D E C I S I O N

QUÉBEC **RÉGIE DE L'ÉNERGIE**

D-2016-100	R-3867-2013	June 23, 2016
	Phase 1	

PRESENT :

Laurent Pilotto
Louise Pelletier
Commissioners

Société en commandite Gaz Métro
Applicant

and

Interveners named below

Decision on the overall method of cost allocation and intervener costs - Phase 1

Submission regarding the generic file on the cost allocation and rate structure of Gaz Métro

Interveners:

Association des consommateurs industriels de gaz (ACIG);

Canadian Federation of Independent Business (Québec section) (CFIB);

Groupe de recherche appliquée en macroécologie (GRAME);

Regroupement des organismes environnementaux en énergie (ROEÉ);

Stratégies énergétiques et Association québécoise de lutte contre la pollution atmosphérique (SÉ-AQLPA);

TransCanada Energy Ltd. (TCE);

Union des consommateurs (UC);

Union des municipalités du Québec (UMQ).

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LEXICON

AID	accounting information database
AC	attributed capacity
AC/client	attributed capacity per customer
AC/km	attributed capacity per kilometer of line
CAU	capacity attributed and used
UC	used capacity
MHD	maximum hourly demand
MDD	maximum daily demand
km	kilometers
EEP	energy efficiency plan

1. INTRODUCTION

[1] On November 15, 2013, Gaz Métro (Gaz Métro or the Distributor) submitted to the Régie de l'énergie (the Régie) an application for a generic ruling on its allocation of costs and its rate structure (the Application). The Distributor requested the Régie and others to authorize the holding of public working sessions to proceed with this file.

[2] On December 6, 2013, the Régie rendered its decision D-2013-193 which authorized the holding of working sessions and established the procedure for processing applications to intervene.

[3] On January 30, 2014, the Régie rendered its decision D-2014-011 which pronounced on the recognition of interveners and the procedure to be followed in the file. It divided the examination of the file into two phases: phase 1, dealing with the overall methods of cost allocation and phase 2, dealing with the rate structure, cross-subsidization, and tariff strategy.

[4] On March 6, 2014, in its decision D-2014-038, the Régie recognized Robert D. Knecht and Paul L. Chernick as advisors on cost allocation and rates for the working sessions. It also pronounced on the budgets of interveners for their participation in the working sessions of phase 1.

[5] On July 23, 2014, Gaz Métro submitted an amended request.

[6] On August 20, 2014, the Régie rendered its decision D-2014-144 under which it ruled that Gaz Métro should present further evidence, set the schedule for the phase 1 process and provided for the payment of the costs of interveners for their participation in the working sessions which took place April 3 and 17 and May 7, 2014.

[7] Between September 16 and 30, 2014, the interveners sent their budgets for participation for phase 1.

[8] On October 3, 2014, Gaz Métro made its comments regarding the budgets for participation sent by the interveners.

[9] On October 7, 8 and 9, 2014, some of the interveners replied to the comments by Gaz Métro.

[10] On November 11, 2014, the Régie rendered its decision D-2014-193 in which it ruled on the participation budgets of the interveners for the phase 1 process and required Gaz Métro to submit its detailed databank on gas lines.

[11] On November 20, 2014, Gaz Métro submitted a re-amended application as well as further evidence.

[12] On December 19, 2014, CFIB submitted a revised budget for its participation in phase 1.

[13] On February 26, 2015, GRAME terminated its participation in phase 1 of the file. On March 27, 2015, this intervener submitted its request for payment of its costs.

[14] Phase 1 hearings took place April 13-17, 2015.

[15] During the April 13 hearings, the Régie recognized H. Edwin Overcast, Robert D. Knecht and Paul L. Chernick as expert witnesses on cost allocation and rates, as requested respectively by Gaz Métro, ACIG and, jointly, by ROEÉ and UC[1].

[16] As agreed, the participants presented their final arguments in writing. The Distributor sent its document on April 24, 2015. The interveners submitted theirs between April 30 and May 4, 2015. The reply by Gaz Métro was read into the file on May 7, 2015. The Régie began its deliberations as of this date.

[17] Between May 13 and June 9, 2015, ACIG, CFIB, ROEÉ, SÉ-AQLPA, UC and the UMQ submitted their applications for payment of costs. Gaz Métro commented on these applications on June 16, 2015.

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1 Document A-0036, pp. 14-15.

[18] On February 11, 2016, the Régie rendered its decision D-2016-023 regarding the disbursement of part of the costs requested by the interveners.

[19] Commissioner Pierre Méthé having left his role as commissioner, the two other members of the team, being unanimous, proceeded to render the present decision in conformance with the section 17 of *An Act regarding the Régie de l'énergie*[2] (the Act).

[20] In this decision, the Régie rules on the allocation of costs of the Gaz Métro natural gas distribution service (the Study). It also deals with the applications for payment of the costs of interveners.

2. CONTEXT

[21] In 1985, the Régie de l'électricité et du gaz rendered its regulation G-429 in which it adopted the principles and put in place methods for cost allocations for the service of the Distributor[3].

[22] Subsequently, in its decision D-97-47, the Régie, while reiterating the principles of regulation G-429, adopted certain modifications to the methods of allocation of the cost of service.

[23] In 2010, as part of the R-3720-2010 rate case, the working group that was set up for the purposes of applying the incentive mechanism (Working Group), asked the Régie to authorize working sessions during which Gaz Métro would be called on to present a quantitative demonstration of the results of the methods of allocating the cost of service.

[24] The Régie authorized these sessions[4] and invited the Working Group to examine the relationship between the results of the allocation methods and the rate structures for the distribution service. It also asked Gaz Métro to submit a report on the discussions held during the working sessions and to suggest improvements that could be made to the rate structures. Gaz Métro followed up this request as part of the 2012[5] rate file by submitting

2 RLRQ, c. R-6.01.
3 Dossier R-3028-85.
4 Decision D-2010-144.
5 Dossier R-3752-2011.

a report on cost allocation and the relationship between costs and rates as well as the rate vision for Gaz Métro in distribution[6].

[25] Subsequently, in its decision D-2011-182 rendered as part of the 2012 rate file, the Régie asked Gaz Métro to complete its rate vision and to submit, among other things, a more detailed analysis of the cost classification study focused on certain specific elements. It asked Gaz Métro to submit a progress report in the 2013 rate file and to propose a schedule for completion.

[26] In its decision D-2013-106 rendered in the 2013 rate case, during which Gaz Métro submitted a progress report on the work regarding cost allocation and the rate structure, the Régie ruled that the revision of methods of allocation of the cost of service and the rate vision should be dealt with in a generic file.

[27] The present file is therefore the generic file in which a detailed examination of the methods of cost allocation of the distribution service will be subject to a detailed examination as well as an exhaustive review of the Distributor's rate structure.

[28] As mentioned by the Régie at the openings of the phase 1 hearings in this file, the methods of allocation of the cost of service have not been looked at in depth for nearly 20 years.

[29] Nevertheless, with the evolution of the regulatory environment, the Régie has ruled at various points on additions or modifications to these methods. For example, it adopted specific allocation methods to share the costs of the Energy Efficiency Plan (EEP)[7].

[30] The Régie considers that a detailed examination of the allocation methods for the cost of service is vital. This is a necessary first step before undertaking a review of the rate structures and to even consider modifying them, which ultimately will be the goal of phase 2.

[31] Before arriving at this stage, the Régie must determine the best methods for allocating the cost of service. "*This is a matter of sharing as equitably as possible based on the most solid lines of causality, the large pie of the costs of service between the*

6 Dossier R-3752-2011, document B-0354.
7 Decision D-2008-140.

different categories of clienteles, without knowing how and from whom these costs will be recovered, phase 2"[8].

3. GOALS OF THE STUDY

3.1 POSITION OF GAZ MÉTRO

[32] The Distributor requested that the Régie approves the utilization of the results of the Study as the basis for establishing its tariff strategy and as a tool to enable the measurement of cross-subsidization produced by the rates proposed in a rate file. Consequently, it requests the Régie to approve that the rate results of the Study should be produced annually based on the data of the projected year rather than on two years based on the data from the authorized budget from the previous year, as is presently the case.

[33] The Distributor intends to transfer the entire process for producing the results of the Study to a new more flexible information platform, which should help to facilitate this process. In this regard, it proposes that the results of the Study should be produced annually and that they serve as an anchor point in establishing the rights in a rate file. Thus, the production of the Study should be performed based on projected data proposed in a rate file rather than from authorized data from the previous year. Consequently, the results of the Study would allow a determination of the degree of cross-subsidization produced by the proposed rates rather than to establish the cross-subsidization associated with approved rates from the previous year's rate file.

[34] Gaz Métro noted that this approach is used by several gas and electricity distributors, including Enbridge in Ontario and New Brunswick.

[35] Gaz Métro confirmed that to the extent that the allocation methods used by the Régie in the present file are not too complex, it could update the results of the Study based on the decision that the Régie will render each year to establish its cost of service.

[8] Document A-0036, p. 9.

3.2 POSITION OF THE INTERVENERS

[36] ACIG supported the Gaz Métro proposal. This intervener stated that the allocation of the cost of service constitutes one of the most important inputs that the Régie should take into account in establishing the distribution rates of Gaz Métro for the year in question.

3.3 OPINION OF THE RÉGIE

[37] The Régie considers the Study results to be an anchor point of the Distributor's rate structure. Upon these anchor points must be superposed a segmentation of the customer base that reflects the natural division of the major categories of customers, based on their characteristics of cost of service and consumption profile. This segmentation must also harmonize with the cost structure for natural gas distribution on the Gaz Métro territory. From these elements, combined with other more pragmatic considerations, a viable and long-lasting rate structure can be established.

[38] The measurement of cross-subsidization between the different customer categories is an exercise that most of the regulators are obliged to perform annually. This exercise helps to establish, as a ratio of revenues to costs, to what extent the revenues generated by a category of customer cover the costs allocated to it. Since this is a zero-sum game, it shows which category of customer fully pays its part of the costs, which pays less of them and which pays more. While it is established annually, this portrait of the relative contribution of each category of customer to covering the overall costs varies little over time. This portrait reflects major trends that are difficult to change rapidly without major rate shocks on certain customer categories.

[39] When the time comes to choose a rate strategy, in the short term as in the long term, the degree of cross-subsidization is an important input, but it cannot be the only determinant. Where an imbalance in the degree of cross-subsidization is considered important, its redress may constitute an objective pursuit by the distributor and established in the rate strategy approved by the Régie. However, the achievement of this objective cannot become dogmatic and translate into automatic rules that would take precedence over the judgment of the Régie in fixing fair and reasonable rates.

[40] Also, it is important to remember that major changes to the rate structure are typically accompanied by transitory measures which are put in place to ensure a

harmonious and gradual transition on the categories of customer most affected by the migration from the old rate structure to a new structure. Thus, it may take several years before the transitory measures are complete. The tariff strategy to be adopted by the Régie in phase 2 of the present file will deal with these.

[41] For these reasons, while the Régie does not, *a priori*, oppose the Gaz Métro goals regarding tariff strategy and the frequency of production of the results of the Study, it prefers to rule on these questions in phase 2, when the evidence on this matter will be fully available.

[42] **Consequently, the Régie leaves to phase 2 its decision on questions regarding:**

- **The use of the Study as a departure point in establishing the tariff strategy;**
- **The use of the results of the Study on an annual basis based on the projected data of a rate file under examination.**

4. PRINCIPLES

4.1 POSITION OF GAZ MÉTRO

[43] Gaz Métro proposes the following principles to establish the method of allocation of the cost of the distribution service:

- cost causality;
- no free service;
- the fair and equitable sharing of economies and diseconomies;
- the identification of a simple, precise, reliable and stable method of allocation.

[44] Gaz Métro supports the principle of cost causality as the key principle on which the Study should rely. It recalls that this general principle was adopted in the establishment of the principles of allocation of the cost of service in file R-3028-85 which led to regulation G-429. This principle is timeless and is as fair and relevant today as it was in that era.

According to the principle of causality, the customers who affect the cost base in the same way should be allocated a similar share of the costs.

[45] Gaz Métro shares the opinion of the expert Overcast that cost causality has value not only from a purely statistical and historical perspective, that is, which client originally generated the cost, but also requires an examination of the identity of the customers currently using the network.

[46] Furthermore, Gaz Métro supports the position of expert Overcast that the method of cost allocation should be based on the evaluation of average costs, even when a direct allocation might be possible[9]:

> *The service runs from the main and is straight into my house. I mean, so there's no question that that service serves me and, you know, you talk about direct assignment of costs, for example. That's when you can... if you keep your records the right way, you can literally directly assign every service to every customer. Now, you don't do that. And why wouldn't you directly assign every service to every customer? Well, because the main runs down one side on the street. I'm on the side on the main... side of the street... the same side of the street as the main. I'll call it the short side service. So my service is maybe fifty feet (50 ft). You live on the other side of the street. You and I have to go across the street, under the street and you're the same fifty feet (50 ft) back from the road but your service is now seventy (70) or eighty feet (80 ft). I probably should use metres, but I can't think in... I can't think in metres, I'm sorry. But, so, you know, are we going to... are we going to have different rates just because I'm lucky enough to have bought a house on the side of the street that the main runs down? And you should pay more because you're across the street? Well, the answer is no. What we do is, we look for cost causation to measure the average cost to serve a group of customers. Okay? So, instead of us having a different rate and a different cost, we say, average footage, seventy (70) and fifty (50) is sixty foot (60 ft) for service and we pay for a sixty foot (60 ft) service on average, if that's the average for the class.* [our underlining]

[47] Gaz Métro believed the allocation methods must also be simple, even if their application may sometimes be complex. The level of precision desired must therefore be commensurate with the importance of the amounts in question and not be so laborious

9 Document A-0036, pp. 169-171.

that it compromises the objective of having study results each year based on the data from the projected study year[10].

[48] Gaz Métro also noted that economies of scale are recognized by the experts as a characteristic of the gas distribution network, and considers that it is important for the allocation method adopted to take this into account.

4.2 POSITION OF THE INTERVENERS

[49] ACIG was not in disagreement with the major cost allocation principles proposed by Gaz Métro. Expert Knecht submitted the following principles:

- *Avoidance of Economic Cross-Subsidies*
  - *Allocated costs should be:*
    - *No less than incremental cost*
    - *No more than standalone cost*
- *Cost Causation*
- *Assign Costs Only for Assets Used*
- *Direct Assignment Preferable to Allocation*
- *Stability, Simplicity*[11].

[50] ACIG was not in disagreement with the positions taken by Gaz Métro regarding the fundamental priority principle by which the cost allocation study should allow the most faithful possible allocation of costs between the different rate categories based on the principle of cost causality.

[51] In support of its position, this intervener presented an extract from the Gaz Métro discussion document that corroborated its approach, as recommended by expert Knecht:

> *The cost allocation exercise therefore demands the best possible understanding of cost causality. <u>The preferred approach is always to directly allocate the costs to the clients who have incurred them when this is possible.</u> Sometimes, the available information does not permit a direct allocation or the nature of the cost does not*

[10] Document A-0036, p. 36.
[11] Document C-ACIG-0038, p. 2.

> *permit a direct allocation. When direct allocation of costs is not possible, the use of allocation factors is required and the calculation of these factors can be controversial, particularly in the case of allocation of common costs, such as the costs of gas mains* [12]. [our underlining]

[52] In the opinion of ACIG, a corollary to this approach by which it is preferable to directly allocate the costs to the clients who have incurred them, when this is possible, is the principle of cost decomposition. In this regard, the intervener referred to an extract from the Gaz Métro discussion paper that defined this principle in the following manner and corroborated the preferred approach of Knecht:

> […] *no customer should have to contribute to the costs of portions of the network that he does not use. Only the customers who use those portions of the network should have to contribute to their costs.* [13]

[53] ACIG did not contest the principle of no free service enunciated by the Régie de l'électricité et du gaz in 1985 in its regulation G-429 and reiterated by the Régie in 1997 in its decision D-97-47, by which customers should not benefit without charge from a service offered by Gaz Métro.

[54] However, ACIG said that for a principle to be applied to the allocation of costs, the evidence of the file should show that certain costs are incurred by Gaz Métro to serve a customer. Thus, if the evidence suggests that Gaz Métro does not incur a cost to provide the service in question, the intervener holds that it is in the establishment of rates in phase 2 that the Régie must decide whether to impute any charge to the customer concerned to avoid them having free enjoyment of a service offered by Gaz Métro.

[55] ACIG did not contest in any way that the cost allocation method adopted should take into account major economies of scale which are an inherent characteristic of a gas distribution network, as noted by expert Overcast.

[56] ACIG also supported the Gaz Métro proposal that the cost allocation method adopted by the Régie be as simple, precise, reliable and stable as possible. This intervener emphasized that the concepts of stability and simplicity are also part of the main principles for cost of service allocation adopted by expert Knecht.

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12 Document B-0006, p. 15, lines 11-17.

13 Document B-0006, p. 13, lines 22-24.

[57] CFIB shares the well-established main principles for cost allocation enumerated by Gaz Métro, notably regarding cost causality, the sharing of economies of scale as well as the stability of a method of allocation.

[58] CFIB said that the principle of cost causality is important and that costs must be allocated based on existing customers. However, this does not mean ignoring the historical reality of the development of the Distributor's network. In the opinion of this intervener, when the network is the result of successive investments, cost causality cannot be dissociated from how the investment decisions were taken. For CFIB, it is important to not confuse the search for causality and the exercise of cost allocation.

[59] In this regard, considering that the ultimate objective is to remodel the rate structure and customer segmentation, CFIB said that it is important to ensure that the allocation method adopted is solemnly based on the respect of cost causality and that this relationship will be maintained whatever changes are made in the future.

[60] Regarding causality, expert Chernick noted:

> […] *I think everybody agrees that it's important that cost allocation be based on causality, on what causes the cost. And usually that's linked to how the facilities are used now, but sometimes, in the interest of fairness, it's also necessary to look historically at why do we have this cost* [14].

[61] Expert Chernick also noted the central role of average costs in an understanding of causality and cost allocation.

[62] Finally, he warned Régie against an abusive practice, frequently used when causality is not clear or difficult to determine, which consists of allocating many costs based solely on the number of connections or customers. He said that the traditional methods of cost allocation based on the minimum system method are an example of this practice. The expert encouraged the Régie to allow only costs whose causality appeared difficult to determine to be attributed by default to the concept of access to the network[15].

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14 Document A-0046, p. 132.

15 Document C-ROEÉ-0053, p. 8.

[63] SÉ-AQLPA supported the ACIG recommendation to prefer wherever possible the direct allocation of costs to the customers with which they are specifically associated, particularly regarding large customers.

[64] This intervener recommended that the Régie choose the notion of cost causality, notably an interpretation that consists of determining which are the costs that enable the provision of a service currently provided, or more precisely during the year being studied. The intervener stated that such an interpretation would be consistent with the notions of cost of service, user pay, and the internalization of costs, which are at the heart of the law of the legislator and its application by the regulator[16].

[65] Finally, SÉ-AQLPA agreed that the Régie must reject the approach of historic cost causality as a paradigm for allocation and not use this in place of causality between costs and the service currently provided[17].

[66] While UC agreed with the principles proposed by Gaz Métro, it understands that the latter does not directly support some of the principles that guided the Régie in its decision D-97-47, namely the most direct possible causal relation between costs and customers that have incurred them, and a fair and equitable sharing of economies or diseconomies of scale. It supports having these two essential principles always current and that they should be taken into consideration.

[67] This intervener stated that, while it is important to identify the current users of the network, it is also important to consider and identify the causes and the customers who are at the source of the development of the network and caused the costs which must today be examined and shared.

[68] For UC, the causal relationship between the costs and the customers that incurred them implies an examination of the characteristics of the Gaz Métro network and its historic and current development.

[69] This intervener said it was important to ensure that the methodologies put in place ensure a fair and equitable sharing of economies and diseconomies between the various clientele.

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16 Document C-SÉ-AQLPA-0020, p. 33.
17 Document C-SÉ-AQLPA-0020, p. 41.

[70] The UMQ recalled the importance of the principles of total cost, causation and no free service as being three fundamental axioms. It notes that even if other principles prevail, such as the simplicity and the robustness of the allocation methods, these three first principles are cardinal in its opinion for a generic file which comes before the Régie only once or twice in a generation.

4.3 OPINION OF THE RÉGIE

[71] The Régie considers that to establish the methods of cost allocation for the future, it must rely imperatively on its key principles. It judges that the principles proposed by Gaz Métro, which flow from regulation G-429 and decision D-97-47, are timeless and still relevant principles.

[72] **Consequently, the Régie maintains the following principles:**

- **respect for cost causality;**
- **no free service;**
- **fair and equitable sharing of economies and diseconomies of scale;**
- **cost allocation methods that are as precise, reliable, stable, and simple to apply as possible.**

[73] However, the Régie would add the following considerations to these principles.

4.3.1 RESPECT FOR COST CAUSALITY

[74] The Régie shares with most of the participants in this file the opinion that the Study must, to the extent possible, rely on an identification of cause and effect relations. Therefore, the principle of respect for cost causality remains central to any study of cost allocation.

[75] However, the Régie understands that, while this principle is unanimously supported by the various participants, its interpretation and its application may vary considerably from one participant to another.

Direct allocation

[76] The Régie noted that, as mentioned by UC, in decision D-97-47, it had defined the principle of cost causality as "*the most direct possible causal relationship between costs and the customers who have incurred them"*[18].

[77] The Régie maintains this principle of the most direct possible causal relation, and consequently has adopted the approach preferred by expert Knecht that direct allocation should be used wherever possible.

[78] The Régie considers that direct allocation is an ideal that the distributor should use in every case where it is attainable with a reasonable effort. Also, it emphasizes that in general, when direct allocation is applicable, the results are difficult to question and are generally not contested.

[79] The Régie recognized that direct allocation may produce different results from one customer to another, but nevertheless enables taking into account of the real costs incurred for each customer concerned. Thus, recourse to direct allocation increases the precision of the results of the Study. The sum of individual information by customer category permits the establishment of the total cost of all customers in this category and, from this, a more precise average cost.

[80] Finally, the Régie considers that direct allocation generally relies on little or no assumptions, something it considers desirable. In this regard, expert Overcast raised the principle of "Occam's Razor" in the hearings and emphasized:

> [...] *make the least number of assumptions that you have to make to get to the right answer* […][19].

[81] For these reasons, the Régie judges that recourse to a method that relies on an average cost rather than a direct allocation would have the consequence of depriving it of a real and generally uncontestable information source. It does not support the recommendation of experts Overcast and Chernick to use the average cost when direct allocation is possible.

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[18] Decision D-97-47, p. 15.

[19] Document A-0044, pp. 180-181.

[82] Finally, the Régie cannot support the view of expert Overcast that direct allocation necessarily implies rate fixing per customer. In fact, the sum of the costs imputed by each of the customers in a rate category enables the establishment of a total cost of this rate category. From this data, average costs can be established by customer category that will serve as a basis for determining rates. This position was also taken by the Régie in its decision D-97-47 regarding the fact that a sharing of the costs of the gas mains by region does not necessarily translate into rate fixing by region[20]. This opinion is also shared by expert Knecht[21].

[83] **Consequently, the Régie rules that direct allocation should be preferred at all times when the information is available or easily accessible by a reasonable effort.**

Causality and historical context

[84] During the hearings, different interpretations of the application of the principle of cost causality were presented. Notably, there was questioning of the opportunity to take into account the historical context of the establishment of the network rather than the contemporary reality of its utilization.

[85] First, the Régie notes that the Study deals with the allocation of the cost of service for a year in question projected onto different customer categories currently on the network during this same year. Thus, the Study must therefore rely on the data related to this projected year.

[86] Furthermore, to understand and establish the causality relationships between the costs of the projected year and the clients using the network the same year, the Régie judges that it must examine the particular context in which the Distributor evolved. It must examine the following elements:

- the composition of the clientele;
- the different consumption profiles;
- the technical characteristics of the distribution network;
- the practices of the Distributor in designing and managing its network, and more generally, the management of its business.

[20] Decision D-97-47, p. 17.
[21] Document A-0046, pp. 19-20.

[87] The Régie's opinion is that examining all of these elements will allow the best identification of the cause and effect relations between the clients who use the network and the costs incurred by the Distributor.

4.3.2 NO FREE SERVICE

[88] The principle of no free service was dealt with in depth in regulation G-429 and taken up again in decision D-97-47. The Régie finds it always important and relevant that all customers are seen to be allocated a cost for the services they receive, and consequently maintains this principle.

4.3.3 SHARING OF ECONOMIES AND DISECONOMIES OF SCALE

[89] The installation and operation of a gas distribution network is a capital-intensive enterprise. The costs are mainly fixed. As mentioned by all participants, major economies of scale are understood to exist in this type of business. The Régie considers it essential that all of the Distributor's customers share the economies and diseconomies of scale.

4.3.4 PRECISION, RELIABILITY, STABILITY AND SIMPLICITY

[90] The Régie considers the principles of precision, reliability, stability and simplicity in allocation methods to be very important and they must continue to be. Contrary to the sequence suggested by the Distributor, the Régie believes that the principle of simplicity in the methods used should not prevail over precision, reliability and stability.

[91] The Régie shares the opinion of expert Overcast[22] regarding the reliability and stability of the methods: that it is not desirable for the results of the Study to fluctuate significantly from one year to another, in the absence of important variations in costs or customer composition. The updates of data or parameters of a method of allocation should not cause major fluctuations which could have undesirable consequences on rate stability or the degree of cross-subsidization.

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[22] Document A-0044, p. 255 and 256.

4.3.5 ARBITRAGE BETWEEN THE DIFFERENT PRINCIPLES

[92] The Régie recognizes that the methods of allocation of the cost of services used in the Study may only with difficulty satisfy all the principles stated above. Sometimes, arbitrage between two is required. The Régie judges that the respect of cost causality should take precedence. It notes however that the availability of data, the size of the amounts to be allocated or the difficulty in determining causal relations may lead to prioritizing one principle over another. It considers that such arbitrages should be done on a case by case basis with full transparency and that it is not possible for it to define *a priori* a general rule to apply. It is up to the Régie to carry out such arbitrage.

5. GAZ MÉTRO NETWORK

[93] Before studying the various proposals for allocation of the costs of the gas mains, the Régie considers it opportune to specify the context in which the Distributor is evolving, in order to establish the best possible causal relations between the costs of distribution and the categories of customers to which they are allocated.

[94] The Régie therefore presents a global portrait of the network and clientele of the Distributor. It then examines the regional specificities of the network. Finally, it compares the Gaz Métro distribution network and the consumption profile of its clientele with those of other North American gas distributors.

5.1 CONTEXT

[95] According to the data in the 2014 rate file, Gaz Métro served 196,191 customers consuming an annual volume of 5,608 $10^6 m^3$ [23]. The gas main network is 10,375 kilometers[24] for a historic net value for its rate base of $898 million[25]. Thus, the average volume consumed per customer is about 28,600 m^3. The average density of the network (number of customers per kilometer of pipe) is 21 customers/km.

[23] Document B-0045, p. 14.
[24] Document B-0006, p. 26.
[25] Document B-0097, pp. 14-15.

[96] Table 1 presents the breakdown of the clientele and daily capacity demand between the different rate categories.

TABLE 1
NUMBER OF CUSTOMERS AND CAPACITY DEMANDED

Rate	Level	Number of customers		Capacity (AC)	
	m^3/yr			10^3m^3-day	
D_1	[0 - 3,650]	136,933	69.80%	1,883	4%
D_1	[3,650 - 10,950]	28,911	14.74%	1,908	4%
D_1	[10,950 - 36,500]	18,465	9.41%	3,689	8%
D_1	> 36,500	11,412	5.82%	14,482	30%
D_3		242	0.12%	383	1%
D_4		90	0.05%	20,129	41%
D_5		138	0.07%	6,535	13%

Source: Document B-0040, tabs FB08 and AC.

[97] The Régie noted that the great majority of customers, about 94% of them, had annual consumption less than 36,500 m^3.

[98] The first sub-category of D_1 includes 70% of all customers, but they are only responsible for 4% of the capacity demanded.

[99] The Régie also noted that 0.24% of all customers, those of rates D_3, D_4 and D_5, are responsible for nearly 55% of the capacity demanded. Therefore, it understands that Gaz Métro is a distributor delivering a major portion of its volumes to a small number of high-volume customers.

[100] When examining the capacity required by different rate categories and juxtaposing this with the number of customers, the Régie recognizes that there are major disparities between the number of customers and capacity.

5.2 REGIONAL SPECIFICITIES

Position of Gaz Métro

[101] Responding to information requests, Gaz Métro submitted information regarding the costs and composition of its gas main pipelines, which it subdivides into six regions[26]: Montréal, Estrie, Saguenay, Mauricie, Québec and Abitibi.

[102] Gaz Métro also provided regional data regarding the number of customers and connections, the number of kilometers (km) of lines, and the book value of the lines as well as the available capacity[27].

Position of the interveners

[103] CFIB studied the history and development of the Gaz Métro network as well as the characteristics of the different regional branches over a period of 12 years, from 2002 to 2014[28].

[104] Regarding the rate of densification and the intensity of use of the network (expressed in m^3/customer) CFIB highlighted the evolution of opposing trends in the three central regions: Montréal, Estrie and Québec; compared to three peripheral regions: Mauricie, Abitibi and Saguenay.

[105] The three central regions densified their portions of the network by adding lower-volume customers, while the three peripheral regions densified their portions of the network less (Saguenay) or lost density (Mauricie and Abitibi), and had a larger proportion of their volume with high-volume customers.

[106] The cost analysis by CFIB shows that the unit cost per km of lines is less in central regions than in peripheral regions. It shows that the cost per customer in the regions of Montréal, Estrie and Québec decreased by 14%, 30% and 33% respectively over the period studied, while in the peripheral regions of Abitibi, Mauricie and Saguenay, it increased by 33% and 23% and decreased by 8%, respectively.

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26 Gaz Métro includes the Laurentides and Montérégie regions in the region de Montréal.

27 Documents B-0045, B-0047 and B-0097.

28 Document C-FCEI-0022, pp. 7-12.

[107] Expert Chernick also noted the specificity of the Gaz Métro network. He observed that since the 1980s, the distribution network had been extended more than densified:

> *Q: Have you identified any characteristics of Gaz Métro's service territory that distinguish it from many other utilities, in a manner relevant to cost allocation?*
>
> *A: Yes. Gaz Métro (along with the distribution companies it acquired) has greatly extended its service territory since the 1980s, as shown in Gaz Métro's response to my question 37 (Document B-0068). Thus, much of the existing Gaz Métro distribution plant is related to extension of service to new parts of the province, rather than to increasing density of load within an established service territory. The latter would be more typical for many urban and suburban electric utilities as well as gas utilities serving communities that were largely built out and served by the 1980s. Some urban areas had widespread availability of manufactured gas prior to connection to the natural-gas pipeline system. A cost-allocation approach that might have some superficial appeal for allocating the area-spanning costs of some other electric and gas utilities would be inappropriate for Gaz Métro*[29]. [our underlining]

Opinion of the Régie

[108] The Régie compiled the data presented by Gaz Métro in order to appreciate and measure the regional diversities in the composition of customers and the use of the network. The following table shows different aspects of the relative weight of each of the regions compared to the Distributor network as a whole.

[29] Document C-ROEÉ-0040, p. 7.

TABLE 2
REGIONAL DATA

Region	Number of customers [1]		Supply and distribution lines				Capacity By AC [3] [10^3m^3-day]	
			Number of km [1]		Net book value [2]			
Montréal	166,600	**85%**	6,119	**66%**	$505 M	**57%**	26,937	**64%**
Estrie	9,036	**5%**	1,124	**12%**	$103 M	**12%**	3,082	**7%**
Québec	10,000	**5%**	785	**8%**	$143 M	**16%**	3,362	**8%**
Mauricie	4,761	**2%**	524	**6%**	$60 M	**7%**	5,212	**12%**
Abitibi	3,036	**2%**	344	**4%**	$38 M	**4%**	1,253	**3%**
Saguenay	2,758	**1%**	343	**4%**	$40 M	**4%**	2,569	**6%**
TOTAL	196,191	**100%**	9,239	**100%**	$889 M	**100%**	42,415	**100%**

(1) Document B-0045, p. 14, 2013-2014 historical data.

