GAZ METRO LIMITED PARTNERSHIP

R-3867-2013 – PHASE 3B

EVIDENCE OF WILLIAM PEREA MARCUS

ON BEHALF OF

OPTION CONSOMMATEURS (OC)

September 20, 2017

Q Please state your name and business address.

A I am William Perea Marcus, Principal Economist of MCPM Economics, 67 Third Street, Woodland, California, USA 95695.

Q Please provide your qualifications.

A My qualifications were provided in Exhibit WM-1 to the evidence filed on my behalf in Phase 3A. I have over 39 years of experience in analyzing energy utilities and have testified before approximately 40 regulatory bodies and courts in the US and Canada on a variety of issues related to utility regulation including revenue requirements, rate of return, system planning, and cost allocation and rate design. Furthermore, in the context of R-3867-2013- Phase 3A, I was recognized by the Régie as an expert in utility regulation, cost allocation and ratemaking.

Q Have you previously testified before the Régie de l'energie (Régie)?

A Yes, in Phase 3A of this proceeding.

Q Have you previously testified on issues related to the marginal cost of gas service and line extension parameters?

A Yes, on a number of occasions. Marginal cost is used for cost allocation and rate design in California, and I have testified in cases involving Pacific Gas and Electric Company, Southern California Gas Company, and the gas operations of San Diego Gas and Electric Company in cases dating back to 1994, and as recently as March, 2016. I also testified on marginal costs of Washington Gas Light in Maryland in Maryland PSC Docket No. 8959 and provided a report on Gas Utility Integrated Resource Planning for the Ontario

Energy Board in 1992 which included marginal cost analysis. I testified on line extension parameters in Colorado Public Utilities Commission Proceeding No. AL14-300-G (Atmos Gas), a case which ultimately settled. I have also been involved in negotiations and collaboration on line extension issues on several occasions for electric and gas companies in California and Nevada, but have not been a witness in those cases.

Q. What are the main issues related to Phase 3B?

A. The Régie de l'énergie (the "Régie") is charged in Phase 3B with evaluating methods and parameters for determining the cost-effectiveness of the development (i.e., line extension) projects of Gaz Metro Limited Partnership ("Gaz Metro") through comparison of the projects' costs and revenues.

While the direct long-run marginal costs of serving new customers was the subject of Phase 3A, Phase 3B involves a more comprehensive review of the process of cost-effectiveness, including the design of the process, input assumptions and methods of evaluation.

The Joint Experts' Report filed on September 15, 2017 (C-OC-0047) sets forth a framework for discussion of the issues. My testimony will follow the structure of that report to the extent possible, although it will be necessary to cross-reference some items.

Definition of Gaz Metro's Portfolio and Methods for Evaluation

Q. What are the first issues that you are addressing?

A. The first issues listed in Attachment A of the Joint Experts' Report (Rows 1-9)[1] are threshold questions as to how projects and the portfolio should be defined and the methods for evaluating projects and the portfolio.

Q. Will you summarize the basic difference between your testimony and that of Gaz Metro with respect to portfolio evaluation?

[1] All Row numbers identified throughout this document refer to Attachment A of the Joint Experts' Report (C-OC-0047). For the sake of brevity, in the remainder of the document, only the Row number will be identified.

A. I accept many, but not all, of Gaz Metro's methods of defining the portfolio and time frames and discount rates for the evaluation of the portfolio. However, as part of the package of agreeing with some of the cost input assumptions (i.e., Gaz Metro's proposed Discount Rate, Escalation Rate for Expenses and Escalation Rate for Revenues, as presented in Rows 6-9) as base case results, I also recommend a higher Profitability Index (P.I.) threshold for the project portfolio than that recommended by Gaz Metro. The higher P.I. is needed because of uncertainties in two of these critical parameters, as discussed in more detail below.

Q. What is the appropriate length of time of analysis of the portfolio?

A. Gaz Metro has proposed a 40-year time frame for analysis, based on engineering considerations. It is my understanding from the Joint Experts' Report that ROEÉ will recommend an evaluation period of 25-30 years to reflect the potential to move toward electrification in the 2040-2050 time frame as a means of controlling greenhouse gases. I can agree with the 40-year timeline for project evaluation, but uncertainty associated with the time frame for analysis is one of the issues that leads me to recommend a higher P.I. threshold.

