

Montréal, 15 juin 2007

PAR COURRIEL

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OBJET : R-3630-2007 : Demande de modifier les tarifs de SCGM à compter du 1^{er} octobre 2007.

Chère consoeur,

Vous trouverez ci-joint la version anglaise de la pièce Gaz Métro 2, doc. 7, qu'Option consommateurs dépose dans le cadre du dossier mentionné en rubrique.

Veillez agréer, chère consoeur, l'expression de nos meilleurs sentiments.

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**REPORT ON STRATEGIES TO FAVOR
PROFITABLE RESIDENTIAL DEVELOPMENT
AND PROPOSALS TO MODIFY THE
EXISTING TARIFFS AND CONDITIONS**

T A B L E D E S M A T I È R E S

1. INTRODUCTION	5
2. THE IMPORTANCE OF RESIDENTIAL MARKET DEVELOPMENT IN GAZ MÉTRO'S GROWTH STRATEGY	7
2.1 Recent Residential Market Development	7
2.1.1 Evolution of number of customers and volumes	7
2.1.2 Competitive Position	8
2.2 The place of the residential market at Gaz Métro and development perspectives	11
2.3 Development of new markets	12
2.4 Toward sustainable development	12
3. PROFITABILITY ISSUES FOR THE RESIDENTIAL MARKET	14
3.1 Findings related to the calculation of profitability	14
3.2 Modification to tariffs and effect on the evolution of rates for residential customers	16
3.2.1 Evolution of the rate structure	17
3.2.2 Evolution of rates and cross-subsidization	19
4. OBJECTIVES OF THE OVERALL STRATEGY	22
4.1 Short-term objectives	22
4.1.1 Improving the profitability of residential development	22
4.1.2 Maintaining profitability	23
4.2 Medium-term objectives	24
4.2.1 Development of peripheral appliances market	24
4.2.2 Integration of new technologies	25
5. COST REDUCTION SOLUTIONS AND STEPS TO IMPROVE MEASUREMENT ACCURACY FOR RESIDENTIAL MARKET PROFITABILITY	27
5.1 Internal solutions to improve residential market profitability	27
5.1.1 Construction cost reduction plan	27
5.1.2 Financial aid adjustment plan	28
5. Cost reduction solutions and steps to improve measurement accuracy for residential market profitability	30

5.1	Internal solutions to improve residential market profitability	30
5.1.1	Construction cost reduction plan	30
5.1.2	Financial aid adjustment plan	31
5.2	Steps to improve measurement accuracy for residential market profitability	32
5.2.1	Update of new sales maturation rates	32
5.2.2	Updated overhead assumptions	34
5.2.3	Impact of internal processes on residential market profitability	35
6.	Complementary solutions explored in consultation to improve residential market profitability	39
6.1	Complementary and rate-based solutions explored	39
6.1.1	Billing of a contribution	40
6.1.2	Increasing basic charges	40
6.2	Guidelines on service conditions	40
6.2.1	Meter placement and connection waiting period	40
6.2.2	Temporary meter disconnection	41
6.3	Issues to consider when implementing complementary and rate-based solutions	41
7.	Initial consultation of Gaz Métro customers and benchmarking	43
7.1	Goals of the initial consultation process	43
7.2	Methodology	43
7.2.1	Benchmarking against other Canadian distributors	43
7.2.2	Consultation of Gaz Métro's customers	44
7.3	Results of the initial consultation process	45
7.3.1.	Benchmarking against other Canadian distributors	45
7.3.2	Consultation of Gaz Métro customers	47
7.4	Conclusions from initial consultation and benchmarking process	66
8.	RATE-BASED and complementary proposals	68
8.1	Increasing the basic charges	68
8.1.1	Determination of new basic charges	68
8.1.2	Volume used to determine basic charge	71

8.1.3	Impact on energy efficiency and billing simplicity	72
8.1.4	Impact on revenues	74
8.1.5	Issues raised and solution for low-income customers	76
8.1.6	Desired implementation date	82
8.1.7	Amendment to tariff text	82
8.2	Implementation of a minimal automatic contribution for new residential customers	83
8.2.1	Amortization	84
8.2.2	Postponement of target rate of return attainment	84
8.2.3	Amendment to tariff text	86
8.3	Impact of proposed changes on development of peripheral appliances and new technologies market	87
8.3.1	Peripheral appliances market	87
8.3.2	New technologies market	88
8.4	Standardization of connection service	90
8.4.1	Meter location	90
8.4.2	Connection waiting period	90
8.5	Modification of reconnection charges	91
9	CONCLUSION	93
9.1	Summary of proposals for residential market development	93
9.2	Residential market development scenarios	94
10	ANNEXES	96
10.1	Multi Réso–Senergis reports	96
10.2	Internet sites with programs for low income households	96
10.3	Chartwell, low income programs	96

1. INTRODUCTION

As presented in the 2007 rate application (R-3596-2006), the 2006-2007 development plan for the residential market showed a decrease in profitability compared with the previous year.¹ At the time, Gaz Métro mentioned that the decrease in profitability was essentially attributable to a better understanding of actual customer connection costs following the implementation of the SAP system. Therefore, the profitability projected in 2006-2007 was not necessarily on the decline. Rather, it has been more accurately measured since then. The decrease in residential market manifested itself, on the one hand, in distribution network extensions for which, from 2006 to 2007, the Internal Rate of Return (IRR) went from 9.67% to 7.44% and the breakeven point from 13.66 years to 22.64 years. Moreover, for distribution network densification, the IRR went from 14.22% to 10.34% and the breakeven point increased from 1 year to 8.93 years.

In order to increase the profitability of the residential market, Gaz Métro's internal processes in the spring of 2006 sought to revise the factors that influence profitability in the residential market, including construction costs and subsidies.

During the 2007 rate case, the Working Group proposed the establishment of a specific working group, framed by the Régie, whose mandate would have been the evaluation of Gaz Metro's internal processes and, if required, the development of a rate-based solution.

In its decision D-2006-140, the Régie indicated the following:

- « - (...) finds that the primary responsibility, regarding the work to be carried out in view of improving the profitability of interventions in the residential market lies with SCGM.
- (...) nonetheless considers acceptable that interested intervenors, recognized in the filing, be consulted and authorizes the creation of a working group.
 - (...) orders SCGM to present a report to this working group regarding the internal measures implemented to reduce connection and sales costs as well as the achieved results. (...) also orders SCGM to present to the working group potential solutions to improve the profitability of the residential market by establishing and justifying the link with the usual profitability criteria (IRT, breakeven point, etc.).

¹ The residential market includes single dwellings, duplexes, triplexes, and condos.

- (...) authorizes a maximum of two meetings with the aim of getting the participants' point of view on the targeted objectives and proposed solutions. Moreover, in the next rate application, the distributor must submit a report on the subject for analysis. » (translator's version).

Pursuant to the Régie decision, the working group met on two occasions: on November 17, 2006 and on January 18, 2007.

The objective of the first meeting was to provide a historical overview of the profitability of the residential market, to define the target profitability to be achieved and to present the internal and consultation processes among intervenors as well as to demonstrate their impacts.

In the second meeting, the results of the residential customer consultation, different issues at stake, possible solutions examined as well as proposed solutions, rate-based or not, were presented.

The objective of the current document is to report to the Régie, for approval, and to provide the Régie with a complete picture that illustrates all the strategies proposed to improve the profitability of the residential market in a short and medium-term development perspective.

2. THE IMPORTANCE OF RESIDENTIAL MARKET DEVELOPMENT IN GAZ MÉTRO'S GROWTH STRATEGY

Since its return to the residential market in 1997, this market has become one of Gaz Métro's elements of main growth. More than 30 000 new customers have chosen natural gas as an energy source.

Moreover, in the midst of Quebec's new energy strategy, with its important potential for the conversion of buildings located on the gas distribution network and a constant progression of the natural gas penetration rate for residential housing starts in Quebec, we can see that there is still room to ensure a sustainable and profitable growth of this market with the appropriate ratemaking conditions.

Given the fact that Gaz Métro's other market segments, such as large business and commercial markets, are either mature or on the decline, the development of the residential market must take precedence to ensure growth in development, which will be beneficial for all customers, employees and investors.

Moreover, in order to carry out its proper social role, Gaz Métro wishes to centre its position and especially its actions around the concept of sustainable development. The development of the residential market should not only be profitable but it should also consider the arrival of new environmental technologies such as geexchange and hybrid systems. It will also have to be sensitive to the specific concerns and issues at stake for its more vulnerable customers

Therefore, starting now, Gaz Métro must also implement the conditions that will ensure that profitability is optimized so that it may support the sustainable development of this market in the future.

2.1 Recent Residential Market Development

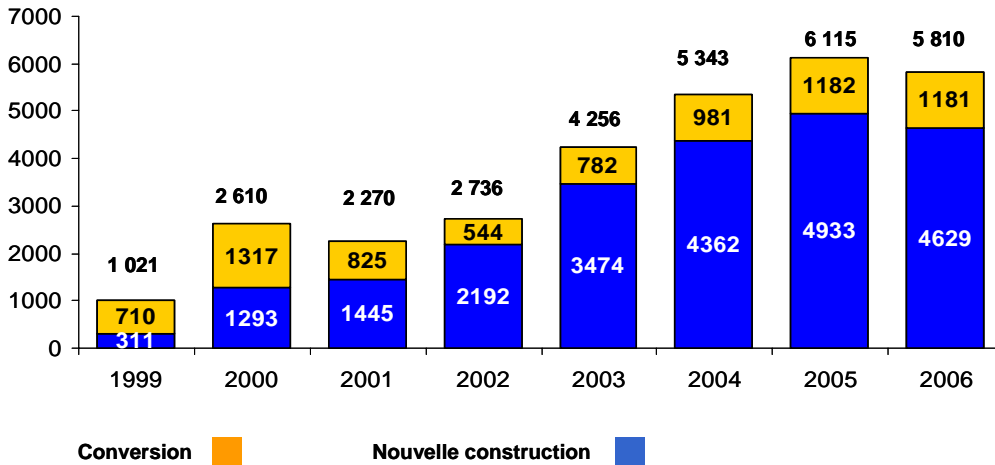
2.1.1 Evolution of number of customers and volumes

The evolution of new sales in the residential market reveals its significant growth since 1999, primarily in the new construction market. Encouraged by the growing number of housing starts in Quebec and by the distributor's intensified efforts to increase the penetration rate,

the number of new residential customers went from 1 021 in 1999 to more than 5 800 in 2006.

New Customers of the Residential Market ²

Evolution from 1999 to 2006



An increase in the number of new customers has directly affected the number of customers in the residential market, which reached approximately 114 000 customers by the end of 2006.³ Development of the residential market was somewhat neglected in the 80's, before new residential market development, as we know it today, was re-launched in 1997.

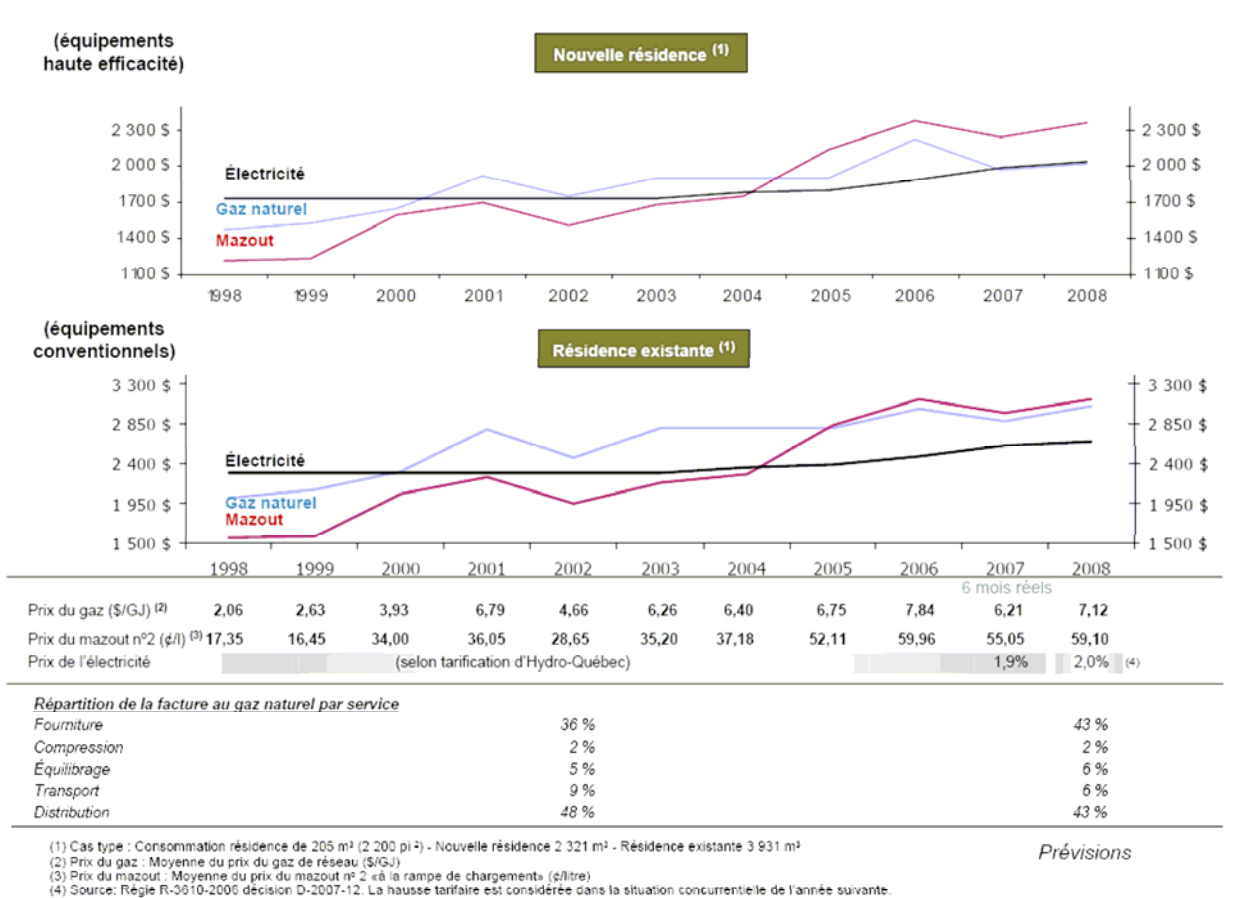
2.1.2 Competitive Position

It must be noted that the increase in the number of residential customers occurred despite a difficult competitive position, attributable to a major readjustment in the market price of

² As submitted in the annual reports for each of those years (Gaz Métro 9 document 4)

³ Number of residential customers with a consumption exceeding 0 m³ for 2005-2006

natural gas in 2000 and 2001. The graphics below show the competitive position of the residential market from 1998 to 2007 as well as projections for 2008.



Since 2005, the competitive position of natural gas in the residential market has improved markedly compared with that of oil. Natural gas now shows a marked competitive advantage compared with the latter energy source. Increases in electricity rates since the end of the rate freeze have also allowed for natural gas' competitive position to improve compared with electricity's. Based on an average price for natural gas of 7.12 \$/GJ in 2008⁴, electricity and natural gas for a new dwelling will almost be at par, a situation that has not been met since 2002.

In addition, we also note that due to the increase of natural gas prices since 2002, the relative weight of each component of the natural gas bill has fluctuated significantly. For

⁴ After transferring the load-balancing portion included in the supply service, Gaz Métro-4, document 1, page 10.

example, between 2002 and 2008⁵, the portion of the supply component went from 36 % to 43% while the distribution component went from 48% to 43%. The price of gas will therefore represent a component that is as important as distribution in the customer's bill in 2008.

2.2 The place of the residential market at Gaz Métro and development perspectives

In the past ten years, Gaz Métro has deployed several strategies to convince a growing number of Quebec households to choose natural gas as an energy source. This is as applicable to fuel switching for residential buildings located on the gas distribution network as it is to new housing developments that use natural gas. In the past four years, communication efforts in Gaz Métro's positioning campaign have sought to make the use of natural gas more appealing and to assuage the concerns that 50% of the population still have toward this energy source.

Today, the residential market represents more than 65 % of customers served by Gaz Métro. Despite the small proportion of volumes for that market, which represent approximately 4% to 5% of total deliveries, annual distribution revenues from this market are approximately \$65 M. These are equivalent to the revenues generated by tariffs D₄ and D₅ combined.⁶ Each new residential customer that is connected to Gaz Métro's gas distribution network generates revenues averaging 26.5 ¢/m³.

Over the next five years, Gaz Métro wishes to pursue its efforts so as to maintain a constant progression of its residential customers. On the one hand, this anticipated progression is attributable to a basin of nearly 115 000 residential buildings that are on the gas distribution network but use an energy source other than natural gas. These buildings, largely concentrated in the Montreal Metropolitan area, constitute a potential of more than 198 000 10³ m³, which represents 82% of the total consumption of existing residential customers in 2006. On the other hand, Gaz Métro is counting on a significant progression in its market shares in new residential construction. This progression is expressed in terms of penetration rates for provincial housing starts. In 1999, 1.87% of residential housing starts used natural gas. In 2006, this proportion

⁵ For 2008, the allocation is made based on tariffs in effect on October 1, 2006.

⁶ Gaz Métro-13, document 6, page 1.

reached 10.33%. Gaz Métro's objective would be to achieve penetration rates of 17% to 18% between now and 2010.

Summarily, it is obvious that the development of the residential market is very important for Gaz Métro and its customers. The desire to develop this market is in fact directly linked with the energy strategy of the government of Quebec, which promotes the use of the right energy at the right place.

2.3 Development of new markets

In the context of reduced growth in revenues generated by large business and commercial customers, Gaz Métro also wishes to develop new niches within the residential market which currently use competing energy sources such as propane, wood or electricity. It consists mainly of the peripheral appliance market (fireplace, stove, barbecue, dryer, etc.). Gaz Métro would then be able to respond to the attraction of potential customers to these appliances. It is often the natural gas stove or fireplace that elicits the interest of customers wishing to access Gaz Métro's grid. The development of the peripheral appliance market, neglected until now, is associated with low volumes of consumption (compared with heating), thus the need to find solutions that will ensure the profitability of this promising niche.

2.4 Toward sustainable development

Individuals increasingly question the environmental impact of their energy consumption. All energy forms will be subject to this awareness of the customer and, in that sense, natural gas may be called upon to play an important role under the proper ratemaking conditions.

It is therefore in a renewed spirit of sustainable development that Gaz Métro wishes to pursue its objectives for the residential market in the coming years. Our positioning as a clean energy source will have to be considered in each of our market development activities. The rise of geexchange, the development of new hybrid technologies and even changes in construction norms are all challenges that Gaz Métro must overcome to meet its objectives of growth in the residential market all the while respecting its customers' demands. Rather than constituting a problem, these new technological realities must be transformed in opportunities for development. However, the current ratemaking context could, in many cases, impede the

penetration of solutions that integrate natural gas as a back-up system because they would have the consequence of increasing pressure on the rates of other customers in the company. Therefore, it is essential to reconcile Gaz Métro's vision of sustainable development with the medium-term development objectives for the residential market. The new tendency toward "green" or "alternative" energies will lead to a reduction of "guaranteed" volumes per customer, which will result in a decrease and a relative instability on the profitability of our development. Therefore, as a distributor, Gaz Métro must ensure that its profitability objectives are met in a context in which the volumes associated with new acquisitions will be lower and more vulnerable to external factors.

3. PROFITABILITY ISSUES FOR THE RESIDENTIAL MARKET

The importance of developing the residential market, as shown in the previous section, is currently faced with the challenge of profitability, itself at the heart of the questions and solutions put forth in this report.

3.1 Findings related to the calculation of profitability

As shown in the table below, the residential market presented an overall profitability that exceeded objectives over the 2001-2005 period. These levels of profitability were considered satisfactory for Gaz Métro. The calculation of profitability was carried out based on estimates of construction costs derived from accounting analyses that were carried out before the implementation of the SAP system.

History of profitability of the residential market from 2001 to 2005⁷

	2001	2002	2003	2004	2005
Nouvelle construction					
Objectif					
TRI (%)	6,91	9,14	10,33	11,95	10,17
Pt Mort (an)	19,53	14,18	10,83	7,63	12,53
Résultat					
TRI (%)	12,50	12,49	11,65	15,52	13,71
Pt Mort (an)	7,08	7,47	9,25	1,81	2,58
Conversion					
Objectif					
TRI (%)	13,40	11,87	12,06	9,78	14,52
Pt Mort (an)	2,97	9,38	7,61	12,24	1,00
Résultat					
TRI (%)	18,20	11,62	14,80	13,39	12,98
Pt Mort (an)	2,23	8,97	4,56	1,00	1,00
Total					
Objectif					
TRI (%)	9,33	10,39	10,82	11,52	10,97
Pt Mort (an)	11,37	11,61	10,14	8,94	9,87
Résultat					
TRI (%)	14,16	12,36	12,28	15,11	13,61
Pt Mort (an)	4,52	7,74	7,52	1,77	2,53

⁷ As presented in the rate applications for each of those years for the « objectives » line-items and as calculated in the annual reports for the « results » line-items.

Column 1: New construction ; objective : IRR (%), breakeven point (yr); Results : IRR (%), breakeven point (yr);
Fuel-switching; objective : IRR (%), breakeven point (yr); **Total**; objective : IRR (%), breakeven point (yr).

The implementation of the SAP system has allowed for a better association between overall construction costs and exact projects to which they pertain. The costs associated with a given project are entered by internal order (WBS).⁸ It is thereby easier to associate construction costs to projects and sales.

This improved information at the source has allowed Gaz Métro to revise the cost estimates of pipelines, connections and meters associated with the development of the residential market for 2006, as of October 2005, by using the average costs calculated from SAP data for the 2004-2005 financial year. For example, the average construction costs (connections and meters) used to calculate the profitability of the 2006 development plan were respectively \$1 457 and \$2 108 for a new constructions and a residence on the gas distribution network (fuel switching). Actual average costs observed for 2004-2005 from the SAP analyses were higher, reaching \$2 541 for new construction and \$3 418 for construction on the gas distribution network.

	Example	
	Single-familassociaty dwelling (average cost)	
	2006 rate application	Actual 2006
New construction	\$1 457	\$2 541
Fuel switching	\$2 108	\$3 418

Actual 2006: Hypotheses used in the 2006 profitability analysis based on the costs for 2004-2005 (SAP)

Because actual average costs for 2004-2005, used to calculate actual profitability of the 2005-2006 marketing plan in the annual report, are higher than the cost hypotheses that were used to evaluate the profitability of the development plan for 2005-2006⁹ and previous years, the actual profitability of the residential market for 2005-2006 is inferior to 2006 and previous objectives. However, this finding does not allow us to conclude that the residential market is less profitable than it was, but rather that the profitability of the development plan is now measured better than

⁸ Here the translator uses the acronym WBS (work breakdown structure) to refer to the French term OTP (« Organisation technique de projet »).

⁹ R-3529-2004, SCGM-2, document 6

it was in previous development plans.

PROJECTED AND ACTUAL PROFITABILITY OF THE 2006¹⁰ AND 2007¹¹ DEVELOPMENT PLAN

	2006 rate application		Results on Sept. 30. 2006		2007 Rate application	
	IRR(%)	Breakeven point (yr)	IRR (%)	Breakeven point (yr)	IRR (%)	Breakeven point (yr)
New construction	9.67	13.66	7.69	20.43	7.44	22.64
Fuel switching	14.22	1.00	10.76	8.92	10.34	8.93
Total	10.51	10.98	8.97	16.99	7.90	19.23

During the 2007 rate case, in the spring of 2006, these same higher average costs were used to establish the profitability of the 2006-2007 development plan. Actual results showed similar profitability for 2006 but actual profitability in the development plans of previous years was below projected profitability. In fact, it was primarily the presentation of 2007 profitability objectives for the residential market to the working group (NAP)¹² that exposed the need to implement a working group to examine solutions that would seek to improve profitability.