(2) Document B-0097, p. 14, net book value as of Sept. 30, 2014.

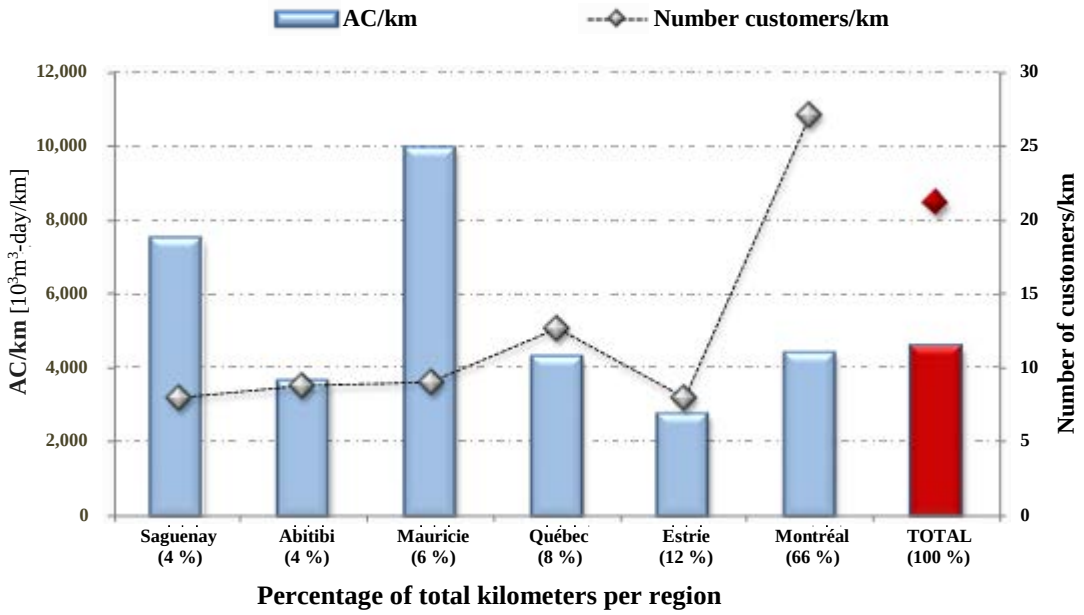
(3) Document B-0047, section Intercepte zéro, Table 5a. Attribution of capacity using AC (MDD).

[109] The Régie understands that the Montréal region is dominant, in terms of the number of customers, kilometers of lines, net value of assets and attributed capacity (AC). However, it notes that the number of customers in Montréal, some 85% of the total customers, is proportionally higher than the capacity allocated to it, which is 64%; or than the book value of the lines, which is 57% of the network as a whole.

[110] Also, the Régie recognizes that the cumulative weight of the regions other than Montréal is not negligible, notably in terms of kilometers, book value and attributed capacity, respectively of 34%, 43% and 36%.

[111] Based on this data, the Régie established various ratios to illustrate the regional disparities and to compare them with the average ratios for the entire network. These ratios are shown in the following figures.

FIGURE 1
PERCENTAGE OF TOTAL KM PER REGION *VS* AC/KM AND NUMBER OF CUSTOMERS/KM

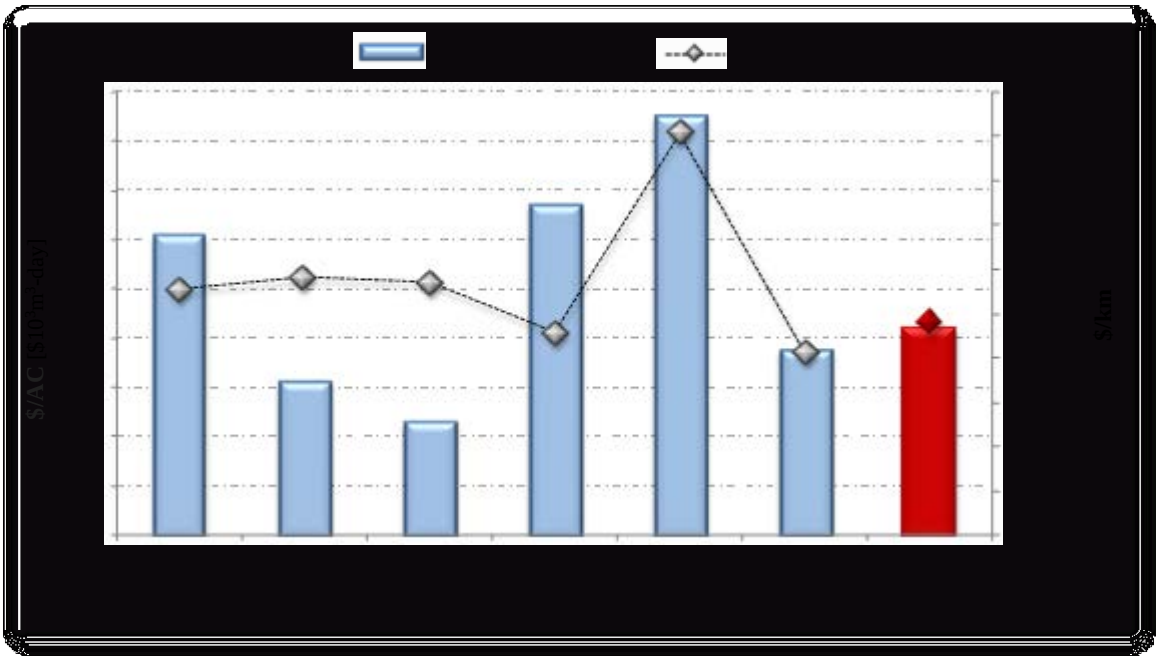


[112] The Régie notes in Figure 1 that the density of the Montréal region is greater than that of the network, that is 27 customers/km compared to 21 customers/km. The fact that the Montréal region has 85% of the total customers and that its density is the highest exerts upward pressure on the average density of the network. By contrast, 34% of the network kilometers serves 15% of the clientele in the five other regions with an average density of 9 customers/km[30].

[113] In terms of attributed capacity per kilometer (AC/km), the regions of Montréal, Québec and Abitibi are representative of the overall network average. The Régie notes that the regions of Saguenay and Mauricie have a much higher AC/km than the network as a whole: a multiple of 1.6 for Saguenay and 2.2 for Mauricie.

[30] Density of 9 customers/km established by using data in Table 2, and excluding the Montréal region data from the total.

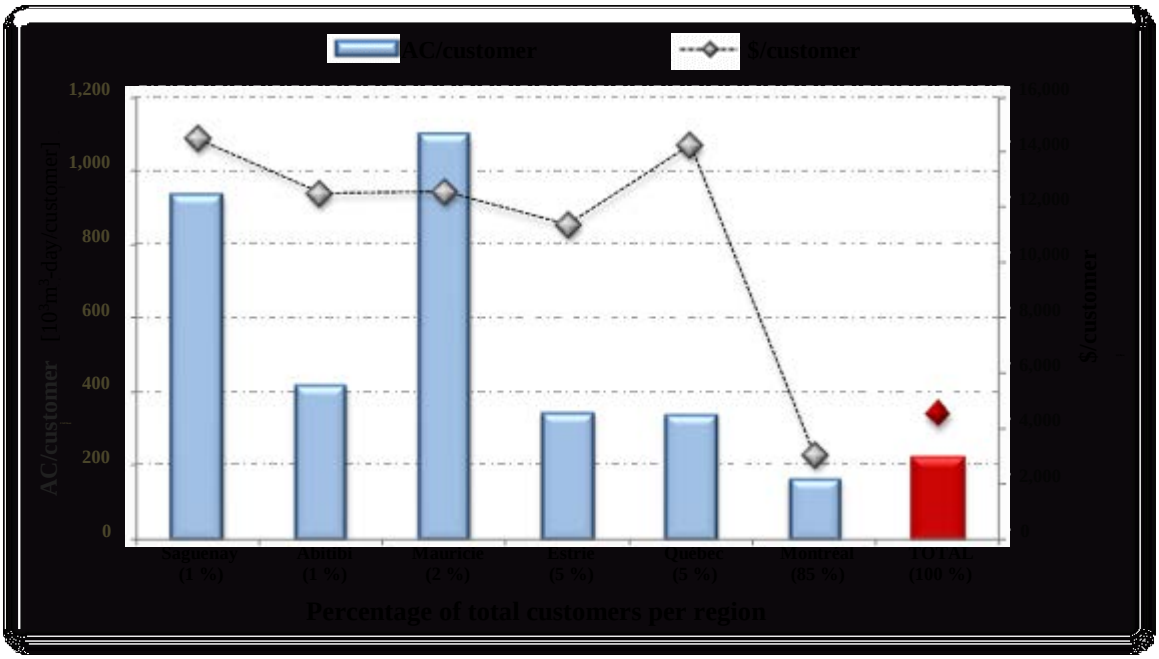
FIGURE 2
PERCENTAGE OF TOTAL NETWORK VALUE
BY REGION *VS* $/AC AND $/KM



[114] In dollar terms, the Régie notes in Figure 2 that 57% of the book value of the network is found in Montréal. The five other regions share 43% of this value. The region of Québec, alone, accounts for 16% of the book value of the lines. As shown, the distribution lines in the region of Québec are the costliest in the network, whether per kilometer or per AC.

[115] Also, the Régie notes that the unit cost of capacity varies considerably from one region to another. It ranges from about $\$12/10^3m^3$-day in Mauricie to $\$42/10^3m^3$-day for the region of Québec. In the region of Montréal, this unit cost is about $\$19/10^3m^3$-day.

FIGURE 3
PERCENTAGE OF TOTAL CUSTOMERS PER REGION *VS* AC/CUSTOMER AND $/CUSTOMER



[116] In Figure 3, the Régie notes that cost per customer[31] ($/customer) and attributed capacity per customer (AC/customer) vary greatly from one region to another. The data for the region of Montréal show that cost per client and attributed capacity per customer there is the lowest in the network, approximately $3,000/customer and 160 10^3m^3-day/customer respectively.

[117] The five other regions have an average cost per customer significantly higher, about $13,000/customer. However, the disparities are greater in attributed capacity per customer. The regions of Saguenay and Mauricie have results in the order of 900 and 1,100 10^3m^3-day/customer respectively, more than four times the average for the network as a whole.

[118] Finally, the Régie examined the capacity demand per rate category for each of the regions. The following table presents these percentages.

[31] The cost per customer ($/customer) is equal to the net book value of the distribution and supply lines as of September 30, 2014 divided by the number of customers.

TABLE 3
REGIONAL AC PER RATE CATEGORY

Region	D_1 0 - 3,650	D_1 3,650 -10,950	D_1 10,950 - 36,500	D_1 > 36,500	D_3	D_4	D_5
Montréal	7%	6%	11%	41%	1%	22%	12%
Estrie	2%	5%	11%	36%	5%	17%	24%
Québec	2%	4%	10%	35%	2%	7%	40%
Mauricie	1%	1%	2%	9%	1%	75%	10%
Abitibi	3%	2%	3%	20%	0%	54%	17%
Saguenay	1%	2%	3%	11%	0%	78%	4%

Source: Document B-0047, section Intercepte zéro, Table 5a. Attribution of capacity using (AC) (MDD).

[119] The Régie notes that the capacity allocated to different rate categories varies considerably from one region to another. In the region of Montréal, customers in the D_1 rate category, using more than 36,500 m^3/year, have the greatest proportion of the capacity: 41%. In the region of Québec, it is the D_5 customers who have 40% of the capacity. In Mauricie and Saguenay, D_4 and D_5 customers are responsible for more than 80% of the capacity needs.

[120] The Régie concludes that the Gaz Métro network is composed of a collection of regional networks which have their own characteristics in terms of costs, number of customers, density per km of line and capacity required per rate category.

5.3 COMPARISON WITH OTHER DISTRIBUTORS

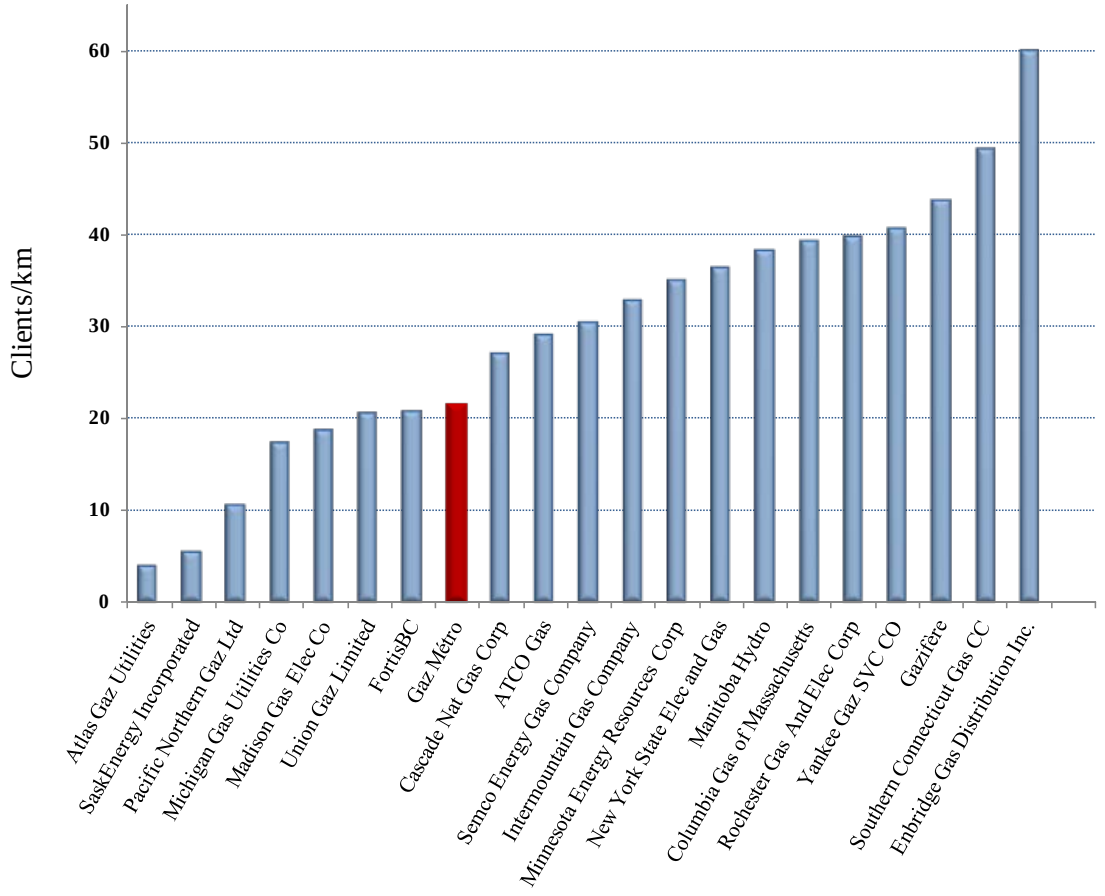
Position of Gaz Métro

[121] Expert Overcast compared certain characteristics of the Gaz Métro network with those of other North American distributors[32]. The Distributor observed that this data comes from different sources, so that their comparability cannot be assured.

[122] Gaz Métro noted that it is ranked 15th out of 22 for the number of customers per kilometer of lines. The distributor Heritage Gas does not appear in Figure 4, because data regarding number of customers/km are not available.

[32] Document B-0046, tab Annexe 1, p. 1, question 6.4.

FIGURE 4
NUMBER OF CUSTOMERS PER KM OF LINES

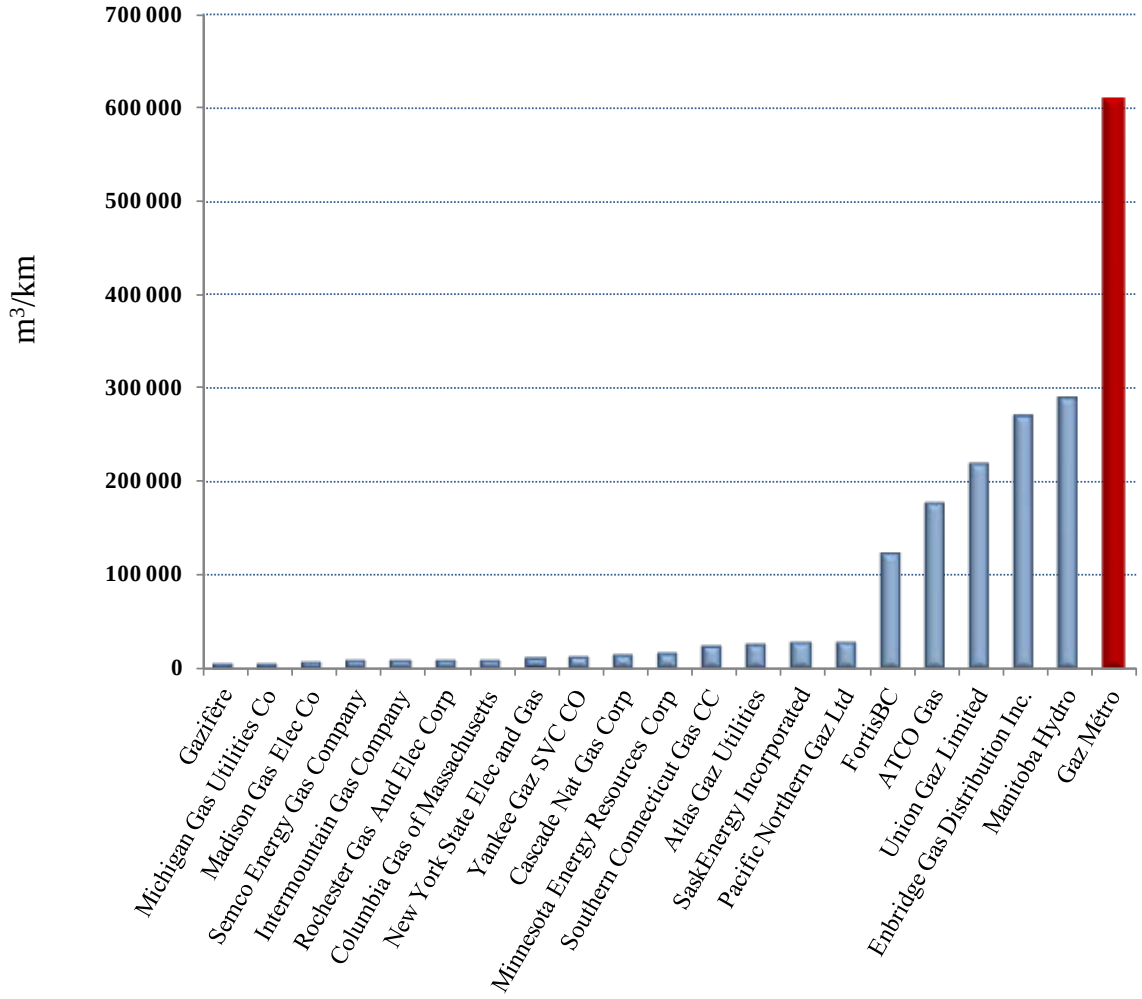


Source: Document B-0046, Annexe 1, section Annexe 1 P1 Question 6.4.

[123] As for the volume delivered per kilometer of line, Gaz Métro ranks first, as shown in Figure 5. According to the Distributor, its network is characterized by a low proportion of residential customers to industrial customers, compared to other distributors in the sample[33].

[33] Document B-0045, p. 18.

FIGURE 5
VOLUME DELIVERED PER KM OF LINE



Source: Document B-0046, section Annexe 1 P1 Question 6.4.

[124] The Distributor also observed that not only does the density of its network rank among the lowest in the sample, but it decreases by more than half, to eight customers/km when data from the region of Montréal are excluded[34]. This illustrates that in the rest of Québec the network is even less dense.

[34] Gaz Métro mentioned on page 18 of document B-0045 a density of 8 customers/km when data from the region of Montréal are excluded, and 9 customers/km when using data from the page 14 table of the same document.

[125] The Distributor said it is important to understand that the density of a network is not only defined by the relationship between the number of customers and the number of kilometers of lines or by the volume used per kilometer of lines. It notes that the relative importance of the industrial clientele inflates this latter ratio, without however describing the network density. If all distributors build lines following the same criteria of profitability and equity, a dense network will be characterized by many kilometers of lines per km^2 of region served. Gaz Métro holds that in the absence of comparable regional geographic data, and given the disparity in the markets of each distributor, the comparative analysis of network density is of limited value[35].

Position of the interveners

[126] ROEÉ and UC believe the Gaz Métro network is facing a different reality from that of other North American distributors.

[127] Specifically, ROEÉ underlined that expert Overcast regularly refers to the AGL Resources networks and its subsidiaries Atlanta Gas Light and Chattanooga Gas as examples of network design and development. The intervener noted, however, that the expert did not demonstrate that the particular nature of these American networks makes them relevant for establishing the cost causality of Gaz Métro gas mains.

[128] UC noted that the residential clientele of Gaz Métro is much different from that of the other gas distributors, and that the main source of energy used for heating in Québec is electricity, and not natural gas as is the case elsewhere. Therefore, when a residential development is built in the territory served by Gaz Métro, it does not necessarily result in a demand for extension of the gas network, as expert Overcast suggests[36]. Consequently, this intervener said it is erroneous to say that eventually this new residential clientele will be connected to the network.

[129] UC concluded that the high volume per kilometer of lines which distinguishes Gaz Métro from other distributors is only slightly attributable to the residential clientele

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35 Document B-0045, p. 18.

36 Document A-0038, p. 33, *And then, you'll go back. And when the subdivision is actually put in on those vacant lots, what you do is you then pipe the subdivision, add roughly whatever the footage is required to cover each house that goes gas in the subdivision, and you build enough capacity into the line, going down the street, taking into account that you already know they're zoned residential, so you're eventually going to get those.*

and has no or very little relationship to the number of customers, as suggested by expert Chernick.

[130] This intervener stated that, unlike other North American distributors, the Gaz Métro network is extended mainly to serve customers who use high volumes of natural gas, rather than to densify to serve a larger number of residential customers.

Opinion of the Régie

[131] The Régie judges it important to clearly distinguish Gaz Métro from other North American distributors, in order to appreciate the cost allocation methods used by other distributors and how well they apply to the reality of Gaz Métro.

[132] The Régie considers that Gaz Métro is distinct from the comparable North American gas distributors presented by Overcast. In this regard, it shares the conclusions of ROEÉ and UC that the Gaz Métro network, unlike those of many other North American gas distributors, has not been developed to serve mainly low-volume customers.

[133] The Régie takes into account the weak market penetration of natural gas as an energy source in home heating and water heating for residential customers. It notes the low number of customers connected to the network, considering the size of the territory served. It also notes that despite a low density of customers per kilometer of line, Gaz Métro is clearly different from other distributors in terms of volume delivered per kilometer of lines.

[134] Gaz Métro is in first place, with more than 600 10^3 m^3/km of lines, more than double the volume delivered by Manitoba Hydro, which is in second place, and nearly seven times other distributors' average volume per kilometer (about 88 10^3 m^3/km).

[135] Finally, the Régie considers that the contextual elements dealt with in this section must be taken into account in the application of proposed methods of allocation of the costs of gas mains, as well as in the establishment of cost causality relations to guide the choice of allocation factors.

6. NETWORK CRITERIA

[136] The Régie judges it essential in cost allocation to take into account the technical criteria used by Gaz Métro to design the gas main network. Ultimately network design determines the costs of the gas mains that are added to the rate base of the Distributor.

[137] Examining the design criteria sheds essential light and brings understanding of the causal relationships between the type and the cost of the installed gas mains and the consumption profile and the nature of the customers who must assume their cost. With this in mind the Régie asked to have a hearing with a panel of Distributor witnesses familiar with the design criteria of the Gaz Métro gas main network.

Position of Gaz Métro

[138] The gas mains are in three groups, based on the pressure ranges they can support:

- transmission (4,400 kPa and more);
- supply (1,000 kPa to 2,900 kPa);
- distribution (0 kPa to 700 kPa).

[139] The Gaz Métro network has eight regional networks: Montréal, Laurentides, Montérégie, Estrie, Mauricie, Saguenay, Québec and Abitibi. Seven of these networks include transmission lines[37]. Gaz Métro confirms that the regional networks are independent of each other[38]. Thus, surplus capacity in one regional network cannot be used to supply the network serving another region[39].

[140] There are 23 design criteria for the Gaz Métro network[40]. The transmission network design criteria are partly different from those of the supply and distribution networks. For example, transmission line design does not take into account the flow rate from interruptible D_5 customers[41].

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37 Document A-0036, pp. 133-134.
38 Document A-0036, p. 149.
39 Document A-0036, p. 150.
40 Document B-0100, p. 4.
41 Document A-0036, p. 140.

[141] The 23 design criteria are grouped in four main categories: customer needs, validating network capacity, network design and cost analysis.

[142] When faced with a request for extension or capacity addition, the Distributor considers, beyond the capacity of the existing network, the following main design criteria: the flow rate and pressure required by the customer, as well as the location of the customer on the network in relation to the source point[42].

[143] Answering a question from ROEÉ, Gaz Métro pointed out that the number of customers can have an impact in the design criteria, to the extent that this value influences the future potential flow rate of a line[43].

[144] The criterion of customer location, number 21 *Location on the network*[44], allows the rate to reflect loss of pressure along the network lines. The greater the distance from the source point, the greater the pressure loss will be between the source and the customer to be supplied. This loss of pressure could influence the choice of pipe diameter by a customer compared to another customer who might have the same needs, but is located closer to the source point[45].

[145] Thus, in answer to a question by the Régie, the Distributor stated that an extension of the network to serve 100 customers with a flow rate of 5 m³/h would be of a similar type as a network extension to serve a single client whose flow rate is 500 m³/h, if the 100 customers are located at the same place on the network as the single customer[46].

[146] Regarding the composition of the clientele on the network, the Distributor said that high-volume customers at the end of networks may generally justify extensions, since connecting them usually satisfies the criterion of profitability[47]. It also said new low-volume customers near the source point may not need the support of a high-volume customer to justify an extension[48].

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42 Document A-0036, pp. 152-154.
43 Document A-0036, p. 116.
44 Document B-0100, p. 4.
45 Document A-0036, pp. 134-135.
46 Document A-0036, p. 137.
47 Document A-0036, p. 136.
48 Document A-0036, p. 138.

[147] Despite the foregoing, Gaz Métro insisted in discussion that the number of customers is an important cause of costs in the design of the network. In its opinion, the allocation method adopted by the Régie cannot overlook this without seriously compromising cost causality.

[148] Finally, Gaz Métro stated that taking the capacity and access components into consideration, particularly the latter, is justified when the design criteria of the network are considered, notably flow rate, pressure and the number of customers (also expressed in the notion of distance)[49].

Position of the interveners

[149] CFIB said that Gaz Métro has historically prioritized the connection of high-volume customers, who justify the financing needs of the main lines. The logic of investment is that transmission and supply lines are installed primarily to satisfy the needs of high-volume customers. Secondarily, the densification of the network through additional smaller diameter lines, such as 2-inch pipes used to connect lower-volume customers, is done gradually, only in some of the different regions of the Gaz Métro network.

[150] In the opinion of expert Chernick, it is the need for capacity and not the number of customers that are the real cause of the extension of Gaz Métro main lines[50]. He said that network extensions are mainly driven by the need to satisfy the needs of high-volume customers, and subsequently the Distributor densifies its network to increase sales and the profitability of the extension[51].

[151] In the light of the evidence presented in the file, ROEÉ asked the Régie to acknowledge that demand from high-volume customers dictates the flow rate, pressure and distance to cover, and not the number of customers or connections. In the view of this intervener, the evidence is conclusive that this is the real expression of cost causality in the development of the Gaz Métro network.

[152] UC stated that the Gaz Métro network is above all planned to serve the industrial and high-volume clienteles. It asked the Régie to adopt a cost allocation method for distribution and supply lines that takes into consideration that the number of customers

49 Document B-0123, p. 14 and following.
50 Document C-ROEÉ-0053, p. 10.
51 Document C-ROEÉ-0053, p. 13.

has very little impact on the costs of main lines, since it is the volume to be delivered and the overall demand that determines the length, capacity and therefore the cost of the lines.

Opinion of the Régie

[153] The Régie considers that the 23 design criteria ensure that the network, in its current configuration and its extensions to come, can respond to customer demands for flow rate and pressure. It also holds that the customer's location on the network is a determinant factor, since the greater the distance from the source of supply, the greater the loss of pressure.

[154] In hearings, the Régie sought to summarize these criteria into three imperatives for design criteria: flow rate, pressure and distance from the source point[52]. It recognizes that these elements correspond to several criteria used by Gaz Métro in the design of its network.[53].

[155] In addition, contrary to the interpretation of the three imperatives taken by the Distributor in its arguments, the Régie judges it important to clarify that it does not establish a causal relationship between the location on the network criterion and the number of customers.

[156] The Régie notes that the addition of customers brings additional needs and a greater flow rate requirement. Consequently, it considers that with the same flow rate, pressure level and location on the network, the number of customers does not impact on the characteristics of the network to be built to supply new demand, whether it's done for a single or several customers.

[157] However, the Régie holds that location in relation to the source point or new customers to supply has an impact on the level of loss that can be expected and will influence the type of pipe or the pressure that will be required to satisfy the new demand and, consequently, the cost of extension.

[158] Thus, for an equivalent flow rate and level of pressure, meeting the demand for a high-volume customer located at the end of a new line might require laying a pipe of

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52 Document A-0036, pp. 152-154.

53 Document B-0100, p. 4.

greater diameter, which would be costlier than that needed to supply 100 low-volume customers spread uniformly along a line of the same length.

[159] Finally, the Régie notes the statements by Gaz Métro that it is generally the high flow rate and high-volume customers who set up at the end of network and who help to provide economic justification of the extension required to supply them and that network additions thus constituted can be densified[54].

7. CLASSIFICATION OF GAS LINES

Position of Gaz Métro

[160] There are three main categories of gas lines. They are classified by function and the level of pressure at which the natural gas flows in them:

- The distribution lines bring natural gas from regulator stations to the customer connection. The pressure in distribution lines is between 0 and 700 kPa. Nearly 74% of the length of the pipelines in the Gaz Métro network are distribution lines.

- Supply lines serve both for delivery of natural gas to certain high-volume customers and for the transportation of natural gas from delivery points to regulator stations. Supply lines operate at pressures between 1,000 and 2,900 kPa. About 18.4% of the length of lines in the Gaz Métro network fall into this category.

- Transmission lines are generally of higher diameters than the other two categories. They carry gas at pressures between 4,400 and 9,928 kPa generally from connection points on the TCPL/TQM transmission lines[55] to the delivery stations. Only 7.6% of the length of lines in the Gaz Métro network fall into this category[56].

54 Document A-0036, p. 136.
55 TransCanada Pipelines Limited and TransQuébec & Maritimes inc.
56 Document B-0006, p. 26.

[161] Two functions are generally attributed to main lines:

- they allow access to the network (access component);
- they deliver the natural gas (capacity component).

[162] The gas main lines total 10,375 km in length and represent a major book value in the rate base of the Distributor[57]. According to the Study presented for the file, this item by itself is nearly $898 million, or about 58% of the amount of investment projected in the 2014 rate file[58].

[163] The transmission lines are presumed not to include the function of access to the network since customers are not directly connected to them, except in particular cases. In the Gaz Métro network, there are only three such customers. Consequently, the delivery of natural gas is considered to be the unique function of transmission lines. The cost of these lines is thus allocated between the different customer categories, based solely on capacity.

[164] The distribution lines, for their part, are assumed to have a dual function of allowing network access and delivering natural gas.

