
PROPOSED
FULLY ALLOCATED COST STUDY
FORECAST 2017

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GI-31
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1. Summary

The proposed Fully Allocated Cost Study is found at Exhibit GI-31, Documents 2.1 to 2.11. Document 2.1 is a summary of the study's results. It outlines the allocation of the proposed revenue requirement to each rate class for the 2017 test year. Document 2.1, page 2 is reproduced here in Table 1. For the delivery-only component (excluding gas costs), the revenues at current rates are compared to the allocated costs generating an over and under contribution for each rate class.

Table 1				
STUDY'S RESULTS				
	Col. 1	Col. 2	Col. 3	Col. 4
	<u>Revenue</u> <i>\$Thousand</i>	<u>Cost of Service</u> <i>\$Thousand</i>	<u>Ovr/Und</u> <i>\$Thousand</i>	<u>Revenue to Cost</u>
Rate 1	<u>6,786.2</u>	<u>4,843.4</u>	<u>1,942.8</u>	1.4
Rate 2	<u>17,508.0</u>	<u>19,446.6</u>	<u>(1,938.6)</u>	0.9
Rate 3	<u>21.9</u>	<u>12.1</u>	<u>9.8</u>	1.8
Rate 4				
Rate 5	<u>379.8</u>	<u>338.7</u>	<u>41.1</u>	1.1
Rate 9	<u>306.1</u>	<u>361.2</u>	<u>(55.1)</u>	<u>0.8</u>
Total	<u>25,002.0</u>	<u>25,002.0</u>	0.0	1.0

2. Introduction

The Fully Allocated Cost Study allocates the rate base and revenue requirement underpinning the test year to the customer rate classes. The study's results are the best estimate of the forecast costs to serve each rate class based on the principles and conventions set forth in the study. Hence, these results are a fair and reasonable representation of the costs incurred to provide service to Gazifère's customer rate classes. Other analyses using different conventions would produce different results. However, it is the consistent year-to-year relationship between costs and revenues that is of the essence, rather than the absolute level of allocated costs.

The proposed study separates gas supply, transportation, load balancing, distribution facilities and customer related costs. The gas supply costing to Gazifère under Enbridge Gas Distribution's Rate 200 has facilitated this process.

3. Conventions and Accuracy

The relative accuracy of any study can only be understood through the examination of the conventions employed. The majority of the costs incurred by the Company to provide service are common costs such as distribution mains and gas supply costs. The allocation of costs that are shared by all customers is performed using conventions, based on principles and judgements. Conventions determine: a) the approach, and b) the classification and allocation of costs.

3.1 The Approach

The fully allocated cost study allocates to each class the forecast embedded costs that collectively form the revenue requirement for the test year. These costs are broken down into cost components by rate class for each service sought by customers. A three step process is used to develop costs which are identifiable by each customer class.

Due to the comprehensiveness and complexity of the utility's operations, the three steps, which *functionalize*, *classify*, and *allocate* costs, are necessary to facilitate costing of the variety of services provided to the customers. This approach allocates to each rate class the average costs associated with the specific and common facilities used to provide the services being sought by the customer rate class.

The rate classes themselves are set to reflect homogeneity of customer characteristics. As a result of homogeneous classes and average costs, each customer is costed at the class average for the services being provided.

3.1.1 Average Embedded Costs

Considering the integrated nature of Gazifère's and Enbridge Gas Distribution's operating systems, and the practical limits for accounting and records management, system averages are used in developing costs by rate class.

Enbridge Gas Distribution operates an integrated system employing gas supply, upstream pipeline transportation, storage, peaking services, curtailment and distribution facilities to deliver gas to customers within Gazifère's franchise area. Due to this integration, postage stamp rates are being used, meaning that all customers on a given rate bear the same charges within the franchise area.

Similarly, all customers share in the mix of investment vintages. Administration of an accounting system and setting of rates that would differentiate on the basis of specific

investments would not be viable. Therefore, a growing rate class adding younger vintage services, such as Rate 2, will have some customers bearing higher costs than their actual vintage investments, net of accumulated depreciation, and vice-versa.

3.1.2 The Three Step Process

The three steps previously mentioned are designed to allocate the return on rate base, net investment costs, and operating and maintenance expenses to each rate class in a fair and reasonable manner.

Functionalization

The first step, functionalization, groups costs into similar operating functions to allow for consistent treatment of similar costs.

