gas rates, those rates must be fair and reasonable (subsection 49.7). The Régie must set a rate that allows the Distributor to earn a reasonable return on the rate base (section 32 and subsection 49.3). Furthermore, in setting rates, the Régie must ensure that financial ratios are maintained (subsection 49.5). However, the tariffs must not impose higher rates or more onerous conditions than are necessary to cover capital and operating costs, to maintain the

⁵ Exhibit A-22-10, page 117.

⁶ Exhibit A-22-8, page 15.

Distributor's stability and the normal development of its distribution system or to provide a reasonable return on the rate base (section 51).

[180] Nowhere in the Act is there reference to a "fair and reasonable" rate of return. The Act provides only that the rate fixed by the Régie must "allow a reasonable return on the rate base".

[181] In consideration of the company's monopoly position in the area where it holds exclusive distribution rights, the legal and regulatory framework grants the regulatory authority the power and the duty to determine what is a reasonable return in a given case.

[182] All the experts agree that the return expected by investors is not observable market data. In the absence of such data, regulators base their judgements on expert evidence heard at public hearings. All interested parties may ask to intervene and may speak on the matter.

[183] Clearly, these decisions give rise to questions and indeed substantive debates among the participants in the hearing and in some other interested circles. The Régie therefore considers it appropriate, firstly, to review the jurisprudence in this area.

[184] The legal principles defining a reasonable rate of return were first set out in two landmark decisions by the US Supreme Court, the Bluefield⁷ and Hope⁸ cases. The first of these laid down the standard by which a reasonable rate is determined:

*"A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding, risks and uncertainties, but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility, and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market, and business conditions generally."*⁹ [emphasis added]

⁷ *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia* 262 U.S. 679 (1923).

⁸ *Federal Power Commission v. Hope Natural Gas Company* 320 U.S. 591 (1944).

⁹ *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia* 262 U.S. 679 (1923), page 692.

[185] The second decision fleshed out the standard by specifying that a utility is entitled to enough revenue to cover not only its operating expenses but also its capital costs:

*“The ratemaking process under the Act, i.e., the fixing of “just and reasonable” rates, involves a balancing of the investor and the consumer interests. Thus, we stated in the Natural Gas Pipeline Co. case that “regulation does not insure that the business shall produce net revenues”...But, such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view, it is important that there be enough revenue not only for operating expenses, but also for the capital costs of the business. These include service on the debt and dividends on the stock...By that standard, the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital...”*¹⁰ [emphasis added]

[186] The Hope decision further specified that it is the result of the regulatory process that must be just and reasonable, not the method by which that result is arrived at:

*“We held in Federal Power Commission v. Natural Gas Pipeline Co..., that the Commission was not bound to the use of any single formula or combination of formulae in determining rates. Its ratemaking function, moreover, involves the making of “pragmatic adjustments.” And when the Commission’s order is challenged in the courts, the question is whether that order, “viewed in its entirety,” meets the requirements of the Act. Under the statutory standard of “just and reasonable,” it is the result reached, not the method employed, which is controlling...It is not theory, but the impact of the rate order, which counts. If the total effect of the rate order cannot be said to be unjust and unreasonable, judicial inquiry under the Act is at an end. The fact that the method employed to reach that result may contain infirmities is not then important. Moreover, the Commission’s order does not become suspect by reason of the fact that it is challenged. It is the product of expert judgment which carries a presumption of validity. And he who would upset the rate order under the Act carries the heavy burden of making a convincing showing that it is invalid because it is unjust and unreasonable in its consequences.”*¹¹ [emphasis added]

¹⁰ Federal Power Commission v. Hope Natural Gas Company 320 U.S. 591 (1944), page 603.

¹¹ Federal Power Commission v. Hope Natural Gas Company 320 U.S. 591 (1944), pages 601-603.

[187] In the Northwestern case, the Supreme Court of Canada essentially adopted the principles set out by the US courts. Mr. Justice Lamont wrote:

*“The duty of the Board was to fix fair and reasonable rates; rates which, under the circumstances, would be fair to the consumer on the one hand, and which, on the other hand, would secure to the company a fair return for the capital invested. By a fair return is meant that the company will be allowed as large a return on the capital invested in its enterprise (which will be net to the company) as it would receive if it were investing the same amount in other securities possessing an attractiveness, stability and certainty equal to that of the company’s enterprise.”*¹²

[188] In the British Columbia Electric Railway Co. Ltd. case, the Supreme Court of Canada again ruled on a regulator’s duties when approving rates. Writing for the majority regarding the interpretation of certain provisions of the Public Utilities Act¹³, and particularly the priority to be assigned to the public interest, Mr. Justice Martland stated:

*“The rate to be imposed shall be neither excessive for the service nor insufficient to provide a fair return on the rate base. There must be a balancing of interests.”*¹⁴

[189] The Régie accepts that the three criteria referred to by counsel for the Applicant, namely the comparable investment, financial integrity and capital attraction requirements, are fully supported by these bodies of case law. It further notes that these criteria are not being challenged by IGUA, acting as the representative of the gas users’ associations. It notes that these criteria are also recognized and used by the various groups of experts testifying before it. **The Régie finds that these criteria enjoy consensus support and may be used to guide the exercise of its authority to determine a reasonable rate of return.**

[190] The second issue is whether, in determining a reasonable return, the potential rate impact should be taken into account.

[191] The Régie notes that, in the exercise of its functions, it must reconcile the public interest, consumer protection and the fair treatment of the Distributor (section 5). This should not, however, deprive investors of the reasonable return that they are entitled to expect pursuant to subsection 49.3, as these two provisions of the Act are by no means incompatible.

¹² *Northwestern Utilities Ltd. v. Edmonton (City)* [1929] S.C.R. 186, page 191.