[165] As for supply lines, historically they have always been considered and treated in the same manner as transmission lines, since few customers are directly connected to them. However, Gaz Métro observes that a recent analysis showed that 782 customers are now directly connected to them. Of this total, the great majority, about 90%, are connected directly to a supply line for reasons of their geographic positioning in relation to the network[59]. In other words, it is not the flow rate or the pressure level required by the customer consumption profile that justifies its connection to a supply line, but simply the fact that it is more economical to connect it to the network in this manner.

[166] Given this reality, Gaz Métro considers that the supply lines have the double function of allowing network access and delivering natural gas, just like the distribution lines. Consequently, it considers that the determination of the allocation factor of the lines

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57 Document B-0006, p. 26.

58 Document B-0097, pp. 14-15: the supply and distribution lines total $888.6 million and the transmission lines $9.7 million. See also document B-0040, section Allocation: investment expenses total $1,550 million.

59 Document B-0068, p. 22.

must reflect this reality. In its opinion, there is no longer any reason to make a distinction between the supply lines and the distribution lines.

[167] Gaz Métro stated that beyond network design, it makes no distinction between the distribution and supply lines. All the lines whose pressure is below 2,900 kPa are considered as distribution lines, and lines whose pressure is greater than 4,400 kPa as transmission lines.

[168] Consequently, Gaz Métro proposed modifying the categorization of the supply lines for cost allocation purposes. It suggests that they be considered as high-pressure distribution lines and thus to have both an access component and a capacity component.

Position of the interveners

[169] Knecht mentioned that to the extent that the company does not have the data to make a more disaggregated or direct allocation of the costs of gas mains by client and by pressure class, his opinion is that the Gaz Métro request is consistent with the general theory of sharing of the costs of gas mains.

[170] According to CFIB, the similar treatment for supply lines and distribution lines that has been proposed would badly reflect cost causality.

[171] This intervener stated that the Distributor's customers who are connected to the supply lines are so connected solely for geographical considerations. Despite this, it judges that even if all of these clients were connected for reasons of their consumption profile, their number would remain insufficient to justify considering the supply lines as part of the distribution line system.

[172] CFIB consequently recommended rejecting the Gaz Métro proposal and maintaining the allocation for supply lines on the sole base of capacity.

[173] Expert Chernick had a similar view to that of CFIB. He said that there is no case for modifying the classification of the supply lines:

> *Q: Is this classification of supply lines appropriate?*
>
> *A: No. Supply mains, even more than the distribution mains, are justified by the demand of large customers, rather than the number of customers.*
>
> [...]
>
> *Q: What would be a reasonable classification of the supply mains?*
>
> *A: Gaz Métro could simply treat the supply mains as demand-related, as it has previously.* [...][60].

Opinion of the Régie

[174] The Régie understands that the pressure thresholds used to establish the subcategories of main lines have been modified from those presented in the R-3323-95 file. However, it notes that the Gaz Métro proposal conforms to the practices of its engineering department.

[175] **The Régie therefore accepts the following sub-classification of main lines proposed by Gaz Métro:**

- **transmission (4,400 kPa and higher);**
- **supply (1,000 kPa to 2,900 kPa);**
- **distribution (0 kPa to 700 kPa).**

[176] **The Régie also accepts to classify the transmission lines on the sole basis of their capacity,** to the extent that these lines serve essentially to deliver to the supply lines. Also, it notes that no intervener opposed this request.

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60 Document C-ROEÉ-0039, pp. 27-28.

[177] As for the classification of supply lines, the Régie shares the opinion of CFIB and Chernick.

[178] To the extent that the supply lines are high pressure lines whose main function is to supply the distribution lines, and considering that 90% of the 782 customers who are directly connected to them are connected for reasons of geographic proximity, **the Régie rejects the Gaz Métro proposal to classify the lines according to an access component and a capacity component.** It judges that the consumption profile as well as the number of customers directly connected to the supply lines do not justify such a classification. **Consequently, the Régie will maintain the classification of the costs of supply lines by the sole component of capacity.**

[179] Regarding the classification of distribution lines, the Régie deals with this issue in the following section.

8. CLASSIFICATION OF DISTRIBUTION LINES

[180] The distribution lines total 7,677 km of length, which is 74% of the overall length of Gaz Métro's gas pipelines[61].

[181] Regulation G-429 states:

> *The main reason for classifying pipelines as distribution lines may be that they respond to two distinct functions:*
>
> - *the function of allowing access to the gas network to the subscribers who are connected to them,*
> - *and the function of delivering the gas flows required by these subscribers over the course of the year*[62].

[61] Document B-0006, p. 26.

[62] Dossier R-3028-85, ruling G-429, p. 75.

[182] The first function is known as the *access component* and the second function the *capacity component.* The total costs of the distribution lines are generally shared or classified between these two functions.

[183] Currently, the access component is shared between the rate categories on a pro rata basis of number of customers. As for the capacity component, it is shared based on allocation factors that represent the peak capacity attributed to the customers and the capacity utilized.

[184] The sharing of the capacity component generally raises little debate. By contrast, the establishment of the access component and the manner of sharing it between the categories of customers is more controversial. Different methods are therefore examined in this section.

8.1 DISTRIBUTION LINE ACCESS COMPONENT – PROPOSED METHOD

8.1.1 POSITION OF GAZ MÉTRO

Zero intercept method – the current method

[185] The access component is currently calculated by using the zero intercept method. This method uses linear regression to calculate the cost of a null diameter line based on a series of data representing the relationship between the diameter of the pipes and their cost of installation.

[186] Gaz Métro stated that the preliminary analyses presented in the discussion document show the limits of the zero intercept approach in practical application. The problems of the accounting data and the statistical validity of the results have led the Distributor to question the use of this approach to estimate the access component of the costs of main lines[63].

[63] Document B-0111, p. 17.

[187] It identifies the following limits:

- the value of the intercept is not significantly different from zero for many regions;
- the small number of observations is the main cause of the statistical difficulties;
- the method sometimes leads to incoherent results; for example, a zero diameter line of negative or superior value to the cost of a line of two inches diameter[64].

[188] Overcast asserted that the zero intercept method is not valid for the classification of costs:

> *Zero intercept is a phantom attachment component to classify cost. It doesn't exist. And quite often, that's actually the result of the regressions, you get something that you can't even accept. I've talked about how design day demand reliability is the most important delivery consideration for a gas utility; but when you look at the zero intercept method, it's inconsistent with both considerations of it; attachment and design day requirements, because a zero capacity pipe can't deliver anything, it can't even deliver access*[65].

[189] Based on the results obtained and supported by the recommendation of Overcast, the Distributor proposed abandoning the zero intercept method calculated on a regional manner in the establishment of the access component, and to use a modified minimum network size method, established from weighted global data.

Minimum system method

[190] The minimum system method consists of evaluating the cost of a network that is as long as the existing network, but composed exclusively of lines that are the smallest possible diameter. This minimum system represents the simplest and smallest network that could reasonably be installed and for which the Distributor has data on the installation costs. This allows an estimate of the minimum cost that the Distributor would have to face to set up its network without taking into account the capacity required by customers. This minimum cost serves to evaluate the fixed cost that must be assumed by the clientele and corresponds to the access component.

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64 Document B-0111, p. 17.

65 Document A-0036, p. 184.

[191] Gaz Métro considers that this method allows a fairer application of the principle of cost causality, since it ensures that the minimum cost of the smallest possible network is imputed to the access component.

[192] Gaz Métro holds that the zero intercept method can lead to imputing to low annual volume rate categories a capacity component associated with a network of smaller size than the minimum system, as it would be estimated on the basis of two inch lines. In its opinion, the cost of the minimum system constitutes a fixed floor cost which should be shared entirely between the different rate categories. Those with a lower annual consumption should share their part of the minimum system and not an even smaller network. In this sense, Gaz Métro considers that the minimum system method proposed by Overcast is preferable to the zero intercept method in terms of the principle of cost causality.

[193] Regarding the minimum system method, Overcast mentioned:

> *Now, the Minimum System Method is superior to all these other classification methods. And it's superior because first, it reflects cost causation. And that's particularly true where they're no design day demand cost allocated to customers whose load is fully served by the minimum system. And that's the case, almost universally*[66].

[194] Based on the results of the statistical study carried out by the firm Black&Veatch[67], Overcast concluded:

> *We are left with the explanation that the primary cause of mains cost is the number of customers and the remainder of the cost is design day demand that becomes the second most important variable in explaining the investment in main*[68].

[195] He also mentioned that:

> [...] *typically, the system is growing every time you add a customer at the periphery. It doesn't matter what kind of customer it is. If you're going to extend*

66 Document A-0036, p. 182.
67 Document B-0106, p. 14.
68 Document B-0005, p. 14.

> *the system to connect a new subdivision, you're going to extend the system. And if you remember the graph we used on Monday afternoon, you saw all those pipes that run around in a residential development or a small commercial development and all those... all that footage of minimum size pipe is being caused to connect those customers. And the fact that it serves demand in total, we've taken that into account properly in the cost allocation study. <u>But it is the customers that are causing that cost.</u>*
>
> […]
>
> *And in fact, if you look at the line extension policy that we used for Atlanta Gas Light Company, it specifically, specifically says, if you are going to run an extension, and there is a piece of property zoned residential along the way, you can raise the size of the extension for that new customer that is further beyond where the subdivision is going to be and give them credit against having to make a contribution for the fact that you are going to develop a subdivision there because it is zoned residential. <u>So the answer is that demand by itself is an unreasonable factor for allocating the cost of mains</u>*[69]. [our underlining]

[196] In the opinion of Gaz Métro, another argument in favor of the minimum system method regards economies of scale. Overcast presents the following table to illustrate the importance of the economies of scale of a gas network. Thus, taking into account the major reduction of the unit cost of capacity when the pipe diameter increases, a high-volume customer should have a smaller unit cost of capacity allocated than that allocated to a lower-volume customer, in order to reflect these economies of a scale[70].

[69] Document A-0044, pp. 91-94.

[70] Document B-0005, p. 10.

TABLE 4
COMPARISON OF GAS PIPELINE UNIT COSTS BY DIAMETER

	Diameter of pipe		
	2" (60.3 mm)	**4" (114.3 mm)**	**6" (168.3 mm)**
Cost of material ($/m)	$4.50	$12.67	$32.19
Cost of installation ($/m)	$125.74	$136.99	$187.11
Total cost ($/m)	$130.24	$149.66	$219.30
Capacity at 400 kPa (m^3-day)	14 352	68 352	178 704
Unit cost of capacity ($/$m^3$-day)	$0.00907	$0.00219	$0.00123

Source: Document B-0005, p. 10.

[197] With the help of this data, expert Overcast showed that with a density of 20 customers/km, a network made up exclusively of 2 inch diameter pipe would allocate to each customer a capacity of 65,481 m³/year, assuming a utilization factor of 25%[71]. The expert added in this regard that:

> *This means that residential customers using under 65,481 m³ annually have the same cost as all other residential customers based on the assumptions of density and operating pressure. Less than one percent of residential customers served by Gaz Metro use more than 10,950 m³ and none use more than 36,500 m³. For a more urban density such as in the city of Montréal where there are more customers than the system wide average for Gaz Metro, the 36,500 m³ would represent an appropriate level of maximum annual use that permits two inch main to serve all of the customers* [footnote omitted]. *Similarly, small commercial customers using under 65,481 m³ annually have the same cost as other commercial customers. For larger customers that may be served off 4 inch main, the design day capacity cost is lower in total than for smaller customers up to 271,091 m³ or 4.14 times the design day capacity requirement of the largest customer served off the 2-inch main. This means that the total cost of serving the next largest size of customers is actually less per customer (assuming that these customers could be uniquely identified for rate purposes) than for the smallest customers on the system. Every gas LDC will have different densities, maximum pressures, allowable pressure drops, installed cost of pipe and distribution of*

[71] Document B-0005, p. 11, that is 14,352 m³/day*365 days/20 customers* 25% utilization factor = 65,481 m³/yr/customer.

> *customers. In general, the basic result that the minimum system will serve most or all residential and small general service customers will hold for most gas systems as it does here*[72]. [our underlining]

[198] Answering criticism that the minimum system method does not adequately recognize economies of scale, Overcast said:

> *Now, there's some misconceptions about the minimum system and one is that economies of scale are not recognized. And that's just not the case because what we do is we're classifying the total cost, and the total cost represents the economies of scale because the gas companies install the optimum combination of sizes of pipe. And so, their... the total dollars recognize that economies of scale concept and then we're classifying it sixty percent (60%) customer, forty percent (40%) demand*[73]. [our underlining]

[199] As a last argument in favour of the minimum system, Gaz Métro invoked its simplicity of application. It said that this method does not have the statistical problems of the zero intercept method. No linear regression is necessary, since the average cost of a 2 inch plastic pipe comes from the accounting database. Also, it notes that there is no problem with coherence of results.

Modified minimum system method

[200] Gaz Métro underlined that two cautions were generally seen in the specialized literature regarding the minimum system method.

[201] First, this method requires that the minimum system be very precisely described. In a gas network, this characterization is not constraining, since there is a relatively low number of distinct pieces of equipment to identify.

[202] Second, the minimum system method does not provide a precise isolation of the value of the access and capacity components. A minimum system, defined to establish the access component of a network, always has a certain delivery capacity, while the theoretical network composed of zero diameter pipes that is evaluated in the zero intercept method does not, by definition, have any delivery capacity.

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72 Document B-0005, p. 11.

73 Document A-0036, pp. 188-189.

[203] In the view of Gaz Métro, this is mainly why the minimum system method was not used by the Régie de l'électricité et du gaz in 1985, and why the zero intercept method is generally considered more accurate from a theoretical point of view.

[204] Gaz Métro, supported by Overcast, proposed a corrective to the minimum system method, in order to avoid having a double allocation of the capacity element attributed to low-volume rate categories.

[205] To apply this corrective, Gaz Métro must establish a volume threshold beyond which no capacity component would be allocated. It must take into account the density of its network in each of the regions, as it appears in the following table.

TABLE 5
AVERAGE ANNUAL VOLUME ALLOCATED PER CUSTOMER WITH TWO INCH PIPE AND DENSITY OF EACH REGION

	Density (customers/km)	**Annual allocation per customer (m^3/yr)**
Montréal:	27	48,504
Ile de Montréal	38	34,464
Laurentides	19	68,927
Montérégie	18	72,757
Estrie	8	163,703
Québec	13	100,740
Mauricie	9	145,513
Abitibi	9	145,513
Saguenay	8	163,703

Source: Document B-0097, pp. 16-17 document B-0045, p. 14.

[206] In order to establish this threshold, Gaz Métro subdivided the region of Montréal by isolating the clientele of Ile de Montréal from the rest of the clientele of the region. It considers that the average density observed on Ile de Montréal, 38 customers/km, is representative of the average density of the urban milieu. It notes that even if the average density experienced in the other regions is lower, the density of the network in the urban

areas of each region is a much closer match with that of Montréal than the average density of all of the regions as a whole. Based on this understanding, it considers a threshold of 36,500 m³/year as appropriate for the whole service territory and therefore sets a volumetric limit of the access component of 36,500 m³/yr[74].

[207] Thus, Gaz Métro, supported by Overcast, proposed that no capacity component be attributed to categories of customers whose needs are less than 36,500 m^3/yr.

Network density

[208] Given the great variety of densities of the regional networks, the Distributor was questioned about the relationship between the number of customers/km of lines and the cost allocated to each of the rate categories when the minimum system method is used. It recognized that the greater the level of density, for the same coefficient of use, the more diminished is the maximum volume that can be delivered to a clientele by two inch pipeline[75].

[209] Table 5 shows this relationship. For a density of 8 customers/km, a two inch line could satisfy a maximum volume of 163,703 m³/yr/customer. For a density of 38 customers/km, this volume would be 34,464 m³/yr/customer.

[210] Answering an information request, Gaz Métro stated that in a region that does not have municipal infrastructure in place, in the case of customers each consuming 2,500 m³/year, a density of 24 customers/km is needed to economically justify such a network extension. Where municipal infrastructure is already in place, the density required is 42 customers/km[76].

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74 Document B-0097, p. 17: "*Based on a maximum flow rate of 598 m³/h of a 2 inch plastic pipe, a density of 38 customers/km and a coefficient of utilization of 25%, when the optimal level is 34,464 m³/yr (598*24*365/38*25%). This approaches the rate level of 36,500 m³, the which has been used to determine the threshold of exemption from capacity*."

75 Document B-0045, p. 3.

76 Document B-0097, p. 32.

Data on main lines

[211] Whatever method is used, establishing the access component relies on data available on the costs of the main lines. Gaz Métro uses two databases: accounting information (AID) and Engineering.

[212] The AID helps to establish an average cost of the main lines based on the type of material and the diameter. The technical data from the Engineering database are used to determine the number of linear meters of line installed for each of the types of line, by material and diameter. According to the Distributor, the Engineering database is central to the establishment of the allocation factors[77].

[213] Before being used to calculate the average cost of each type of line by material and by diameter, the AID data must go through some initial processing.

[214] First, the book value of each line of the AID is stated in 2012 dollars by using the Handy-Whitman price index[78]. Then, the AID is adjusted to ensure that it has no extreme or incoherent data[79]. Gaz Métro explained that historically this adjustment was performed manually. However, no precise rule has been codified to determine what values are to be judged extreme or incoherent.

[215] For the present file, the adjustment of the AID has been standardized to structure and systematize this process. The objective is to ensure that the distribution of the resulting sample approaches as closely as possible a distribution which follows the normal rule.

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77 Document B-0121, p. 1.

78 Document C-ACIG-0028, p. 15, note at bottom of page 25: *"The Handy-Whitman Index of Public Utility Construction Costs" presents a series of cost indices for various types of construction costs for electric, gas and water utilities (as well as the construction industry), currently published by Whitman, Requardt and Associates ("WRA"). These cost indices have generally been published since 1924, and reflect cost trends since 1912. The basic intent of the indices is to allow for the estimation of reproduction cost for certain utility assets, based on the original book cost of the asset. For the gas utility industry, cost indices are derived for six regions of the United States. Gaz Métro proposes to use the indices for the North Atlantic region, which consists of twelve states stretching from West Virginia to Maine. With respect to mains costs, separate indices are calculated for cast iron, steel and plastic mains"*.

79 Document B-0045, p. 21 "Extreme or incoherent costs can arise for several reasons: bills that group together the costs for several types of assets, coding errors in project bills, erroneous cost imputation, imprecise allocation between different types of pipe and material".

[216] With the adjustment process, Gaz Métro excludes from the AID all lines whose cost is negative. Then it removes all lines whose real cost per linear meter is more than two deviation points from the average cost per linear meter of all of the lines of that type.

[217] Gaz Métro also obtained a representative sample for each type of pipe, made up of adjusted data whose distribution follows a normal rule but which in many cases has a high degree of asymmetry from the average. The proposed filter to correct this asymmetry is to deduct the extreme values by iteration. The number of iterations required varies from one series of data to another, but the process allows centering the distribution around the average value of the cost of each type of line. Despite this Gaz Métro states that it was not able to obtain a distribution which followed the normal rule for each type of line.

[218] Once the data adjustment was done, Gaz Métro derived the costs for each type of line by diameter and material, and analyzed the results. This analysis revealed certain problems which then led to the elimination of further data judged incoherent. Finally, all of this adjustment led to a value representing the supposed linear relation between the average cost of the lines and their diameter. The expression of this relationship is essential for the exercise of allocating the costs of the distribution lines between the access and capacity components[80].

[219] Gaz Métro also stated that when accounting data do not allow for the calculation of the average cost of a particular type of line that is part of the repertory of the Engineering database, this cost is estimated by linear regression.

[220] Gaz Métro recognized that the data contained in the AID did not agree with the inventory of the lines actually installed. It therefore must estimate part of the average costs that it uses in the cost allocation exercise for the main lines. It recognizes it cannot ensure that the costs used are the real costs observed, or even costs that are representative of the reality in some regions[81].

[80] Document B-0097, p. 11.
[81] Document A-0044, pp. 43-44.

[221] Gaz Métro recalled that in the past, the treatment process for the AID was done manually, non-standardized and undocumented. Thus, over time the data associated with real and well identified lines have been withdrawn from the AID, without giving good reasons. Consequently, Gaz Métro considers itself incapable of determining the validity of the results or explaining the variances that seem to exist from one region to another. Finally, it stated that it is not able to determine if the results reliably represent its natural gas distribution system[82].

[222] However, the Distributor sought to put this into context:

> […] *when we allocate costs, ultimately what we are allocating is the cost of the service. The cost of service is reliable. It exists. Therefore the allocation method, the factor, it might have flaws but that does not mean that the cost of service is not a reliable number because ultimately this is what must be allocated to the clientele*[83].

[223] The Distributor said that the Engineering database presents "*a fair reflection of the network as well as a measure of the cost of the lines and does not require any adjustment*"[84]. It includes all of the technical information regarding each of the main lines of the network and associates with each of them a cost estimate per linear meter coming from the AID.

Impact of changing method on cost sharing

[224] According to the modified minimum system method, the proportion of the cost of distribution lines in the access component is 74%[85]. The capacity component portion is therefore 26% of the cost of distribution lines.

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82 Document A-0044, p. 44.

83 Document A-0044, p. 46.

84 Document B-0121, p. 2.

85 Document B-0111, p. 53, Table 19. The zero intercept method applied to the distribution and supply lines yields an access component of 53%, while the modified minimum system method yielded an access component of 63%.

TABLE 6
MINIMUM SYSTEM METHOD WITH TWO INCH PLASTIC PIPES

(1)	Average cost per linear meter of the minimum system ($ 2012)	$171
(2)	Average cost per linear meter of the total network ($ 2012)	$230
(3)	Number of linear meters in the distribution network	7,676,861 meters
(4)=(1)*(3)	Value of the minimum size system ($ 2012)	$1,312,743,231
(5)=(2)*(3)	Value of the total network ($ 2012)	$1,769,175,903
(6)=(4)/(5)	Access component share	74%

Source: Document B-0111, p. 32.

[225] Using the modified minimum system method, the share of the access component increases significantly compared to the zero intercept method for clienteles using small amounts of natural gas, those whose annual consumption is below 36,500 m^3, as shown in the following table. This is particularly true for the category of customers in the first level of D_1, from 0 to 3,650 m^3/yr. Gaz Métro nevertheless maintained that despite this difference, it should be taken into account that no capacity is allocated to the categories of clientele using less than 36,500 m^3/yr.

TABLE 7
PORTION OF DISTRIBUTION LINE COSTS CLASSIFIED AS ACCESS COMPONENT

Rates	**Zero intercept** (%)	**Minimum system** (%)
D_1		
0-3,650	43.11	51.45
3,650-36,500	15.05	17.96
36,500 and +	3.30	3.94
D_3	0.07	0.08
D_4	0.03	0.03
D_5	0.02	0.03
D_{RT}	0.43	0.51
Total	62.00	74.00

Source: Document B-0111, p. 33.

[226] Overcast observed that customers in the first levels of D_1 not being attributed capacity represents an advantage for the modified minimum system method:

> *And that's an advantage of the minimum system, because they are getting a cost that's based on, they're getting their demand, and their customer access in the same cost. And that's because the way we've done it, we reflect the density of the system*[86].

[227] In conclusion, Gaz Métro proposed that the modified minimum system method be selected for allocating the cost of distribution lines, for the following reasons:

- it reflects cost causality;
- it is coherent with the network design criteria;

86 Document A-0036, p. 183.

- it is based on an empirical study by Black & Veatch showing that the number of meters of lines and their costs are a function of the number of customers[87];
- it is simple to apply.

8.1.2 POSITION OF THE INTERVENERS

[228] For ACIG, simplicity and stability are the advantages of the modified minimum system method compared to the current zero intercept method[88].

[229] Knecht indicated that while the zero intercept method is theoretically superior to the minimum system method, it has inherent difficulties that make its use both complex and unreliable[89].

[230] Furthermore, Knecht recognized the advantages of the minimum system method, especially with the adjustment made by Overcast, which attenuates the problems that are often associated with this method[90].

[231] Knecht concluded that:

> *The Company's choice of the minimum system method, combined with a modified demand allocator, is generally within the range of methods currently in use, and is not necessarily unreasonable. The Company's proposal has advantages of simplicity and stability*[91].

[232] However, he also pointed out some criticisms often made regarding the minimum system method:

> *It is often criticised, it has the same flaws as the zero intercept from a conceptual and arithmetic standpoint. It also is criticised in that it says this minimum system has some load carrying capability.*

87 Document B-0106, p. 14 and Document B-0123, p. 22, para. 116.
88 Document C-ACIG-0041, p. 6.
89 Document C-ACIG-0041, p. 11.
90 Document C-ACIG-0041, p. 11.
91 Document C-ACIG-0041, p. 12.

> [...] *it's very hard to say what the load carrying capability of this minimum system is*[92].

[233] Knecht underlined another problem of this method, that of sharing economies of scale:

> [...] *when you're defining your minimum system, is how do you share the economies of scale associated with that bigger pipe. Should the economies of scale be focused on the smaller customers or on the larger customers? And I think that's also a very contentious debate, with respect to the use of minimum system*[93]. [our underlining]

[234] He also noted that the capacity of a minimum system is overestimated to the extent that such a network would not be able to serve all of the needs of low-volume customers. Consequently, the access component could be underestimated with such a method[94].

[235] Finally, ACIG shared the concerns of other interveners regarding the exactness of the data contained in the AID. However, it stated that some realism must be shown. Given the size, complexity and age of some of the infrastructure in the Gaz Métro network, this intervener stated that it is illusory to presume to obtain perfect data for establishing average costs of lines that reflect the real cost of main lines. Knecht considers the work done by Gaz Métro on the AID data as responsible.

[236] CFIB raised that the modified minimum system method does not reflect the development or the use of the Gaz Métro network. In its opinion, the volumetric threshold of 36,500 m^3/yr does not take into account the composition of the clientele, nor the real consumption of customers in the first levels of D_1, nor the low density of the network.

[237] Using an average overall network density, which is 21 customers/km, each customer is allocated annual consumption in the range of 65,000 m^3/yr, taking into account a utilization factor of 25%. CFIB observes from analysis of the six first levels of D_1, that no single customer reaches this level of annual consumption, except for customers

92 Document A-0046, pp. 23-24.
93 Document A-0046, p. 25.
94 Document A-0046, pp. 24-25.

in the 36,500 m^3/yr and up level. Also, it underlines that the five first levels of D_1 cover 94% of Gaz Métro's customers[95].

[238] Taking into account the facts which arise from examining the historic evolution of the Gaz Métro network and its characteristics, CFIB concluded that the allocation of distribution and supply line costs by the modified minimum system method proposed by Gaz Métro is disconnected from the historical reality of the network and would not produce a fair allocation. Consequently, this intervener judged this method inappropriate[96].

[239] CFIB also deplored that Gaz Métro is seeking at all costs, with the help of the existing adjustment process, to have the AID data follow a normal distribution. For this intervener, the gas line installation costs can vary considerably on the basis of the circumstances of the pipeline installation, such as the type of soil, rural or urban area or geography. Consequently, it should not be expected that their distribution would follow the normal rule.

[240] Furthermore, it emphasized that to the extent that one expects that the unit cost of any line installed by the Distributor is higher or equal to zero, it is logical to observe an asymmetrical distribution to the right. Thus, CFIB holds that when Gaz Métro treats the data to make the distribution symmetrical, it eliminates a greater quantity of data to the right of the median, hence the data corresponds to the highest costs. According to the intervener, the process used by Gaz Métro leads to an under-evaluation of average costs.

[241] Expert Chernick considered that the modified minimum system method does not provide a realistic connection to causality between the costs of the network and the customers who generate these costs. He brought up the following arguments:

> [...] *Bonbright's Principles of Public Utility Rates, a standard reference for utility ratemaking, is cited by the Black and Veatch report for Gaz Métro, and also in Gaz Métro's own documents.* [footnote omitted] *Bonbright concludes (at 491–492),*
>
> *the inclusion of the costs of a minimum-sized distribution system among the customer-related costs seems...clearly indefensible. [Cost analysts are] under*

95 Document C-FCEI-0034, pp. 7-9.
96 Document C-FCEI-0022, p. 13.

> *impelling pressure to fudge their cost apportionments by using the category of customer costs as a dumping ground...*
>
> *Indeed, Gaz Métro proposes dumping most of the costs of the mains into the customer (or more specifically, customer-connection) category*[97].

[242] For Chernick, the minimum system method, which allocates a major portion of network costs with the number of customers as the main generator of costs is out of date. He said that this method does not take into account the real causes which incurred the costs of the main lines.

[243] This expert pointed to the lack of realism of allocation methods based on a minimum system because it is demand, and not the number of customers, which constitutes the real cause of extending Gaz Métro gas lines:

> *So then what does drive the mains extension? Well, in the minimum system theory, that's based on the assumption that the utility is willing to extend the mains at its cost for any customer, no matter how small. And I think Mr. Knecht makes this point very well, expresses very well that perspective when he says that the mains have to be extended to interconnect all customers.*
>
> [...] *Anyway, in the Minimum System Theory, there's this concept that the larger size customers only increase the size of the mains installed but never affect the length. The fact that the customer is larger never has any effect on the length of the main.*
>
> *Well, in contract* [contrast], *in the real world of Gaz Métro planning, it's those large demands that drive the major extensions of mains. You don't build mains out to pick up a few residential customers or one gas station a few kilometers out there. But if there's a big customer, then you'll run it quite a ways. And small customers may be added to those backbone mains, the ones that cover many kilometers and open up new territory.*
>
> *And more load from those small customers may require more capacity and a larger pipe but they don't require longer backbone mains. If there are enough of them along the way, they may justify running two inch lines, in the case of Gaz Métro - we're told that's enough to pick up the small customers – they may*

97 Document C-ROEÉ-0039, p. 11.

> *justify running those smaller mains off to add them to the system and if you have a very large number of small customers, then you may be able to justify an extension of the main just to pick them up.*
>
> *If, the example that Dr. Overcast kept talking about is if you have large new housing developments being built, you might have enough load there to justify running a new backbone main out to connect that area. But that's a function of the demand from those customers, not the number of customers*"[98].
>
> [our underlining]

[244] In the opinion of expert Chernick, when distributors design a network extension, they first identify the additional needs associated with high-volume customers who will justify in large part the fixed costs of installing the new main line:

> [...] *will typically identify large customers whose consumption and revenues will justify the largely fixed costs of trenching and installing the large-diameter backbone mains, and then serve small customers directly from the large mains or from smaller-diameter spurs. Those small customers can be added when the large-diameter main is installed or later (at a slightly higher cost). Thus, the basic assumption of the minimum-system approach, that the utility would have installed the same length of mains to serve a system of entirely small customers, is inconsistent with actual practice*[99]. [our underlining]

[245] In this regard, the expert pointed out that the largest diameter lines (greater than two inches) represent 61% of the total length of distribution lines and 67% of distribution and production lines. From this he underlined the importance of taking into consideration the allocation of the cost of these large diameter lines[100].

[246] The expert also referred to the Thetford Mines extension project in which Gaz Métro justified a project on the basis of connecting 14 high-volume customers and no lower-volume or residential customers[101].

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98 Document A-0046, pp. 139-141.
99 Document C-ROEÉ-0040, p. 15.
100 Document C-ROEÉ-0040, p. 16.
101 Document C-ROEÉ-0040, pp. 27-28.