Even if the average increase of 5.7% for the first tier of tariff D₁ on October 1st 2006 was not a direct measure to improve the profitability of the residential market, as we will see further, it did contribute to it nonetheless albeit without being sufficient to resolve the issue entirely.

3.2 Modification to tariffs and effect on the evolution of rates for residential customers

If a better measurement of costs related to residential development following the implementation of the SAP system had an impact on profitability, we must also turn to other factors related to

¹⁰ R-3559-2005, SCGM-2, document 6

¹¹ R-3596-2006, SCGM-3, document 6

¹² Here NAP refers to the Negotiated Agreement Process, translated from "Processus d'entente négociée".

the structure of the tariff itself which is applicable to these customers to properly understand the current issues at stake.

3.2.1 Evolution of the rate structure

Since 1992, a specific tariff for residential customers no longer exists. That year, tariff 2, the *Housing and Institutional Service* was abolished. Residential customers are now billed at the general service tariff D₁. This tariff is made up of two different parts:

- a fixed portion (basic charges) expressed as ¢/meter/day, billed to customers whether or not they have any consumption;
- a variable portion (unitary rate for volume consumed) made up of degressive consumption tiers expressed in ¢/m³, billed to customers according to their consumption.

In 2002, in the working group aimed at revising the rate structure to favour energy efficiency (R-3481-2002) certain modifications were proposed. Among them we find the reduction of basic charges and the fusion of the first tiers of consumption. At the time, these modifications sought to achieve four objectives: to favour energy efficiency, simplify the rate structure, avoid temporary disconnections and improve the competitive position for small load customers.

Favouring energy efficiency via the distribution component

Since Gaz Métro is a business whose fixed costs are very significant, economies of scale are achieved as volume consumption increases. This logic of degressive costs is the reason for which the distributor's tariffs are also degressive, based on the volume of consumption. Yet tariffs that progressively decrease as customer consumption increases attenuate the price signal. However, in the present context in which natural gas prices are high, although this logic still holds, the most significant price signal for customers comes from the price of supply for natural gas. Today, the latter represents a portion of the bill that is as significant as distribution all the while its current levels and evolution are attracting increasing media attention from its customers.

As for tariff D₁, the first three tiers were fused together (the first two on October 1, 2002 and the third on October 1, 2003). Prior to their fusion, since the rates of the second and third tiers were lower than the first, the price signal to customers was that the greater their consumption, the more the average distribution rate for volume consumed decreased. The fusion of the first three tiers allowed for a single rate to be applied to an important proportion of customers (approximately 130 000 customers in compliance with data from the 2007 rate application).

The application of a basic charge had also been identified as an element that could have a negative impact on energy efficiency, the logic being that the use of a basic charge reduces the weight given to the variable portion of the bill and reduces the price signal on the price signal of the distribution component. At the time, the working group had therefore proposed to reduce the basic charge and, as a counterpart, increase the unitary rate for volume consumed so as to generate the same total revenues. It must be noted that another objective the reduction of the basic charge sought to achieve was the standardization of the amounts billed to residential and institutional customers, as well as those billed to other customers, a standardization which was achieved on October 1, 2006. Since then all tariff D₁ customers are subject to the same reduced basic charge.

Simplifying the rate structure

The calculation method for the unit price of tariff D₁, resulting from the application of the different tiers of consumption, also led to a certain complexity in the rate structure. The reduction in the number of tiers for smaller consumption levels thereby allowed the simplification of price calculations for a significant number of customers who are now billed at the same distribution rate from one month to the next.

Avoiding temporary disconnections

Certain customers choose to temporarily cease their natural gas service so as to avoid the payment of basic charges. The rate structure should not favour this customer behaviour since it requires an intervention by Gaz Métro who must proceed to closing and re-opening the customer's meter. A reduction of the basic charges should have led to a reduction in this behaviour. Nonetheless, many customers still proceed this way every year. An

analysis of the issue lead to the realization that the solution lies more in the amount billed for reconnection charges, which is currently lower than actual costs, than it does in the level of basic charges. This subject will be discussed later.

Improving the competitive position of customers who have a smaller consumption

In the 2003 rate application (R-3484-2002, SCGM-13, document 1), Gaz Métro had explained that the competitive position of natural gas compared to electricity for customers without space heating, with a very small consumption, was very difficult in the past few years. The reduction of basic charges had allowed to improve the competitive position for this group of customers. The fusion of the first tiers of consumption had also had a positive impact since, among other things, it implied a decrease in the rate of the first tier. Conversely, the negative effect was to make the development of the peripheral appliance market more difficult and less profitable.

Now, following the end of the rate freeze of electricity rates, the position of natural gas has improved as shown in section 2.1. Natural gas is now more competitive than it was in the past compared to electricity in the new construction market. It is therefore more conceivable to proceed to ratemaking adjustments today in the first tier of tariff D₁ without compromising the revenues associated with it.

Thus, since these changes were applied, customers now have a tariff in which the first three tiers are fused. The combination of lower basic charges and an increase in the variable charges thereby leads to an overall distribution bill which is less stable than it was previously.

3.2.2 Evolution of rates and cross-subsidization

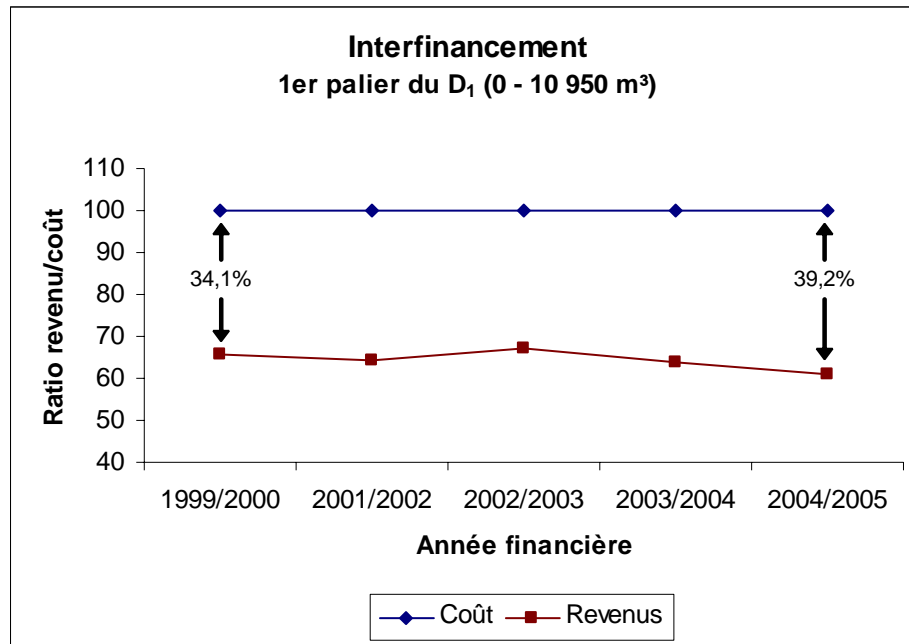
The table hereafter shows the evolution of basic charges since October 1st, 2000. It also shows the impact of rate variations made in the past few years on the first tier of tariff D₁.

Evolution of the average rate for the first tier of Tariff D₁ (0 - 10 950 m³)

Année	00/01	1/2	02/03	3/4	04/05	05/06	06/07
Basic Fee (BF) (¢/meter/day)	30,629	30,503	28,000	28,000	27,000	26,000	25,000
Fixed Portion (BF) (¢/m ³)	4,257	4,239	3,892	3,892	3,753	3,614	3,475
Variable Portion (¢/m ³)	21,292	22,339	22,928	23,141	21,896	21,957	23,543
Total (¢/m³)	25,549	26,579	26,820	27,032	25,649	25,570	27,018
Variation of rates (%) (current vs. previous year)		4,0	0,9	0,8	-5,1	-0,3	5,7

In the past six years, the average rate of the first tier of tariff D₁ where we find almost all residential customers, has increased by 5.7 %, or 0.9 % per year on average. Beyond the fact that the fusion of the rate tiers and the reduction of the fixed portion have had a very different impact on customers with different levels of consumption, this average increase was insufficient to maintain an acceptable profitability when the evaluation of profitability is carried out according to revised costs. A new ratemaking strategy should therefore be implemented to increase profitability. This strategy should not have a significant impact on the current level of cross-subsidization between tariffs.

The cross-subsidization level in the first tier of tariff D₁ is shown in the following graph. It also shows a slight increase since the beginning of the year 2000. The variance between costs and revenues went from 34.1 % in 1999-2000 to 39.2 % in 2004-2005, which implies that a less significant portion of costs is borne by customers in the first tier.



Thus, based on a cost logic, it would be justified to charge an additional amount to customers in this tier. If it is necessary, the amount should nonetheless be established by respecting the competitive position and by considering the overall impact on customers' bills in compliance with the pursued objectives.

4. OBJECTIVES OF THE OVERALL STRATEGY

As mentioned in the introduction, analyses of the profitability of the residential market have led to a reflection that goes far beyond the issue of profitability itself. These have led Gaz Métro to reflect on its short and medium-term objectives in order to make decisions regarding its development strategy for this market.

Beyond improving the profitability of the residential market, Gaz Métro must also establish the bases to ensure that profitability is maintained beyond the first years of consumption for newly connected customers. In addition to favouring the development of markets that are currently not very profitable, Gaz Métro will also have to take advantage of opportunities that will arise from the gradual implementation of new technologies that will become a part of its daily activities in the medium-term.

4.1 Short-term objectives

4.1.1 Improving the profitability of residential development

The overall profitability of Gaz Métro's development plan is a function of the profitability of each of the markets in question, which do not generate the same level of profitability.

Generally, the sales for large business and commercial customers on the gas distribution network for customers whose consumption exceeds 75 000 m³ per year, generate a profitability (IRR) that is usually superior to 40% with a breakeven point of one year or less. However, these markets are either stable or on the decline. The penetration rate for those markets is currently very high and threats are multiple, as much in terms of competing energy sources - electricity for off-peak optimization in particular – as by the very context and structure of the economy.

The market including medium-size commercial customers, with a consumption ranging between 10 000 and 75 000 m³, represent a market with a slight level of growth. Their penetration rate is increasing but they require relatively significant development costs, especially when small extensions are required to connect these customers. The average profitability of sales for this market generally ranges between 15% and 40%.

Finally, residential customers, commercial customers consuming less than 10 000 m³ and customers connected following major distribution network extensions represent the market with the most marked growth. However, they imply investments that are much more significant. The return generated by these sales generally varies between 7% and 14 %.

The target profitability of the residential market that Gaz Métro aims to achieve has been set at a minimum of 9.5% with a breakeven point of 11 years or less. This objective seeks to progressively return to a profitability level for the residential market that tends towards the one Gaz Métro estimated it would achieve in previous years. The objective may be revised in the coming years in accordance with the evolution of the context for the residential market as well as the evolution of development for Gaz Métro as a whole.

4.1.2 Maintaining profitability

A second short-term objective is to ensure that profitability of new sales for the residential market in particular, but also for the commercial market, is maintained.

Currently, the profitability objective for new sales is estimated on the basis of anticipated cost and revenue hypotheses that are themselves based on projected volumes. Thereafter, the profitability perspective (*a priori*), is followed based on signed sales and the costs associated with their realization. These two measures have been presented to the Régie on an annual basis in rate applications as well as in annual reports. However, given the rules related to the amortization of costs, the calculations for profitability of new sales presumes an annual stability of revenues over the amortization period. Consequently, all things being equal, when a customer consumes what is projected over the period of cost amortization, actual profitability, *a posteriori*, will be equivalent to the projected profitability. However, if the customer's consumption is significantly reduced or if the customer ceases to consume natural gas, profitability, *a posteriori*, will be inferior to the projected profitability.

Beyond simply improving profitability, maintaining it over time is a major issue that Gaz Métro must specifically take into consideration.

4.2 Medium-term objectives

We have seen in section 2.3 that sustainable development and the development of new markets are two strategic pillars of Gaz Métro's vision to access new vectors of growth.

4.2.1 Development of peripheral appliances market

In Quebec. The renovation market totalled expenses of approximately \$10 billion in 2006 and a ceiling of \$11 billion should be achieved for 2007.¹³ Gaz Métro can position itself in this market with several peripheral appliances. In a perspective in which residential housing starts will decrease in the coming years, the renovation market should remain a significant economic motor. Electricity, propane and wood are the main competing energy sources with Gaz Métro for the peripheral appliances market.

Gaz Métro estimates that among 115 000 residential buildings on the gas distribution network but are not fuelled by natural gas, a little over 66 000 are heated with electric baseboards. The shift from electric baseboard heating toward a complete central system requires significant investments. Thus, for the majority of owners of this kind of residential building with baseboards, the switch toward natural gas would not be via the heating system but rather via peripheral appliances. On average, based on last year's data, each connection of this kind results in an annual consumption of 646 m³. Of course, given the low average volumes, profitability of these new customers volumes is relatively low (IRR of 5.08% on average in 2005-2006). Last year, despite very strong customer demand, 23% of residential fuel switching was carried out for peripheral appliances.

In new residential construction, the situation is relatively similar. There are several condominium projects for which the fireplace is the only equipment installed that is fuelled by natural gas. In some cases, there are also water heaters, barbecues or even stoves. The latter applications, as basic consumptions, have the additional advantage of ensuring a more constant use of the gas distribution network. On average, each connection of this kind consumes 349 m³ annually. In 2005-2006, 49% of sales for new residential construction did not include natural gas for heating purposes, particularly in new condo

units, and the connection of single-family dwellings using only peripheral appliances is currently not very profitable.

It is therefore a priority for Gaz Métro to ensure it achieves profitability in the development of the peripheral appliances niche. The latter will take an increasingly important place in the development of the residential market on the medium term.

4.2.2 Integration of new technologies

Geoexchange

It appears very likely that the installation of systems using geothermal energy will evoke significant interest in the coming years in Quebec.

On the one hand, it is clearly stated in the Energy Strategy of Quebec which specifies that it wants to *support geoexchange and solar energy*.¹⁴ One of the roles of the energy efficiency agency of Quebec (EEA) in the *Plan d'ensemble en efficacité énergétique et nouvelles technologies*¹⁵ (PEEÉNT) will be to reduce the economic obstacles and favour the penetration of this technology. This will be facilitated by a geothermal support program which will cover both the residential and commercial markets.

On the other hand, Hydro-Québec, in its 2007 Global Energy Efficiency Plan (PGEÉ)¹⁶ mentions the possibility of providing financial support to the residential sector, in the form of a "geothermal subsidy", aimed at reducing start-up costs as well as the payback period.

The installation of a geothermal heating system for a new customer will reduce the need for natural gas, leaving Gaz Metro with only the winter heating peak and consumption related to peripheral appliances. Moreover, given high initial acquisition costs, the installation of these systems will essentially be carried out in the upscale residential sector, the one that was primarily targeted by Gaz Métro in the past few years.

¹³ Reference: SCHL Perspectives of the housing market, national edition, third trimester of 2006.

¹⁴ *Stratégie énergétique du Québec*, p.73.

¹⁵ Refers to a new global energy efficiency plan which includes new technologies that the EEA has the responsibility developing, implementing and following.

¹⁶ R-3610-2006, HDQ-15, document 1, page 66.

A study carried out by the firm Technosim¹⁷ in August 2004, identifies an annual potential of 2.6 GWh for geothermal heating. This corresponds to the annual consumption of about a hundred residences in compliance with Hydro-Québec's PGEÉ objective for 2007. This potential will continue to increase as the geexchange industry becomes structured and as financial incentives are deployed in the market.

All these elements indicate that it will be important for Gaz Métro to partake in the penetration efforts of geexchange in Quebec. Through an adapted rate structure, projected decreases in natural gas consumption for heating among new customers that use geexchange will have to generate sufficient distribution revenues to justify a profitable connection to the gas distribution network.

Solar Energy

In the next few years, the Energy Strategy of Quebec will give provide considerable support to solar energy. Two types of solar energy systems that can have an impact on natural consumption are mentioned. These systems are already commonly used in certain countries for domestic water, space or pool heating, primarily as a complementary back-up system to the energy supplied by conventional equipment.

As with geexchange, the use of these solar systems under the current rate structure would have a direct impact on the profitability of these projects, considering the reduced and unpredictable consumption of natural gas from one year to the next. In this case as well, it is a question of equipping Gaz Métro with the necessary tools to promote this new technology, which complies with its vision for sustainable development, without harming its profitability.

¹⁷ Technical economic potential in Quebec (« Potentiel d'économies d'Énergie au Québec »), Technosim, 2004.

5. COST REDUCTION SOLUTIONS AND STEPS TO IMPROVE MEASUREMENT ACCURACY FOR RESIDENTIAL MARKET PROFITABILITY

Since the filing of the 2007 rate case at the Régie in the spring of 2006, work and discussions have continued internally to harmonize the understanding of the teams involved and begin giving thought to short-term actions to attain the target rate of return for residential market development.

Specific actions have been pursued or undertaken to clarify and improve profitability:

- a five-year construction cost reduction plan implemented in 2005 was incorporated into the profitability improvement process;
- a financial aid adjustment plan (PRC) was devised in June 2006 to adjust financial aid to the current competitive status of natural gas and its market positioning;
- the assumptions associated with new sales maturation rates and with overheads have been updated, and
- the distribution rate increase assumptions have been replaced by the rates in effect since 1 October 2006.

The following sections provide further details on each of these actions.

5.1 Internal solutions to improve residential market profitability

5.1.1 Construction cost reduction plan

Although the construction cost reduction plan is the outcome of an internal process independent of the one at issue today, it comes at a good time and will certainly have positive impacts on profitability.

In brief, the plan consists of optimizing, over a five-year horizon, various processes associated with:

- project planning;

- appliance inspection on customer premises;

- use of existing clauses in contracts with construction contractors or win-win renegotiation of certain clauses so as to reflect new market realities, and;

- diversification of materials procurement.

Overall projected savings associated with the plan are 20% over five years. Factoring in anticipated inflation of material and labor costs, the net savings should attain 6.5% over the 2010–11 horizon. The results for the first year of this cost reduction plan are in line with the target.

	Construction cost reduction (residential)			
Year of construction	Year of application (financial)	Anticipated rate of inflation (costs)	Gross reduction in projected costs	Net effect on projected costs
Year 1: April 05-March 06	2006–2007	4.20%	(3.00)%	1.20%
Year 2: April 06-March 07	2007–2008	2.20%	(4.00)%	(1.80)%
Year 3: April 07-March 08	2008–2009	2.30%	(3.80)%	(1.50)%
Year 4: April 08-March 09	2009–2010	2.50%	(6.80)%	(4.30)%
Year 5: April 09-March 10	2010–2011	2.40%	(2.50)%	(0.10)%
Cumulative	2006–2011	13.60%	(20.10)%	(6.50)%

5.1.2 Financial aid adjustment plan

The rising price of heating oil and electricity since 2004, combined with the falling price of natural gas in 2007,¹⁸ positions natural gas more competitively than in previous years. In addition, the fact that residential market penetration has increased since 2001 indicates that natural gas is more and more popular with residential customers.

These changes in the residential market context have made it possible to effect a downward adjustment of subsidies (PRC) for both new construction and fuel switching to better reflect the competitive status of gas. For new residential construction, the plan implemented in November 2006 calls for an average subsidy cut of 2% for 2007 and 3% for 2008. The adjustment plan will be recalibrated in subsequent years to reflect any new changes to the competitive context. For the fuel switching market, the average subsidy per “heating” customer was reduced by \$500 in September 2006.

¹⁸ The average price of system gas in 2007 (October to March) was \$6.21/GJ as compared with \$9.11/GJ in 2005–06.

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ADJUSTMENT OF FINANCIAL AID (PRC) FOR 2006 AND 2007

Market	Financial aid (PRC)		
	2005-2006 Result	2006-2007 Rate case	2006-2007 Revised target
Residential fuel switching	\$2,390,047	\$2,727,165	\$2,078,549
Residential new construction	\$5,190,600	\$6,776,000	\$4,329,346
Total	\$7,580,647	\$9,503,165	\$6,407,895

Reduction of \$1.2 M (15%)

Reduction of \$3.1 M (33%)

Number of sales			
Fuel switching	1 181	1 500	1 227
New construction	4 629	5 500	3 938
Average subsidy per customer (\$)			
Fuel switching	2 024	1 818	1 694
New construction	1 121	1 232	1 099

5.2 Steps to improve measurement accuracy for residential market profitability

5.2.1 Update of new sales maturation rates

New sales maturation is an indicator of real usage levels as opposed to levels anticipated when the contract is signed.

Take, for example, a contract signed with a customer whose projected annual usage is 100,000 m³. If the actual usage turns out to be only 90,000 m³, the maturation rate is 90% for this customer. The profitability of this sale is then determined using a volume of 90,000 m³.

It should be recalled that, for the purposes of profitability calculation, customer usage is adjusted as a function of real historical maturation of sales volumes in each market. Since real customer usage is not known at the time that the development plan comes into effect, historical maturation rates are used.

Measurement of new sales maturation was interrupted for several years due to the migration of the calculation application to a new computer platform. The assumptions derived from previous measurements could not be updated during the transition period.

Now that the new calculation module for new sales maturation is operational, the assumptions can be updated, and this was done in June 2006. The newly calculated sales maturation rates are lower than previous estimates for both the new construction and fuel switching markets.²⁰

	Before	2007
Fuel switching	95 %	87 %
New construction	84 %	78 %

However, one cannot necessarily conclude that real sales maturation for the residential market has declined, since the previous measurement was less reliable, being based on estimates derived from sampling rather than systematic measurement on a case-by-case basis, as is now the practice. Clearly, the use of this new data in the calculation of

²⁰ Based on a detailed analysis of real usage for 2001-02 and 2002-03 sales. More recent sales are still evolving.

residential market profitability is designed to improve the accuracy of the results, not necessarily to improve the results themselves.

On the other hand, the average maturation rates of 78% or more for the residential market do not represent a guarantee that these volumes will be maintained over the profitability measurement period. Maturation is a “snapshot” taken during the first three years of usage, comparing anticipated usage with normalized real usage for a 12-month period. Even a very high new sales maturation rate calculated on this basis — even one approaching 100% — cannot guarantee realized profitability equivalent to that which was initially anticipated, hence the importance of implementing profitability maintenance solutions.

5.2.2 Updated overhead assumptions

Gaz Métro’s overhead assumptions were updated in the fall of 2005 and were considered in the profitability calculation for the 2007 development plan. The rates used previously varied from 0% to 20% of capital expenditures depending on the market and had not been updated for several years. The rate used for the 2007 development plan, based on 2005 results, is 12.3% of total capital expenditures. As with the construction cost assumptions, the overhead rate will be updated annually in October as a function of the results obtained with the SAP system the previous year. The applicable rate for financial year 2006–07 is 12.16% of capital expenditures and will serve as the basis for profitability calculation in the 2008 development plan.

The assumptions concerning fixed contractor costs and indirect costs were also revised. This is because the construction estimates included neither the costs associated with fixed fees negotiated with contractors nor the indirect fees, including digitalization fees. The implementation of a method based on the SAP history will prevent the situation from recurring and ensure that the assumptions are updated annually.

