UAE Exhibit COS 5.1
Docket No. 25-057-06

Excerpts from
NARUC GAS DISTRIBUTION
RATE DESIGN MANUAL
Pages 22-24; 30-34

GAS DISTRIBUTION
RATE DESIGN MANUAL

Prepared by the
NARUC Staff Subcommittee on Gas

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NATIONAL ASSOCIATION OF
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accordance with prescribed uniform accounting systems. These systems, such as the Uniform System of Accounts, classify costs according to primary operating functions. Thus, the functionalization of costs is already done for the cost of service analyst.

2. Classification of Costs

The functionalization of costs is of limited use in the allocation of costs. Therefore, it is necessary to further classify costs into customer, energy or commodity, and demand or capacity costs.

a. Customer Costs

Customer costs are those operating capital costs found to vary directly with the number of customers served rather than with the amount of utility service supplied. They include the expenses of metering, reading, billing, collecting, and accounting, as well as those costs associated with the capital investment in metering equipment and in customers' service connections.

A portion of the costs associated with the distribution system may be included as customer costs. However, the inclusion of such costs can be controversial. One argument for inclusion of distribution related items in the customer cost classification is the "zero or minimum size main theory." This theory assumes that there is a zero or minimum size main necessary to connect the customer to the system and thus affords the customer an opportunity to take service if he so desires.

Under the minimum size main theory, all distribution mains are priced out at the historic unit cost of the smallest main installed in the system, and assigned as customer costs. The remaining book cost of distribution mains is assigned to demand. The zero-inch main method would allocate the cost of a

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theoretical main of zero-inch diameter to the customer function, and allocate
the remaining costs associated with mains to demand. A calculation of a minimum
size main is shown in the illustrative cost allocation study. The contra
argument to the inclusion of certain distribution costs as customer costs is
that mains and services are installed to serve demands of the consumers and
should be allocated to that function. Under this basic system theory, only
those facilities, such as meters, regulators and service taps, are considered to
be customer related, as they vary directly with the number of customers on the
system.

Another controversial item is the inclusion of sales promotion expenses in
the customer cost component. Analysts vary in their opinions as to the extent of
the inclusion. Some would include all, some none, and some a portion of sales
promotion expense in the customer category. With emphasis placed on conser-
vation, many regulatory bodies have prohibited this type of activity, and in
those cases, if cost were incurred, it should be deleted from the study based
upon its being a "below the line" or a stockholder expense.

b. Energy or Commodity Costs

Energy or commodity costs are those which vary with the quantity of gas pro-
duced or purchased. They are largely made up of the commodity portion of
purchased gas cost and the cost of feedstock, catalyst, fuel, and other variable
expenses used in the production of gas from a manufactured or synthetic gas
(SNG) plant. Energy or commodity costs increase or decrease as more or less gas
is consumed.

c. Demand or Capacity Costs

Demand or capacity costs vary with the quantity or size of plant and equip-
ment. They are related to maximum system requirements which the system is

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designed to serve during short intervals and do not directly vary with the
number of customers or their annual usage. Included in these costs are: the
capital costs associated with production, transmission and storage plant and
their related expenses; the demand cost of gas; and most of the capital costs
and expenses associated with that part of distribution plant not allocated to
customer costs, such as the costs associated with distribution mains in excess
of the minimum size.

3. Allocation of Costs to Customer Classes

After the assignment of costs to the customer, energy, and demand
categories, each category must be allocated to the various service classifica-
tions or to their subdivisions.

a. Customer Costs

Customer costs may be distributed in proportion to the number of customers
in a class, or a more detailed study may be made whereby certain components of
the customer costs may be distributed on a per-customer basis, directly assigned
or distributed on a weighted per-customer basis. The latter method permits
recognition of known or ascertainable customer cost differences such as the fre-
quency of meter readings, complexity in obtaining readings or integrating meter
reading charts, and the individiual attention which may be given to large custo-
mers, such as separate meter reading schedules.

As discussed earlier, while there may be differences on whether certain
items of plant should be assigned to customer costs, there are clearly certain
expenses which are independent of whether a customer consumes gas or not. Since
these costs will not be recouped if little or no gas is consumed, they are
generally included in a minimum bill or customer service charge. One of the

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There may be difficulty in getting customers to accept test meters, since their premises must be available for meter printout sheet or tape replacement where necessary so that the test data will be continuous for the period involved. This complicates the selection procedure.

The selection process must result in a valid statistical sample. Ultimately, there must be selected a representative cross-section of customers willing to cooperate in the test-metering program, sufficiently large in number to be statistically significant. About three times the number of customers for which tests are needed must be initially selected. Factors such as examination of the types of customers produced by the random selection to assure that they are representative; field inspection of premises to determine type of premises; connected load and number of people who live or work on the premises; and unwillingness or inability of a customer to cooperate, all must eventually be tested. A considerable expenditure of time and manpower is needed to complete the process.

C. Illustrative Embedded Cost of Service Study

A cost of service study is a series of choices regarding potentially controversial methods of identifying and allocating costs incurred by a utility. This illustrative study represents one possible means of computing class cost of service. There are many other equally correct methods. For illustrative purposes, the following example demonstrates how the factors discussed above are utilized in a fully allocated cost of service study.

The first step in preparation of the study is a separation of all plant and expense items incurred during the test period into the functional categories of production, storage, transmission, distribution and general. This functionalization is shown throughout the study on Schedules 3, 4 and 5, according

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to Monopolytown's accounting system. Where possible, functional costs are
directly assigned to the classes of service based upon details from the util-
ity's books or by special analysis or studies. This is illustrated in Schedule
No. 2 where Rate Revenues are directly assigned to the classes which produce
them.

