

**RESPONSE OF GAZ MÉTRO LIMITED PARTNERSHIP (GAZ MÉTRO) TO THE IGUA'S
REQUEST FOR INFORMATION NO. 1 PRESENTED TO GAZ MÉTRO LIMITED PARTNERSHIP**

R-3867-2013, PHASE 3

Gaz Métro - Application regarding the generic matter relating to the allocation of costs and Gaz Métro's rate structure

1. Notion of marginal cost

References:

- (i) R-3879-2014, Gaz Metro 17, document 4, page 5
- (ii) O'Sullivan, Arthur; Sheffrin, Steven M. (2003). *Economics: Principles in Action*. Upper Saddle River, New Jersey 07458: Pearson Prentice Hall. p. 111. ISBN 0-13-063085-3
- (iii) B-0145, page 4

Preamble

- (i) ***"The marginal cost of service delivery is defined as being all costs that may be associated with the customer, once the latter agrees to become a Gaz Métro customer. It consists of the marginal costs the customer will generate and the internal costs associated with maintaining its facilities and the services that will be provided directly thereto."***
- (ii) *"In economics, marginal cost is the change in the total cost that arises when the quantity produced is incremented by one unit, that is, it is the cost of producing one more unit of a good."*
- (iii) *"Black and Veatch has used its economic, planning and operating experience to evaluate and review the O&M costs as required by the Regie for reasonableness despite our reservations that such costs are not properly considered part of the extension line policy as discussed above." (emphasis added)*

Questions:

- 1.1. Please confirm that the definition for the notion of marginal cost used in the context of the profitability assessment of the system expansion projects is the one produced in reference (i). Please correct if necessary.

Response:

Gaz Métro confirms it.

- 1.2. Please confirm that the marginal cost used in the profitability assessment of the system expansion projects refers only to operating costs associated with the addition of a customer and excludes capital costs. If not, please correct.

Response:

Gaz Métro confirms it.

- 1.3. Please explain how the term “marginal cost” used by Gaz Métro in this matter differs from the notion of marginal cost used for the purposes of rates, and a definition of which can be found in reference (ii).

Response:

In this case, the marginal cost of one additional unit is almost always zero because of lumpy costs and the absence of continuous cost functions. Please remember that in economic theory marginal cost is the first derivative of a continuous total cost function with respect to output. Utility cost functions are not continuous because of lumpy additions, technological changes and sunk costs that render the long-run cost of market models impossible since no period is long enough to make all costs variable when plant is added discretely over time to provide capacity. We have used a reasonable process to address these constraints but also recognize inadequacies of long-run marginal cost estimates of O&M.

- 1.4. Please explain exactly what reservations are referred to in the Black & Veatch study in the citation in reference (iii). Please elaborate.

Response:

As noted in the quoted section, B&V discusses its reservations related to including all O&M within the line extension policy simply because most of the costs are fixed over wide ranges of customer additions and hence are not relevant to the added costs of attaching new customers. Most line extension policies focus on the levelized cost of capital including an amount for the O&M on that capital cost simply because the other costs are typically not marginal costs over the expected range of customer additions. Further, those costs would be recovered in average cost based rates when the customer charge is properly cost based.

2. Method for estimating marginal costs.

References:

- (i) R-3879 -2014, B-0154, page 5
- (ii) B-0145, page 7
- (iii) Report to Ergon Energy Estimating the Average Incremental cost of Ergon Energy's distribution network, Harry Colebourn Pty Ltd, mars 2015, page 2
- (iv) B-0145, page 7
- (v) B-0145, page 11

Preamble:

- (i) *"The methodology consists in identifying then analyzing the departments whose activities and costs are directly linked with the customer. A series of interviews with the cost centre managers was conducted in order to identify, per market, the activities generated by a new customer or the addition of a load with an existing customer.*
- (ii) *"Black & Veatch has reviewed the methodology and analysis used to develop its proposed marginal costs and we find the approach more appropriate for future use than the current \$157 value."*
- (iii)

Ergon Energy is seeking to estimate the Long Run Marginal Cost (LRMC) of supply from its distribution network. This is being done to ensure compliance with the requirements of clause of the Rules, in setting network tariffs¹.

