BEFORE THE RÉGIE DE L'ÉNERGIE

IEc

IN THE MATTER OF:

Société en commandite Gaz Métro (Gaz Métro)

Demande relative au dossier générique portant sur l'allocation des coûts et la structure tarifaire de Gaz Métro

DOSSIER R-3867-2013

19 March 2015

prepared on behalf of:

l'Association des Consommateurs Industriels de Gaz (ACIG)

prepared interrogatory responses of:

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Interrogatories from Gaz Métro

1. Références: i) Pièce C-ACIG-0028, page 10

ii) Pièce C-ACIG-0028, page 11

i) *« Ideally, mains costs would be allocated only to customers who use the mains. »*

ii) *« Larger customers who take service at higher operating pressure do not use the lower pressure systems, and should not be allocated costs associated low pressure systems. »*

Demande:

1.1 Veuillez répondre aux questions se rapportant aux deux cas de figure suivants en prenant soin de préciser lequel des principes de causalité et d'équité doit être priorisé lors de l'exercice d'allocation des coûts. Veuillez justifier votre réponse.

Please answer the questions relating to the two following cases taking care to specify which of causality and equity principles should be prioritized at the cost allocation exercise. Please explain your answer.[1]

a) Premier cas de figure : À l'origine, une classe tarifaire est en cause dans la décision de prolonger une conduite, mais elle n'utilise plus cette conduite.

Par exemple, dans le cas où une conduite de distribution serait mise en terre pour desservir des clients industriels qui auraient éventuellement cessé de l'utiliser et auraient été remplacés progressivement par des clients résidentiels, serait-il approprié d'allouer les coûts relatifs à cette conduite à la clientèle industrielle sans tenir compte du fait que la conduite n'est plus utilisée par cette clientèle? Serait-il approprié d'allouer les coûts de la conduite de distribution aux clients résidentiels qui l'utilisent aujourd'hui, mais qui ne sont pas à l'origine de la décision d'investissement?

First scenario: The original tariff class is involved in the decision to extend a pipe, but it no longer uses that conduct.

For example, if a distribution line would be put in the ground to serve industrial customers that would eventually stopped using it and were gradually replaced by residential customers, it would be appropriate to allocate the costs of this driving to industrial customers regardless of whether the conduct is no longer used by the customer? Would it be appropriate to allocate the costs of the delivery line to residential customers who use it today, but that is not the source of the investment decision?

b) Second cas de figure : Une classe tarifaire n'est pas en cause dans la décision de prolonger une conduite, mais utilise cette conduite au service interruptible ou continu.

[1] This represents a Google translation of the preceding paragraph. All French language references and information requests were mechanically translated using Google, and are included in this document.

Par exemple, dans le cas où une conduite de transmission serait utilisée par les clients en service interruptible malgré que ceux-ci n'aient pas été pris en compte dans la décision de prolonger cette conduite de transmission, serait-il approprié de ne pas allouer les coûts relatifs à la conduite de transmission aux clients en service interruptible sur la base du principe de causalité malgré le fait qu'ils en tirent bénéfice aujourd'hui?

Si les mêmes clients en service interruptible migrent par la suite au service continu, devraient-ils se voir allouer les coûts relatifs à la conduite de transmission bien que ceux-ci n'aient pas été pris en compte dans la décision de prolonger cette conduite de transmission?

Second case: A fare class is not involved in the decision to extend a pipe, but uses this conduct interruptible or continuous service.

For example, if a transmission line is used by clients interruptible service despite what those above have not been taken into account in the decision to extend the transmission line, it would be appropriate not to allocate costs relating to the conduct of transmission to interruptible customers based on the principle of causality although they benefit from it today?

If the same interruptible customers migrate later in continuous service, should they be awarded the costs related to the conduct of transmission although they were not considered in the decision to extend the driving transmission?

Responses:

a) This response is based on Mr. Knecht's understanding that the data request applies to a situation in which specific mains are assigned to specific customers or customer classes. This type of evaluation would not be relevant in a generic minimum system or zero intercept methodology, in which mains are classified and allocated on an aggregate basis.

To the extent that the main is fully utilized by residential customers, Mr. Knecht believes it would be reasonable to assign the cost of the main to the residential class. In attaching the residential customers, the utility will have committed to maintaining and replacing the main in order to provide service to those customers.

However, to the extent that the net effect of the loss of the industrial customer is a significant amount of excess capacity (stranded cost) on the main, two issues arise. The first is one of a prudence assessment, to evaluate whether the utility took all reasonable precautions to protect itself and its customers from the impact of the loss of the customer, and to ensure that the asset still meets the regulatory requirements regarding "used and useful" investment.

If the stranded cost is deemed to be an allowable cost, Mr. Knecht concludes that there is no clear cost causation basis for assigning that cost to existing customers, as the costs were not caused by any existing customers. In that event, the reasonable criterion for allocating the cost item is equity. And since equity is often in the eye of the beholder, the potential solutions for assigning the stranded cost vary considerably, from assigning it all to the industrial class, allocating it among all rate classes based on total cost, revenue or some other generic measure, or allocating it in a manner comparable to the way costs for mains of similar size and function are allocated.

Thus, if a main-by-main cost allocation method were to be adopted (and if the hypothetical situation represents a significant cost issue), Mr. Knecht would suggest that the allocation

categories include an "excess capacity" category. Costs in the excess capacity category would then be allocated based on a metric that the Régie deems to be equitable.

b) In contrast to the example in part (a), the situation posited in this example is one in which the utility will presumably not replace the asset in order to meet the needs of the interruptible customer. The idea of interruptible service is to allow the interruptible customer to "fill valleys" in the use of capacity by those customers for whom the capacity was built. As such, it would not be logical for the utility to expand or replace capacity in order to serve interruptible customers, but only to meet the needs of firm service customers.

Similarly, to the extent that firm load grows and reduces any excess capacity on the main, the utility will presumably not expand the transmission line in order to prevent a diminution in the service quality to the interruptible customer. Thus, the benefit that the interruptible customer gets related to the use of the excess capacity on the transmission main is conceptually very different from the benefit that the firm service residential customers realize in the previous example.

Regarding the second part of the example, Mr. Knecht would agree that there can be an inequity in allowing a customer to take interruptible service when there is excess capacity while also allowing that customer to be able to freely switch to firm service when the capacity becomes constrained. Policies that discourage gamesmanship should reasonably be considered.

Mr. Knecht notes further that this issue may be addressed through a customer contribution policy. For example, in the example, when the line is initially built, the incremental cost of providing firm service to the interruptible customer would likely be relatively modest, and might not result in a customer contribution at all. However, after years of load growth, if the customer wishes to switch to firm service, it should only be allowed to do so if it can be shown that the present value of future revenues are sufficient to recover the incremental cost of upgrading the system to meet the firm customer requirements. Such a policy would tend to discourage gamesmanship, because a customer would need to trade off the benefits of higher firm service rates up front against the potential for a significant customer contribution requirement when the quality of the interruptible service deteriorates to an unacceptable level.

Interrogatories from the Régie

1. Références: (i) C-ACIG-0028, p. 9;

(ii) C-FCEI-0022, p. 11;

(iii) C-ACIG-0028, p. 10.

