REQUEST FOR INFORMATION NO. 3 FROM THE RÉGIE DE L'ÉNERGIE (THE RÉGIE) TO EXPERT, MR. CHERNICK, RELATING TO THE GENERIC FILE ON ÉNERGIR'S COST ALLOCATION AND RATE STRUCTURE

1. References: (i) Exhibit C-ROEÉ-0115, p. 3

(ii) Exhibit B-0264, p. 23;

(iii) File R-4024-2017, Exhibit B-0053; p. 4
File R-3992-2016, Exhibit B-0044, p. 4;
File R-3951-2015, Exhibit B-0111, p. 4
File R-3916-2014, Exhibit B-0042, p. 4.

Preambule:

(i) « The customer failure rates discussed by Mr. Chernick on page 19 (from B-0308, response 11.6) are 1.5 % to 1.8 %, implying that 98.2 % to 98.5 % of customers survive from one year to the next. After 25 years, assuming that the decay rate is constant, the survivors would 0.98225 = 64 % to 0.98525 = 69 %, so 31 % to 36 % of large customers would be expected to have shut down. »

(ii) «

11.6. Please provide any data available to Gaz Métro on the turnover rate of its customers by class or market segment.

Réponse :

Sous réserve de représentations que Gaz Métro pourrait éventuellement formuler quant à l'utilisation qui serait faite des informations recherchées par la présente question, considérant la précision formulée en préambule, les enjeux déjà discutés en phase 3A et ceux qui sont discutés dans la présente phase 3B, Gaz Métro soumet l'information suivante :

Taux d'attrition par grand segment
Pertes de clients en % des clients de l'année précédente

	2014	2015	2016
Résidentiel	1,8 %	1,7 %	1,8 %
Commercial	1,8 %	1,9 %	1,8 %
Industriel	1,4 %	1,6 %	1,5 %
Total	**1,8 %**	**1,8 %**	**1,8 %**

(iii) Energir presents to the various rate files an analysis of the differences in the Major Industry market with Table 1 – Major Industry Market.

Requests :

1.1 Taking into account the erosion factor observed in reference (i) and (ii) and the decrease of Major Industry customers found in reference (iii), please comment on the desirability of using an erosion factor in the profitability analysis of Major Industry projects.

Response:
The data in reference (iii) indicates a net loss of 38 GE customers in three years, from a starting point of 210 customers in 2014, or a departure rate of at least 6% annually. This estimate does not include any customer departures that were offset by new customers at different locations (which would not contribute to the profitability of the line extended to serve the original GE customer).

Counting the decline in each tariff group, at least 62 customers departed, offset by addition of 24 customers in other tariffs. Using that rate, the departure rate was at least 11% annually. Some of the customers lost in one tariff may have switched to another tariff, or been replaced by another customer at the same location in another tariff. Other customers may have shut down, stranding the Énergir line extensions built to serve them.

The actual failure rate may be even higher than the 11%, since there is no way to determine from reference (iii) how many of the 30 Palier 5.5 VA customers in 2017 were included in the 23 Palier 5.5 VA customers from 2014, and how many of those 23 customers have shut down, even as Énergir added other Palier 5.5 VA customers (perhaps on different mains).

The following table summarizes the actual customer numbers from reference (iii), and the declines by tariff and year.

	Actual				Annual	Decline by Tariff				Annual
	2014	2015	2016	2017	Change	2015	2016	2017	total	Change
PALIER 4.6	42	46	49	47		-	-	(2)	(2)	
PALIER 4.7	29	32	32	33		-	-	-	-	
PALIER 4.8	11	11	11	12		-	-	-	-	
PALIER 4.9	2	3	4	4		-	-	-	-	
PALIER 4.10	2	2	2	2		-	-	-	-	
TARIF 4	86	94	98	98		-	-	-	-	
PALIER 5.5 VA	50	37	18	15		(13)	(19)	(3)	(35)	
PALIER 5.5 VB	23	26	31	30		-	-	(1)	(1)	
PALIER 5.6 VA	17	8	5	4		(9)	(3)	(1)	(13)	
PALIER 5.6 VB	12	12	9	11		-	(3)	-	(3)	
PALIER 5.7 VA	8	5	3	3		(3)	(2)	-	(5)	
PALIER 5.7 VB	5	5	4	3		-	(1)	(1)	(2)	
PALIER 5.8 VA	3	3	3	3		-	-	-	-	
PALIER 5.8 VB	2	1	1	1		(1)	-	-	(1)	
PALIER 5.9 VA	4	4	4	5		-	-	-	-	
TARIF 5	124	101	78	74						
TOTAL	210	195	176	172	-6.4%	(26)	(28)	(8)	(62)	-11.0%

These annual failure or departure rates are much higher than those presented in my evidence. These rates would suggest that an average life for these customers might be 10 to 16 years, rather than 25 years. That shorter average life could be reflected by using a shorter analysis period (such as 20 years) for line extensions to large customers, or by decreasing or decaying revenues from those large customers. For example, a decay approach could be implemented as a 6% annual decrease in large-customer revenues after the fifth year of operation.

