RESPONSE OF GAZ METRO LIMITED PARTNERSHIP (GAZ METRO) TO INFORMATION REQUEST NO. 1 FROM PAUL CHERNICK, EXPERT FOR REGROUPEMENT DES ORGANISMES ENVIRONNEMENTAUX EN ENERGIE (ROEÉ) AND UNION DES CONSOMMATEURS (UC)

Discovery on GMI

References:

- Gaz Métro-2, Document 7 - Étude d'allocation des coûts de distribution selon les méthodes actuelles - Complément de preuve (chiffrier Excel), R-3867-2013-B-0031
- Gaz Métro-2, Document 8 - Étude d'allocation des coûts de distribution selon les méthodes proposées - Complément de preuve (chiffrier Excel), R-3867-2013-B-0032

1. The workbook "R-3867-2013-B-0031-DemAmend-Piece-20141120.xls" provides some results from the Gaz Métro Cost of Service Allocation model with current methods and the workbook "R-3867-2013-B-0032-DemAmend- Piece-20141120.xls" provides some results from the Gaz Métro Cost of Service Allocation model with GMI's proposed method.

   a. The spreadsheets do not provide the formulas used in the Cost of Service Allocation model. Please provide the model with formulas intact, all links to other workbooks intact, and all linked workbooks.

   Response:

   See exhibits B-0039, Gaz Métro-2, Document 7 and B-0040, Gaz Métro-2, Document 8.

   b. Approximately 35 worksheets in these workbooks (from FB01D to CA- Client) list the allocation factors by rate class. Please provide all data and workpapers from which GMI computed each of these class allocation factors, including:

i)	FB01D	viii)	FB11
ii)	FB01D`	ix)	FS21
iii)	FB01FV	x)	FS22
iv)	FB07D	xi)	FS26
v)	FB08	xii)	FS27
vi)	FB09CL	xiii)	FS28
vii)	FB10	xiv)	FS31

xv)	CA	xxvii)	FEE-FR
xvi)	CONDPRIN	xxviii)	CASEP
xvii)	EXPLOITD	xxix)	AEE
xviii)	TEMPER	xxx)	AEE-FR
xix)	TEMPER-A	xxxi)	FS15
xx)	BASETARD	xxxii)	FS13
xxi)	Biogaz	xxxiii)	CAUPCA
xxii)	PGEE	xxxiv)	FS23
xxiii)	PGEE-FR	xxxv)	FS24
xxiv)	PRC	xxxvi)	FS25
xxv)	PRCA	xxxvii)	FS29
xxvi)	PRCVN		

Response:

See exhibits B-0039, Gaz Métro-2, Document 7 and B-0040, Gaz Métro-2, Document 8.

Reference:

- Gaz Métro-1, Document 1 - Étude des experts Black & Veatch intitulée « Review of Gaz Metro's cost of service and rate design » , R-3867-2013- B-0005

2. This document is a draft report. Please state whether Black & Veatch has provided GMI with a later draft or final version of this report, and if so, please provide all such updated reports.

   Response:

   The document provided is the final version of the study by Black & Veatch.

3. Please provide any other reports or presentations that Black & Veatch has provided GMI in connection with this project.

   Response:

   Black & Veatch has not produced any other report for Gaz Métro in connection with this project.

4. Please provide all workpapers that Black & Veatch utilized in preparing the document B-0005 and any succeeding reports.

   Response:

   Gaz Métro submits that the question, as formulated, is not really an Information Request; it is not specific, and it constitutes a fishing expedition. Moreover, without prejudice to any other steps that Gaz Métro might take to deal with this question, and its author failing to more closely define the information that he is seeking with it, Gaz Métro refers him to the data already provided regarding this matter.

5. Page 2 of document B-0005, footnote 3, says that “Fixed costs do not change with the level of output while variable costs change directly with the utility output.” Does GMI agree that some costs that are “fixed” by this definition are determined or affected by the planned capacity or throughput of the utility system?

Response from Black & Veatch:

All fixed costs are impacted by planned capacity in some way. For example, meters are sized to provide for the expected capacity of the customer. A similar conclusion applies to sizing of each component of the system based on the applicable capacity requirements of customers behind that component. No fixed costs are related to throughput on the system.

6. Regarding pages 13–15 of the Black & Veatch report (document B-0005), please provide the following information for each regression described at (including the version of the “model without the intercept term” for Model Three, the “regression analysis was prepared for each utility based on the Model Four specification,” the regressions for each utility for any other specification estimated separately by utility, and any other alternatives tested for each model specification):

   a. The data used in the regression.

Response from Black & Veatch:

All of the data is publicly available from the AGA data base, the EIA data base and the DOT/PHMSA data base. For models one and two the data base is proprietary and cannot be released to a competing consultant although it can be replicated by the consultant from the original data source. For model three, the data is for the companies identified in the attachment- List of Companies for the period 2005-2009. For each of the first three models discussed. The attached PDF files provide the requested data, the estimated coefficients and the measures of significance for Model Three. Models Four and Five are from individual company data bases developed from a combination of AGA and EIA data by a third party vendor Energy Velocity. That data can be obtained from the third party but cannot be released by Black & Veatch. A list of the companies used and the basic data results for each company is in the attached PDF document DR-6 Models Four and Five.

See the documents provided in Appendix 1.

b. The estimated coefficients from the regression.

