

1 **Q. Please state your name, business address and occupation.**

2 A. My name is Francis P. Ferguson. My business address is 220 N.W.
3 Second Avenue, Portland, Oregon 97209. I am Senior Rate Economist
4 for Northwest Natural Gas Company (NW Natural or company).

5 **Q. What are your duties and responsibilities as a Rate Economist?**

6 A. I assist in the design and preparation of the company's rate schedules and
7 other parts of its tariffs in Oregon and Washington and aid in the
8 interpretation of rules and regulations governing the application of the
9 tariffs established by regulatory authorities and the company.

10 **Q. Please describe your educational and professional background.**

11 A. I graduated from the University of Wisconsin in 1967 with an honor's B.A.
12 in Economics and memberships in Phi Beta Kappa and Phi Kappa Phi. In
13 1970, I received an M.A. in Economics, and, in 1971, a Ph.D. in
14 Economics, from the University of Wisconsin, Madison. For several years,
15 I taught economics at the university level. From 1977 to 1979, I was a
16 Research Officer, and subsequently a Senior Research Officer, in the New
17 Zealand Department of Statistics. I was responsible for the design and
18 implementation of new price indexes, and for the periodic revision of
19 existing indexes. Among the statistics with which I regularly worked were
20 New Zealand's General Price Index, Wholesale Price Index, Consumer
21 Price Index and Capital Goods Expenditure Index.

22 I joined the Rates & Regulatory Affairs Department of Northwest
23 Natural Gas Company in February, 1980.

1 **Q. What is the purpose of your testimony?**

2 A. The first purpose of my testimony will explain the process by which
3 Washington normalized residential and commercial volumes, as well as
4 industrial throughput, are repriced at end-of-test-period Washington rates.

5 **I. SYSTEM NORMALIZED VOLUMES REPRICING.**

6 **Q. Why are these volumes repriced at end of test period, Washington**
7 **rates?**

8 A. Repricing the volumes is done to eliminate the effects of temporary
9 increments in rates and to unambiguously present revenues and costs at
10 rates which are currently in effect. Normally, over the course of a test
11 period, rates will have changed one or more times. Historic revenues
12 reflect the temporary increments in rates, and contain the effects of sales
13 at the different rates that will have been in effect during the test period.
14 Without restating, the resulting historical revenues will not accurately
15 reflect current rate levels and gas costs.

16 **Q. How is this repricing done?**

17 A. For gas volumes that are customarily divided into classes of service (*e.g.*,
18 residential, commercial, industrial firm and industrial interruptible), it is
19 easiest to reprice them using average class prices. The first step, then, is
20 to compute these average class prices.

21 Since each class of service spans a number of different rate
22 schedules, the calculation of class prices requires that one determine what
23 fraction of the volumes in each class are on each of the various

1 schedules. Examining historical consumption data allows one to
2 determine the mix of schedule volumes and customers in each class of
3 service. Residential service volumes might, hypothetically, be distributed
4 two percent on Schedule 1, forty-five percent on Schedule 2, three percent
5 on Schedule 3, forty-seven percent on Schedule 24 and three percent on
6 Schedule 26. Knowing this, one can break normalized residential volumes
7 into their respective rate schedules and price them at current permanent
8 rates. This exercise is done for both the residential and commercial
9 classes of service.

10 The computation of class prices is shown at Exhibit 8 (FPF-
11 Exhibit/1). The tables show the rate schedule composition of both
12 residential and commercial service, and the distribution of consumption
13 across rate schedule blocks. This is shown under columns (a) through
14 (h). Columns (1) through (m) price the therms at their respective rate
15 schedule charges, and sum the results to total revenue by class of service
16 shown at column (m) at the line marked "total". The class price is listed
17 immediately beneath the total revenue for the class.

18 Industrial class prices are done differently. Because there are over
19 35,000 Washington residential and commercial customers, a by-customer
20 approach to pricing these classes is not practical. Industrial calculations
21 are far more tractable. Since there are fewer than 60 industrial customers
22 in Washington, it is practical to calculate restated revenues on a customer-
23 by-customer basis. Industrial class prices are done, therefore, by

1 recalculating each customer's monthly bills over the test period using
2 permanent industrial rates currently in effect on the appropriate rate
3 schedule. The industrial class prices are shown under column (d) of
4 Exhibit 6 (KSM-Exhibit/8), at lines 10 through 15.