Due to discounting, the revenues lost from early customer departures are more important than the revenues gained many years later from customers who remain on the system longer than average. For example, if half the customers remain on the system for 10 years and half for 30 years, the average present value of revenues is less than if all customers stayed on the system for 20 years. As shown below, the present value of the half-10-year and half-30-year distribution falls between the present value of 17-year and 18-year lives.

Revenue Life	Present Value of $1 M annually ($M)
10	$7.62
17	$11.04
18	$11.44
20	$12.17
30	$14.89
Ave of 10 & 30	$11.26

1.2 Please comment on the desirability of using a 20-year analysis period for evaluating the profitability of system extensions for Major Industry customers.

Response :
The data in reference (iii) suggests that only between 10% and 26% of the GE customers would remain in service at the end of a 20-year analysis period. Assuming that revenues persist for the entirety of even a 20-year analysis may be optimistic, depending on whether the data in reference (iii) is representative and on the percentage of lost customers who are replaced by comparably-sized new customers on the same site, or along the same line extension.

Hence, it may be more reasonable to set the analysis period to a period shorter than the 25 years I suggested in my evidence. A 20-year period may be appropriate for analysis the profitability of list extensions to the major customers.

2. References:
(i) Exhibit C-ROEE-0112, p. 3;
(ii) Exhibit C-ROEE-0112, p. 11;
(iii) Exhibit C-ROEE-0112, p. 15;
(iv) Exhibit B-0258, Appendix Q-2.1, p. 1.

Preamble:
(i) *All identifiable incremental costs should be included in the project profitability analyses"*

(ii) "*It is probably impractical to identify the exact upstream investments that will be added or accelerated due to each individual line extension, especially considering the uncertainty of future growth patterns.*
[…]
the normal approach for estimating incremental costs due to load growth is to estimate the amount of load-related investment over a representative recent or forecast period, along with design-day load growth that drives that investment."

(iii) "*Gaz Métro's review of the profitability threshold also assumes that the revenue levels of the first few years of the line extension will continue through the expected physical life of the main, ignoring customer attrition* […]"

(iv) Table: Reinforcement of distribution network

Requests:
2.1 Please comment on the evolution of the actual reinforcement amounts presented in reference (iv). In particular, please elaborate on the factors that may explain this variability, taking into account the elements presented in reference (ii).

Response :
Reference (iv) provides the kind of cost data that would be used to estimate the incremental costs of load growth, in $\$/m^3$. I do not have enough information about Énergir's definition of the various categories of investment or the projects in each category to determine which portions of the costs in reference (iv) should be treated as load-related.

Reference (iv) illustrates the reality that load-related utility investments tend to be highly variable, depending on the timing of load growth in each area, the lumpiness of investments, and (for underground utilities, including gas) coordination with highway projects. A load increase in 2020 may, for example, advance the need for looping of a main in 2023, an additional supply line in 2027, and expansion of a pipeline take point in 2030. The data in reference (iv) appears to indicate a drop in installations in 2007 through 2012, probably related to the global economic slowdown.

2.2 To the extent that reinforcement costs could be associated with specific projects, please comment on the possibility of including these costs in each of the projects rather than integrating them into the overall portfolio.

Response :
That approach would be fine, if it were possible. The load-related upgrade may occur before the new load is added, or several years later, so attributing an upstream reinforcement to a particular new load is difficult and unusual. In the example discussed in response 2.1, for example, the 2020 project may be only one of several sources of load growth that contributes to the 2020 looping and the other projects. Forecasting which upstream projects will be necessary in response to a specific increment of load growth is very difficult. A generic forecast of costs is much easier to develop and apply.

2.3 Please comment on the possibility that exceptions (industrial parks and road repaving or other projects) are only made under the condition of meeting an overall PI of 1.1 at all times.

Response :
I interpret the question to mean "If rates are reduced by the addition of profitable new customers, is it appropriate to intentionally take back some of that rate reduction to subsidize unprofitable new customers?" I would answer that question "No." The job of the utility is to provide safe and reliable energy at the lowest feasible cost. Intentionally increasing costs to customers, by increasing the utility's rate base and return, is not appropriate.