¹³ R.S.B.C. 1948, c. 277, s. 16(1) and (b).

¹⁴ *British Columbia Electric Railway Co. v. Public Utilities Commission*, [1960] S.C.R. 837, pages 855-856.

[192] The return to shareholders is a component of the Distributor's cost of service, just as operating costs are. Under the Act and in view of the case law, the tariff established by the Régie must allow enough revenue to cover all these costs¹⁵. Furthermore, the three above-mentioned criteria make no reference to users' ability to pay. However, insofar as reference is made to the returns obtained in the rest of the economy, the limits dictated by market forces on the return on equity that can be realized in other businesses with levels of risk comparable to that of the Distributors are taken into account in establishing the rate.

[193] The Régie finds that users' ability to pay is not a factor to be considered in its decision on what constitutes a reasonable return for shareholders. It also finds that, under section 51 of the Act, the authorized tariff may not impose higher rates than are necessary to provide that reasonable return, which in the Régie's view ensures appropriate protection for the interests of consumers.

[194] Finally, as stated in the Hope decision, "Under the statutory standard of 'just and reasonable,' it is the result reached, not the method employed, which is controlling." In this regard, the US courts have allowed regulatory agencies wide latitude and discretion in determining the best method for fixing a reasonable return on the rate base¹⁶.

[195] The fact that the automatic adjustment formula or any other approach suggested by the experts for the parties before the Régie may or may not be challenged is not a decisive factor; it is the result which is conclusive, as the US Supreme Court stated in Hope: "it is the result reached, not the method employed, which is controlling....It is not theory, but the impact of the rate order, which counts....The fact that the method employed to reach that result may contain infirmities is not then important"¹⁷. The Régie considers that its duty in this respect is to determine a reasonable rate of return and that the method it uses is a matter of discretion.

4.5.2 AUTOMATIC RATE OF RETURN ADJUSTMENT FORMULA

[196] The recent financial crisis and the ensuing recession caused extreme volatility on financial markets between September 2008 and the spring of 2009. This is the background to

¹⁵ *Federal Power Commission v. Hope Natural Gas Company* 320 U.S. 591 (1944).

¹⁶ *Federal Power Commission v. Natural Gas Pipeline Co.*, 315 U.S. 575 (1942); *Federal Power Commission v. Hope Natural Gas Company* 320 U.S. 591 (1944).

¹⁷ *Federal Power Commission v. Hope Natural Gas Company* 320 U.S. 591 (1944), page 603.

this case. However, the expert opinions on the development of financial market conditions since the spring of 2009 and the implications for the present case vary widely.

[197] According to one of Gaz Métro's experts, Mr. Engen, stock market volatility remains higher than the historic average. He said that analysis of yield spreads¹⁸ for different forms of utility debt indicates that bank and bond financing costs have increased and remain high in historic terms. If the cost of other forms of financing increases, the cost of equity capital must rise as well¹⁹. With respect to yield spreads, the witness stated that we are seeing a revaluation of the cost of risk, and this new valuation could hold for some time²⁰.

[198] Gaz Métro contended that the automatic adjustment formula (AAF) is no longer working. Among other things, it observed that there has been a relatively steady decline in the rate of return authorized for Gaz Métro under the formula. It argued that the rates of return established using the AAF no longer meet the three criteria in the case law and that corporate bond yields are no longer moving parallel to the Government of Canada long-term bond rate, which is used to calculate the risk-free rate. Finally, Gaz Métro argued that the AAF yields absurd results because, while risk and uncertainty have decreased since March 2009, the rate of return produced by the AAF was higher in August 2009 than in March 2009.

[199] However, Dr. Booth, an IGUA expert, considers on the contrary, that key financial and economic conditions are quickly returning to normal. He said that the Canadian market volatility index and the yield spreads have returned to near-normal levels and that the economy is emerging from the recession and recovering. With respect to yield spreads, Dr. Booth made two points. First, yield spreads cannot be analyzed in relation to historic averages; the economic cycle must be taken into account, as the spreads clearly fluctuate with the economic cycle. Secondly, he suggested that, beyond the yield spreads, absolute interest rates must be considered.

[200] IGUA recommended continued application of the AAF, which would produce an 8.64 % return on equity (ROE) for 2010. Dr. Booth stated that the AAF yields results that he described as generous but reasonable, adding that the 75 % adjustment factor applied to interest rate variations has been remarkably precise in the past in following downward

¹⁸ Spread between interest rates on corporate debt instruments (e.g. corporate bonds) and Government of Canada debt instruments (e.g. Government of Canada bonds).

¹⁹ Exhibit A-22-1, pages 177-178.

²⁰ Exhibit A-22-6, page 42.

movements in the Government of Canada bond rate, while allowing an increase in the risk premium²¹.

[201] Before deciding on this issue, the Régie considers it useful to recall that the AAF was established in 1999 for the purpose of regulatory streamlining and to reduce public hearing costs, while meeting the Régie's legal obligation to determine a reasonable rate of return. This formula was adopted following public hearings and the consideration of expert evidence on the appropriate adjustment method. Provision was also made for possible amendment of the formula²². The AAF was reviewed and renewed in 2004²³.

[202] In the first year in which the AAF was applied²⁴, 1999-2000, the return on unitholders' equity was set at 9.72 %. This decision was rendered in a context where Government of Canada 30-year bonds were trading as of August 1999, at 5.82 % and Gaz Métro 10-year and 30-year bonds at 6.50 % and 6.89 % respectively²⁵.

