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Demande B-0178

METHODOLOGY USED TO ANALYZE THE PROFITABILITY OF SYSTEM EXTENSION PROJECTS

FOLLOW-UP ON DECISIONS D-2016-09 AND D-2016-16

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INTRODUCTORY NOTE

This document is filed as a follow-up on decisions D-2016-090 and D-2016-169. The contents of this document, including the amendments made hereto as compares to the initial version filed in R-3970-2016 (B-0015, Gaz Métro-3, Document 4), does not deal with the position adopted by Gaz Métro Limited Partnership ("Gaz Métro") regarding the subjects contemplated in Gaz Métro's request for review of decision D-2016-191. This filing is therefore made without prejudice to the rights and representations of Gaz Métro made in the context of R-3998-2017.

INTRODUCTION

In the context of its development plan, Gaz Métro presents its sales to the Régie de l'énergie (the "Régie") for "new customers" and "load additions", separately, for the residential, commercial and large corporation markets.

Some of these sales require that the system be expanded (extension project), while others allow for the densification of the existing distribution system (densification sales). Densification sales benefit from the fact that the system being connected to is nearby. Moreover, the capital investment required to build a service line has the effect of decreasing the profitability of extension projects. Consequently, in a vast majority of cases densification sales are more profitable than are extension projects.

It bears noting that once completed, a distribution system extension project will help generate densification sales in subsequent years. These densification sales increase the profitability of the extension project, but are unfortunately not known when the decision is made as to whether or not to complete the project.

Gaz Métro therefore has a methodology for evaluating the profitability of system extension projects (the "methodology").

1 OBLIGATION OF GAZ MÉTRO

Gaz Métro has the obligation to serve any person who makes a request to that effect under the *Act respecting the Régie de l'énergie*. Sections 77 and 78 read as follows:

> **77**. *A natural gas distributor is required to supply and deliver natural gas to every person who so requests within the territory served by the distributor's distribution system.*

> *Within that territory, the distributor shall also, at the request of a consumer or at the request of a natural gas broker acting in his own name or in the name of a producer or a consumer, **receive**, transmit and deliver to the consumer natural gas purchased from a third person by the consumer for his own consumption.*
>
> **78.** *Any interested person not served by a natural gas distribution system may apply to the Régie **for** an order directing a natural gas distributor to expand its distribution system within the territory where the distributor's exclusive rights obtain*.
>
> *Such interested person may also request the Régie to recommend to the Government that it extend the territory where the exclusive rights of a natural gas distributor obtain and to order the distributor to expand its distribution system*.

Consequently, Gaz Métro's role is to make natural gas accessible to and easier to use by Québec residential, commercial, industrial or institutional consumers. In most cases, these new customers may reduce their use of more polluting energy sources and benefit from the economic advantage of consuming natural gas. Consequently, the availability or accessibility of natural gas is in the public interest because it helps improve the environmental, economic and social balance sheet throughout the franchise.

2 COMPETITIVE POSITION OF GAZ MÉTRO

In order to minimize the negative effects on customers, Gaz Métro has set itself profitability objectives in order to protect its competitive position.

Although a positive thing in and of itself, implementing a profitability objective process alone will not allow Gaz Métro to maximize the positive impacts for customers. Indeed, the constraints that come with the acceptance of new projects, such as achieving the prospective capital cost (PCC), will limit the potential number of new customers on Gaz Métro's system that might generate an economic advantage for all customers.

In the context of extension projects, Gaz Métro submits to the Régie that it is sometimes difficult to evaluate a project's potential profitability based on information available during the file's analysis phase. The dearth of available information limits the economic assessment of the extension project to those elements that are known, such as the customers identified and willing to commit themselves, as well as the volumes they will generate over a short-term horizon. Those elements known at the time of the analysis sometimes limit Gaz Métro's ability to accept a project if it does not achieve the PCC at that

time, and this despite a potential for densification[1] that exceeds the elements known in the short term. Not taking the global densification potential of an extension project into consideration can obstruct, perhaps even prevent, the completion of a project that would have benefited customers.