Response from Black & Veatch:

SUMMARY OUTPUT Zero Intercept with Miles of Main as the Depenedent Variable

Regression Statistics	
Multiple R	0.934415573
R Square	0.873132463
Adjusted R Square	0.87160347
Standard Error	4779.339808
Observations	739

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	1.1586E+11	57929921147	2536.104344	0
Residual	737	16834619596	22842089		
Total	739	1.32694E+11			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
CUSTOMERS	0.010021104	0.000974261	10.28585357	2.80021E-23	0.008108447	0.011933762	0.008108447	0.011933762
(Mcf)	1.976E-05	5.4949BE-06	3.59601679	0.000344676	8.97236E-06	3.05477E-05	8.97236E-06	3.05477E-05

c. All computed measures of significance and fit, such as R^2 and t- statistics.

Response:

See response to question 6b).

7. Please provide the workpapers supporting the statements regarding the percentage of variation explained by each variable in the Model Three Specification.

Response:

See the documents in Appendix 1, provided in response to question 6a). The statistic R^2 represents the proportion of the variance explained by the model.

8. Please explain whether Model 5 was applied to each utility separately, as was Model 4, or to the aggregate data set.

Response from Black & Veatch:

Both models analyzed the set of companies on an individual basis. This is why there is a range of data results reported.

9. Please provide the workpapers supporting the column “Design Day Capacity M^3/day” in Table 1 of Document B-0005, pages 10–11, including the assumptions regarding distribution of load along the line, internal roughness, elevation difference, efficiency, specific gravity, viscosity, temperature, and inlet and outlet pressure.

Response from Black & Veatch:

* Entrepreneur Services, Internal Labor, External Services

** Corporate overheads of 12.94% applicable on the overall costs
Entrepreneurs overhead of (17.35%) on the amount of entrepreneur services
Ajustment of internal labour cost for the standard rate (total credit of -57,750$)

Size of main	For 1 km / 400 kPa / Design day Capacity
2 inch	598 m³/h
4 inch	2848 m³/h
6 inch	7446 m³/h

Line diameter	Cost of material per meter	Installation Costs	Total cost per meter	For 1 km / 400 kPa / Design day Capacity m³/day	Cost per m³/day
2 " (60,3 MM)	4,50 $	125,74 $	130,24 $	14352	$0,00907
4 " (114,3MM)	12,67 $	136,99 $	149,66 $	68352	$0,00219
6" (168,3 MM)	32,19 $	187,11 $	219,30 $	178704	$0,00123

10. With regard to page 10 of Document B-0005 , Please provide the computations supporting the assertions that “For a low pressure system, increasing pipe size from two inch to four inch allows over five times the amount of gas to flow and under higher pressure, the flow rate increases by more than six times that of two inch pipe all else equal,” including:

    a. The definitions of “low pressure” and “higher pressure” used in this statement.

    b. The input assumptions underlying the computations.

Response from Black & Veatch:

The conclusions are not assertions. Rather, they represent a mathematical fact based on specific gas flow formulas used for illustrative purposes. The attached response provides the requested information.

A full discussion of these concepts may be found in the AGA Magazine June 2007 article entitled

“Fixed Cost Recovery: An Inconvenient Truth” by H. Edwin Overcast.

The Relationship between Main Size and Capacity

Pole low pressure formula		Pipe diameter flow rate	Capacity Change from 2 inch
	2 inch	5.66K	
	4 inch	32K	565%
	6 inch	88.2K	1558%

Spritzgas high pressure formula			
	2 inch	3.34K	
	4 inch	22.51K	674%
	6 inch	66.1K	1979%

In these equations, K stands for all of the other terms in the calculation of the gas flow formula. These values are treated as constant for each size of pipe.

References:

- Gaz Métro-1, Document 1 - Étude des experts Black & Veatch intitulée « Review of Gaz Metro's cost of service and rate design », R-3867-2013-B-0005
- Gaz Métro-1, Document 2 - Document de réflexion relatif à l'allocation des coûts de service de Gaz Métro, R-3867-2013-B- 0006, p. 15, line 5 to 10

With regard to GMI's approach to identifying customer-related mains costs in Gaz Métro-1, Document 2 - Document de réflexion relatif à l'allocation des coûts de service de Gaz Métro, R-3867-2013-B0006, p. 15, line 5 to 10:

11. Please state whether GMI believes the following statements from page 11 of Document B-0005, and if not, what disagreement GMI has with these statements:

    a. "the minimum size of pipe installed will serve the design day load characteristics of the smallest residential or commercial customers and even for larger customers up to 65,481 m^3 per year assuming a 25 percent annual load factor."

    b. "36,500 m^3 would represent an appropriate level of maximum annual use that permits two inch main to serve all of the customers"

Response:

It is the opinion of Gaz Métro that a minimal system composed of 2-inch plastic pipes can serve a large proportion of its customers, including residential customers and a portion of its business customers. The exact volumetric limits to be used for segmenting our

customers have not yet been decided, and this question will be addressed in phase 2 of the present project.

12. Regarding the statement that "As density increases and operating pressure declines, less design day load is served" (page 11 of Document B-0005), please explain why density increase reduces operating pressure, unless greater load is being served.

Response from Black & Veatch:

Density refers to customer connections. As density increases pressures drop as gas flows off the main at more points. Different schemes for inputs and deliveries have different impacts on the system pressures and influence the pressure drop across the main.

Regarding Gaz Métro Cost Allocation and Rate Design Application, R-3867-2013.

Reference:

- Gaz Métro-2, Document 1 - Allocation du coût de service de Gaz Métro – Complément de preuve, B-0023, page 28 of 97.

13. Please provide the workpapers supporting Table 5.

a. Provide the cost and length of main installed in each year for each length.

b. Provide the inflation rates used to restate each year's cost in 2012 dollars.