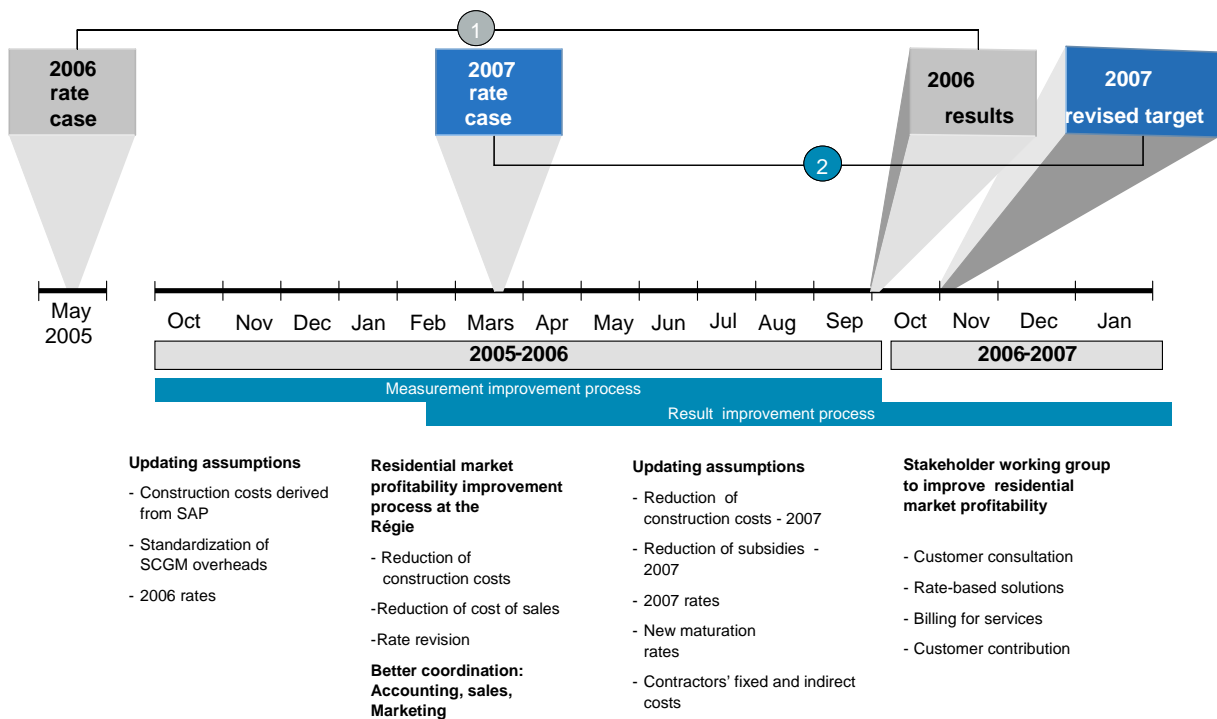
	2006	2007
Fixed costs	11.57%	12.23%
Indirect costs	2.42%	1.95%

Applicable to contractor labor costs, i.e., a proportion of the costs of pipes and connections ($\pm 60\%$)

Applicable to cost of pipes and connections

5.2.3 Impact of internal processes on residential market profitability

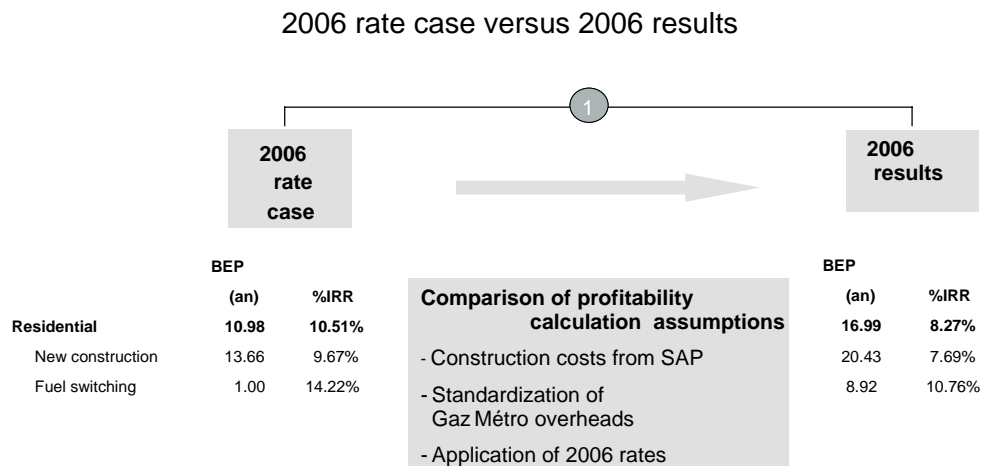
The figure below timelines various actions taken to improve, or improve the accuracy of, residential market profitability.



The process of improving profitability measurement began in the fall of 2005 and continued throughout 2005–06. The process of improving profitability results began in late

winter 2006 after Gaz Métro had obtained figures on anticipated residential market profitability in the context of the 2007 rate case.

In order to properly illustrate the implementation sequence and impacts of the measures, detailed comparisons are presented below for the profitability submitted for the 2006 rate case versus the 2006 results,²¹ and for the 2007 rate case versus the internal targets revised as of 1 October 2006 for 2007.²²

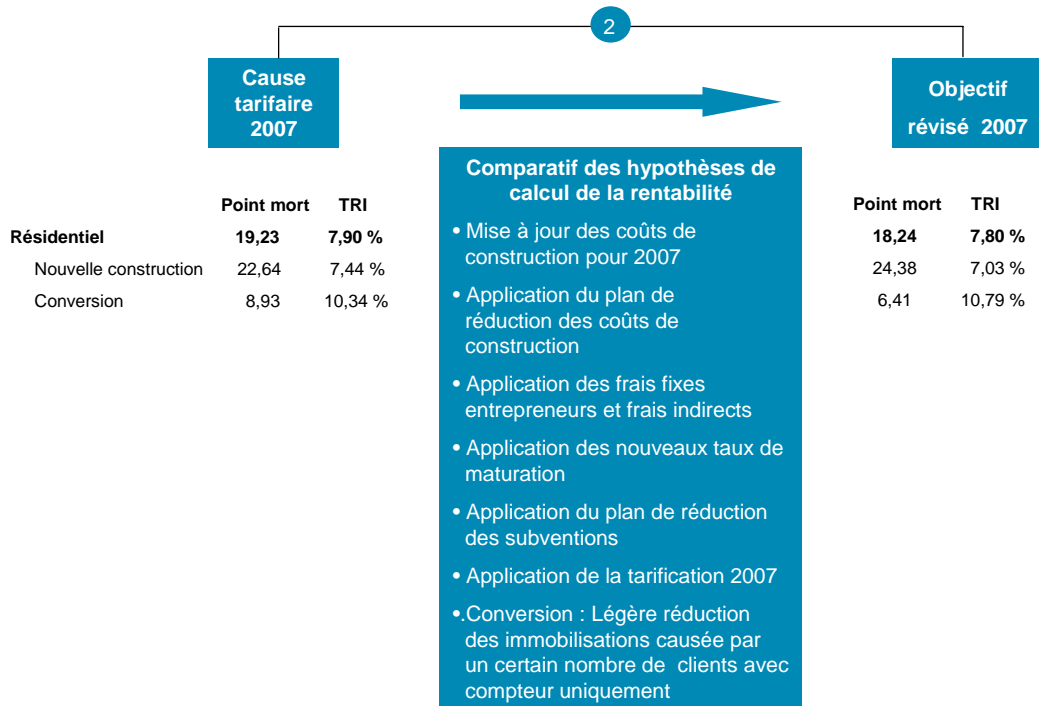


The updating of construction costs and the standardization of overheads in early October 2005, as well as the application of new rates on 1 October 2005, reduced profitability for financial year 2005–06. Note that the first tier of tariff D₁, generally applicable to residential customers, was reduced while an assumption of rate stability had been made for the purposes of calculating anticipated profitability in the development plan. Considering these three factors, the overall internal rate of return (IRR) for the residential market of 10.51% forecast in the rate case turned out to be 8.27% at the end of financial year 2006.

²¹ Refers to first analysis (1).

²² Refers to second analysis (2).

2007 rate case vs. 2007 revised targets



Legend:

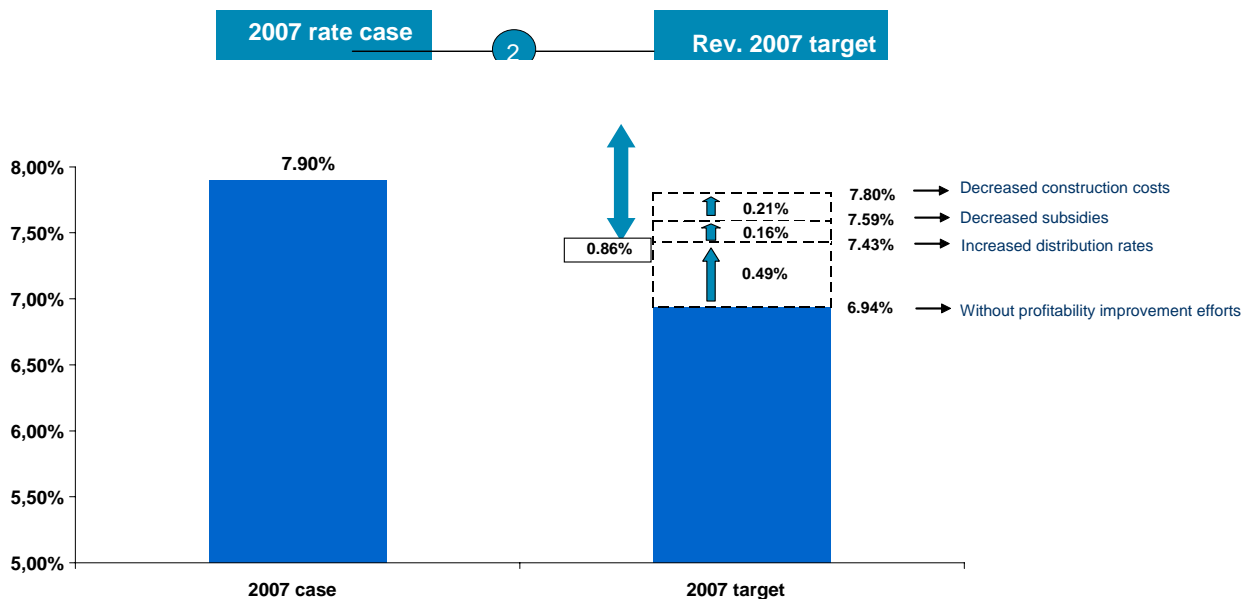
	2007 rate case		Comparison of profitability calculation assumptions	Revised 2007 targets	
	BEP	IRR		BEP	IRR
Residential	19.23	7.90%	<ul style="list-style-type: none"> Updating of construction costs for 2007 Application of construction cost reduction plan Application of contractor fixed costs and indirect costs Application of new maturation rates Application of subsidy reduction plan Application of 2007 rates Fuel switching: slight reduction in capital expenditures caused by a certain number of customers with meter alone 	18.24	7.80%
New construction	22.64	7.44%		24.38	7.03%
Fuel switching	8.93	10.34%		6.41	10.79%

Note that the rate of return forecast in the 2007 rate case and the target rate of return for 2007 as revised in October 2006 are very similar for the residential market. However, certain assumptions were updated, particularly those concerning construction costs, fixed contractor costs, and indirect costs as well as new sales maturation rates. In addition, the

revised 2007 target includes a subsidy adjustment and the application of the rates in effect as of 1 October 2006. Finally, the revised target takes into consideration a set of modified assumptions for the fuel switching market where, in the recent past, a non-negligible proportion of connections related to more than one meter in multi-unit rental buildings.

However, were it not for the reduced construction costs and subsidies and the increased distribution rate, the revised return would have been much lower, as the figure below illustrates.

2007 rate case vs. revised 2007 targets



Without these measures and adjustments, the revised target rate of return would have been 6.94% for 2007. The reduced construction costs generate a favourable impact of 0.21%, the reduced subsidies 0.16%, and the increased distribution rates 0.49%, for a total impact of 0.86%.

6. COMPLEMENTARY SOLUTIONS EXPLORED IN CONSULTATION TO IMPROVE RESIDENTIAL MARKET PROFITABILITY

In addition to the measures already implemented to reduce construction costs and calibrate financial aid, new measures must be planned to fill the gap between the current and target rates of return for the residential market.

One way to increase profitability is to increase revenue generation from customers. An apparently simple method would be to increase the rate applicable to residential customers by reducing the cross-subsidy to the level observed at the start of the decade, as presented in section 3.2.2 of this document.

However, apart from straightforward rate increases, other rate modifications, such as customer contributions and billing of certain services over and above the basic service, were analyzed in greater depth in order to provide a flexible and effective way of approaching the problem of residential market profitability so as to reach the targets detailed in section 4 of this document.

With a view to rapidly resolving the specific profitability issues, several possible solutions were discussed at the working group meetings. One consisted of a combination of a contribution from new customers and increased basic charges for these customers over a five-year period. The working group was concerned about the possibility that there might be two different rate structures applicable to customers consuming the same amount, and invited Gaz Métro to give thought to an alternative solution. From the comments received at the meetings it appears that billing of a contribution to new residential customers would be a more acceptable solution.

Thus, in addition to addressing the problem of immediate profitability, the proposed solutions must take into consideration the recurrent impacts of the solutions already in place and presented in section 5, which will influence the expected results for the coming years.

6.1 Complementary and rate-based solutions explored

Bearing in mind the whole set of short- and medium-term objectives presented in section 4, two billing modifications for tariff D₁ customers would address the target rate of return and its medium-term maintenance:

- billing a contribution to new residential customers;
- increasing basic charges for all tariff D₁ customers.

6.1.1 Billing of a contribution

As with certain other energy suppliers, a contribution billed to new residential customers would be a simple way to improve the profitability of this market. The contribution, applied against costs, would reduce the net investments required and effectively increase profitability without the need to develop a specific rate structure for residential customers.

6.1.2 Increasing basic charges

It has been explained previously that in order to be sure to maintain the profitability of new sales beyond the initial years and to favour access to new markets, Gaz Métro had to implement solutions designed to maintain the profitability anticipated at connection time despite a potential reduction in usage over the customer's lifetime.

Where rates are concerned, the only way to ensure continued revenue in the event of declining or unpredictably varying usage is to fix one part of the rate structure. Currently, the fixed portion of tariff D₁ is 25.0 ¢/meter/day, or \$91.25/year or \$7.60/month on average. This amount is not currently sufficient to maintain profitability at the anticipated level in the event of declining usage nor to support the development of new markets, such as that of peripheral appliances. Therefore, increasing the basic charges for tariff D₁ was examined as an option, especially since the current basic charge is the lowest in Canada and well below the North American average. A recent Multi Réso–Senergis survey of over 70 gas distributors confirms the considerable gap between Gaz Métro and the other distributors in this regard.²³

6.2 Guidelines on service conditions

6.2.1 Meter placement and connection waiting period

²³ Multi Réso-Senergis, *Position des distributeurs nord-américains de gaz naturel à l'égard des frais fixes – marché résidentiel*, 2007.

The detailed analysis of construction costs shows that the application of rules internal to Gaz Métro is not uniform as regards meter placement and connection waiting period.

Meters may be placed in a location chosen by the customer, often resulting in longer-than-required connections and, *ipso facto*, higher costs.

As for the waiting period, Gaz Métro had a policy of fast-tracking certain “urgent” connection requests. Priority treatment of these special requests engendered additional planning and execution costs for general contractors, but these extra costs were not billed to the customers.

Although a clear guideline on construction cost reduction is in process, it could be even more effective in increasing profitability if it included billing for services in excess of the standard basic service.

Therefore, the possibility of billing customers for “extras” was studied.

6.2.2 Temporary meter disconnection

The analysis of customer behavior as regards seasonal meter disconnection and reconnection shows that, potentially, 2000 or more customers may have asked Gaz Métro to temporarily disconnect their meters in order to save on basic charges. The reconnection charge is currently \$50 for residential or institutional customers and \$135 for commercial customers. These charges have not been updated since 1982 and no longer reflect the real reconnection costs.

6.3 Issues to consider when implementing complementary and rate-based solutions

As is clear, numerous factors influence current profitability and there is a considerable variety of approaches to improving it. However, all proposed solutions must take account of the following factors, among others: customer capacity to absorb additional costs, impacts on competitive status, regulatory issues, administrative impacts, and customer satisfaction.

To help Gaz Métro determine the optimal combination of solutions for the customers, a consultation of residential customers was carried out in parallel with the consultation of the principal stakeholders. The process and the results obtained are presented in the following section.

7. INITIAL CONSULTATION OF GAZ MÉTRO CUSTOMERS AND BENCHMARKING

7.1 Goals of the initial consultation process

In the previous section, several promising lines of thinking and potential solutions were proposed as a means of improving the profitability of Gaz Métro's residential market development and achieving the targets of section 4. The concrete application of the solutions will inevitably have an impact on the usage and/or acquisition costs of the customers targeted by these measures and will have a positive or negative effect on our market share depending on the final choices.

One goal of the consultation was to help Gaz Métro determine the ideal combination with which to limit the negative impacts while maximizing the chances for growth of the residential market. With this in mind, the goals of the consultation of Gaz Métro's customers were set as follows:

- 1) **to gather, analyze, and synthesize the information** necessary to validate proposed solutions within the development of our overall strategy to improve and maintain the profitability of residential development;
- 2) **to assess the effect of possible approaches** so as to identify the combination that would increase residential market profitability while minimizing the negative effects on the market share of natural gas;
- 3) to set guideposts for a **strategy that takes account of the effect on current and potential demand as well as the issues** concerning Gaz Métro's customer base.

7.2 Methodology

The study is divided into two sections:

- benchmarking against other Canadian distributors;
- consultation of Gaz Métro's residential customers.

7.2.1 Benchmarking against other Canadian distributors

This component of the study sought to compare Gaz Métro's business practices with those of other Canadian energy distribution companies. The following topics were explored:

- profitability criteria;
- financing of connection of housing developments to main distribution network;
- special charges;
- pricing.

7.2.2 Consultation of Gaz Métro's customers

The purpose of this section was to quantify customer sensitivity to the following variables:

- potential of different options concerning connection costs;
- reaction to a connection charge and a development rate;
- sensitivity to the amount of the basic charge on the natural gas bill;
- tolerance to annual variations in natural gas bill, and
- acquisition costs for natural gas heating equipment.

We chose to conduct the study with the help of 13 customer groups in six segments of Gaz Métro's customer base: fuel switching for space heating, fuel switching for hot water, mature heating customers (10 years with Gaz Métro), condos, new construction (by builders), new construction (owner-built). These six segments cover the entirety of development activities in the residential market and enable us to test the potential solutions for all our customer classes. The table below presents a breakdown of the sample. With a sample of this size, our total margin of error for the results is 7.3%, 19 times out of 20.

	Total
Segment	<i>n=181</i>
Fuel switching for space heating	29
Fuel switching for hot water	32
Heating customers	34
Condo customers	35
New construction - builders	33
New construction - owner-builders	18

In order to better evaluate the impact of different variables on the choice among energy sources, the selected customers had to have had the option to reposition themselves when making their decision, i.e., when they chose natural gas for their home, hence the requirement that they had been customers for at most three years (with the exception of the “mature” heating customer group).

The results of the statistical analyses reveal the relative importance of each variable tested and enable us to simulate the impact of that variable on the market share of natural gas, hence on the customer’s initial intentions. This may be summarized as follows: *What is the impact of the variable measured on the customer’s intention to choose or not to choose natural gas for his/her home?*

7.3 Results of the initial consultation process

7.3.1. Benchmarking against other Canadian distributors

The profitability of development at Gaz Métro is determined via the internal rate of return (IRR) and the breakeven point. The benchmarking study compared these profitability measures with other Canadian gas distributors. The study shows that Canadian gas distributors use profitability indicators relatively similar to those of Gaz Métro. They have names like “profitability index” or “investment feasibility” and their components include capital costs, usage, depreciation period, revenue, and so forth. When the profitability threshold for a specific project is not reached or the services provided exceed the standard service, the distributor charges a contribution to the developer, who passes it

along to the customer. This business practice is also used by Gaz Métro, but the cases in which a contribution is charged to customers remain the exception.

That which distinguishes other Canadian distributors from Gaz Métro is the standardization of their customer connection process. Each distributor sets basic standards for meter placement and connection waiting period. Additional charges covering the costs associated with any extra services are billed to the subscriber. At Gaz Métro, these minimum standards exist in theory but are not systematically applied, and it is very rare for a new customer to be billed when requesting additional services. The table below summarizes the additional charges billed by Canadian gas distributors for any services above the standard ones.

Enbridge	Union Gas	SaskEnergy	Gazifère	Terasen Gas	Gaz Métro
Moving meter: \$500- \$700	Moving meter at customer's expense	\$100 to raise a meter. \$70 to move a meter outdoors. Distance moved: - 0-5 m: \$315 - 6-20 m: \$540 - 21-35 m: \$780	Charge for moving meter. Charge for winter connection (+ 50%). Expedited connection (5 days: + 10% 1 day: + 50%).	Charge for moving meter. Charge for winter connection.	Charge for moving meter for existing customers unless there is an increase in usage. For new customers, no charge for: - winter connection - expedited connection - moving meter or long connection.
Other requests: \$250/hour					

Clearly, for Gaz Métro, departure from the standards is a very costly practice, since the bulk of the costs associated with higher standards are absorbed by the distributor. This increases unit connection costs and, consequently, decreases profitability.

Another goal of the benchmarking study was to identify cases where front-end charges are billed to new customers. The results show that above and beyond the administrative charges for opening an account, which vary from \$25-\$50, the only gas distributor billing front-end charges is *Terasen Gas* in British Columbia, which charges \$300 for new connections. The study also found that Hydro-Québec bills connection charges for new homes.

Finally, our benchmarking analysis compared the rates of other gas distributors, with particular attention to the size of the fixed portion. The results indicate that at \$7.60/month (25 ¢/day), Gaz Métro is the Canadian gas distributor with the lowest basic charges.²⁴

Enbridge	UnionGas	SaskEnergy	Gazifère	Terasen Gas	Hydro-Québec	Gaz Métro
\$11.25/month + variable	\$14.00/month + variable	\$10.50/month + variable	\$9.00/month + variable	\$11.16/month + variable	\$12.00/month + variable	\$7.60/month + variable

7.3.2 Consultation of Gaz Métro customers

Selection criteria for energy source

The potential solutions submitted to the customers represent increased costs for acquisition or use of natural gas. Therefore, the customers' main decision criteria in view of this constraint were also measured.

The survey results show that 86% of customers mentioned cost-related selection criteria. Therefore, any steps taken by Gaz Métro to increase its revenues will have an impact on these decision criteria. Besides costs, effectiveness and performance (49%) and cleanliness (39%) were mentioned as selection criteria.

**What were your main selection criteria
when choosing an energy source
for your heating system?**

(n = 79; respondents were allowed to choose more than one item)

Effectiveness/performance/rapidity	49%	
Cost/economic factors (unspecified)	42%	86% costs
Clean (unspecified)/nonpolluting	39%	
Energy cost	24%	
Installation/equipment cost	20%	
Comfort	18%	
Constant operation/no interruption	18%	
Space required for equipment	15%	
Subsidies	10%	
Natural gas stove	8%	
Odorless	8%	
Independence/no heating oil delivery	8%	
Wanted natural gas	6%	

²⁴ Another Multi Réso-Senergis study has confirmed this fact for the whole of North America.

Safe	6%
Good reputation of natural gas/comments	6%
Didn't want a tank anymore	5%
Compatibility with existing installation	4%
Installation waiting period	4%
System update	4%
Noise	4%
Plumber's recommendation	3%
Possibility of several natural gas appliances	3%
Availability of Gaz Métro	3%
Ease of installation	3%
Durability	3%
Air quality	3%
Didn't want heating oil anymore	1%
Ease of maintenance	1%
Electrical entry capacity	1%
Natural gas fireplace	1%
Central heating	1%
Other	14%

The respondents' knowledge about the usage costs of different energy sources was also measured. The survey shows that 80% of the respondents knew at least approximately the usage costs of different energy sources when making their decision to install a natural gas system.