Préambule :

(i) « *Thus, based on the information available at this time, if the zero-intercept method is retained, I recommend that it be calculated at the global level, and that the customer component represent a weighted average of the zero-intercept main cost from separately estimated steel and plastic main cost regressions.* »

(ii) « *En effet, comme le constate Gaz Métro* [note de bas de page éliminée], *son réseau comporte une très faible densité de clients de sorte que son développement a largement reposé sur une forte proportion de volumes provenant de clients à grand débit et une densification ultérieure avec des PMD lorsque cela était possible.* »

[…]

« *Compte tenu de la faible densité géographique des clients sur le vaste territoire couvert par sa franchise, Gaz Métro a priorisé historiquement le raccordement de clients à gros volumes qu'imposaient les besoins de financement des conduites principales. Il en découle que, dans une logique d'investissement conséquente, des conduites de transmission et d'alimentation ont été installées dans un premier temps. La densification du réseau au moyen de conduites additionnelles de plus petits calibres (2 pouces) destinées à raccorder des clients à plus faibles débits s'est faite dans un deuxième temps, et graduellement, pour une partie seulement des différentes régions du réseau.* »

"Indeed, as noted by Gaz Métro [footnote eliminated Page], the network has a very low density of customers so that its development has largely relied on a high proportion of volumes from clients high flow and densification later with PMD when possible. »
[...]
"Given the low geographical density of customers in the vast area covered by his [franchise], Gaz Métro has historically prioritized the connection of high-volume customers that needed the water main financing needs. It follows that in a substantial investment logic, transmission and supply lines were installed in the first place. The network densification through additional lines of smaller sizes (2 inches) for connecting customers at lower rates took place in the second stage, and gradually to only part of the different parts of the network."

(iii) « *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.* »

Demandes :

1.1 Veuillez présenter un exemple de calcul de la moyenne pondérée formulée en préambule référence (i)). Veuillez notamment élaborer sur le paramètre de pondération utilisé.

Please submit a sample calculation of the weighted average formulated in the preamble reference (i)). In particular, please elaborate on the weighting parameter used.

1.2 Veuillez commenter, en se basant sur les références (ii) et (iii), si les méthodes présentées par le Distributeur, c'est-à-dire, les méthodes de l'intercepte zéro et du réseau minimal, dépeignent un portrait représentatif du développement historique ainsi que de l'utilisation du réseau de distribution.

Please comment, based on references (ii) and (iii) if the methods presented by the Distributor, that is to say, the methods of the intercepts zero and minimum network, depict a representative picture the historical development and the use of the distribution network.

Responses:

1.1 Mr. Knecht prepared traditional zero-intercept calculations for plastic and steel mains (separately), deflated by both the H-W Index and the CPI, using the data provided in Exhibit B-0041 (Gaz Métro's "simulator"). The details of these calculations are shown in the MS Excel File: "Simulator B-0041 RDK.xlsx," and summarized below.

SUMMARY OF GLOBAL ZERO-INTERCEPT ANALYSIS DISTRIBUTION PLUS ALIMENTATION MAINS $ PER METER OF MAIN			
	Plastic	**Steel**	**Total**
Handy-Whitman Index			
Intercept	$143	$283	$190
Total	$194	$430	$273
Percent	73.9%	65.7%	69.6%
Québec CPI			
Intercept	$122	$149	$131
Total	$164	$234	$187
Percent	74.6%	63.7%	70.0%
Sources: Workpaper "Simulator B-0041.xlsx."			

Note that, unlike Gaz Métro's plastic-only approach, the use of a weighted average zero-intercept value does not produce radically different results between the two inflation indices. Please note also that these calculations do *not* reflect any changes to the values used for pre-1979 steel mains, as discussed in the response to Régie-ACIG-2.1 below. As discussed therein, such a modification would serve to reduce the customer component of costs.

1.2 This response is provided with the caveat that Mr. Knecht has not reviewed the FCEI report beyond the isolated paragraph cited in the preamble and mechanically translated. As such, Mr. Knecht is not able to fully put the referenced paragraph in the context of the analysis.

With that caveat, Mr. Knecht concludes that the minimum intercept and zero-intercept methods both partially reflect the historical rationale for which mains were constructed, in that both methods are significantly affected by both the diameter and the length of the

installed mains, both of which necessarily reflect the reasons for which the mains were constructed. For example, if a significant share of system costs is related to installing long, high-capacity mains to primarily serve larger customers, the demand-related component of costs in both of these methods will be relatively high. However, if the cost per meter of constructing larger mains is relatively low because those facilities are disproportionately constructed in rural areas, the methods will reflect those lower costs by reducing the demand component of mains cost.

However, neither of these methods attempts to assign a disproportionate share of the cost of the mains to the customers for whom the mains were initially installed relative to the customers who use the mains today, nor will either method assign lower costs to specific customers who rely more substantially on older equipment which has relatively lower book cost as a result of cost inflation and depreciation.

The basic shortcoming of the minimum system and zero-intercept methods is that they do not reflect the specific geographic layout of system mains and loads served. Unfortunately, this shortcoming can only be addressed with a data intensive, main-by-main evaluation of costs, which is often precluded by data or cost constraints.

2. Références: (i) C-ACIG-0028, p. 15;

(ii) B-0066, base de données comptables, fichier Excel;

(iii) B-0034, base de données de l'ingénierie, fichier Excel.

Préambule :

« *DOES THE COMPANY DEFLATE ALL OF ITS COSTS BASED ON THE YEAR OF CONSTRUCTION?*

(i) *Unfortunately, it does not. Steel mains installed before 1979 are all treated in the price deflation calculation as having been installed in 1979, despite the fact that they may have been installed much earlier. Thus, the price deflator applied to those mains tends to understate the cost of those steel mains. Not surprisingly, the inflation-adjusted unit cost of the steel mains recorded in 1979 is far below the costs recorded for the early 1980s. I expect that the directional bias of this over-simplification is to overstate the minimum system value for the customer component of costs. Because steel mains are generally of larger diameter and higher cost than the minimum system mains, increasing the weighting toward steel mains should tend to reduce the relative value of a 2-inch plastic main. Moreover, this effect could arguably be deemed to be significant, as some 46 percent of steel mains are recorded as having been installed in 1979. Alternatively, a reasonable case can be made that mains installed before 1979 are almost fully depreciated at present, and thus their impact on the revenue requirement is relatively small. As such, the best approach may be to simply exclude those mains from the classification analysis*. »

[nous soulignons]

(ii) Fichier Excel, base de données comptables non épurée;

(iii) Fichier Excel, base de données de l'ingénierie.

Demandes :

2.1 Veuillez expliquer quel traitement devrait être réservé à ces conduites d'acier installées avant 1979.

Please explain what treatment should be reserved for these steel pipes installed before 1979.

2.2 Veuillez indiquer si vous considérez qu'il y a des conduites dans la base de données comptables et la base de données ingénierie qui ne devraient pas être prises en compte dans l'analyse de la composante accès.

Please indicate whether you consider that there are lines in the accounting database and basic engineering data that should not be taken into account in the analysis of the access component.