Q. Is it certain that projects built today will be used for their entire engineering lives?

A. No. While I have agreed with Gaz Metro on the 40 year time frame as a base case for analysis, one of the key uncertainties in project evaluation is the extent to which unforeseen events late in the evaluation time frame, such as a potential move toward electrification using greenhouse-gas-free resources available in Quebec, could affect the ultimate cost-effectiveness of line extension projects.

Q. Did you make any representative calculations to show the level of uncertainty in profitability that would arise if the project life were to be shortened?

A. Yes. In B-0266 (GM-9, Doc 6, Annexe Q-4.2) Gaz Metro provided a spreadsheet analysis of a Drummondville Project in response to ROEÉ IR 4.2 (B-0264, GM-9, Doc 6) in this phase. With the assumptions made by Gaz Metro, that project showed an internal rate of return (IRR) of 6.01% over a 40-year time horizon. I changed none of Gaz Metro's assumptions, but calculated the IRR over shorter time horizons of 30 years and

25 years and found that the IRR was 5.2% over 30 years and 4.39% over 25 years.[2] Thus, some projects, which are cost-effective over 40 years, may not be cost-effective over shorter time frames. This result explains part of my rationale for the recommendation of a slightly higher P.I. than Gaz Metro's.

Q. What is the discount rate that you propose for evaluation?

A. Like Gaz Metro, I use the utility's rate of return of 5.28%. Gaz Metro uses a projected rate of return, which is lower than its current embedded cost of debt and preferred stock.

Q. Are there uncertainties in the proposed discount rate (which is Gaz Metro's rate of return?

A. Yes. Interest rates are at historically low levels, and Gaz Metro is assuming that these interest rates will last for the next 40 years. The cost of debt, preferred stock, and common stock used by Gaz Metro are shown below.

Table 1: Capital Structure and Rate of Return for Development Plan Analysis

			capital structure	return	return grossed up for income tax
debt	variable rate		13.5%	1.14%	
	medium term		5.4%	2.60%	
	long-term		35.1%	3.50%	
subtotal all debt			54.0%	2.82%	2.82%
preferred stock			7.5%	4.44%	6.07%
common stock			38.5%	8.90%	12.18%
return				5.28%	6.67%

If interest rates rise, the short- (i.e. variable rate) and medium-term debt are likely to rise particularly quickly because the debt turns over and is replaced by new debt relatively

[2] Similar results occur for the 25- and 30-year evaluations of this project if the depreciable life of mains is shortened to 30 years, as also recommended by ROEÉ. Additionally, the break-even point on rates increases from 20.8 years to 24.6 years if the depreciable life is shortened.

rapidly. And, in turn, these increases in short- and medium-term debt will affect the cost and profitability of line extensions.

Q. Would interest rate increases also increase the embedded rate of return and thus the revenue received from customers?

A. Yes, but not in a one-for-one increase that would offset the increase in cost for line extensions. The embedded cost of debt and preferred stock are already higher than the prospective interest rate, so increases in prospective interest rates will be muted by the higher cost debt and preferred stock already outstanding. Moreover, the cost of common equity usually does not rise in lockstep with long-term interest rates but only on a fractional basis (typically, 50-75%). Furthermore, the revenues paid by customers contain a large amount of costs that are unrelated to the rate of return including O&M, depreciation, and provincial public service taxes on property, so that revenues will not rise as rapidly as embedded interest rates.

Q Have you conducted any analysis of how project profitability is affected by the discount rate and rate of return?

A Yes. A 100 basis-point increase in the cost of debt and preferred stock and a 75-basis point increase in the cost of equity would yield a rate of return and discount rate of 6.18%. For purposes of analyzing the balance of higher costs of the line extension and higher revenues from customers, rather than attempting to estimate the increase in customer revenues, I included only one-half of the increase in the cost of debt and equity as an estimate of the increase in the cost of the line extension net of additional revenues. For the specific Drummondville project that I used as an example above, that change (i.e., from the current rate of return and proposed discount rate of 5.28% to 5.73%), increased the number of years that it took the project to break even from 20.8 years to 24.8 years.

Q. Should there be a different test for individual projects than for the portfolio of all projects?

A. Yes. There are two aspects related to this issue. The first is whether certain costs should not be applied to the test of cost-effectiveness of individual projects, but should be applied to the portfolio as a whole. The second is the Profitability Index (or benefit/cost

ratio) to be applied to an individual project versus the portfolio. The exclusion from the project evaluation of certain costs (that are included in the portfolio), as well as the lower P.I. for the individual projects (versus the project portfolio) both result in less stringent tests for individual projects.