[247] Also, the expert mentioned that the minimum system method meant that low-volume customers do not benefit from sharing economies of scale and bear the largest part of the trenching and installation of lines:

> *Well, in the minimum system theory, small customers get no economies of scale. You treat the small customers as if they were served exclusively off of two-inch lines, and they get no credit for just having part of the load in a much larger, more economic pipe.*
>
> *So the access component winds up recovering the fixed cost of trenching and installing two-inch pipe along every main of every size, and that winds up being a huge portion of the main's cost. And only the large customers get any of the economies of scale through the capacity component. And the small customers pay full stand-alone costs for a system of mains as if they were the only customers, and large customers pay less than they would have without the small customers, because the small customers get charged for digging the trench, tearing up the road, repairing the road, and putting in the most expensive part of the pipe, the first two inches.*
>
> *And I think that violates both the cost causality principle that I talked about before, and really the idea of average cost. Rather than thinking about the average cost of this pipe and how we divide that up, the minimum system approach is take more than average cost and put them on the small customers, and give the large customers... not a free ride, but an inexpensive ride*[102].
>
> [our underlining]

[248] Chernick therefore said that the method proposed by Gaz Métro and Overcast does not satisfy the criteria of fair and equitable sharing of economies and diseconomies between all categories of customers nor the principle of respecting cost causality:

> *As a result, Gaz Métro proposes to allocate almost all of the diseconomies of trenching to the small customers based on their number. This treatment violates the Regie's mandate of a "fair and equitable sharing of savings and diseconomies", as well as the requirement for using the "most direct causal relationship between costs and the customers that generated such costs*"[103].

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102 Document A-0046 pp. 144-146.

103 Document C-ROEÉ-0040, p. 9.

[249] For UC, the cost of lines flows from the amounts of the investments that Gaz Métro was ready to make to satisfy the needs of high-volume customers and deliver the volumes that it anticipated, and not the number of customers that it intends to serve. Thus, in the opinion of this intervener, the network was above all planned to serve the industrial and large business clientele[104].

[250] UC also emphasized that the reason given by Overcast to support his position, that it would be unreasonable to allocate the costs of lines uniquely on the basis of the required capacity, does not refer to the actual situation in Québec. This intervener stated that his position corresponds more with the reality of the United States where residential development and its predictability has a greater effect on the extension of lines to serve a greater number of residential customers[105].

[251] UC recommended that the Régie select an allocation method for the cost of main lines that takes into account the particular situation of Gaz Métro in the North American context regarding the history of its investments and the fact that network extensions have for many years generally been caused by the demands of major industrial commercial and institutional customers, and not by residential customers.

[252] As for the data contained in AID, UC said that they pose a problem, since the costs found in them do not reflect the actual lines in the ground. This intervener holds that there is no match between the lines covered in the AID and those that are really in the ground.

8.1.3 OPINION OF THE RÉGIE

[253] The choice of an allocation method for the cost of main lines is a complex question for which there is no simple and evident answer. As expert Knecht observed:

> *In terms of allocating mains' costs, there is no perfect method, there is no agreed-upon method. If there were a simple answer to this problem, we'd have sorted it out a long time ago, we wouldn't all be going around and arguing about minimum system and zero intercept, and which is better and which is worse, if this were a clear problem*[106].

104 Document C-UC-0018, p. 8.
105 Document C-UC-0018, p. 13.
106 Document A-0046, p. 16.

[254] Gaz Métro maintained that the modified minimum system method should be adopted because it obtains the best respect for cost causality. It holds that this approach is coherent with the design criteria of the network and represents the method that best explains the relationship between the cost of main lines and the number of customers they serve.

[255] The Régie considers that this causal relationship is not as clear as the Distributor would have us think. In this respect, it shares the view of Knecht and considers that if the minimum system method was at this point effective in reflecting cost causality, there would be no divergence in the point of view of experts, interveners and distributors. The choice of method would be simple and unequivocal, which is not the case here.

[256] During its examination of the different methods of allocating the cost of main lines, the Régie must evaluate those which best satisfy the principles laid out previously and which suit the particularities and the context of the Gaz Métro network.

Database

[257] Gaz Métro explained that since the adoption of the SAP Expert System, there are no more direct links between the information saved for the needs of the accounting or financial registers in the SAP modules and the data stored in the AID. The Régie is concerned by this loss of links that no longer allows Gaz Métro to maintain the fundamental understanding that it must have regarding the costs of installing its network.

[258] The Régie considers that this loss of links means a lack of understanding about the historic development of the network, the evolution of investments, the cost of installation of lines by type of material, by diameter, by region and by year of installation. This is essential information for the exercise we are doing in this phase of the file.

[259] Given the above, the Régie considers that the use of average costs derived from the AID and used as inputs in the Engineering database reduces the representativity and significance of the classification methods that depend on access to detailed and reliable facts.

[260] It judges that the average costs by diameter of pipe obtained from the AID data and the adjustment process employed by Gaz Métro do not give a sufficiently robust guarantee to evaluate the different methods. The Régie notes that Gaz Métro itself shares this view[107].

[261] Thus, the Régie must handle with great care any method that uses the detailed data from the AID. **The Régie considers that the Distributors must henceforth do what is required to re-establish these links in order to constitute an AID that is reliable and representative of the real network in the ground.**

Cost causality

[262] Based on the facts established above, the Régie notes that all of the network design criteria are set out and regulated in order to ensure that the existing network and the planned extensions will satisfy the capacity needs required by customers.

[263] The Régie also understands that when a need for network extension arises adding given distance from the origin point, beyond geography and the type of terrain where the line will be entrenched, it is the pressure and flow rates required which determine the cost of the addition and not the number of customers to be served. Therefore, the Régie does not hold with the view of expert Overcast that the number of customers should be the first factor regarding the costs of lines.

[264] Furthermore, the Régie notes that, as admitted in the hearings by Gaz Métro[108], its network is developed mainly through extensions that are built to add major industrial clients and that, consequently, these extensions allow the connection of other customers who contribute to the densification of the network. In this regard, the Régie shares the position of the CFIB as well as the opinion of expert Chernick.

[265] Therefore, the Régie cannot support the Overcast thesis by which the type of customer connected is not important. It recognizes that it is possible to make this assertion in the business environment of other gas distributors, but it does not apply to Gaz Métro. The place of natural gas in the energy use of Québec households and the history of the

[107] Document A-0044, pp. 43-44.
[108] Document A-0036, p. 138.

development of Gaz Métro's network mean that this approach does not suit the territory served by the Distributor.

[266] Also, the Régie notes that the great variety of the Gaz Métro network when the regional components are compared in terms of their densities. On average, the network has 21 customers/km of lines, but it varies between 38 customers/km on the Ile de Montréal and 8 customers/km in the regions of Saguenay and Estrie.

[267] The Régie accepts the testimony of Overcast that a minimum system composed solely of plastic pipes of two inch diameter plastic pipes, with the density of 20 customers/km, would allocate a capacity of 65,481 m³/yr per customer, assuming a coefficient of use of 25%. In the regions of Estrie and Saguenay, with a density of 8 customers/km, the capacity attributed to each customer would be 163,703 m³/yr[109].

[268] As recognized by Gaz Métro and Overcast, the density of the network has an impact on the maximum volume allocated to each customer for a 2 inch line[110]. The Régie is concerned by the great variability of maximum volume allocated per customer, since it varies from 163,703 m³/yr to 34,464 m³/yr for, respectively, density levels of 8 and 38 customers/km. This variability of allocated volumes necessarily translates into variability of the value of the access component. The Régie considers that this variability of the unit cost per customer does not adequately reflect cost causality in the determination of the access component.

[269] Furthermore, the Régie understands that the Gaz Métro proposal, which sets as 36,500 m³/yr as the threshold beyond which customers are allocated a capacity component, has the consequence that customers consuming between 36,500 m³/yr and 65,481 m³/yr, or even 163,703 m³/customer for certain regions, would receive a double allocation of capacity.

[270] The Régie also notes that nearly 94% of customers consume a volume less than 36,500 m³/yr[111]. In fact, these customers consume an average annual volume in the range of 4,400 m³. The Régie judges that the minimum capacity allocated to each customer by access component derived by the modified minimum system method largely exceeds their needs, even when taking into account the fact that customers consuming less than

109 Document B-0005, p. 11.
110 Document B-0045, p. 3, answer to question 2.2.
111 Document B-0040, tabs FB01D and FB08.

36,500 m³/yr will not be allocated any capacity component. On this point, the Régie endorses the main elements of the CFIB analysis[112].

[271] The Régie shares the view of Chernick by which the modified minimum system method depends on the hypothesis that the Distributor would have developed the same length of network that it actually has done to hook up all of its customers, independent of their level of consumption and that the latter has no impact other than on the diameter of line installed to meet the needs.

[272] The Régie does not share this hypothesis of the Distributor, because it does not apply in the context of its network. In fact, it stated that the usual criteria of profitability will not have to be satisfied if the entire length of the present network had been developed in 2 inch plastic pipe to serve solely the customers who have small volumes of annual consumption.

[273] **For all of these reasons, the Régie considers that the modified minimum system method does not adequately reflect the causal relationships between the cost of distribution lines and the factors causing these costs. Consequently, it judges that this method does not satisfy the principle of respect for cost causality.**

Sharing economies and diseconomies of scale

[274] The Régie shares the opinion of expert Chernick that the attribution of the cost of a minimum system network for the access component has the consequence of integrating economies of scale with the capacity component. Thus, only customers who require capacity beyond the average unit capacity of the minimum system network benefit from major economies of scale. The Régie judges that such a sharing of economies of scale is not equitable.

[275] Taking into account the particular context in which the Distributor evolved, the Régie considers that the economies of scale inherent in the distribution network must be shared with all of the customers, including low-volume customers.

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112 Document C-FCEI-0034, p. 7 and 9.

[276] In this regard, the Régie does not accept the view of expert Overcast that economies of scale are fairly shared between customers with the minimum system method since they are taken into account in the total cost of the network which is the outcome of the optimal choices of the size of pipes required to satisfy the needs of the customers.

[277] The Régie is concerned by the major transfer of costs to low-volume customers that occurs with the application of the modified minimum system method. Also in this regard, Overcast specified that less than 1% of residential clients consumed more than 10,950 m^3/yr and that none consumed more than 36,500 m^3/yr[113].

[278] The Régie considers, as does expert Chernick, that not only do these 99% of customers receive an undue share of the fixed cost of the installation of the minimum system network, but at the other end of the spectrum, high-volume customers would profit from an overlarge proportion of the economies of scale. This fact is even more concerning since the Régie takes into account the needs of high-volume customers constituting the main motivating factors in the development of the Gaz Métro network.

[279] **For all of these reasons, the Régie considers that the modified minimum system method does not satisfy the principle of ensuring a just and equitable sharing of economies and diseconomies of scale.**

[280] **Consequently, the Régie judges that the modified minimum system method proposed by the Distributor does not satisfy two of the principles of this exercise. Therefore, it rejects the method proposed for establishing the access component of distribution lines.**

8.2 ACCESS COMPONENT OF DISTRIBUTION LINES – OTHER METHODS

[281] In the present file, apart from the minimum system method, modified or not, four other methods were discussed by the experts:

- The 100% capacity method (100% of costs to capacity component);
- The method proposed by expert Chernick;

[113] Document B-0005, p. 11.

- The zero intercept method;
- The direct allocation method.

[282] The 100% capacity method does not recognize the existence of an access component. It assumes that the cost of the lines has a sole cause: the capacity required by the customers.

[283] The method proposed by Chernick consists of allocating the cost of two inch and smaller lines entirely to the access component, while the access component of the cost of higher diameter lines is identified by using the average unit cost of capacity of these lines applied to the capacity of a two inch line[114].

[284] According to the zero intercept method, the access component is represented by the theoretical cost of a zero diameter line and is determined with the help of linear regression carried out on a data series for the installation cost of the lines based on their diameter.

[285] The direct allocation method consists of allocating to each user the cost of lines that are used by that customer above its installations prorated to the capacity required by each of the customers using these lines[115]. This method does not recognize the existence of an access component. The use of such an allocation method requires a detailed and reliable databank[116].

8.2.1 POSITION OF GAZ MÉTRO

100% Capacity Method

[286] Gaz Métro opposed a method that assigns all costs to the capacity component, as did all of the experts on this file.

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114 Document A-0048, pp. 81-83.
115 Document C-ACIG-0028, p. 10.
116 Document C-ACIG-0028, pp. 10-11.

[287] Overcast reiterated the importance of the number of customers as a criterion for the cost causality of a network. In his opinion, no matter the type of customer, whether residential, commercial or industrial, the number of customers connected to the network has the consequence of increasing the number of km of line.

[288] Questioned by the Régie on the respect for the principle of cost causality when the 100% capacity method is used, he said:

> *No, it wouldn't represent a better cost causality because, typically, the system is growing every time you add a customer at the periphery. It doesn't matter what kind of customer it is. If you're going to extend the system to connect a new subdivision, you're going to extend the system. And if you remember the graph we used on Monday afternoon, you saw all those pipes that run around in a residential development or a small commercial development and all those... all that footage of minimum size pipe is being caused to connect those customers. And the fact that it serves demand in total, we've taken that into account properly in the cost allocation study. But it is the customers that are causing that cost. And it's also true that customers are causing the cost because, not only is that theoretically right, it's also empirically correct because we've run multiple studies that all show that customers, or services as the case may be, is a proximate cause of the main in distance and the main in cost and we've looked at it as time series* [...] [117]. [our underlining]

[289] As for his opinion on a method that classifies total costs to the capacity component, he said:

> *For distribution mains, allocation on the basis of capacity alone will not be consistent with cost causation unless the mains investment was segmented by pipe size so that larger customers would get no share of smaller pipes they did not use. Even then the cost study would over allocate costs to larger residential customers and under allocate cost to smaller customers who use the exact same main. The allocation on the number of customers for small customers actually mirrors perfectly the way the system is designed, constructed and operated. Since cost causation is the gold standard of cost of service the allocation of a customer component of mains is the only option that meets the standard*[118].

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117 Document A-0044, pp. 91-92.

118 Document B-0097, p. 33.

Method proposed by expert Chernick

[290] Gaz Métro observed that there was a gap between the position defined in the written evidence of expert Chernick, in which he did not recognize that the number of customers would be a cause of costs, and his recommendation stated in the hearing, when he proposed a method that included an access component.

[291] The Distributor said that the approach outlined by Chernick would allocate economies of scale in an unreasonable and unfair manner. Examining one of the scenarios presented by Chernick, it was of the opinion that low-volume customers would benefit from 100% of the economies of scale generated by the installation of a six inch diameter line[119].

[292] Furthermore, Gaz Métro maintained that a method that relies on a sharing of cost between the access and capacity components cannot allocate the more important costs to large customers as well as a method relying solely on a capacity component. The Distributor also alleged that an access-capacity method could only have the outcome of an access component that would be less than, in percentage terms an access component established by the zero intercept method.

[293] The Distributor said that using the zero intercept method, the access component established for supply and distribution lines would be 53%. As for the method proposed by expert Chernick, it would bring a result of 31% for this component. The Distributor submitted that such results are contrary to the principle of equity which must prevail in the allocation of costs[120,121].

[294] Given the above, the Distributor stated that if the Régie should nevertheless adopt the Chernick recommendations, this method should be adjusted to include a capacity component applicable to customers using less than 36,500 m^3.

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119 Document B-0123, p. 26.

120 Document B-0123, p. 26.

121 Document C-ROEÉ-0050, p. 17. According to the method proposed by expert Chernick, the access component established on the basis of distribution lines alone would be 42%.

Zero intercept method

[295] As mentioned previously, the Distributor proposed to abandon the zero intercept method in favour of the modified minimum system method.

[296] Asked to comment on the criticisms regarding the zero intercept method, expert Overcast said:

> [...] *It seems to me that the arbitrary notion that some of the fixed cost of main is adjusted as variable is incorrect both practically and theoretically. The independent variable in the equation is the variable capacity not cost of main. The zero intercept is an estimate of the cost per foot for a zero capacity pipe in theory (with all the caveats discussed answered in response of question 1.1). The fixed cost of pipe does vary with capacity in any event because the grater the load above the load supplied by the minimum system the capacity cost increases albeit at a declining rate per unit of capacity. With respect to transmission mains it is normal to allocate the cost of these mains on capacity*[122].

8.2.2 POSITION OF THE INTERVENERS

ACIG

[297] Expert Knecht previewed the different methods used for the classification of the lines, in particular the criticisms of these methods. The Régie summarises below the key points of this review.

[298] The expert dealt above all with the complexity implicit in developing a method of cost allocation:

> *AT EXHIBIT B-0023 PAGE 6, THE COMPANY INDICATES THAT CLASSIFYING AND ALLOCATING MAINS COSTS IS THE MOST COMPLEX AND MOST CONTENTIOUS ASPECT OF NGDC COST ALLOCATION. DO YOU AGREE?*

[122] Document B-0097, p. 33.

> *I do.*
>
> *In traditional NGDC cost allocation studies, the primary debate applies to the issue of "classifying" mains costs into demand-related, customer-related and (sometimes) energy-related components. This debate arises for two basic reasons.*
>
> *The first is that there is no obvious theoretically correct answer to the question. From an engineering perspective, each length of main must be sized to meet the maximum demand of all firm service customers downstream from that main (without an undue loss of pressure), and the total mains system must be extended to interconnect all customers. This leads to a common sense conclusion that mains costs are causally related to both design demand (size of pipe) and number of customers (length of pipe). However, mains costs are also affected by a variety of factors, including differences between urban and rural construction, soil conditions, road conditions, rights-of-way, etc., and it is unclear whether or how such factors can or should be reflected in a cost allocation study. Moreover, as Dr. Overcast correctly demonstrates, mains costs exhibit substantial economies of scale, and it is a matter of some debate about how those economies should be reflected in mains cost allocation.* [footnote omitted]
>
> *The second reason for the debate is that the choice of methodology has a large impact on the end result* […][123]. [our underlining]

[299] As for the 100% capacity method, Knecht had this to say:

> *In numerous cost allocation proceedings in which Mr. Knecht has participated, some cost allocation experts express the view that no portion of customer costs should be classified as customer-related, because the "fixed" component in the minimum system or zero-intercept method is not correlated with customer count.*
>
> [...]
>
> *As described in Mr. Knecht's evidence, Mr. Knecht believes that such a method would fail to reflect the length factor in system mains. While the length factor for any particular system can only be derived by detailed analysis, the general conclusion that mains costs are in some way proportional to customer count is corroborated by the statistical analysis shown in Exhibit B-0005 (B&V report) at pages 13-15*[124].

[123] Document C-ACIG-0028, p. 5.

[124] Document C-ACIG-0031, pp. 18-19.

[300] He had this conclusion on the importance of the access component:

> *Conceptually and from a common sense standpoint, regardless of the fact that there's a relatively low customer density on the system, it still means that there is a customer component. Conceptually there is a customer component of costs related to the extra length of mains that need to be installed to attach all the customers and there's a demand related cost. So the answer to your question is : if we're using a generic method, yes, I believe there should be an access component*[125]. [our underlining]

[301] Expert Knecht mentioned that to his knowledge, the method classifying 100% of the cost to the capacity component is used in certain jurisdictions in the United States, but nowhere in Canada[126]. He also mentioned that this method has the effect of allocating a major part of the cost of the lines to high-volume customers[127].

[302] ACIG held that the outcomes of the methods proposed by Chernick for the capacity component of lines with a greater diameter than two inches would be clearly over-evaluated and would have no relationship to the real contribution of D_4 and D_5 customers to the capacity of the distribution and supply lines[128].

[303] ACIG underlined the importance of not underestimating the very prejudicial consequences for high-volume customers that would come from the adoption of the approach suggested by expert Chernick to the relative weight of the access and capacity components that he proposed for the main lines.

[304] ACIG therefore recommends rejecting the method suggested by expert Chernick for sharing the cost of main lines between the access and capacity components.

[305] Regarding direct allocation for main lines, Knecht was of the opinion that this method theoretically constitutes the ideal approach compared to zero intercept or minimum system methods:

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125 Document A-0046, p. 87.
126 Document A-0046, p. 22.
127 Document A-0046, p. 22.
128 Document C-ACIG-0041, p. 12.

IS THERE A COST ALLOCATION APPROACH THAT IS THEORETICALLY SUPERIOR TO THE MINIMUM SYSTEM AND ZERO-INTERCEPT METHODS?

I am not aware of a simple, practical, widely used approach that is superior to these established methods.

Ideally, mains costs would be allocated only to customers who use the mains. The only way to accomplish that objective in a way that reflects the specific configuration of a particular gas system would be to evaluate the distribution system at a very detailed level. It is simply not possible for a minimum system or zero intercept method to correctly assess whether mains footage is being driven primarily by the need to serve distributed residential customers, or it is being driven by the need to serve remote industrial customers.

In such an ideal detailed method, the cost for each segment of pipe would be allocated to customers downstream of that pipe segment, based on each customer's design demand served by that pipe segment. This type of approach would have the advantages that mains costs would be assigned only to customers who use the mains, the demand-related component of cost would be directly reflected in the allocation of each pipe segment, and the customer-related component of cost would be directly reflected in that the costs for many kilometers of small-diameter mains would only be assigned to the small customers served by those mains, while the larger customers who required extended mains would be allocated the appropriate costs. As such, this approach would be fully consistent with the "decomposition" principle identified by Gaz Métro.

The obvious disadvantages to such an approach are the complexity and the detailed data requirements. Such an approach could only be undertaken if (a) the Company has the necessary data and information systems, and (b) the Company sees value in undertaking such an approach. At present, it is my understanding that the Company does not have the requisite information to undertake such a detailed evaluation. As the geographic information software and system modeling tools improve, I would expect that such an approach would become increasingly possible[129]. [footnote omitted] [our underlining]

[129] Document C-ACIG-0028, pp. 10-11.

ROEÉ and UC

[306] Expert Chernick presented a method for establishing an access component, even though he maintained that the number of customers does not necessarily have an impact on the length of the installed lines. The method he proposed assigns 42% of the costs of the distribution lines to the access component[130].

[307] Chernick proposed a new method, that he summarizes this way:

> *Now, in the realistic planning model that I put forth, where two-inch pipe is actually installed, then the trenching and other costs are allocated on the connection count and go primarily to small customers. Those are small lines, we think that they serve primarily small customers, and so the small customers primarily pay for them. And that's really the same as Gaz Métro's approach for those lines.*
>
> *But where larger lines are installed, then the trenching and the cost of the actual pipe, in my approach, is allocated on demand and spread out over everybody who uses the pipe. And the small customers are just part of that, and they wind up paying less than they would for a two-inch pipe, since there's actually a big pipe, and their requirement in that pipe is relatively inexpensive. As Dr. Overcast has explained in great detail, there are lots of economies of scale in pipe diameter*[131].

[308] Chernick explained in this way the differences between the method he proposes and the minimum system method:

> […] *we take the same groups of customers and say they're responsible for all the two-inch lines and then some of the larger lines. The difference is basically how we allocate out the economies of scale in those larger lines and Gaz Métro and Dr.Overcast say, "Charge the small customers as if you had built a two-inch line just for them and then give all the economies of scale to demand", to essentially the larger customers, and I say, in my tables 1 and 3, I say, "No, let's look at those larger pipes and say what's the average cost and let's take the capacity..." basically you've got this big pipe and you say, "Okay, this piece of it would be the equivalent of a two-inch pipe. "*

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130 Document C-ROEÉ-0050, p. 17. The method proposed by expert Chernick classifies 31% of the costs of the supply and distribution lines in the access component.

131 Document A-0046, pp. 146-147.

[...]

So there's benefits for everybody using that pipe from the fact that it's one big pipe and not a lot of little pipes and my approach is to assume that the small customers would have needed the entire capacity of a two-inch pipe which is not likely the case, you know, obviously because there are some smaller pipes and it's hard to believe that each of the two-inch pipes is exactly filled with gas at its maximum.

But I make that assumption and say, "Put all of the cost of enough capacity to carry what a two-inch pipe would carry, give that to the access charge and hence, basically, to small customers, to the customer charge, customer allocation and give the rest of it to the demand classification"[132]. [our underlining]

[309] In the hearings, questioned on the sharing of economies of scale that would occur in his method, Chernick replied:

Then do you still think that Table 1 over-estimates the access component?

A: There may be portions, elements that would tend to overestimate the access component, but I have not been able to calculate those[133].

[310] Regarding the use of the method that classified 100% of cost to the capacity component, he said:

I don't think I recommended that a hundred percent (100 %) capacity allocation for the mains... [...] *was really the fairest. I said that many jurisdictions use that approach* [...] *and if, at some point, the board looks at the messiness of the data and the difficulty in sorting out all the different cases* [...] *and wants to have a simple rule, the simple allocation which comes closest to being equitable would be a demand allocation*[134].

[311] UC held that the comments of the expert Overcast, affirming that a residential development, when it is built, would automatically be connected to the natural gas distribution system, does not take into consideration the exceptional reality of Québec. On the Gaz Métro territory, this source of energy is competitive with electricity for heating water and homes, which are its normal niches elsewhere in North America. UC said it is

132 Document A-0048, pp. 81-83.
133 Document A-0048, p. 67.
134 Document A-0048, p. 71.

false to affirm, as Overcast does regarding the residential clientele, that this clientele would eventually become customers (*"eventually going to get those").*

[312] Consequently, UC asked the Régie to adopt a method for allocating the cost of distribution and supply lines that takes into consideration the fact that for Gaz Métro the number of customers has very little impact since the volume to deliver and the overall demand are what determines the length, capacity and therefore cost of the lines.

8.2.3 OPINION OF THE RÉGIE

[313] The Régie has carefully considered the views of three experts on the classification methods of main gas lines. As underlined by Gaz Métro, the file has compiled extensive evidence[135]. Taking into account these different opinions, the weaknesses of the database used by the Distributor and the particular context in which this network evolved, the Régie wishes to adopt a method that respects the principles established earlier.

[314] The Régie considers that the evidence presented by the experts has been useful and has enabled a good understanding of the theoretical fundamentals of the methods and the identification of the advantages and the limits of each of the approaches that have been discussed. It can therefore make a matching of the proposed method and the establishment of better causality taking into account the specific context of Gaz Métro.

[315] The Régie observes that, except for the direct allocation method, none of the methods examined take into consideration the pressure levels and flow rates required by the customer or its location on the network. Also, examining the evidence has shown that these criteria are important parameters taken into account during the design of the network.

[316] The Régie notes that, as illustrated in Figure 6, the methods analyzed produce results that cover a wide spectrum in terms of the classification of costs of distribution lines between the access and capacity components.

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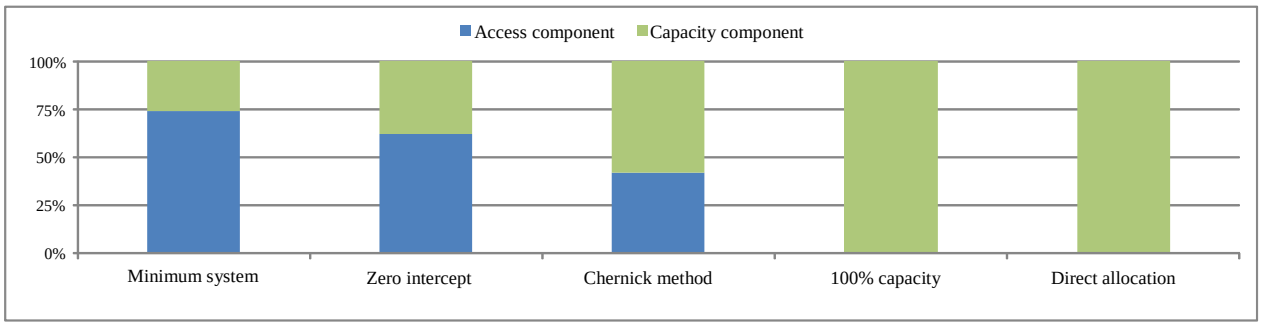
135 Document A-0036, p. 25.

FIGURE 6
COMPARISON OF RESULTS OF METHODS



8.2.3.1 Direct Allocation Method

[317] The Régie shares the opinion of expert Knecht, and judges that ideally the best method for allocating the cost of main lines to the customers would use direct allocation.

[318] The Régie considers that this method, as described by Knecht, provides the most adequate reflection of the principle of cost causality since each of the customers assumes a part of the cost of the lines it uses.

[319] The Régie also judges that the direct allocation method allows an equitable sharing of the economies of scale between the customers, to the extent that the cost of each line segment is allocated to the customers who use it, prorated by the capacity required by these customers. Thus, the unit cost of the capacity of a line is the same for all customers who use this line. In such conditions, economies of scale on that segment are shared uniformly for each m^3-day of capacity of this segment. It is the same for the diseconomies of scale or the cost associated with excess capacity of the network.

[320] This method is significantly distinct from the methods which set an access component based on the length of the network, which is the case for the minimum system method, the zero intercept method or the method proposed by expert Chernick.

[321] However, given the information that was presented regarding the availability of the quality of AID data, the Régie considers that it is unlikely that the direct allocation method can be used in the near term. **Consequently, it reiterates its request to the Distributor to set up internal processes for data collection that will resolve the problems that have come to light in this matter in the present file.**

[322] Finally, the Régie notes that the direct allocation method does not specifically identify the access component. Thus, when a client connected to the network does not consume gas for a year, no cost would be allocated despite the fact that that customer has access to the gas network. The Régie considers that this possibility of free services constitutes the main weakness of this method.

[323] In conclusion, the Régie considers that the direct allocation method best reflects cost causality and allows an equitable sharing of the economies and the diseconomies of scale between the different categories of customers. However, this method is impractical given the weaknesses of the AID. Also, it requires an adaptation to introduce an access component.

8.2.3.2 Zero intercept and Chernick methods

[324] The zero intercept method and the method proposed by expert Chernick allow the establishment of an access component. The Régie notes that all of the experts agree on the importance of this component, that determines which portion of the costs of the main lines are identified as the cost of a clientele's access to the network. They recommend the adoption of one of these methods, for this very reason.

[325] In the light of the commentary of the experts, the Régie has drawn the following conclusions on these two methods:

- They assume a correlation between the number of customers and the number of km of installed lines, as does the minimum system method;
- They identify a fixed portion of the cost of line installation that they associate with the access component, and determine a unit fixed cost per meter to be multiplied by the number of meters of installed line, as done in the minimum system method;
- From the point of view of methodology, they are similar to the minimum system method, but are distinguished by the different calculation of the unit fixed cost.

[326] The Régie considers that these two methods have sufficiently similar methodologies that they can be examined simultaneously to determine the extent to which they respect the principles laid out previously.

Cost Causality

[327] Like the minimum system method, these two methods identify a minimum fixed cost of installation of the network by meter of line. This cost corresponds to the cost of installing a hypothetical line of zero diameter, or minimum size, and is transposed to each km of line on the existing network. The cost of the access component is thus a function of the number of km of network lines, and the minimum unit cost thus calculated. The Régie understands that the density of the network has no effect on the sharing of the costs of the lines associated with the access component developed using these methods.

[328] The Régie asked about the causality relations between the number of customers served by a network and the associated costs in the access component determined by the Chernick method and the zero intercept method. In this regard, it holds to the position of the opponents of the zero intercept and minimum system methods, as expressed by expert Knecht:

> *In the simplest interpretation, this model splits costs into "fixed" and "variable" components, in which the "variable" costs related to the capacity of the mains are deemed to be demand-related and the "fixed" costs (as represented by the* $a * F_T$ *term) are assumed to be related to number of customers. In this framework, the classification of the* $\Sigma^i b * K_i * F_i$ *term as demand-related is theoretically sound, as these costs are clearly proportional to demand. (Since main carrying capacity must be sufficient to meet peak demand, customer demand and main carrying capacity are equivalent.)*
>
> *However, the obvious difficulty with this framework is that fixed costs are fixed, and there is not a strong theoretical basis for allocating those costs based on number of customers, peak demand, commodity throughput, or any other arbitrary factor. While there may be rate design advantages to recovering fixed costs with a customer charge, there is no cost causation reason for allocating truly fixed costs based on number of customers. This basic argument is often advanced by cost allocation practitioners who oppose zero-intercept or minimum system methods* [136]. [our underlining]

[136] Document C-ACIG-0028, p. C2.

[329] The Régie understands that there is a direct correlation between the cost of installing a line and the length of that line. Expert Overcast affirmed that there is a strong correlation between the number of kilometers of lines and the number of customers. From these two correlations, the expert deducted the following hypothesis: the fixed portion of the costs of installing a line is a function of the number of customers that are connected to it.