The O&M costs, net investment costs, and rate base are grouped into major functional centres listed in Table 2. Further refinement into sub-functions occurs when needed. Such an extensive list is necessary in order to be as accurate as possible in order to identify differences in cost behaviour when viewed at the rate class level. As an example, the costs associated with pressure regulators are broken down to identify costs for regulators used in the gas distribution system. All customers share these costs. In contrast, the costs for pressure regulators, which are used in sales stations, are specific to large volume customers and are, therefore, recovered from large volume customers only. The last item in the table, unidentifiable, covers the miscellaneous items that are too small to be significant, or affect all functions, and cannot be broken out. These costs are spread back over the existing costs, pro rata.

A review of the ledger accounts ensures continuity in functionalizing budgeted O&M

costs, net investments, and rate base.

Table 2
<u>FUNCTIONS</u>
Gas Supply
Sales Stations
Distribution Regulation
Services
Mains
Meters
Sales Promotion
Customer Accounting
Specific Costs
Unidentifiable

Classification

In the second step, the functionalized costs are classified to three general cost groups based on whether they vary with volumetric demands, peak demands, or other customer specific demands. Further sub-classifications within these three broad categories of classification occur when required.

New developments in customer services, operating practices, and gas supply for example, must be continuously monitored and examined to ensure that cost classifications reflect cost incurrence and that similar costs are consistently treated.

Appendix A (p. 17) defines the classifiers used in the cost study.

Allocation

The allocation of the classified costs is the process of spreading similarly incurred costs to each rate class based on a factor that can be identified by each class. As an example, the cost of issuing a bill to each customer every month is allocated on the basis of the number of customers in each rate class since the costs of printing and mailing the bill are the same for all customers, and vary by the number of customers.

Appendix B (p. 18) lists the allocators used in the cost study. Allocators are reviewed each year to ensure that the allocators are reflective of the incurrence of the costs.

3.2 Rate Class Cost Responsibilities

The costs proposed in the Fully Allocated Cost study underpin the proposed revenue requirement for the test year. The uniform account classification system greatly assists the cost allocation by grouping costs in similar functions. As an example, costs for residential service work are collected in specific accounts. However, some costs are not incurred uniquely to a specific class. The major costs incurred by the utility are for common services such as mains network, gas supply costs, billing functions, and administration. These costs are not directly associated with any specific class.

Estimates of class cost responsibilities are aided by informed judgement based on the nature of operating and accounting practices, as well as standard costing conventions in the classification and allocation of costs.

3.3 Classification and Allocation of Costs

The overlying philosophy for proper classification and allocation of costs is based on cost causality principles. However, due to the complexity of the utility operations, such principles are often difficult to apply. Generally, the further from the burner tip costs are incurred, the less the costs can be directly related to a specific customer or class of

customers. Explaining cost relationships when direct cost causality does not exist requires rationalizing with theoretical assumptions, which can affect the accuracy of the costing.

To facilitate costing, costs are first assigned to three general classifications:

- Customer related,
- Commodity related,
- Capacity related.

The customer related costs include expenses such as operation and maintenance as well as return and taxes associated with meters, sales stations, and service lines. They also include service work, sales promotion and customer accounting costs.

Commodity related costs are the variable costs associated with the volume of gas sold or delivered in a given period of time.

Capacity related costs include expenses such as operation and maintenance as well as return and taxes on distribution mains and distribution pressure regulators and storage facilities.

Further sub-classifications within these three general classifications may be performed to enhance the accuracy of the cost allocation process.

Allocation of costs to rate classes follows the classification process.

3.4 Components of Enbridge's Rate 200 and Niagara Gas Costs

Gazifère takes service under Enbridge Gas Distribution's Rate 200 for gas supply costs. Gazifère also has a service arrangement with Niagara Gas for movement of gas between Enbridge Gas Distribution's and Gazifère's franchise areas.

Based on the economics of contracting for upstream supply, upstream transportation is used to meet average annual demand. The combination of storage, seasonal supplies and peaking service is used to manage supply and demand on a daily basis. Enbridge Gas Distribution's mains and Niagara Gas' facilities are used to deliver Gazifère's annual volumes and to meet peak demand.

Rate 200 consists of the following:

- Customer Charge
- Delivery Charge
- Gas Supply Charge
- Transportation Charge

- Gas Supply Load Balancing Charge

3.4.1 Customer Charge

The customer charge in Rate 200 is negotiable but subject to a cap. In Gazifère's case, it is set to zero, since Rate 200 has not been allocated any customer-related costs.

3.4.2 Delivery Charge

The delivery charge is designed to recover the distribution and storage facilities costs, and UUF. This component of Rate 200 is applicable to all customers, including direct purchase customers.