3 METHODOLOGY PRESENTED

Gaz Métro presents an approach to the Régie for assessing extension projects that will eventually maximize the beneficial impacts for customers. Indeed, as set forth in section 2, Gaz Métro explains that the extensions sometimes contain only limited, short-term quantitative information, thus hampering the eventual assessment of profitability and, by that very fact, placing the entire file at risk of not being carried out.

Gaz Métro therefore presents a profitability criterion that is, *a priori,* lower than the PCC, known as the acceptable minimum threshold. This acceptable minimum threshold establishes the minimum profitability required for extension projects where the elements known at the time of their evaluation, such as the number of customers and volumes associated with the projects, fall short of the PCC but whose anticipated densification would push these projects to an overall level of profitability greater than or equal to the PCC.

4 ANALYSIS CONDUCTED TO ESTABLISH THE ACCEPTABLE MINIMUM THRESHOLD

Gaz Métro conducted an *a posteriori* profitability analysis to establish the acceptable minimum threshold. To do this, Gaz Métro targeted development plans of the commercial market for fiscal years 2009, 2010 and 2011. More specifically, Gaz Métro selected all extension projects valued under $1.5 million for which a contribution was required *a priori* in order to achieve the anticipated profitability. These extension projects were selected seeing as, without a customer contribution, they never would have been profitable at the time they were accepted. Consequently, the projects selected in the analysis are similar to the extension projects contemplated in the evidence of this Application.

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). Some working hypotheses were amended, however, as explained below:

[1] May also include other system extensions associated with the initial extension.

1. The real revenues invoiced in accordance with the rate schedule in force between 2009 and 2016 were taken into consideration. Moreover, in decision D-2012-071, the Régie ordered Gaz Métro to calculate the *a posteriori* internal rate of return (IRR) using the real revenues invoiced:

   [TRANSLATION]

   "[64] The Régie considers that, in actual fact, it is the real profitability of the development plan that affects the rate. When the latter dips below the prospective capital costs, whether due to a forecasting error or a rate decrease, the rate impact is the same, namely an increase for all customers. It notes, moreover, that in that regard the distributor acknowledges that:

   > "Measures have therefore been taken to increase the overall profitability of the residential market. That said, various factors have affected the IRR and will continue to do so in the years to come. The main factor is related to the rate fluctuations [footnote omitted].

   [65] The Régie feels it necessary to validate which elements will cause the real profitability of the development to fluctuate. This information will be used to adjust the project selection criteria and guide investment decisions.

   [66] ***Consequently, the Régie allows the distributor to continue presenting* a posteriori *profitability for the residential and commercial markets by using the original rate schedule, but asks that it also present an internal rate of return (IRR) for profitability and break-even rate using the real rates.****"***

2. All densification sales associated with the initial extension project were included in the *a posteriori* findings, and this independently of the fiscal year of the development plan to which the sale is associated.

Gaz Métro wishes to state that for the 2009, 2010 and 2011 development plans, 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.

The following table presents the results of the *a posteriori* profitability analysis. More specifically, the table shows the IRR increase between the *a priori* IRR and the *a posteriori* IRR of all extension projects valued at less than $1.5 million for which a contribution was demanded.

Table 1

Analysis results

Fiscal year of the development plan	IRR increase (*a priori* IRR vs *a posteriori* IRR)
2009 Plan	5.08%
2010 Plan	5.52%[1]
2011 Plan	2.85%
Average	**4.8%[2]**

[1] Excluding a mining expansion project the profitability of which increased the overall IRR by 11.37%.

[2] Excluding a mining expansion project from the 2010 Plan, the profitability of which increased the IRR by 6.43%.

Based on the findings in table 1, Gaz Métro notes that the profitability of the extension projects analysed increased an average of 4.48%.

