UG-__ – Cost of Service

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NORTHWEST NATURAL GAS COMPANY
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I. Introduction & Summary

Q. Please state your name.

A. My name is Francis P. Ferguson. My position, responsibilities, qualifications, and background are summarized in my Rate Spread testimony, *Exhibit No. ____ (FPF-1)*.

Q. What is the purpose of this testimony?

A. The purpose of my testimony is to present and describe a fully allocated, cost of service study that the company has prepared for its operations in the state of Washington.

Q. What is a fully allocated cost of service study?

A. The cost of service study (COS study) groups the company's various recorded costs by the functions with which they are associated (production, storage, transmission or distribution), and then allocates these cost across classes of service or rate schedules in accordance with the degree to which each class or rate schedule has caused the various costs to be incurred. By doing this, it is possible to measure the company's overall earnings, and to assess the reasonableness of its rates.

Q. What does the company hope to achieve with this COS study?

A. The company has done this COS study to assess the reasonableness of its rate schedules in Washington. One of the many factors to be considered in judging the reasonableness of a rate schedule is the degree to which it accurately reflects the costs involved in providing service. One way to measure and assign these costs is to allocate the company's historical, booked costs across various

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schedules in a manner reflecting their contribution to total cost of service. By doing this analysis, the company hopes to learn the degree to which its various customers are facing charges which reflect the costs that their service generates. An obvious corollary would be to move rates as close as is reasonable and fair to their levels of actual cost causation.

II. Approach and Methodology

Q. What are the more significant cost items allocated to the various rate schedules?

A. Plant, gas costs and operations and maintenance (O&M) expenses are the principle cost items. Mains and services account for about seventy-five percent of plant costs. Gas costs amount to about seventy-five percent of total O&M.

Q. Was any general approach taken to the allocation of the various costs?

A. Yes. The company has tried, as much as possible, to adhere to the allocation methods adopted by the WUTC in the 1994 Washington Natural Gas Company case, Dockets No. UG-940034 and UG-940814.

Q. How are gas costs allocated to the various rate schedules?

A. Demand charges are allocated in proportion to each schedule's contribution to peak day volumes, net of transportation. This reflects the fact that pipeline capacity is purchased in quantities sufficient to meet peak loads, but still allocates capacity costs to interruptible sales customers reflecting the fact that they continue to receive service during many cold weather events.

Commodity costs are allocated according to annual total sales volumes.

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Q. How are mains costs allocated among the rate schedules?

A. Primary mains (those 4" and larger) are allocated using a modified average and excess method as outlined in the Washington Natural order. Peak day throughput is the average of the five highest volume days in the last three years. The average day is defined as normalized throughput divided by 365. Average daily volume divided by peak daily gives us the system load factor which, in the present case, is about 53.6%. This share of mains costs is allocated by each schedule's share in annual throughput. The remainder is allocated according to each schedule's share of peak day volumes. The primary mains allocation utilizes all throughput and all peak volumes in it's computation—transportation and special contracts included.

Secondary mains are allocated in a very similar way. The difference is that special contract volumes are excluded from the allocation on the premise that these large customers do not use the company's smaller distribution mains.

Q. How are the various schedule's contributions to peak day derived?

A. The volumes for schedules 2, 24, and 3 (the primary residential and commercial schedules) are computed using standard, statistical regression analysis of the use of customers on these schedules by degree day of cold. These regression equations are able to forecast the total use of each schedule for the degree days associated with the calculated peak day (average of the five coldest days in the last three years). The telemetered portion of industrial usage is estimated by gas supply for the historical days involved.

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Q. How were meter costs allocated?

A. Meter and meter installation cost allocations result from a study of actual meter costs by schedule. In constructing this study, the company used a customer-specific listing of two pounds and greater meter sets arrayed by rate schedule. By building a list of costs for various types of meters, and applying it to the matrix of meter types by customer, by schedule, it was possible to measure the replacement cost of meters by rate schedule. The historical meter costs were allocated across the various schedules in the same percentage which replacement costs by schedule were of total costs.

Q. How is the cost of services allocated?

A. Service costs are allocated using the meter cost percentages on the assumption that service costs are proportional to meter costs.

Q. What method is used to allocate Administrative and General (A&G) costs?

A. Administrative and General costs are allocated in the manner described in the Washington Natural order. Specifically, fifty percent of A&G is allocated to O&M (less gas costs), and fifty percent to gas throughput. Pensions are allocated on labor costs, regulatory expenses on revenue, and property insurance and maintenance on plant expenses.

Q. How are distribution expenses allocated?

A. Distribution expenses are allocated in the same way that the respective plant was allocated. Mains and services expenses, for example, are allocated in the same manner as mains and services plant. This pattern is maintained where possible. Should an expense defy easy categorization, "Other Maintenance," for example, it

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will be allocated in a manner reflecting the appropriate general category's allocation—distribution plant, in this instance.