5 The class prices shown under column (d) at Exhibit 6 (KSM-
6 Exhibit/5) are calculated using the methods described. The class prices,
7 volumes, and restated revenues shown under columns (d), (c) and (e),
8 rows 1 to 5 and 10 to 15 are:

9	<u>Class</u>	<u>Class Price</u>	<u>Normal Volumes</u>	<u>Normal Revenue</u>
10	Residential	\$0.61792	28,809,442	\$17,801,878
11	Commercial	\$0.59443	18,056,252	\$10,733,179
12	Ind. Firm	\$0.51610	2,567,836	\$1,325,264
13	Ind. Int.	\$0.39327	1,134,561	\$446,185
14	Incentive Sales	\$0.33282	3,746,482	\$1,246,903
15	Firm Trans.	\$0.0	0	\$0
16	Int. Trans.	\$0.0	0	\$0
17	Inc. Trans.	\$0.09773	5,540,274	\$541,456
18	Special Contract	\$0.5966	10,080,177	\$601,355
19	Schedule 90	\$0.13032	2,811,688	\$366,411

21
22 **Q. How are Special Contract revenues incorporated into the test year?**

23
24 A. NW Natural has customers in Washington that are served under special
25 contracts. These are agreements with specific customers who have
26 particular competitive options which need to be addressed. Some
27 customers, for example, are well-positioned to bypass NW Natural's
28 system, and connect directly to the interstate pipeline. Where this is the

1 case, the company will offer a bypass avoidance contract which will at
2 least match the economics the customer can achieve via bypass.

3 Since each contract is unique, each is included in the test year at
4 its own unique rate, changed only to remove temporary increments and to
5 reflect pertinent contract changes.

6 **Q. What is the effect of the repricing of normalized Washington volumes
7 at end of period Washington permanent rates?**

8 A. The results of the repricing are as follows:

<u>Class</u>	<u>Historical</u>	<u>Restated</u>	<u>Difference</u>
<u>Sales:</u>			
Residential	\$15,921,673	\$17,801,878	\$1,880,206
Commercial	\$9,821,218	\$10,733,179	\$911,960
Industrial Firm	\$1,980,717	\$1,325,264	\$655,453)
Industrial Inter.	\$412,117	\$446,185	\$34,068
Incentive	\$1,182,904	\$1,246,903	\$63,999
Unbilled Revenue	(\$158,155)	0	\$158,155
<u>Transportation:</u>			
Industrial Firm	\$0	\$0	\$0
Industrial Inter.	\$0	\$0	\$0
Incentive	\$542,225	\$541,456	(\$769)
Special Contract	\$609,304	\$601,355	(\$7,949)
Schedule 90	\$164,150	\$366,411	\$202,261
<u>Other Revenue</u>	<u>\$11,281</u>	<u>0</u>	<u>\$(11,281)</u>
Total Revenues	\$30,487,434	\$33,062,631	\$2,575,197
Total Gas Cost Change			\$2,055,204
Net Change in Margin Actual to Normalized			\$519,993

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II. SYSTEM REVENUE REQUIREMENTS.

Q. What is the second purpose of your testimony?

A. The second purpose of my testimony explains the method by which the company's proposed system revenue requirement is translated into Washington rates. These rates will be incorporated into the following
Tariff Sheets:

- | | |
|----------------------|-------------------------|
| Original Sheet 101.1 | Original Sheet T-103.1 |
| Original Sheet 102.1 | Original Sheet T-104.1 |
| Original Sheet 103.1 | Original Sheet T-1 05.1 |
| Original Sheet 104.1 | Original Sheet T-1 11.1 |
| Original Sheet 105.1 | Original Sheet T-121.1 |
| Original Sheet 110.1 | Original Sheet T-123.1 |
| Original Sheet 111.1 | |
| Original Sheet 119.1 | |
| Original Sheet 121.1 | |
| Original Sheet 122.1 | |
| Original Sheet 123.1 | |
| Original Sheet 124.1 | |
| Original Sheet 127.1 | |
| Original Sheet 154.1 | |
| Original Sheet 155.1 | |

Q. What is the proposed system revenue requirement and how is Washington's share determined?

A. The proposed Washington revenue requirement is \$6,204,367.

Q. How is the Washington revenue requirement translated into actual rates?

A. The revenue requirement is applied to rates on an equal percent of distribution margin basis. Distribution margin, in this case, differs from conventional margin which equals the permanent rate less the weighted average cost of gas (WACOG) of \$0.21089 per therm. The distribution

1 margin equals conventional margin minus the average per therm demand
2 charge of \$0.10621 per therm for firm service and \$0.01279 per therm for
3 interruptible. Washington permanent rates effective December 1, 1999
4 are shown in column (a) of the table shown in Exhibit 8 (FPF-Exhibit/2).
5 Column (d) shows the distribution margins per therm for each rate
6 schedule.