5 ESTABLISHMENT OF ACCEPTABLE MINIMUM THRESHOLD

The findings of the *a posteriori* profitability analysis demonstrates that the profitability of the extension projects analyzed increased by an average of 4.48%. Consequently, by setting the acceptable minimum threshold, the acceptance of a group of extension projects whose *a priori* profitability is lower than the PCC but also presents a potential for future densification, will on the whole eventually have the impact of reducing rates for customers.

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 associated with an investment level of less than $1.5 million. The analysis reveals an average IRR increase of 4.48%, which should continue to grow over time. In its analysis, by establishing an acceptable minimum threshold of 2%, Gaz Métro demonstrates that even after a few years, the average IRR increase would be sufficient to achieve or even surpass the PCC.

The acceptance of extension projects presenting a potential for future densification that have an *a priori* profitability falling between the acceptable minimum threshold and the PCC will, globally, allow for a future profitability greater than the PCC, and this despite the fact that some projects may remain lower than the PCC. Consequently, the acceptance of these projects will generate rate decreases for customers while giving them access to natural gas.

Gaz Métro intends to continue analysing the extension projects that have been completed in order to assess whether the acceptable minimum threshold is still appropriate. To the extent that Gaz Métro sees an indication that the profitability of completed extension projects is insufficient, or better than anticipated, the 2% acceptable minimum threshold may be increased or decreased.

For those projects where investments exceed $1.5 million, the files will be presented to the Régie in accordance with section 73, clause (1) of the first paragraph of the *Act respecting the Régie de l'énergie*.

6 EXCEPTIONS TO THE APPLICATION OF THE ACCEPTABLE MINIMUM THRESHOLD

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. These two types of infrastructure work can be carried out in tandem with extension project work, such that both can progress while disturbing and interfering as little as possible with the infrastructure already in place. This coordination can also yield cost savings that will benefit all customers. Indeed, a number of elements (such as sawing activities and the removal and replacement of asphalt) allow Gaz Métro to generate savings by taking advantage of this optimal window of opportunity.

Furthermore, some factors (such as the refusal of a number of municipalities to proceed with interventions in recently paved surfaces) adversely affect the potential for development and optimization of the gas system and customer base due to a missed window of opportunity. Indeed, it is difficult to reach customers who are established along recently paved surfaces, and they will probably turn instead to a less economical and potentially more polluting energy solution. Coordinating the installation of the system in a sector with densification prospects when the municipality engages in repaving activities, for example, will eventually allow to maximize the number of customers and revenues, to the benefit of all customers.

7 INTERNAL GOVERNANCE PROCESS

So as to maximize the benefits to customers of extension projects that present a potential for profitability, Gaz Métro has implemented an internal governance process that provides a framework for each phase leading to the completion of these projects, from the evaluation of the overall growth potential to the densification of extension projects.

This section summarizes this internal governance process. Note that the process described applies to all extension projects, which therefore specifically includes projects whose evaluated *a priori* profitability, namely based on known elements, falls somewhere between the acceptable minimum threshold and the PCC, as well as repaving and industrial park extension projects.

The first phase of the process consists of evaluating the extension project's future densification potential. Depending on the type of extension project (conversion, new development, industrial park, repaving), a number of actions are taken in order to gather information that will allow Gaz Métro to make an enlightened decision regarding the project's anticipated profitability:

- A visit of the site;
  - Meeting with the project's identified main customer(s) to evaluate the possibility of immediate conversions or future extensions, and
  - Census of the other potential customers using an alternative energy source.

- Summary evaluation of the economic conditions that prevail in the region and the development potential:
  - Discussions with various players in regional development, including municipalities and local development centers (LDC),
  - Consultation of the developer's location diagram and the land use and development plan for the territory,
  - More specifically in the case of industrial park projects, an analysis of the area of land available, the type of businesses sought, the existing promotional support and potential leverage effect associated with the availability of natural gas; and
  - Consultation of economic statistics.