The storage component of the delivery charge consists of the storage costs required to meet the seasonal requirements of all customers. These costs are classified as storage deliverability and storage space to reflect the use of Enbridge's storage facilities and allocate them based on storage deliverability and storage space allocation factors.

The costs of moving gas through the Enbridge's distribution mains are classified as 60% peak and 40% annual demand, and allocated on peak and annual deliveries.

The UUF costs component is classified as distribution commodity and is allocated to all customers on the basis of annual deliveries.

3.4.3 Gas Supply Charge

The gas supply charge recovers the costs associated with the commodity, compressor fuel, and working cash allowance. The total cost is classified as gas supply commodity and is allocated to all system and buy/sell customers using the annual sales allocation factor. Gas supply charges are not allocated to transportation service customers (i.e. – direct purchase customers).

3.4.4 Transportation Charge

The transportation charge recovers costs associated with the upstream transportation of gas from Western Canada and the US to EGD's system. These costs are allocated volumetrically to Sales and Western Transportation Service customers only.

3.4.5 Gas Supply Load Balancing Charge

The gas supply load balancing charge is a reflection of the allocated costs in Rate 200 incurred for peak and seasonal supplies, and carrying costs of inventory. The gas supply load balancing charge is also applicable to all customers, including direct purchase customers.

These costs are classified as 60% peak and 40% annual demand, and allocated on peak and annual deliveries.

3.4.6 Niagara Gas Costs

The movement of gas through Niagara Gas' facilities is used to deliver Gazifère's annual volumes and to meet peak demand. The classification of these costs reflects system load factor. These costs are classified as 60% peak and 40% annual demand.

4. The Proposed Study

The proposed study can be found in the immediate tabs following this report. They are:

- Document 2.1- Revenue to Costs Comparisons – Total
- Document 2.1- Revenue to Costs Comparisons – Delivery Only
- Document 2.2 - Functionalization of Rate Base
- Document 2.3 - Functionalization of Net Investments
- Document 2.4 - Functionalization of O & M
- Document 2.5 - Classification of Rate Base
- Document 2.6 - Classification of Net Investments
- Document 2.7 - Classification of O & M
- Document 2.8 - Allocation of Rate Base
- Document 2.9 - Allocation of Return and Taxes
- Document 2.10 - Allocation of the Cost of Service
- Document 2.11 - Allocation Factors.

The following text details the significant aspects of the proposed Fully Allocated Cost Study.

4.1 Functionalization

The functionalization of costs is performed in Documents 2.2, 2.3 and 2.4.

Document 2.2; Rate Base

The functionalization of rate base is aided by the Uniform System of Accounts. Costs for mains, services, and meters can be readily identified and, accordingly, functionalized to them. The following text explains those functionalizations that may not be immediately apparent.

- Items 1.1, 1.2, and 2.1 Land, Structures and Improvements, are functionalized on an analysis of occupancy use.
- Item 1.4, Measuring Regulation and Telemetry, is functionalized to sales stations and distribution regulation based on the distribution reflected in the plant accounting records.
- Item 1.7, Other Gas Operations, is the cost of propane conversions and is hence functionalized to mains.
- Item 1.8, Overhead Capitalized, is functionalized on the basis of the additions of services, mains and distribution regulation in the test year.
- Item 2.2, Office Furniture and Equipment, is divided amongst the functions based on the approximate number of employees within the various functions.
- Item 2.3, Transportation Equipment, is functionalized on the basis of records showing equipment utilization.
- Item 2.4, Tools and Work Equipment, is primarily used by the Construction and Service Departments and is accordingly functionalized to mains and services categories, 35% and 65% respectively.
- Item 2.6 and 2.7, Computer Equipment and Telecommunications, are functionalized based on the approximate number of employees within the various departments.
- Item 3.1, Gas Costs Working Cash, is functionalized to Gas Supply.
- Item 3.2, Operating & Maintenance Working Cash, is functionalized on the basis of the functionalized O & M costs.
- Item 3.4, Income Tax Working Cash, is functionalized based on pro-ration to rate base excluding working cash.
- Item 3.5, GST/QST Working Cash, is functionalized on the basis of its components being revenues, gas costs, O & M and capital.

- Item 3.6, Provision for Bad Debt, is functionalized to Customer Accounting.

Document 2.2.1; The Rate Base Reconciliation

The stabilization accounts are not part of the scope of the study. The amounts have therefore been excluded from rate base for cost allocation purposes.