[203] Application of the formula reduced the Distributor's rate of return from 9.72 % in 1999-2000 to 8.73 % in 2006-2007, a 99-basis-point decrease. During the same period, market interest rates on long-term bonds in general decreased significantly: Government of Canada long-term bonds were down 154 basis points and A-rated corporate bonds were down 125 basis points. Gaz Métro 30-year bonds were down 162 basis points over the same period, slightly more than those of comparable regulated companies in Canada²⁶. Therefore, the Régie finds that the decrease in the rate of return arrived at using the AAF closely reflects the general decrease in interest rates and financing costs on the markets during the period.

[204] With respect to year-to-year variances, the Régie observes that the rates of return yielded by the formula ranged from a peak of 9.89 % in 2002-2003 to a low of 8.73 % in 2006-2007, and the annual change has always been less than 50 basis points.

[205] Finally, the implicit risk premium granted to the Distributor increased during the same period, rising from 3.90 % in 1999-2000 to 4.45 % in 2006-2007. This outcome is

²¹ Exhibit C-1-8, IGUA-6, document 1, Written evidence of Dr. Laurence Booth for IGUA, page 100.

²² Decision D-99-11, case R-3397-98.

²³ Decision D-2004-196, case R-3529-2004.

²⁴ Decision D-2000-34, case R-3426-99.

²⁵ Rate as of August 23, 1999, according to Exhibit B-51, Gaz Métro-7, document 13.37.

²⁶ Exhibit B-51, Gaz Métro-7, document 13.37; Exhibit B-40, Gaz Métro-7, document 12.13.

consistent with the result that was anticipated when the formula was designed and adopted, as long-term bond yields fell during the same period.

[206] For 2007-2008, the Régie heard, at the Distributor's request, detailed expert evidence on the rate of return. Therefore, the AAF was not applied that year, although the result that its application would have produced was taken into account to complement the result produced by examining the evidence in chief. The Régie then restored the formula for subsequent years but raised the starting point for application of the formula to the new authorized rate of return. The result of application of the new formula was used to set rates for 2008-2009.

[207] The Régie notes that the yield spread between long-term government bonds and A-rated corporate bonds or bonds issued by comparable regulated companies then widened to an unprecedented gap for a brief period in late 2008 and early 2009. As all the experts heard in this case said, North American and global economies were then experiencing a period of uncertainty and high volatility during a crisis of a scale that no expert or calculation model could have predicted. However, the evidence shows that the Distributor should be able to fully realize the 8.76 % return authorized by the Régie²⁷ for the financial year ended September 30, 2009.

[208] Furthermore, the Régie's reading of the reports from the credit-rating agencies²⁸, which maintained Gaz Métro's "A" rating and "stable" outlook, does not suggest that Gaz Métro's financial integrity would have been undermined as a result of using the AAF to determine the rate of return. Gaz Métro continues to enjoy reasonable access to capital markets, as was confirmed by the two debt issues in October 2008 and June 2009. It should be noted that despite the prevailing uncertainty in the first half of 2009, the interest rate on the 10-year bonds issued by Gaz Métro in June 2009 was similar to, and indeed less than, the rate at which these bonds traded in June 2007 and June 2008²⁹.

[209] Finally, Gaz Métro's authorized return under the formula, and the returns realized by Gaz Métro over the past 10 years, with or without the ROE increase yielded by the PBR Mechanism, compare advantageously with the observed returns of comparable Canadian companies.

²⁷ Exhibit A-22-2, page 28.

²⁸ Exhibit B-4, Gaz Métro-7, documents 9 and 10.

²⁹ Interest rate of 4.93% for the last issue in June 2009; monthly averages of 5.02% in June 2007 and 5.28% in June 2008, according to Exhibit B-51, Gaz Métro-7, document 13.37.

[210] Gaz Métro also argued that the AAF is no longer working because corporate bond and Government of Canada bond yields are no longer parallel. The Régie cannot accept this argument because the trend lines have in fact been parallel only for very short periods in the past. The yield spreads fluctuate with the economic cycle, as the evidence shows³⁰. Moreover, Gaz Métro's evidence, which is largely based on yield spreads, depicts only one aspect of the situation as concerns financing costs. In fact, nominal interest rates on Gaz Métro's long-term debt are equally relevant. According to the latest data provided by Gaz Métro prior to the hearings these rates are generally lower than they were at the same date in 2007 or 2008³¹.

[211] In the present case, in view of the Application and the observed unusual market conditions, the Régie will again carry out the full determination process in order to set a reasonable rate of return on the basis of detailed expert evidence. The Régie will subsequently rule on the future use of the automatic adjustment formula.

4.5.3 METHODOLOGY

[212] Gaz Métro has asked the Régie to use a new methodology to determine its rate of return, the After-Tax Weighted Average Cost of Capital (ATWACC) method. According to Gaz Métro, "the ATWACC process makes it possible to compare, on an equal basis, the returns of companies with comparable risk levels, since it neutralizes financial risk differentials in comparing investment opportunities"³².

[213] An important difference between the ATWACC and the usual approach used by Canadian regulatory agencies is that the former uses capital structures based on market value rather than book value. According to Dr. Kolbe, an expert for Gaz Métro, financial risk is dependent on the market value capital structure, not the book value capital structure³³, which he considers to be a point in favour of the ATWACC method. With the ATWACC method, as in the traditional approach, he uses the risk premium model to calculate ROE³⁴.

³⁰ See chart in Exhibit C-1-9, IGUA-6, document 2, page 5.

³¹ The Gaz Métro 10-year bond rate was 5.25 % at August 24, 2007, 5.27 % at August 22, 2008, and 4.67 % at August 21, 2009; the Gaz Métro 30-year bond rate was 5.54 % in 2007, 5.79 % in 2008 and 5.48 % at August 21, 2009, according to Exhibit B-51, Gaz Métro-7, document 13.37.

³² Exhibit A-22-13, pages 119-120.