Q. What is your position regarding costs that should be applied to the portfolio rather than to each individual project?

A. With the exception of very large industrial projects (discussed below), I would apply certain common costs at the portfolio level, but not at the project level. These costs may be more difficult to attribute to specific individual projects than to the portfolio of projects. These common costs include: (a) capitalized administrative overheads of Gaz Metro, (b) contractors' administrative overheads, (c) the capital and operations and maintenance expense (OPEX) costs of upstream capacity expansion caused by changes in load, and (d) the cost of administering the line extension program and marketing it to new customers. My position differs from Gaz Metro in that I include two portfolio cost elements that Gaz Metro does not assign either to the portfolio or to individual projects: OPEX costs of upstream capacity expansion (Row 34) and the cost of the line extension program as a whole (Row 32).

Q. What is your position regarding threshold Profitability Index (P. I.) tests at the project level?

A. There are two types of individual projects – those with the potential for densification (addition of future customers relatively soon after a project is built at zero cost or low cost)[3] and those without such potential. Gaz Metro has proposed a benefit-cost ratio of 1.0 for projects without densification potential and 0.8 for those with densification potential. I agree with Gaz Metro on the project level P.I. tests. Gaz Metro calculates revenue conservatively based only on those loads under contract (Row 39). Therefore, I can agree with the 0.8 P.I. for individual projects with densification potential. This is an assumption that will be tested by Gaz Metro through backcasting to determine the extent to which densification improves profitability (Row 41). Therefore the Régie will receive

[3] A typical example of a low-cost densification addition is the attachment of a service line to a main that has already been installed as part of a pre-existing project.

additional information in the future as to the reasonableness of this assumption on a going-forward basis.

I note that the 0.8 P.I. is about equal to a 3.7% IRR which is considerably higher than the 2% IRR originally proposed by Gaz Metro in its initial filing that was superseded on June 27, 2017. I consider that this higher figure provides greater protection to consumers.

Q What is the appropriate definition of the portfolio to be evaluated for profitability?

A While Gaz Metro includes all projects in the development plan, I believe that a narrower definition is appropriate to assure profitability of projects being constructed to serve new residential and business customers.

First, I would recommend requiring each very large industrial project to stand on its own and meet the portfolio threshold P.I. independently (including its assigned share of portfolio costs) (Row 2). There are very few of these large projects in any year, and they appear quite specialized. Industrial projects should neither be subsidized by smaller customers (if they did not individually meet a portfolio P.I. threshold themselves) nor mask the fact that smaller residential and business projects did not meet a P.I. threshold (if, on the other hand, the industrial projects were very profitable).

Second, I would leave out projects with investments to meet load additions ("ajouts de charge"). These projects are concentrated in the business sector and appear to generate high volumes of new gas load per project, making them relatively profitable.

Q. Should certain special types of projects be treated differently than the vast majority of projects?

A. Yes. There are three types of special projects (Rows 11 and 12): (a) industrial parks (where early installation can reduce installation costs by about 30%,[4] even if it takes several years for load to appear) (Row 11); (b) street repaving (where a gas development project must either be undertaken at the time of repaving or be delayed by a number of

[4] B-0258, OC IR 9.1.

years, and there is a potential for cost reduction)[5] (Row 11) and (c) hybrid projects (Row 12).

Q Will you discuss the treatment of Special Projects such as street repaving and industrial parks?

A Gaz Metro has proposed to allot up to $1.5 million per year of funding from profitability above threshold levels from other projects to raise the P. I. to 0.8 for industrial park and repaving levels.

For industrial parks, there are two approaches – one that is more costly and less risky (installing line extensions as load appears) and the other that is more risky but less costly (building out the extension with the construction of the park). Therefore, actual industrial park projects need to be examined after construction to determine if loads actually appear in time to justify the cost reductions of pre-building them.

For street repaving, the major issue is timing as a gas development project must either be undertaken at the time of repaving or be delayed by a number of years. Consequently, street-repaving projects need to be evaluated (by comparing them with similar densification projects that are not subject to the accelerated construction caused by repaving) to determine whether the associated loads would appear in ways similar to other densification projects (even though loads have not been contracted because the project is not identified through Gaz Metro's normal course of business).

I can accept Gaz Metro's proposal for the treatment of these projects on an interim basis for several years, only if there is a commitment to undertaking analysis described above to determine if additional subsidies (reflecting cost savings and future uncontracted load) are justified or if parameters should be changed.

Q Will you discuss hybrid projects?

A Hybrid projects are a small but diverse set of projects, which offer both capacity reinforcements and new customer connections in the same projects. If the two types of costs can readily be separated for a given project, Gaz Metro proposes to separate them

[5] B-0258 OC IRs 8.1 and 8.2.

and assign only costs net of new capacity to the development program. If costs are not easily separable, Gaz Metro proposes to place the cost in the development program. If these projects and the treatment of their costs are specifically identified in materials provided to the Régie, Gaz Metro's approach seems reasonable.

Cost Input Assumptions for Gaz Metro's Profitability Analysis

Q. Will you discuss the cost input assumptions?

A. The capital cost of any given project (or of the portfolio of projects) is converted into a revenue requirement using a variety of assumptions. These assumptions are presented on Rows 16-25 and 30-31 and include:

- Rate of return on assets and associated income tax rate
- Depreciable life of assets
- Tax depreciation methods for assets
- Other non-income taxes
- Gaz Metro's corporate overheads as a percentage of capital costs
- Contractors' overheads as a percentage of capital costs
- Operations and Maintenance Expenses ("OPEX").

The financial assumptions were largely set out in B-0258, OC IR 7.2, and most of them are not controversial. The experts agree to use Gaz Metro's rate of return. However, my comments regarding the impact of the uncertainty in the rate of return and discount rate, given above, are part of the reason why I recommend a higher P. I. threshold of 1.3, instead of Gaz Metro's 1.1 threshold.

Q. Are there any issues regarding operations and maintenance expenses (OPEX) where you take a different position than Gaz Metro?

A. While I, like the other experts will follow the Phase 3A decision of the Régie for OPEX associated with new customers who are included in Gaz Metro's annual development

plan, there are two specific issues related to OPEX that ended up being effectively deferred from Phase 3A to Phase 3B. The first is a loading factor for cash working capital. The second is a loading factor for the long run incremental costs of Gaz Metro's Human Resources Department to add to OPEX (Rows 27-28). If both of these were adopted, they would increase all OPEX costs by 2.7%.

Q. Will you discuss the loading factor for cash working capital in more detail?

A. Gaz Metro pays its bills for OPEX before it receives money from its customers. As a result, it requires an allowance for cash working capital that is included in rate base. We therefore calculated a cash working capital loading factor that is added to the long-run marginal costs adopted by the Régie (Row 27) and would also be added to the operating costs of capacity additions (preventive and corrective maintenance of mains) identified in Row 34 if the Régie adopts our recommendation on these issues.

The cash working capital loading factor is calculated as follows. There are 22.06 lag days for OPEX.[6] Dividing this lag day figure by 365 days and multiplying by a 6.67% rate of return grossed up for income taxes (shown in Table 1 above), yields 0.4% rounded to the nearest 0.05%.

Q. Will you explain the Human Resources Department loading factor that you recommend?

A. None of the costs of the Human Resources Department (HRD) is included in capitalized overheads that are applied to the project portfolio.[7] The costs of the Human Resources Department can be expected to vary incrementally in the long run with the size of the company (number of employees). As a proxy for the number of employees, I use payroll costs. The table below shows that the HRD costs are 4.6% of payroll and benefits.

[6] R3970-2016 B-0244, p. 11 referenced in B-0258 OC IR 4.
[7] B-0293, OC IR 4.2.

Table 2: Human Resources Department Costs as Percentage of Labor

	salaries and benefits ($'000)	Human Resources Dept costs ($'000)	%
2012	159,044	8,061	5.1%
2013	185,439	8,478	4.6%
2014	182,485	8,295	4.5%
2015	187,239	8,750	4.7%
2016	194,784	8,431	4.3%
Average			4.6%
Sources:	Salaries and benefits	B-0258, OC 4.4	
	Human Resources Dept.	B-0293, OC 4.1	

I recommend a figure of half of this amount (2.3%) as the OPEX load factor in this analysis to reflect that a significant portion of OPEX costs are unrelated to labor.

Q. Have you identified any additional <u>capital</u> costs that need to be included on a project-specific basis?

A. Yes. I recommend that Gaz Metro be required to include the cost of a replacement meter investment as a project-specific cost in year 20 of a 40-year analysis, because data provided to the Régie both in a recent rate case and in this case suggest that the useful life of a meter is 18 years (Row 35).[8] While Gaz Metro's expert, Mr. Feingold, indicates that replacement of existing equipment should not be considered a system reinforcement,[9] this item is different. The meter is likely to be replaced mid-way through a 40-year evaluation period, and the replacement is the direct result of the installation of the customer at the beginning of the period.

For reference, as shown below, the average cost of a meter on the Gaz Metro system is $283,[10] although the meter cost for the specific project should be used if available,

[8] R-3879-2014, B-0466, Gaz Metro 107, Document 11, Annexe A, page IV-4. B-0254, Régie IR 2.4, p. 10; see also B-0281, Régie IR 13.1.
[9] B-0278, Executive Summary, p. 2.
[10] Based on recent historical and near term projections for 2014-2018, given in B-0258, OC IR 2.2.

particularly for projects serving large customers who have more complex and costly meters.

Table 3: Cost of New Meters 2014-2018[11]

	Cost	Meters	Cost per Meter
actual			
2014	5,788,916	26,922	$ 215
2015	4,814,973	14,875	$ 324
2016	5,405,337	20,002	$ 270
projected			
2017	5,350,000	19,553	$ 274
2018	7,699,743	21,410	$ 360
Total	29,058,969	102,762	$ 283

Q. Do you recommend including any additional costs that Gaz Metro has not included as part of the portfolio profitability analysis (but not to evaluate individual projects)?

A. Yes. An additional issue that I recommend including as a cost of Gaz Metro's project portfolio is the cost of administering the line extension program and marketing line extensions to new customers.[12] Upon reflection, this should be a portfolio cost, because the portfolio should be profitable after covering the cost of administering the line extension portion of the development plan. The cost of running the program should be applied as a first-year expense of the portfolio in each year.

I recognize that the inclusion of this cost is dependent on the Régie's response to the challenge to Gaz Metro's response to B-0293, OC IR 6.2. If the Régie upholds the challenge, then I would develop an estimate for this additional cost at the portfolio level, and if the Régie denies this challenge, I will not pursue this item.

Q. Will you discuss the issue of how to include capacity reinforcements?

A. Gaz Metro proposes to ascribe the portfolio of reinforcements of individual projects under $1.5 million to new capacity in the year of the hook-up and to include it in the

[11] B-0258, OC IR 2.2.
[12] Row 32.

capital costs of the project portfolio (Row 33). At the current time, this is a figure of about $1.2 million per year to be added to the total portfolio cost.

ROEÉ and OC propose a method of calculating new capacity based on total expansions over a longer period of time divided by the change in design peak day demand over those same periods of time, and multiplied by the design peak day increment of the project or portfolio. ROEÉ will provide more information about the calculation method in its evidence.

Q. Should any OPEX costs be included with system reinforcements?

A. Yes. Although Gaz Metro did not include in its profitability analysis preventive or corrective maintenance of mains associated with capacity expansion, I would include this cost component based on converting the cost figures for new mains to metres of new main and applying the costs from Phase 3A for main maintenance ($0.22 per metre for preventive maintenance and $0.37 per metre for corrective maintenance on an annual basis).[13] (Row 34) To calculate the cost per metre of new main, I used the data on costs of historical projects[14] to yield an investment cost estimate of $238 per metre of main.

Q. How should this estimated cost per metre be used to develop an OPEX cost estimate?

A I have made a calculation showing that OPEX costs for main maintenance are 0.25% of the initial capital cost in all years after the first year of installation. The table below shows the calculation, starting with a hypothetical capital cost of $1 million in a particular year. One divides the cost by $238 per metre to obtain a number of metres and then multiplies that number of metres by the cost of preventive and corrective maintenance. The cost is then recast into a percentage of the initial capital cost (0.25%) applicable as OPEX for the main reinforcements in each year after the first.

[13] Row 34.
[14] B-0264, Chernick IR 1.6 for listing of projects and costs and B-0293 OC IR 2.1 for length in metres. Transmission and feeder projects were excluded, as were projects with zero or N/A lengths.

Table 4: Estimating OPEX costs Associated with Capacity Reinforcements

cost	$ 1,000,000	
cost per metre	$ 238	
metres	4,202	
preventive maintenance	$0.22	per metre
	$ 924	per year
corrective maintenance	$0.37	per metre
	$ 1,555	per year
total	2,479	per year
% of initial capital cost	0.25%	

Revenue Input Assumptions for Gaz Metro's Profitability Analysis

Q. Are there any differences among the experts on the revenue input assumptions?

A. No. The agreement is shown at Rows 36-39.

Additional Analyses

Q. Will you comment on backcasting analyses proposed by Gaz Metro?

A Gaz Metro currently conducts a backcast analysis of three years (i.e., *a posteriori* profitability analysis) for the aggregate of projects with a P.I. exceeding 1.0, and proposes to also conduct a six-year analysis for the aggregate of its other projects (Row 41). The portfolio analysis is appropriate for evaluating the overall profitability of Gaz Metro's development plan (and its prudence if P.I. thresholds are not met).