Response:

See exhibits B-0033, Gaz Métro-2, Document 9, B-0034, Gaz Métro-2, Document 10, B-0035, Gaz Métro-2, Document 11 and B-0036, Gaz Métro-2, Document 12.

See Appendix 1 of Exhibit B-0016, Gaz Métro-2, Document 1 for the values of the price index used. This index was reconverted to make 2012 the reference year.

14. If GMI has updated Table 5 for the purposes of the Cost Allocation model, please provide that update.

Response:

The data presented in Table 5 are up to date.

15. Please explain how, if at all, GMI uses the costs restated in 2012 dollars, as opposed to original costs, in the cost allocation, and explain why these uses of 2012 dollars are appropriate.

Response:

The capitalized values of the mains must be converted into real dollars because the investments extend over several decades, as witness the accounting database provided in Exhibit B-0033, Gaz Métro-2, Document 9. The capitalized values of all the mains must be expressed in constant dollars, i.e., in dollars of the same year, to calculate the average cost by diameter.

16. For each type and diameter of pipe listed in Table 5, please provide the length of pipe operated at each pressure level.

Response:

The engineering database provided in Exhibit B-0034, Gaz Métro-2, Document 10 reports the information concerning all of the mains according to pressure, location, and material.

Also see the tables on page 26 of Exhibit B-0006, Gaz Métro-1, Document 2 to obtain the number of metres of length of the mains according to pressure.

References:

- Vision tarifaire, Allocation des coûtsSéance de travail 1, Allocation des conduites principales, 3 avril 2014.
- Gaz Métro-1, Document 2 - Document de réflexion relatif à l'allocation des coûts de service de Gaz Métro, B-006, page 24 to 27

17. Please provide the workpapers supporting the table on slide 17 of the 3/4/2014 presentation.

a. Provide the cost and length of main installed in each year for each length.

b. Provide the inflation rates used to restate each year's cost in 2012 dollars.

Response:

See exhibits B-0033, Gaz Métro-2, Document 9 and B-0034, Gaz Métro-2, Document 10, which provide the detailed information concerning the mains. See Appendix 1 of Exhibit B-0016, Gaz Métro-2, Document 1 for the values of the price index used. This index was reconverted to make 2012 the reference year.

18. Please provide the following information for each of the regressions summarized on slide 24 of the 3/4/2014 presentation.

a. The data used in the regression.

b. The estimated coefficients from the regression.

Response:

a) See question 10 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1.

It should be noted that the results differ from those on slide 24 of the presentation made to the working group on April 3, 2014. The regressions were calculated using the cost-allocation model for distribution mains (Exhibit B-0041, Gaz Métro-2, Document 12), which has been updated since.

References:

- Vision tarifaire Allocation des coûts - Séance de travail 2 Suivi sur l'allocation des conduites principales, branchements et compteurs, 17 avril 2014
- Gaz Métro-1, Document 2 - Document de réflexion relatif à l'allocation des coûts de service de Gaz Métro, B-006, page 24 to 27

19. Please provide a table similar to the top table on slide 8 of the 17/4/2014 presentation, showing the system-wide distribution of mains length by pressure, for each diameter and material.

Response:

See Exhibit B-0034, Gaz Métro-2, Document 10.

20. While all distribution mains operate at <1,000 kPa, it appears from GMI's documents that various mains operate at different pressures. Please list the standard operating pressures that GMI typically uses for distribution mains, in kPa.

The standard pressure for distribution mains is 400 kPa. For data on the mains with a pressure of less than 1 000 kPa, see the response to question 33a) in the Information Request from IGUA (Gaz Métro-3, Document 2).

21. Please explain whether GMI varies the inlet pressure for distribution mains as a function of demand, or typically attempts to maintain constant inlet pressure.

Response:

The pressure within the distribution mains system is kept constant at 400 kPa. The pressure upstream from the distribution system can vary temporarily as a function of demand or other technical considerations.

22. Please provide the fraction of distribution main length that typically operates at each of GMI's standard operating pressures.

Response:

The following table is taken from the engineering database updated on January 21, 2015 and provided in Appendix 2.

DISTRIBUTION SYSTEM

Pressure (kPa)	Length (metres)	% of distribution system
Less than 400	467 486	4.8 %
400	7 092 716	72.1 %
700	311 273	3.2 %
1000	84 711	0.9 %
1200	187 133	1.9 %
1900	12 788	0.1 %
2400	1 371 279	13.9 %
2900	310 401	3.2 %
Total for distribution system	**9 837 788**	**100.0 %**

23. For each distribution main material and diameter, please provide the length of those mains that typically operate at each of GMI's standard operating pressures.

Response:

See Excel file provided in Appendix 2.

Allocation of connection costs by class

24. Does GM maintain a record of the number of connections by type or size of customer?

a. Does that database distinguish residential from small commercial, apartments from office buildings, or commercial from industrial buildings?

b. Do some connections serve multiple kinds of customers in one building, like the central boiler, a restaurant on the ground floor, and apartments above?

c. Does the database track the diameter and length of the each connection?

Response:

a) No, in its current form, the database that relates connections to rate classes does not allow customers to be identified by type of use.

b) The resulting database does not allow this information to be obtained.

c) No.

Development of the Demand Allocators

References:

- Vision tarifaire, Allocation des coûtsSéance de travail 1, Allocation des conduites principales, 3 avril 2014.
- Vision tarifaire Allocation des coûts - Séance de travail 2 Suivi sur l'allocation des conduites principales, branchements et compteurs, 17 avril 2014

25. Are the Maximum daily demand (DQM) and Maximum hourly demand (DHM) used in the CA and CAU allocators the customers' contribution to the coincident annual system peak, or the sum of each customer's own maximum daily (or hourly) demand, whenever those occur?