³³ Exhibit A-22-1, page 197.

³⁴ Exhibit A-22-7, pages 71-72.

[214] Dr. Kolbe contended that weighted average cost of capital remains the same for a broad range of the capital structure around an average specific to each industry. In other words, within this broad range, the advantage of an increase in the proportion of low-cost debt is cancelled out by a corresponding increase in the returns expected by equity investors³⁵.

[215] Using the ATWACC method, Dr. Vilbert, another Gaz Métro expert, assembled two samples of businesses with a risk considered comparable to that of Gaz Métro and calculated their ATWACC based on the cost of capital and weighting of capital structures as determined by the market rather than at historic cost. Proceeding from the premise that companies with a similar business risk should have similar cost of capital, the result of this process is used as a basis for determining Gaz Métro's cost of capital³⁶.

[216] IGUA is opposed to using the ATWACC to determine the rate of return. Mr. Gorman, an IGUA expert, noted that the capital actually invested in the company is equal to the book value of its debt and of its issued capital stock. Transactions between investors on the secondary market, which determine market value and the resulting appreciation or depreciation, do not create any gains or obligations for the company³⁷.

[217] While Dr. Booth acknowledged that the ATWACC is a central concept in modern finance, he specified that this methodology is used in corporate finance to ensure that every investment decision made by a non-regulated company contributes to creating value for shareholders and increasing the prices of their shares on the stock market. Using this same concept to determine a reasonable rate of return for a regulated company would imply that the regulator was embracing the objective of maximizing the market value of the company's shares instead of fixing fair and reasonable rates³⁸.

[218] Dr. Booth also objected to the claim that, for a broad range of the capital structure, changing the debt and equity weightings has no impact on the weighted average cost of capital. He contended that, on the contrary, the cost of capital follows a U-shaped curve and companies attempt to minimize their weighted average cost of capital by trying to achieve an

³⁵ Exhibit B-66, Gaz Métro-7, document 22, page 2.

³⁶ Exhibit B-4, Gaz Métro-7, document 14, page 1.

³⁷ Exhibit A-22-8, pages 75-76.

³⁸ Exhibit C-1-8, IGUA-6, document 1, Written evidence of Dr. Laurence Booth for IGUA, page 12 and Appendix B, pages 10-11.

optimal capital structure, given their business risk. All Canadian regulatory agencies have endeavoured to do this³⁹.

[219] In the Régie's view, three basic factors must be considered in determining a reasonable rate of return on the rate base:

- value of the rate base;
- capital structure;
- average cost of debt and of shareholders' equity.

[220] The value of the rate base is determined on the basis of original cost less depreciation.

[221] The ATWACC, as proposed by Gaz Métro's experts, can be subdivided into two parts: determination of a capital structure and cost of debt based on market value, and a more traditional determination of the average cost of equity based on expert evidence.

[222] Therefore, the ATWACC basically modifies the capital structure weighting used to calculate the weighted average cost of capital using market values rather than book value based on historic cost. Given the observed market values, the ATWACC assigns much greater weight to equity capital in the capital structure.

[223] While capital structure calculated on the basis of historic financing costs, i.e. on the basis of book value, represents weightings that were deemed optimal at the time the investments were made, the market value capital structure fluctuates according to investors' perceptions and expectations at a given point in time. The proposition that the outcome, i.e. the market value capital structure, represents the optimal capital structure is an unproven hypothesis.

[224] The Régie does not accept this conclusion. As the market value of a share is largely based on investors' perceptions and expectations, the market value of regulated companies in a sample of comparable companies will be determined by, among other things, investor perceptions and expectations with respect to the regulators' past or future decisions. Using this value to fix the capital structure of a regulated company would amount to accepting these investor perceptions and expectations and assuming that they are suitable, in and of themselves, to determine the optimal capital structure of the regulated activity.

³⁹ Exhibit A-22-8, pages 171-174.

[225] In this respect, the proposed equity and debt weightings produced by determining capital structure on the basis of market values, i.e. 53 % equity for the sample of Canadian companies and 63 % for the US sample⁴⁰, do not appear to be readily compatible with the capital structures determined to date by regulatory agencies for low-risk activities such as natural gas distribution.

[226] Furthermore, Gaz Métro's experts submitted that, once a market value capital structure has been established, the ATWACC is constant for a very broad range of the capital structure. If the Régie set Gaz Métro's ATWACC at 7.75 % and translated it, as Gaz Métro suggested, into a return on unitholders' equity of 12.39 % on its capital structure including an equity ratio of 38.5 %, this would be only a transposition of a weighted return derived in fact from a sample of companies and of capital structures that are not necessarily optimal or transposable to Gaz Métro. The Régie does not believe the evidence in the record establishes that the ATWACC would necessarily be constant for so wide a range.

[227] Finally, the ATWACC requires, according to IGUA, that the average cost of debt be replaced by observable market rates. The Distributor's experts suggested that the ATWACC be adjusted to recognize the actual cost of Gaz Métro's historic debt and to use market values only for new debt issues, which the existing method already does.

[228] In view of the numerous conceptual difficulties involved in applying the ATWACC according to market values, the Régie finds that establishing book value capital structure and using traditional approaches based on expert evidence with respect to optimal debt and equity weightings is a proven method that is compatible with the determination of a reasonable rate of return on the Distributor's rate base.

[229] Therefore, the Régie will not adopt the After-Tax Weighted Average Cost of Capital (ATWACC) based on market value as the standard approach for determining the reasonable return on Gaz Métro's rate base.

4.5.4 COST OF EQUITY MODELS

[230] The experts who testified use different approaches and models to calculate Gaz Métro's return on equity (ROE).

⁴⁰ Exhibit B-4, Gaz Métro-7, document 14, appendices, pages 8 and 70.