[330] The Régie considers that, while this hypothesis may be true in a dense and homogenous network, constituted mainly of residential or commercial customers, this hypothesis is not valid in an atypical network, such as that of Gaz Métro.

[331] The Régie recognizes that the construction of a natural gas distribution network carries a major portion of fixed costs. It also recognizes that the additional capacity attributable to a six-inch line, compared to the basic capacity of a two-inch line, is important. This additional capacity is more than proportional to the marginal cost of installing a larger-diameter pipe, as demonstrated by Overcast. This is an important source of the economies of scale which characterize this type of infrastructure.

[332] However, the Régie sees a distinction to make between the identification of the fixed part of the costs and the decision to share this fixed cost on a pro rata basis to the number of customers or to associate it solely to the access component for the main lines.

[333] The Régie notes that the costs associated with a minimum system or a zero-diameter network, which are considered as the fixed part of the cost of lines, represents respectively 74% and 62% of the total cost of the distribution lines. These methods associate this important fixed cost to the access component, which, by definition, is allocated on a basis prorated to the number of customers. The Régie does not share the opinion of the experts on this causality relation, particularly in the context of the Gaz Métro network.

[334] The Régie reiterates that its opinion on the methods of allocating the costs of main lines is based, above all, on the key criteria of the design and operation of the network associated with the capacity, that is, the pressure and the flow rate that are required, and the rate of loss which is a function of the distance from the source point. Its opinion is that the number of clients served is a relatively small factor in the cost of the main lines, particularly in an atypical network such as Gaz Métro’s. In this regard, the Régie relies on

the fact established in the evidence that at identical pressure, flow rate and location on the network, the number of customers served has no impact on the network design criteria.

[335] However, the Régie does not deny that these methods could constitute a good proxy and be applied adequately in other North American networks, where the context is better suited to them than in the atypical network of Gaz Métro.

[336] Also, the Régie considers that these approaches to setting the access component assume that Gaz Métro would have installed all of the kilometers of lines of its distribution network to supply the demand of 196,191 customers spread over such a vast territory. It judges that the justification of economic profitability of such an assumption is not supportable considering the low volumes of consumption associated with low-volume customers[137].

[337] In the light of these understandings and the evidence of the file, the Régie's opinion is that the number of customers does not explain by itself all of the kilometers of lines in the installed distribution network. It considers that this understanding is of value for the minimum system method as well as the Chernick and zero intercept methods.

[338] Finally, the Régie notes that these methods set the cost of the access component by applying a unit cost on every meter of the network. By setting the cost of the access component in this way, it understands that the density of the network would have an impact on the cost of the access component allocated to each client. Thus, for a network and a given access component value, the denser the network, the more the fixed cost allocated to each client will be low. Inversely, if the network is less dense, the fixed cost allocated to each customer will be high.

[339] This result was also recognized by Gaz Métro and expert Overcast regarding the minimum capacity allocated to each of the customers that would be derived from the minimum system method proposed[138].

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137 Document B-0097, p. 32.

138 Document B-0045 p. 3.

[340] The Régie considers that, according to these methods, density has an important effect on the cost of the access component allocated to each customer, without adequately reflecting cost causality. It reiterates here the same comment as above regarding the modified minimum system method described in paragraph 273.

[341] As the evidence has shown, and as argued by CFIB, ROEÉ and UC, the Régie holds that the current Gaz Métro distribution network has low density and results mainly from extensions built in order to connect large industrial customers who use high volumes of natural gas. Consequently, the application of such methods in this context leads to an overestimation of the cost of the access component allocated to each customer.

[342] Finally, the Régie holds that the reliability problems of the accounting data and the statistical validity of the results have led the Distributor to question the use of the zero intercept method[139].

Equal sharing of economies and diseconomies of scale

[343] The Régie shares the opinion of expert Chernick that economies of scale are present in the capacity component when the minimum system method is used. It judges that this conclusion also applies to the zero-intercept method, but to a lesser degree.

[344] The Régie recognizes supplying large-volume customers may require pipes of greater diameter than two inches, which generate major economies of scale. The minimum system and zero intercept methods have the effect of putting the larger part of the fixed cost of the distribution network into the access component, while the Régie understands from the evidence that it is not the number of customers that justifies the installation of all of the kilometers of lines.

[345] This last point concerns the Régie to the extent that it is possible that the demand generated by low-revenue customers is not taken into account in establishing the length or the diameter of a line to be installed if those customers are considered marginal or of little significance in the planning for a connection. In this regard, it considered as eloquent the example of the recent network extension project to Thetford Mines that was raised by expert Chernick.

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139 Document B-0111, p. 17.

[346] Thus, taking into account the particular context of Gaz Métro, the Régie considers that the zero intercept method and the minimum system method do not allow an equitable sharing among customers of major economies of scale of a gas network.

[347] The Régie recognized, however, that the proposal by Chernick allowed a different sharing of economies of scale for lines more than two inches diameter. Consequently, for these lines, an important portion of the economies of scale appear in the access component.

[348] Although the Régie considers that the Chernick method takes into account a portion of the economies of scale in the access component for lines of more than two inches diameter, this is not the case for lines of two inches or less, for which the costs are entirely allocated on a pro rata basis with the number of customers. This approach is similar to the minimum system method. Consequently, the Régie reiterates regarding this model the same concerns as those expressed regarding the minimum system method.

[349] Thus, while the sharing of economies of scale would be more equitable with the Chernick method, the Régie considers that it leads to an overestimation of the value of the access component. Expert Chernick himself made this observation[140].

[350] **The Régie concludes that the zero intercept and Chernick methods do not adequately reflect cost causality and do not take into account the particular context of the Gaz Métro network. Also, they do not allow an equitable sharing of economies of scale between the different categories of customer. The Régie cannot adopt these methods.**

8.2.3.3 100% Capacity Method

[351] No expert recommended the use of a method that allocates all of the cost of main lines to the capacity component, and by consequence, an access component that has nil value. All agreed that the access cost of the network must be assumed by each of the customers and must, therefore, appear in the classification method for the costs of main lines.

140 Document A-0048, p. 67.

[352] Considering the design criteria of the network and the particular context in which the Distributor evolved, the Régie considers that from a technical point of view, a 100% capacity method would seem to be the one that best reflects cost causality. Expert Knecht said this about the method :

> *That method implicitly assumes that the length of the mains are not related to the number of customers. It implicitly assumes that the mains requirement for a thousand (1,000) small customers in terms of the length of the mains is the same as that for one large industrial customer as long as the two use the same, have the same total peak consumption*[141]. [our underlining]

[353] When the Régie looks at the composition of the Gaz Métro network and its configuration, characterized by a low density level and an very high average volume delivered per client, it considers that the number of customers is not a particularly determinant causal element in the cost of the development of the network. Thus, from this point of view, the use of a 100% capacity method could appear adequate.

[354] Furthermore, because the development of the Gaz Métro network has historically been largely reliant on extensions and capacity increases to satisfy the demand of high-volume customers, the Régie considers that the key causal cost factor in the length of the lines installed has little to do with the number of customers connected or connections added.

[355] The 100% capacity method identifies an average unit cost that is identical for each unit of capacity demanded from a network. This unit cost takes into account economies of scale, as well as the coefficient of use of a network. By sharing uniformly the economies and diseconomies of scale on each of the m^3-day of capacity demanded, the Régie's opinion is that the 100% capacity method allows for an equitable sharing of economies and diseconomies of scale between the different categories of customer.

[356] Consequently, the Régie considers that the 100% capacity method has important advantages for cost causality relations as well as sharing economies of scale.

[357] However, the Régie recognizes that the weakness of this method resides in the null value of the access component, meaning that no minimum fixed cost is allocated to each

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141 Document A-0046, p. 22.

customer. Thus, a low-volume customer requiring very little capacity would be allocated a quasi-null portion of the cost of the distribution lines.

[358] The distribution lines are assets which, once installed, represent a major fixed cost. While the capacity required is the main causal factor in the cost of main lines, the Régie considers that an equitable cost allocation method must include an access component established so that each customer assumes the cost of a defined minimum capacity that would be allocated to that customer, independent of its real needs and capacity.

[359] The Régie's opinion is that the required capacity constitutes a preponderant causal cost factor to take into account in the allocation of the cost of distribution lines.

[360] **However, the Régie does not choose the 100% capacity method, because it considers it important for an access component to be established so that each category of customer, independent of the capacity it requires, assumes a minimum portion of the cost of the distribution network.**

8.3 METHOD ADOPTED BY THE RÉGIE

[361] The Régie summarizes below the main conclusions stated previously, and which should serve to structure the establishment of an optimal classification method for distribution lines:

- capacity demand is the main network design criterion to take into account in the method for allocating the costs of main lines;
- the number of customers is not a network design criterion, and consequently is not a causal factor in the costs of the network;
- the method must satisfy our stated principles and reflect the context in which the Distributor evolved;
- the method must include an access component to avoid situations of free service;
- the method must avoid recourse to detailed data, considering the reliability problems that have been noted regarding the AID.

[362] As noted in the previous paragraphs, the Régie considers that the methods examined in the evidence and discussed in the hearings all have flaws and inconveniences that surpass their advantages.

[363] First, the Régie notes that the data reliability problems have led Gaz Métro and expert Overcast to distance themselves from the zero intercept method. They propose the use of the minimum system method, modified to alleviate the problems that have commonly been attributed to it.

[364] While this proposed method requires a less intensive use of AID, the Régie judges that it does not adequately satisfy the principles of respect of cost causality and equitable sharing of economies and diseconomies of scale. Furthermore, the Régie does not share the premise at the base of this method by which the number of customers is the principal causal factor in the costs of the installed lines.

[365] Second, the Régie has concluded that the Chernick method, which is also a method derived from the minimum system method, suffers partly from the same problems as the method it is derived from.

[366] Finally, as for the 100% capacity and direct allocation methods, the Régie concludes that while preferable, their principal weakness is that they do not recognize a minimum fixed cost for network access; also the direct allocation method, while judged superior, requires intensive recourse to detailed data, which is impractical in the present situation.

[367] Given the above, the Régie judges that none of the methods taken alone allows for the full satisfaction of the principles of this exercise and to adequately reflect the reality of the Gaz Métro network.

[368] Considering all of the conclusions stated above and particularly the constraints regarding the availability and quality of AID data, the Régie judges it necessary to pursue its reflection in order to define an optimal method that integrates the proposed approaches as well as the comments of the experts.

[369] The Régie has the technical expertise, the experience and the knowledge necessary to exercise its jurisdiction in this matter, having, for many years, set the rates of the Distributor, monitored its operations and its activities, studied various investment projects

and applied and interpreted its constitutive statute in the matter of regulating the distribution of natural gas. Thus, when the Régie determines the allocation method for the costs of the distribution lines of the Distributor, it acts in conformance with its jurisdiction under section 32 (2°) of the Act.

[370] It considers, therefore, that by combining different elements of these methods, it will be possible to establish a method of classifying the costs of distribution lines that would satisfy the principles stated previously and take into account the particularities of the network. This is the approach we have adopted.

[371] The Régie shares the opinion of the three experts that a method for allocating the costs of distribution lines must allow a classification between an access component and a capacity component. It considers that each customer connected to the network must assume a fair portion of the costs of access to the system. Thus, in the light of the evidence that has been brought forward in this file and the methods analyzed, the Régie has determined a classification method for the costs of distribution lines.

[372] For the Régie, the main network design criterion that can realistically be captured by a method of classification is the capacity required by the customers. The method adopted therefore reflects this relationship as a priority.

[373] As for the access component, the Régie judges that it can be established on the basis of a minimum capacity to be assumed by each of the customers and that this approach adequately reflects cost causality. It considers that an approach by which the determination of the access component is based on a minimum capacity per customer is preferable to the methods that determine this by applying a unit cost of a minimum system to each kilometer of line.

[374] The Régie considers that the method adopted must use, for a given network, the same average unit cost of capacity reserved to determine the value of the access component and the value of the capacity component. By using a single average unit cost for capacity, economies and diseconomies of scale will be equitably shared between the different rate categories.

[375] Also, the Régie judges that the method adopted must, in establishing the access component, take into account the density of the network. Thus, for a given network, the greater the number of customers, the more the portion of cost allocated to the access

component will increase. Inversely, a low-density network will have a lower access component, since fewer customers have access to it. The Régie considers that this approach follows the network design criteria and those used by the Distributor in evaluating investment projects for network extensions.

[376] The Régie considers that a method derived from the 100% capacity method, but which sets a value that is not null for the access component based on a minimum capacity to be allocated to each of the customers, would produce results that are satisfactory in terms of respecting cost causality and equitable sharing of economies and diseconomies of scale.

[377] Also, given the difficulties encountered by Gaz Métro regarding the availability and quality of detailed data, the Régie considers it appropriate to choose a method that minimizes their use, relies more on a higher degree of aggregation and which uses average capacity costs.

[378] In light of the above, the Régie is adopting a method of classification of the costs of distribution lines which:

- sets an access component and a capacity component;
- determines the access component on the basis of a minimum capacity to be assumed by each customer, hereinafter referred to as assigned capacity;
- establishes the cost associated with this assigned capacity by customer based on an average unit cost of the capacity reserved [142] of the distribution network;
- determines the capacity component by the difference between the capacity required by the customers and the assigned capacity associated with the access component; when this difference is negative, the capacity component is equal to zero.

The equations describing the method adopted are presented in appendix 1 of this decision.

[142] Reserved capacity = [number of customers using less than 30 m³-day multiplied by the assigned capacity of 30 m³-day] + [the sum of the capacities demanded by customers using more than 30 m³-day].

[379] The Régie sets the capacity assigned to each customer at 30 m^3-day. Taking into account a coefficient of use of 25%, this assigned capacity represents an annual consumption of around 2,700 m^3 [143]. As illustration, this consumption corresponds to that of a residential customer using natural gas for hot water and home heating. Also, the assigned capacity of 30 m^3-day corresponds to one of the levels of the current rate structure.

[380] Consequently, each customer connected to the Gaz Métro network will be allocated a cost of assigned capacity corresponding to an average consumption slightly higher than that observed in the 3rd level of D_1, in terms of capacity demand, as well as the annual volume of consumption, as illustrated in the following table.

TABLE 8
CAPACITY DEMANDED AND VOLUME USED BY RATE CATEGORY

Rate	Level	Number of customers	Capacity (MDD)		Volume used	
			10 m^3-day	m^3-day/customer	10 m^3/yr	m^3/yr/customer
		(1)	(2)	(3)=[(2)*1000]/(1)	(4)	(5)=[(4)*1000]/(1)
D_1	90 - 365]	32,448	25	0.8	6,071	187
D_1	[365 - 1,095]	28,220	186	6.6	28,195	999
D_1	[1,095 - 3,650]	76,265	1,671	21.9	173,072	2,269
Subtotal	**[0 - 3,650]**	**136,933**	**1,883**	**13.7**	**207,338**	**1,514**
D_1	[365 - 1,095]	28,911	1,908	66	190,037	6,573
D_1	[10,950 - 36,500]	18,465	3,689	200	405,618	21,967
D_1	> 36,500	11,412	14,482	1,269	1,629,839	142,818
D_3	BLANK	242	383	1,581	179,605	742,169
D_4	BLANK	90	20,129	223,658	2,319,901	25,776,681
D_5	BLANK	138	6,535	47,504	676,248	4,915,613

Source: Document B-0040, sections FB01D , FB08 and CA.

[381] Taking into account these facts, the Régie notes that the threshold of 30 m^3-day of assigned capacity is higher than the average capacity of 13.7 m^3-day demanded by the 136,933 customers in the three first levels of D_1. This threshold of 30 m^3-day is, however, much lower than that corresponding to the value of the access component that would

[143] 30 m^3-day * 365 * 25 % = 2,737 m^3/yr.

result from the application of the modified minimum system method proposed by the Distributor, which would be about 692 m³-day per customer[144].

Conclusions

[382] The Régie considers that the method adopted has the following advantages:

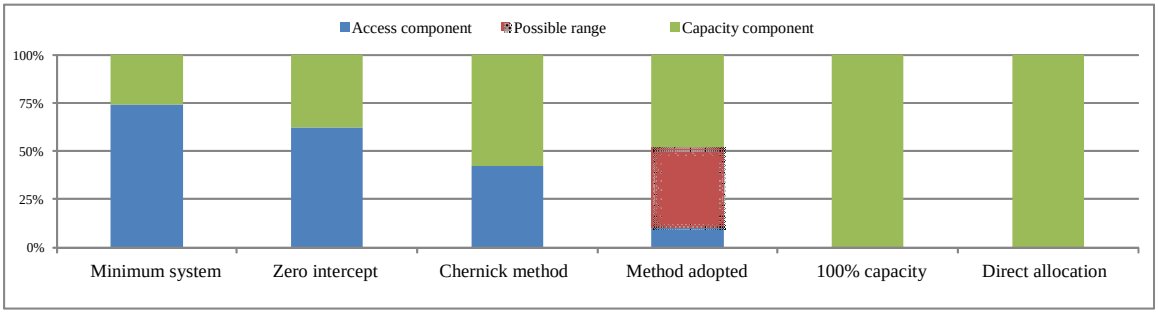
- better respect of cost causality;
- closer match between the network criteria and those used by the Distributor in the evaluation of investment projects for network extensions;
- better sharing of economies and diseconomies of scale for all the customers of the network;
- no free service;
- reflects the density of the network;
- requires limited resource to AID data;
- stable results from this method, when derived from up-to-date cost and capacity data;
- transparent and easy to understand;
- simple to apply.

[383] **For these reasons, the Régie judges that the method adopted satisfies the principles stated previously. Consequently, it rules that the Distributor should use the method adopted for the classification of distribution lines.**

[384] Finally, the Régie states that, as illustrated in Figure 7, the method adopted takes into account the commentary of the experts and produces results within the range of the values of the access component that were established with the help of the other methods examined.

144 Capacity of a 2-inch line, 14,352 m³-day, divided by 21 customers. See Table 4.

FIGURE 7
COMPARISON OF RESULTS OF METHODS
INCLUDING THE METHOD ADOPTED



8.4 SIMULATION OF THE ADOPTED METHOD AND COMPARISON WITH THE OTHER METHODS

[385] To illustrate its earlier statements on each of the allocation methods examined in this file, the Régie considers it useful to present the results of simulations using a fictitious example.

[386] This example must be simple, since the Régie seeks to compare the methods, all other things being equal. Without lingering on the results themselves, these simulations enable us to isolate the functioning of each of the methods. The details of the calculations of these simulations are presented in appendix 2 of this decision.

[387] To avoid variability of results that could be attributable to effects other than the change of method of allocation, the Régie set up an example with a single line.

[388] Thus, the Régie supposed a network of a single line six inches in diameter (168.3mm) installed for a distance of 100km. Using the hypotheses of expert Overcast, the unit cost of construction of this network would be $219.30/m[145] for a total cost of $21.9 million.

145 See Table 4.

TABLE 9
CHARACTERISTICS OF THE HYPOTHETICAL NETWORK

Number of lines	1
Diameter of pipe	6 inches (168.3mm)
Length of line	100 km
Unit cost per m	219.30 $/m(1)
Total cost of the network	$21.9 million

(1) See Table 4.

[389] The Régie has done a simulation on this hypothetical network of each of the methods examined in this file, including the adopted method. Two scenarios for the composition of the clientele were used. In these scenarios, it considered three types of clientele: low-volume customers (LV), medium-volume (MV) and high-volume (HV). The number of customers and the capacities demanded are fictitious, but analogous to the customer profiles observed in the Gaz Métro network.

[390] In the two scenarios the total capacity demand is identical. The line installed and its cost of installation being established, only the number of customers and the composition of the clientele vary. This hypothetical network allowed the example to be tested in hearings with the Engineering panel from the Distributor[146].

[391] The following table presents the characteristics of the two scenarios used. Scenario 1 assumes a density of 8 customers/km of lines, while scenario 2 uses a density of 32 customers/km of lines. The density and composition of the clientele of scenario 1 are similar to those observed in remote regions, such as Saguenay, Mauricie and Abitibi, while scenario 2 is analogous to those values observed on the Ile de Montréal.

146 Document A-0036, p. 136.

TABLE 10
DENSITY AND COMPOSITION OF CLIENTELE BY SCENARIO

SCENARIO 1 (8 customers/km)						SCENARIO 2 (32 customers/km)				
Customers		Capacity demanded by customer	Total capacity demanded			Customers		Capacity demanded by customer	Total capacity demanded	
(#)	%	(m^3-day)	(m^3-day)	%		(#)	%	(m^3-day)	(m^3-day)	%
754	94%	**10**	7 ,540	6%	**Low-volume (LV)**	**3 097**	97%	**7**	21,540	18%
40	5%	**500**	20,000	17%	**Medium-volume (MV)**	**100**	3%	**600**	60,000	51%
6	1%	**15,000**	90,000	77%	**High-volume (HV)**	**3**	0%	**12,000**	36,000	31%
800	**100%**		**117,540**	**100%**	**Total**	**3,200**	**100%**		**117,540**	**100%**

[392] The Régie evaluated the value of the access component for each of the methods that have been looked at here. In the case of the minimum system, it was a matter of determining the ratio of the cost of construction of a two inch line compared to the cost of construction of a six inch line. According to data presented by Overcast, this ratio is 59%[147].

[393] For the zero intercept method, the Régie hypothesized, for the purposes of this exercise, a unit cost at zero intercept of $100/m of lines. Thus, the value of the access component obtained by each method is 46%, that is $100 divided by $219.30.

[394] Finally, for the Chernick method, the Régie evaluated the access component as 6%. By this method, the capacity of a six inch line is 15.9 times greater than that of a two inch line. Thus, the unit cost of a two inch line, evaluated at the average cost of the capacity of a six inch line, is 1 divided by 15.9, that is 6%[148].

[395] The following table shows the percentages, total cost and unit costs associated with the classification of the access component of the hypothetical network for the two scenarios.

147 See Table 4. Unit cost of a 2-inch pipeline = $130.24 /m and the unit cost of a 6-inch pipeline = $219.30 /m. Hence, a ratio of 59%.

148 Document C-ROEÉ-0040, pp. 17-18.

TABLE 11
COST OF ACCESS COMPONENT BY METHOD AND SCENARIO

	Minimum system	Zero intercept	Chernick method	100% capacity	Direct allocation	Régie method
SCENARIO 1						
Total cost of the access component ($ million)	13.0	10.0	1.4	-	-	4.0
Percentage of the access component	59%	46%	6%	-	-	18%
Number of customers 800						
Unit cost of the access component ($/customer)	16,280	12,500	1,724	-	-	4,961
SCENARIO 2						
Total cost of the access component ($ million)	13.0	10.0	1.4	-	-	11.1
Percentage of the access component	59%	46%	6%	-	-	51%
Number of customers 3,200						
Unit cost of the access component ($/customer)	4,070	3,125	431	-	-	3 483

[396] The Régie notes that among the methods examined, only the direct allocation and 100% capacity methods do not have an access component.

[397] The Régie understands that the cost and thus the percentage of the access component for the minimum system is the same in the two scenarios. Similarly for the zero intercept and Chernick methods. This comes from the fact that the cost is evaluated independently of the composition of the clientele. These three methods allow a determination of a unit cost per meter for the access component and multiply this by the number of metres of network lines.

[398] Also, no matter what the number of customers per kilometer of line may be, the total amount allocated to the access component remains identical, whatever the number of customers served by the network may be. Consequently, as previously underlined, for a given network, when the density varies, it is the amount allocated to each customer that fluctuates.

[399] This simulation shows that the amount allocated to each customer for the access component is directly proportional to the density of the network. Therefore, in scenario 2, where the density is four times higher than in scenario 1, the Régie sees that the value of the access component allocated to each customer is four times smaller than in scenario 1. This relationship holds for the zero intercept, minimum system and Chernick methods.

[400] On the other hand, the simulation helps to show that the method adopted responds to the density of the network. When the density is low (scenario 1), the percentage of the cost of the distribution lines classified in the access component is 18%. When the density is high (scenario 2), the share of the cost of the lines classified to access is higher, at 51%.

[401] The Régie also notes that when the density increases, the cost of the access component allocated to each of the customers is much more stable with the method adopted than with the other methods. In the example shown, the adopted method produced a unit cost per customer that was 25% higher when the density decreased, going from $3,483 to $4,961 between scenarios 2 and 1. In the case of the three other methods, this unit cost is four times higher between scenarios 2 and 1.

[402] The following table presents the results of sharing between different categories of clienteles the cost of the hypothetical network, for each of the methods examined in the two scenarios.

TABLE 12
SHARING OF COSTS BY METHOD AND SCENARIO
($ MILLION)

	Minimum system	**Zero intercept**	**Chernick method**	**100% capacity**	**Direct allocation**	**Method adopted**
SCENARIO 1						
LV	12.8	10.2	2.6	1.4	1.4	3.7
MV	2.2	2.5	3.6	3.7	3.7	3.3
HV	6.9	9.2	15.7	16.8	16.8	14.9
Total	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**
SCENARIO 2						
LV	14.2	11.9	5.1	4.0	4.0	10.8
MV	5.0	6.4	10.5	11.2	11.2	7.0
HV	2.7	3.7	6.3	6.7	6.7	4.2
Total	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**	**21.9**

[403] Taking into account the results obtained using this simplified example, the Régie observes the following general conclusions about the different methods.

[404] The use of a single line has the consequence that the direct allocation and 100% capacity methods give the same results. The 100% capacity method uses a single unit cost of capacity for a given network. Normally, a network is composed of many types of lines. The direct allocation method identifies a unit cost of capacity per line and the cost allocated to a customer corresponds to the sum of the cost of the capacities made available to that customer on each of the lines upstream of its connection. Since the hypothetical network is made up of a single type of line, the two methods necessarily will produce the same result. For any other network made up of more than one type of line, the results would be different.

[405] In the case of the Chernick method, the use of a single six inch pipeline brings a very low access component. With this method, the costs allocated to the access component correspond to the value of a two inch line determined from the average cost of the capacity of a six inch line.

[406] The Régie also understands that for the example simulated, the results of the adopted method are within the range of results from the other methods examined.

8.5 REGIONAL OR GLOBAL ALLOCATION

8.5.1 POSITION OF GAZ MÉTRO

[407] Gaz Métro proposed establishing the value of the access and capacity components of the cost of the main lines with a database reflecting the territory as a whole rather than on the basis of regional data.

[408] Since 1997, the allocation factor for the main lines has been developed so that the access and capacity components are determined on a regional basis and then reconstituted in a global factor for the territory as a whole, which takes into account the relative weight of the six regions: Montréal, Estrie, Québec, Mauricie, Abitibi and Saguenay.

[409] Gaz Métro states that this regional approach was established in 1997 in order to avoid having many small customers in urban centers, such as the region of Montréal, being charged a large part of the cost of the development of the network, which was done in peripheral regions mostly to satisfy the needs of an industrial clientele.

[410] Gaz Métro considers that a weighting of the data is required in the calculation of the average cost of the main lines, but plans to apply it only at the moment of preparation of the data. It holds that the fact of considering the relative importance of each line in the establishment of the average cost reflects both the regional disparities and the relative importance of lines of different materials and sizes.

[411] Thus, in its opinion, there is no need to conserve a weighting to take the regional aspect into account, because it is correctly represented within the initial weighting. The regional differences come into the calculation of the value of the access component and in the establishment of sharing factors for the main lines.

[412] The Distributor underlines that the values of the access component estimated by the zero intercept method or the minimum system method are very similar, whether they were determined by a regional approach or a global one. The results are illustrated in the following table.

TABLE 13
ACCESS COMPONENT
SUPPLY AND DISTRIBUTION LINES

	Zero intercept	Minimum system
Regional approach	52.3 %	62.9
Global approach	52.6 %	62.7

Source: Document B-0111, pp. 59-60.

[413] For the Distributor, these results show that when the weighting to take into account the relative length of the lines is applied at the moment of the preparation of the data, the weighting to take into account the relative length of the regional network does not bring any additional precision[149].

[149] Document B-0111, p. 59.

[414] As for the evaluation of the capacity component, it considers that maximum daily demand (MDD) evaluated on a regional basis is very similar to that obtained when it is evaluated on the basis of global volumes. The following table presents the values of peak demand obtained using the two approaches.

TABLE 14
SUM OF REGIONAL MDD VERSUS GLOBAL MDD

MDD by degree days	**D_1** (10^3m^3)	**D_3** (10^3m^3)	**Total** (10^3m^3)	**Regional versus global variation** (%)
Regional	22,492,795	522,230	23,015,025	0.06 %
Global	22,479,625	520,724	23,000,349	

Source: Document B-0111, p. 61.

[415] The Distributor concluded that the two approaches obtained similar results. It expects that results will be equivalent and judges that estimating MDD on a regional basis does not provide added value to the evaluation of attributed capacity (AC).

[416] Gaz Métro recognizes that it is nevertheless necessary to apply a weighting in the calculation of the average cost of the main lines so that each of them has the appropriate weight in the determination of averages. When this weighting is applied at the moment of the preparation of the data, the values of average cost used for the calculation of the access component, using the minimum system approach, adequately reflect the relative weight of the regional networks. Consequently, it considers that no additional weighting is required.

[417] Gaz Métro said that when the zero intercept method is used, it is preferable to perform a single linear regression on the global data rather than a regression for each region. The linear regression performed on regional data does not obtain sufficiently robust results from a statistical point of view for this approach, currently in use, to be maintained. It therefore proposes to abandon this approach and to calculate the value of the access component by the minimum system method, using weighted global data.

[418] Regarding the capacity component, Gaz Métro mentions that the compilation of the regional ACs does not provide any additional precision. Using the current approach, for D_1, it is necessary to perform 60 regressions to estimate the point attributable to each rate level, given that there are 10 levels and six regions. Most of the regressions generate satisfactory results, but the statistical error of the whole of the 60 regressions generates a certain bias. It judges therefore that it is preferable to estimate the point of each level based on global data. The statistical error is less and the result is adequate.

[419] For all of these reasons, Gaz Métro proposes to abandon the regional approach and opt for a global approach when calculating the allocation for the cost of main lines. It stated that this change does not compromise the fair representation of each region in the network as a whole. This approach is also simpler to apply and does not remove any regional precision compared to the present method.

[420] At the request of the Régie, Gaz Métro presented a complete exercise in the allocation of the cost of distribution and supply lines using the global and regional approaches[150]. Despite the similarities previously mentioned, it noted that when the access and capacity components are calculated, the allocation of the value of the network between rate levels shows significant variances between the global or regional approach. Since the composition of the clienteles varies greatly from one region to another, their sharing by rate levels differs, which influence the results of the sharing of the costs of the lines[151].

[421] Gaz Métro also mentioned that the choice of allocating the cost of main lines between the rate levels on a regional or global basis comes down to a question of principle. According to it, the distribution network in Québec is not a single large network, even from a technical point of view it is an amalgamation of independent regional networks[152]. It also relies on the fact that its cost of service and its rates are established in a uniform manner over the entire territory served[153].

[422] Finally, expert Overcast said the following regarding the consequences that a regional allocation of the main lines could cause:

150 Document B-0047.
151 Document B-0045, p. 45.
152 Document B-0045, p. 45.
153 Document A-0044, pp. 81-82.

> [...] *Here is the thing, whenever you start splitting the system up into pieces, you are always going to have different costs. You are going to have different costs because of things like vintage, like maybe the lots are a little bigger, maybe it is a little cheaper to put in pipe, maybe it is a lot cheaper to put in pipe, and in all of these kinds of things, but when you start going down that road, what you are doing is, you are creating a situation where these customers get low rates today because their system is old, these customers pay high rates today and in a few years, that will switch around because you will have to replace all the old system.*
>
> *I mean, that is not the way you operate a business in the utility business, you want to give customers access to the average cost to the system, and sometimes, part of the system benefit more than others. But eventually, that all evens out over time, because all the customers are going to eventually have old pipe that gets replaced at some point and their costs would have been higher, but those costs are being shared with people who are now half way through the life of their pipe.*
>
> *And so on average, everybody is paying the right revenue requirement, and the complications of cutting the system up into pieces and deciding you are going to set rates on that basis is just, it is virtually unimaginable, you would have to have a different rate for every customer. And that is not what we are about here, we are about trying to give you the average cost of serving each customer on the system, it is not going to be right for any customer exactly but on average, it is going to be right for everybody and treat everybody fairly*[154]. [our underlining]

8.5.2 POSITION OF THE INTERVENERS

[423] For expert Knecht, the use of global rather than regional data moves away from the principle of a relationship between the cost and the customers who incur them and moves towards an arbitrary allocation. He says:

> [...] *Regional cost allocation, again, is more specific than a global approach in that it is now trying to more carefully match the costs with a particular region with the customers served in that region.*
>
> *Now, that doesn't mean because you do... and I'm sorry to take issue with Dr. Overcast, just because you've allocated the costs region by region doesn't*

[154] Document A-0044, pp. 108-110.