There are three generally accepted methods of estimating the LRMC for network businesses. These are:

- The Perturbation or "Turvey" approach, in which the incremental capital and operating costs associated with a hypothetical permanent increment in demand provide the basis for the cost estimate;
- The Average Incremental Cost (AIC) approach, in which the growth related components of the current capital and operating expenditure forecasts and the current demand forecast provide the cost estimate; and
- The Long Run Incremental (LRIC) approach calculates the annualised cost of the next proposed investment measured relative to an increment in demand. An example of this approach is the Common Distribution Charging Methodology (CDCM), which [has formed the basis for distribution tariffs in the United Kingdom for many years². This model is based upon the creation of a hypothetical network for the supply of a demand of 500 MW, using the spatial characteristics and standardised equipment typical for the distributor.

(iv) *"Gaz metro has identified a minimum and maximum value for each component and market to make the best approximation of marginal costs in the profitability analysis."*

(v) *On page 11 of reference B-0145, it is written that the marginal cost for one industrial client varies from \$390.70 to \$735.21.*

Questions:

- 2.1. Please confirm that the methodology used to estimate the marginal operating cost applied to the profitability assessment of the investment projects is the one described in preamble (i). If necessary, please complete this description or produce the reference that contains a full description of the methodology.

Response:

Gaz Métro confirms it.

- 2.2. Please specify to which methodology the Black & Veatch report is referring in the citation in preamble (ii).

Response:

The methodology is the Gaz Metro review process.

- 2.3. The citation in preamble (iii) identifies the three methods that are commonly recognized for establishing a long-term marginal cost. In the opinion of Black & Veatch, could one of these three methods have been used to estimate the marginal operating cost applicable to the profitability assessment of the investment project? Please elaborate.

Response:

No. In the first place these methods are concerned with capacity additions not customers. Second, customer connections under line extension policies are dictated by the adopted regulatory policy that may or may not be economic. This makes some costs such as subsidies (essentially transfer payments) not marginal social costs at all. These costs should not be considered in marginal O&M costs. Third, where appropriate it is reasonable to calculate marginal cost for decision making based on average cost as the best prediction of future marginal cost even though such costs may not impact revenue requirements until a sufficient number of additional customers is added to reach a level where new expense is incurred. This is the phenomenon of lumpy costs. Finally, certain O&M expenses are sunk cost in nature because the resources used to provide the service are also lumpy in nature.

- 2.4 Please explain how the minimum and maximum limits (ref (iv)) for the marginal cost of each cost item was determined?

Response:

The marginal cost will differ depending on the customer's reality within a single market. The values between the minimum and maximum levels represent the scale of possibilities. Please refer to the response to question 1.1 of the Régie's request for information no. 5, Exhibit Gaz Métro-8, Document 1, for more details.

- 2.5 Please explain the approach that will be used to determine the exact level of the marginal cost, somewhere between the minimum and maximum levels, to be used in the profitability assessment of an investment project (ref (v)).

Response:

The specific value used is based on the activity level required. Please refer to the response to question 1.1 of the Régie's request for information no. 5, Exhibit Gaz Métro-8, Document 1, for more details.

3. Evaluation of the proposed marginal cost's impact on project profitability**Reference:**

- (i) R-3991-2016, B-0010, page 1
- (ii) R-3970-2016, B-0143, page 10

Preamble

- (i) *As indicated in reference (i), the operating cost used in the profitability assessment of the Drummondville system extension project is \$157 per customer.*

The internal rate of return (IRR) for this project is evaluated at 6.01%.

- (ii) *On line 38 of reference (ii), the IRR for investment projects in the "large corporation" market is evaluated at 168.9% for projects involving new customers, and 17.65% for projects involving additional loads. Overall, the IRR is 69.70%.*

Questions:

- 3.1. Please calculate what the IRR of the project cited in reference (i) would be if the approach proposed by

Gaz Métro regarding the marginal operating cost were to be retained. Please produce all of the data used for the calculation. More specifically, please indicate the exact value of the marginal cost that would have been used for this project and explain this choice.

Response:

- 3.2.** Please indicate whether the profitability of the project cited in reference (i) would have been sufficient to meet the profitability criterion currently approved by the Régie.

Response:

- 3.3.** In the opinion of Gaz Métro, what would the IRRs have been for all three investment projects affecting the “large corporation” segment of customers contemplated in the 2017 development plan (ref(ii)), if the approach proposed by Gaz Métro had been applied.

Response: