

**Discovery no. 2 from expert Paul L. Chernick to Gaz Métro related to the application regarding the allocation of costs and rate structure of Gaz Métro phase 3, part B (Methodology for evaluating the profitability of system extension projects)**

**1. Sources:**

- (i) Study of the Marginal Costs of Long-Term Service Delivery Applied to the Profitability Analysis (Gaz Métro-6, Document 1), p. 5, 7, etc.

**Preamble:**

- Gaz Métro does not appear to include any demand-related marginal costs due to capacity expansion required to serve new load.

- The document does not identify costs related to increased peak demand and requirement for distribution capacity resulting from customers added through service extensions.

- "The items included in the marginal costs are the additional costs to issue an invoice, cash a payment and, for a telemetry customer, to use a cell line. The internal costs associated with maintaining facilities at a customer's premises primarily consist of the salaries and fringe benefits of the employees who perform the tasks to which can be added, in the case of employees assigned to maintenance and meter reading, the cost of clothing. Maintenance activities relate to the meters, the connection, and the pipeline installed at the customer's premises, and the services provided relate to credit checks, the processing of financial assistance or the consumer Rebate Consumption Program ("RCP"), telephone calls to customers, meter reading, bad debts, collection, customer retention, and the drawing up of contracts."

**Questions:**

- 1.1. Please explain how Gaz Métro plans to take into account the costs of increasing capacity from the pipeline delivery points to the beginning of the equipment added as part of a service extension.
- 1.2. Please provide the amount of additional demand included in the computations and results shown on pages 3 (of the 2016.10.04 section), and pages 6, 7, and 9 of the 2014.10.08 section.
- 1.3. Please provide a list of all the load-related projects that have entered service on the Gaz Métro transmission, supply and distribution lines (such as looping,

compression, additional connections to pipeline supplies, additional storage) completed since January 1, 1995 or currently under construction.

- 1.4. Please provide the cost of each of the load-related projects identified in the previous question.
- 1.5. Please provide a list of all the load-related projects currently planned or proposed on the Gaz Métro transmission, supply and distribution lines (such as looping, compression, additional connections to pipeline supplies).
- 1.6. Please provide the cost of each of the load-related projects identified in the previous question.
- 1.7. Please indicate on a map of the Gaz Métro system the location of each past and projected load-related project, as well as the location of the line extensions completed since 1995, under construction, or proposed.
- 1.8. Please explain the meaning of the references to the marginal cost of service delivery associated with an additional load for an existing client, if Gaz Métro is not including the costs of adding gas-delivery capacity.

**2. Sources:**

- (i) Study of the Marginal Costs of Long-Term Service Delivery Applied to the Profitability Analysis (Gaz Métro-6, Document 1), p. 8;

**Preamble:**

- “meter reading falls into the category of costs that only increase marginally in a stepwise manner. No single customer addition is likely to increase the costs of meter reading. As such we recommend removing this cost.”

**Questions:**

- 2.1. Please provide the minimum increment of monthly meter-reader time that Gaz Métro can deploy (e.g., one hour per month, 10% of a full-time-equivalent).
- 2.2. Please explain whether any of the personnel who read meters for Gaz Métro also perform other tasks.
- 2.3. Please explain how Gaz Métro reads meters for each sector or class (e.g., by telemetry, drive-by radio, electronic proximity reading, or manual reading). If Gaz Métro uses more than one meter-reading technology by class or sector, please provide the percentage using each technology.

**3. Sources:**

- (i) Overcast Evidence (Gaz Métro-6, Document 2), p. 16;

**Preamble:**

- Gaz Métro does not provide the documents for Tables 6, 7 and 8, and Appendix A.

**Questions:**

- 3.1. Please provide the source documents from which Tables 6, 7 and 8, and Appendix A were compiled.

**4. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), pp. 3, 4.

**Preamble:**

- Gaz Métro discusses the development and use of a software tool for profitability analysis.

- 4.1. Please explain whether the tool is designed to run on desktop Windows computers and/or on Apple computers, and if so, please provide a working copy of the software with all the profitability analyses conducted in the 2009 through 2013 development plans.

- 4.2. Please provide a copy of the spreadsheet mentioned on page 4 for “the system extension project in Drummondville”.

**5. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), p. 4.

**Preamble:**

- Estimation of number of customers and revenues added, in “the current methodology” and “the one Gaz Métro presented in its evidence”.