[231] The IGUA expert, Dr. Booth, used the conventional Capital Asset Pricing Model (CAPM) and a two-factor model based on the market risk premium and the risk premium on Canada long-term bonds⁴¹. The Gaz Métro experts, Dr. Vilbert and Dr. Kolbe, used the CAPM, the Empirical Capital Asset Pricing Model (ECAPM) and the Discounted Cash Flows model (DCF) to calculate the cost of capital⁴².

[232] The CAPM is expressed by the following equation.

$$K = R_f + \beta*(R_m - R_f)$$

[233] This equation represents the rate of return (K) that an investor expects to receive on an investment in a security with a specified level of risk. The expected return on this security (K) equals the return on a risk-free investment (R_f) plus a risk premium. The risk premium is specific to the security under consideration and is proportionate to the market risk (R_m - R_f), which is estimated on the basis of the difference between the rates of return generated by a diversified portfolio (R_m) and by a risk-free investment (R_f). The relationship between market risk and the risk associated with the security under consideration is expressed by the beta factor (β).

[234] The ECAPM is expressed by the following equation:

$$K = \alpha + R_f + \beta*(R_m - R_f - \alpha)$$

[235] The ECAPM aims to correct the downward bias produced by the CAPM for companies with a beta less than 1. In the literature, this bias has been reported by studies of the risk-free rate based on 90-day T-Bills. The correction produced by the introduction of an alpha factor (α) in the case of the ECAPM results in an increase in the ordinate at the origin and a reduction of the slope of the linear relationship.

[236] According to the IGUA expert, there is no longer any reason to correct for this bias when government long bond yields are used in the calculation model. The Gaz Métro expert disagreed with this position and argued that using long-term bond yields only partially corrects the bias.

⁴¹ Exhibit C-1-8, IGUA-6, document 1, Written evidence of Dr. Laurence Booth for IGUA, pages 67-68.

⁴² Exhibit B-4, Gaz Métro-7, document 14, pages 29, 38-45.

[237] Dr. Vilbert⁴³ used the DCF model to test the results produced by the CAPM and the ECAPM. The two groups of experts agreed that this model entails some practical difficulties, including calculation of the dividend growth rates for the selected securities. However, Dr. Vilbert submitted, this model has the advantage of being more responsive to changing market conditions.

[238] **For these reasons, the Régie has decided to rely primarily on the Capital Asset Pricing Model in reaching its decision.** This is the method the Régie has applied in previous decisions and it is the most widely used approach in Canada. This model is recognized and used both in financial circles and by the majority of the experts appearing before regulatory bodies.

[239] However, in the current environment, the use of this model does entail significant difficulties which the Régie addresses in greater detail below.

[240] For reasons of caution, as no one model can perfectly reproduce investor expectations of return, the Régie will take into account, for the purpose of determining Gaz Métro's rate of return, the submitted results of the ECAPM, of Dr. Vilbert's DCF model, and of the multifactorial model used by Dr. Booth.

4.5.4.1 Risk-free rate

[241] The CAPM model requires the establishment of a risk-free rate (R_f), to which the company's risk premium is then added. The usual practice is to use the 30-year Government of Canada bond yield.

[242] Dr. Vilbert suggested a risk-free rate of 4.3 %⁴⁴ for application of the CAPM. This figure was based on the 3.3 % rate observed at the time his evidence was prepared in April 2009, plus 100 basis points to offset the abnormally low long-term government bond yield during this period due to the financial crisis.

⁴³ Exhibit B-4, Gaz Métro-7, document 14, pages 41-45.

⁴⁴ Exhibit B-4, Gaz Métro-7, document 14, table MJV-9, page 21.

[243] Dr. Booth suggested a risk-free rate of 4.5 %⁴⁵ based on the 4.0 % rate observed at the time his evidence was prepared in July 2009, plus 50 basis points in view of a foreseeable increase in interest rates during the anticipated post-crisis recovery.

[244] Finally, the risk-free rate based on the Consensus Forecast of August 2009 and the yield spread between Government of Canada 10-year and 30-year bonds for the previous month, as filed by Gaz Métro at the hearing, is 4.23 %.

[245] Based on the evidence in the record, the Régie determines the risk-free rate to be in the range of 4.23 % to 4.50 %.

4.5.4.2 Market risk premium

[246] The CAPM requires the establishment of a market risk premium ($R_m - R_f$), based on which a premium is determined for a reference company or distributor.

[247] Dr. Vilbert submitted a pre-crisis market risk premium of 5.75 % and a post-crisis rate of 6.75 %. To support this 1 % (100 basis point) increase in the market risk premium, Dr. Vilbert noted that the financial crisis created significant turbulence on financial markets. While these exceptional circumstances had receded to some extent between the preparation of his evidence and the time the present case was taken under advisement, they were still present and should, according to Dr. Vilbert, be reflected in a higher market risk premium than usual for corporate equity investments. In support of Dr. Vilbert's contention, Mr Engen stated that the cost of debt financing was increasing and remained high in historic terms. Still according to Mr. Engen, if the cost of debt financing goes up, the cost of equity must also rise⁴⁶.

[248] The IGUA expert witness, Dr. Booth, argued that key financial and economic conditions were returning to normal. Dr. Booth submitted market risk premium estimates for periods beginning in 1926 and 1957, and ending in 2008. He used arithmetic and geometric means and the ordinary least squares method. He proposed a market risk premium of 5.0 %. However, he increased his market risk premium estimate to 5.5 % to include a margin of error in view of his colleagues' estimates.

⁴⁵ Exhibit C-1-8, IGUA-6, document 1, Written evidence of Dr. Laurence Booth for IGUA, page 65.