Document 2.3; Net Investment Costs

- Item 1.1, Depreciation, is functionalized based on pro-ration to rate base.
- Item 1.2, Miscellaneous Taxes, is comprised of Régie Dues and Municipal Taxes. Régie Dues are functionalized to Gas Supply. Municipal Taxes are functionalized to Unidentifiable since they are not readily associated with any specific function.
- Item 2, Late Payment Penalties, is functionalized to Customer Accounting.

Document 2.4; Operating and Maintenance (O&M) Expenses

O&M costs are functionalized, classified and allocated to the various customer rate classes starting from detailed general ledger account information available as part of the existing grass root budget process. The accounts in the general ledger are subsequently aggregated at a higher level, if warranted (on the basis that costs behave in a similar way), to constitute functional cost centres.

The costs that cannot be directly assigned or functionalized are the overheads.

The cost of employee benefits, Item 6, includes the cost of administering the Human Resources as well as the costs of the benefits. In Column 2, these costs are apportioned to the operating functions on the basis of the labour costs included in each of the abovementioned functions.

The costs of supervision are apportioned, as found in column 4, to the functions supervised on the basis of the total dollar cost of each function. This treatment recognizes that the process of supervision involves not only the management of personnel resources but also the integration of materials and other resources.

Administrative and General overheads, Item 7, are allocated to the functions on the basis of the dollars accumulated in column 5 except for the costs of the gas supply function in which case only 3% of the gas supply function costs are included in the base for the distribution of administrative and general expenses. Column 7 contains the functionalized operating and maintenance costs.

The next step, classification of costs, is performed on Documents 2.5, 2.6 and 2.7. The definitions of the classifiers are found at Appendix A.

4.2 Classification

Document 2.5; Rate Base

The rate base functionalized to Item 1, Gas Supply, is the working cash requirement for gas purchases, miscellaneous taxes and GST/QST. The working cash items are required for the daily management of the supply function and are classified pro rata to the specific classification of gas costs seen on document 2.7, page 2.

The Distribution Mains included in Item 2, are classified as approximately 27% customer-related and approximately 73% capacity-related. The customer-related component recognizes that no customer can receive or have access to gas service unless a main exists close to the customer's point of gas requirement (i.e. close to the customer's premises). The remainder is the capacity related component of the distribution mains.

Distribution Regulation includes the costs associated with district stations and gate stations. These are common costs incurred to regulate the pressure flow from the transmission system and within the distribution system and are, therefore, classified as capacity related.

The next three items, Sales Stations, Meters, and Services are classified as sales stations, meters and services and are subsequently allocated to the rate classes based on factors reflecting each rate class responsibility for these functions.

Item 7, Sales and Promotion costs are classified to capacity-related. The general promotion related costs are viewed as costs incurred to generically promote the use of natural gas and thus optimize the system capacity. They are hence classified as such.

The Customer Accounting costs are classified to Number of Customers. These costs consist of the allocated general plant costs incurred to support that function together with its working capital component.

The Specific Costs are the GST/QST revenues. They are classified as such.

Document 2.6; Net Investment Costs

All items follow the same classification of the rate base (Document 2.5).

Document 2.7; Operating and Maintenance expenses

The first major function classified is Gas Supply costs. The details are found on Page 2 of Document 2.7.

Delivery charge (blocks):

The rationale for the classification of the delivery charge is explained above in Section 3.4.2.

The total cost of \$3,937.0 (\$000), is found on exhibit GI-21, document 2, Page 1 of 1, Line 16, Column 13 and Line 22, Column 13.

The storage costs component of \$2,100.1 (\$000) corresponds to the storage costs included in Rate 200's delivery charge. The costs are classified to deliverability and space based on the classification of Enbridge Gas Distribution's storage costs.

The remaining delivery costs of \$1,836.9 (\$ 000) are classified 60% to peak and 40% to annual, reflecting Gazifère's operational load factor.

Peak component = $60\% \times (\$1,836.9) = \underline{\$1,102.1}$

Annual component = $40\% \times (\$1,836.9) = \underline{\$734.8}$

Upstream Transportation charge:

The Upstream component is classified directly, in accordance with the amount found on exhibit GI-21, document 2, Page 1 of 1, Line 19, Column 13. As discussed in Section 3.4.4, these costs are allocated to the various rate classes volumetrically (i.e. based on the annual deliveries allocation factor).

Load balancing charge:

The load balancing charge classification is explained above in section 3.4.5.

The total cost of \$2,305.6 (\$000) is found on exhibit GI-21, document 2, Page 1 of 1, Line 18, Column 13. The amount is prorated to peaking service and seasonal supplies to reflect allocation of these costs in Rate 200.