> *mean you need to set the rates that way. You've allocated the costs, you can then decide, for policy reasons or for a lot of reasons, that you want to use postage stamp rates. But by allocating the costs region by region, you have better-matched costs with usage and, you know, you've done the cost allocation accurately. Rate design is a different matter*[155]. [our underlining]

[424] For the CFIB, the global approach is reasonable since the allocation factors are calculated in a global manner. UMQ shares this opinion.

[425] Expert Chernick is more favorable to an approach relying on average global costs. He recognizes that recourse to regional or more detailed data may sometimes be useful, for example when data are missing and interpolations are required. However, he does not think that a regional approach is essential[156].

[426] SÉ-AQLPA recommends not depriving oneself of the useful information that the allocation of the cost of the main lines per region can represent. He suggests therefore that the Study still contained this regional information.

[427] In its argument, UC pointed out the contradictory positions of the Distributor in file R-3323-95 and in the present file. It had supported the following position in that era:

> *(…) allocation by region rather than global allocation better captures the causality relations while global allocation introduces a bias in favor of industrial customers and overestimates the cost allocated to residential customers by allocating costs to them which have no connection with the service rendered to them. Allocation by region helps to correct this bias.* [footnote omitted][157],

while in the present file, the Distributor argues the contrary by concluding that: *there is no need to keep a weighting to take into account the regions, because these are the correctly represented following the initial weighting.* [footnote omitted][158].

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155 Document A-0046, pp. 19-20.
156 Document A-0048, pp. 69-70.
157 Document C-UC-0018, p. 20.
158 *Ibid*.

[428] The witnesses left UC perplexed about the manner by which the costs attributable to customers in the regions are accounted for. The intervener asked the Régie to ensure that the method used to take the regions into account does not produce any bias in the final sharing of costs.

8.5.3 OPINION OF THE RÉGIE

[429] In file R-3323-95, Gaz Métro asked that the sharing of the costs of main lines be made on a regional basis. Decision D-97-47 which dealt with this request made a detailed examination of this approach:

> *It is well-known that the hundreds of millions of dollars invested to build the main lines over the last 10 years were invested in the regions and mainly to serve industrial and commercial customers. The last major network extensions in 1994 and the major investments intended to serve the Abitibi, Saguenay Lac St-Jean, Rive-sud de Québec, Laurentides and Estrie, are concrete examples of this.*
>
> *The Régie considers that the allocation of the cost of main lines by region, with the help of daily peak demand by region, is an important improvement over the method currently used, because it better reflects the causal links between the cost of the lines and the customers for which they were built. The allocation is therefore made on the basis of the use of the main lines by the current customers of the different regions.*
>
> […]
>
> *Item Gmi-2, document 1, page 41-A helps to identify the unit costs to serve each of the regions proposed and is eloquent on the disparity on the costs of serving the clientele of these regions. These costs vary from $0.75 per MPC for Abitibi to $7.64 for Estrie.*
>
> *The data appearing in this item show well that the costs incurred to serve a region are not linked to the geographical situation, but to the amount of the invetsments and the volumes served following these investments. It is in the opinion of the Régie, the most direct possible allocation of costs that best reflects the causality of costs.*

> […]
>
> *The Régie also does not support the position of ACIG that a cost allocation by region must necessarily be followed by rates by region even if, in principle, it would have to be so if one wished that those who incur the costs pay them*[159]. [our underlining]

[430] The Régie holds to two important points of this decision which are, in its opinion, still relevant and current:

- The regional approach represents a major improvement in the method of allocation of the costs of main lines, because it better reflects the causality relationships and comes closer to a direct allocation;
- The allocation of costs based on regional data does not mean that the rates which flow from this will be modulated by region.

[431] As mentioned previously, the Gaz Métro network has great regional disparities, in terms of the cost of the main lines as well as the density of the network, the composition of the clientele and the consumption profiles of the customers.

[432] While no expert denied this important fact, experts Overcast and Chernick mentioned that the Study must rely on average global costs. In their opinion, the identification of costs differentiated by region could lead to rates modulated by region.

[433] The Régie does not share this opinion. It judges that the position of the two experts goes against the previously stated principles of respect for cost causality and direct allocation.

[434] The Régie's opinion is that regional differences, whether in the cost of the lines or their configuration or any other particularity which characterizes the network or the profile of the clientele, must be captured as precisely as possible in order to determine the total regional costs, and by consequence, the average costs by rate category that are as precise and representative as possible.

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159 Decision D-97-47, pp. 16-17.

[435] The Régie considers that depriving ourselves of such information on the disparity of costs goes against the intention of the Study. It reiterates, particularly regarding the allocation of the cost of the main lines, that the principle of respect for cost causality and the recourse, wherever possible, to direct allocation are fundamental objectives. It still has the opinion, as in 1997, that the regional approach encourages the achievement of these objectives.

[436] According to the Régie, the evidence shows that the allocation of the costs of supply and distribution lines on a regional or global basis has significantly different results from one rate category to another. Consequently, it cannot accept the reason stated by the Distributor that the approach proposed removes no precision.

[437] Also, the Régie cannot accept the Distributor's claim that, from the point of view of principle, the network is managed globally even if, technically, it is an amalgamation of regional networks that are independent from each other. Also in this regard, it notes the evidence that, except in the specific case of customers located in the peripheral areas of the Montérégie and Estrie networks, the assets of each of the regional networks can serve only the customers of their region.

[438] The Régie considers that a global approach would have the consequence of having the cost of the lines of one region assumed by customers from another region who would not benefit from those costs. This element is also one of the intentions sustained by the Régie in its decision D-97-47 to approve the regional approach.

[439] Finally, as in 1997, the Régie cannot uphold the reason by which Gaz Métro, being the only company that applies a uniform rate on its entire territory, should adopt a global approach for the allocation of costs. In this regard, the Régie shares the opinion of expert Knecht cited previously.

[440] The Régie understands that given the quality of the data available in the AID, the regional approach makes the zero intercept method difficult to apply. However, since this method has not been adopted to establish the value of the access component, it judges that the level of detail of data required to perform the allocation of the costs of distribution lines using the adopted method is adequate. It also notes that the book value of the investments is accounted for by region[160].

[160] Document B-0121, p. 8: Each investment filer is related to a category of investment, in a single region, and the subsidiary of the investment files allows the identification of the year of the investment additions.

[441] Therefore, the Régie considers that the evidence in the file does not support the notion that the regional context in which the Distributor evolved has been significantly changed since decision D-97-47 to justify the abandonment of the regional approach.

[442] **Consequently, for all of the reasons stated above, the Régie rules that the Distributor shall establish the value of the access component as well as the factors for sharing the cost of main lines using a regional approach. The adopted method shall be applied to the data of each of the regions and the global result of allocation of the cost of the distribution lines will correspond to the sum of the regional results.**

[443] **It also orders the submission of the detailed result of these calculations during the update of the Study that will follow this decision.**

[444] **It also orders the Distributor to establish for how many regions it is technically possible to establish a segmentation of the costs of the main lines. The Distributor shall report this during the update of the Study**[161]**.**

9. SHARING FACTORS FOR MAIN LINES

9.1 SHARING FACTORS FOR TRANSMISSION LINES

9.1.1 GAZ MÉTRO POSITION

[445] Gaz Métro asked for approval of the fact that the allocation of the costs of transmission lines relies on a distinct allocation factor based on capacity attributed and used (CAU).

[446] Gaz Metro proposed to use the CAU for the treatment of the capacity required by interruptible customers. Unlike the case for the supply and distribution networks, the needs of the interruptible clientele are not taken into account in the design criteria of the transmission network.

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[161] The current allocation method is segmented into six regions while the technical evidence refers to eight regional networks.

[447] The Distributor stated that the interruptible clientele uses the surplus capacity of the transmission lines and, consequently, there is no causality relationship between the annual volume of customers with interruptible service and the costs of the transmission network. Consequently, there would normally be no need to allocate a portion of the costs of the transmission network to this clientele. However, it also observed that the Régie established the principle of no free service in the 1985 generic file[162] and maintained it in the 1997 file regarding changes to the method of allocation of the cost of service.

[448] Gaz Métro submitted that the CAU is an appropriate measure of capacity for the purposes of the allocation of the cost of transmission lines since it allows allocating to interruptible customers the part of the capacity which is made available by the other categories of customers. While the needs of customers with interruptible service are not considered in the design criteria of the transmission network, nevertheless, they use the same capacities left unused by customers with continuous service. The use of the CAU for the allocation of the cost of transmission lines avoids having interruptible customers attributed no part of the costs of the network that they use. Therefore, interruptible customers are assigned a share of these network costs based on their volumes consumed rather than their attributed capacity.

[449] Expert Overcast did not share the position of Gaz Métro on the treatment of interruptible service customers regarding the sharing factor of transmission lines. He is rather of the opinion that the needs of interruptible customers should be excluded from the allocation exercise[163].

[450] Gaz Métro pointed out that a factor solely for transmission lines is difficult to apply, given that most of the expenses related to the main lines do not distinguish amounts attributable to distribution lines from those attributable to transmission lines. Therefore, Gaz Métro proposed to apply only the CAU factor to allocate amounts related specifically to the transmission lines and to maintain the CONDPRIN[164] for allocating the amounts related to the main lines without distinguishing the type of line.

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162 Dossier R-3028-85, ruling G-429.

163 Document B-0005, p. 19.

164 Document B-0075, p. 24. CONDPRIN: combined factor reflecting the access and capacity components of the main lines.

[451] Finally, Gaz Métro stated that, according to expert Overcast, customers connected directly to a transmission line should not have costs of the distribution lines imputed to them. However, it stated that if this was the case, the costs of a transmission line dedicated exclusively to them should be totally imputed to them.

[452] The Distributor noted that currently only three customers are directly connected to a transmission line. Of these, two are connected solely for reasons of proximity, since they do not require the high pressure of the transmission lines. These customers would thus normally be connected to the distribution network.

[453] Gaz Metro mentioned that the recommendation by Overcast dealt with customers who contractually require direct connection to a transmission line and who are in the same rate category. This is not the case for the customers mentioned above.

[454] Consequently, Gaz Metro proposed to continue to allocate a part of the capacity and access components of the cost of main lines to all customers who do not have a direct allocation and a specific rate, whatever type of line they are connected to.

9.1.2 POSITION OF THE INTERVENERS

[455] ACIG does not believe that in the allocation of the cost of service, it would be useful to invoke a principle of fairness like that of no free service to justify the allocation to interruptible service customers a part of the capacity costs of the transmission lines. In this regard, it refers to the network design and operation criteria which often disregard the needs of these customers.

[456] ACIG concurred completely with the points of view on this matter of experts Knecht and Overcast, and consequently opposed the Gaz Métro proposal to continue the use of the CAU factor in order to allocate a portion of the capacity costs of the transmission lines to D_5 customers.

[457] Also, its opinion is that the three customers connected directly to transmission lines should not have costs related to the supply and distribution lines allocated to them.

9.1.3 OPINION OF THE RÉGIE

[458] Despite the arguments presented by the two experts against recourse to the CAU factor, the Régie shares the opinion of Gaz Métro regarding the allocation of the cost of transmission lines.

[459] The Régie judges that to the extent that interruptible customers use the transmission lines, they must assume a portion of the costs of these lines. It considers that this sharing of costs must necessarily be taken care of in the Study phase. It also considers it essential to respect the principle of no free service in this phase.

[460] The Régie considers that the use of the CAU factor takes into account the combined realities of the network design criteria and the use of transmission lines by interruptible customers, to the extent that this method recognizes that these customers are not active at peak periods and allocates them only the cost of the capacity that they use. The continuous service customers, for their part, are allocated costs for the capacity that they reserve. This fundamental difference is reflected in the costs allocated to the different rate categories.

[461] **Consequently, the Régie approves the use of the CAU factor for the allocation of the cost of transmission lines, as proposed by Gaz Métro.**

[462] **The Régie also authorizes the Distributor to apply the CAU factor for allocating the amounts relating specifically to transmission lines and to maintain the CONDPRIN factor for allocating the amounts relating to main lines, without distinction of the type of line.**

[463] **The Régie orders the Distributor to present a detailed report on the calculation of the CAU factor, and more specifically, the treatment of interruptible service customers and combined rate customers during the update of the Study, as discussed during the hearing**[165]**. The Distributor should also provide detailed calculations in an Excel file.**

[165] Document A-0044, pp. 214-223.

[464] **Finally, for the reasons stated by the Distributor, the Régie approves that Gaz Métro should allocate a part of the costs of supply and distribution lines to all customers, whichever type of line they are connected to.**

9.2 FACTORS IN THE SHARING OF THE CAPACITY COMPONENT OF SUPPLY AND DISTRIBUTION LINES

9.2.1 POSITION OF GAZ MÉTRO

Sharing Factor

[465] Gaz Métro asked the Régie to approve that the capacity component of the supply and distribution lines should be allocated on the basis of attributed capacity (AC). For interruptible clients, it prefers that the AC takes into account the maximum hourly demand (MHD).

[466] The allocation of the capacity component of the supply and distribution lines is currently done on the basis of the CAU. The latter takes into account the capacity attributed or reserved to customers and volumes consumed annually (UC for used capacity).

[467] The attributed capacity (AC) to each rate category corresponds to its contribution to peak demand. The contribution to the peak can be established coincidentally, for customers with monthly reading, or non coincidentally for customers with daily reading.

[468] Expert Overcast suggested that because of the principle of cost causality, the capacity component of the cost of supply and distribution lines should be allocated on the basis of AC only. He proposed, however, that an adjustment be included in order to take into account the non coincident peak demand of interruptible service customers.

[469] The approach proposed by Overcast mainly affects interruptible customers who, by the method currently in effect, would be attributed a portion of the capacity component of the cost of supply and distribution lines on the basis of their CU rather than the basis of their AC, as is the case for the other categories of customer. This expert indicated that interruptible customers are taken into account in the design of supply and distribution

lines. Thus, he thinks that costs relating to these lines must be allocated to them in the same manner they are allocated to all other categories of customers, that is on the basis of their AC.

Models for estimating peak volumes

[470] Given that for the vast majority of customers consumption data comes from their monthly meter readings, daily consumption volumes are not known. As a result, the contribution of this category of customer to the determination of peak demand cannot be simply observed. Gaz Métro therefore estimates a coincident peak by linear regression from monthly consumption volumes of D_1 and D_3 customers who have monthly readings.

[471] Also, in the case of D_4, D_5 and D_3 customers with daily reading, peak demand is estimated based on the MDD set in the contract. The MHD is multiplied by 24 to obtain the MDD of customers with these rates.

[472] Gaz Métro has evaluated other methods for forecasting MDD, notably to take into account the effect of the wind as it does in forecasting peak demand in its supply plan and in its revenue normalization mechanism. It did not choose these alternative methods.

[473] Gaz Métro noted that the cross effect of the daily variations of temperature and wind speed cannot be captured by these methods as well as they are by the models used for the normalization of revenues.

[474] Also, the addition to the model of a variable representing wind speed has a marginal effect on the allocation of the MDD in different rates and levels. Some results are not statistically different from zero.

[475] Consequently, despite the fact that it might be appropriate to harmonize the different models used to estimate the sensitivity of consumption to climatic factors, the analysis of the Distributor shows that the evaluation of the MDD for the cost allocation exercise is best served by the current approach. It therefore preferred to maintain the current model for estimating the peak demand of its customers who have monthly meter reading.

9.2.2 POSITION OF THE INTERVENERS

[476] Expert Knecht supported the Gaz Métro proposition, but expressed the following reservations regarding the model utilized to estimate peak demand:

> *9. Gaz Métro should review its design demand calculations for cost allocation purposes, and evaluate modifications to achieve the following:*
>
> *a. Ensure that design demands for cost allocation are reasonably consistent with design demands for system planning and operation;*
>
> *b. Ensure that design demands for each class are consistently estimated across classes, on a non-coincident peak demand and on an hourly basis;*
>
> *c. Ensure that the contract demands used for D4 and D5 customers reasonably reflect the design demands that Gaz Métro has an obligation to serve;*
>
> d. *Develop design demands for weather sensitive customers (net of daily metered customers) using daily or hourly sendout during cold weather periods. At a minimum, design demands for weather sensitive classes used in cost allocation should be validated against actual system sendout during extreme conditions*[166].

[477] Expert Chernick also supported the Gaz Métro proposal.

[478] SÉ-AQLPA recommended not approving the Gaz Métro proposal because this method of allocating the cost of supply lines should be the same as that for the cost of distribution lines. It recommended that no part of the capacity of production and distribution lines should be allocated to D_5 customers[167].

9.2.3 OPINION OF THE RÉGIE

[479] **For the reasons stated by Gaz Métro, the Régie approves the proposal to allocate the capacity component of supply and distribution lines using the AC sharing factor. It also approves the Distributor's proposal regarding the forecasting model for peak volumes.**

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166 Document C-ACIG-0028, pp. 31-32.

167 Document C-SÉ-AQLPA-0014, p. 4.

9.3 SHARING FACTOR FOR THE ACCESS COMPONENT OF DISTRIBUTION LINES

9.3.1 POSITION OF GAZ MÉTRO

[480] Once calculated, the access component for distribution lines must be shared between the different categories of customers. Gaz Métro currently allocates this portion of the costs on the basis of the relative number of customers in each category.

[481] It proposed to allocate the access component on the basis of the number of connections rather than the number of customers. It explained that a bias has appeared over the course of the last ten years that disfavours low-volume customers.

[482] Given the major growth in co-proprietorship in recent years, the ratio of the average number of customers per connection has greatly increased. Consequently, a much greater portion of the cost of the distribution lines is allocated to a building with several meters, compared to a building where a single meter is installed.

[483] For Gaz Métro this situation does not have to be, since a building served by a single connection can have one or many meters, for the same overall consumption. In such case the use of the distribution lines is the same:

> *Under the principles of equal treatment of equivalents and cost causality, customers who affect costs in the same manner should be allocated the same share of the distribution costs. However this is not the case when the allocation of the access component of the cost of the distribution lines is done on the basis of the number of customers. The rate categories where more than one customer per connection are found, particularly the first levels of D_1, are disadvantaged and allocated a larger share of the costs than is their due.*[168].

[168] Document B-0111, p. 37.

9.3.2 POSITION OF INTERVENERS

[484] For expert Chernick, whether it is the number of customers or the number of connections that is utilized, neither has a major impact on the installed cost of distribution lines. He observed that a distribution network is built to serve a zone and this network is set up if, and only if, the estimate of the total volume to be delivered justifies the expansion and its consequent investment.

[485] The estimates of delivery volumes determine the length, diameter and the cost of the lines to be installed. The number of customers or connections is not a determinant factor, according to Chernick.

[486] Nevertheless, if the cost of the network is to be allocated using an element of measure that is independent of the utilization that is made of it, this criterion must take into account that the cost of the distribution lines associated with the connection of several customers sharing the same building is not higher than that of connecting, on an equivalent site, a commercial client consuming the same volume of gas. Consequently, this expert holds that the use of the number of connections to allocate the access component is preferable to the use of the number of customers.

[487] UMQ and SÉ-AQLPA supported the Gaz Métro proposal to base the access component of distribution lines on the number of connections rather than the number of customers.

9.3.3 OPINION OF THE RÉGIE

[488] The Régie understands that the number of customers and the number of connections are both appropriate sharing factors for allocating the access component of the cost of distribution lines. However, given the dispositions of the present decision, and notably the method adopted to establish the value of the access component of the network, it judges that the use of the number of customers ensures a better causal relationship between the nature of this cost and the categories of customers that bear it.

[489] **Consequently, the Régie rejects the Gaz Métro proposal and maintains the number of customers as a factor in allocating the access component of the cost of distribution lines.**

10. ALLOCATION OF OPERATING COSTS

[490] Operating costs include all of the expenses incurred by the business for its distribution activities on the territory for which it has been granted exclusive rights. These costs include, for example, purchases of goods, administrative and management costs related to all of the organizational units of Gaz Métro, as well as the payment of all of the salaries, including those of managers. Gaz Métro indicates that most of the operating costs cannot be directly attributed and must therefore be allocated on the basis of an allocation factor[169].

[491] Currently, Gaz Métro has 13 types of operating costs depending on their nature, and the allocation of each of these types is done with the help of a factor that helps to respect causality relationships that are established. It proposes to review the manner by which the operating costs are categorized, taking into account mainly the function or the activity exercised by the organizational units to which the costs are attached rather than the nature of the costs incurred. This approach follows a recommendation of expert Overcast and follows the principle of *activity-based costing system* of management accounting.

[492] After consultation of the various departments of the company and after taking into consideration the manner in which other Canadian distributors allocate general costs, Gaz Métro has identified 13 major activities and gathered them into four major categories, as shown in the following table.

[169] Document B-0111, p. 67.

TABLE 15
OPERATING COSTS – PROPOSED CATEGORIES

Proposed categories	Amount ($000)
Operations and network maintenance	68,858
Customer service	15,254
Administrative services and general costs	77,821
Sales and marketing	23,788
Total	185,721

Source: Document B-0045, p. 57.

[493] **The Régie approves the proposal of the Distributor to categorize the operating costs in 13 activities and four major types based mainly on the function or the activity of the organizational units to which the costs are attached.**

10.1 NETWORK OPERATION AND MAINTENANCE

[494] The network operation and maintenance category proposed by Gaz Métro includes all of the costs of the activities that relate to management and network design. The following table presents the five main activities of this group, which total $68.8 million.

TABLE 16
OPERATING COSTS – NETWORK OPERATIONS AND MAINTENANCE

	Proposed sharing factor	Amount ($000)
Gas supply	AC	3,486
Engineering and work planning	FB08	15,183
Operation and maintenance of main lines	CONDPRIN	33,976
Operation and maintenance of connections	FS21	6,863
Operation and maintenance of meters	FS22	9,350
Total		68,858

Source: Document B-0045, p. 57.

Gas supply

[495] This category covers three activities:

- network control center: $1,545,000;
- contracts and administration: $1,178,000;
- management: $758,000[170].

[496] These costs are currently classified as administration costs and allocated using the factor EXPLOITD, except for the expenses of the network control center which are allocated using the CONDPRIN and FS21 factors.

[497] Gaz Métro proposed to allocate these costs based on the AC sharing factor for all customers. It stated that the gas capacity to which the categories of customers have access is the main cause of the costs related to gas supply activities.

[498] The Distributor observed that expenses under the sub-category contracts and administration are mainly composed of the cost of processing all the fixed price contracts, backup gas contracts, and customer supply contracts with or without transfer of ownership, including customers who supply their own transportation service. These include also the cost of activities related to the monthly calculation of the supply and compression services, the management of disbursements related to gas supply and participation in the working group *Toll Task Force* of TCPL[171].

[499] Questioned on the opportunity to share this sub-category on the basis of the number of direct purchase fixed price contracts and backup gas contracts which are processed annually, Gaz Métro argued that the proposed sharing factor offers an adequate reflection of these activities for the purposes of allocation:

> *If we look at the factor, up to 36,500 m^3, I believe it is 7% of the total factor. Thus there is 93% of the factor for customers with more than 36,500 m^3/yr, then essentially the admission conditions for having direct purchase contracts or fixed price gas service is above all these clients that this touches. Therefore without even looking specifically at the contracts, we can see that generally the capacity*

170 Document B-0045, p. 60.
171 Document B-0097, p. 45.

> *allocated is an adequate reflection for purposes of allocation of the contracts and administration portion as well*[172].

[500] Expert Chernick stated that the causal factor of costs in the category of gas supply is more the annual volume, to the extent where the personnel and the installations are required on each day of the year and not just during the peak periods[173].

[501] The Régie understands that the expenses incurred in the contracts and administration sub-category allow mainly for the management of contracts and the nominations of customers who do not use the supply or transportation services of the Distributor or those of customers who use the backup gas services. The Régie notes that these rate options are not available to individual customers consuming less than 7,500 m³/yr, unless they combine. The Régie therefore considers that the method proposed by Gaz Métro is not sufficiently targeted to the customers using this service.

[502] Consequently, in order to better reflect the causality relation between these expenses and the customers who use them, the Régie considers that there is a need to use a sharing factor that helps to identify more precisely the users of these services and to allocate to them their fair share of the costs.

[503] The Régie judges that the contracts and administration sub-category should be shared on the basis of the number of customers who have recourse to fixed price purchase services, backup gas contracts and supply service contracts with or without ownership transfer, including customers who provide their own transportation service.

[504] **Consequently, for the update of the Study, the Régie orders the Distributor to present a new sharing factor that will permit a direct allocation of the costs of the contracts and administration sub-category to the clientele who use these services.**

[505] **As for the network control centre and management sub-categories, the Régie approves the proposal of the Distributor and authorizes that these costs shall be allocated according to the AC factor.**

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172 Document A-0044, pp. 139-140.
173 Document C-ROEÉ-0040, p. 29.

Engineering and work planning

[506] This category brings together salaries, material and equipment costs and general expenses attached to engineering, network design, asset management, geomatics as well as the costs related to major projects. Most of these costs are currently classified under administration and are allocated using the EXPLOITD factor.

[507] Gaz Métro proposed to allocate these costs on the basis of the number of customers (FB08) since, in its opinion, this factor is the most important determinant of costs for this center of activity. It notes that this approach is also used by other Canadian gas distributors.

[508] Responding to an information request, Gaz Métro mentioned that the operating costs associated with the engineering and work planning category represent the non-capitalizable portion of the cost of these activities. The capitalizable portion is found in the rate base and is thus allocated using the CONDPRIN, FS21, FS22 or other factors, depending on the nature of the projects to which they are related. In the opinion of the Distributor, the non-capitalized expenses must therefore be seen as standard expenses associated with all customers. In its opinion, the capacity of the lines and the volume consumed do not generally have an effect on the network design work, asset management and geomatics. It maintains that the causal factor of these costs is thus the number of customers[174].

[509] In the hearings, the Distributor pointed out that a portion of this activity deals with the design of networks and major projects, but it also contains important elements of upkeep, network maintenance and localization of main lines[175].

[510] CFIB stated that a significant proportion of the engineering work relates to the planning of network extension projects, the installation of high-calibre lines, and connections to high-volume customers. CFIB considers it more appropriate that the operating costs combined in the engineering and work planning category should be allocated partly on the basis of volumes and partly on the basis of the number of customers[176].

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174 Document B-0045, p. 60.
175 Document A-0044, pp. 144-145.
176 Document C-FCEI-0022, p. 17.

[511] Expert Chernick emphasized that the number of customers is not a causal factor of costs in this category. He mentions:

> *Gaz Métro's assertion that customer numbers drive engineering and planning expenses is nonsensical. Adding a small customer requires a meter and sometimes a service connection, neither of which is likely to require much engineering or planning. The activities in this category are clearly related to larger projects, primarily for mains.*
>
> *Nor are these costs related to operating expenses, since they are primarily incurred for capital project.*
>
> *This expense category should be allocated in proportion to the total investment in mains and access roads, which are likely to dominate the costs of system design, asset management, and especially major projects. If these costs are also driven by other categories of major projects, such as the LNG plant, those investments should be included in the allocator*[177]. [our underlining]

[512] UC cast doubt on the soundness of the approach proposed by the Distributor. In its opinion, it seems reasonable to think that when Gaz Métro decides to extend or modify its network to serve one or more large customers, the engineering costs incurred could be as great or greater than when a network extension is done in a densely settled residential sector[178].

[513] This intervener said that the cost of network lines does not vary on the basis of the number of customers of the network, and the costs of engineering or design of major projects should also not vary with the number of customers. UC therefore recommended that the Régie reject the Gaz Métro proposal and accept the Chernick proposal.

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177 Document C-ROEÉ-0040, p. 29.

178 Document C-UC-0015, p. 10.

[514] The Régie shares the opinion of the interveners that the number of customers does not appear to be a predominant causal factor for the engineering and work planning cost category, given the nature of the expenses it includes. To the extent that this category includes expenses relating to network design and major projects, but also important items of upkeep, network maintenance and localization of the main lines, the Régie considers that the sharing factor used to allocate the main lines, CONDPRIN, is a sharing factor that more adequately reflects the nature of the expenses in this category.

[515] **Consequently, the Régie rejects the Gaz Métro proposal and orders it to allocate the costs of the engineering and work planning category by using the CONDPRIN sharing factor.**

Operation and maintenance of main lines, connections and meters

[516] The operation and maintenance of main lines category includes salaries, materials and equipment and general expenses that relate to gas transportation, compression and a part of the operating cost of the network relating to the main lines. Gaz Métro proposes to allocate these costs using the CONDPRIN factor applied to all of the main lines and flowing from the present decision.

[517] The operation and maintenance of connections category includes a part of the salaries and expenses in materials and equipment relating to the connection of customers and the operation of the network of lines. Gaz Métro proposes to continue to allocate these costs using the FS21 factor.

[518] The meter operation and maintenance category includes salaries, materials and general expenses related to the installation of measuring equipment and measurement as well as a part of the operating costs on the network. Gaz Métro proposes to continue to allocate these costs using the FS22 factor.

[519] The Régie considers that the proposals of the Distributor for the sharing factors for these three categories adequately reflect the causal relations between these expenses incurred and the customers for whom they are incurred.

[520] **The Régie approves the proposal of the Distributor and authorizes the allocation of costs related to the operation and maintenance of main lines, connections and meters categories using respectively the CONDPRIN, FS21 and FS22 sharing factors, as defined and approved in the present decision.**

10.2 CUSTOMER SERVICE

[521] The second main grouping proposed by the Distributor deals with the costs of activities related to customer service, which amount to $15.2 million. It includes three categories: customer billing and meter reading, credit and collections and bad debts.

TABLE 17
OPERATING COSTS – CUSTOMER SERVICE

	Proposed sharing factor	Amount ($000)
Customer billing and meter reading	FB08	10,275
Credit and collections	FB08	3,983
Bad debts	FS26	996
Total		15,254

Source: Document B-0045, pp. 57-59.

Customer billing and meter reading

[522] This category includes all of the salaries and general expenses related to the customer billing and meter reading department, including the functions related to information and customer assistance.

[523] At the moment, these costs are classified under different categories. As shown in the following table, these costs are allocated using more specific sharing factors.

TABLE 18
OPERATING COSTS – CUSTOMER BILLING AND METER READING

	Proposed sharing factor	Current sharing factor	Amount ($000)
Administration expenses	FB08	EXPLOITD	576
Contracts, customer calls and communication	FB08	FS23	4,386
Meter reading	FB08	FS24	1,328
Customer billing	FB08	FS25	3,985
Total			10,275

Source: Document B-0045, pp. 56-59.

[524] The FS23, FS24 and FS25 sharing factors arose from specific studies. These studies divided the customers in groups that received different services from the Distributor. The costs associated with each of these subcategories are therefore allocated to different categories of customers based on the services received. Thus, for example, factor FS24, which allocates the costs of meter reading, is able to take into account the fact that some meters are read every two months while others are read each month.

[525] Gaz Métro proposed to group together all of the costs incurred in billing indicated in the above table and to allocate them on a pro rata basis by the number of customers, that is, using factor FB08.