Responses:

2.1 Ideally, the pre-1979 values would be included in the analysis in the year they were constructed, and deflated accordingly. However, as Gaz Métro has not done so, Mr. Knecht concludes such data are not available.

Based upon further review and analysis since his evidence was filed, Mr. Knecht concludes that the general approach should be to include the pre-1979 mains footage in the classification analysis, but to adjust the costs for those assets. Specifically, Mr. Knecht suggests that, within the classification analysis, the cost for the pre-1979 mains be set at the average deflated cost for all post-1979 mains. This adjustment will have the effect of increasing the relative value of steel mains in the classification analysis, and thereby reducing the overall customer component.

To demonstrate the directional impact of this approach, Mr. Knecht's updated "Gas Mains History B-0033 RDK.xlsx" workpaper is attached. (This workpaper also relates to the response to Régie-ACIG-4.1.) This workpaper begins with the data provided by Gaz Métro in Exhibit B-0033, and organizes the data into annual costs and length of mains, and summed by material, diameter and year of installation. Separate worksheets are developed for steel mains, plastic mains, and plastic inserts, costs are deflated using the H-W index, and unit costs by year and main diameter are calculated. (Versions of these based on the Québec CPI index currently used by Gaz Métro were not prepared, as the Company did not provide the index in Exhibit B-0058, item 29.) Simple statistical trend analyses for the major mains diameter categories were conducted.

As shown in those tables, the deflated unit cost values for steel mains in 1979 are generally significantly below the other observations, suggesting that the deflated costs are understated, presumably because they were incurred before 1979. Mr. Knecht therefore developed an alternative steel worksheet ("Steel Mains Adj 79"), in which the 1979 deflated cost values from Gaz Métro's dataset are replaced with the average deflated costvalues for all other years, for each mains diameter.

The exception to this general rule relates to the 508 mm diameter steel mains. According to Exhibit B-0033, the vast majority of those mains were installed pre-1979, and using the small subsequent investment in those mains would appear to distort the cost for these mains. Thus, Mr. Knecht used a fitted value for the unit cost of these mains in his classification analysis.

To show the directional impact of this change, Mr. Knecht developed a basic zero-intercept classification analysis using both the unadjusted and adjusted data. This comparison, however, comes with a number of caveats. First, the dataset provided in Exhibit B-0033 has an overall mains footage that is materially below the footage shown in the Company's "simulator" (Exhibit B-0041), and therefore the zero-intercept analysis in this sheet does not match that based on the simulator (and reported in Régie-ACIG-1.1 above). At this writing, Mr. Knecht does not know the reason for the difference. Second, Mr. Knecht retains his concerns about the relevance of the H-W index for steel mains construction costs in Québec. It is likely that the use of a more accurate cost inflation index would have directionally similar impacts, except that the quantitative effect would probably be smaller. Third, this analysis excludes the cost effect of plastic inserts, which contributes to the difference between this analysis and that from the "simulator."

SUMMARY OF GLOBAL ZERO-INTERCEPT ANALYSIS DISTRIBUTION PLUS ALIMENTATION MAINS $ PER METER OF MAIN			
	Plastic	**Steel**	**Total**
Unadjusted Exhibit B-0033 Data (Deflated with H-W Index)			
Intercept	$142	$219	$173
Total	$194	$420	$287
Percent	73%	52%	61%
Adjusted 1979 Steel Data (Deflated with H-W Index)			
Intercept	$142	$250	$189
Total	$194	$569	$349
Percent	73%	44%	54%
Sources: Workpaper "Gas Mains History B-0033 RDK.xlsx"			

2.2 Please see response to part 2.1 above.

3. Références : (i) C-ACIG-0028, p. 10;

(ii) C-ACIG-0028, p. 12;

(iii) B-0069, Base de données de l'ingénierie, Fichier Excel.

Préambule :

(i) « *Ideally, mains costs would be allocated only to customers who use the mains.* »
[...]
« *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.* »
[...]
« *The obvious disadvantages to such an approach are the complexity and the detailed data requirements.* »

(ii) « *However, to the extent that the Company is unable or unwilling to pursue a more disaggregate, detailed assignment of costs, it is logical to take the combined approach. The Company indicates that it manages its supply and distribution systems as an integrated whole. As such, the Company's proposed approach to aggregate the systems is generally consistent with its overall philosophy for mains cost allocation, once it concludes that it does not have sufficient system detail for a more in-depth assessment.* » [nous soulignons]

(iii) Fichier Excel, base de données de l'ingénierie.

Demandes :

3.1 Veuillez élaborer sur le niveau de précision et de détail qu'il serait nécessaire d'avoir , afin d'allouer les coûts de conduites principales le plus directement possible. Quels types de données ou niveaux de détail seraient requis.

Please elaborate on the level of precision and detail that would need to have in order to allocate the cost of mains as directly as possible. What data types or levels of detail would be required.

3.2 Veuillez commenter si la base de données en référence (iii) est suffisamment détaillée.

Please comment on whether the reference database (iii) is sufficiently detailed.

Responses:

3.1 To apply this method for all rate classes, the data requirements would include a dataset with each segment of main, identified by material, diameter and length, with an assessment of the design day demand of all customers (or at least each customer class) located downstream from that main. The method would also require that a reasonable assessment be made of the unit cost (per meter of length) for each type of main (steel, plastic, other), for each pipe diameter.

3.2 Mr. Knecht does not believe that Gaz Métro can identify the customers and associated design day loads downstream from each segment of main. See, for example, Exhibit B-0058, item 33.

4. Références : (i) C-ACIG-0028, p. 16;

(ii) C-ACIG-0028, p. 17.

Préambule :

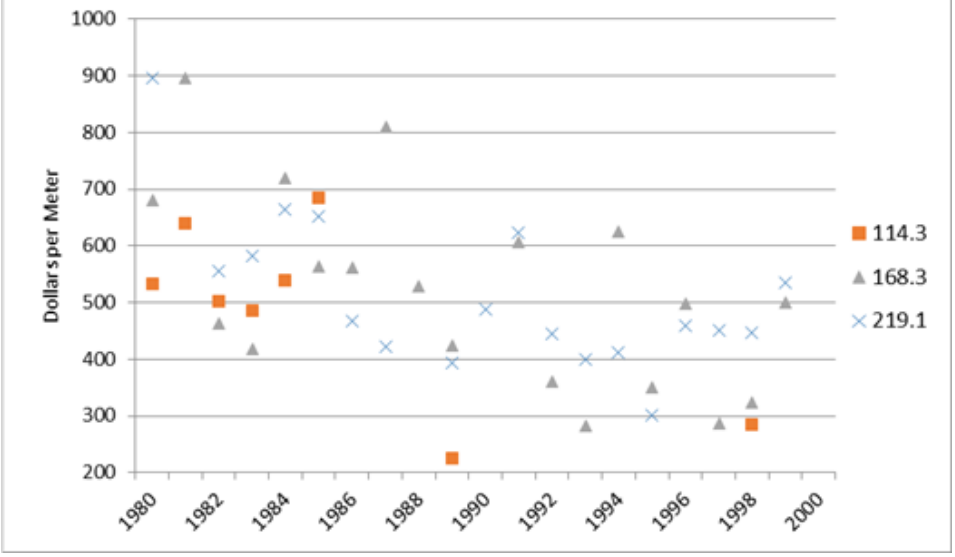
« ***IS THE COMPANY'S PROPOSAL TO REPLACE THEIPC WITH THE HANDY WHITMAN ("H-W") INDEXES FOR COST DEFLATING REASONABLE?***