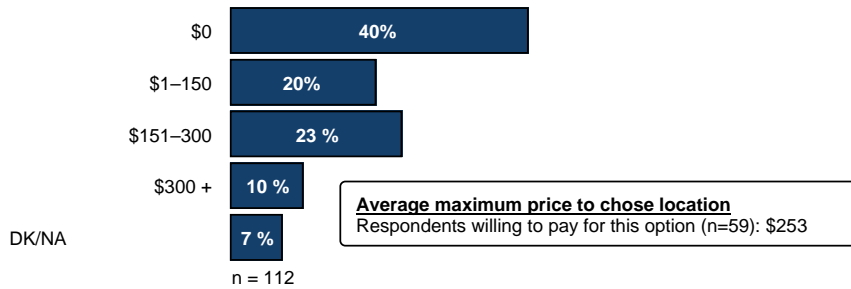
Potential of options

The second step in the customer consultation aimed to assess the potential of certain alternatives that might be offered to customers over and above the standard installation service as defined by Gaz Métro.

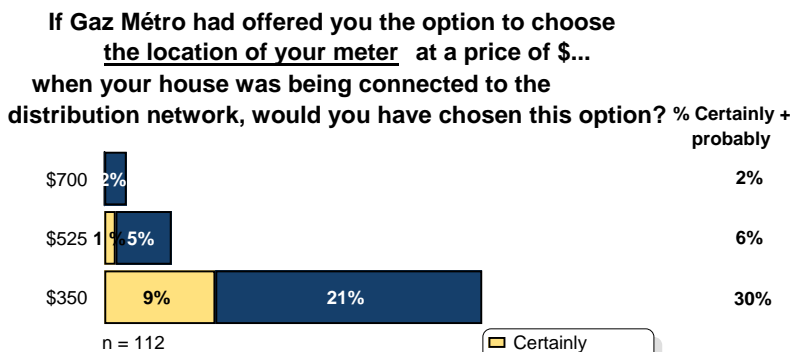
CHOICE OF METER PLACEMENT

- Among all respondents willing to pay for this option, the average price that they were willing to pay was \$253.

Given your needs, what is the maximum price you would have been willing to pay to choose the location of your natural gas meter in your home when it was being connected to the natural gas distribution network?



The buy-in prediction for this option was then assessed in terms of several predefined costs. For a value of \$350, the buy-in prediction would be about 11%. The buy-in prediction is determined by considering the sum of 80% of the respondents who said they *certainly* would choose this option and 20% of the respondents who said they *probably* would choose it.



BUY-IN PRÉDICTION
0.4%
1.8%
11.4%

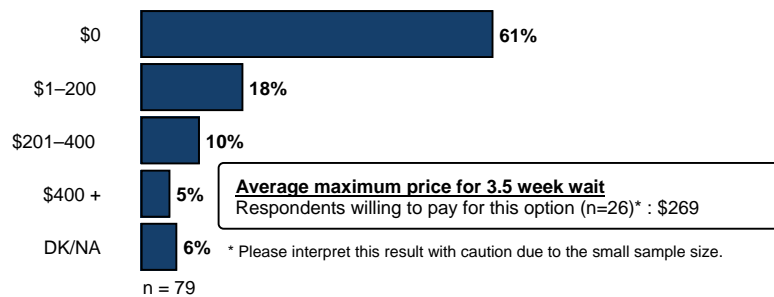
* Weighted results: 80% certainly not + 20% probably not

CHOICE OF EXPEDITED SERVICE

The next step was to assess the option concerning the choice of expedited service. The respondents willing to pay for this option were willing, on average, to spend \$269. It should be noted that more than 60% of the respondents would not be willing to pay anything for this

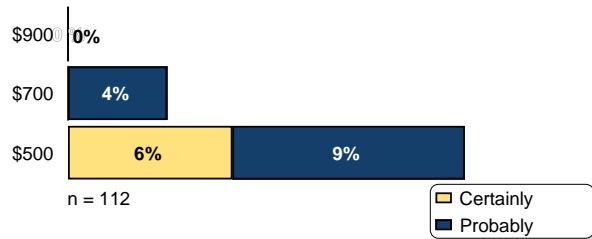
option. It is interesting to compare this information with the statistic indicating a customer satisfaction rate of 86% for speed of connection service. It appears, therefore, that expediting the waiting period would have little value for Gaz Métro customers.

Given your needs, what is the maximum price you would have been willing to pay to have a maximum waiting period for natural gas installation of 3.5 weeks between the time that you sign a contract with a contractor and the time when you can begin to use your new heating system?



Finally, the buy-in prediction for this option was assessed in terms of several predefined costs. For a value of \$500, the buy-in prediction is about 6.6%.

If Gaz Métro had offered you a wait of 3.5 weeks instead of 6 weeks at a price of \$..., would you have opted for this offer when your home was being connected to the natural gas distribution network?



% Certainly + probably
 0%
 4%
 15%

BUY-IN PREDICTION	
	0%
	0.8%
	6.6%

* Weighted results: 80% certainly not + 20% probably not

Rate strategies

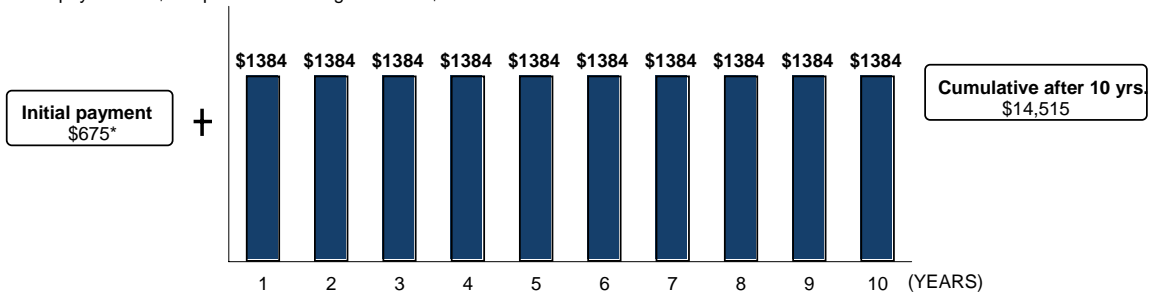
The third step in the consultation process aimed to assess the potential for certain rate strategies: an initial customer contribution, the implementation of a “development rate,” and customer sensitivity to fixed and variable portions of the rate.

INITIAL CONTRIBUTION VERSUS “DEVELOPMENT RATE”

The degree of new customers’ preference for an initial contribution paid to Gaz Métro versus an amortization of that contribution on their bill (“development rate”) was evaluated. For the purposes of this exercise the natural gas usage costs for a standard residence were set at \$1384 per year. The respondents expressed their preference for six potential pricing scenarios. The scenarios varied in terms of the size of the initial payment and the duration and type of amortization. The details of these scenarios are presented below.

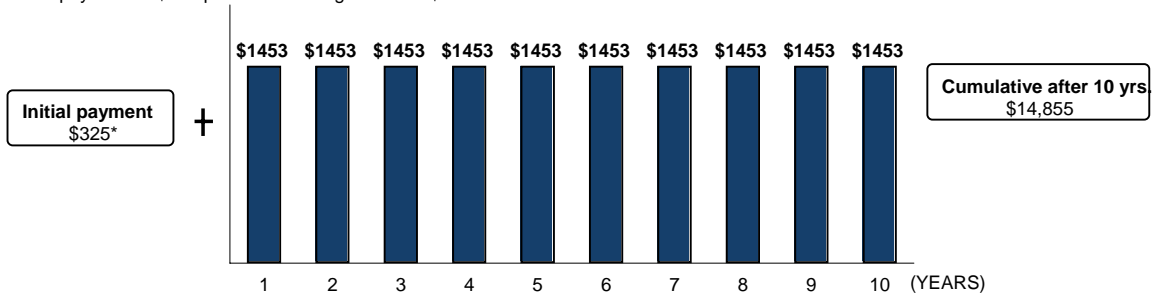
SCENARIO 1

Initial payment of \$675 plus annual usage costs of \$1384.



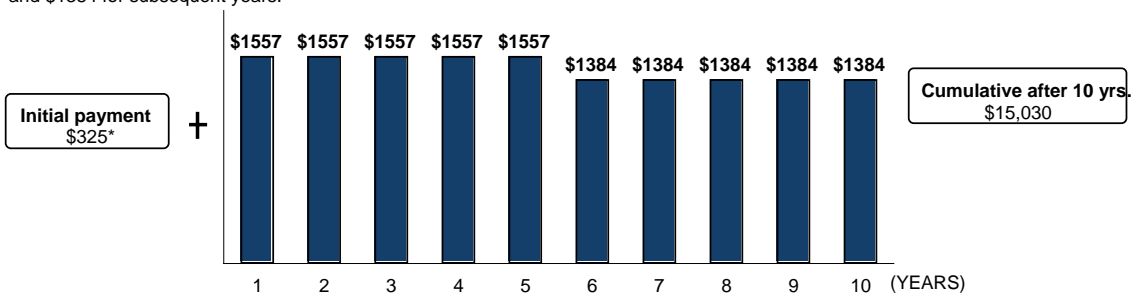
SCENARIO 2

Initial payment of \$325 plus annual usage costs of \$1453



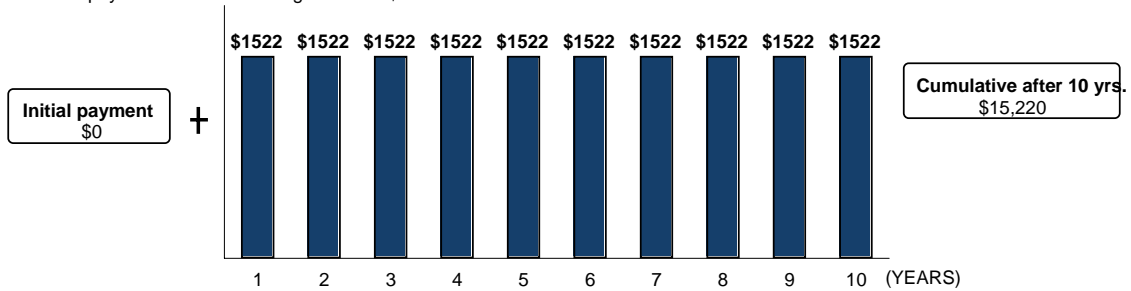
SCENARIO 3

Initial payment of \$325 plus annual usage costs of \$1557 for first five years and \$1384 for subsequent years.



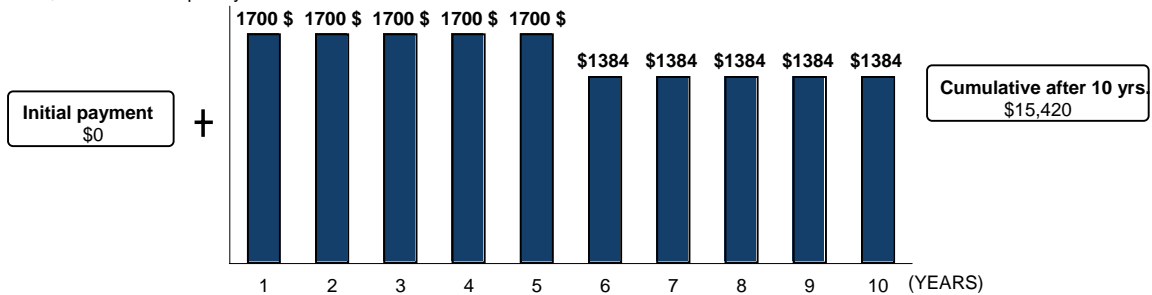
SCENARIO 4

No initial payment and annual usage costs of \$1522.



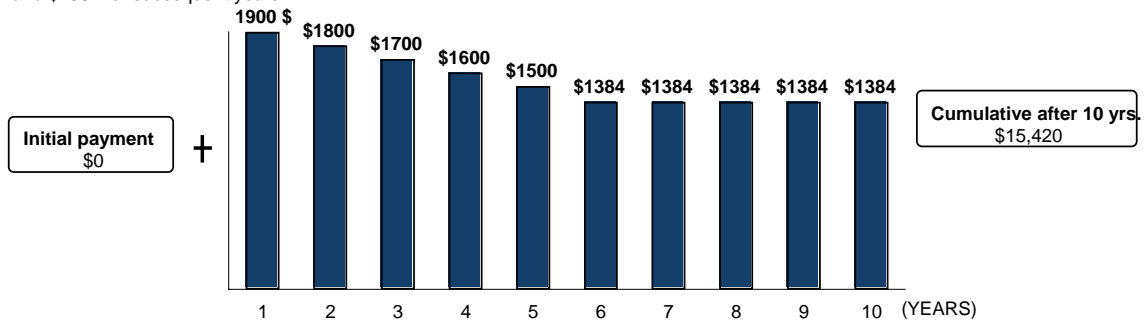
SCENARIO 5

No initial payment and annual usage costs of \$1700 for first five years and \$1384 for subsequent years..



SCENARIO 6

No initial payment and annual usage costs of \$1900–\$1500 for first five years and \$1384 for subsequent years.



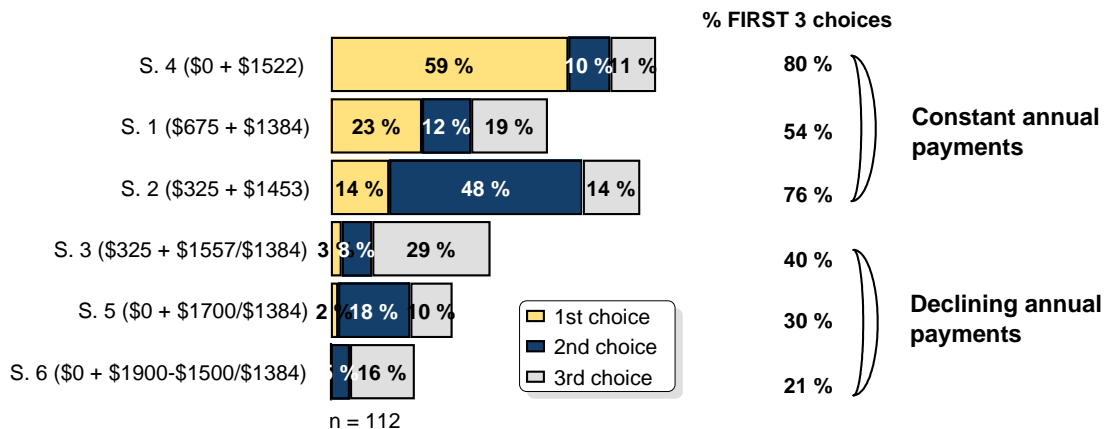
Next, these scenarios were ranked according to cumulative customer preference (first, second, and third choice) in order to determine overall preferences. Scenarios 4 and 2, with cumulative preferences of 80% and 76%, were the winners.

The respondents who chose these scenarios did so for one or more of the following reasons:

- no initial payment or reasonable initial payment;
- uniformity/stability of payments;
- doesn't know if he/she will be keeping the house in the long-term/does not want to pay next owner's share/does not want to pay in advance;
- facilitates budgeting/simplicity.

The least popular scenarios were those involving declining annual payments (accelerated amortization). A non-negligible proportion (23%) of customers would have opted, as their first choice, for a full initial payment without any amortization.

Q1. If you had been offered one or more of the billing scenarios presented in APPENDIX A while shopping for your natural gas heating system, what would have been your appreciation of each? Please rank the six proposed billing scenarios in order of preference from 1 to 6 (1 being your most preferred scenario and 6 your least preferred scenario).

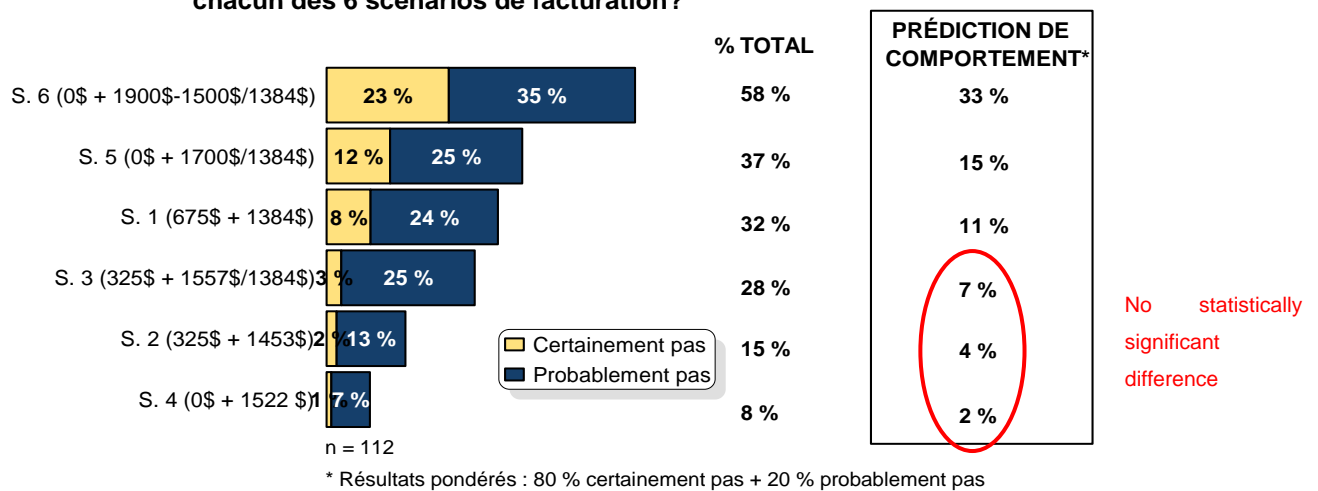


Several factors explain the preference for straight-line amortization:

- cash flow shortage after purchasing a home or performing costly conversion work;
- limited impact on bill;
- the fact that the customer will probably resell the home over the medium term;
- simplicity.

Of course, all these scenarios represent an additional amount that was not expected initially when the respondents opted for natural gas. Therefore, it was necessary to measure the impact of this new strategy on the intention to choose natural gas.

Q4. Au moment où vous avez changé votre système de chauffage, quelle aurait été votre intention d'installer un système à gaz naturel si on vous avait imposé chacun des 6 scénarios de facturation?



Legend:

Q4. When you changed your heating system, how would it have affected your choice of a natural gas system if each of the six scenarios had been imposed?

BUY-IN PREDICTION

Certainly not
 Probably not

*Weighted results: 80% certainly not + 20% probably not

For the top two scenarios (scenarios 4 and 2), the proportion of customers who would not have chosen natural gas varied from 2 to 4%. This means that Gaz Métro could opt for these scenarios with no risk of significantly eroding its market share. It is interesting to

observe that this proportion was 7% for scenario 3, which is not significantly different from the top two scenarios.

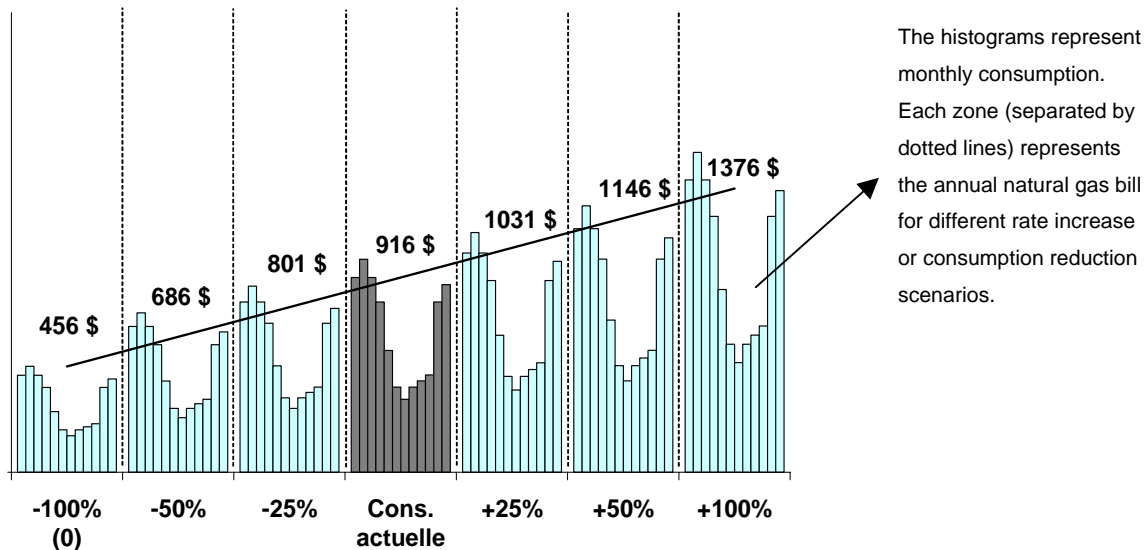
FIXED AND VARIABLE PORTIONS OF RATE

We also evaluated customers' degree of preference for a largely fixed pricing structure versus a completely variable pricing structure. For the purposes of this exercise, a typical annual cost of \$916 for the use of natural gas was defined. Respondents were asked to rank four scenarios in terms of preference. In each scenario, the effect of doubling usage or reducing usage to zero was presented on the customer's bill.

SCÉNARIO 1 : QUASI-TOTALEMENT FIXE

Le coût d'utilisation annuel de gaz naturel est 916 \$.

Si la consommation annuelle de gaz naturel augmente de 25% (m³), le coût d'utilisation annuel sera de 1031 \$. Si la consommation annuelle de gaz naturel diminue de 25%, le coût annuel sera de 801 \$.



Legend:

SCENARIO 1: ALMOST TOTALLY FIXED

The annual usage cost for natural gas is \$916.

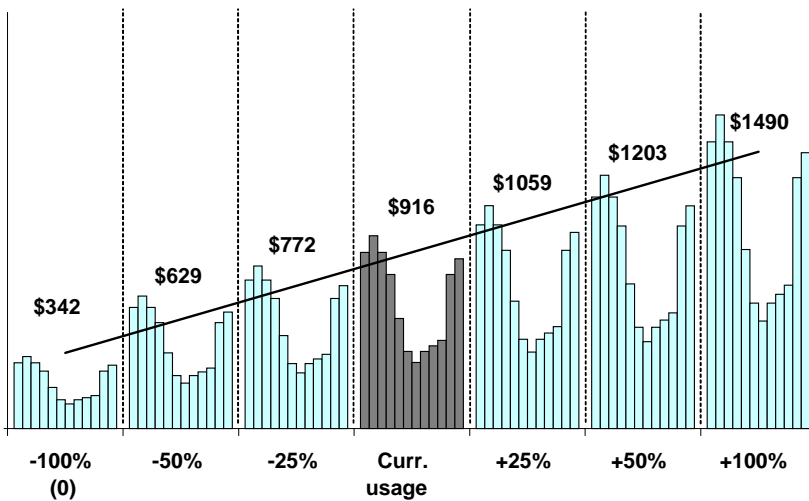
If annual natural gas usage increases by 25% (m³), the annual usage costs will be \$1031. If annual natural gas usage decreases by 25%, the annual cost will be \$801.

Curr. usage

In the first scenario, the costs of supply, transportation, compression, and load balancing varied according to usage while the distribution costs were fixed at 100% and remained stable at \$456 per year. In other words, this scenario eliminated the variable portion of the rates.

SCENARIO 2 : MAINLY FIXED

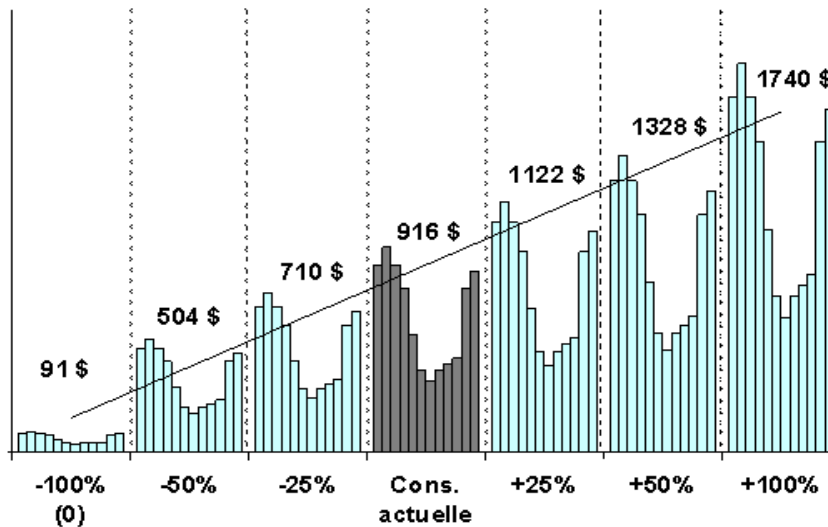
The annual usage cost for natural gas is \$916 \$.
 If annual natural gas usage increases by 25% (m³), the annual usage costs will be \$1059. If annual natural gas usage decreases by 25%, the annual cost will be \$772.