**Questions:**

- 5.1. Please explain in detail the differences between the two methodologies.
- 5.2. Please provide the profitability computation for each system-expansion project considered for development plans from years 2009 through 2016, as conducted under “the current methodology”.
- 5.3. Please provide the profitability computation for each system-expansion project for development plans from years 2009 through 2016, as those would have been conducted under the methodology that “Gaz Métro presented in its evidence”.
- 5.4. Please identify the projects that were considered to be unprofitable in the development plans for years 2009 through 2016 but would be considered profitable under the methodology that “Gaz Métro presented in its evidence”.

**6. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), p. 4.

**Preamble:**

- “Consequently, the customers that manifest an interest in connecting to the system, once the service line is built, are included in the second or third year of the required revenues.”

**Questions:**

- 6.1. Please explain how Gaz Métro determines that a customer has “manifest an interest in connecting to the system”.
- 6.2. Please explain how Gaz Métro determines whether a customer should be assumed to connect to the system in the first year, as opposed to some later year.
- 6.3. Please explain how Gaz Métro distributes the customers that have “manifest an interest in connecting to the system” between years two and three.
- 6.4. For each system-expansion project included in the development plans for years 2009 through 2011, please provide the number of customers by class that were counted in the profitability analysis as having “manifest an interest in connecting to the system”.

- 6.5. For each system-expansion project included in the development plans for years 2009 through 2011, please provide the number of customers by class that connected to the system through that project in the second year.
- 6.6. For each system-expansion project included in the development plans for years 2009 through 2011, please provide the number of customers by class that connected to the system through that project in the third year.
- 6.7. For each system-expansion project included in the development plans for years 2009 through 2011, please provide the number of customers by class that connected to the system through that project in each year after the third.

**7. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), p. 5.

**Preamble:**

- Gaz Métro conducts “the profitability analysis and evaluation of the rate impact over a period of 40 years”.

**Questions:**

- 7.1. Please provide any analysis that justifies the assumption that the revenues estimated for the project will persist for 40 years.
- 7.2. For each VGE or large CII customer added by Gaz Métro since 1977, please indicate whether that customer or facility is still on the system, and if not, the date on which that customer or facility ceased to take service from Gaz Métro.
- 7.3. For each VGE or large CII customer added by Gaz Métro since 1977 and still on the system, please provide any available information regarding whether the facility has increased or decreased its gas consumption since the facility connected to the system.
- 7.4. For each VGE or large CII customer added by Gaz Métro since 1977, please indicate whether that customer or facility is still on the system, and if not, the date on which that customer or facility ceased to take service from Gaz Métro.
- 7.5. For each VGE or large CII customer added by Gaz Métro since 1977 and still on the system, please provide any available information regarding whether the facility has increased or decreased its gas consumption since the facility connected to the system.

- 7.6. Please provide any data regarding the average vacancy rate for each class or sector for which Gaz Métro has such data.
- 7.7. Please provide any data regarding the frequency and duration of multi-month shutdowns or major reductions in operations by Gaz Métro industrial customers.
- 7.8. Please provide the weather-normalized consumption per customer for Gaz Métro residential customers, for years 1996 to 2016.
- 7.9. Please describe the greenhouse-gas emission-reduction targets of the Federal government and the Québec government for 2040 and beyond.
- 7.10. Please provide any analysis on which Gaz Métro relies for the assumption that Canada can meet its international greenhouse-gas obligations without reductions in end-use gas consumption, past 2040.

**8. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), p. 7.

**Preamble:**

- Gaz Métro does not provide the derivation of the values in Tables 1 and 2.

- 8.1. Please provide the computation of the estimates in Tables 1 and 2, with all underlying workpapers in spreadsheet format with formulae intact. If the workpapers are not available in that format, provide a printout with sufficient annotation to allow reviewers to replicate the analysis.

**9. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), p. 9.

**Preamble:**

- Gaz Métro discusses a three-phase analysis of densification.

**9.1.** Please provide all available documentation of the process and results for each of the three phases for each of the main-extension projects in the 2009, 2010, 2011, and 2013 development plans.

**10. Sources:**

- (i) Methodology for Evaluating the Profitability of System Extension Projects Additional Evidence, Follow-up on Decision D-2017-009 (Gaz Métro-7, Document 2), pp. 10–11.