[526] Replying to an information request, Gaz Métro mentioned that there is no longer a distinct item for tasks related to billing major companies and that all customers are billed through the SAP system. Thus, the distinction between the categories of customers is less evident than it was before. It points out that, nevertheless, this does not mean that the treatment is identical. For example, the bill for a large company in the D_5 rate has more elements than that of a residential customer, thereby generating different questions and verifications[179].

[179] Document B-0045, p. 62.

[527] Gaz Métro also noted the following elements:

- Customers are billed monthly, except for those with less than 800 m³/year who are billed every two months. This group represents 20% of the total clientele[180].
- A part of the billing department employees is trained to answer questions from customers in D_3, D_4 and D_5 rates. These rates are for the moment more complex and have more clauses than the D_1 general rate[181].
- The services related to information and customer assistance are different depending on the customer tariff. Customers in rates D_3, D_4 and D_5 have access to a distinct telephone number and specially trained billing agents answer their calls[182].
- D_3, D_4 and D_5 rate customers have more complex bills that require more time to process. Currently, these customers represent about 15% of the monthly workload of the billing department[183].

[528] Gaz Métro maintained that, to the extent that rates are reviewed during phase 2 of the present file, the changes made should lead to a simplification that would facilitate the billing process and the training of employees.

[529] The Distributor mentioned in hearings that it could be possible to establish sharing factors that reflect the particularities of the services offered to the rate categories and which respect the concepts taken into account in the development of sharing factors FS23, FS24 and FS25. However, it considers that this would be more complex. It holds that using the number of customers is reasonable, sufficient and adequate since the results obtained with this sharing factor are similar to those obtained using specific factors[184].

[530] On this subject expert Chernick said:

> *This allocation would only be correct if the costs of metering and billing were the same for all customers. Since D4, D5, and some D3 are metered daily, the metering and billing costs for those customers are almost certainly higher than the*

180 Document B-0097, p. 47.
181 *Ibid*.
182 *Ibid*.
183 Document B-0097, p. 48.
184 Document A-0044, p. 151.

> *costs for D1 customers. The cost differences should be estimated and reflected in allocation of these costs*[185].

[531] The Régie understands that there are differences between the services offered to the customers regarding billing, meter reading and customer assistance and information. Some of these differences are itemised in sections 5.3.2 and 6.1.1 of the text *Conditions of Service and Tariff*.

[532] Furthermore, the Régie points out that the indices of quality of service measured at the end of the year regarding overcharges, it set goals for quality of service that vary depending on the category of customers[186].

[533] The Régie notes that Gaz Métro emphasized simplicity in the allocation of the cost of this category. However, the Régie realizes that in the past the Distributor has been able to reflect these differences in service and the sharing factors without undue effort. **To the extent that the service differences still exist and that it is possible to distinguish them with the help of sharing factors, the Régie rejects the proposal of the Distributor.**

[534] **The Régie orders the Distributor to continue to allocate expenses in the subcategories of contracts, customer calls and communication, meter reading and customer billing with the help of the current sharing factors, respectively FS23, FS24 and FS25. As for the subcategory of administration expenses, the Régie orders the Distributor to allocate these costs using a new factor derived from factors FS23, FS24 and FS25.**

Credit and collections

[535] This category includes salaries and general expenses relating to evaluation of the financial position of customers and their credit, for an amount of $251,000 as well as collection activities amounting to $2,838,000. Added to these amounts is a cost of $671,000 in salaries associated with management and administration.

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185 Document C-ROEÉ-0040, p. 31.

186 Dossier R-3879-2014, document B-0209, p. 5.

[536] Gaz Métro proposed to allocate the cost of this category on the basis of the number customers without, however, making a distinction between the different billing cycles as is presently done.

[537] Gaz Métro indicated that since the migration of most of the billing to the SAP system, there is no longer any need to treat customers with cyclical billing differently from others. These customers, whose billing was previously performed by the FICH information system, are now integrated in the new SAP billing system. The FS29 allocation factor currently used, which makes a distinction between the customers with cyclical billing and those with end of month billing, is therefore not required. Therefore, it proposes that the FB08 factor be henceforth used for allocating these costs.

[538] Answering an information request, Gaz Métro indicated that the equivalent of one person-year is attributed to collection for industrial customers. All the other representatives handle the files of all other types of customer. It added that, generally, the work is the same, but the processes differ depending on the type of customer and the amount in default[187].

[539] The Distributor also pointed out that the activities of monitoring and evaluating the financial position and credit of customers are performed only for commercial and industrial customers.

[540] Answering a request from the Régie, Gaz Métro presented a more targeted sharing factor, the new FS29, which takes into account the resources assigned specifically to residential, commercial and industrial customers[188]. It explained that all of the calculations complicated the development of this factor without having an allocation with significant different results from those obtained with the FB08 factor. The observed difference was 1.27%. Consequently, the Distributor stated that factor FB08 remains the best sharing factor.

[187] Document B-0045, pp. 64-65.
[188] Document B-0097, pp. 49-53.

[541] Expert Knecht said on this subject:

> [...] *As the Company is presumably aware of which customers and which classes generate actual late payment revenues, it should modify its method to base the allocation on the class-specific historical rates for late payment revenues*[189].

[542] The Régie shares the opinion of expert Knecht and judges that the new FS29 sharing factor presented by the Distributor is more targeted and more faithfully reflects the relationship between the costs and the customers for whom they are incurred.

[543] The Régie understands the difference between the allocation obtained using data from the year 2013-2014 and the two factors FB08 and FS29 are not significant differences. However, it judges that the fact of adopting a method that reflects more faithfully the current reality of the costs of credit and collection will allow the capture of eventual changes. It also judges that the calculations performed by the Distributor to evaluate the new FS29 factor do not represent unreasonable efforts.

[544] **For these reasons, the Régie rejects the proposal of the Distributor and orders the use of the new FS29 factor presented in item B-0097 for allocating the costs of credit and collections category.**

Bad debts

[545] The factor currently used to allocate the costs of bad debts is factor FS2, based on revenues generated by each rate category. Gaz Métro indicated that the SAP system enables identification of customers associated with amounts presumed non-collectible. It proposes therefore to modify factor FS26 so that these non-collected amounts are directly allocated by rate category on the basis of this information.

189 Document C-ACIG-0028, pp. 29-30.

[546] **The Régie approves the proposal of the Distributor to use factor FS26 to allocate the costs of the bad debts category.**

10.3 ADMINISTRATION AND GENERAL EXPENSES

[547] This group includes the costs of all of the external customer support activities and is $77.8 million. It includes the following categories: regulation, accounting and public affairs; internal support services; and treasury.

TABLE 19
OPERATING COSTS -
ADMINISTRATION AND GENERAL EXPENSES

	Proposed sharing factor	Amount ($000)
Regulation, accounting and public affairs	AC/FB08	18,443
Internal support services	EXPLOITD	55,728
Treasury	BASETARD	3,650
Total		77,820

Source: Document B-0045, p. 57.

Regulation, accounting and public affairs

[548] This category, which totals $18.4 million, includes the salaries and general expenses related to activities involving external players who are the regulator, the interveners from governmental sectors or the public as well as the shareholder, as shown in the following table.

TABLE 20
OPERATING COSTS -
REGULATION, ACCOUNTING AND PUBLIC AFFAIRS

	Proposed sharing factor	Amount ($000)
Accounting	AC/FB08	3,016
Internal audit and finance	AC/FB08	1,386
Rates and regulation	AC/FB08	3,305
Legal services	AC/FB08	2,473
Corporate controller	AC/FB08	1,717
Public and governmental affairs	AC/FB08	4,876
Demand forecasting	AC/FB08	1,670
Total		18,443

Source: Document B-0045, p. 66.

[549] These costs are presently included in administration expenses and are allocated using the EXPLOITD factor. Gaz Métro proposed to allocate them according to the number of customers and the attributed capacity, in a 50/50 proportion. It pointed to a causal relationship between these factors and these costs[190]. It also indicated that it is following the practices of other distributors who also use these factors.

[550] Gaz Métro stated that all of the sub-categories have been analyzed as a block and that the relationship with the clientele is indirect. Therefore, it is not possible to confirm that these services vary directly with the number of customers, the volume consumed, the capacity required or even the revenues generated[191].

[551] Replying to a question that suggested allocating the costs of rate fixing and regulation and demand forecast subcategories on the basis of the volume of gas distributed (factor FB01D), Gaz Métro mentioned that when the number of customers is constant, the variation of volume consumed has no impact on the level of activities in

190 Document B-0111, p. 75.
191 Document B-0045, p. 66.

these subcategories. It holds that these costs and these activities vary more as a function of the number of files to process and the complexity of the regulatory structure[192].

[552] Expert Knecht said this on the subject:

> [w]*hile the Company's proposal is not necessarily unreasonable, a better allocation factor would be total costs subject to regulation or total revenues subject to regulation.* [footnote omitted] *There is no obvious causal relationship between regulatory affairs cost and a simple average of customer and commodity allocation factors*[193]. [our underlining]

[553] For his part, expert Chernick said:

> *While the existing approach is not clearly cost-based (some categories of expenses require large amounts of these services, which others require little) Gaz Métro's proposal is not much of an improvement. The number of customers has little or nothing to do with these costs. Some of these costs (much of the accounting, internal audits and finance; some legal services; and corporate control) are related to the need to raise capital, and hence should be allocated primarily on investment levels. Most of the remaining costs are related to major projects (much of legal, regulation and public and government affairs) or to load that drives the need for those projects (and for demand forecasting). Hence, a more reasonable allocator would be a mix of total investments, mains investment (and any other plant categories that include major projects, such as the LNG plant), and peak demand. In the absence of more detail regarding the make-up of the underlying costs, the weighting of those three allocators must be somewhat arbitrary, although not as arbitrary as allocating major project costs on customer number. As an interim measure, an equal weighting of these three allocators seems reasonable*[194]. [our underlining]

[554] UC does not believe it relevant to use the number of customers to allocate the cost of this category. For this intervener, allocating demand forecasting costs on the basis of the number of customers would not reflect cost causality. An allocation of these costs based on the volumes appears more representative of reality[195].

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192 Document B-0045, p. 67.
193 Document C-ACIG-0028, p. 27.
194 Document C-ROEÉ-0040, p. 30.
195 Document C-UC-0015, p. 11.

[555] This intervener stated that the use of gross revenues would constitute a better approach for allocating the public and governmental affairs costs.

[556] As for rate fixing and regulation, UC mentioned that the number of customers has a little to do with the costs incurred. It considers that having many files or issues dealt with by the Régie requires much effort and relates mainly to the concerns of industrial clientele, who are less numerous but whose volumes and gross revenues generated are important[196].

[557] UC therefore recommends that the Régie reject the Gaz Métro proposal and allocate these costs on an interim basis, as proposed by expert Chernick. It also recommends that the Régie require Gaz Métro to carry out a more in-depth study of this allocation factor and to formulate a definitive proposal in this regard for the next rate file.

[558] The Régie understands that this category includes an important number of activities for which it is difficult to establish a direct relationship with a cost causal factor. It is not convinced that in such a context the proposal of the Distributor to use factors FB08 and AC is appropriate.

[559] Given the wide range of activities covered and the difficulty of establishing a direct relationship between the allocation factors and these expenses, the Régie judges that the use of a sharing factor based on the volumes of gas distributed is more adequate. It bases this decision on the fact that the duties paid to the Régie take this factor into account. It also considers that using volumes of gas distributed leads to a more equitable sharing of the expenses of these sectors of activity than a factor based on the number of customers.

[560] **For these reasons, the Régie rejects the Gaz Métro proposal and orders it to allocate the costs under the regulation, accounting and public affairs category using the FB01D factor.**

Internal support services

[561] Support services to internal clientele include all of the salaries, benefits and general expenses incurred by Gaz Métro related to the costs of services related to supply of goods

196 Document C-UC-0015, p. 11.

and services, the management of the vehicle fleet, the management of buildings, human resources, information systems and the management of Gaz Métro.

[562] These costs were $55.7 million, and are currently included in administration expenses, and allocated using the EXPLOITD factor. Gaz Métro proposes to maintain the use of this factor, given that it adequately reflects all of the causes of these costs.

[563] According to expert Knecht:

> *This is a surprisingly large cost item, totaling some $55.7 million in costs, in effect representing a 43 percent markup on all other O&M costs. While the Company's proposal is not necessarily unreasonable, this cost category comprises a wide variety of costs, and some additional analysis of the specific costs included in this category and the factors causing those costs to be incurred would seem to be in order*[197].

[564] The Régie shares the opinion of this expert regarding the size of the amount of this category. However, it judges that while the internal support services include a great variety of activities, the use of the EXPLOITD allocation factor does not appear unreasonable, given the information obtained from the Distributor.

[565] **Consequently, the Régie approves the Gaz Métro proposition and orders that the costs of the internal support services category be allocated using the EXPLOITD factor.**

Treasury

[566] The salaries and general expenses under the treasury category are currently classified under administration costs and allocated on the basis of the sharing of operating costs. Gaz Métro proposes to allocate these costs based on the sharing of basic rate fixing costs (BASETARD), given that the activities of the treasury category are related to the basic value of the rate fixing.

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197 Document C-ACIG-0028, p. 27.

[567] According to UC, the treasury activities must be linked to the gross revenues of a rate category. These activities touch all of the activities of the business, and not only those related to the rate base. Thus, it should be on the basis of all of the costs already shared that the allocation of the treasury category should be done[198].

[568] The intervener recommends to the Régie to reject the Gaz Métro proposal and to use the sharing factor that it proposes, which is a sharing factor based on the sum of the costs already shared, which it calls the DEJAREPA factor. This sharing factor proposed by UC is a derived factor composed of several expense categories.

[569] The Régie does not share the opinion of UC. It considers that the causal relationship between the activities of the treasury category and the basic value of rate setting are predominant. Consequently, the use of the BASETARD factor to allocate these costs seems appropriate.

[570] **For these reasons, the Régie approves the Gaz Métro proposal and orders that the costs of the treasury category be allocated using the BASETARD factor.**

10.4 SALES AND MARKETING

[571] The last major grouping of operating costs includes two types of activities, sales force and natural gas advertising and promotion, for a total of $23.8 million.

[572] The sales force activity includes salaries and general expenses related to commercialization, an amount of $18,175,000. It includes the cost of residential, commercial and large business sales activity. Gaz Métro proposes to maintain the FS27 factor for the allocation of these costs.

[573] Expenses related to natural gas advertising and promotion activities include salaries and general expenses of promotion, communications and marketing activities and amount to $5,613,000. Gaz Métro proposes to maintain the FS28 factor for allocating these costs.

198 Document C-UC-0015, p. 12.

[574] First, these two sharing factors specifically identify costs associated with large groups of customers targeted by these activities and general expenses that address all customers. Subsequently, these amounts are allocated with a sharing factor weighted 50/50 based on the number of customers and the volumes distributed, for each grouping.

[575] Expert Knecht mentioned that he was not in a position to evaluate the reasonableness of the amounts directly allocated to the customers in rate categories D_4 and D_5. He mentioned that it would be more logical to allocate the general expenses in proportion of the expenses directly allocated to each category of customer[199].

[576] For his part, expert Chernick specified that the simplest and most appropriate sharing factor for the sales force activity is revenue. This expert therefore did not recommend factor FS27. He mentioned also that if the Régie accepted the FS27 factor, it should remove the number of customers from the sharing factor[200].

[577] **For the reasons stated by Gaz Métro, the Régie's opinion is that the *status quo* can be maintained in this matter. Consequently, it approves the Gaz Métro proposal and rules that the costs of the sales force and natural gas advertising and promotion categories should be allocated using the FS27 and FS28 factors, respectively.**

11. COST OF LOST GAS

[578] The cost of lost gas is calculated based on the volumes established in the rate cases and a rate projected by each of the services involved. This cost integrated into the revenue requirements of the distribution service is allocated using the sharing of distribution volumes within the rates and levels based on the FB01 allocation factor.

[579] Also, based on the evidence of this file and more particularly items B-0039 and B-0040 that present the cost sharing in detail, the Distributor shares this accounting item using the FB01D allocation factor.

199 Document C-ACIG-0028, p. 28.
200 Document C-ROEÉ-0040, pp. 31-32.

[580] At the end of the year, the real level of lost gas is established and the difference with the projected flow and the rate file is included in a deferred cost account of the distribution service.

[581] Expert Overcast called into question the fact that these amounts were recuperated through distribution rates and suggested another way to recover the cost of lost gas. He proposed that customers who supply their natural gas absorb directly the cost of lost gas due to them and that the balance should be included in the rates of the other customers.

[582] Gaz Métro does not share the opinion of expert Overcast and proposes to continue to allocate the costs of lost gas with the help of the FB01D factor. According to it, this methodology imputes costs to a clientele on the basis of the causality factor of lost gas, that is the volume delivered, without requiring complexity in administrative management[201]. Gaz Métro stated that the suggestion of expert Overcast might lead to unfairness in the sharing of the cost of lost gas, as well as increasing the administrative costs.

[583] Expert Knecht had this to say on the subject:

> *Like many natural gas distribution utilities, the Company allocates lost and unaccounted for gas ("UFG") in proportion to annual throughput. However, some utilities conclude that larger users served at higher pressures have lower gas loss rates than customers served at lower pressure.* [footnote omitted]. *If Gaz Métro were moving the direction of sub-functionalizing its mains system and better matching costs with customers, it might be worth exploring more accurate methods for assigning UFG among the rate classes. In light of Gaz Métro's global approach to cost allocation philosophy, I conclude that Gaz Métro probably does not have sufficient data to accommodate such an effort at this time*[202].

[584] For its part SÉ-AQLPA recommended that the Régie accept the Gaz Métro proposal for the allocation of lost gas. According to this intervener, this proposal moves away from the theory outlined by expert Overcast but is preferable for pragmatic reasons of implementation.

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201 Document B-0111, p. 81.

202 Document C-ACIG-0028, p. 26.

[585] The Régie considers that the current allocation of the cost of lost gas appears the simplest to apply from an administrative point of view and the most equitable for the customers.

[586] **For the reasons stated by Gaz Métro, the Régie agrees that the *status quo* can be maintained in this matter. Consequently, it approves the Gaz Métro proposal and orders that the cost of lost gas be allocated using the FB01D factor.**

12. ENERGY EFFICIENCY PLAN

[587] Gaz Métro asked the Régie to approve, for allocating costs related to the energy efficiency plan, the use of:

- the information available in the Gaz Métro systems in order to directly allocate the amounts associated with financial contributions and deferred costs in D_3, D_4 and D_5, as well as the levels of D_1;
- the relative weight of efforts required in different activities for the energy efficiency plan to share the operating costs by type of clientele.

[588] According to Gaz Métro, the information available in the systems allows it to propose a method of allocation of the amounts of financial contribution for D_3, D_4 and D_5 customers that would improve cost causality, while being similar to that used for D_1 customers. It also allows the proposal of an improvement on the allocation method for the levels of D_1. The energy efficiency team will proceed directly to the allocation of the amounts of financial contribution by using the current method and applying it to the sub-levels of D_1[203].

[203] Document B-0111, p. 83.

[589] As for the use of relative weighting of the efforts required by the energy efficiency plan, the Distributor stated that this approach has the advantage of improved cost causality by having each rate category assume the administrative efforts dedicated to the development or the analysis of the programs that concern them[204].

[590] Gaz Métro proposed no change to the allocation of the costs of development, commercialization, monitoring and evaluation associated with the energy efficiency plan.

[591] Expert Knecht said:

> *Direct assignment of energy efficiency program costs is a reasonable approach, because the effects of those programs are reduced consumption and reduced peak loads. Reductions in overall load, as well as improvements in class load factor, serve to benefit rate classes in the cost allocation study in the form of reduced costs being allocated*[205].

[592] Expert Chernick said that:

> *Gaz Métro's approach appears to be attempting to allocate costs to the rate groups that participate in each program, which is a reasonable starting point. However, since the energy-efficiency programs also benefit other classes, some allocation on throughput or peak demand should be considered in the future*[206].

[593] The Régie judges that the proposed allocation of the costs of the energy efficiency program is appropriate since it moves towards direct allocation. It does not share the opinion of expert Chernick that a portion of the costs must be allocated to take into account the fact that all consumers benefit from the energy savings. Such an approach for cost allocation would contravene the principle of cost causality.

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204 Document B-0111, p. 84.
205 Document C-ACIG-0028, p. 26.
206 Document C-ROEÉ-0040, p. 34.

[594] **For these reasons, the Régie approves the Gaz Métro proposal and orders that the allocation of costs related to the energy efficiency program should use:**

- **the available information to directly allocate the amounts related to financial contribution and deferred costs to D_3, D_4 and D_5 as well as the levels of D_1;**
- **the relative rate of efforts required for energy efficiency activities to share the operating costs by type of clientele.**

13. RATE BASE AND AMORTIZATION

[595] The basic elements of rate fixing are also to be allocated between the different categories of customers, since the size of the rate base determines the cost of capital, which is a cost item of the distribution services allocated between the rate categories.

[596] Gaz Métro indicated that amortization costs would be allocated in the same way as the investments to which they relate. They propose no change to this principle.

[597] However, in applying this principle, the Distributor proposes some changes to the allocation method for certain elements of the rate base and certain amortization expenses[207].

[598] The following table presents the basic elements of rate fixing and the amortization expenses for which the Distributor proposes modifications to the allocation factors.

[207] Document B-0111, p. 94.

TABLE 21
BASIC ELEMENTS OF RATE BASE AND AMORTIZATION EXPENSES

Elements of the rate base	Rate base		Amortization	
	Current factors	Proposed factors	Current factors	Proposed factors
UNAMORTIZED COSTS				
Unamortized costs - other				
Over-earnings 2011	REVREQ	BASETARD	REVREQ	BASETARD
Recovery of 2012 revenue gap	REVREQ	BASETARD	REVREQ	BASETARD
Intangible assets	BASETARD	BASETARD	IMMOBILD	BASETARD
Severance payments	BASETARD	EXPLOITD	IMMOBILD	EXPLOITD
Information system	BASETARD	BASETARD	BASETARD	BASETARD
FIXED ASSETS				
Distribution network				
Transmission	CONDPRIN	CAU	CONDPRIN	CONDPRIN
Transmission contribution	CONDPRIN	CAU	CONDPRIN	CONDPRIN
Main lines	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Connections	FS21	FS21	FS21A	FS21
Meters	FS22	FS22	FS22A	FS22
General Installations				
Land, structures and improvements	IMMOBILD	EXPLOITD	IMMOBILD	EXPLOITD
Miscellaneous equipment and materials	IMMOBILD	EXPLOITD	IMMOBILD	EXPLOITD
Rolling stock and machinery	IMMOBILD	EXPLOITD	IMMOBILD	EXPLOITD
Contributions				
Contributions - infrastructures	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Government subsidies	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Contributions - construction	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Contributions - PERD	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
WORKING CAPITAL				
Lead-lag on taxes	REVNETD	BASETARD		

Source: Document B-0111, p. 95; document B-0039 section Allocation and document B-0040, section Allocation.

13.1 CONNECTIONS

[599] The cost of the connections is currently shared between the FS21 factor and the amortization of connections with the FS21A factor. FS21, as approved by the Régie, is defined as follows:

> *FS21 Connections*
>
> *Interface between the different SAP modules (high-volume billing, meter monitoring, investments, cyclical billing) allowing a direct allocation based on different rates and levels*[208]. [our underlining]

[600] Gaz Métro proposed to continue to allocate the cost of connections with the FS21 factor and to harmonize the cost of amortization with that of the connections by using factor FS21 rather than FS21A.

[601] The Distributor pointed out that the data in the SAP system do not provide precision regarding the cost of each connection and that this information is no longer available. Following verification, it was understood that the interface collecting the information from various sources does not produce an adequate cost of connection or amortization[209].

[602] Consequently, the Distributor proposed to calculate, based on work orders issued to perform the connections, an average cost of the direct costs of connection, general costs of contractors, and corporate general costs. These costs are segmented based on the type of meter used. The cost of the work orders is added to the category of assets in the investment book. Gaz Métro calculates the average cost of meter installation in the same manner.

[603] The Distributor said that this method of calculation reproduces the allocation method outside the interface with the best data available on the costs of connections. It has not modified the method of determining the FS21 sharing factor approved by the Régie, since it identifies the necessary information for the establishment of a value per category of customer and crosses these in order to calculate a reliable and representative cost per customer of the value of the customer connection contained in the rate base.

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208 Dossier R-3837-2013 Phase 3, document B-0166, p. 17.

209 Document A-0044, p. 194.

[604] For each rate category and level, a unit cost is therefore established by type of connection. The total value of the connections is obtained by multiplying this unit cost by the number of connections. The FS21 allocation factor is composed of the parts related to the value of the connections of each category and rate level compared to the value of all of the connections.

[605] The Distributor also stated that the valuation of the assets is carried out per category of assets, and not for each asset of the category. Consequently, there is only a single rate of amortization for each category of assets. Furthermore, as the monitoring of costs is not done by connection, the value of the amortization cannot be established except on the basis of the total of the value of the category of assets[210].

[606] Expert Knecht said that the proposed approach is reasonable.

[607] CFIB suggested that the Régie approve this factor while imposing on Gaz Métro a condition related to the implementation of an information process ensuring the monitoring of a number of connections by rate category.

[608] The Régie notes that the net value of connections in the rate base is $445 million and judges that this amount is important. Based on the decisions passed by the Régie, this amount should be directly allocated. In fact, an interface between different information databanks would allow the use of the cost connections associated with a particular customer and rate, in order to establish a global cost for this rate category with the help of an average unit cost by diameter of pipeline.

[609] The Régie understands that since the implementation of the SAP system, in 2001-2002, the direct allocation method for connections that it approved is no longer possible[211]. However, it notes that no request to modify the method has been proposed since that time. The Régie cannot support the claim of the Distributor that the method it proposes reproduces direct allocation, but outside the interface.

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210 Document B-0072, p. 2.

211 Document A-0044, p. 195.

[610] For the Régie, direct allocation would allow the establishment of a relationship between the unit cost per type of connection, the customer and the applicable rate. This relationship is valuable for the net value of connections as well as for the annual amortization. Also, the average unit cost was calculated by diameter of connection, while the new method establishes this by type of meter.

[611] The Régie also notes that the proposed method is a function of the information in work orders issued during recent connection jobs. It wonders about the representativeness of the average costs of connection by type of meter thus obtained and on the relevance of the information contained in the recent work orders to explain the average cost of all connections included in the rate base.

[612] Finally, the Régie holds that the method proposed by the Distributor does not take into account the real age of the connections, their diameter, the type of material used, the region concerned or the duration of the amortization period.

[613] The Régie judges that in a process of continuous improvement of the Study, additional analysis must be done to better understand how the proposed method behaves and to identify approaches to improve it.

[614] The Régie also asked the Distributor to explore possible avenues for improvement of the quality of data in the SAP system, to make it possible to do direct allocation again, both for the value of the asset and for their amortization. **Therefore, the Régie orders Gaz Métro to submit an action plan in phase 2 of this file for correcting the shortcomings of the allocation method for the costs of connections identified in the previous paragraphs.**

[615] **In the interim, the Régie approves the proposal to allocate the costs of connections and their amortization using factor FS21.**

13.2 METERS

[616] The cost of meters is currently shared using factor FS22 and the amortization of the meters with factor FS22A. Factor FS22, as approved by the Régie, is defined in this way:

> *FS 22 – Meters and instruments*
>
> *Interface between the different SAP modules (high volume billing, meter monitoring, investments cyclical billing) that make it possible to directly allocate on the basis of rates and levels*[212]. [our underlining]

[617] Gaz Métro proposes to continue to allocate the cost of meters using factor FS22 and to allocate their amortization using the same factor.

[618] It mentioned that the verifications of the information interface that allow collection of the information in the different modules of the SAP system have shown that the number of customers taken into account by the interface is incorrect. Consequently, the amounts calculated could not be validated and the database does not permit an adequate calculation of a cost or an amortization.

[619] To resolve the data problem, Gaz Métro estimated the value of the meters by rate and rate level by multiplying the unit cost of each type of meter by the respective number of meters in each category. The Distributor mentioned that its proposition reproduced the allocation method outside the interface with the best data available on the costs of the meters and the measuring instruments. It said it had not modified the manner of determining the FS22 sharing factor approved by the Régie, but indicated that the improvements were made to the evaluation of the unit cost by type of meter.

[620] To calculate the sharing factor, the Distributor identified the information necessary to establish the value by category of customer. It indicated that the crossover of this information allows it to establish a cost per customer which is reliable, documented and representative of the value of the meters and the measuring instruments for each category of customer.

[621] In order to be able to calculate a value by category of customer, Gaz Métro must calculate the annual average unit cost by type of meter. It establishes this using the average cost of acquisition of the meters over the past three years, weighted by a factor that takes into account the different expected service life of the equipment.

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212 Dossier R-3837-2013 Phase 3, document B-0166, p. 18.

[622] The average cost of acquisition in the last three years corresponds to the weighted cost of the unit cost of acquisition and the cost of recycling. Gaz Métro makes an adjustment to compensate for the different service life of the different types of meters, to be able to compare between them.

[623] When the annual average unit costs are defined, Gaz Métro reconstructs the total cost incurred for the acquisition and recycling of meters for each rate category and level by multiplying the number of meters, by type by its average annual unit cost.

[624] Expert Knecht said that the fact of adjusting the various service lives for each type of meter is justified. However, the methodology applied to reflect these different service lives does not appear reasonable to him. He said that the proposed adjustment is not appropriate and should be modified[213].

[625] CFIB said that the costs of acquisition and recycling of the last three years presented by Gaz Métro in its evidence show major variations. These variations could influence the calculation of this allocation factor, which would lead to an inappropriate result between the different categories of customers.

[626] The Régie understands that the information interface which allows a direct allocation of the cost of meters and its amortization no longer provides satisfactory results and that direct allocation is no longer possible.

[627] The Distributor has not demonstrated to the satisfaction of the Régie that the proposed allocation method produces results comparable to direct allocation. In the proposed method, the calculation of the average unit cost is performed differently. The Distributor now takes into account the costs of recycling and of the average annual purchase cost over the last three years. Furthermore, this unit cost is adjusted to take into account the service life and proportions of recycling of certain components of the meters.

[628] The Régie is concerned by the observation by CFIB regarding the instability of the sharing factor derived from the use of data over the three-year period, while the service life of installed meters included in the rate base may cover a period from 5 to 20 years.

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213 Document C-ACIG-0031, pp. 14-15.

[629] The Régie is also concerned about the fact that there is now only a single average amortization rate for all of the meters, whereas the service life of different types of meters varies considerably.

[630] The Régie judges that, in a continuous improvement process of the Study, additional analysis must be done to better understand how the proposed method behaves and to identify approaches to improving it.

[631] The Régie also asked the Distributor to explore the possible avenues for improving the quality of the data in the SAP system, so as to be able to again use direct allocation, for the value of the assets and for their amortization. **The Régie orders Gaz Métro to submit in phase 2 of this file an action plan for correcting the weaknesses in the allocation method of the costs of meters identified in the previous paragraphs.**

[632] **For the interim, the Régie approves the proposal to allocate the costs and amortization of meters using factor FS22.**

13.3 GENERAL INSTALLATIONS

[633] The costs of general installations include the vehicle fleet, land, installations and buildings as well as the information equipment. These costs are presently allocated using the IMMOBILD derived factor, based on sharing the total costs of assets.

[634] Gaz Métro proposes that the costs and amortization of the general installations be allocated in the same manner as salaries. This would mean using the EXPLOITD derived factor, an allocation on the basis of the total operating costs.

[635] According to Expert Overcast, these expenses should be allocated in the same way as salaries, by taking into account the functions performed by the employees who use these assets in their work[214].

[214] Document B-0111, p. 86.