The second scenario consists of a distribution rate that is still mainly fixed but involves a slightly larger variable portion. The other services (supply, transportation, compression, and load balancing) vary with customer usage.

SCENARIO 3 : MAINLY VARIABLE

Le coût d'utilisation annuel de gaz naturel est 916 \$.
 Si la consommation annuelle de gaz naturel augmente de 25% (m³), le coût d'utilisation annuel sera de 1122 \$. Si la consommation annuelle de gaz naturel diminue de 25%, le coût annuel sera de 710 \$.



Legend:

SCENARIO 3: MAINLY VARIABLE

The annual usage costs for natural gas is \$916.

If annual natural gas usage increases by 25% (m³), the annual usage costs will be \$1122. If annual natural gas usage decreases by 25%, the annual cost will be \$710.

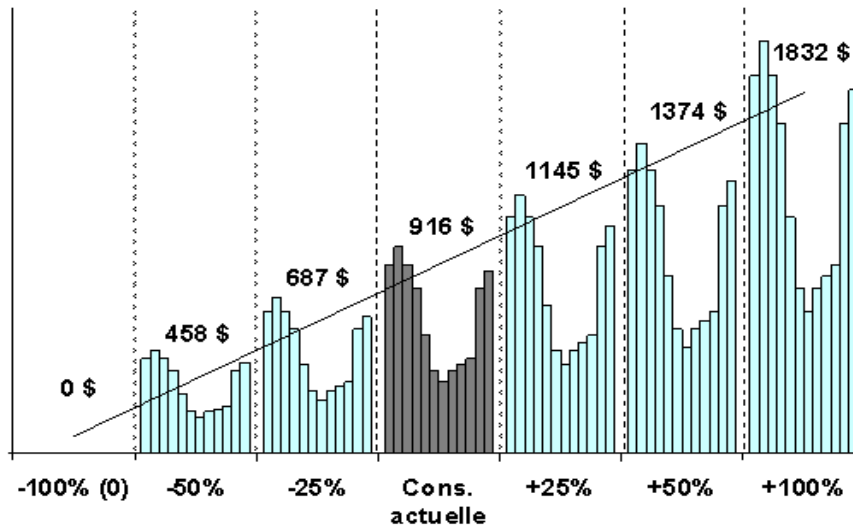
Curr. usage

The third scenario reflects Gaz Métro’s current distribution rate structure with a very limited fixed portion and a sizable variable portion. Unlike the two previous scenarios, customers whose usage ceases see a substantial drop in their annual bill (they pay only the basic charge of 25 ¢ per day). The reverse is also true: customers who increase their usage by 100% will see a marked increase in their bill.

SCENARIO 4 : QUASI-TOTALEMENT VARIABLE

Le coût d'utilisation annuel de gaz naturel est 916 \$.

Si la consommation annuelle de gaz naturel augmente de 25% (m³), le coût d'utilisation annuel sera de 1145 \$. Si la consommation annuelle de gaz naturel diminue de 25%, le coût annuel sera de 687 \$.



Legend:

SCENARIO 4: ALMOST TOTALLY VARIABLE

The annual usage costs for natural gas is \$916.

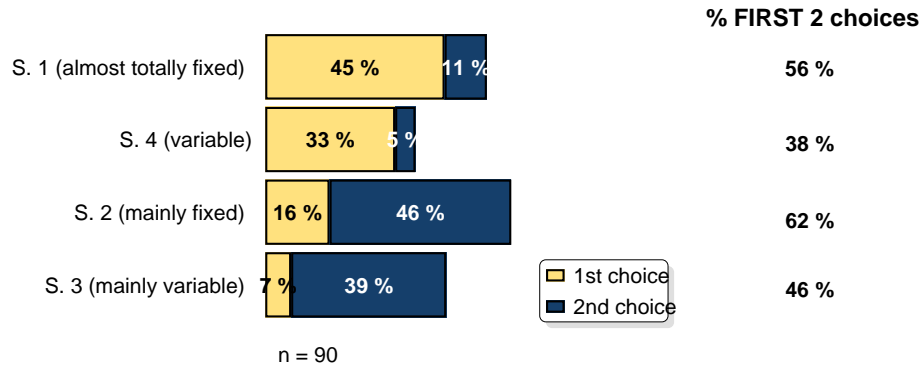
If annual natural gas usage increases by 25% (m³), the annual usage costs will be \$1145. If annual natural gas usage decreases by 25%, the annual cost will be \$687.

Curr. usage

The fourth scenario consists of a 100% variable distribution rate, with no basic charge. The customer's total bill would be zero in the absence of usage and \$1832 if usage doubles.

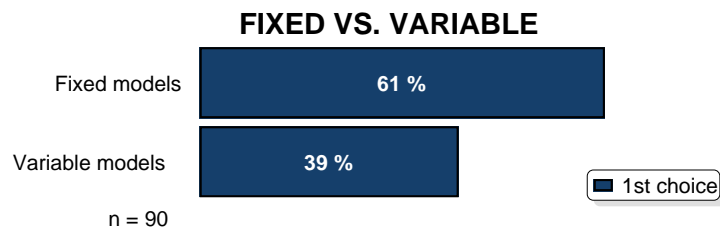
When these scenarios were ranked in order of cumulative preference (first, second, and third choice), respondents were found to be polarized to some extent.

Q1. If, as a customer today, you were offered each of the natural gas rate scenarios presented in Appendix B, what would be your appreciation of each? Please rank the four proposed rate scenarios in order of preference from 1 to 4 (1 being your most preferred scenario and 4 being your least preferred scenario).



While the first choice was scenario 1, a considerable proportion of respondents preferred scenario 4. Still, when the proportions of respondents selecting each scenario as one of their top two preferences are totaled, it is evident that a majority of respondents preferred a pricing scenario in which fixed rather than variable costs are dominant.

Q1. If, as a customer today, you were offered each of the natural gas rate scenarios presented in Appendix B, what would be your appreciation of each? Please rank the four proposed rate scenarios in order of preference from 1 to 4 (1 being your most preferred scenario and 4 being your least preferred scenario).



FIXED VS. VARIABLE

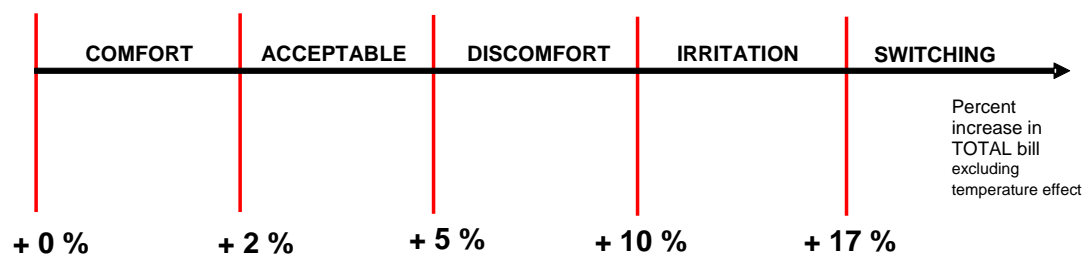
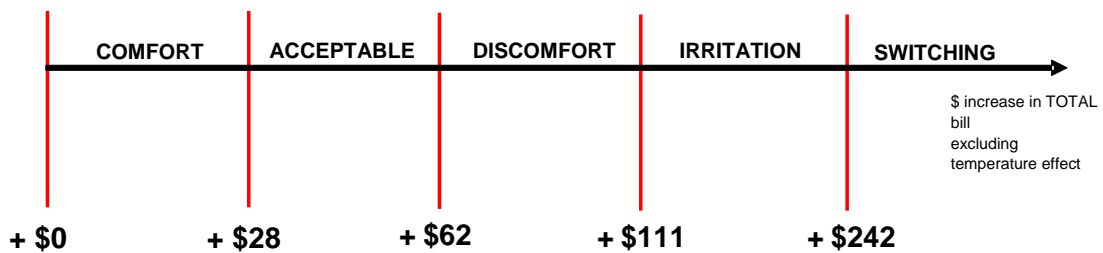
Respondents whose first preference consisted largely or totally of fixed costs stated the following reasons for their preference:

- less fluctuation in amount of bill, stability;
- simplicity, facilitates budgeting;
- user protected if usage increases.

Sensitivity to usage costs

The fourth step was designed to evaluate respondents' sensitivity to an increase in their annual natural gas bill. This analysis measures the impact of a possible "development rate" or of amortization of a contribution payable by new customers connected to the gas distribution network.

Here, it must be reiterated that the respondents were customers with a heating profile who had to evaluate their tolerance to various levels of increase in their annual bill. The next two tables summarize the results.

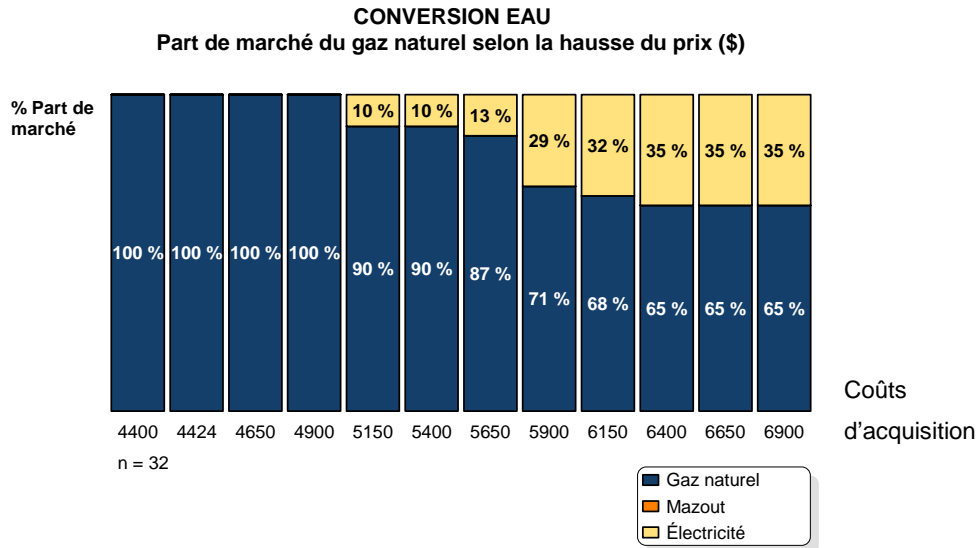


The first table displays the increases in dollars, the second indicates percentage increase. This analysis shows that customers' comfort threshold occurs at an annual level of increase similar to that of inflation. On the other end of the spectrum, the average increase that would cause them to consider switching to another energy source is 23.4% or \$303 per year, with a threshold of 17%. Of course, it is one thing to intend to switch and another to actually do it. Supply price fluctuations alone have caused annual residential billing increases within or even in excess of the irritation and switching zones without leading to a massive wave of fuel switching. These results must be considered as indicators or guidelines for Gaz Métro in its revenue generation strategy for the residential market.

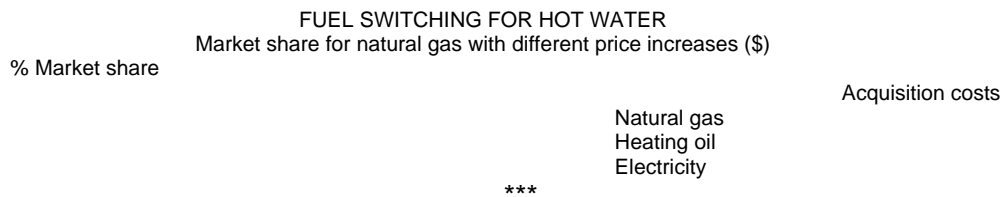
Sensitivity to acquisition cost

The fifth step was to evaluate respondents' sensitivity to an increase in the acquisition cost. This analysis measures the impact of a contribution payable to Gaz Métro for new residential customers or a decrease in financial aid paid by the distributor.

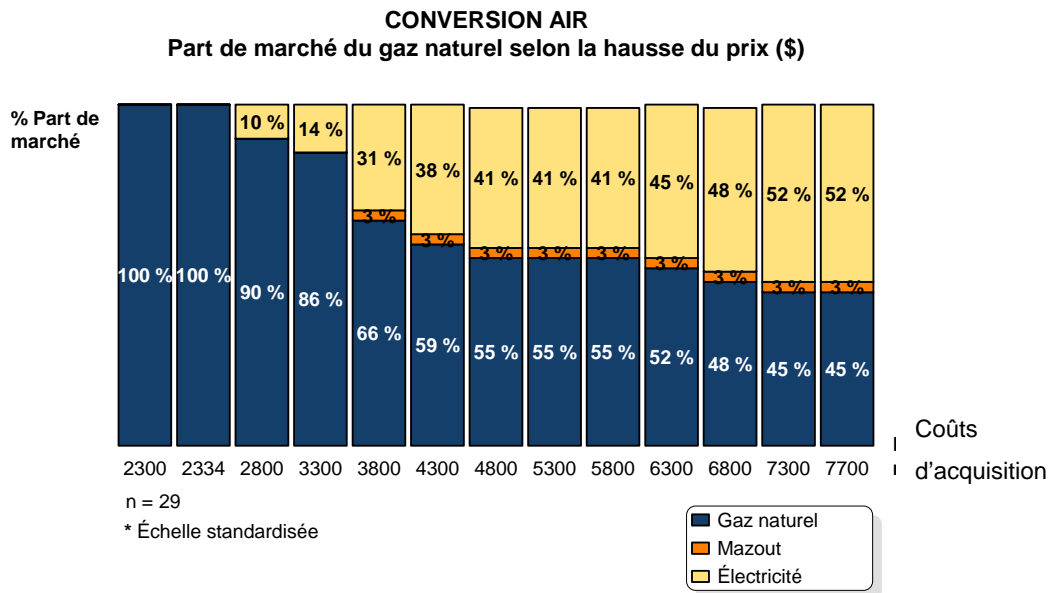
Sensitivity to an increase in acquisition costs was measured by beginning with a standard installation price and increasing it incrementally. Four groups of customers participated in this exercise.



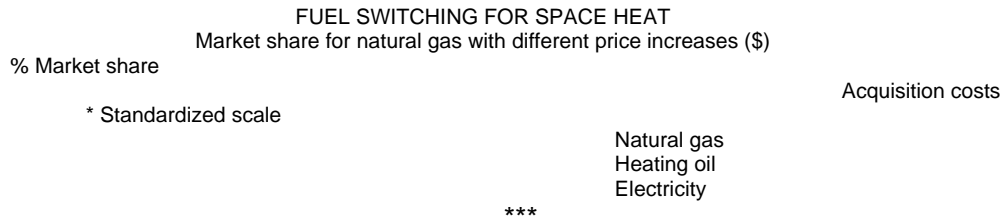
Legend:



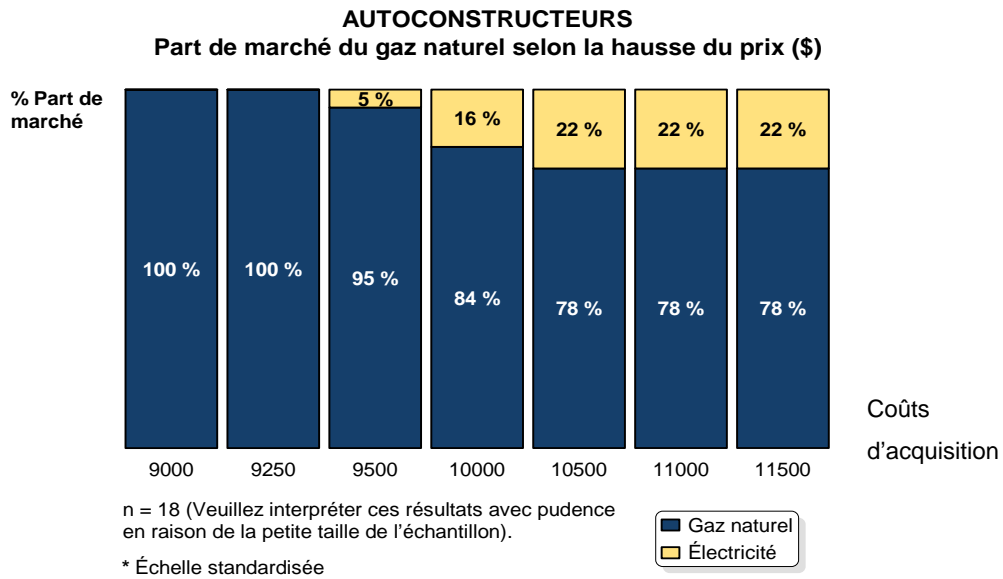
Among customers who converted their hot water system, sensitivity to an increase in acquisition costs is moderate. An erosion in market share is not perceptible below an increase of \$500 (i.e., installation cost above \$4900). The maximum effect measured was 35% at an increase of \$2500.



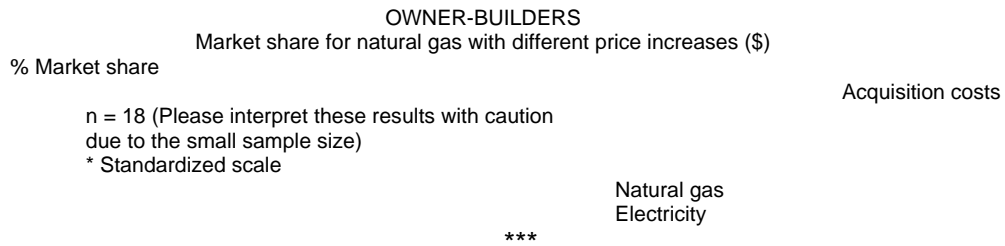
Legend:



Among customers who converted their space heating system, sensitivity to an increase in acquisition costs is a little higher. There is a 10% erosion of market share for a \$500 increase. The maximum effect measured was 55% for a \$5,400 increase.



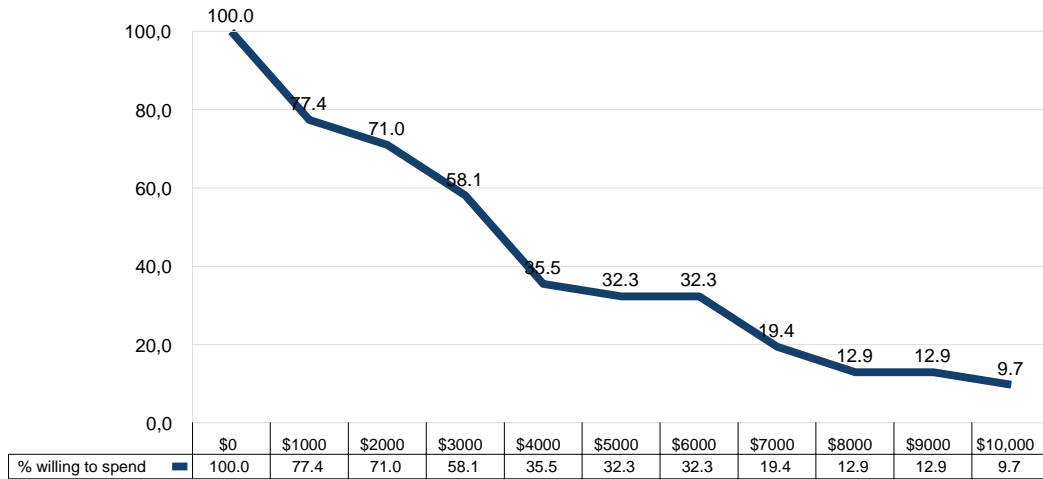
Legend:



Among owner-builders, sensitivity to increases in installation costs is moderate. For a \$500 increase, the effect on market share is 5%.

Q2. At the time when you bought your new house, how much more would you have been willing to pay for the natural gas option?

At that time, if necessary, I would have paid up to \$_____ more for my home to have natural gas versus electrical or propane appliances.



n = 31 (New construction, builder)

* Cumulative results

Among customers who purchased from a builder, sensitivity to acquisition costs is very high. A \$1000 increase in installation costs had an impact of nearly 23% on market share.

The conclusion to be drawn from these four scenarios is that sensitivity to installation costs is lowest among fuel switching for hot water customers and owner-builders and highest among fuel switching for space heating customers and customers purchasing their home from a builder. Also notable is that below a \$500 increase, the effect on market share is limited.

7.4 Conclusions from initial consultation and benchmarking process

The results of this research project allow us to draw nine major conclusions that will serve as the basis of Gaz Métro's recommendations:

- 1) Gaz Métro, unlike other Canadian gas distributors, does not systematically bill for services rendered to customers over and above the standard connection service (meter placement, waiting period, seasonal cost variation, etc.).

- 2) Currently, some energy distributors charge new customers a monetary contribution. The amount of this contribution is \$300 for *Terasen* and \$200 for *Hydro-Québec*.
- 3) Gaz Métro has the lowest basic charges of all the distributors surveyed.
- 4) 30% of respondents would certainly or probably be willing to pay up to \$350 to choose the location of their meter. The buy-in prediction is 11%.
- 5) 15% of respondents would certainly or probably be willing to pay up to \$500 for faster installation. The buy-in prediction is 7%.
- 6) If Gaz Métro charges new customers a monetary contribution, the effect on development will be relatively limited, provided that the charge is payable in installments in order to minimize the impact on the bill.
- 7) A majority of respondents prefer that the price structure be predominantly based on fixed rather than variable charges.
- 8) Concerning usage costs, the respondents are comfortable with increases in the neighborhood of the rate of inflation (2%). The critical threshold occurs where the total increase in their bill exceeds 17% or \$242 per year in our typical scenarios. Since this conclusion is only applicable to the sample consulted, we had to complete our analysis of sensitivity to usage costs by examining the 0–1,095 m³/year subsegment; the results are presented in section 8.
- 9) Concerning acquisition costs, a \$500 increase would cause a 5–10% erosion in future sales for the segments analyzed. This result underscores the need to allow for payment of the contribution in installments and perhaps even to try to reduce the contribution, if possible.

These nine conclusions were presented to the working group at the last meeting authorized by the Régie in decision D-2006-140. The comments received at this second meeting fed into the internal process of analysis and helped to improve the proposals made here.

8. RATE-BASED AND COMPLEMENTARY PROPOSALS

Further to many steps taken in recent months to understand and seek to improve the profitability of the residential market for long-term sustainability, we hereby submit several specific proposals to the Régie for approval. As discussed in the preceding sections, charging a contribution will help to achieve the target rate of return rapidly, increasing the basic charge is designed to preserve this profitability as much as possible, and the combination of these two proposals is designed to further the development of new markets. The proposal to increase the fixed portion of rates with respect to the variable portion is, for our purposes here, termed a “rate-based” proposal while the other proposals, which largely consist of adjustments to the current general conditions, are termed “complementary” proposals.

This section considers each of the following major proposals in more detail:

- increasing the basic charges (section 8.1);
- implementing a minimal automatic contribution for new residential customers (section 8.2);
- standardizing the connection service (section 8.4);
- modifying the reconnection charges (section 8.5).

8.1 Increasing the basic charges

An increase in the basic charges will help to maintain profitability when usage varies, develop new markets, and support the development of new technologies. This is a general trend in North America;²⁵ furthermore, the customers consulted were relatively favourable to an increase in the fixed portion of the bill with respect to the variable portion. The next stage is to determine the way in which this increase might be implemented.

8.1.1 Determination of new basic charges

²⁵ The study, “Position des distributeurs nord-américains de gaz naturel à l’égard des frais fixes – marché résidentiel” (Position of North American natural gas distributors on fixed charges – residential market), by Multi Réso-Senergis, confirms this trend.