The costs not directly assignable were allocated among the customer classi-
fications according to factors developed from the basic statistical data. The
derivation of the allocation factors is illustrated on Schedules 10 and 11. The
following is an explanation of the major allocation factors used in this study.

The Peak Day Demand (Allocation Factor 100) is the computed quantity of gas
which would be supplied on a day when the mean temperature of the utility's
service territory is 5 degrees Fahrenheit (the coldest day in 20 years for this
particular system), which equates to a 60 degree-day deficiency. Schedule
No. 12 provides the details of the peak day calculations. There are two predom-
inant Commodity allocation factors which consist of normalized and curtailed
gas sales during the test period. Factor No. 110 is comprised of sales without
transportation volumes. Factor No. 120 is the total throughput quantity which
includes gas sales and transportation. The primary Customer allocation factor,
No. 160, consists of the number of bills rendered during the test period.

Once the allocation factors are prepared, they should be applied to the
functionalized costs in relation to how those costs are incurred by the utility.
Expenses and plant are classified or considered to be fixed, variable, customer,
or revenue related. Classification is an integral part of the allocation pro-
cess and once costs are classified, the appropriate allocation factors are
applied to these costs as shown in the last column in each of Schedules 2

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through 9. Fixed costs are normally allocated on the basis of demand, while variable costs are allocated on the basis of commodity sales. Costs incurred as a result of a customers' connection to the utility system are allocated on the basis of a customer factor, and costs related to revenues are allocated on the basis of a revenue factor. Costs which cannot be related to one of the four basic classifications are allocated on the basis of a composite factor, reflecting two or more elements of the expense or plant accounts. This is illustrated on Schedule No. 4 where account 374 (land and land rights) is allocated on the basis of allocation Factor No. 13, which reflects a composite of the allocation of all other distribution plant.

As a more detailed explanation of the allocation process, consider the allocation of utility plant which is shown on Schedule No. 4. Production plant, which includes a propane-air facility, was designed and constructed by the utility to meet peak load requirements. Consequently, production plant has been allocated on the basis of peak day demand (Allocation Factor No. 100).

The distribution plant investment in mains may be classified as both demand and customer related. The customer component was determine as the amount of investment that would be required it all mains were comprised of a theoretical minimum size. Monopolytown's smallest mains (1.5 inch diameter) were installed at an average unit cost of $0.61 per foot. The customer component of mains is computed by multiplying the total length of mains (6,385,860 feet) by the unit cost of the smallest mains. The resulting amount ($3,988,733) represents approximately 20 percent of the total investment in mains. The remaining 80 percent is considered to be demand related. Therefore, the investment and expenses associated with mains are allocated on the basis of composite allocation Factor No. 150. Factor No. 150 is a weighted average of allocation Factor No. 160 (20 percent weight) and Factor No. 100 (80 percent weight).

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Plant facilities such as gas services and meters are allocated to the rate schedules by using allocation factors designed to reflect the various cost differentials among classes. To accomplish this weighted computation for gas services, the typical current cost to construct gas services for each customer class is determined. The class gas service costs are then divided by the typical residential gas service cost. The resulting ratio is a weighting factor which is then multiplied by the number of customers in each class. The product of this calculation then becomes the basis of the gas service Allocation Factor No. 200. The meter allocation factor is determined in a similar manner and the weighting factors utilizied for both meters and gas services are the following:

WEIGHTING FACTORS

Class	Services	Meters
Residential	1	1
*Commercial	5	5
*Industrial	50	40
Interruptible	50	40
Transportation	50	40

* The Commercial and Industrial classes are combined in the study under "GENERAL SERVICE"

Once the allocation of plant is accomplished, depreciation and working capital are the next steps which ultimately lead to the determination of rate base. The allocation of depreciation is illustrated on Schedule No. 5 and the allocation of working capital is demonstrated on Schedule No. 6. The allocation of rate base is illustrated on Schedule No. 7, where figures from previous schedules are assembled to determine customer class rate base for ratemaking purposes.

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The allocation of operating expenses is illustrated in Schedule No. 3. Expenses which are demand related, such as pipeline demand charges and gas production expenses, are allocated on the basis of peak day demand, Allocation Factor No. 100. Expenses which are commodity related, such as commodity gas purchases, are allocated on the basis of sales excluding transmission, Allocation Factor No. 110. Customer oriented expenses, such as customer accounting, meter reading and advertising expenses are allocated on the basis of the number of customers on the system or the number of meters, Allocation Factor No. 160 or 180.

Many expenses, such as supervision and engineering, administration and general costs, taxes, and depreciation, are allocated on the same basis as the related plant investment. These are composite allocation factors developed as a line item summary of various elements in the cost of service study as it progresses. For example, Allocation Factor No. 13 is the respective customer class percentage of total distribution plant costs. Therefore, the allocation of any costs which are allocated on the basis of Factor No. 13 would have to proceed after total distribution plant by class is computed on Schedule No. 4. The composite allocation factors are illustrated on Schedule No. 11, with the appropriate reference to their development in the cost of service study.

Following the allocation of all plant and expenses, a summary is developed in Schedule No. 1. The relevent totals from each schedule previously explained are brought forward to Schedule No. 1 as a summary of the cost of service study and to examine the rate of return generated by the entire system as well as each class of service.