**Preamble:**

- “The changes will generate a reduction in customer contributions. Gaz Métro does not require customers to make contributions for AMT extension projects, seeing as the potential for the future densification of authorized extension projects should allow the PCC to be achieved. However, Gaz Métro continues to require customer contributions for extension projects deemed to be unprofitable.”

- “If Gaz Métro had required customer contributions in order to ensure that these AMT extension projects achieved the PCC, the number of anticipated extension projects would need to be revised significantly downward.”- Gaz Métro says that not requiring contributions for extension projects that meet the AMT threshold would be a change in current practice, and that if contributions had been required, the number of anticipated projects would be reduced. But Gaz Métro also says it does not currently require contributions for extension projects that meet the AMT threshold.

**10.1.** Please explain whether Gaz Métro has been applying the AMT in approving projects, and if so, for how long.

**11. Sources:**

- (i) Methodology Used to Analyze the Profitability of System Extension Projects—Follow-Up on Decisions D-2016-090 and D-2016-169 (Gaz Métro-7, Document 1), pp. 5.
- (ii) The record in Phase 3A.

**Preamble:**

(i) Gaz Metro makes multiple assumptions for the profitability analysis. Some of these regard O&M costs that were not fully discussed in Gaz Métro’s filings in Phase 3A, such as pre-commitment costs.

- 11.1.** Please list all the generic inputs used the profitability analysis, and for each such input provide the value that Gaz Métro uses currently and the derivation of that value.
- 11.2.** Please provide Gaz Métro's current prospective capital cost (PCC) and the method for deriving that value.
- 11.3.** Please provide the working capital rate that Gaz Métro currently uses in its profitability analyses.
- 11.4.** Please provide the working capital rate that Gaz Métro claimed in its most recent rate proceeding.
- 11.5.** Please explain how Gaz Métro reflects customer turnover (new customers replacing the original customers served by the line extension) and the related administrative costs in the profitability analysis.
- 11.6.** Please provide any data available to Gaz Métro on the turnover rate of its customers by class or market segment.
- 11.7.** Please state whether the profitability analysis assumes any increase in Gaz Métro's rates, and if so, provide that escalation value and provide the derivation of the value.
- 11.8.** Please list all the project-specific inputs to the profitability analysis and explain how Gaz Métro estimates each such input.
- 11.9.** Please explain how Gaz Métro estimates the capacity-related upstream costs (e.g., distribution mains, supply mains, transmission lines, compression, pipeline connection costs) attributable to the additional load of the customers anticipated on a line extension project.
- 11.10.** Please provide Gaz Métro's estimates of the incremental costs of serving additional demand on its system, in dollars per year per m<sup>3</sup> of design-day load.
- 11.11.** Please provide any available information regarding the costs that Gaz Métro incurs in marketing its services to customers along a potential line extension, negotiating with those customers, providing estimates of the cost of service lines and equipment conversion, and other customer-related costs incurred prior to the customer committing to service by Gaz Métro. Please explain how, if at all, these costs are reflected in the profitability analysis.
- 11.12.** For each class or market sector for which Gaz Métro has estimates of the costs of bad debt, collection and recovery, please provide those costs (including any such costs related to commodity supply), annual distribution revenues from the class or sector, and the ratio of bad debt, collection and recovery costs to revenues.
- 11.13.** For each class or market sector for which Gaz Métro has estimates of the costs of customer retention, please provide those costs, annual distribution revenues



from the class or sector, and the ratio of the costs of customer retention to class revenue.

**12. Sources:**

- (i) Methodology used to analyze the profitability of system extension projects follow-up on decisions D-2016-090 and D-2016-169 (Gaz Métro-7, Document 1), pp. 5-7.

**Preamble:**

- Gaz Métro presents the results of an *a posteriori* analysis of projects from the 2009 through 2011 development plans in Table 1.