    Response:

    See pages 39 to 51 of Exhibit B-0016, Gaz Metro-2, Document 1 for a detailed description of the method of estimating the peak used to calculate the CA and CAU factors. The CA and CAU are estimates of the non-coincident peak.

26. Please explain how GMI converts the Maximum Daily Demand (DQM) for customers without daily readings and the Maximum hourly demand (DHM) for commercial and industrial customers with daily readings to a consistent base for computation of the CA and CAU allocators (3/4/2014 presentation, slide 22).

    Response:

    See section 5.4.1 of Exhibit B-0016, Gaz Metro-2, Document 1 for a detailed description of the way that the peak is calculated for the categories of customers with monthly readings. The DQM estimated by the method described in this exhibit is multiplied by 365 to obtain the annual CA. The DHM in the contract is multiplied by 24 and then by 365 to obtain the annual CA used in calculating the CONDPRIN factors.

27. Please provide CT 2014, R-3837-2013, B-0082, GM-02, Doc. 14, cited in the 3/4/2014 presentation, slide 22.

    Response:

    The document is provided in Appendix 3.

28. Please provide all data and computations used in the calculations of the CA and CAU allocators.

    Response:

    For the data on DQM, see the appendix provided in the response to question 14 a) in IGUA Information Request No. 1, in Exhibit Gaz Metro-3, Document 2. The details of the calculation of CA are provided in rows 207 to 239 of the *Tables* tab of exhibit B-0041, Gaz Metro-2, Document 12. The details of the calculation of CAU are provided on the *CAU* tab of Exhibit B-0040, Gaz Metro 2, Document 8.

29. Please explain whether GMI includes expected interruptible sales in decisions regarding extension of mains and sizing of mains, and if so, how interruptible load is included in those decisions.

Response:

Interruptible customers are not considered in the design of the transmission system, but they are considered in the design of the distribution system. The distribution system is designed to meet the customers' maximum hourly demand, for both firm service and interruptible service. For a complete discussion of this subject, see Exhibit B-0082, Gaz Métro-2, Document 14 in Docket R-3837-2013.

Regarding allocation of Transmission costs

30. Does GZM currently allocate the costs of the non-GZM transmission within its territory (TQM and Champion) in the same way as GZM transmission?

    a. If not, how do they differ?

    b. Is GZM proposing to change the allocation of non-GZM transmission?

Response:

The costs of the Champion, TCPL and TQM transmission services are functionalized to the transmission service and, consequently, are neither included in the distribution service cost allocation analysis nor recovered through the distribution service rates. The costs of the transmission service are allocated according to customers' volumes. Only the costs related to the transmission mains belonging to Gaz Métro are functionalized to the distribution service and are therefore subject to an allocation in the cost analysis related to this service.

No change is planned in the transmission service in the present case.

31. How does GZM currently allocate the costs of TCPL transmission?

Response:

See response to question 30.

32. How does GZM currently allocate the costs of other upstream transmission (Union, Enbridge, transmission of US gas to GZM delivery points)?

Response:

See response to question 30.

33. Is GZM proposing to change the allocation of TCPL or other upstream transmission?

Response:

Gaz Métro does not plan to address the question of the treatment of transmission costs in the present case, which deals exclusively with the distribution service.

Understanding the factors that determine the length of distribution mains

Reference:

- Gaz Métro-1, Document 1 - Étude des experts Black & Veatch intitulée « Review of Gaz Metro's cost of service and rate design » , R-3867-2013-B- 0005, pp. 10–11.

34. Regarding the statement that "Historically, an extension policy would have allowed, for example, 100 feet of main for each new residential customer. Under current policies that are based on revenues, the system expands with each new residential customer by adding footage to connect the customer."

a. Please provide the current line-extension policies of GMI.

b. Please specify the m^3 of anticipated sales that would result in GMI paying for:

i) Extension of a typical main by 30 m.

ii) Extension of a typical main by 60 m.

c. Please state when GMI changed from a fixed mains allowance to an allowance based on revenues.

d. Please provide the past line-extension policies of GMI, as they have changed over the years.

Response:

a) For the criteria applied to the design and operation of the distribution system, see Exhibit B-0082, Gaz Métro-2, Document 14 of Docket R-3837-2014. These criteria have, however, been updated in exhibits B-0012, Gaz Métro-1, Document 5 and B-0015, Gaz Métro-1, Document 8 of Docket R-3919-2015.

As regards the profitability criteria for development projects, Gaz Métro applies the financial parameters set by the Régie since its decision G-285. In Decision G-285, the Régie stated that the internal rate of return (IRR) of a project becomes the main criterion that it will consider in its assessment of a project. Thus, the IRR must exceed the cost of the new capital. But in this same decision, the Régie also recognized that a project must not be rejected solely because the IRR is less than the cost of the new capital. The Régie must also consider, for example, the public interest.

Over the years, the expression "cost of new capital" has been replaced by "prospective capital cost". In Decision D-97-25 (Docket R-3371-97), the Régie

indicated that the IRR of a project must exceed the prospective capital cost authorized in the current year.

Thus, in order to assess the profitability of a project, the internal rate of return that it will generate is compared with its prospective capital cost. Projects whose internal rate of return exceeds the prospective capital cost approved by the Régie in the rate cases for each project are regarded as profitable. Gaz Métro does not have a policy regarding line extension other than that described in the previously cited documents.

b) The cost and revenue figures used in assessing the profitability of each project depend on the characteristics of that project and cannot be generalized for a typical extension by a certain number of metres. The profitability criteria are assessed and applied for each project, and the inputs needed for the calculation are the estimated costs of the project, the consumption volumes, the expected revenues, and the grants provided (Consumption Rebate Program) when applicable. The decision whether to proceed with an extension of 30 or 60 metres depends on the rate of profitability estimated according to the various parameters.

c) See response to question 34 a).

d) See response to question 34 a).