(i) *Second, the H-W indexes appear to overstate cost inflation, particularly for Gaz Métro's steel mains. To evaluate this, I compiled the cost information presented in Exhibit B-0033 and totaled mains costs and footage by type of main, diameter of main, and by year. I then adjusted the yearly average cost per meter of main by main type for each year using the H-W index proposed by the Company. (I also eliminated observations where less than 1,000 meters of a particular type and size main were constructed in a particular year, to reduce the impact of relatively small cost items.) I then reviewed the annual unit costs for each diameter and type of pipe for any observable trends. For both plastic and steel pipe, the inflation-adjusted mains costs generally decline over time, although the effect is much more pronounced for steel pipe. While there is considerable scatter in the results, the inflation-adjusted cost of steel pipe exhibits a noticeable and statistically significant downward trend for the major pipe diameter categories. A sample of the results is shown in Figure IEc-1 below, for the three major steel pipe diameter categories.* »

(ii)

Figure IEc-1

H-W Inflation Adjusted Steel Mains Unit Cost



This pattern suggests that the H-W index overstates the effect of cost inflation when applied to the Gaz Métro construction costs. In light of the large impact this deflator has on allocated costs (using the Company's proposal), I recommend that the Company select a price deflation index that is consistent with its own construction cost experience.

Demandes :

4.1 Veuillez fournir l'analyse détaillée (formules incluses) de l'évaluation et compilation effectuée à partir de la base de données comptables (B-0033) permettant l'élaboration du graphique présenté en référence (ii).

Please provide a detailed analysis (including formulas) evaluation and data compiled from the accounting database (B-0033) for the development of the graph presented in reference (ii).

4.2 Veuillez indiquer quels indices seraient plus représentatifs de l'évolution des coûts de construction des conduites de plastique et d'acier dans l'industrie du gaz au Québec.

Please indicate what evidence would be more representative of the evolution of the construction costs of plastic and steel pipes in the gas industry in Québec.

Responses:

4.1 Please see the attached file "Gas Mains History B-0033 RDK.xlsx," which begins with the data presented in Exhibit B-0033, shows the pivot table summary, the cost deflation using the H-W indexes, and the subsequent calculations of unit costs by year. Further information regarding this workpaper is presented in Régie-ACIG-2.1.

4.2 Mr. Knecht has not attempted research possible construction cost indices in Québec for consistency with Gaz Métro's cost trends, and believes that the Company is in a better position to do so. A reasonable deflator, however, would be one in which Gaz Métro's deflated unit costs for the primary pipe diameters do not show a statistically significant trend increase or decrease over the period in which most of the mains were constructed.

5. Références : (i) C-ACIG-0028, p. 24;

(ii) C-ACIG-0028, p. 24.

Préambule :

(i)

Table IEc-2: Regulatory Cost for Meters Investment

	Meter A: Five-Year Useful Life					Meter B: Twenty-Year Useful Life					Regulatory Cost Ratio	
Year	Capital	YE Book	Dep'n	Return (10%)	Rev. Req.	Capital	YE Book	Dep'n	Return (10%)	Rev. Req.	Dep'n	Return
0	5,000	5,000			11,229	5,000	5,000			5,000		
1		4,000	1,000	500	1,500		4,750	250	500	750	4.0	1.0
2		3,000	1,000	400	1,400		4,500	250	475	725	4.0	0.8
3		2,000	1,000	300	1,300		4,250	250	450	700	4.0	0.7
4		1,000	1,000	200	1,200		4,000	250	425	675	4.0	0.5
5	5,000	5,000	1,000	100	1,100		3,750	250	400	650	4.0	0.3
6		4,000	1,000	500	1,500		3,500	250	375	625	4.0	1.3
7		3,000	1,000	400	1,400		3,250	250	350	600	4.0	1.1
8		2,000	1,000	300	1,300		3,000	250	325	575	4.0	0.9
9		1,000	1,000	200	1,200		2,750	250	300	550	4.0	0.7
10	5,000	5,000	1,000	100	1,100		2,500	250	275	525	4.0	0.4
11		4,000	1,000	500	1,500		2,250	250	250	500	4.0	2.0
12		3,000	1,000	400	1,400		2,000	250	225	475	4.0	1.8
13		2,000	1,000	300	1,300		1,750	250	200	450	4.0	1.5
14		1,000	1,000	200	1,200		1,500	250	175	425	4.0	1.1
15	5,000	5,000	1,000	100	1,100		1,250	250	150	400	4.0	0.7
16		4,000	1,000	500	1,500		1,000	250	125	375	4.0	4.0
17		3,000	1,000	400	1,400		750	250	100	350	4.0	4.0
18		2,000	1,000	300	1,300		500	250	75	325	4.0	4.0
19		1,000	1,000	200	1,200		250	250	50	300	4.0	4.0
20		0	1,000	100	1,100		0	250	25	275	4.0	4.0
	Levelized Payment ==>		1,000	319	1,319	Levelized Payment ==>		250	337	587	4.0	1.2
	A:B Ratio ==>		4.00	0.95	2.25							

(ii) « *I therefore conclude that while the adjustment for the useful life of the meter is appropriate for allocating meter depreciation costs, it is not appropriate for meter plant costs. I suggest that, to accurately reflect differences in useful life, Gaz Métro apply different allocation factors for meter depreciation and meter plant.* »

Demandes :

5.1 Veuillez fournir ce tableau incluant les formules (référence (i)). Veuillez expliquer en détail la signification de chacune des étapes de calcul. Veuillez aussi élaborer en détail vos conclusions et vos recommandations.

Please provide this table includes formulas (reference (i)). Please explain in detail the meaning of each step of calculation. Also please elaborate on your findings and recommendations.

5.2 Veuillez proposer un facteur d'allocation pour le coût de l'actif, et un autre pour l'amortissement des compteurs (référence (ii)).

Please provide a factor of allowance for the cost of the asset, and one for the amortization of counters (reference (ii)).

5.3 Veuillez présenter comment d'autres distributeurs effectuent l'allocation de ces coûts avec exemples à l'appui. Veuillez notamment indiquer si l'allocation directe de ces actifs ainsi que de leur amortissement est une pratique courante.

Please describe how other distributors perform the allocation of these costs with supporting examples. Indicate in particular if the direct allocation of these assets and their depreciation is a common practice.

Responses:

5.1 Please see attached workpaper "Meters Workpaper RDK.xlsx."

The Company's meter cost allocator (FS22) is based on the following formula:

Unit cost= [(Average Unit Cost(t, t-1, t-2) * 20 years) / lifespan] + Metering Equip.

This unit cost value is then multiplied by the number of meters to produce the FS22 allocation factor. In this formula, the unit cost is based on a three-year historical average, which is then adjusted by the ratio of 20 years to the lifespan of the particular meter. In effect, the formula assumes that the revenue requirement for a meter with a specific unit cost is linearly dependent on the lifespan for the meter. In effect, the Company's method implies that the revenue requirement for a $5,000 meter with a lifespan of 5 years is four times as expensive as a $5,000 meter with a lifespan of 20 years.