[636] **For the reasons stated by the Distributor, the Régie approves the proposal to allocate the costs of the general installations as well as their amortization using the derived factor EXPLOITD.**

13.4 INTANGIBLE ASSETS

[637] The intangible assets are those initial costs related to fees for the exclusive distribution rights. These costs relate to the regulated operating environment of Gaz Métro and are amortized over a 30-year period. These assets are currently allocated using the BASETARD factor.

[638] Gaz Métro proposed that the amortization costs of these intangible assets be also allocated using the BASETARD factor, rather than the IMMOBILD factor.

[639] **For the reason stated by the Distributor, the Régie approves the proposal to use the BASETARD factor henceforth to allocate the costs of intangible assets and their amortization.**

13.5 SEVERANCE PAYMENTS

[640] Gaz Métro asked the Régie to approve that the costs of severance payments and their amortization be allocated in the same manner as salaries, using the EXPLOITD factor.

[641] Currently, the costs of severance payments are allocated using the BASETARD factor and their amortization is allocated by sharing the total costs of assets of the rate base using the IMMOBILD factor. These costs of severance payments being related to the payroll, Gaz Métro proposes to allocate them in the same manner as salaries, using the EXPLOITD factor.

[642] **For the reasons stated by the Distributor, the Régie approves the proposal to allocate the costs of severance payments and their amortization using the EXPLOITD factor.**

13.6 ANNUAL OVEREARNINGS AND REVENUE SHORTFALLS

[643] Currently, the costs relating to overearnings and shortfalls in annual revenue for the distribution service are allocated according to the revenues required for distribution, using the REVREQ or FB07D factors, two different terms for the same allocation factor.

[644] Gaz Métro asked the Régie to approve having overearnings and annual revenue shorfalls in the distribution service allocated using the proposed factor for the allocation of return, which is the BASETARD derived factor. The Distributor indicated that the variation of revenues, both for overearnings and revenue gaps, is calculated in relationship to the revenue required to ensure that the return of the business is in conformance with the rate of return approved by the Régie. Consequently, they represent surpluses or deficits to the approved return.

[645] Answering a question from the Régie, Gaz Métro added that to the extent the deviation could have been foreseen, it would have been integrated into the rates. When the rates were established, the difference between revenues and costs is equal to the authorized return. The return is mainly tributary to the rate base. Consequently, if it could have been foreseen in advance, in a world where rates would perfectly reflect the allocation of the costs, the overearnings or shortfalls would have been allocated using the BASETARD factor. Since, for Gaz Métro, the goal of the cost allocation study is to compare the allocation of the costs without impacting rates with the proposed rate, the use of revenue is counter-indicated in any allocation factor[215].

[646] UC suggested allocating overearnings on the basis of their sources, if the level of detail of the statutory or regulatory financial reporting of Gaz Métro allows this. Thus, an overearning in operating charges would be allocated using the sharing factors for these operating costs[216].

[647] This intervener indicated that it is certainly less arbitrary to allocate an overearning on the basis of costs already shared rather than on the rate base, as suggested by Gaz Métro. It can bring a reduction in operating costs, for example, which has absolutely no causal relationship with the value of the rate base.

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215 Document B-0083, p. 31.

216 Document C-UC-0018, p. 26.

[648] The Régie partly shares the intervener's opinion. While the BASETARD derived factor is an adequate factor to allocate the authorized return, it is difficult to conclude that the same is true of an overearning or revenue shortfall whose origin is difficult to associate specifically with the rate base.

[649] The Régie is of the opinion that this is a matter of distinguishing the authorized return from the overearning that was added to it to give the real return. While the authorized return flows from the application of the rate of return determined by the Régie based on rate projections, the overearning is the result of observed discrepancies, to the average temperature between real and estimated revenue levels and operating costs. To be coherent with the principle of respect for cost causality and in the absence of a special allocation factor developed for this purpose, it appears fairer to allocate overearning and annual revenue shortfall as distribution revenues as is currently done.

[650] **Consequently, the Régie rejects the proposal of the Distributor and orders it to allocate overearnings and shortfalls in annual distribution revenues using the current REVREQ or FB07D factors.**

13.7 INFORMATION SYSTEMS

[651] The BASETARD allocation factor is currently used to allocate costs of information systems development. Gaz Métro indicated that it has evaluated the possibility of allocating these costs in a more direct manner, on the basis of rate categories addressed by information development projects and the SAP2B information technology project in particular.

[652] After analysis, Gaz Métro concluded that the current costs associated with the development of information technology cannot be connected to a particular category of customers on the basis of generic objectives of these projects. It adds that the development of information systems serves the needs of the entire organization and all categories of customers. Therefore, it is not possible to establish a direct causal relationship between these costs and one or several rate categories[217].

[217] Document B-0111, pp. 92-93.

[653] Since the current segmentation of the clientele could be changed in phase 2 of this file, Gaz Métro considers that it is preferable for now to maintain the current approach for allocating costs related to all information technology projects.

[654] Expert Knecht stated that the proposal of the Distributor is reasonable[218].

[655] **For the reason stated by the Distributor, the Régie approves the proposal to allocate the development costs of information technology systems and their amortization using the** BASETARD factor.

13.8 DISTRIBUTION NETWORK

[656] The Distributor proposed to modify the sharing factor for several investment expenses for the distribution network, as indicated in Table 22. It provided no explanation for these changes.

TABLE 22
ASSETS – DISTRIBUTION NETWORK

Rate base elements	Rate base		Amortization	
	Current factors	Proposed factors	Current factors	Proposed factors
ASSETS				
Distribution network				
Transmission	CONDPRIN	CAU	CONDPRIN	CONDPRIN
Transmission Contribution	CONDPRIN	CAU	CONDPRIN	CONDPRIN
Main lines and connections	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN

Source: Extract from Table 21.

[218] Document C-ACIG-0028, p. 27.

[657] The Régie noted that the CONDPRIN derived factor is constituted from the costs of transmission, supply and distribution lines, while the CONDPRIND derived factor is constituted solely on the basis of the costs of the supply and distribution lines[219].

[658] The Régie understands that the main lines category deals only with the costs of supply and distribution lines since there is a distinct category for transmission lines.

[659] Also, the Régie realizes that for some categories, the proposed changes of the Distributor are not coherent with the principle stated previously that the amortization costs of an asset should be allocated using the same factor as that used for the allocation of the asset.

[660] **Given the provisions of the present decision, the Régie orders that the costs of the *transmission* and *transmission contribution* categories as well as their amortization be allocated by using the CAU factor. It also orders that the costs of the main lines and connections as well as their amortization be allocated using the CONDPRIND factor.**

13.9 CONTRIBUTIONS

[661] The Distributor proposes to modify the sharing factor for certain asset expenses in the *Contributions* category. He provided no explanation for this change.

[219] Document B-0075, p. 23 et 24.

TABLE 23
ASSETS – CONTRIBUTIONS

Rate base elements	Rate base		Amortization	
	Current factors	Proposed factors	Current factors	Proposed factors
ASSETS				
Contributions				
Contributions - infrastructure	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Government subsidies	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Contributions - construction	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN
Contributions – PERD	CONDPRIN	CONDPRIND	CONDPRIN	CONDPRIN

Source: Extract from Table 21.

[662] **Given the provisions of this decision and the previously stated principle, the Régie orders that the costs of the *Contributions* category associated with supply and distribution lines and their amortization shall be allocated using the CONDPRIND factor.**

13.10 INTERVENER COSTS

[663] The current sharing factor for intervener costs is the FS31 factor and Gaz Métro did not ask for any change in this regard. In order to be adequately allocated, the costs of this category are first divided between the costs associated with consumer representatives and those associated with interveners representing the public interest, such as environmental groups.

[664] The costs associated with consumer representatives are shared between the different rates and rate levels in the following manner:

- costs of interveners associated with low volume customers (D_1 small);
- costs of interveners associated with medium volume customers (D_1 large, D_3);
- costs of interveners associated with high volume customers (D_4 and D_5).

[665] Next, these amounts are allocated between their respective rates and rate levels based on total revenues, which include supply, compression, transport, balancing, distribution and inventory adjustment, using the FB10 factor.

[666] The costs associated with interveners representing the public interest are allocated to all customers, in a 50/50 proportion based on volumes consumed using the FB01D factor, and total revenues using the FB09CL factor.

[667] Expert Knecht raised the following concerns regarding the allocation of the costs of interveners:

> *First, regulatory expenses should be primarily focused on regulated services, namely transmission and distribution. There is therefore little reason to include volumes or gas supply revenues in the allocation of public interest costs. I suggest that the transportation/storage/distribution revenue allocator (FB10) be used for costs that are demonstrably related to the public interest. In addition, I note that some 44 percent of costs fall into an "other" category, which is not defined in the supporting materials.* [footnote omitted] *This cost item is allocated using the FB10 allocator, which is reasonable to the extent that it applies to general regulatory expense*[220].

[668] **The Régie does not share the opinion of expert Knecht.** It judges that the regulatory costs incurred by the Distributor are not limited to matters relating to the transmission and distribution services alone.

[669] **For these reasons, the Régie approves the proposal to allocate intervener costs using the FS31 factor.**

13.11 RETURN ON THE RATE BASE

[670] Gaz Métro does not propose to change the allocation of return on the rate base. The use of the BASETARD allocation factor appears appropriate to it.

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220 Document C-ACIG-0028, p. 28 et 29.

[671] UC stated that the return on the rate base must be shared on the basis of the expenses of the range of activities necessary for Gaz Métro to provide the service and not solely on the basis of assets that make up the rate base. It considers that the Gaz Métro proposal to allocate the cost of capital solely on the basis of the assets making up the rate base, that is using the BASETARD factor, does not respect the principle of allocating the cost of service on the basis of the services offered or rendered by different cost centers, in particular that of capital. UC proposed that a derived sharing factor, DEJAREPA, be created to establish on a pro rata basis all of the expenses already shared.

[672] **The Régie does not share the opinion of UC. Therefore, it approves the proposal to allocate the costs associated with the return on the rate base using the BASETARD factor.**

14. TAXES

14.1 PROPERTY TAX

[673] Property tax applies to Gaz Métro buildings. These costs are currently allocated using the IMMOBILD factor which takes into account the sharing of the total costs of the assets as done with amortization costs for general installations.

[674] Gaz Métro asked the Régie to approve having property taxes associated with the place of business being allocated using the EXPLOITD derived factor. It proposed to apply the principle by which taxes relating to various real estate assets should be allocated in the same manner as these assets.

[675] Gaz Métro considers that the recommendation of expert Overcast regarding general installations also applies to property taxes, and consequently proposes to allocate these costs in the same manner as the amortization costs of general installations, using the EXPLOITD allocation factor.

[676] **For the reasons stated by the Distributor, the Régie approves the proposal to allocate property tax costs using the EXPLOITD factor.**

14.2 TAX ON THE NETWORK

[677] The tax on the network, about $13.2 million, is paid by Gaz Métro as a public services tax. This tax applies to the value of the assets, including the main lines, connections, equipment at delivery stations and compression and storage facilities in the liquification, storage and regasification plant (LSR)[221].

[678] This tax is currently shared using the CONDPRIN factor, which represents the sharing of the costs of all main lines. The Distributor proposed no change to the allocation of these costs.

[679] Expert Knecht recommended modifying the sharing factor for the tax on the network. This expert stated that these costs should be allocated using a derived factor that would also include the value of the connections[222].

[680] The Régie shares the opinion of expert Knecht. To the extent that the tax amount paid by Gaz Métro applies to the value of its distribution network, including the value of the connections, the Régie considers that this asset must be taken into account in the establishment of the sharing factor.

[681] **Consequently, the Régie orders the Distributor to allocate costs relating to the tax on the network using a new derived factor constituted of elements already included in the CONDPRIN factor, and adding to it the value of the connections.**

14.3 INCOME TAX

[682] Currently the costs related to income tax on revenues related to return and on revenue not related to return, as well as lead-lag on taxes on the rate base, are allocated using the REVNETD factor and are based on the distribution income. Income tax not related to return is temporary tax generated by the difference between regulatory and fiscal standards.

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221 Document B-0058, p. 35.

222 Document C-ACIG-0028, p. 29.

[683] Gaz Métro asked the Régie to approve that these three categories of taxes be henceforth allocated using the BASETARD derived factor.

[684] According to the current method based on revenue, there would be no cost of tax on return in the case where the rate of return is 0%. The Distributor indicates however that in this case, each rate category could generate a net profit or loss, depending on its degree of cross-subsidy. Using allocation based on net income, a cost or a credit could be allocated to each rate category, even in the absence of a tax cost for Gaz Métro[223].

[685] Gaz Métro therefore proposed to allocate income tax costs in the same way it allocates return on the rate base, using the BASETARD allocation factor. It considers that only this way of allocating the costs can generate an allocation by type of customer that is not distorted by the effect of cross-subsidization, and that this manner of cost allocation study can serve directly as input into the rate process.

[686] The Distributor recalled that the modification of the allocation factor to net income was done in file R-3173-89. It observed that the cost allocation study is but one tool in establishing the individual financial results of each rate in order to evaluate cross-subsidization.

[687] UC maintained that it is not the method of calculating the return of shareholders which generates the tax expense, but the presence of a taxable income, which may be seen as a difference between revenues and deductible expenses.

[688] It pointed out that since it is the difference between revenues and expenses that created a tax expense, it is more logical to use the current method, that is net income from distribution attributable to each rate category, REVNETD, in order to allocate the tax expense to different rate categories.

[689] In the opinion of this intervener, the fact of allocating tax expense using the BASETARD factor, as proposed by Gaz Métro, is the same as using imaginary rates that would have generated an allocation of profits per rate category proportional to the BASETARD factor. Such an exercise appears unnecessarily complicated and not particularly informative. The artificial creation of profits per rate category proportional to

[223] Document B-0111, p. 90.

the BASETARD factor causes a tax cost by rate category so fictitious and bereft of reality that it distorts real costs.

[690] UC therefore recommends that the Régie reject the Gaz Métro proposal to adopt the BASETARD factor and to continue to use REVNETD as the allocation factor for tax costs.

[691] The Régie partly shares the UC position and judges it useful and relevant to maintain the method of calculation of using net income, in order to evaluate cross-subsidization.

[692] **For the reasons stated by the Distributor, the Régie approves the proposal to allocate the costs of income tax related to return and not related to return as well as the costs of lead-lag on taxes using the BASETARD factor. However, it orders Gaz Métro to present in rate cases the degree of cross-subsidization using two allocation methods, the REVNETD and BASETARD factors.**

15. UPDATE OF THE STUDY

[693] **The Régie orders the Distributor to update the study on the data of the 2014 rate case to take into account the present decision. It should present, for each of the modified elements:**

- **the hypotheses adopted;**
- **details of the calculations performed and the explanations required;**
- **the impact of the modification on the results of the study compared to the results obtained with the current method.**

[694] **The Distributor must also present the detail of the results of the study using the format of document B-0040, as an Excel file and on 11x17 paper. This document must equally present the detailed results by rate sub-category using the following unit:**

- **dollars;**
- **dollars/customers;**
- **dollars/AC;**
- **dollars/m³.**

[695] **The Distributor must submit all of these elements no later than October 21st, 2016, at noon, so that the Régie can judge its compliance with the provisions of the present decision.**

16. INTERVENER COSTS

16.1 LEGISLATION AND APPLICABLE PRINCIPLES

[696] Under section 36 of the Act, the Régie can require the Distributor to pay the costs of persons whose participation is useful to its hearings.

[697] The *Intervener Costs Payment Guide 2012* (the Guide) and the *Rules of Procedure of the Régie de l'énergie*[224] structure the claims for payments of costs that the Régie can pay or require to be paid, without limiting its discretionary power of judging the usefulness of the participation of interveners in its hearings and the necessary and reasonable character of the costs incurred.

224 RLRQ, c. R-6.01, r. 4.1.

16.2 CLAIMS FOR PAYMENT OF COSTS

[698] The Régie evaluates the necessary and reasonable nature of the costs claimed using the criteria in section 15 of the Guide. It also evaluates the utility of the participation of the interveners using the criteria provided in section 16 of the Guide. Finally, it takes into consideration the respect by the interveners of its comments on the requests for intervention in its procedural decision D-2014-193 and partial costs already authorized in its D-2016-023 decision.

[699] The Régie judges that the participation of ACIG, CFIB, ROEÉ and UC were useful to its deliberations and that the costs claimed by these interveners are reasonable. It thus authorizes the total of the costs claimed and judged admissible.

[700] For SÉ-AQLPA and UMQ, the Régie considers that their input was summary and their participation was of little use in its deliberations. Consequently, it judges that the partial costs already authorized are reasonable.

TABLE 24
COSTS CLAIMED, ADMISSIBLE, AUTHORIZED, PARTIALLY AUTHORIZED, AND BALANCE PAYABLE (TAXES INCLUDED)

Intervener	Costs claimed ($)	Admissible costs ($)	Authorized balance ($)	Partially authorized balance ($)	Outstanding balance ($)
ACIG	67,961.52	67,961.52	67,961.52	34,000.00	33,961.52
CFIB	87,149.00	87,149.00	87,149.00	43,000.00	44,194.00
GRAME	2,034.62	2,034.62	2,034.62	2,034.62	-
ROEÉ	96,161.17	95,784.92	95,784.92	48,000.00	47,784.92
SÉ-A QLPA	51,123.76	51,123.76	25,000.00	25,000.00	-
UC	36,966.22	36,966.22	36,966.22	18,000.00	18,966.22
UMQ	34,432.90	34,432.90	17,000.00	17,000.00	-
TOTAL	**375,874.19**	**375,497.94**	**331,941.28**	**187,034.62**	**144,906.66**

The accommodation expenses claimed by ROEÉ were reduced to the daily maximum of $165 per day before taxes and the transportation expenses were adjusted to reimburse only airfare.

[701] **For these reasons:**

The Régie de l’énergie:

ORDERS the Distributor to comply with all of the conclusions, requirements and decision elements stated in the present decision;

AUTHORIZES the costs indicated in section 16 of the present decision to be paid to the interveners concerned;

ORDERS the Distributor to pay the interveners the costs authorized by the present decision within 30 days.

Laurent Pilotto
Commissioner

Louise Pelletier
Commissioner

Representatives:

Association des consommateurs industriels de gaz (ACIG) represented by Guy Sarault;

The Canadian Federation of Independent Businesses (Québec section) (CFIB) represented by André Turmel;

Groupe de recherche appliquée en macroécologie (GRAME) represented by Geneviève Paquet;

Regroupement des organismes environnementaux en énergie (ROEÉ) represented by Franklin S. Gertler;

Société en commandite Gaz Métro represented by Hugo Sigouin-Plasse;

Stratégies énergétiques et Association québécoise de lutte contre la pollution atmosphérique (SÉ-AQLPA) represented by Dominique Neuman;

TransCanada Energy Ltd. (TCE) represented by Pierre D. Grenier;

Union des consommateurs (UC) represented by Hélène Sicard.

APPENDIX 1

EQUATION OF THE ADOPTED METHOD FOR CLASSIFYING DISTRIBUTION LINES

Appendix 1
(2 pages)

L. PI. _____

L. PE. _____

Basic data

CTR = Total cost of a given network

C<30: category of customers whose MDD per customer is less than or equal to 30 m^3 - day
C>30: category of customers whose MDD per customer is greater than 30 m^3 - day

CapD = sum of the capacity demanded by all categories of customers
$CapD_{C<30}$ = capacity demanded by category C<30
$CapD_{C>30}$ = capacity demanded by the category C>30
$CapD = CapD_{C<30} + CapD_{C>30}$

customers = total number of customers
customers = # customers $_{C<30}$ + # customers $_{C>30}$

Note: to simplify, the clientele is divided into only two categories.

Assigned capacity

CMA= minimum capacity assigned to each customer for the access component
CMA= 30 m^3 - day/customer

CapA = assigned capacity
CapA = # customers * CMA

$CapA_{C<30}$ = # customers $_{C<30}$ * CMA
$CapA_{C>30}$ = # customers $_{C>30}$ * CMA

Reserved capacity

CapR = reserved capacity

CapR = $CapA_{C<30} + CapD_{C>30}$

(Note: CapR>CapD since $CapA_{C<30} > CapD_{C<30}$)

CunCapR= unit cost of reserved capacity

CunCapR= CTR / CapR

Access component

$A = Cost of access component

$A = [$CapA_{C<30}$ * CunCapR] + [$CapA_{C>30}$* CunCapR] or

$A = [CapA * CunCapR]

Capacity component

$C= Cost of capacity component

$C= [Max ($CapD_{C<30} - CapA_{C<30}$, 0) * CunCapR] + [($CapD_{C>30}$ – $CapA_{C>30}$) * CunCapR]

$C= [($CapD_{C>30}$ – $CapA_{C>30}$) * CunCapR]

Note: since for customers in category C<30 the assigned capacity is always greater than the capacity demanded, the first term of the equation is always equal to zero.

Classification of distribution lines

CTR = $A + $C

CTR = [CapA * CunCapR] + [($CapD_{C>30}$ – $CapA_{C>30}$) * CunCapR]

APPENDIX 2

SIMULATION OF THE ADOPTED METHOD FOR CLASSIFYING DISTRIBUTION LINES AND COMPARISON WITH OTHER METHODS

Appendix 2
(12 pages)

L. PI. _____

L. PE. _____

Step 1: the hypothetical network on which the two scenarios for composition of clientele are based is as follows:

Number of lines	1
Diameter of pipe	6 inches (168.3mm)
Length of line	100 km
Unit cost per meter	219.30 $/metre (1)
Total cost of network	$21.9 million

(1) See Table 4.

Step 2: the parameters for the two scenarios are as follows:

Density and composition of clientele by scenario

SCENARIO 1 — 8 customers/km						SCENARIO 2 — 32 customers/km				
Customers		**Capacity demanded by customer**	**Total capacity demanded**			**Customers**		**Capacity demanded by customer**	**Total capacity demanded**	
(#)	**%**	**(m^3-day)**	**(m^3/day)**	**%**		**(#)**	**%**	**(m^3-day)**	**(m^3/day)**	**%**
754	94%	**10**	7,540	6%	**Low-volume (LV)**	**3,097**	97%	**7**	21,540	18%
40	5%	**500**	20,000	17%	**Medium-volume (MV)**	**100**	3%	**600**	60,000	51%
6	1%	**15,000**	90,000	77%	**High-volume (HV)**	**3**	0%	**12,000**	36,000	31%
800	**100%**		**117,540**	**100%**	**Total**	**3,200**	**100%**		**117,540**	**100%**

Step 3: detail of the calculation of the access component for each of the methods using two scenarios.

SCENARIO 1

Calculation of access component by method

SCENARIO 1		Total cost of network	Length (km)	Cost (meter)	Cost (km)	Total cost	Share of the access component
		①	②	③	④=③×1,000	⑤=②×④	⑤/①
	Minimum system	$21.9 million	100	$130.24[1]	$130,240	$13.02 million	**59%**
	Zero intercept			$100.00[2]	$100,000	$10.00 million	**46%**
	Chernick Method					$1.38 million	**6%**
	100% capacity method						**0%**
	Adopted method					$3.97 million	**18%**

[1] *Table 4.*

[2] *Hypothesis established by the Régie.*

See: step 3.2

See: step 3.1

Step 3.1:

Access component – Chernick method

Pipe diameter (mm)	**Length (km)**	**Cost** ($ million)	**Relative capacity** [1]	**Access portion** [1/relative capacity]	**Total cost of access component** ($ million)	**SCENARIO 1**
①	②	③	④	⑤ = 1/④	⑥=③×⑤	
60.3			1	100%		
168.3	100	21.9	15.9	6.3%	1.38	
Total	**100**	**21.9**			**1.38**	

(1) *Document C-ROEÉ-0040, pp. 17-18.*

Step 3.2:

Access component – adopted method

Clientele	Minimum assigned capacity (m^3- day/customer)	Number of customers	Total assigned capacity (m^3- day)	Unit cost reserved capacity ($)	Cost of assigned capacity ($ million)	SCENARIO 1
	①	②	③=①×②	④	⑤=③×④	
LV	**30**	**754**	22,620	**165**	3.74	
MV		**40**	1,200		0.20	
HV		**6**	180		0.03	
		800	**24,000**		**3.97**	

See: step 3.3

Step 3.3:

Unit cost of reserved capacity – adopted method

Clientele	Customers		Reserved capacity [1]			SCENARIO 1
		%	(m^3-day/customer)	(m^3- day)	%	
	①	②	③	④=①×③	⑤	
LV	754	94%	30	22,620	17%	
MV	40	5%	500	20,000	15%	
HV	6	1%	15,000	90,000	68%	
Total	**800**	**100%**		**132,620**	**100%**	

Unit cost of reserved capacity ($/$m^3$- day)	Total cost of network / total reserved capacity: ($21,900,000 / 132,620 m^3-day) =	**165**

[1] *At step 2, the capacity demanded per LV customer is 10 m^3-day. However, the capacity assigned to this clientele is 30 m^3-day. Consequently, the reserved capacity (132,620 m^3-day) is greater than the capacity demand (117,540 m^3-day).*

SCENARIO 2

Method of calculation of the access component by method

SCENARIO 2		Total cost of network	km	Cost (meter)	Cost (km)	Total cost	Share of the access component
		①	②	③	④ = ③ ×1,000	⑤ = ②×④	⑤/①
	Minimum system	$21.9 million	100	$130.24 (1)	$130,240	$13.02 million	**59%**
	Zero intercept			$100.00 (2)	$100,000	$10.00 million	**46%**
	Chernick method					$1.38 million	**6%**
	100% capacity method						**0%**
	Régie method					$11.14 million	**51%**

(1) *Table 4.*

(2) *Hypothesis established by the Régie.*

See: step 3.4

See: step 3.1

Step 3.4:

Access component – adopted method

Clientele	Minimum assigned capacity (m^3-day/customer)	Number of customers	Total assigned capacity (m^3 - day)	Unit cost reserved capacity ($)	Cost of assigned capacity ($ million)	SCENARIO 2
	①	②	③=①x②	④	⑤=③x④	
LV	30	3,097	92,910	116	10.79	
MV		100	3,000		0.35	
HV		3	90		0.01	
		3,200	**96,000**		**11.14**	

See: step 3.5

Step 3.5:

Unit cost of reserved capacity – adopted method

Clientele	Customers		Reserved capacity[1]			SCENARIO 2
			(m^3- day/customer)	(m^3 - day)		
	①	②	③	④=①×③	⑤	
LV	3,097	97%	30	92,910	49%	
MV	100	3%	600	60,000	32%	
HV	3	0%	12,000	36,000	19%	
Total	**3,200**	**100%**		**188,910**	**100%**	

Unit cost of reserved capacity ($/$m^3$-day)	Total cost of network / total reserved capacity: ($21,900,000 / 188,910 m^3 - day) =	**116**

[1] *At step 2, the capacity demanded by the LV clientele is 7 m^3 - day. However, the assigned capacity for this clientele is 30 m^3 - day. Consequently, the capacity reserved (188,910 m^3 - day) is greater than capacity demand (117,540 m^3 - day).*

Step 4: Sharing of costs of the capacity component by each method using two scenarios.

Step 4.1: Calculation of costs allocated for the capacity component by method except for adopted method.

		Minimum system	Zero intercept	Chernick method	100 % capacity	Direct allocation	
Total cost of network		**$21.9 million**					**Capacity demanded (%)** → See step 2
Cost of the access component		**$13.0 M**	**$10.0 M**	**$1.4 M**	-	-	
Cost of capacity component		**$8.9 M**	**$11.9 M**	**$20.6 M**	**$21.9 M**	**$21.9 M**	
SCENARIO 1	**LV**[(1)]	0.6	0.8	1.3	1.4	1.4	**6%**
	MV	1.5	2.0	3.5	3.7	3.7	**17%**
	HV	6.8	9.1	15.7	16.8	16.8	**77%**
SCENARIO 2	**LV**[(1)]	1.6	2.2	3.8	4.0	4.0	**18%**
	MV	4.5	6.1	10.5	11.2	11.2	**51%**
	HV	2.7	3.7	6.3	6.7	6.7	**31%**

(1) *In the interest of simplicity, the Régie used the minimum system method. The application of the modified minimum system method would have the effect of allocating the cost of the LV category to the MV and HV categories ($0.6 million in scenario 1 and $1.6 million in scenario 2). The PD category would therefore have a null cost of capacity component.*

Step 4.2: Calculation of the capacity component - adopted method.

SCENARIO 1

	Total assigned capacity (m^3 - da)	Unit cost of capacity reserved ($)	Cost of assigned capacity ($)	Capacity demanded (m^3 - da)	Balance of capacity (m^3 - da)	Cost of capacity component ($)	Sharing of cost of capacity component (%)
	①	②	③	④	⑤=④-①, min 0	⑥=⑤×②	⑦
PD	22 620	165	3 740 436	7 540	0	0	0%
MD	1 200		198 432	20 000	18 800	3 108 762	17%
GD	180		29 765	90 000	89 820	14 852 606	83%
Total	**24 000**		**3 968 632**	**117 540**	**108 620**	**17 961 368**	**100%**

SCENARIO 2

	Total assigned capacity (m^3 - da)	Unit cost of capacity reserved ($)	Cost of assigned capacity ($)	Capacity demanded (m^3 - da)	Balance of capacity (m^3 - da)	Cost of capacity component ($)	Sharing of cost of capacity component (%)
	①	②	③	④	⑤=④-①, min 0	⑥=⑤×②	⑦
PD	92 910	116	10 785 646	21 540	0	0	0%
MD	3 000		348 261	60 000	57 000	6 616 960	61%
GD	90		10 448	36 000	35 910	4 168 692	39%
Total	**96 000**		**11 144 354**	**117 540**	**92 910**	**10 785 652**	**100%**

Notes : - The cost of assigned capacity corresponds to the cost of the access component.
- The balance of capacity (column (5)) corresponds to the reserved capacity (steps 3.3 and 3.5) less the assigned capacity (steps 3.2 and 3.4).

Step 5: Sharing of network costs - summary.

		Access component ($ million)						**Capacity component** ($ million)						**Total allocated costs** ($ million)											
		Minimum system	Zero intercept	Chernick method	100 % capacity	Direct allocation	Chosen method		Zero intercept	Chernick method	100 % capacity	Direct allocation	Chosen method	Minimum system		Zero intercept		Chernick method		100 % capacity		Direct allocation		Chosen method	
SCENARIO 1	**PD**	12.3	9.4	1.3	-	-	3.7	0.6	0.8	1.3	1.4	1.4	-	12.9	59%	10.2	47%	2.6	12%	1.4	6%	1.4	6%	3.7	17%
	MD	0.7	0.5	0.1	-	-	0.2	1.5	2.0	3.5	3.7	3.7	3.1	2.2	10%	2.5	11%	3.6	16%	3.7	17%	3.7	17%	3.3	15%
	GD	0.1	0.1	0.0	-	-	0.0	6.8	9.1	15.7	16.8	16.8	14.9	6.9	31%	9.2	42%	15.7	72%	16.8	77%	16.8	77%	14.9	68%
	Total	**13.1**	**10.0**	**1.4**	**-**	**-**	**3.9**	**8.9**	**11.9**	**20.5**	**21.9**	**21.9**	**18.0**	22,0		21,9		21,9		21,9		21,9		21,9	
SCENARIO 2	**PD**	12.6	9.7	1.3	-	-	10.8	1.6	2.2	3.8	4.0	4.0	-	14.2	65%	11.9	54%	5.1	23%	4.0	18%	4.0	18%	10.8	49%
	MD	0.4	0.3	0.0	-	-	0.3	4.5	6.1	10.5	11.2	11.2	6.6	4.9	22%	6.4	29%	10.5	48%	11.2	51%	11.2	51%	6.9	32%
	GD	-	-	-	-	-	0.0	2.7	3.7	6.3	6.7	6.7	4.2	2.7	12%	3.7	17%	6.3	29%	6.7	31%	6.7	31%	4.2	19%
	Total	**13.0**	**10.0**	**1.4**	**-**	**0.0**	**11.2**	**8.8**	**12.0**	**20.6**	**21.9**	**21.9**	**10.8**												