Reference:

- UQAC: Cartothèque: http://cartotheque.uqac.ca/cartes/G3451h8_2003G.pdf

35. Please confirm that the distribution map of GMI is the most recent map of the GMI system. If not, please provide the most recent available map.

Response:

See response to question 18.3 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1.

36. For each of the distribution mains shown on the map of the GMI system Please provide the following information:

a. The year the main was first installed.

b. The diameter and material of the main.

c. The pressure at which the main operates.

d. If the line were extended to service one or more industrial installations?

Response:

a) The data concerning the length, diameter, and pressure of the mains for the various regions of the service territory are included in the engineering database provided in Exhibit B-0034, Gaz Metro-2, Document 10. An update of this database which

includes the year that the mains were laid has been produced in response to question 23.

b) See the response to question 36 a).

c) See the response to question 36 a).

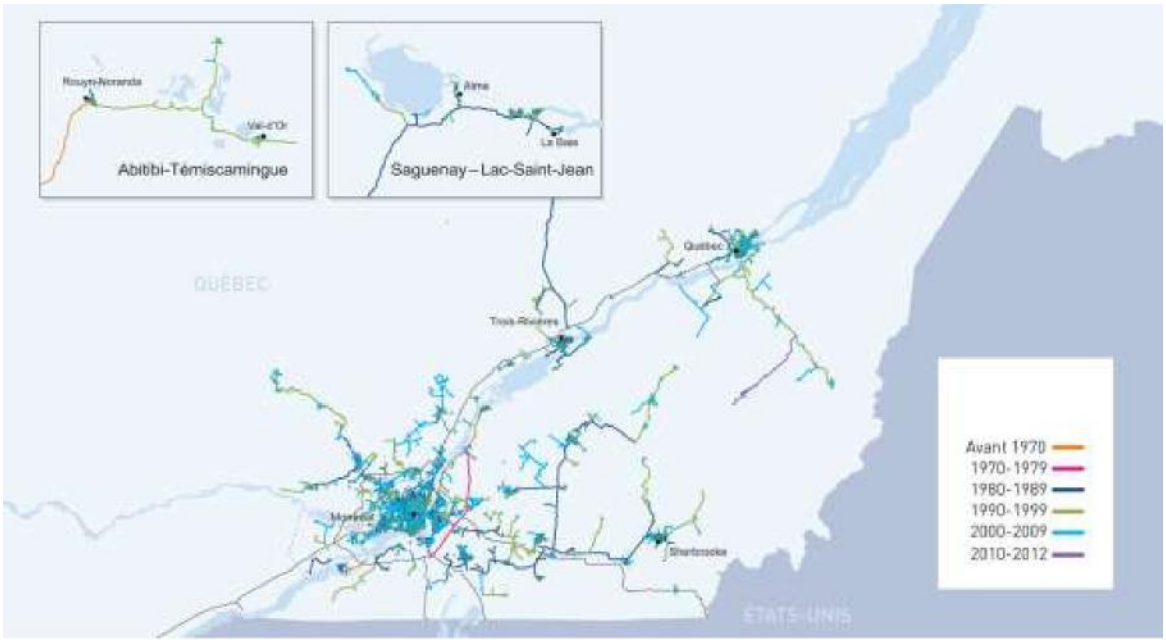
d) For a history of the development of the transmission system, see the response to question 37.

37. Please provide a history of the expansion of the service territory of GMI, since 1985, listing the communities to which GMI extended service in each year.

Response:

See the database produced in question 23 and the response to question 6.3 in Information Request No. 1 from the Régie, Gaz Metro-3, Document 1.

Also, the following map provides an overview of how the transmission system in Quebec has expanded over time.



38. Please provide the number of GMI customers by community, 1980 to 2014. If the data are not available for all years, please provide the data for the available years.

Response:

For the historical data on the number of customers, the volumes consumed, and the revenues generated for the years 1993 to 2014, see Exhibit B-0126, Gaz Métro-16, Document 1 in Docket R-3916-2014. Gaz Métro does not have these historical data for every community in its territory since 1993. For a history of the number of customers and the volumes by rate category and major region, see the responses to questions 6.3 and 18.2 in Information Request No. 1 from the Régie, Gaz Métro-3, Document 1.

39. Please provide GMI gas delivery in m^3 by community, 1980 to 2014. If the data are not available for all years, please provide the data for the available years.

Response:

See response to question 38.

40. Please provide the number of meters of GMI distribution main by community, 1980 to 2014. If the data are not available for all years, please provide the data for the available years.

Response:

Gaz Métro does not have data showing the development of its system for each of the communities of Québec since 1980. See response to question 23.

41. Please provide the following data by rate class (or by customer class if data by rate class are not available) by community for every year since 1980 for which GMI has such data:

    a. Number of customers by class

    b. Deliveries by class

    Response:

    For these historical data for the years 1993 to 2014, see Exhibit B-0126, Gaz Métro-16, Document 1 in Docket R-3916-2014. Gaz Métro does not have these historical data for every community in the territory since. For a history of the number of customers and the volumes by rate category and by major region, see the responses to questions 6.3 and 18.2 in Information Request No. 1 from the Régie, Gaz Métro-3, Document 1.