7 **Q. How is the equal percentage of distribution margin calculated?**

8 A. Each rate schedule's total distribution margin is calculated by multiplying
9 the respective distribution margin times the schedule's normalized
10 volumes (and the service charges times customer counts). This
11 procedure is shown under columns (b) through (p) of Exhibit 8 (FPF-
12 Exhibit/3). Column (b) lists the customer counts by schedule, column (c)
13 the volumes. Columns (d) through (h) show the therms in the various rate
14 blocks. Columns (i) through (m) show the calculation of the current
15 distribution margin by rate schedule block. Columns (n) and (o) show the
16 proposed distribution margin, (m) and the change in the distribution
17 margin (o) which results from the equal percent increase in present
18 margins. Present margins are multiplied by a common factor which is
19 increased until the total increase in margins equals the proposed general
20 rate case revenue increase. The total margin increase by schedule is
21 shown under column (o). The resulting rate increase in dollars per therm
22 for each schedule is shown under column (p).

1 The resulting rates are shown in Exhibit 8 (FPF-Exhibit/4). Column
2 (a) lists the rate schedule, columns (b) and (c) shows the present rates
3 and the terms in the blocks, respectively. The proposed rates are listed
4 under column (e). Current temporary increments are detailed under
5 columns (f) through (h). Proposed billing rates, incorporating the
6 temporary increments, appear at column (i).

7 **Q. Why is the revenue requirement spread on an equal percent of**
8 **distribution margin basis?**

9 A. The general rate case has, as its purpose, an increase in the LDC's
10 earnings. The efforts which the utility puts forward as a distribution
11 company have nothing to do with the costs paid to the interstate pipeline,
12 but rather to the investment in equipment, labor and materials used to
13 serve the distribution function. The distribution margin which has all
14 pipeline costs removed is, therefore, the appropriate measure of the
15 resources and effort that NW Natural applies to serve the requirements of
16 its various customers. When additional revenues need to be collected
17 from customers as a result of as yet uncompensated resource
18 commitments on their behalf, the distribution margin is a good measure of
19 each customer class's share of those resource commitments. Applying a
20 needed revenue increase proportionally to distribution margin is an
21 effective way of more accurately collecting those revenues from those
22 most active in generating that need.

1 **Q. What is the impact of the proposed revenue requirement and**
2 **spreading thereof?**

3 A. The distribution of the revenue requirement leads to the following rate
4 schedule increases as shown under column (d) of Exhibit 8 (FPF-
5 Exhibit/4):

6 Schedule 2 Residential Block 1 increases by \$0.11767/therm
7 Schedule 3 Commercial Block 1 increases by \$0.12323/therm
8 Schedule 4 Industrial Firm Block 1 increases by \$0.08967/therm
9 Schedule 21 High Load Factor Firm Block 1 increases by \$0.07994/therm
10 Schedule 23 Industrial Interruptible Block 1 increases by \$0.06948/therm
11 Schedule 24 Residential All Gas Block 1 increases by \$0.10572/therm

12
13 Schedule 26 Residential Air Conditioning is being eliminated by this
14 filing, and the customers on that schedule will be transferred
15 predominately to Schedule 2.

16 The General Rate Case increase translates in to the following
17 percentage increases by class of service shown in Exhibit 8 (FPF-
18 Exhibit/5):

19 Residential increases by 17.8 %
20 Commercial increases by 18.4%
21 Industrial Firm increases by 16.3%
22 Industrial Interruptible increases by 16.9%
23 Industrial Incentive increases by 8.6%

24
25 Exhibit 8 (FPF-Exhibit/6) shows the resulting change in selected
26 monthly bills. The increase in Schedule 2, Residential rates will increase

1 the average monthly residential bill of 64.6 therms by \$7.60 or 18%. The
2 Schedule 3 Commercial monthly average bill of 318.2 therms will rise by
3 \$39.21 or 18.3%.

4 **Q. Does the company allocate any rate increase to its special contract**
5 **customers?**

6 A. Yes. Special contract customers are allocated the same equal percentage
7 of margin increase as the company's other customers. Given the highly
8 competitive nature of this market, specific contract terms and the very thin
9 margin levels achievable, however, the company may find it necessary to
10 hold various of these contract rates constant and forego any collection of
11 the revenue increase assigned to those particular customers.

12 **Q. Are any Washington rates increased on other than an equal percent**
13 **of margin basis?**

14 A. No. While the company's Washington Schedule 54, "Emergency Service,"
15 is deemed to have no "normalized" volumes, the margin itself was
16 increased by the same percentage as other schedules. Similarly,
17 Schedule 91 was increased by the common percentage even though no
18 customers have yet taken service on that schedule.

19 **Q. Does this conclude your testimony?**

20 A. Yes, it does.