Table IEc-2 shows that this implication is incorrect. However, when Mr. Knecht originally developed this table, he included an inflation parameter in the analysis, but set that factor to zero for the purposes of his filed evidence. Upon reconsideration, Mr. Knecht concludes (or, more accurately, returns to his original conclusion) that a reasonable provision for inflation should be included in the development of this allocation factor. Therefore, a revised version of Table IEc-2 which includes a 2.0 percent inflation factor (by way of example) is shown below.

The objective of this analysis was to show how a weighting factor for differences in meter life should be developed, to reflect both depreciation and rate of return differences. It therefore compares the levelized regulatory cost of a $5,000 meter with a 5-year lifespan to that of a $5,000 meter with a 20-year lifespan, both over a 20 year period.

Meter A represents a meter with a five-year lifespan. The column labeled "capital" therefore shows an initial capital outlay of $5,000, and subsequent outlays every five years to replace this meter (adjusted upward for inflation). The depreciation column then shows the depreciation necessary to recover the return of each investment over the five-year life. "YE Book" represents the prior year-end book cost, plus current year capital investment, less current year depreciation. "Return" represents a pre-tax weighted average cost of capital (i.e., it includes income taxes on equity returns), and 10 percent is used as an example. The return cost is simply the 10 percent value multiplied by the prior year YE Book value.

The levelized payment shown at the bottom of the table is the levelized annual cost that is equivalent to the annual costs shown in each column. It is calculated by taking the present value of the differentiated payment stream (using the pre-tax WACC) and then applying the mortgage annuity formula (also using the pre-tax WACC).

The same calculations are then applied to Meter B, except that Meter B requires only a one-time investment of $5,000.

The end result of this analysis is that the levelized cost for a meter with a 5-year lifespan is 2.48 times that of the levelized cost for a meter with the same cost but a 20-year lifespan. Thus, rather than using a multiplier of 4.0 to adjust for lifespan (20 year divided by 5 year life), a more accurate adjustment factor for a 5-year meter would be a factor of 2.48.

In his evidence, Mr. Knecht suggested that separate depreciation and rate base allocators should be developed. With inflation factored in, such an approach would be excessively complicated, since adjustment factors would need to be applied to both the depreciation allocator and the rate base allocator. Instead, Mr. Knecht suggests that an adjustment factor for each particular meter life be calculated using the approach in this table, and applied in the FS22 allocation factor in place of the Company's adjustment. In effect, the Company's unit cost formula would be modified to:

$$\text{Unit cost}_i = [(\text{Average Unit Cost}_i(t, t\text{-}1, t\text{-}2) * \text{LifespanFactor}_i] + \text{Metering Equip}_i$$

where "i" represents each meter type and LifespanFactor is the ratio of the levelized cost for meter type i to a meter with a 20-year life. In the example below, the value for this meter would be 2.48.

Table IEc-2 Revised: Regulatory Cost for Meters Investment

	Meter A: Five-Year Useful Life					Meter B: Twenty-Year Useful Life					Regulatory Cost Ratio	
Year	Capital	YE Book	Dep'n	Return (10%)	Rev. Req.	Capital	YE Book	Dep'n	Return (10%)	Rev. Req.	Dep'n	Return
0	5,000	5,000			12,389	5,000	5,000			5,000		
1		4,000	1,000	500	1,500		4,750	250	500	750	4.0	1.0
2		3,000	1,000	400	1,400		4,500	250	475	725	4.0	0.8
3		2,000	1,000	300	1,300		4,250	250	450	700	4.0	0.7
4		1,000	1,000	200	1,200		4,000	250	425	675	4.0	0.5
5	5,520	5,520	1,000	100	1,100		3,750	250	400	650	4.0	0.3
6		4,416	1,104	552	1,656		3,500	250	375	625	4.4	1.5
7		3,312	1,104	442	1,546		3,250	250	350	600	4.4	1.3
8		2,208	1,104	331	1,435		3,000	250	325	575	4.4	1.0
9		1,104	1,104	221	1,325		2,750	250	300	550	4.4	0.7
10	6,095	6,095	1,104	110	1,214		2,500	250	275	525	4.4	0.4
11		4,876	1,219	609	1,828		2,250	250	250	500	4.9	2.4
12		3,657	1,219	488	1,707		2,000	250	225	475	4.9	2.2
13		2,438	1,219	366	1,585		1,750	250	200	450	4.9	1.8
14		1,219	1,219	244	1,463		1,500	250	175	425	4.9	1.4
15	6,729	6,729	1,219	122	1,341		1,250	250	150	400	4.9	0.8
16		5,383	1,346	673	2,019		1,000	250	125	375	5.4	5.4
17		4,038	1,346	538	1,884		750	250	100	350	5.4	5.4
18		2,692	1,346	404	1,750		500	250	75	325	5.4	5.4
19		1,346	1,346	269	1,615		250	250	50	300	5.4	5.4
20		0	1,346	135	1,480		0	250	25	275	5.4	5.4
	Levelized Payment ==>		1,103	352	1,455	Levelized Payment ==>		250	337	587	4.4	1.5
	A:B Ratio ==>		4.41	1.04	2.48							

Pre-Tax WACC	10.0%
Inflation Rate	2.0%

5.2 As noted at page 23 of Mr. Knecht's evidence, Gaz Métro has not provided sufficient detail for Mr. Knecht to understand and replicate the development of the meters allocator. As such, he is unable to provide an allocation factor that reflects the mix of meters used for each rate class.

5.3 In Mr. Knecht's experience, the most common approaches are to (a) rely on actual book cost by rate class, where such costs are available, or (b) rely on average meter cost by type of meter, multiplied by the number of meters of each type in each class. The latter approach is similar to the Company's proposed method, but without any adjustment for meter lifespan. In some cases, the average meter cost is based on recent replacement costs, and in other cases it is based on historical book average cost. Separate factors for depreciation and rate base are generally not used, since no adjustment for meter lifespan is made, and therefore depreciation rates are assumed to be the same for all assets.

6. Référence : Pièce C-ACIG-0028, p. 11.

Préambule :

« *A few, but not many. For example, at Pennsylvania Public Utility Commission Docket No. Docket R-00953297, UGI Utilities, Inc. (Gas Division) put forward a Network Analysis cost allocation approach, in which costs for each main segment were allocated to downstream customers in proportion to customer design day demands. Second, Alberta electric utility Aquila Networks Canada put forward a distribution cost allocation proposal in which allocated costs were derived at a detailed level for a sample of electric distribution feeders, in which distribution costs were allocated only to the specific customers downstream of each asset in proportion to on-peak load.* »

Demande :

6.1 Veuillez indiquer les motifs évoqués par les organismes réglementaires pour retenir ces méthodes de répartition en donnant les références précises.

Please indicate the reasons given by the regulatory agencies to retain these allocation methods giving precise references.

Response:

6.1 Mr. Knecht did not retain a copy of the regulatory decision in the UGI Utilities, Inc. (Gas Division) case, and it is his recollection that the case was resolved by settlement. That utility has not filed a base rates case since that proceeding in 1996.