2.4 Please explain why load additions should not be included in development plans including densification, taking into account the conclusion to reference (ii) in the second paragraph.

Response:
Based on my understanding of this question, my response is that my evidence (at 15–16) proposed that the acceptance ratio (the ratio of committed incremental revenues to costs) should be lower for projects with higher densification expectations. I made that suggestion to reflect expected future development along the line extension. With little expected densification, the project should pay for itself based on near-term load additions, with revenue at least equal to cost. With moderate expected densification, I think this is reasonable to assume a 25% increase in the present value of revenues from densification. With high expected load growth, I suggest allowing for 67% increase in the present value of revenues from densification.

3. Reference: Exhibit B-0281, p. 9, response to question 8.1.

Preamble:
"8.1 Please clarify the exact amount of the budget planned for industrial park and road repaving projects.
Response:
Gaz Métro clarifies that it put in place a budget of approximately $1.5M, which will be accessible in order to reach a PI of 0.8 for industrial park and road repaving projects that have an expectation of future densification. This budget can be revised each year and will be established during the rate case. Gaz Métro reiterates that this budget will be drawn from the overall profitability of the development plan."

Request:

3.1 Please comment on the desirability of the exceptions (industrial parks and road repaving or other projects) being limited to a fixed amount that would be based on the overall profitability surplus observed in the last annual report.

Response :
While it is better to limit the amount that Énergir spends on unprofitable projects than to allow Énergir to charge customers for unlimited unprofitable projects, it is still better to exclude all unprofitable projects.

4. References: (i) Exhibit C-OC-0047, line 19;

(ii) Exhibit B-260, Excel file, tab GM9 doc4-Q7.1 SMACII.

Preamble:
(i)

	Evaluation Methods and Common Inputs	Gaz Métro Proposal (Black & Veatch)	OC	ROEÉ
19	Mains	2.254% (equivalent to 44 year life)	Agree with Gaz Métro - but risk of shorter useful life identified by ROEÉ is one factor considered in OC's higher threshold P. I. for portfolio	3.33% (30 years) B-0258, OC 7.2

The Régie understands that Énergir's proposal for mains is to apply, in the evaluation method, an amortization rate corresponding to that used by the distributor in its required revenue of 2.254%, equivalent to an amortization over 44 years, for the mains over a 40-year project evaluation period. For its part, the ROEÉ proposal consists in applying a mains amortization rate based on the project evaluation period (i.e. 100%/30 years = 3.33%).

(ii) Énergir presents an Excel file containing the details of the calculations of a profitability analysis. The Régie observes that the cash flow associated with the project does not contain amortization of capitalizable expenses but rather all the capitalizable costs in year 0. The rate impact uses the amortization rates of the capitalizable expenses based on the useful life of the assets.

Request:

4.1 Using the Excel file in reference (ii), please illustrate the impact of Énergir's proposal and the ROEÉ proposal on the IRR, PI and rate impact on the assumption that the project evaluation period is 20 and 40 years. Please comment on the results of the different approaches. Please submit your results as an Excel file.

Response :
I read the cited spreadsheet as including depreciation as a cost in line 91, which is a part of the cost of service (line 94), which it turn determines the breakeven point and rate impacts on lines 243 to 246.

For the example in reference (ii), the net present value for the utility (if it were not subject to cost-of-service regulation) is a loss of $38,108 over 40 years, as shown in the "original" tab of the first Excel workbook provided with this response R-3867-2013 ph. 3b Chernick Resp to Régie DDR3Q4-1.xlsx, cell F239. For an evaluation period of 20 years and a depreciation life of 20 years, the loss would be $63,995, as shown in the "20 yr mains" tab of R-3867-2013 ph. 3b Chernick Resp to Régie DDR3Q4-1.xlsx, cell F240. In terms of rate effects, customers are worse off by $42,273 with the 44.4-year main life and 40-year evaluation period, and $78,906 with a 20-year mains life and 20-year evaluation period.

That is not a very instructive case, since the project is unprofitable from every perspective. The second Excel workbook provided with this response, R-3867-2013 ph. 3b Chernick Resp to Régie DDR3Q4-1 2.xlsx modifies the Énergir case by increasing revenues 40%, so that the present values are favorable with the 40-year life, with a $1,300 benefit in the hypothetical non-utility computation, and a $14,483 revenue reduction in the rate computation. While this higher-revenue project would be profitable if the revenues

persist for 40 years, it would not be profitable if the revenues decline much sooner. With a 20-year depreciation life and 20-year evaluation period, the non-utility computation produces a $36,693 loss, and revenue requirements rise $38,262.