⁴⁶ Exhibit A-22-1, pages 177-178.

[249] With respect to the weighting of Canadian and US data in the market risk premium calculation, the Régie's Decision D-99-150⁴⁷ established a weighting of 60 % for the Canadian data and 40 % for the US data. In view of the evidence in the present case, the Régie has decided to base its assessment of the market risk premium on Canadian and US data in equal proportions. The Régie is of the opinion that more open markets are giving investors a variety of investment options, which must be reflected in setting a reasonable ROE. It also believes that increasing the weighting of US data is warranted by the growing integration of the two economies.

[250] The Régie has also decided to continue calculating the market risk premium on the basis of the arithmetic mean of returns observed on the markets. However, the choice of reference periods for establishing the risk premium raises certain issues: the mean may vary significantly depending on the beginning and ending dates of the selected data series. Since 1999, the statistics have shown a significant decrease in average yields. The drop in stock prices in 2001, 2002 and 2008 partly accounts for this phenomenon. Therefore, the Régie has chosen to assign the greatest weighting to long-period means.

[251] The Régie also notes that the sharp market declines in 2008 were followed by a fairly strong rebound in the second and third quarters of 2009. Due to the seriousness of the crisis and the difficulty of correctly assessing its scope and implications, the Régie considers it appropriate, firstly, to exclude data for the year 2008 from the basic market risk premium calculation.

[252] Based on the evidence in the record, the Régie determines the market risk premium, prior to the financial crisis, to be in the range of 5.50 % to 5.75 %.

[253] The Régie also accepts the expert testimony that the market risk premium probably increased during the financial crisis.

[254] However, the adjustment suggested by the Distributor's experts raises a substantive issue in regulation, namely whether ROE should be regularly adjusted to reflect observed market fluctuations. This question also bears on the correct application of the three criteria used to determine a reasonable return.

⁴⁷ Decision D-99-150, case R-3428-99, page 10.

[255] It is standard regulatory practice to take a mid-term and long-term view in determining a reasonable return. The use of long-term historic means as a reference is consistent with this practice.

[256] A degree of stability in the reference models used in determining the authorized ROE is also desirable. Changes in the methodology are possible and may be desirable under some circumstances, but such changes must be supported by a rigorous review based on probative evidence.

[257] The model widely used to date is based on the CAPM, in which the market risk premium or the distributor's risk premium is added to a risk-free rate, defined *a priori* as the Government of Canada 30-year bond rate. The crisis has raised new issues, insofar as the yield spread between regulated company bonds or A-rated corporate bonds and government bonds became much wider than in the past, at least for a brief period at the height of the crisis.

[258] All the experts concurred that, in general, ROE should be higher than bond yields, since shareholders assume greater risk than do bondholders. However, should the yield spread between these two investment instruments be maintained at all times? Should any widening of the spread result in authorization of a higher rate of return? None of the experts submitted evidence in support of such a drastic approach, which would amount to replacing the current model with one based on the differential between market returns and A-rated corporate bonds.

[259] The second criterion involves the objective of making it possible to attract new capital on reasonable terms. It is clear that, in the midst of the crisis, access to capital markets was seriously disrupted. This was the case for all companies, regulated or not.

[260] With respect to access to the debt market, the Régie has noted that the Distributor was able to access the bond market on reasonable terms under the circumstances. Moreover, under the current cost-based rate-setting system, the cost of borrowing is fully reflected in the cost of service, providing shareholders with full protection in this respect.

[261] With respect to access to the equity market, there is no question that it was disrupted during the crisis. Once again, the basic question is whether the Distributor should have access to this market under all circumstances. Questioned on this point, the expert Engen acknowledged that at the height of the crisis, access to equity markets was closed to all

companies, to all intents and purposes. He added, however, that to meet the fair return standard, the Distributor's authorized rate must be high enough to enable it to access the market regularly and on favourable terms throughout the various economic and financial cycles.

[262] In view of the evidence in the record, including the evidence on the scope of the financial crisis, the levels of uncertainty that still exist on the markets, and the objective of maintaining market access on reasonable terms, the Régie considers it appropriate, under the circumstances of the present case, to authorize an adjustment in consideration of the effects of the crisis.

[263] Therefore, **in consideration of the effect of the financial crisis, the Régie is increasing the market risk premium by an amount ranging from 0.50 to 1.00 %. This adjustment will be taken into account in determining Gaz Métro's rates of return for the 2010 and 2011 rate years.**

4.5.4.3 Risk for a reference distributor

[264] Dr. Booth and Dr. Vilbert submitted risk estimates for a reference distributor, i.e. a utility with a low-risk profile. The reference distributor's risk level is measured by the beta factor (β), which represents the risk differential between the reference company and the broader market.

[265] Establishing the beta is one of the major difficulties in applying the CAPM. The problems relate both to establishing a reference sample that is representative of the risk associated with regulated companies and obtaining valid data series that can support a robust estimate.

[266] Dr. Vilbert submitted a raw beta of 0.47 and an adjusted beta of 0.65 based on the Canadian sample. He also submitted a raw beta of 0.55 based on the US sample and a raw beta of 0.53 based on the US subsample⁴⁸.

⁴⁸ Exhibit B-4, Gaz Métro-7, document 14, Workpaper #1 to table MJV-20, page 84, Gas LDC subsample; Exhibit B-24, Gaz Métro-7, document 14.3, table MJV-10 amended.

[267] Dr. Booth submitted various estimates based on recent data but stated that judgement must be applied and suggested that the beta value of a reference company be established on the basis of the historic mean, which he estimated at between 0.45 and 0.55. He also stated that the companies in the US sample used by the Gaz Métro experts are not representative of regulated companies in the US, which he said have a beta well below 0.60⁴⁹.