The Alberta Energy and Utilities Board decision can be found at http://www.auc.ab.ca/applications/decisions/Decisions/2003/2003-019.pdf

See pages 91-92 for the Board's findings.

7. Référence : Pièce C-ACIG-0028, p. C2.

Préambule :

« *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 * FT term) are assumed to be related to number of customers. In this framework, the classification of the Σ 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. »

Demandes :

7.1 Veuillez élaborer sur la dernière phrase du préambule en donnant des références précises.

Please elaborate on the last sentence of the preamble giving precise references.

7.2 Veuillez indiquer quelles méthodes de répartition sont retenues par ces « *practitioners who oppose zero-intercept or minimum system methods* ».

Please indicate allocation methods are used by these "practitioners who oppose zero-intercept or minimum system methods."

7.3 Veuillez élaborer sur une approche où l'ensemble des coûts des conduites d'alimentation et de distribution serait alloué en fonction d'un facteur capacité.

Please elaborate on an approach where all the costs of the supply and distribution pipes would be allocated according to a capacity factor.

Responses:

7.1 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. An exhaustive review of all proceedings and intervenor testimony in which Mr. Knecht has participated in which this issue has arisen is precluded by time and resource constraints.

7.2 In Mr. Knecht's experience, the methods advocated for classifying and allocating mains costs when a zero customer component is assumed typically fall into one of the following categories:

> 100 Percent Demand: All mains costs are allocated in proportion to some measure of class peak demand.
>
> Average & Excess Demand: Mains costs are segregated into an average component and an excess component, sometimes using coincident peak load factor as the percentage of costs assigned to the average demand. "Average" costs are allocated using throughput, or, equivalently, average daily demand. "Excess" costs are allocated using an allocator based on the difference between peak demand and average demand.
>
> Peak & Average Demand: Mains costs are segregated into an average component and a peak component, using various different weighting methods, including a simple 50/50 weighting (traditionally called the "Seaboard" formula). "Average" costs are allocated using throughput, or, equivalently, average daily demand. "Peak" costs are allocated using an allocator based on class contribution to some measure of peak system demand.

Note that these methods are sometimes applied to the demand-related portion of mains costs even when a customer cost component is included in the cost allocation analysis.

7.3 For distribution mains costs, Mr. Knecht does not advocate the use of load factor methods, as such methods generally rely substantially on average demand (throughput) as an allocation factor, and mains are not sized to meet average daily demand.

However, as noted above, some analysts advocate the use of a load factor weighting in the A&E method, with average demand being weighted at the system load factor (more typically a Coincident Peak load factor) and excess demand being weighted at 1 minus system load factor.

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.

Interrogatories from ROEÉ

1. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 2, lines, 16–18

a. Please provide the basis for Mr. Knecht's statement that "it is long established" that "subsidy-free prices exceed the incremental cost and fall below the stand-alone cost."

b. Please provide the cited passages of Baumol and Sidak, footnote 4.

c. Please explain whether Mr. Knecht considers the opinion of Baumol and Sidak in 1995 to constitute a "long-established" consensus.

Responses:

a. This statement is based on Mr. Knecht's experience.

b. Mr. Knecht's copy of the referenced text is subject to copyright protection and may not be copied. However, Mr. Knecht believes the referenced text can be found at: http://www.aei.org/publication/transmission-pricing-and-stranded-costs-in-the-electric-power-industry/

c. Mr. Knecht does not conclude that the referenced conclusions are justified solely by the referenced text, and that other participants in the field hold this view. See, for example, Exhibit B-0005 at page 4 and Exhibit C-ACIG-0008 at page 13. Mr. Knecht does believe that Professor Baumol is a recognized academic expert in this field.

2. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 2, lines, 27-28

a. Please provide a list of all the Gaz Métro "large industrial customers [that] are located in reasonably close proximity to gas transmission lines and require only a minimum of investment by the gas distributor."

b. Please explain whether Mr. Knecht has investigated whether the transmission lines were extended to reach these customers.

c. If so, please provide any data Mr. Knecht was able to obtain on that issue.

d. If not, does Mr. Knecht agree that such customers (or their classes) should be assigned the cost of transmission extensions to serve them?

Response:

a. Mr. Knecht has not made such a compilation. Gaz Métro indicates in Exhibit C-ACIG-0008 at page 46 that TransCanada Energy is attached directly to its transmission system.

b. Mr. Knecht has not made such an investigation.

c. N/A

d. Mr. Knecht agrees that, ideally, if a transmission main is extended solely to serve a large industrial customer, and no other customers take service on that main, the cost of the main extension should be directly assigned to that industrial customer's class in a cost allocation study. Similarly, to the extent that no large industrial customers are served by a particular portion of the mains network, none of the costs of that network should be assigned to large industrial customers.

3. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 2, lines, 29-30; p.3, line 10 and p. 10, lines 14-16

a. Please explain whether Mr. Knecht accepts the "postage-stamp" pricing principle that all customers taking similar service should pay the same rates.

b. If so, please explain how the setting of rates for individual customers based on their location is consistent with that principle.

c. If not, please explain why Mr. Knecht rejects the "postage-stamp" pricing principle.

Response:

a. Mr. Knecht does not agree that a postage stamp rate methodology is always appropriate.

b. N/A

c. Postage stamp pricing is often inconsistent with cost of service. The extent to which postage stamp pricing is applied within and across utility service territories requires a judgmental balancing of cost considerations and the policy advantages of postage stamp pricing.

For natural gas utilities, zonal transmission rates, customer contribution policies, and bypass/economic development rates all represent departures from a pure postage stamp pricing philosophy.

4. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 3, lines 18–20

a. Please explain whether Mr. Knecht believes that, if a customer locates near the existing lower-pressure system, but requires high pressure supply for its operations, the customer's choice of high pressure service would be reduce Gaz Métro's costs.

b. If so, please provide the evidence supporting that opinion.

c. If not, please explain whether Mr. Knecht proposes that customers served at high pressure pay less than customers served at lower pressure.

Response:

a. In the specific circumstances outline in the request, Mr. Knecht does not believe that incremental cost to serve the customer at higher pressure would be lower than the cost to serve the customer at lower pressure. However, absent a cost allocation methodology that assigns costs pipe by pipe and customer by customer, such inconsistencies will exist with any simple cost allocation methodology, and that these inconsistencies can imply cost allocation biases in different directions.

b. N/A

c. Based on information provided by the Company, allocation of costs by operating pressure appears to be precluded by data limitations. See, for example, Exhibit B-0058 Item 33.

5. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 3, lines 18–21

a. If all Gaz Métro customers had always required high-pressure service, but otherwise used the same amount of gas and had the same peak demand as they have historically, would Gaz Métro's costs be higher or lower than they actually are?

b. If higher, please provide Mr. Knecht's estimate of the appropriate surcharge for high-pressure service.

c. If lower, please explain why.

Response:

a. As a hypothetical matter, Mr. Knecht would presume that, in the suggested scenario, the Company's cost to serve customers who actually take service at lower operating pressure would be more costly to serve.

b. Mr. Knecht has not made a calculation of the cost impact of such a scenario on customers who actually take service at lower operating pressures.

c. N/A

6. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 3, lines 26–27

a. Please provide the sources that demonstrate that "there is…general agreement among cost allocation analysts that it is preferable to directly assign costs than to allocate costs."