- "All densification sales associated with the initial extension project were included in the *a posteriori* findings." (Gaz Métro-7, Document 1, p. 6)

- "...a majority of the projects had six, five and four years of actual data available at the time the *a posteriori* analysis was produced. As a result, no projection was made and the *a posteriori* findings consisted entirely of actual data for customers, volumes, revenues and investments." (Gaz Métro-7, Document 1, p. 6)

- "The methodology that Gaz Métro used for this *a posteriori* analysis is based on the one used for the *a posteriori* overall profitability of the *a priori* development plan 3 years later (R-3992-2016, B-0076, Gaz Métro-14, Document 4, section 1.1, p.1-2 and Schedule 1)." Gaz Métro-7, Document 1, p. 5)

- 12.1.** Please provide the *a priori* analysis for each project in the analysis in Table 1, in spreadsheet form with all formulae and linked worksheets intact. If the workpapers are not available in that format, provide a printout with sufficient annotation to allow reviewers to replicate the analysis.
- 12.2.** Please provide the *a posteriori* analysis for each project in the analysis in Table 1, in spreadsheet form with all formulae and linked worksheets intact. If the workpapers are not available in that format, provide a printout with sufficient annotation to allow reviewers to replicate the analysis.
- 12.3.** Please explain whether densification sales for customers that may be connected after 2016 were included in the *a posteriori* analysis.
- 12.4.** Please explain whether Gaz Métro decreased the post-2016 densification forecast was reduced to reflect the pre-2016 densification that had already occurred.

- 12.5.** Please explain whether Gaz Métro used the same retail rates in the *a priori* and *a posteriori* analysis.
- 12.6.** Please explain whether the *a posteriori* analysis reflects any changes in revenues (compare to the *a priori* analysis) after the end of the actual data in 2016.
- 12.7.** Please describe the methodology by which Gaz Métro forecast customer additions in the *a priori* forecasts, describe any efforts by Gaz Métro to understand the source of the underestimates of the *a priori* forecasts and provide any reports or analyses conducted by or for Gaz Métro to explain the differences in the *a priori* forecasts and the *a posteriori* results.
- 12.8.** Please explain how Gaz Métro determined that the results in Table 1 are not due to a slower-than-expected onset and faster-than-expected recovery from the major recession of 2008 in Québec.
- 12.9.** Please provide the analysis of the “*a posteriori* overall profitability of the *a priori* development plan 3 years later (R-3992-2016, B-0076, Gaz Métro-14, Document 4, section 1.1, p.1-2 and Schedule 1)”, in spreadsheet form with all formulae and linked or supporting worksheets intact. If the workpapers are not available in that format, provide a printout with sufficient annotation to allow reviewers to replicate the analysis.
- 12.10.** If Gaz Métro has conducted similar *a posteriori* analyses for any development plans other than 2009, 2010, 2011, and 2013, please provide those analyses.
- 13. Sources:**
- (i) Methodology used to analyze the profitability of system extension projects follow-up on decisions D-2016-090 and D-2016-169 (Gaz Métro-7, Document 1), p. 7.

**Preamble:**

- “Based on the findings of the *a posteriori* profitability analysis, Gaz Métro established the acceptable minimum threshold at 2% of the IRR for extension projects.”

- 13.1.** Please explain why Gaz Métro proposed a fixed minimum threshold of 2%, regardless of changes in the PCC over time, rather than a fixed 4,48% adjustment to the PCC.
- 13.2.** Please explain whether Gaz Métro proposes to use the AMT rather than the PCC threshold for a project for which the profitability analysis includes all the load that can reasonably be added along the extension, considering the current state of development and restrictions on land use (e.g., wetlands and protected areas), and if so, why it would be appropriate to assume additional revenue growth.

**13.3.** Please explain why Gaz Métro proposed a fixed minimum threshold of 2%, rather than correcting its revenue projection methodology.

**14. Sources:**

- (i) Methodology used to analyze the profitability of system extension projects follow-up on decisions D-2016-090 and D-2016-169 (Gaz Métro-7, Document 1), p. 8.

**Preamble:**

- "In addition to the rules for applying the acceptable minimum threshold, Gaz Métro has identified two exceptions where a profitability level that does not meet the acceptable minimum threshold would be accepted for an extension project. There are two specific contexts that afford a window of opportunity that should be taken advantage of: the development of an industrial park and the repaving of a road."

- 14.1.** Please provide the profitability levels that Gaz Métro proposes as acceptable for these two exceptions.
- 14.2.** Please explain why extending a gas main to an industrial park that is not expected to produce sufficient revenues to pay for the main extension is in the interests of the existing customers.
- 14.3.** Please explain why installing a gas main on a road that will be resurfaced, where the identifiable loads are not expected to produce sufficient revenues to pay for the main extension, would be in the interests of the existing customers.
- 14.4.** Considering the difficulty of getting permission for road cuts in newly repaved roads, how long would Gaz Métro expect to need to wait before connecting customers along the line extension who are not connected before the repaving?