[268] Dr. Vilbert used adjusted betas to reflect empirical research showing the tendency of beta values to converge towards 1. Dr. Booth argued, on the contrary, that the beta values of regulated companies converge towards the average beta for their group and not towards 1.

[269] Upon review, the Régie maintains the position it adopted in decisions D-2007-116 and D-2003-93, to the effect that the beta values of regulated companies converge towards their own mean and not the market mean, which by definition is 1⁵⁰.

[270] While beta value is a decisive factor in application of the CAPM, it is difficult to objectively deduce it from observed market data for the companies in the samples. **Based on the evidence in the record, the Régie determines the beta of a reference distributor to be in the 0.50 to 0.55 range.**

4.5.4.4 Gaz Métro's level of risk

[271] The Distributor's business risk was thoroughly examined in 2007. In view of the evidence heard during the present hearing, the Régie is conducting a new examination of this risk in 2009.

[272] Gaz Métro's level of risk in relation to that of a reference distributor and the evolution of its risk since 2007 were discussed at length in the evidence.

[273] According to Dr. Carpenter, a Gaz Métro expert, investors regard business risk as the uncertainty of realizing a return on their capital within a given horizon and of recovering their capital, in view of the environment in which the company operates: its market, its operations and its regulatory framework. Dr. Carpenter stated that a distinction must be made between long-term risk, i.e. the capital recovery risk, and short-term risk, which is associated with variability in realizing annual returns.

⁴⁹ Exhibit C-1-8, IGUA-6, document 1, Written evidence of Dr. Laurence Booth for IGUA, page 99.

⁵⁰ Decision D-2003-93, case R-3492-2002 Phase 1, page 73.

[274] Dr. Carpenter argued for the importance of examining long-term risk in relation to short-term risk. Dr. Carpenter is of the view that the long-term risk has increased since 1999 due to, among other things, decreased volume, reduced system use, the sharp rise in natural gas prices, greater price volatility and competition from electric power. He also mentioned that the company's level of risk has been increased by the incentive-based regulatory mechanism introduced in 2001. He concluded that Gaz Métro's risk is higher than that of a reference company and that an upward adjustment of 25 basis points to the ATWACC, or 65 basis points to ROE, is warranted.

[275] According to Dr. Booth, Gaz Métro's risk has not changed since the Régie's last decision in 2007. In his view, the capital recovery risk is captured through the calibration of depreciation rates. He submitted that cash flows related to depreciation of the assets in the rate base included in the tariffs constitute capital recovery for shareholders. Depreciation rates must be established correctly in order to cover the capital recovery risk⁵¹.

[276] Dr. Booth noted that Gaz Métro has a higher level of business risk than its counterparts due to the make-up of its customer base. He argued, however, that its higher capitalization ratio and greater risk coverage through a number of deferred charge accounts counterbalance the higher business risk and the company's overall risk is therefore average.

[277] An IGUA witness stated that Gaz Métro had decreased its dependence on industrial volumes and increased its commercial customer base and volume. He argued that it was a mistake to confine the analysis to the volumes consumed by Gaz Métro's customers, as Dr. Carpenter did, without considering changes in the revenues generated by each customer class. The higher the proportion of fixed charges included in the revenues generated by a tariff, the smaller the negative impact on the regulated company's revenues of a decrease in the volumes generated by a customer at that tariff.

[278] He also contended that the Mechanism in no way entails increased risk for the company but rather offers it an opportunity to realize higher returns insofar as its performance warrants, while providing protections that make it comparable to a cost-of-service-based system. He added that Dr. Carpenter had acknowledged at the hearing that the changes made to the Mechanism had provided Gaz Métro with greater protection, not the reverse⁵².

⁵¹ Exhibit-C-1-8, IGUA -6, document 1, Written evidence of Dr. Laurence Booth for IGUA, Appendix H, page 16.

⁵² Exhibit A-22-2, pages 78, 109-110.

[279] In the Régie's view, Gaz Métro bondholders and unitholders have very similar perceptions of long-term risk. The credit-rating agencies do not report any materialization of capital recovery risk in the case of regulated activities in Québec.

[280] The Régie does not consider the company's risk to have been significantly increased by the introduction of the Mechanism. In the Régie's view, the Mechanism allows for the company's revenue requirement to be considered every year for the purpose of rate-setting; in this respect, it is similar to conventional cost-of-service-based systems.

[281] As stated in its Decision D-2007-116, the Régie considers the company's overall risk to be higher than average, due to, among other things, the composition of its customer base and competition from electric power in Québec. However, its assessment takes into account the increased coverage of these risks provided by deferred charge accounts.

[282] The Régie finds the company's risk has not changed materially since Decision D-2007-116 and is higher than that of a reference company. **Based on the evidence in the record, the Régie determines that the higher risk warrants maintaining an upward adjustment in comparison with the risk premium of a reference distributor in the amount of 25 to 35 basis points.**

4.5.4.5 Issuance costs and other capital market access costs

[283] Issuance costs have been considered in detail in this case. In its Application, Gaz Métro asked the Régie to increase the compensation for issuance costs to 16 basis points on the ATWACC, or approximately 41.6 basis points on 38.5 % equity. In their September 12, 2009 update, the Gaz Métro experts reduced the estimate from 16 to 14 basis points on the ATWACC⁵³, or approximately 36.4 basis points on 38.5 % equity. Dr. Kolbe's evidence was based on a detailed calculation of actual issuance costs since 1993, as provided by Gaz Métro.

[284] Dr. Booth stated that an adjustment of less than 44 basis points was supported by a Discounted Cash Flows model including a constant growth factor. However, he recommended that 50 basis points generally be added to his estimate of the required return for shareholders in order to reflect issuance costs and dilution effects. An adjustment of this type would be compatible with the practices of many other regulatory agencies.