Response:

a. The referenced statement is based on Mr. Knecht's experience.

7. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 5, line 20

a. Please clarify what Mr. Knecht means by "the total mains system *must* be extended to interconnect all customers."

b. Does this mean that Gaz Métro is required to pay for mains extensions to interconnect all Quebec facilities that desire access to gas, at Gaz Métro's expense?

c. Does this mean that Gaz Métro is required to pay for mains extensions to interconnect all Quebec facilities that desire access to gas, at the potential customer's expense, net of a Gaz Métro contribution based on the customer's projected revenues?

d. Please provide any information available to Mr. Knecht regarding the distances that Gaz Métro has been willing to extend a main for a single residential customer.

e. Please provide any information available to Mr. Knecht regarding the distances that Gaz Métro has been willing to extend a main for a single industrial customer.

Responses:

a. Mr. Knecht acknowledges that gas distribution utilities generally do not have a legal obligation to extend service to all customers. In this context of Mr. Knecht's evidence, the referenced statement means that the total mains system has been extended to interconnect all existing customers.

b. No.

c. No.

d. Mr. Knecht has not reviewed Gaz Métro's system expansion evaluations.

e. Please see response to part (d) above.

8. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 5, line 22

a. Please clarify whether Mr. Knecht's use of the phrase "number of customers (length of pipe)" indicates that he believes that the number of customers directly determines the length of mains.

b. If so, please provide the data demonstrating that adding a customer always requires lengthening a main.

c. Please provide any data available to Mr. Knecht on the number of customers per kilometer of main by division or municipality.

Responses:

a. Number of customers, by itself, does not directly determine the length of mains. Each additional customer or group of customers may or may not require the system of mains to be extended. Over the long term, growth in customer count leads to growth in mains length. Exhibit B-0005 offers some corroborating evidence for this view at pages 13 to 15. As indicated in his evidence at Exhibit IEc-3, page C-3, Mr. Knecht recognizes that the average increase in mains length associated with larger customers may very well be larger than the average increase in mains length associated with smaller customers.

b. As stated in the response to part (a) of this request, Mr. Knecht does not agree with the statement. Similarly, Mr. Knecht does not agree that increased load or increased maximum day demands always requires lengthening a main, or an increase in main capacity.

c. Mr. Knecht did not conduct any independent analysis of customer density by region or municipality in preparing his evidence. Mr. Knecht notes that length of mains by region is provided in Exhibit B-0041, and that customer count and load by region is provided in Exhibit B-0045, item 18.2.

9. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 9, lines 22–26

Regarding the assertion that "if Gaz Métro's entire distribution system were replaced with 2-inch plastic pipe, that system would presumably not have the capacity to serve all Rate D1 customers with less than 36,500 m3 of annual load. Where 6-inch or 8-inch steel supply mains serve thousands of small customers, a single 2-inch plastic main would not have sufficient capacity to meet the needs of the downstream customers"

a. Please provide the data and computations that lead to Mr. Knecht's presumption.

b. Please provide the maximum pressure at which Mr. Knecht assumes a 2-inch plastic main could operate, and the basis for that estimate.

c. Please provide Mr. Knecht's estimate of the potential capacity of a 2-inch plastic main, and the basis for that estimate.

d. Please provide Mr. Knecht's estimate of the percentage of main length that would need to be 2-inch steel mains to supply all Rate D1 customers with less than 36,500 m3 of annual load, and the basis for that estimate.

e. Please provide Mr. Knecht's estimate of the percentage of main length that would need to be larger than 2-inch steel mains to supply all Rate D1 customers with less than 36,500 m3 of annual load, and the basis for that estimate.

Responses:

a. Mr. Knecht did not rely on any data or computations in making the referenced presumption.

b. Mr. Knecht has not conducted any independent analysis of the operating pressure or load carrying capability of 2-inch plastic pipe beyond that presented in Exhibit B-0005 pages 10-11.

c. Please see response to part (b) above.

d. Mr. Knecht has not made such an estimate.

e. Mr. Knecht has not made such an estimate.

General: The question refers to an effort to provide an adjustment to the classification of costs in a minimum system method to reflect the load carrying capability of such a hypothetical system. The complexity involved in preparing the analyses and estimates requested in this request that would be necessary to make an accurate adjustment serves to defeat the purpose of using a conceptually simple model like the minimum system method. There is no easy way to determine the load carrying capability of the minimum system. For that reason, if a simple classification method is to be used for mains classification and allocation, Mr. Knecht generally prefers the use of a zero-intercept method, which does not require a complicated adjustment to demand allocators. However, Mr. Knecht acknowledges that the alternative statistical approaches that may be used for zero-intercept analysis are not free from debate.

10. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 10, lines 1–2

Regarding the statement that "all customers could be partially served by the minimum system":

a. Please provide Mr. Knecht's estimate of the percentage of the load of each customer group larger than 36,500 m3 per annum that would be served by the minimum system.

b. Does Mr. Knecht agree that the minimum system would serve a higher percentage of the load of small customers (e.g., Rate D1 customers with more than 36,500 m3 of annual load) than large customers (e.g., Rate D4)?

Responses:

a. Mr. Knecht has not made such an estimate.

b. Mr. Knecht agrees that, if the carrying capacity of a hypothetical minimum system is allocated among customers classes based on customer count, the minimum system would serve a higher percentage of the load of small customers than for larger customers. To the extent, however, that the minimum system cannot meet the full requirements of a particular customer class, the logic of the minimum system model would imply that demand-related costs should be allocated to that class.

11. Source: R-3867-2013, phase 1, C-ACIG-0028, p. 10, lines 14–16

Regarding the statement that "In…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."

a. Does Mr. Knecht believe that the causation and justification of main extension is relevant to allocation of the cost of mains?

b. How does Mr. Knecht propose that the cost of a main be recovered, if it was built to serve a large Rate D5 customer, a few small Rate D1 customers connected to the line several years after the main was built, and the Rate D5 customer subsequently shuts down?

Responses:

a. Mr. Knecht believes that the causation and justification for mains extension is relevant to cost allocation, to the extent that these factors contribute to the size, length and cost of the main, as well as to the subsequent use of the main. Mr. Knecht does not believe that the justification for mains extension should imply that the users for whom the main was initially constructed should be charged a higher cost for that main than users who subsequently take service through that main. Similarly, Mr. Knecht does not agree that it would be appropriate to assign lower mains costs to the initial users of a system expansion, to reflect the more depreciated nature of the investment.

b. Please see response to Gaz Métro-ACIG-1(a).

12. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 15, line 16:

a. Please provide the basis for the statement that "mains installed before 1979 are almost fully depreciated at present."

b. Please provide the depreciation rate that Gaz Métro has used for mains, for as far back as Mr. Knecht has that information.

Response:

a. In Mr. Knecht's experience, gas mains depreciable life is on the order of 40 years. This value appears to be consistent with Gaz Métro's accounting, which shows depreciation for distribution mains of $36.35 million on gross mains plant of $1,550.5 million, implying an average life of 43 years. Mains installed before 1979 are therefore at least 36 years old, and are therefore substantially depreciated.

b. Please see Exhibit B-0058, item 24(e).

13. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 15, note 27:

a. Please provide the basis for the statement that "the system in place in 1979 consisted almost entirely of steel mains."

Response:

a. Please see the workpaper "Gas Mains History B-0033 RDK.xlsx."

14. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 15, note 27:

a. Please provide the basis for the statement that "A significant share of the mains footage was 2-inch pipe."

Response:

a. Mr. Knecht's review of Exhibit B-0033 indicates that, of the meters of main reported as installed in 1979, approximately 94.7 percent were steel and 5.3 percent were plastic inserts. Please see workpaper "Gas Mains History B-0033 RDK.xlsx."

15. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 15, note 27:

a. Please provide the basis for the statement that "virtually all of [the pre-1979 2-inch pipe] would be replaced by plastic if installed today."

b. Does Mr. Knecht believe that this 2-inch steel pipe is operated at low pressure?

Responses:

a. Please see Exhibit B-0058, item 31, which indicates that 90 percent of 60.3 mm diameter steel pipe would be replaced by plastic.

b. The vast majority of 60.3 mm diameter steel pipe is operated at or below normal distribution operating pressure.

According to Exhibit B-0062, Gaz Métro's normal distribution operating pressure is 400 kPa. Of the 388,068 meters of 60.3 mm diameter steel pipe, 115,022 meters (29.6 percent) of pipe is operated at pressures below normal distribution pressure, 268,864 meters (68.3 percent) is operated at 400 kPa, and 8,182 (2.1 percent) is operated at pressures above 400 kPa. The comparable figures for 60.3 mm diameter plastic pipe are 5.3 percent, 92.9 percent and 1.8 percent respectively.

16. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 15, line 22 through p. 16, line 4:

a. Please explain whether Mr. Knecht is suggesting that Gaz Métro should treat the steel distribution mains as if they were actually plastic.

b. If so, please explain why the costs of steel pipe should be allocated as if the pipe were plastic.

c. Please explain whether Mr. Knecht also believes that Gaz Métro should only be allowed to recover the portion of the cost of steel mains that would be equivalent to the cost of plastic mains of the same vintage.

d. Please provide the workpapers supporting the estimate that "factoring mains replacement into the minimum system calculation would increase the customer component for distribution mains (excluding supply mains) from 74.2 percent to 80.7 percent."

Responses:

a. Mr. Knecht is suggesting that steel mains that would be replaced with plastic mains should be treated as plastic mains in developing a customer classification percentage, if a minimum system or zero intercept classification approach is adopted. This is particularly important if (a) the Company's proposed use of the H-W deflator is adopted which appears to overstate cost inflation for steel mains construction in Québec, and (b) the minimum system is based only on plastic pipe. The basic problem with the Company's method is that it produces a cost for 60.3 mm steel mains of $331 per meter, compared to the minimum system plastic main value of $171 per meter (both in 2012$, inflated using the respective H-W indexes), despite the fact that 90 percent of the 60.3 mm steel mains would be replaced with plastic pipe. In effect, a significant share of small diameter steel mains costs is allocated based on demand.

b. Mr. Knecht's suggestion in this respect does not represent allocating the costs of steel pipe as if the pipe were plastic. Mr. Knecht views this adjustment as being consistent with the normal technique for minimum system or zero-intercept analysis, in which historical plant costs are adjusted with a deflator to better reflect the replacement cost for that plant.

c. Mr. Knecht does not believe that Gaz Métro should be allowed to include in its rate base the gross plant cost of either steel or plastic mains inflated to 2012 dollars using a cost inflation index. Rate base costs are generally based on depreciated balances of actual dollar costs. Costs used in a classification analysis should not be based on the costs included in utility rate base.

d. Please see the attached workpaper "Minsys Replacement Workpaper RDK.xlsx." In reviewing this analysis, Mr. Knecht identified a formula error in the spreadsheet. The corrected value for the customer component for distribution-only mains using replacement plastic mains costs would be 81.4 percent, based on the information available at present. Note that this value does not reflect the correction to pre-1979 data, addressed in the response to Régie-ACIG-2.1.

17. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 16, lines 19–30:

a. Please provide the data, computations and workpapers for the calculations described in this passage.

b. Please provide the data values shown in Figure IEc-1.

c. Please explain how Mr. Knecht selected the "sample" shown in Figure IEc-1.

d. Please explain why Figure IEc-1 is terminated at 1999, rather than continuing through 2011.

Responses:

a. Please see the workpaper "Gas Mains History B-0033 RDK.xlsx" and the response to Régie-ACIG-4.

b. Please see response to part (a) above.

c. The sample mains represent the four largest cost categories for steel mains, as detailed in the aforementioned workpapers.

d. Based on the data provided in the aforementioned workpapers, Gaz Métro's investment in steel mains after 1999 was limited to relatively small system additions, generally less than 1,000 meters per year. The only significant investments in steel mains after 1999 occurred in 2001 and 2002, primarily involving 114.3 and 168.3 mm mains. Including these observations in the trend analysis would generally serve to increase the downward trend for those pipe diameters.

18. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 17, lines 1–2:

a. Please describe the mix of construction conditions for the mains installed in 1980–1985, compared to 1990–2000, including the percentage in urban environments, the depth to bedrock, soil conditions, coordination of mains installation with road resurfacing or reconstruction, and any other factors that Mr. Knecht believes would be relevant to determining the cost of mains per metre.

Response:

a. Mr. Knecht has not prepared such an analysis.

19. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 18, lines 11-12:

a. Please provide "the analysis that I have" regarding "the actual deflated costs of the plastic inserts" compared to new construction.

Response:

a. Please see the workpaper "Gas Mains History B-0033 RDK.xlsx" provided in response to Régie-ACIG-2.1.

20. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 22, line 9:

a. Please provide the evidence supporting Mr. Knecht's claims that "Interruptible customers do not cause Gaz Métro to incur transmission costs."

b. Would Mr. Knecht agree that Gaz Métro considers interruptible revenues in determining the financial feasibility of transmission line extensions?

Responses:

a. Please see Exhibit B-0005 at page 19.

b. While Mr. Knecht has not analyzed the specifics of Gaz Métro's expansions, Mr. Knecht would expect that revenues earned from interruptible customers for both transmission and distribution service would be considered in such an expansion. It is Mr. Knecht's understanding that there are few, if any, interruptible customers taking service at transmission pressure, and therefore it is likely that rates for interruptible customers will continue to reflect both transmission and distribution system costs. Thus, the impact of the current proceeding on revenues from interruptible customers relative to what was anticipated when facilities were constructed should take into account the effects of any changes in cost allocation for both transmission and distribution systems, as well as the effects of rate design changes developed in the second phase of this process.

21. Source: R-3867-2013, phase 1, C-ACIG-0028 p. 24, Table IEc-2:

a. Please provide the Excel spreadsheet underlying this table, with all data and computations.

b. Does Mr. Knecht agree that the cost of the replacement meters for Meter A should be increased for inflation?

Response:

a. Please see response to Régie-ACIG-5.1

b. Yes. Please see response to Régie-ACIG-5.1.