42. For each extension of GMI's service territory proposed since 2000, including but not limited to the Thetford Mines and Côte-Nord projects, please provide

    a. All analyses of the financial viability of the project.

    b. The number of customers and/or deliveries by class (commercial, industrial and residential) required to make the project financially feasible.

    c. The cost of the project.

    d. The portion of the project cost charged to the customers connected by the project, as contributions in aid of construction.

    Response:

    a) Under the *Regulation respecting the conditions and cases where authorization is required from the Régie de l'énergie*, all system extension projects with a cost of $1.5 million or more for distributors whose annual delivery is 1 billion cubic metres or more require an application for authorization by the Régie. For a list of these projects, see the response to question 6.3 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1.

    As regards system extension projects with a cost of less than $1.5 million, these too are subject to an authorization in the context of rate cases. See Exhibit B-0150, Gaz Métro-17, Document 1, Docket R-3879-2014 for the information on these projects for the year 2014/2015.

    b) See response to question 42 a).

    c) See response to question 42 a).

    d) See response to question 42 a).

43. For each extension of a GMI distribution main since 2000 of more than 1 km, please provide the following information:

    a. The financial analysis of the project.

    b. The loads expected to be added, by rate class.

c. The cost of the project.

d. The portion of the project cost charged to the customers connected by the project, as contributions in aid of construction.

Response:

a) Gaz Métro does not have the information requested. The information that is available regarding each of the major projects is provided in the dockets identified in the response to question 42 a).
b) See response to question 43 a).
c) See response to question 43 a).
d) See response to question 43 a).

44. Please provide a map of GMI's distribution system, showing all mains.

Response:

See response to question 18.3 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1.

45. Please list each distribution main that GMI has added to meet growing load or avoid low-pressure situations since 1990, and for each provide any of the following information that is available:

a. The financial analysis of the project.

b. The loads expected to be added, by rate class.

c. The cost of the project.

d. The portion of the project cost charged to the customers connected by the project, as contributions in aid of construction.

Response:

For all of these responses, see the response to question 42 a) and the response to question 6.3 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1. In addition to these system extension projects, there are the following three system improvement projects.

Docket Number	Project/Region
R-3361-96	Estrie
R-3763-2011	Jacques-Cartier/Pétromont
R-3896-2014	Rouyn-Noranda

46. Please provide the distance that GMI would extend a distribution main to connect each of the following residential loads (assuming typical main trenching costs and typical customer connection costs):

a. One 365 m^3 customer

b. One 3,650 m^3 customer

c. One 36,500 m^3 customer

d. Ten 365 m^3 customers

e. Ten 3,650 m^3 customers

f. Ten 36,500 m^3 customers

Response:

As indicated in the response to question 34 a), the projects are assessed individually, in particular on the basis of their profitability. This profitability is determined from the projected cost and revenue data (which are themselves derived directly from the applicable rates, which in turn result in particular from the allocation of the costs) which vary from one project to another.

Reference:

- the address given by Sophie Brochu, President and Chief Executive Officer, Gaz Metro, at Chambre de commerce et d'industrie de Laval, September 17, 2009. (http://www.corporatif.gazmetro.com/corporatif/communique/en/html/1689236_en.aspx?culture=en-ca)

47. Ms. Brochu says "Laval is the second-largest city in Quebec in terms of natural gas consumption, beaten only by Montreal. Other than Montreal, Laval is also the only place in Quebec where the natural gas grid extends from one end of the territory to the other."

    Please explain why GMI has not extended the natural gas grid "from one end of the territory to the other" in all the communities it serves.

    Response:

    System extensions are made on the basis of the communities' needs and the projects' profitability. The objective of Gaz Metro is always to ensure the best possible profitability for its projects. Although natural gas has many advantages and Gaz Metro has financial assistance programs, the final choice of energy source is still up to the users. For additional information, see the responses to questions 34a) and 46.

48. She also says "Gaz Metro has been able to connect [Serres Sylvain Cleroux and Ferme Grover] to the natural gas grid and to service them since they are located in a city with a dense and diversified economic structure and they are thus near the major natural gas distribution arteries. Unfortunately, extending our grid is very expensive, which explains why many rural zones cannot profitably be served by natural gas."

    Please explain why some rural zones can be profitably be served by natural gas, but not all.

Response:

Several things affect the cost of extension projects. The length of the mains required and the type of soil in which they are to be laid have a big impact on the costs of projects. The expected sales volumes also have a major impact in the assessment of projects. Some rural areas have fewer customers consuming high volumes and are expensive to serve, because they are remote and the density of users is lower. But in other rural areas, there are high-volume industrial customers who make system extension projects profitable and enable us to connect customers along the way who would not have been connected otherwise (without a substantial contribution).

49. Please provide GMI's guidelines for deciding whether to extend service to a rural zone.

Response:

The profitability criteria that apply to rural areas are the same ones that apply to all other areas. For further information, see the response to question 34.

Overhead costs

50. Please describe and explain the treatment of overheads and general expenses in the cost allocation methodology.

Response:

See pages 67 to 79 of Exhibit B-0016, Gaz Métro-2, Document 1 for a complete discussion justifying the allocation of operating costs.

Treatment of Supply Mains

51. Please explain whether GMI proposes to allocate supply mains in on the basis of a demand measure, like transmission lines, or as a mixture of demand and access, like distribution mains.

    a. If the latter, please explain why.

Response:

Gaz Métro is proposing to allocate costs related to supply mains in the same way as those related to distribution mains. Supply mains serve the same functions as distribution mains, and Gaz Métro no longer makes the distinction between these two categories of mains. See section 5.5 of Exhibit B-0016, Gaz Métro 2, Document 1 for a justification of this proposal.