⁵³ Exhibit A-22-11, page 80.

[285] The Régie is determining this provision on the basis of an examination of Gaz Métro's actual issuance costs since 1993⁵⁴. If the costs of all the issuances made, including those prior to Gaz Métro's conversion to a limited partnership but excluding retained earnings, as recognized by Dr. Kolbe⁵⁵, are calculated, total issuance costs since the original creation of the company are less than \$30 million.

[286] The 30-basis-point compensation granted to Gaz Métro in past decisions to cover issuance costs and other costs of accessing capital markets represents \$2.064 million in the current rate case.

[287] The Régie considers this compensation to be sufficient, since when discounted to an after-tax rate based on the rate of return authorized under the present decision, it covers all the issuance costs incurred by Gaz Métro, according to Dr. Kolbe's estimate⁵⁶.

[288] Based on the evidence in the record, the Régie determines a provision for issuance costs and other costs of accessing capital markets ranging from 30 to 40 basis points, with a greater weighting for the lower end of the range.

4.5.4.6 Results of other models

[289] In the Régie's view, the CAPM remains the most appropriate base model to guide the determination of a reasonable rate of return.

[290] However, all the experts also acknowledged that no one model can correctly represent investor expectations under all circumstances and in all phases of the economic and financial cycles. Therefore, the Régie believes that the results produced by the other models submitted by the experts must be taken into account.

[291] The Régie also recalls that in its Decision D-2007-116, it noted that application of the CAPM raises an additional difficulty when ROE determination occurs at a time when government bond rates differ significantly from their mean over long periods. Since the risk premium is calculated over a long period and represents the difference between the arithmetic mean market return and the arithmetic mean government bond yield, it basically

⁵⁴ Exhibit B-4, Gaz Métro-7, document 15, page 54.

⁵⁵ Exhibit A-22-7, page 98.

⁵⁶ Net cost of equity issued (4.5 %) x total equity issuances (\$658.8 million) x ATWACC of 6.9 % = \$2.045 million.

reflects prevailing conditions over that same period. The Régie concluded that an adjustment was necessary when bond market conditions varied from this mean.

[292] In view of the evidence in the present case and the comments made in its Decision D-2007-116, the Régie considers that an adjustment in the order of 25 to 50 basis points to the results produced by the Capital Asset Pricing Model is warranted under the circumstances.

4.5.4.7 Comparison with US distributors

[293] Comparison of the ROEs authorized for regulated Canadian companies and their US counterparts was discussed at the hearing. Both Gaz Métro and IGUA officials and experts testified on the related issues.

[294] The Régie believes that while it is clear that the ROEs authorized in the US are higher, on average, than those granted in Canada, the evidence in support of the proposition that the rates authorized in the US should be used as the reference for rate-setting in Québec is inconclusive. The evidence with respect to recent data on US decisions and with respect to analysis of US regulatory and institutional systems is very scant. Among other things, the Distributor has not demonstrated that the opportunities available on the US market are comparable in terms of risk.

[295] The evidence on the comparability of the two countries' regulatory, institutional, economic and financial environments, and their impact on the resulting investment opportunities, is inconclusive.

4.5.4.8 Results of analysis

[296] The table below shows the values the Régie has decided to authorize for each factor.

Factor	Bottom of range	Top of range
Risk-free rate	4.23%	4.50%
Market risk premium, before financial crisis	5.50%	5.75%
Reference raw beta (unadjusted)	0.50	0.55
Adjustment for Gaz Métro's risk level	0.25%	0.35%
Issuance costs	0.30%	0.40%
Subtotal 1: Result produced by CAPM	7.53%	8.41%
Adjustment for results of other models	0.25%	0.50%
Subtotal 2: Return on equity before adjustment for effect of financial crisis	7.78%	8.91%
Adjustment for effect of financial crisis	0.25%	0.55%
Total: Return on equity after adjustment for effect of financial crisis	8.03%	9.46%

[297] In view of all the above conclusions, the resulting ROE for the Distributor is in the range of 7.78 % to 8.91 % before the adjustment for the effect of the financial crisis, and between 8.03 % and 9.46 % after the adjustment for the effect of the financial crisis.

4.5.5 CONCLUSION

[298] Under its enabling legislation, the Régie must determine a reasonable return on the Distributor's rate base.

[299] This hearing examined a new approach to establishing the return on the Distributor's rate base, namely the ATWACC based on market value. The Régie has decided not to adopt this approach.

[300] The Régie is using the results produced by the CAPM as its main standard of reference. The Régie is also taking the results of the other models into account for the purpose of determining the authorized rate of return for Gaz Métro.

[301] Given the evidence in the record and all the reasons set out above, the Régie sets Gaz Métro's return on equity (ROE) at 9.20 % as of October 1, 2009. This rate includes an adjustment for the 2010 and 2011 rate years in consideration of the effect of the financial crisis.

[302] Based on a risk-free rate of 4.30 %, the authorized ROE reflects an implicit risk premium of 4.90 % for the Distributor. Moreover, based on an equity ratio of 38.5 % and the cost of debt in the record, the Régie sets the average cost of capital at 7.64 %⁵⁷ on the rate base and the projected cost of capital at 6.55 %⁵⁸.

[303] In view of the Régie's opinion that, under normal financial circumstances, the automatic adjustment formula has produced valid results in the past while making it possible to significantly streamline the regulatory process, the Régie renews the automatic rate of return adjustment formula, to be applied as of the 2011 financial year.

⁵⁷ Exhibit-B-4, Gaz Métro-7, document 2, page 1.

⁵⁸ Exhibit-B-56, Gaz Métro-7, document 8, page 1, amended August 31, 2009.