Afterwards, phase two of the process consists in conducting sensitivity analyses in order to evaluate how many customers in addition to those identified *a priori* will be needed to achieve a profitability rate equal to the PCC.

Phase three of the process is to reconcile the evaluation of the potential for future densification and the sensitivity analyses conducted in the second phase. Where it is more likely than not that the extension project will eventually achieve the PCC, a formal investment request is filled out and sent by the development advisor to the senior development advisor. The file will include, more specifically, a summary of the analyses conducted, the revenue required for the project and the latter's profitability.

The fourth phase relates to the projects' authorization process. Once the investment request file is received by the senior development advisor, he or she will review the file to make sure that the profitability has been rigorously estimated based on the technical solutions retained, and that the relevant information allowing to gauge future expectations is present. The file is then sent for authorization to the Senior Executive, Sales.

Once an extension project ─ including those with anticipated profitability ─ is authorized, the fifth phase begins (known as the operationalization of the densification phase). All information gathered in phase one regarding future potential development is therefore sent to the sales force responsible for the system's densification. For Gaz Métro, the densification of extension projects is a priority that optimizes the system. What is more, an action plan specific to extension projects with profitability potential has been developed jointly by the sales and marketing branches so as to favour a more efficient densification of extension projects. A follow-up is then carried out to measure the performance of the defined actions.

In summary, the rigorous internal governance process that frames the decision as to whether or not to accept extension projects, including those with profitability potential, allows to ensure an overall profitability exceeding the PCC will be achieved, thus contributing to lower rates for customers while granting access to natural gas.

8 FOLLOW-UP ON DECISIONS D-201 6-090 AND D-2016-16

Gaz Métro originally filed its request to approve the methodology before the Régie in the 2017 Rate Case. One of the Régie's demands in its decision D-2016-090[2] was that Gaz Métro improve its evidence by presenting its system extension projections over a five and ten year horizon and by producing a report circumscribing the existing approaches in other provinces as regards the acceptability criteria of system extension projects.

8.1 SYSTEM EXTENSION PROJECTION

The following table presents the system extension projections for a five and ten year horizon. Gaz Métro separated the extensions of the methodology presented for the acceptable minimum threshold ("AMT Extensions") from the usual extensions ("Other Extensions").

Table 2
System extension projections for a
five and ten year horizon

	5 year horizon	10 year horizon
AMT Extension	116	222
Other Extensions	546	1 041
Total	**662**	**1 263**

8.2 ACCEPTABILITY

The following section presents the various approaches identified regarding the acceptability criteria for system extension projects.

Ontario

In Ontario, the Ontario Energy Board[3] allows Union Gas Limited and Enbridge Gas Distribution to use a portfolio approach for extension projects in which projects with an IRR below the PCC can be accepted. With the help of a formula,[4] the profitability index (P.I.) of each extension project may be evaluated. For individual projects, the profitability index must be greater than or equal to 0.8, which corresponds to an IRR of approximately 3.70%.

[2] See paragraph 50 of decision D-2016-090.
[3] Decision E.B.O. 188.
[4] Profitability index = (NPV of income + NPV of tax savings)÷ NPV of investments.

Moreover, the portfolio of projects must achieve a profitability index greater than or equal to 1.1, which corresponds to an IRR of approximately 6.02%.

British Columbia

In British Columbia, Fortis BC is authorized to use a portfolio approach in which projects presenting an IRR below the PCC may be accepted. Fortis BC uses an economic test for its extensions known as the "Main Extension test (MX test)". The economic test[5] generates a profitability index.

For individual projects, the profitability index must be greater than or equal to 0.8, which corresponds to an IRR of approximately 3.70%. Furthermore, the portfolio of projects must achieve a profitability index greater than or equal to 1.1, which corresponds to an IRR of approximately 6.02%.