Ideally, the basic charges should reflect the sum total of fixed costs necessary to serve the customers. The largest part of Gaz Métro's cost of service is composed of fixed costs: distribution pipelines, connections, meters, administrative expenses, etc. are all costs that are incurred whether the customers consume gas or not.

Therefore, if the sum total of fixed costs were supported by the basic charges, the structure of tariff D_1 would be nearly 100% fixed. Whether the customers consume gas or not, the charges billed and the revenues generated would be almost identical. In that case, the profitability maintenance goal would be immediately attained, but this would have a negative effect on the distribution price signal. Gaz Métro makes a point of always adhering to the principle that the more a customer consumes, the higher the amount charged for distribution. Albeit the current price structure is degressive, it is still the case that every cubic meter not used by the customer reduces his total distribution charge. With an almost entirely fixed structure, this principle would be violated. The services of supply, compression, transportation, and load balancing would continue to depend on usage, but distribution, which represents a sizable percentage (43% in 2008) of the total bill for residential customers would no longer vary.

It then becomes necessary to determine how much to raise the basic charge and hence the guarantee of profitability maintenance. When Gaz Métro has to deliver gas to a new service address, a new connection and meter generally have to be installed. These costs constitute the minimum costs incurred. The same does not necessarily apply for other costs. Certain other costs, such as for distribution pipeline installation, may be incurred where the distribution network is extended, but not in the case of densification. The basic charges should, therefore, at least cover the costs of connections and meters.

It should be noted that increasing the basic charges would also affect tariff D_M customers since rates D_1 and D_M are linked to the same schedule. The table below presents the costs associated with connections and meters for rates D_1 and D_M broken down by usage tier.²⁶ Operating and depreciation expenses are included in the costs.

²⁶ Data taken from 2006/2007 cost of service allocation study.

Identification of fixed costs – connections and meters*

	0 10 950	10 950 36 500	36 500 109 500	109 500 365 000	365 000 1 095 000	1 095 000 3 650 000	3 650 000 >	Total
Costs (\$)								
Connections	19 317 135	4 602 799	2 354 946	758 374	230 475	79 182	24 179	27 367 089
Meters	4 088 250	2 163 347	1 451 423	619 408	290 474	78 028	18 939	8 709 869
Total	23 405 385	6 766 146	3 806 369	1 377 781	520 949	157 210	43 117	36 076 958
Number of customers:								
	137 898	19 565	9 228	3 165	912	209	23	171 001
Unit costs (¢/customer/day)								
Connections	38 379	64 453	69 918	65 646	69 205	103 818	287 513	43 847
Meters	8 122	30 293	43 093	53 617	87 222	102 304	225 203	13 955
Total	46 501	94 746	113 011	119 263	156 427	206 121	512 716	57 802

* Costs excluding return and taxes related to connections and meters

The results show that total costs decline from one usage tier to the next. On the other hand, the number of customers also declines. Expressed as unit cost per customer, the result is an increase. The unit cost varies from 46.5 to 512.7¢/customer/day depending on usage. The last three tiers were merged for the unit cost calculation due to the small number of customers whose usage falls within these tiers.

The reason why the unit cost increases with usage is that the higher the volume, the more significant Gaz Métro's investment in the connection and meter necessary to serve and bill the account. Of course, when the unit costs associated with these components are evaluated as a function of m³ consumed rather than number of customers, unit cost declines with volume. The same reasoning may apply to distribution pipes. Since the fixed costs are relatively large with respect to the variable costs, Gaz Métro achieves economies of scale by serving increasingly large customers, since the costs are amortized over a larger volume. Thus, when billing is essentially by volume consumed, as is currently the case, degressive rates reflect these economies of scale.

Therefore, the proposal is to directly tie the basic charges applicable to rates D₁ and D_M to the unit costs of connections and meters based on the cost of service allocation.²⁷ These costs could be reviewed each year. Customers would be billed a different basic charge depending on the usage tier attained (see example below). Although calculated in ¢/customer/day, the basic charges would be billed in ¢/meter/day. In the preceding table, the unit costs were not determined directly from the number of meters since this figure is not available for the tariff D₁ budget forecasts. The calculation of costs by number of customers is, however, a valid assumption.

As mentioned previously, the proposed modification would affect all tariff D₁ et D_M customers. It is true that the profitability issues addressed by this report only concern residential customers. However, it is the natural gas usage profile that affects the distributor's costs, not the sector in which the customer is found. A business customer will have the same effect on costs as a residential customer consuming the same amount. Therefore, there are no grounds for billing different basic charges for different markets.

Similarly, there are no grounds for limiting the increase in the basic charges to the first usage tier, since this logic applies equally well to small and to large customers. It would be difficult to justify a basic charge linked to real costs for first-tier customers and a basic charge determined according to different criteria for the other customers.

8.1.2 Volume used to determine basic charge

To avoid a situation in which a customer would be billed different basic charges during the same year and to further stabilize revenues, the basic charge could be determined as a function of the customer's annual volume. For example, a customer consuming 11,000 m³/year would be billed a basic charge for the whole year of 94.7 ¢/meter/day. However, this solution is problematic as regards determining the annual volume and is also administratively cumbersome:

²⁷ Note that the gas company Gaz de France currently has rates with basic charges (called "abonnement").

- The volume could be determined based on historical volume. But how would one then handle customers who have less than a 12-month billing history or who plan to significantly change their usage?

- Alternatively, the volume could be determined with reference to projected volume, but since most tariff D₁ customers have no written contract, they have no projected volume.

In order to preserve a simple structure and avoid adding new parameters to the customer's bill, **the real monthly volume would be used to determine the basic charge**. This would obviate the need for manual treatment and the risk of error when evaluating volumes. It is true that with the use of real monthly volumes, revenues would be somewhat less stable. At one extreme, a very large customer whose usage ceased could see their basic charge drop from 512.7 ¢/meter/day to 46.5 ¢/meter/day. But the simplicity of the solution as compared with the use of a projected or historical volume makes up for these shortcomings. As well, a change in usage volume does not necessarily imply a shift to a new tier. If the highest tier attained remained the same, the basic charge paid by the customer would not change. In this regard, a detailed analysis of 2006 usage shows that 72% of tariff D₁ customers remain within the same tier every month. When this group is amalgamated with the group that varies within one or two volume tiers each year, the total is 89% of tariff D₁ customers. Therefore, for a large majority of customers, there would be nearly no potential monthly volatility in the basic charge.

Finally, inasmuch as all customers would see their basic charge rise from 25.0 ¢ to at least 46.5 ¢, revenues would be that much more secure and stable. Currently, for the first tariff D₁ tier, the basic charges generate \$12.0 M on total distribution revenues of \$93.4 M, or 12.9% of total revenue. With the application of the new rate structure, these charges would generate \$22.4 M, or 23.9% of revenues for this tier. For the whole of tariff D₁, the fixed portion of revenues would rise from 5.9% to 11.8%.

8.1.3 Impact on energy efficiency and billing simplicity

It might appear that increasing the basic charges would go against the ratesetting rationale followed since 2002. As detailed in section 2.1.1, this rationale consisted of gradually reducing basic charges with a view to:

- standardizing the basic charge billed to all customers, and
- sending a better price signal with which to reward energy efficiency by giving more weight to the variable portion of the bill.

In the foregoing sections, we have explained in detail the reasons why we have come to believe that this strategy should be adjusted. We have seen that the price signal mainly derives from the supply component and that it is always present in a free market like that of natural gas. Furthermore, a 2004 study done in California highlights the limits of using specific components of the energy bill, i.e. distribution, for sending a clear price signal to residential customers.²⁸ However, in keeping with our wish to maintain a price signal in the distribution component, we suggest respecting a certain logic with a progression of fixed costs across usage tiers.

In terms of standardization of the basic charges, the proposed solution would continue to treat identically two customers from different markets with the same usage profile; for example, residential and commercial customers consuming the same volumes would be billed the same basic charge without discrimination. Of course, commercial and industrial customers typically have higher usage than residential customers and attain higher usage tiers. They would be billed a higher basic charge in view of their higher connection and meter costs. Still, the difference in basic charges paid by the customers would be due to usage and not to market, as was the case before.

If the solution was designed to establish a single basic charge for all customers so as to cover the total average connection and meter cost, the price signal attributable to the distribution component could theoretically be reduced. That is, an increase in the basic charge without regard to usage would only diminish the weight of the variable portion of

²⁸ Momentum Market Intelligence, *Residential Customer Understanding of Electricity Usage and Billing*, California Energy.

the distribution bill. However, having basic charges increase across usage tiers based on a logic of costs, we preserve the price signal to some extent. It is still to customers' advantage to optimize their usage in order to reduce the total bill, but the effect would be even more powerful for customers overlapping several tiers.

In the case of many customers, though, usage never rises beyond the first tier. For them, the price signal at the distribution level would be only marginally reduced and far from eliminated. Regardless of the rate modifications made, Gaz Métro will make ongoing efforts to encourage its customers to participate in energy efficiency programs so that it can achieve the objectives set out in the new incentive mechanism and the targets specified in relation to the *Act respecting the implementation of the Québec energy strategy and amending various legislative provisions*.

Considerable effort has been expended since 2002 to simplify the bill and hence the rate structure for tariff D₁ customers. The merger of the lowest tiers made it so that the majority of customers in this rate are billed a single uniform rate rather than having their usage spread out over several tiers. Despite the apparent complexity added by the application of rising basic charges, which seems to run counter to the principle of billing simplification, it should be recalled that 80% of tariff D₁ customers never go beyond the first tier, and it was they who were the intended beneficiaries of the merger of tiers in 2002. The apparent additional complexity of the new rate structure would be invisible to these customers.

8.1.4 Impact on revenues

The increase in the basic charges will have to be offset by a decrease in the variable charges so that the same total distribution revenues are generated by rates D₁ and D_M. The customers most affected by the higher basic charges will be first-tier customers — the opposite of the situation with the merger of tiers in 2002. Given their lower annual usage, the basic charge represents a non-negligible portion of their distribution bill. For customers in the higher tiers, an increase in the basic charges will have a lesser impact.

In order to reduce the impact for small consumers, it is suggested to offset the increase in the basic charges by reducing the first-tier charge per unit volume consumed until the

average effect on this tier is nil, and then to reduce the rates applicable to the other tiers uniformly. Based on the 2007 rate case, the rate structure obtained would be as follows:

Tier m ³ /year	Tier m ³ /day	Current scale (D-2006-140)		Proposed scale	
		¢/m ³	¢/meter/day	¢/m ³	¢/meter/day
0 - 10 950	0 - 30	24,627	25,000	21,405	46,501
10 950 - 36 500	30 - 100	15,670	25,000	15,612	94,746
36 500 - 109 500	100 - 300	13,496	25,000	13,446	113,011
109 500 - 365 000	300 - 1,000	10,682	25,000	10,642	119,263
365 000 - 1,095 000	1,000 - 3 000	7,690	25,000	7,661	156,427
1,095 000 - 3 650 000	3 000 - 10 000	5,404	25,000	5,384	206,121
3 650 000 - 10 950 000	10 000 - 30 000	4,029	25,000	4,014	512,716
10 950 000 - 36 500 000	30 000 - 100 000	3,298	25,000	3,286	512,716
36 500 000 +	100 000 +	2,641	25,000	2,631	512,716

Commission and California Public Utility Commission Working Group 3 report, January 29, 2004, p. 16.

Tangibly, the new rate structure would apply in the following way:

Assume a customer with monthly usage of 1800 m³, or 60 m³/day. The variable portion of the bill, determined from the charges per unit volume consumed, would be:

$$[30 \text{ m}^3/\text{day} \times 21.405 \text{ ¢/m}^3 + 30 \text{ m}^3/\text{day} \times 15.612 \text{ ¢/m}^3] \times 30 \text{ days} = \$333.15;$$

and the fixed portion, determined as the basic charge for the highest tier attained, would be 94.746 ¢/meter/day x 30 days = \$28.42, for a total amount of \$361.57.

The impact on the average rates for each tier in tariff D₁ and on the average rate for tariff D_M is presented in the table below. The first tier was divided into three sub-tiers to show the precise effect of the changes on the different customer groups in that tier.

Impact on distribution rates for tariff D₁ and D_M customers



D₁ tiers	Avg. vol.	D-2006-140	Proposed rate	Change
m ³ /year	m ³ /year	¢/m ³	¢/m ³	%
0 - 1,095	405	45.793	61.789	34.9
1,095 - 3 650	2 308	27.748	28.059	1.1
3 650 - 10 950	5 946	24.907	23.349	-6.3
0 - 10 950	2 626	27.018	27.018	0.0
10 950 - 36 500	19 532	19.483	19.401	-0.4
36 500 - 109 500	57 526	15.833	15.816	-0.1
109 500 - 365 000	174 010	12.708	12.724	0.1
365 000 - 1,095 000	533 705	9.844	9.881	0.4
1,095 000 - 3 650 000	1 500 653	7.488	7.518	0.4
3 650 000 and over	4 481 387	5.585	5.623	0.7
Tariff D₁	11 836	16.696	16.686	-0.1
Tariff D_M	506 417	6.629	6.651	0.3

The results show that the most significant impact is on the first sub-tier. On average, the annual distribution cost would increase by \$65.

The effect on the total bill for representative cases in the first tier are evaluated in the table below.

Impact on total bill

Volume	Supply Compression	Transportation Load balancing Inventory	Distribution		Change	
			D-2006-140	Proposed	\$	%
m ³ /year	\$	\$	\$	\$	\$	%
405	96	32	314	379	65	20.6
2 308	548	184	1 372	1 380	7	0.5
5 946	1 411	475	3 367	3 274	-93	-2.8

8.1.5 Issues raised and solution for low-income customers

While the objectives involved with attaining the target rate of return and reducing the risk of lower profitability in the case of lower usage have been met, the increase in the basic charges for all tariff D₁ and D_M customers raises two important issues that must be addressed.

8.1.5.1 Issue 1: Higher bill for customers consuming less than 1,095 m³ per year

As we have seen, an increase in the basic charge from 25 to 46 ¢ per day would result in a 20.6% (\$65) average increase in the annual bill of customers consuming 0–1,095 m³. This raises several questions. Is this an unacceptable increase for this tier? What is the impact of this increase on low-income households? Are they overrepresented in this tier? Our consultation of Gaz Métro customers did not target customers in this annual usage tier. After the second working group meeting, we chose to improve our understanding by consulting these customers in a parallel process so as to evaluate the impact of this increase and, as well, to compare their responses to those of the customers consuming more than 1,095 m³ annually.

Comparative sociodemographic profile: This second consultation process showed that the proportion of low-income households²⁹ is 18.9% among the group consuming 1,095 m³ or less and 9.3% among those consuming 1,095 m³ or more.

Sensitivity to price increase, in percentage and dollars:

Among customers of all income groups consuming 0–1,095 m³ per year, the average increase that would be considered unacceptable is \$47.99.

Acceptable increase in \$		Unacceptable increase in \$	
Increase	Percentage	Increase	Percentage
\$0–20	60.1%	\$0–20	38.1%
\$21–100	11.0%	\$21–100	21.1%
Over \$100	0.9%	Over \$100	7.8%
DK/NA	27.5%	DK/NA	33.0%

²⁹ Using the Statistics Canada definition of low-income household. The low-income threshold corresponds to 50% of the national median income, weighted according to the number of household members and the level of urbanization.

Among low-income customers consuming 0–1,095 m³ per year, the average increase that would be considered unacceptable is \$40.52.

Acceptable increase in \$		Unacceptable increase in \$	
Increase	Percentage	Increase	Percentage
\$0–20	63.9%	\$0–20	41.7%
\$21–100	8.3%	\$21–100	11.1%
Over \$100	0.0%	Over \$100	11.1%
Didn't know/answer	27.8%	Didn't know/answer	36.1%

These results should be put in perspective by further analyzing them with respect to needs, appliance type and, most important, customers' ability to pay. It is important to keep in mind the considerable gap between a customer's perception and intent to switch from natural gas to another energy source.

Thus, in addition to the fact that low-income households make up a higher proportion of customers consuming up to 1,095 m³, it appears that the proposed average rate increase for these customers would be considered unacceptable. In the case of low-income households, which devote a large proportion of their budgets to energy, this increase could constitute a major irritant that must be taken into consideration. In the case of condo owners (23% of lowest-tier customers surveyed), who mainly use natural gas for peripheral appliances, this increase would have less impact on their budget and should not be sufficient to provoke a wave of fuel switching to other energy sources. This statement is further confirmed by the mean annual income of condo owners of \$59,699, well above the average for the sample.

In addition, we believe that it is important to quantify more accurately the impact of the increase in the basic charges on desertion by customers in this usage tier. We have built behavioral predictions based on sensitivity to increases in the annual bill and estimated a likely annual desertion of 621 customers consuming 0–1,095 m³.

Despite these negative impacts, Gaz Métro's medium-term objective of developing the peripheral appliance market and enhancing its profitability for the benefit of all must be kept in mind. In this context, Gaz Métro finds the risk to be acceptable for the current market, since it will ultimately be offset by increased development of new market niches,

as demonstrated in the synoptic table in section 9.2. Still, an increase in the basic charges may be unacceptable to low-income customers and deserves to be specifically taken into consideration.

8.1.5.2 Issue 2: Need to implement a program to reduce the impact of the rate proposal for low-income customers

Gaz Métro's recommendation to eliminate the negative impact of this increase on low-income customers is to offer a credit on their bill so that their total expenditure for this item would be zero. A single rate would remain applicable to all tariff D₁ customers, but specific terms would apply to low-income customers, who would be given a monthly credit corresponding to the increase in the basic charge necessary for market development.

This type of practice would give rise to a self-declaration program for low-income customers similar to those currently used by most North American energy distributors. A list of websites of distributors offering these types of programs is given in an appendix with details of how the programs work. For example, Green Mountain Power, a Vermont electricity distributor recently acquired by Gaz Métro, implemented an affordability program in which eligible families get a 10% discount on their bill. A community action agency qualifies families at no charge and relays the information to the distributor. Another electricity distributor, Maine's Bangor Hydro, has a special low-income rate for which 6000 customers were eligible last year.³⁰ Third example: Bay State Gas, a New England natural gas distributor, offers as much as a 20% rate reduction to low-income customers. Customers must register with a local community action agency in order to qualify.³¹ Besides these concrete examples, a recent study by Chartwell³² indicates the importance for distributors of partnering with local agencies in the identification of low-income customers. The relevant sections of this study are also included in an appendix to this report.

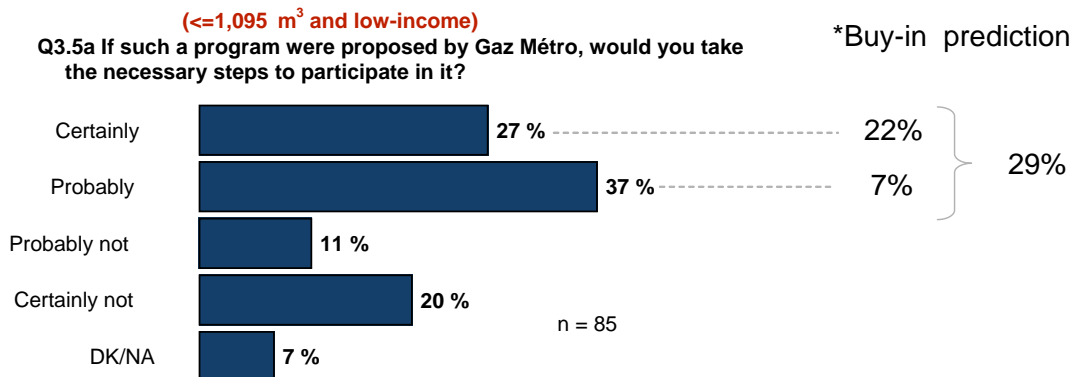
³⁰ Reference: Bangor Hydro website, www.bhe.com/residential/low_income.

³¹ Reference: Bay State Gas website, www.baystategas.com/forhome/assist.htm.

³² Chartwell, *Low-Income Energy Efficiency Programs*, ch. 2, February 2007.

As a private energy distributor, Gaz Métro has no access to information with which to identify those of its residential customers who might be considered low-income households. The application of this recommendation would involve identification of customer incomes. Gaz Métro believes that this qualification work could be done by the local ACEFs or any similar organization. Gaz Métro would inform all residential customers in the 0–1,095 m³ tier of the procedure for availing themselves of this credit. Customers would be referred to certain community groups with which Gaz Métro would sign an agreement so that they could present proof of income. The organizations would then provide Gaz Métro with a list of customers wishing to take advantage of the credit. This list would be modified on a fixed date once a year to allow for proper planning of rate impacts. As a selection criterion, Gaz Métro could use the Statistics Canada definition of low-income household or the one used by the Agence de l'efficacité énergétique (AEE) du Québec for its Éconologis program. Moreover, in the deployment of the AEE's comprehensive energy efficiency plan, special attention will be paid to the lowest-income households and Gaz Métro could partner with any initiative seeking to facilitate the identification of these households.

In our survey, we evaluated the potential rate of participation in such an initiative. In total, 64% of low-income customers in the lowest usage tier would certainly or probably take the necessary steps to participate in the program, with a buy-in prediction of 29%.



37,905 Gaz Métro customers consume less than 1,095 m³ per year and, according to our study, 18.9% (7,164) are considered low-income. Of these, 29% (2,078) would participate in the initiative by applying for a credit on their bill. The total annual cost to Gaz Métro would be approximately \$163,000.

Gaz Métro believes that this initiative constitutes an equitable approach. It would allow the lowest-income customers to avoid an increase in their annual bill due to the increase in the basic charges. Moreover, Gaz Métro proposes to implement this new approach on 1 October 2008 in conjunction with the basic charge increase, thus making it possible to devise the method for identifying low-income households in partnership with the community organizations.

Gaz Métro therefore asks the Régie to approve the principle of credit on the bills of low-income households so that they are not affected by the increase in the basic charges. The methodology for applying the low-income customer identification program will be specified in the 2009 rate case.

8.1.5.3 *Issue 3: Increase in the number of temporary disconnections*

Gaz Métro estimates that there are currently more than 2000 customers who temporarily disconnect their meters each year. This lets them save on their gas bills by not paying the basic charges during the period when natural gas is not needed. Since the current charge for reconnecting a residential meter is \$50, customers who disconnect their meter for

more than 200 days break even at the current basic charge of 25 ¢. The amount currently billed by Gaz Métro to reconnect the service does not cover its costs and, furthermore, deprives it of revenue during the inactive period.

Thus, the proposal to increase the basic charge from 25 to a minimum of 46 ¢ per day may have the effect of increasing the number of customers who see an advantage in temporarily shutting down their meters, since the potential savings increase with increasing basic charge.

Gaz Métro's recommendation is therefore to bill customers an amount that reflects the real reconnection costs. This solution is presented in more detail in section 8.5.

8.1.6 Desired implementation date

The ideal for Gaz Métro would be to implement the new basic charges on 1 October 2007 so as to implement all the tools necessary to maintain the target rate of return. However, since this implies a significant impact on low-income customers; these customers will have to be given a reasonable time in which to identify themselves to local agencies; the special treatment given to these customers will have to be integrated into Gaz Métro's administrative and data processing procedures, and the Régie's decision in this case is not expected until September 2007, Gaz Métro proposes to implement the new basic charges on 1 October 2008. In the event of a favourable decision in September 2007, the work necessary to implement the solution could be done during 2007–08 so that the new changes would be ready for rollout on 1 October 2008. The cost of the computer modifications necessary to implement the new basic charges is estimated at \$75,000.