However, I also recommend that the project data that are assembled into the portfolio analysis be publicly provided for review by intervenors and the Régie, because project data would offer useful information for reviewing future forecasting methods and thresholds. For example, this analysis could help determine whether Gaz Metro is consistently overforecasting or underforecasting loads for certain types of projects). These retrospective project data would not be used for second-guessing past decisions made by Gaz Metro.

Regardless of whether project data are made available, separate information regarding Industrial Park and Street Repaving projects that would be collected as part of these backcasts, is independently needed to determine whether Gaz Metro's current practice of adding money to reach a P.I. of 0.8 is reasonable for the future.

Q. Should any sensitivity analyses be conducted?

A. If a threshold P.I. for the project portfolio of 1.1 is accepted by the Régie, I propose that a sensitivity analysis of the portfolio is required based on two variables: (a) a cost of capital and discount rate of 100 basis points above the 5.28% current cost of capital; and (b) ROEÉ's project life (Row 42). The purpose of the analysis would not to be to second-guess the prudence of Gaz Metro's existing portfolios and investments, but to determine if parameters or P.I. thresholds need to be re-examined. This proposal is made because a profitability index that is this low could be subject to erosion of profits to the detriment of ratepayers if financial and environmental uncertainties occur.

<u>Comparison with Other Jurisdictions</u>

Q. Will you comment on the comparison that Mr. Feingold has made with other jurisdictions?

A. It appears that several Canadian jurisdictions use methodologies for analyzing profitability that are quite similar to the new methodology that Gaz Metro has adopted. While I propose several changes to the generalized Canadian methodology, I believe it is a significant improvement over the original proposal made by Gaz Metro where it proposed to build large numbers of projects with only a 2% internal rate of return and only limited internal controls.

Where I have proposed changes to the methodology, particularly with regard to the Profitability Index, my proposals are based on specific considerations related to economics, engineering, and the environment in Quebec and Canada. In particular, my P.I. is higher than that in the rest of Canada because most of the rest of Canada does not appear to use a 5.42% rate of return because of the large volumes of short-term debt in Gaz Metro's capital structure (which could increase over a long evaluation period), and most of Canada does not face the potential uncertainty of end-use electrification of gas

end-uses to reduce greenhouse gas production. I also recommend including the cost of a second meter at the middle of the evaluation period for new projects, because Gaz Metro's meters have an 18-year useful life that appears shorter than for other Canadian entities (e.g., shorter than even Union Gas at 25 years).[15]

Q. Do you have any comments regarding comparisons with U.S. entities?

A. California does not use a specific revenue-based method of calculation for residential customers, but its allowances are based on specific end-uses. In California, at the present time, there is little competition for gas because a gas water heater is required by California's current energy standards whereever gas is available under most conditions. So there is an allowance for the water heater, more for space heating, and more still for gas cooking and clothes drying.

Some other states, where there is less competition between gas and electricity when gas is available, have somewhat more limited residential allowances. Colorado has a specific number of feet of main for residential customers of Public Service Company of Colorado, which is calculated based on considerations of revenue and profitability for typical customers rather than on an individual project basis. The dollar allowance for Atmos Gas is calculated based on the embedded cost of mains and services, which has little relationship to profitability, but seems to be based on some type of equity argument.[16] That methodology is sensitive to changes in cost allocation.

Q Will you summarize your overall thoughts?

A Gaz Metro has significantly improved its method for evaluating profitability, taking into account the practices of other Canadian entities. In sum, I believe that the overall framework of the Canadian utilities is reasonable, but should be tightened up to improve profitability under uncertainty.

I recommend further modifications, the most important of which is using a higher portfolio Profitability Index of 1.3 to reflect uncertainty. I also recommend separate

[15] B-0278, p. 52.
[16] Answer Testimony of William Marcus on behalf of Energy Outreach Colorado; Colorado PUC Proceeding No. 14AL-0300G (Atmos Gas), pp. 46-48.

evaluation of individual large industrial customers, focusing the portfolio profitability analysis on residential and commercial new loads (rather than “ajouts de charge”), and the addition of several cost elements identified in this evidence.

Q. Does this complete your testimony, Mr. Marcus?

A. Yes. Thank you.