The use of a 0.80 P.I.[6] as the threshold for accepting an extension project was authorized by the British Columbia Utilities Commission (BCUC) in December of 2007.[7] Fortis BC – Terasen Gas at the time – had then indicated that the acceptance of a P.I. of 0.8 instead of 1.0 would send a stronger message to the market and strike a better balance between existing customers and new customers. What is more, Fortis BC had claimed that the findings of its analysis of the main extensions carried out indicated that extension projects generated results, on average, that exceeded a P.I. threshold of 1.0, which demonstrated that, overall, the revenues generated by new customers on new service lines far exceeded the discounted costs associated with these new customers.

Creation of an extension fund

In decision G-147-16 rendered on September 16, 2016, Fortis BC obtained approval for a pilot project to create a $1 million extension fund designed to level the playing field between new residential customers in lower density areas and those in urban ones. In order to be eligible, new residential customers must present a profitability index lower than 0.8, but greater than 0.2.

[5] Profitability index = (NPV of net revenues ÷ NPV of investments).
[6] Inspired from the E.B.O. decision 188 from 1996, in which the Ontario Energy Board accepted a profitability index of 0.8 for individual projects.
[7] Decision G-152-07 : http://www.ordersdecisions.bcuc.com/bcuc/decisions/en/item/111705/index.do

Requesting customers wanting access to natural gas need to fill out the necessary forms and submit them to Fortis BC, which analyzes and selects the extension projects presenting the highest potential for customer connection.

Extension costs will be shared among the new customers and other customers of Fortis BC in the following manner:

- New customers will pay 50% of the contribution to bring the P.I. to 0.8 (Contribution in Aid of Construction (CIAC)).
- The total amount paid by the extension fund is capped at $10,000 per new customer.

Alberta

In Alberta, Atco Gas has the obligation to extend its system to new customers at no charge[8] in urban centres.[9] Moreover, some exceptions apply. For example, Atco Gas has no obligation to serve customers that are not connected to municipal water and sewage systems or to non-standard customers.[10]

In rural areas, Atco Gas's customers must pay a fixed contribution for connection.

New Brunswick

In New Brunswick, Enbridge Gas (EGNB) uses a portfolio approach for extension projects where a revenue to cost ratio of less than 100% may be accepted. The economic test, known as the "System Expansion Portfolio Test (SEP)" is used by EGNB for the portfolio of extension projects[11] and requires a revenue to cost ratio in excess of 104%.

9 OVERALL PROFITABILITY OBJECTIVE, BY MARKET

As mentioned in section 2, the profitability objectives Gaz Métro sets itself are established in order to protect its competitive position.

More specifically, Gaz Métro has set itself a profitability objective for various markets. Consequently, the combination of densification sales and extension projects must achieve the profitability objective that was set. Obviously, extension projects include projects whose

[8] Customers must, however, pay certain fees, including their connection to the system.
[9] Customer Terms and Conditions for Gas Distribution Service, Article 7 - Extension of service.
[10] Very large customers or customers requiring specialized installations.

[11] Review of 2015 Regulatory financial statement/2017 rate application, Schedule 4.1, note 16, page 18.

profitability exceeds the PCC, projects with a profitability somewhere between the acceptable minimum threshold and the PCC, as well as exceptional cases (industrial parks and road repaving activities). All of Gaz Métro's various markets are profitable and generate rate decreases for customers. The acceptance of extension projects with densification potential will decrease the profitability of markets in the short term, but will help generate significantly lower rates for customers over time, while giving more customers access to natural gas.

CONCLUSION

Gaz Métro requests that the Régie:

- **take note of the follow-up required by decisions D-2016-090 and D-2016-169 pertaining to the extension projections for the system over a five and ten year horizon and to the production of a report circumscribing the existing approaches in other provinces regarding the acceptability criteria for system extension projects; and**
- **take note of the methodology used to evaluate the profitability of system extension projects.**