8.1.7 Amendment to tariff text

To reflect the above-mentioned changes in the tariff, Gaz Métro proposes to amend article 2.1 of the distribution service for tariffs D_1 and D_M as follows:

“2.1 Basic Charge

For each m^3 of volume withdrawn indicated at the levels below multiplied by the number of days in the billing period, the per-meter prices are as follows:

<i>Volume withdrawn</i> <i>m³/day</i>					<i>Price</i> <i>¢/meter/day</i>	
<i>first</i>	<i>30</i>	<i>from</i>	<i>0</i>	<i>to</i>	<i>30</i>	<i>46,501</i>
<i>next</i>	<i>70</i>	<i>from</i>	<i>30</i>	<i>to</i>	<i>100</i>	<i>94,746</i>
<i>next</i>	<i>200</i>	<i>from</i>	<i>100</i>	<i>to</i>	<i>300</i>	<i>113,011</i>
<i>next</i>	<i>700</i>	<i>from</i>	<i>300</i>	<i>to</i>	<i>1,000</i>	<i>119,263</i>
<i>next</i>	<i>2 000</i>	<i>from</i>	<i>1,000</i>	<i>to</i>	<i>3 000</i>	<i>156,427</i>
<i>next</i>	<i>7 000</i>	<i>from</i>	<i>3 000</i>	<i>to</i>	<i>10 000</i>	<i>206,121</i>
<i>m³ exceeding 10 000</i>			<i>10 000</i>	<i>and over</i>		<i>512,716</i>

Low-income customers, as defined in section 9, Definitions, will be given a credit of 21.501 ¢/meter/day multiplied by the number of days in the billing period."

8.2 Implementation of a minimal automatic contribution for new residential customers

According to the simulations performed, attaining the target rate of return for 2008 via a customer contribution would result in an amount of \$340 billed to new customers. The customer consultation showed that a \$500 increase in acquisition costs would potentially cause an erosion of up to 10% in market share. With an amount of \$340, the impact would be much lower, and if customers were allowed to amortize the contribution over several months, the effect on market share would be marginal. The new customer contribution could be higher in certain exceptional cases where connecting the customer required an extension of the natural gas distribution network.

Before presenting the details of the proposed solutions, it is important to provide some clarification about this contribution to be paid by new residential customers:

- New residential customers affected by this contribution are single-family dwellings, duplexes, triplexes, and condominiums.
- The contribution is associated with a new service address (with meter and account number). For example, for a ten-condominium building with one connection and one meter per unit, ten contributions would be charged. For a similar building with only one meter attached to a central heating system, only one contribution would be charged.

Gaz Métro is sensitive to the conclusions of the customer consultation, which confirmed that too high a contribution could bar new customers from acquiring natural gas, since the various expenses associated with buying property are already substantial.

Certain solutions could be implemented to reduce the impact of the initial contribution.

8.2.1 Amortization

An attractive option for new customers might be to allow them to pay the contribution in installments. This, of course, would represent a shortfall for Gaz Métro equivalent to the difference between the present and future value of the installments. For fairness to existing customers as well as new customers who decide not to avail themselves of this option, the installments would have to cover this financing cost. In all cases, in order to meet the demand for stability emerging from the customer survey and Gaz Métro's need for ease of application, the monthly installments would remain stable despite a financing cost that would vary from year to year.

However, the implementation of an amortization system of this kind would require major modifications to the computerized billing systems as well as additional management expenses. To simplify the application of this option and reduce the administrative and computer-related expenses associated with implementing and managing a great many amortization schemes for different financing costs, it would be preferable to adopt a simplified scheme. In this case, the contribution would be payable either as a lump sum on the first bill or in 24 equal monthly installments, without regard to the financing cost. Customers who choose the amortization option could pay off the whole of their contribution at any time. In addition, limiting the amortization period to 24 months minimizes the shortfall associated with the financing cost, making the impact on profitability negligible.

The contribution charged to customers would be directly applied against construction costs. If the ownership of the home changes or the person responsible for paying the contribution moves, the balance of the contribution would be payable in full on the last bill.

8.2.2 Postponement of target rate of return attainment

Another possibility is to put off attainment of the target rate of return to 2009. In this case, with target rate of return of nearly 9.4% for 2008 and 9.6% for 2009, the necessary initial contribution would fall from \$340 to \$300 in 2008 and would be the same for new

customers in 2009, all other things being equal, since the other internal measures³³ could offset this decrease and even make it possible to attain the target rate of return in 2009. The outcome would be a better balance between the contribution charged to new customers in 2008 versus 2009.

Nevertheless, there is a risk that the contribution required for 2009 might be different than the one estimated today, since it is difficult to accurately predict the combined effect of the internal measures to be implemented and any market fluctuations.

In view of the foregoing, Gaz Métro proposes:

- that, as of 1 October 2007, an automatic contribution be charged to new residential customers (for new service address) who sign agreements with Gaz Métro;
- that the contribution may exceed the automatic contribution in cases where the connection of a new customer requires an extension of the natural gas distribution network;
- that the following options be offered to new customers for payment of an automatic contribution:
 - lump-sum payment of contribution on first bill;
 - amortization of contribution with payment of 24 monthly installments and option to pay off the outstanding balance in full at any time;
- that the amount of the automatic contribution be set at \$300 for fiscal years 2008 and 2009 so as to attain rates of return of 9.4% in 2008 and 9.6% in 2009;
- that where the customer chooses the 24-month amortization option, the monthly installment would be \$12.50;

³³ Construction cost reduction plan and calibration of financial aid.

- that for subsequent years, the contribution would be adjusted annually, if necessary, in order to maintain the target rate of return at the level determined in accordance with Gaz Métro's strategic directions.

Although the changes necessary to the computer system in order to implement the automatic contribution for new residential customers are less significant than if a discounting (present value determination) procedure had been used, minor modifications must still be made. The cost of these modifications is estimated at \$70,000.

The combined effect of charging new residential customers an automatic contribution and implementing internal profitability improvement measures will be to allow Gaz Métro to attain the target rate of return by the end of 2009 without impairing its development and while taking into account the comments received from the working group participants.

8.2.3 Amendment to tariff text

To reflect the above-mentioned changes in the tariff text, Gaz Métro proposes to amend article 4.3 of the general provisions as follows:

"4.3 ~~Economically Unjustifiable Investments~~ Customer's Financial Contribution

Where a residential customer requests that his service address be connected to the natural gas distribution network and this connection requires no extension of the network, the distributor will charge a contribution of \$300 payable in one lump sum or in 24 monthly installments.

In any other case, when the revenues generated from a customer for whom the service address is newly connected to the natural gas distribution network do not allow the distributor to benefit from profitable investments in accordance with the conditions approved by the Régie de l'énergie, the distributor may request a contribution from the customer, payable before work begins or recovered over the contract term, and, if applicable, a commitment for minimal usage. In the case of disagreement, the customer may have recourse to the Régie de l'énergie."

8.3 Impact of proposed changes on development of peripheral appliances and new technologies market

8.3.1 Peripheral appliances market

We saw in section 4.2.1 that this is a highly promising market but that its development is not particularly profitable at present. While the overall profitability of the fuel switching market was 10.76% in 2005–06, the profitability of fuel switching for peripheral appliances was much lower, with an IRR of 5.08%, since the average volumes are considerably lower for similar acquisition costs. The table below presents the impact of the combined application of the new basic charge and the customer contribution on the profitability of peripheral appliances market development.

Profitability of fuel switching for peripheral appliances, 2005–06		
	IRR	BEP
Initial rate of return	5.08%	>40
Rate of return with customer contribution (\$300)	6.80%	28.44
Rate of return with customer contribution and 46 ¢/day basic charge	9.32%	4.94

These results show that the effect of the customer contribution alone is not sufficient to achieve the target rate of return with this type of fuel switching. When the basic charge is raised from 25 to 46 ¢ per day, profitability rises by 2.97% to reach an IRR of 9.32%. Since the average annual usage of new customers converting their peripheral appliances is 646 m³, the effect of the increase in the basic charges on profitability is very significant.

It was previously mentioned that natural gas is in direct competition with several other energy sources for the peripheral appliances market. Consider the market for pool heaters. Based on several submissions for typical appliances, we determined that for the customer, the installation costs of a pool heater, whether the fuel is natural gas or propane, are relatively similar (\$3,000–3,500 for basic installation, including the appliance). In the case of propane, annual rental charges of about \$90 must be added. In addition, the usage costs are higher due to the advantageous competitive status of natural gas. Under these conditions, it would be to Gaz Métro's advantage to expand its range of

services for connection of this type of appliance, but the current context makes this market relatively unprofitable for the distributor. There is a great deal of uncertainty as to eventual customer behavior, hence the need to seek additional revenues through a customer contribution and a rise in the basic charge.

The peripheral appliances market is also closely tied to condominiums. Take, for example, a 12-condo building in which the developer chooses to install a gas fireplace in each unit. Currently, such a project, if situated on the Gaz Métro distribution network, would generate a 5.54% rate of return. With the \$300 per-customer contribution, the return would be 10.26%. With an increase in the basic charge from 25 to 46 ¢ per meter and per day, the return would be 18.75% — nearly double. This rate of return may seem too high vis-à-vis the desired 9.5% return, but the development of the residential market must be considered as a whole, comprising less profitable projects requiring major distribution network extensions that must be cross-subsidized by more profitable projects, as in the preceding example. This balance is very important and ensures the maintenance of the target rate of return.

8.3.2 New technologies market

Geothermal energy market

Consider the example of a new residential customer who chooses geothermal energy for space heating and keeps an auxiliary natural gas appliance for the coldest periods of the year. Without geothermal energy, this customer might have installed a 75 000 Btu/h hot air generator consuming 2,506 m³ over 1,200 annual hours of use. The choice of geothermal energy typically reduces natural gas usage by 60%; in this case, from 2,506 m³ to about 1,000 m³ per year.

Typical 60% decrease with geothermal

Power	Volume	"D"	IRR	BEP
75 000 BTU	1 000	33.8	6.46%	31.6

With \$300 customer contribution

Power	Volume	"D"	IRR	BEP
75 000 BTU	1 000	35.2	7.91%	15.66

With \$300 customer contribution and basic charge of 46.501¢/meter/day

Power	Volume	"D"	IRR	BEP
75 000 BTU	1 000	40.0	9.47%	3.16

Without geothermal energy, this new customer would have generated an IRR of 8.38%.³⁴ With the geothermal option, the above table shows that usage falls to 1,000 m³ and the IRR to only 6.46%. The effect of the \$300 contribution is to increase the return to 7.91%. The impact of the basic charge increase generates an extra 1.56% rise in the IRR, which rises to 9.47%. This table clearly illustrates the combined effect of the increase in the basic charge and the customer contribution on Gaz Métro's rate of return and distribution revenues.

Other recent technologies

An interesting example of a new technology is the installation of a solar hot water heater. A conventional natural gas hot water heater consumes about 650 m³ annually, representing distribution revenues of \$251. Customers who replaced their hot water heater with a hybrid model would see their usage drop from 650 m³ to 250 m³ and their distribution bill drop from \$251 to \$153, a savings of \$98 or 39%. With a basic charge of 46 ¢ per day, distribution revenues would decline but to a lesser extent, dropping from \$322 to \$232 annually, or 28%.

³⁴ This rate of return assumes financial aid of \$1500 to the customer. No financial aid is offered to customers who choose geothermal energy.

In this example, higher basic charges offset over one-fourth of the revenue decrease while allowing for the implementation of a new technology within the perspective of sustainable development.

8.4 Standardization of connection service

As we saw in the benchmarking study of other gas distributors, Gaz Métro does not systematically bill its customers for services requested over and above the standard connection service. This business practice has a direct impact on the profitability of residential development since it increases the average cost of connection to the distribution network.

In the following paragraphs, Gaz Métro proposes solutions to standardize the connection service for new residential customers.

8.4.1 Meter location

Gaz Métro wishes to set a “preferential zone” for residential building connection entries within 3 m from the front corner of the building. Any connection within this preferential zone would be considered standard. Anything outside this zone would generate an average cost to Gaz Métro of \$50 per linear metre, based on an analysis of the contracts in effect with the contractors. Thus, for any meter installed outside of this zone, charges of \$50 per linear metre would be billed. For example, a customer wishing to have the meter installed at the back of his home would be subjected to this new condition. The revenues generated would be applied against construction costs. This new procedure would be applicable for both fuel switching and new construction.

8.4.2 Connection waiting period

Gaz Métro also wishes to set a standard waiting period for residential connections of 30 working days. Any request for expedited service would be subject to a \$500 “premium” negotiated with the general contractors who perform the connections. This “expedited service premium” would be billed to customers and applicable to any request for service delivery within under 30 days. The revenues generated would be applied against construction costs. The connection waiting period represents the period between

acceptance of the application for service and commissioning of natural gas service on the customer's premises.

8.5 Modification of reconnection charges

In section 8.1.5 we examined the impact of an increase in the basic charge on the phenomenon of temporary meter disconnection. Gaz Métro mentioned its desire to bill customers for the real costs of temporary disconnection. The following analysis presents the real costs of this service to the distributor.

An analysis of 3,755 work orders related to disconnecting and reconnecting meters for 2005–06 indicated a total of 2,796 hours of work performed at a total cost of \$429,132. The total costs are determined as the average hourly costs in each region multiplied by the number of hours, including travel time. A large majority of this activity (67.6%) takes place on the Island of Montreal. Even though not all the work performed during these visits was related to temporary disconnection and reconnection for the summer, the costs analyzed in the sample are representative nonetheless.

Average cost of meter disconnection/reconnection (residential)

Region	Average cost (\$)	Total cost (\$)	Reconnection		Disconnection		Total cost (\$)		Average cost (\$)	
			Number	Hours	Number	Hours	Reconnection	Disconnection	Reconnection	Disconnection
Laurentides	97.76	145.46	365	308.8	244	141.0	44,910.78	20,505.50	123.04	84.04
Montréal Est	114.78	162.48	826	780.7	610	333.4	126,846.51	54,175.71	153.57	88.81
Montréal Ouest	100.86	148.56	689	607.8	415	196.4	90,299.22	29,178.67	131.06	70.31
Montréal	93.30	141.00	184	168.1	129	65.5	23,695.05	9,238.32	128.78	71.61
Abitibi-Témiscamingue	97.76	145.46	31	27.0	41	26.7	3,927.42	3,879.42	126.69	94.62
Mauricie	101.56	149.26	37	33.0	2	1.9	4,930.06	286.58	133.24	143.29
Estrie	124.35	172.05	60	48.7	68	23.8	8,373.67	4,089.63	139.56	60.14
Québec	101.69	149.39	19	12.9	19	10.9	1,928.62	1,625.36	101.51	85.55
Saguenay-Lac-St-Jean	84.00	131.70	8	4.6	8	4.8	604.50	637.43	75.56	79.68
TOTAL			2219	1536				Total average cost	137.68	80.48
									218.16	

Adding together the weighted average of the disconnection and reconnection costs yields the unit cost to the distributor for a complete cycle: \$218.16. Therefore, Gaz Métro wishes to set reconnection charges, as of 1 October 2007, of \$218 for residential customers. As is currently the case, these charges would be applicable to temporary meter disconnections and to reconnection following an interruption.

If an adjustment is made to reconnection charges for the residential market, the same exercise should, for the sake of rigor, be applied to the business market. The table below presents an

analysis of 1,180 work orders involving meter disconnection or reconnection for 2005–06. The work took place over 1,143 working hours for a total cost of \$173,803.

Average cost of meter disconnection/reconnection (business)

Region	Average cost (\$)	Total cost (\$)	Reconnection		Disconnection		Total cost (\$)		Average cost (\$)	
			Number	Hours	Number	Hours	Reconnection	Disconnection	Reconnection	Disconnection
Laurentides	97.76	145.46	104	125.6	109	61.19	18,274.14	8900.70	175.71	81.66
Montréal Est	114.78	162.48	188	288.6	156	98.07	46,890.10	15,934.41	249.42	102.14
Montréal Ouest	100.86	148.56	117	197.5	82	39.79	29,334.66	5911.20	250.72	72.09
Montréal Est	93.30	141.00	124	147.6	99	50.35	20,810.19	7099.35	167.82	71.71
Abitibi-Témiscamingue	97.76	145.46	11	17.6	10	8.25	2557.19	1200.05	232.47	120.00
Mauricie	101.56	149.26	15	16.7	17	4.2	2492.64	626.89	166.18	36.88
Estrie	124.35	172.05	34	24.0	41	15.34	4125.76	2633.25	121.35	64.37
Québec	101.69	149.39	21	19.9	29	14.74	2977.34	2202.01	141.78	75.93
Saguenay-Lac-St-Jean	84.00	131.70	13	9.7	10	4.17	1277.49	549.19	98.27	54.92
TOTAL			627		553			Total average cost	205.33	81.49
									286.81	

Adding together the weighted average of the disconnection and reconnection costs yields the unit cost to the distributor for a complete cycle: \$286.81. Therefore, Gaz Métro wishes to set reconnection charges, as of 1 October 2007, of \$287 for business and institutional customers.

Since it is possible that customers are planning to disconnect their meters temporarily in the summer of 2007 without being aware of these proposed changes, a transitory measure is proposed for 2007–08 whereby reconnection charges will remain the same for customers temporarily disconnecting their meter by 30 September 2007.

9 CONCLUSION

The importance of the residential market in Gaz Métro's development and growth is becoming increasingly obvious. The energy context is changing very rapidly and the source of distribution revenues must reflect this fact in the years to come.

On the strength of more accurate data on Gaz Métro's real residential development profitability and despite ongoing internal efforts to reduce construction and sales costs, the current situation necessitates immediate action to take full advantage of business opportunities in the Québec market.

These business opportunities are at the root of our need for rate-based and complementary instruments which, we are convinced, will favour the attainment of the following goals:

- increasing the target rate of return on residential development;
- maintaining the target rate of return;
- developing the peripheral appliances market;
- integrating new technologies.

9.1 Summary of proposals for residential market development

To achieve its residential market development goals, Gaz Métro is asking the Régie to accept the proposals presented in the table on the following page along with their respective effective dates.

If the Régie were to reject Gaz Métro's proposals, the impact on residential market development would be greatly compromised. Gaz Métro would have to abandon all projects that do not produce the desired rate of return, which would mean, for next year, a reduction in new sales on the order of 20% for new construction and 30% for fuel switching. This lag would increase over the coming years due to the consequences of unrealized investments, since a sizable proportion of residential development comes from new construction projects carried out in phases over two or three years. Gaz Métro would experience stagnation or even a decline in its

penetration of this market, and its access to the peripheral appliances niche would be seriously compromised.

Summary of Gaz Métro's requests to the Régie de l'énergie	Effective date
Authorize increases in basic charges as per proposal presented in 8.1	1 October 2008
Authorize implementation of an automatic minimal contribution for new residential customers as per proposal presented in 8.2	1 October 2007
Authorize standardization of connection service as per proposal presented in 8.4	1 October 2007
Authorize changes to reconnection charges as per proposal presented in 8.5	1 October 2007

9.2 Residential market development scenarios

To better illustrate the importance of approval of all the proposals presented in this report, the table below summarizes several possible annual scenarios for the number of new residential customers.

Scenarios at 9.5% IRR	Traditional sales	Additional peripheral sales	Desertion of residential customers	Net growth
Optimistic	7 038	453	3 278	4 213
Realistic	6 103	261	3 433	2 931
Pessimistic	5 579	119	3 744	1 954
Status quo	4 951	0	3 123	1 828

The status quo scenario includes, for the 2007–08 sales objectives, the previously discussed 20% reduction in new construction and 30% reduction in fuel switching. The assumptions used for the optimistic, realistic, and pessimistic scenarios are based on the threshold, target, and ideal sales objectives for 2007–08, incorporating a 4% erosion effect following the implementation of the \$300 contribution. Assuming that the Régie approves all of the proposals, these three scenarios provide for a marked acceleration of sales related to peripheral appliances. The numbers of lost customers are higher than with the status quo in view of the impact of the increase in the basic charges for customers consuming 0–1,095m³. In all cases, net growth is higher than if the status quo is maintained.

Over a 15-year horizon, the pessimistic scenario will have a downward rate effect of \$2,852,899; at the other extreme, the optimistic scenario will have an upward rate effect of \$3,370,577.

These scenarios serve to illustrate the combined effect of the proposals presented in this report, even though Gaz Métro is asking the Régie to increase the basic charges only as of 1 October 2008. The year 2007–08 was used to build these scenarios since Gaz Métro already has in hand all the parameters necessary to develop the calculation assumptions.

10. ANNEXES

10.1 Multi Réso–Senegis reports

10.2 Internet sites with programs for low income households

10.3 Chartwell, low income programs

GAZ MÉTRO

**Ratemaking Practices of North American Natural Gas Distributors
Commercial Market**

**Preliminary Report
April 20, 2007**

multi réso
senergis

- This research was carried out by the research firm **Multi Réso – Senergis**.
- For any questions on methodology or results, Please contact :

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Table of Contents

1.	Introduction	4
2.	Methodology	5
3.	Findings on basic monthly charges	6

1. Introduction

- **Gaz Métro gave Multi Réso – Senergis the mandate to carry out exploratory research on the ratemaking practices of natural gas distributors across North America for the commercial sector.**
- The objective was to compare basic charges (« base service ») and to identify if there are:
 - distributors whose basic charges vary monthly for a given customer (rather than being fixed);
 - parameters according to which basic charges vary, if applicable.
- In total, we have recorded **78 basic charges** billed to customers by natural gas distributors across Canada and the United States.
- These records correspond to data for **55 different distributors**, including 14 in Canada.
- In order to compile this data, Multi Réso – Senergis has consulted the Internet sites of randomly selected natural gas distributors.
- The present document includes the collected amounts and the main observations that we have drawn from them.

2. Methodology

- **To gather the basic charges we have proceeded in the following way:**
 - Distributors were identified from Internet searches and via several lists. The business sample was previously established (in March 2007) during a study on residential rates;
 - There was no selection criteria; every distributor that was identified was selected;
 - The identification of basic charges was carried out via each of the distributors' Internet sites;
 - No business that was identified was subsequently removed from the list for any given reason;
 - Most distributors have several basic charges, varying in accordance with the sector served, the customer type, etc.; all fixed amounts were then noted;
 - Finally, prices were presented in Canadian currency¹.

- In total, 78 basic charges were identified (excluding Gaz Métro's).

¹ Rate: \$1 US = \$1.15822 CAN (March 29, 2007).

3. Findings on basic monthly charges

FIXED BASIC MONTHLY CHARGES

- The great majority of businesses analysed across Canada and the United States (about 90%) proposed fixed monthly basic charges. In such cases:
 - The business used was first classified in a consumption category according to one or several of the following criteria:
 - . annual consumption (ex: #9 Manitoba Hydro)
 - . highest daily consumption (ex: #19: Aquila)
 - . type of meter (ex: #15 Ameren)
 - . type of usage (ex: # 60 New England Gas Company)
 - . type of customer (ex: # 50 Greenville Utilities)
 - . type of service (ex: # 64 Northern States Power Company)
 - The fixed monthly or daily charge for this category is then billed to the customer each month.

3. Findings on basic monthly charges – continued

FIXED BASIC MONTHLY CHARGES

- The majority of businesses that propose fixed basic monthly charges, classify their customers according to annual consumption.
- Certain distributors classify their customers according to daily consumption (Ameren ex : #16) or according to the highest daily consumption (Pacific Gas and Electric Company ex: # 73, Aquila ex : 19 and Midamerican Energy ex : 56).

These structures could include a variation in the annual monthly rate if the customer's consumption borders on two categories with different rates.

However, in practice², rate calculations are based on the customer's annual historical consumption (the day with the highest consumption throughout the year). When a daily consumption tier is reached, the fixed daily rate is billed to the customer that falls within that tier. (The rate of a lower tier is not billed even if consumption for a given month is inferior).

This rate structure does not translate into a variable monthly rate.

² Brief telephone interviews with Ameren and Pacific Gas and Electric Company.