52. Please provide the number of customers served directly from a supply main.

    a. Please provide the number of customers by class served directly from a supply main.

b. Please provide the annual usage of the smallest customer served directly from a supply main.

Response:

a) According to the data from Engineering, a total of 782 customers are connected to supply mains. Out of this total, the vast majority—nearly 90%--are connected directly to a supply main for reasons of geographic positioning with respect to the system. The information currently available does not allow us to identify the rate classes with which the customers connected directly to supply mains are associated.

b) See response to question 11.2 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1.

53. Please identify any supply mains that were extended to directly connect specific customers, and for each such main:

a. Identify the rate class of the customers for whom the main was extended.

b. Provide the annual gas consumption of the customers for whom the main was extended.

Response:

a) The information currently available does not allow us to identify the rate classes with which the customers connected to supply mains are associated.

b) See response to question 11.4 in Information Request No. 1 from the Régie, in Exhibit Gaz Métro-3, Document 1.

ALABAMA GAS CORPORATION	AL
ALLETE - SUPERIOR WATER LIGHT & POWER CO	WI
ALLIANT	IA, MN, WI
AMEREN	IL, MO
ATMOS ENERGY CORPORATION	KY, CO, GA, IA, IL, KS, LA, MO, MS, TN, TX, VA
AVISTA CORP	ID, OR, WA
BALTIMORE GAS & ELECTRIC CO	MD
BATH ELECTRIC GAS & WATER SYSTEMS	NY
BLACK HILLS ENERGY	CO, IA, KS, NE, WY
BLUEFIELD GAS CO	WV
CENTERPOINT	AR, LA, OK, TX, MN, MS
CENTRAL HUDSON GAS & ELECTRIC CORP	NY
CHARLOTTESVILLE, CITY OF	VA
CHESAPEAKE UTILITY CORP	DE, FL, MD
CITIZENS GAS & COKE UTILITY	IN
CITY GAS CO	WI
CLARKE - MOBILE COUNTIES GAS DIST	AL

CLEARFIELD	OH
CLEARWATER GAS SYSTEM	FL
COLORADO NATURAL GAS INC.	CO
COLORADO SPRINGS, CITY OF	CO
CONSOLIDATED EDISON	NY
CONSUMERS ENERGY CO	MI
CONTINENTAL ENERGY	AK, MI, NM
CORNING NATURAL GAS CORP	NY
CORPUS CHRISTI, CITY OF - GAS DIV	TX
COSERV GAS	TX
DELMARVA POWER & LIGHT COMPANY	DE
DELTA NATURAL GAS CO INC	KY
DOMINION	OH, PA, WV
DTE	MI
DUKE ENERGY	KY, OH
EASTON UTILITIES COMMISSION	MD
ENERGY EAST	CT, MA, ME, NY
ENERGY WEST	MT, ME, NC, WY
ENTERGY	LA
EQUITABLE RESOURCES	PA, WV
FAIRBANKS NATURAL GAS	AK
FORT PIERCE UTILITIES AUTH - GAS DEPT	FL
GAINESVILLE REGIONAL UTIL GAS DEPT	FL
GREENVILLE UTILITIES COMMISSION	NC
ILLINOIS GAS CO	IL
INTEGRYS	MI, IL, MN, SD, WI
KNG ENERGY INC	OH

,

LOUISVILLE GAS & ELECTRIC CO	KY
LUMBERPORT - SHINNSTON GAS CO	WV
MADISON GAS & ELECTRIC CO	WI
MEMPHIS LIGHT GAS & WATER DIVISION	TN
METROPOLITAN UTILITIES DISTRICT	NE
MIDAMERICAN ENERGY	IA, IL, SD
MIDDLE TENNESSEE NATURAL GAS UTIL DIST	TN
MONTANA - DAKOTA UTILITIES CO	ID, MT, MN, ND, OR, SD, WA, WY
MT CARMEL PUBLIC UTILITY CO	IL
NATIONAL FUEL GAS DISTRIBUTION CORP	NY PA
NATIONAL GAS & OIL CORP	OH
NATIONAL GRID	MA, NH, NY, RI
NATURAL GAS PROCESSING	NM, WY
NEW JERSEY NATURAL GAS CO	NJ
NISOURCE	IN, KY, MA, MD, OH, PA, VA
NORTHERN ILLINOIS GAS CO	IL
NORTHWEST NATURAL GAS	OR, WA
NORTHWESTERN ENERGY LLC	MT, NE, SD
NSTAR GAS COMPANY	MA
NV ENERGY	NV
OAK RIDGE UTIL DIST	TN
OHIO VALLEY GAS CORP	IN, OH
OKALOOSA COUNTY GAS DISTRICT	FL
ONEOK	KS, OK, TX
ORWELL NATURAL GAS CO	OH
PACIFIC GAS & ELECTRIC CO	CA
PECO ENERGY CO	PA
PEOPLES GAS SYSTEM INC	FL
PHILADELPHIA GAS WORKS	PA
PIEDMONT NATURAL GAS CO INC	NC, SC, TN
PUBLIC SERVICE ELECTRIC & GAS CO	NJ
PUGET SOUND ENERGY	WA
QUESTAR GAS COMPANY	ID, UT, WY
RICHMOND UTILITIES BOARD	KY
RICHMOND, CITY OF	VA
ROANOKE GAS CO	VA
SAFFORD UTILITIES DIV, CITY OF	AZ
SCANA	NC, SC

SEMPRA	AL, CA
SOURCEGAS LLC	AR, CO, NE, WY
SOUTH JERSEY GAS CO	NJ
SOUTHERN MISSOURI GAS COMPANY, L.P.	MO
SOUTHERN UNION	MA, MO
SOUTHWEST GAS CORP	AZ, CA, NV