Peaking service component = \$461.1

Seasonal supply component = \$1,844.4

Gas Supply charge:

The total gas supply cost of \$14,548.4 (\$000) is shown on exhibit GI-21, document 2, Page 1 of 1. It is derived as the sum of commodity charges for system gas and buy/sell volumes, i.e. the sum of lines 20 and 21.

The gas supply charge, being a variable cost, is classified entirely as gas supply commodity and allocated to the rate classes based on the annual sales allocation factor.

Niagara:

These costs, in the amount of \$1,440.6 (\$000), are incurred to move gas from Enbridge Gas Distribution's system to Gazifère's franchise area. They are classified and allocated 60/40 peak/annual, as discussed in Section 3.4.6.

Item 2.1, Chart Processing, is classified to Readings Processed.

Items 2.2 and 2.3, System Operations and Mains, follow the same classification as distribution costs in rate base.

The Customer Service function costs are classified to the total number of customers and then allocated to the customers classes based on the number of customers in each class.

Many of the costs incurred in the fourth functional group, Sales Promotion, can be identified with specific classes. General Sales Promotion, Item 4.4, is related to the general promotion of natural gas resulting in increased utilization of gas distribution network and ensuring the network's safety. Accordingly, this expense is classified equally between annual natural gas volumes delivered and total number of customers.

Costs comprising the Customer Accounting function, with the exception of Item 5.3, are classified to be shared by all customers. Responsibility for the costs of Meter Reading, Item 5.3, is readily determined and is shown in Column 21.

4.3 Allocation

The final step, the allocation of the classified costs to the rate classes is found in Documents 2.8, 2.9 and 2.10. On the right hand side is a column headed "Allocation Factor". The numbers in this column indicate the allocation factor used as identified by its item number in Document 2.11.

The explanations of the allocators can be found in Appendix B. As an example, Item 1.1 on Document 2.8 is Gazifère's rate base classified as commodity-related. This amount is allocated in proportion to allocation factor number 1.1. Item 1.1 in Document 2.11 indicates the absolute and relative responsibility by rate class for annual sales.

The allocation of return and taxes is performed pro rata to the allocated rate base on the basis that income earned attracts income tax.

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APPENDICES

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Appendix A

DEFINITIONS of CLASSIFICATIONS

Classifier	Description
Gas Costs	
Annual Commodity	Costs of annual commodity supply.
Transmission	
Peak Transmission	Costs for moving peak supplies.
Seasonal Transmission	Costs for moving seasonal supplies.
Annual Transmission	Costs for transporting average annual supply to the Company.
STORAGE	
Deliverability	Costs of meeting demand on days colder than average winter demand.
Space	Costs of meeting average winter demand in excess of average annual demand.
Distribution	
Distribution Commodity	Cost of supply for UUF.
Distribution Capacity	System capacity costs.
Customer Related	
Meters	Costs of customer meters.
Sales Stations	Costs of customer sales stations.
Services	Costs of customer service lines.
Residential Customers	Costs of sales and marketing for the residential market
Commercial/Industrial Customers	Costs of sales and marketing for the commercial and industrial markets.
Total Customers	Costs of customer accounting, marketing, and service operations for all customers.
GST/QST Revenue	Reduction in working cash arising from collection of GST/QST.
Readings Processed	Costs for reading and processing customer bills.

Appendix B

ALLOCATION FACTORS

Allocator	Units	Description
Commodity Factors		
Annual Sales	10^3 m^3	Annual volumes of gas sales customers.
Total Annual Deliveries	10^3 m^3	Annual volumes of all customers.
Total Winter Deliveries	10^3 m^3	Winter volumes of all customers.
Heating Load	10^3 m^3	Annual volumes used for Heating
Total Transportation Deliveries	10^3 m^3	Annual transportation volumes for sales and WTS customers
Capacity Factors		
Capacity Assigned and Used	10^3 m^3	Assignment of capacity costs to firm and interruptible volumes based on system utilization
Storage Factors		
Deliverability	$10^3 \text{ m}^3/\text{day}$	Demand in excess of average winter demand.
Space	10^3 m^3	Average winter requirement in excess of average annual demand.
Customer Factors		
Meters	(\$000)	Investment in meters.
Sales Stations	(\$000)	Investment in customer sales stations.
Services	(\$000)	Investment in services.
Total Customer Count	Customer count	Average number of customers.
Residential Customer Count	Customer count	Average number of residential customers.
Comm/Ind Customer Count	Customer count	Average number of comm/industrial customers.
Chart Readings	Chart reads	Number of charts read each year.
Meter Readings	Meter reads	Number of meter readings per year.