3. Findings on basic monthly charges – continued

VARIABLE BASIC MONTHLY CHARGES

- **A minority of businesses have basic monthly charges that are variable rather than fixed.**
- We have identified 4 distributors, comprised of 2 in Canada and 2 in the United States, that propose variable basic monthly charges, for a given customer.
- The cases identified are grouped in 3 categories:
 - The basic monthly charge is calculated according to Gj or m³ used. The monthly charge is therefore variable. (ex: #6: Enbridge Gas Nouveau-Brunswick; #7: Gazifère).
 - The basic charge is made up of a fixed portion and a variable portion (the “DDDC factor” – dedicated designed day capacity-which varies monthly). Therefore, the customer’s bill varies monthly according to variations in the “DDDC factor”. (ex: #20: Atlanta Gas)
 - The customer is classified in a category according to annual consumption. However, the monthly charge is based on the fuel’s market price. The customer’s bill therefore varies monthly according to variations in the market price (ex : # 83 : South Jersey Gas).

GAZ MÉTRO

**Position of North American Natural Gas Distributors Regarding Fixed Charges
Residential Market**

**Final Report
April 5, 2007**

multi réso
senergis

- This research was carried out by the research firm **Multi Réso – Senergis**.
- For any questions on methodology or results, Please contact:

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Table of Contents

1.	Introduction	1
2.	Methodology	2
3.	Findings	3

Annex: List of distributors contacted

1. Introduction

- **Gaz Métro gave Multi Réso – Senergis the mandate to carry out exploratory research on the ratemaking practices of natural gas distributors across North America for the residential sector. The objective of this mandate was to explore the position and the intentions of natural gas distributors regarding the fixed charges that are billed to customers, regardless of their consumption.**
- In total, we have questioned **15 staff members** that are responsible for ratemaking among natural gas distributors in Canada and the United States.
- The present document constitutes a summary of the information collected.

2. Methodology

- **To gather the desired information, we have proceeded in the following way:**
 - Natural gas distributors that were contacted came from a list of businesses that we had established for a previous research;
 - There was no selection criteria for distributors; they were randomly selected;
 - The distributors contacted had various profiles in terms of size, region, status, etc;
 - The people interviewed occupied different posts in the business (vice president, director, advisor, manager, etc.);
 - Telephone interviews lasted on average between 10 and 20 minutes.

3. Findings

MAIN FINDINGS

- Almost all natural gas distributors seek to increase their subscribers' (monthly) "fixed charges" .
- An increase in fixed charges everywhere is considered necessary given the decrease in consumption among customers.
- The increase is viewed as an inevitable priority.
- Periods during which fixed charges were not revised are quite variable in duration (number of years), but often range between 5 and 10 years.
- Recent increases (in 2006-2007) generally range between 30% and 40% (sometimes more, sometimes less).
- There is a desire to review fixed charges over shorter periods (3 to 6 years).
- Everywhere, there is a certain opposition from customer groups and organizations, regarding the steps taken to increase charges, however the degree is variable (weak to strong opposition).
- Environmental groups are less critical than consumer-based groups.
- Achieving rate increases through regulatory agencies is very difficult almost everywhere.

The pages that follow summarize the opinions, suggestions and comments gathered.

3. Findings – continued

CONTEXT

- Decrease in consumption among customers.
 - Warmer winters
 - Concern for energy savings among customers
 - More efficient equipment and systems, improved insulation for housing, etc.
- Increase in distributors' operation costs.
 - Labour, suppliers, etc.
- Businesses with high fixed costs.
 - Higher proportion to other types of businesses

OBJECTIVES

- Increasing fixed charges to compensate for revenue losses attributable to a decrease in consumption.
- Obtaining a “significant increase” of fixed charges.

STRATEGY

- A single approach: quantitative and economic demonstration of the cause.
- Energy efficiency and environmental arguments are given increasing importance by regulatory agencies.
- Discussing and negotiating with the parties prior to hearings (groups and associations), etc.
- Using “strong and irrefutable” arguments

3. Findings – continued

ARGUMENTS

Increase

- Requesting a little less than the “ideal increase” is less risky for the distributor.
- Negotiating an increase over a few years (3%/year during 5 years)
- Demonstrating that the requested fixed charge is inferior to the industry’s average.

Profitability

- Stressing that a *reasonable and adequate profitability* in the industry is necessary for the business to:
 - Ensure the reliability of supply and a high level of security
 - Maintain quality of service
 - Invest in energy efficiency
 - Ensure the long-term development of the business

Consumers

- Explaining the reasons for the requested increases via Internet sites/mailings, and comparing this increase with the increase in prices of other sectors over the same period (ex: charges for public transport passes, subscriptions to basic telephone service, etc.)
- Establishing a “dialogue” with customers. Not excluding them.
- Clearly presenting the impact on customer’s bills.

3. Findings – continued

Consumer groups

- Showing concern for and offering concrete measures to low-income consumers.
- Offering a special rate
- Getting financially involved with associations/groups that help low-income households.

Economic

- In a small market or when the customer base is limited, fixed costs/customer are necessarily higher than when a business has several thousand customers.
- If business growth is limited (population), the possibility to increase revenues is lesser than in regions with higher growth.

Environment

- Emphasizing the amounts invested by the company to sensitize/promote energy efficiency.
- Demonstrating that the more you invest/promote energy efficiency, the more the revenues associated with consumption decrease.
- Reiterating that the cost of fuel/consumption continues to send a *price signal*.

Annex

- **List of distributors contacted**

List of Distributors contacted

CANADA

Enbridge Gas
Heritage Gas
Sask Energy
Ste Anne Natural Gas
Terasen Gas
Union Gas

New Brunswick
Nova Scotia
Saskatchewan
Alberta
British Columbia
Ontario

UNITED STATES

AVISTA Utilities
Florence Utilities Gas Dept
Memphis Light Gas Water
Midwest Energy Inc.
New England Gas Company
Northern States Power Company
NSTAR Electric and Gas
Philadelphia Gas Works
Yankee Gas Service

Washington
Alabama
Tennessee
Kansas
Massachusetts
Minnesota
Massachusetts
Pennsylvania
Connecticut

GAZ MÉTRO

**Practices of North American Natural Gas Distributors Regarding Fixed Charges
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Table of Contents

1.	Introduction	1
2.	Methodology	2
3.	Findings on fixed charges	3
4.	Findings on variable charges.....	7
5.	Findings on total charges.....	8

1. Introduction

- **Gaz Métro gave Multi Réso – Senergis the mandate to carry out exploratory research on the ratemaking practices of natural gas distributors across North America for the residential sector. The objective was to identify the fixed charges that are billed to customers, regardless of their consumption.**
- In total, we have listed **over 100 fixed charge amounts** billed to customers by natural gas distributors across Canada and the United States.
- This data corresponds to those of about 70 different businesses, including 13 in Canada. (Certain companies have fixed charges that vary according to the customers or sectors served within a same province; others are present in several states and they too have very different prices from one market to the next.)
- In order to put together this list, Multi-Réso-Senergis has consulted the websites of natural gas distributors that were randomly selected.
- The present document includes the amounts collected and the main observations that we drew from them.

2. Methodology

- **To gather the fixed charges we have proceeded in the following way:**
 - Distributors were identified by means of Internet searches and several lists;
 - There was no selection criteria; every distributor that was identified was selected;
 - The identification of fixed charges was carried out via each of the distributors' Internet sites;
 - No business that was identified was subsequently removed from the list for any given reason;
 - Sometimes one single distributor had several fixed charges, that varied according to the sector served, the customer type (elderly customers, low-income customers), the time of year, etc.; all fixed amounts were noted in such cases;
 - Finally, prices were presented in Canadian currency.¹

- In total, 110 fixed monthly charges were identified (excluding Gaz Métro's).

¹ Rate: \$1 US = \$1.15822 CAN (March 29, 2007).

3. Findings on fixed charges

AMOUNTS¹

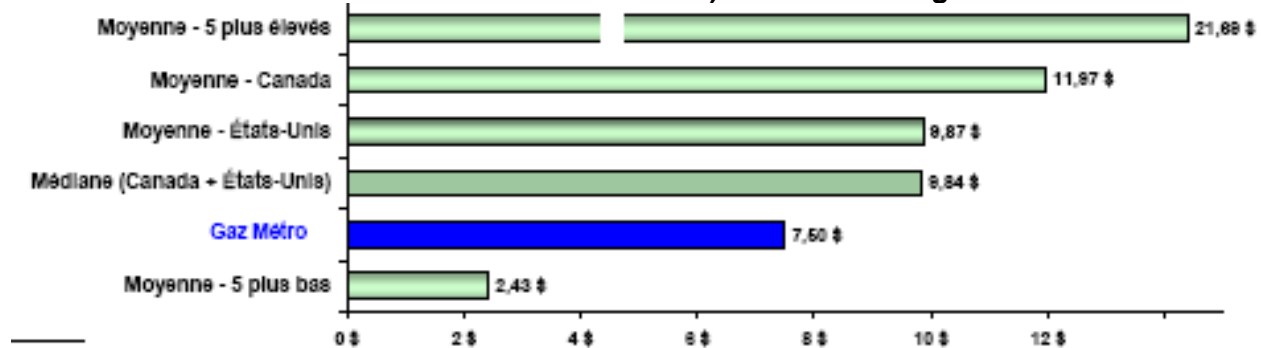
- There are significant variances in the fixed monthly charges billed to customers from one distributor to the next;
- Amounts are sometimes high (over \$12/month)
- Some distributors do not bill any monthly charge to their customers (but this is the exception)
- Average charge: \$10.23/month (based on all 110 listed and identified amounts);
- Average charge EXCLUDING extreme values: \$10.05/month (based on all identified and listed amounts MINUS the 5 highest and 5 lowest amounts);
- Median amount: \$9.84/month;
- Monthly fixed charges are higher in Canada than they are in the United States;
- There does not appear to be any direct relationship between the amount charged and the size or type of distributor (private or public);
- Among the 110 fixed monthly charges that were identified 80% exceed Gaz Métro's.

Fixed Monthly Charges- Residential Market² (\$ CAN)

(Based on 110 random natural gas distributors

in Canada and the United States)

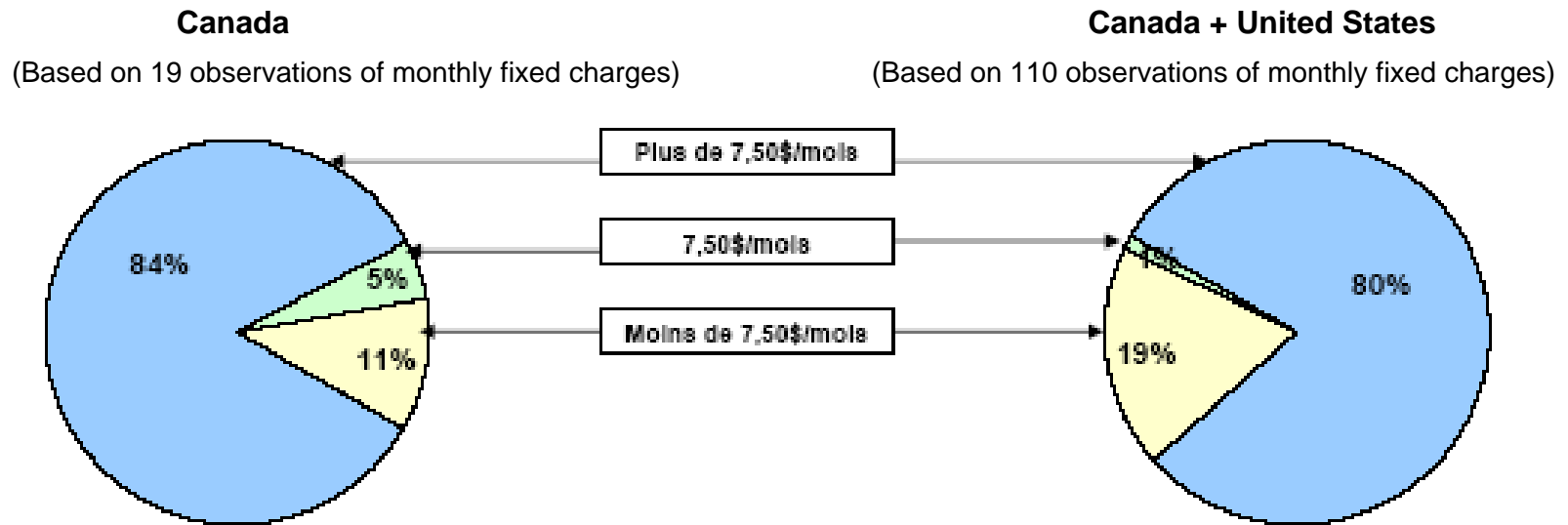
Fixed charges Observed



¹American distributors' fixed charges were converted to Canadian \$ (Rate \$1US= \$1.15822 CAN- March 29, 2007). The averages do not include Gaz Métro's fixed charge \$7.50.

3. Findings on fixed charges – continued

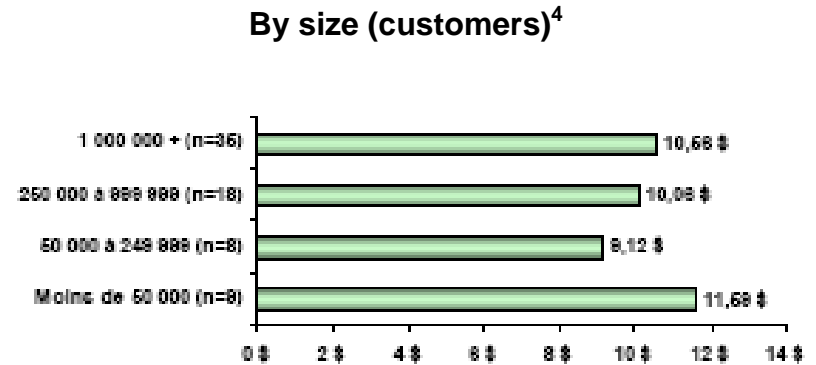
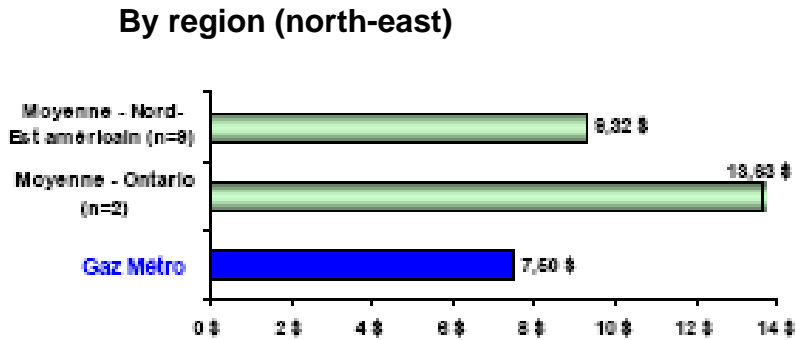
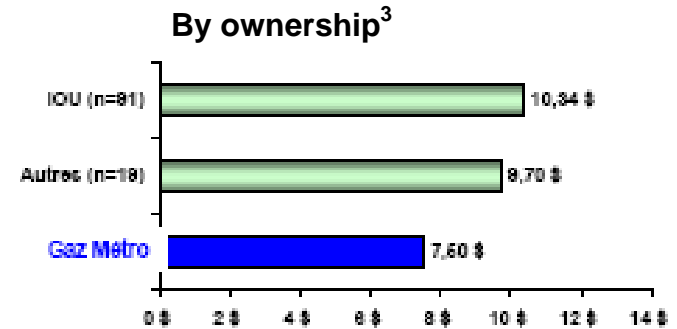
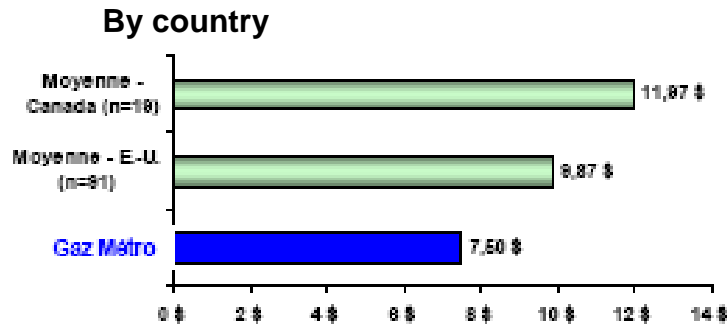
COMPARISON¹



¹American distributors' fixed charges were converted to Canadian \$ (Rate \$1 US= \$1.15822 CAN- March 29, 2007). Gaz Métro's fixed charge (\$7.50) is not included in the distribution.

3. Findings on fixed charges – continued

COMPARISON¹



¹Averages exclude Gaz Métro's fixed charges

²Vermont, Massachusetts, New York

³IOU: Investor Owned Utility; Others: Public owned utility, Coop

⁴Total number of residential and commercial customers

3. Findings on fixed charges – continued

TERM

- The *Term* used to refer to fixed monthly charges varied slightly from one business to the next:
 - *Basic Service Charge, Fixed Charge, Customer Service Charge, Service and Facility Charge...*

STRUCTURE

- The structure of fixed charges is generally the same everywhere: a fixed monthly charge.
- A minority of businesses use an amount calculated on a daily basis.
- Some businesses have two separate monthly charges:
 - *Customer Charge + Accelerated Main Replacement Program* (Duke-Ohio)
 - *Basic Service Charge + Delivery Service Charge* (Northern States Power, North Dakota)
- One business even has several fixed monthly charges (Atlanta Gas Light)
 - *Customer Charge* (\$ 10.48 CAN) + *Design Day Capacity Charge* (\$5.36) + *Meter Reading Charge* (\$ 0.82) + *Pipeline Replacement Program* (\$1.49) + *Environmental Response Costs Charge* (\$ 1.05) + ...

3. Findings on variable charges

GENERAL FINDINGS

- The billing structure for natural gas consumption is quite complex (direct cost).
- Certain distributors only charge for one item (*Commodity Charge, natural Gas Rate, etc.*).
- Other Distributors include several items in the billing of fuel (*Distribution Cost/Delivery Rate, Pipeline Capacity Rate, Environmental Charge, etc.*)
- Charges are often variable in accordance with the quantity consumed (degressive pricing).
- Energy units used for billing are variable (M3, GJ, therm, Ccf).

3. Findings on total charges

TOTAL ANNUAL CHARGES¹

- We have estimated the total charges for a household that consumes 1000 m³ of natural gas in one year on the basis of charges gathered from Canadian and American natural gas distributors (rates applicable in March 2007).
- Among the 110 identified cases, here we have considered those whose variable charges were clearly detailed, therefore 78 cases. (Fixed monthly charges are reliable data that is easy to calculate. Conversely, charges related to consumption are often complex because of the ratemaking structures).
- We have calculated what it would cost over one year for a customer who consumes 1000 m³ of natural gas, according to 78 different scenarios.
- By using the average and the median, we have a good *indication* of the market.
- On average, these customers would pay \$587 per year, of which \$118 for fixed charges (20%).

Total annual charges (supply + consumption) – scenario: 12 months, 1000 m ³	:	Fixed annual charges (based on 12 months)	+	Charges for consumption (based on 1000 m ³)	=	Total annual charges (based on 12 months)
Average: Canada + United States		\$118 (20%)		\$469 (80%)		\$587 (100%)
Median²: Canada + United States		\$118.14		\$467.29		\$580.73

¹ The charges for American distributors were converted to Canadian \$ (Rate \$1 US= \$1.15822 CAN- March 29, 2007). The averages do not include Gaz Métro's charges.

² Medians do not add up.

Internet sites with programs for low-income households

Consulted websites:

www.bhe.com

www.baystategas.com

www.oneok.com

www.duke-energy.com/ohio

www.duke-energy.com/indiana

www.mge.com

www.missourigasenergy.com

www.atlantagaslight.com

www.hydro.mb.ca

www.lacledegas.com

Chapter 2: Reaching low-income customers

Ongoing marketing is crucial to attracting the desired number of program participants. However, low-income customers are a broad group – urban and rural, young and old, homeowners and renters – with different education levels, cultures, languages and drivers. Therefore, utilities need to use a mix of strategies to reach them, from mass market and direct mail advertising to face-to-face contact.

Many organizations that reach low-income people are able to do so by offering a host of programs that bring them in the door, then educating them about energy efficiency programs.

Don't go it alone; partnering with community-based organizations a wise strategy

To give customers information about and access to utility-funded programs, many utilities have developed ally networks of community-based agencies and advocacy groups. The wide variety of organizations already serving various populations of low-income customers provides avenues for the promotion of utility programs.

Without these advocacy agencies and other partners, Entergy would not have “been able to reach out to our customers in almost every county and parish it serves,” the utility’s low-income initiatives manager Linda Barnes says. Similarly, WarmChoice wouldn’t be what it is today without community-based organizations as partners, agrees Adrian Andrews, quality assurance liaison at Columbia Gas of Ohio. Community-based organizations have been the best resource for Columbia Gas in reaching low-income customers, she asserts.

The agencies view the program as “a welcome resource because it provides concrete benefits” – preferably with a minimum of paperwork and follow-up, says LIPA program manager Maggie Ramos.

Building and maintaining relationships with community-based organizations takes hard work and dedication. Virginia Walsh, marketing coordinator for LIPA’s program, says her job consists primarily of networking. “When I first started, my focus was on meeting directly with the customers. But over the years, I’ve seen the focus shift more toward networking, so that I’m constantly interacting with the people who are in the position to refer clients to us,” she says.

Successful utilities regularly interface with organizations in their network to keep the energy efficiency programs top of mind. The array of available social programs and resources can be massive and difficult for them to keep track of, and energy efficiency programs must vie for attention. Special community events, seminars and printed material all help cement the relationship.

Regular meetings with agency personnel also provide Entergy with feedback and insight into future needs. Entergy also fuels the relationships through its Advocate Power newsletter and a fulfillment center that enables advocates to order bulk materials, such as brochures, to provide to clients.

Rather than build an entire network, some utilities work with a few strategic umbrella agencies. In its social housing effort, Hydro One, for example, has partnered with the Social Housing Services Corp. (SHSC), an independent corporation offering services to social housing communities in Ontario, because SHSC already has established communications with landlords and property managers. "Because of other services we provide, we had the contacts in each area," explains Lorelei Friesen, SHSC's manager of communications and marketing. "We knew who managed the buildings; we understood how they were funded and what the challenges were. We understood their culture."

"Social Housing Services Corp. already had delivery channels established. That was the key for us," says Giuliana Rossini, Hydro One director of strategy and conservation officer.

Direct mail and other marketing avenues

While some utilities turn over the entire program – including marketing – to community agencies or outside contractors, many others either aid in or conduct a wide variety of marketing efforts inhouse.

In one example, because all 1 million customers enrolled in SCE's rate discount program are eligible for EMA, the utility has many opportunities to market the program. "Whether it's through direct mail or increasing awareness through mass market, we can develop materials that speak directly to this audience and encourage participation in the EMA program," says Louis Lopez, project manager. Direct mail is a major marketing channel for the program, as Lopez asserts that it "is our strongest suit because our customers tend to open mail coming from Southern California Edison. We target mailings to our hot climates or areas that we think would benefit from the EMA program," specifically targeting those enrolled in the rate discount program and others who are income-qualified.

Columbia Gas of Ohio targets direct mail by Zip code to areas where community agencies aren't seeing a lot of interest in the program. "However, we have to be careful not to overburden agencies with waiting lists," Andrews adds. Sempra also relies on direct mail targeted to low-income customers based on Census data, Yolanda Whiting, director of customer assistance programs, explains. The direct mail piece is sent out several times a year in the form of a detailed letter. The utility follows up with phone calls and sets up appointments for customers who show an interest. Sempra also uses bill inserts, she says.

SCE hasn't tried bill inserts to promote low-income energy efficiency, Lopez says, but the utility has tried other media channels such as print advertising. "Earlier this year, we targeted our customers in Catalina Island with newspaper advertising ... and the results weren't as strong as we would have liked," he reveals.

LIPA has done some mass media advertising – including bill inserts and newspaper ads, but ultimately, direct marketing to customers seems to be the most effective strategy, Walsh says. In 2006, Walsh and her partner gave more than 135 presentations and workshops throughout Long Island. In addition, they presented the program at larger community events such as street fairs, senior information fairs and networking events.