UGI	MD, PA
UNION OIL & GAS INC	WV
UNISOURCE ENERGY SERVICES	AZ
UNITIL	MA, ME, NH
VALLEY ENERGY, INC.	NY
VECTREN	IN, OH
VERMONT GAS SYSTEMS INC	VT
WAKEFIELD MUNICIPAL LIGHT DEPT	MA
WASHINGTON GAS LIGHT CO	DC, MD, VA
WE ENERGIES	WI
XCEL	CO, MI, MN, ND, WI
YANKEE GAS SERVICES CO	CT

Ameren Missouri	97.86%	342.6	93.01%	212.8	Negative
Ameren CILCO	91.05%	1862.9	99.49%	2150.7	Negative
Ameren CIPS	99.53%	1067.9	99.14%	1271.1	Negative
Ameren IP	99.43%	781.3	98.25%	560.8	Negative
AVISTA	99.14%	981.5	97.95%	862.1	Negative
Battle Creek	99.81%	1819.0	98.96%	764.7	Negative
BG&E	97.39%	317.2	95.01%	342.9	Negative
Central Hudson	98.06%	327.8	94.07%	222.2	Negative
Citizens Gas and Fuel	99.99%	34392.9	99.99%	76367.1	Positive-Insignificant
City Gas Co.	99.27%	545.8	99.06%	943.9	Negative
Columbia of Ohio	98.37%	362.4	94.67%	230.9	Negative
Columbia of PA	98.98%	581.9	96.55%	363.7	Negative
ConEd	95.97%	154.8	90.66%	135.9	Positive
Consumers Energy	99.51%	1327.4	98.76%	1117.9	Negative
Consumers Gas Utility	99.45%	813.1	98.87%	878.7	Negative
Dominion Hope	98.44%	379.1	97.97%	626.6	Negative- Insignificant
Elizabethtown Gas	98.58%	381.0	98.21%	658.3	Negative- Insignificant
EQT	97.43%	170.9	97.26%	354.9	Positive-Insignificant
Florida City Gas	99.25%	399.1	98.27%	396.6	Negative
Indiana Gas	99.40%	823.4	99.27%	1503.9	Positive-Insignificant
KeySpan Gas East	98.30%	260.7	97.80%	444.4	Negative- Insignificant
Kokomo Fuel Gas	99.55%	1324.0	99.52%	2710.8	Positive-Insignificant
MG&E	99.70%	2183.0	99.69%	4528.2	Negative- Insignificant
Mich Con	99.16%	707.6	97.96%	625.1	Negative
Midwest Natural Gas	99.84%	2171.7	99.78%	3607.6	Negative- Insignificant
Mountaineer Natural Gas	96.22%	152.8	96.18%	327.7	Negative- Insignificant
New Jersey Natural Gas	99.56%	1257.2	99.35%	1846.5	Negative
NYSEG	99.29%	909.5	97.80%	623.6	Negative
NIMO	98.62%	427.6	96.80%	393.5	Negative
NICOR	98.72%	386.4	98.37%	724.4	Negative- Insignificant
North Shore	99.56%	1250.7	99.51%	2423.9	Negative- Insignificant
Northern Indiana Fuel	99.93%	7267.5	99.89%	9758.5	Negative
Northern States Wisc	99.79%	3053.5	99.46%	2589.7	Negative
Ohio Valley Gas Corp	99.61%	1421.8	97.08%	398.3	Negative
Ohio Valley Gas Inc.	98.64%	289.7	96.14%	224.4	Negative
Orange and Rockland	94.43%	110.2	90.87%	139.3	Negative
Orwell Natural Gas	98.35%	298.5	98.34%	653.2	Negative- Insignificant
PG&E	99.74%	2478.9	99.27%	1916.7	Negative
Peoples Gas Light	98.81%	457.7	98.47%	772.3	Negative- Insignificant
Piedmont Gas Company	99.25%	593.1	99.21%	1262.6	Negative- Insignificant
PSE&G	99.26%	734.5	97.74%	517.8	Negative
Questar	98.30%	375.1	95.75%	315.6	Negative
RG&E	98.08%	332.8	96.02%	337.5	Negative

Southwest Gas NV	99.51%	914.2	98.80%	820.7	Negative
UGI	99.89%	3686.4	99.77%	3882.7	Negative
VEDO	95.75%	101.5	94.95%	188.2	Negative- Insignificant
Wisc Electric Power	99.72%	2340.0	99.08%	1512.8	Negative
Wisc Gas Co	99.15%	1049.0	97.50%	740.1	Negative
Wisc Power and Light	97.70%	276.1	97.70%	594.5	Negative- Insignificant
Wisc Public Service	98.67%	707.3	95.58%	432.4	Negative

Model Four		*Model 5*	
Mean	0.9863584	Mean	0.976555075
Standard Error	0.0021557	Standard Erro	0.002935763
Median	0.9915919	Median	0.982098772
Mode	#N/A	Mode	#N/A
Standard Deviation	0.0156939	Standard Dev	0.02137268
Sample Variance	0.0002463	Sample Varian	0.000456791
Kurtosis	10.39222	Kurtosis	2.623191034
Skewness	-2.8281909	Skewness	-1.587125578
Range	0.0893836	Range	0.093288536
Minimum	0.9104856	Minimum	0.906580535
Maximum	0.9998692	Maximum	0.999869071
Sum	52.276995	Sum	51.75741895
Count	53	Count	53

APPENDIX 2
IN RESPONSE TO QUESTIONS 22 AND 23

(This document is provided in Excel format only.)