Q. How are storage costs allocated?

A. The storage costs in question are those associated with the Mist storage facility. While the Mist facility is entirely located in Oregon, it's existence benefits Washington customers just as much as it does Oregon's. The lowered gas costs and improved system reliability that result from Mist have benefited customers equally system wide. Since Mist delivers gas throughout the heating season, it is classed as a seasonal peaking resource. Because of it's seasonal deliverability, part of Mist costs are allocated on the basis of seasonal sales loads. Seasonal loads are those occurring from October through February. Commodity specific plant elements such as non-recoverable (or cushion) gas, and expenses such as compressor fuel are allocated strictly on the basis of seasonal sales load. All other storage plant and expense items are allocated using incremental seasonal load, which is seasonal sales minus average non-seasonal or base load.

Q. What allocators were used for customer accounts, meter reading, uncollectibles, marketing and advertising?

A. Customer records costs are allocated on customers counts. Meter reading costs are allocated on meters. Uncollectible allocations derive from an analysis of uncollectible expenses by class of service. Customer assistance costs are directly assigned to residential customers. Advertising is allocated to all customers except larger industrials. Demonstration and selling is distributed across the schedules on the basis of revenue.

Q. How are depreciation expenses allocated?

A. Depreciation expense follows the respective plant allocations. Primary mains depreciation expense, for example, is allocated using the primary mains plant allocation factors.

Q. Can you point to any specific shortcomings in the allocation methodology?

A. Yes, there are two possible shortcomings. First, the method chosen to allocate cost of services, use of meter cost percentages, tends to benefit larger customers since it is probable that ratio of the cost of large volume services to small volume services will be greater than the ratio of the cost of larger meters to the cost of small meters. The preferred method would have been a specific study of service costs, but time constraints prevented us from undertaking such a study. Likewise, allocating meter reading costs to meters is less accurate than performing a dedicated study of meter reading costs by schedule, but such a study was not possible in the time at hand.

III. Study Results

Q. What results flow from the cost of service study?

A. The results of the study are summarized on *Exhibit No. ____(FPF-2)*. These show the company's income, expenses and rate of return in total and by rate schedule, both at present and proposed rates. The overall rate of return at current rates of 4.6% is shown on at line 15, titled "rate of return." The rate of return at proposed rates, is shown on *Exhibit No. ____(FPF-3)* as 8.97%. The corresponding rate of return for each rate schedule is shown on *Exhibit No. ____(FPF-2)* at line 15, and for proposed rates, the by schedule return is shown

on *Exhibit No. ____(FPF-3)* at line 10. The rate changes necessary to bring each schedule to an condition of equal return to investment are shown for test period, normalized rates at *Exhibit No. ____(FPF-2)* at line 17 and the revenues by schedule at equal percent of return is shown at line 18. The correlating results for proposed rates is shown on *Exhibit No. ____(FPF-3)* at lines 13 and 12, respectively.

Q. Please summarize the results shown on pages one and two of the exhibit.

A. The following table summarizes the COS study results for the various rate schedules.

Overall Rate of Return	**Current 4.6%**	**Proposed 8.87%**
Schedule 1	5.6%	11.9%
Schedule 2	3.8%	8.1%
Schedule 3	6.5%	11.02%
Schedule 4	6.0%	10.84%
Schedule 11	0.0%	0.12%
Schedule 21	10.8%	16.3%
Schedule 22	-6.2%	-4.4%
Schedule 23	13.2%	16.3%
Schedule 24	5.7%	11.63%
Schedule 27	-2.7%	-0.02%
Schedule 55	-10.8%	-9.84%
Schedule 90	2.2%	3.49%

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Overall Rate of Return	Current 4.6%	Proposed 8.87%
Schedule 91	2.3%	3.10%
Special Contracts	2.4%	2.4%

Q. What conclusions do you draw from the results described above?

A. The study suggests that at current rates, schedules 3, 4, 21 and 23 are yielding a return more than twenty-five percent above the average return, and could be moved closer to a proper level. Rate schedules 11, 22, 27, 55, 90 and 91 are generating returns more than twenty-five percent below the average and could properly shoulder more of the cost of service. Residential schedules 1, 2 and 24, while not at precisely the average return, do fall within the twenty-five percent band and are probably at about the proper level. The company's proposed rate spread moves many of the schedules in the proper direction. Specifically, the proposed rate spread moves all under-recovering schedules (such as schedules 11, 22, 27, 55, 90 and 91) closer to the proper level. The increases to schedules 3 and 4 are sufficiently small as to bring them back into the plus or minus twenty-five percent band.

Q. Has the company conducted any other cost studies for Washington service within the past five years?

A. Yes, it has. In the company's previous Washington general rate case, UG-000073, filed January 21, 2000, the company conducted a cost of service study using the same methodology as that used in the present study.

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Q. Does this conclude your direct testimony?

A. Yes, it does.

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