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

A. My name is Francis P. Ferguson. My business address is 220 N.W. Second Avenue, Portland, Oregon 97209-3991. I am Senior Rate Economist for NW Natural (company).

Q. Have you previously testified in this case?

A. Yes. My qualifications are presented in my testimony regarding rate spread in Exhibit 7 (FPF-Testimony/1).

Q. What are the purposes of a fully allocated cost of service study as a part of a general rate case?

A. In a general rate case a fully allocated cost of service study has two functions. One of these is to define the utility's revenue requirement; to compare, in other words, actual cost recovery to that level of revenues which would afford the utility a reasonable rate of return. The other function is to assign service costs to various customer classes in order to assure that the pattern of rates reflect the respective levels of cost. This second function is the more complex of the two. Total cost of service is fairly easy to compute as is the aggregate revenue needed to afford a reasonable rate of return. Where actual revenue falls short of the level deemed reasonable, a revenue increase is called for. The distribution of the revenue increase across various customer classes is what the allocated cost of service study is needed for.

Q. Has NW Natural submitted a fully allocated cost of in its current general rate case filing?

A. No, NW Natural (NW Natural or company) has not. Fully allocated cost of service studies are complex, time consuming and costly to undertake. For this reason, NW Natural has attempted to emulate such a study by comparing its rates to those of Washington gas utilities which have Commission-approved rates based upon their own, WUTC-approved cost of service studies.

Q. When you say that the company proposes to compare it's rates to other Washington gas utilities, do you mean the NW Natural is examining these various rates to see which company's rates are higher than the others?

A. No. In this rate comparison, it is rate spread rather than the level of rates which is of interest.[1] To compare NW Natural's rate spread with that of the other selected utilities, the study applies the selected utilities' rates to NW Natural customer counts and sales volumes. In order to eliminate the effect of varying gas and pipeline demand costs, these have been removed from each company's rates. Removing gas costs allows a comparison of margins, those revenues that flow to the utility to meet it's own service cost requirements.

Q. How is this comparison done?

A. NW Natural compares its rates spread to that of the other utilities by re-pricing the company's historic, Washington sales at each of the other

[1] The level of rates reflects total costs and sales, not the distribution of cost causation and collection across the various customers. The general rate case process treats the reasonableness of total costs. It is cost allocation that determines rate spread.

utilities' rates (less gas costs). Having done this, the study then compares the fraction of margin collected from each customer class by each of the utilities' rates. If NW Natural's own rates collect a similar fraction of margin from each customer class as do the other utilities' rates, then one can argue that NW Natural's rates reflect a cost allocation similar to the comparison utilities.

Q. How did NW Natural decide which of the other utilities' rate schedules to assign the company's customers and volumes to?

A. For purposes of the study, four classes of service are defined: residential, commercial, industrial firm and industrial interruptible. Residential customers were assigned to residential schedules, where possible. NW Natural has two primary residential rate schedules; Schedules 2 and 24. Puget Sound Energy (PSE) also has two residential schedules (23 and 24), though their actual charges seem to be identical. Avista does not appear to have an exclusively residential rate, though schedule 101 would appear to match the needs of most residential customers. Schedules 111 and 121 might also attract residential customers, though their $87 and $213 monthly minimum bills (respectively) could prove unattractive to many. In assigning NW Natural's historic residential customer counts and sales volumes to PSE and Avista rates it was assumed that all customers took service on PSE Schedule 23 and Avista Schedule 101.[2]

[2] While some increased accuracy would have resulted from assigning some residential load to Avista's Schedules 111 and 121, this would have required customer-specific residential usage data which, for 33,000 individual customers, would have proved quite difficult to do.

Commercial and industrial customer assignments were a bit more complex.

NW Natural, PSE and Avista all offer a number of rate schedule options for the commercial and industrial user. A customer's choice of schedule reflects individual usage both by month and by year, as well as seasonal consumption patterns. These customers also need to choose whether they want firm or interruptible service, and whether they want sales or transportation. Assigning historic sales to these contending rate offerings requires individual use data. Fortunately, the number of NW Natural industrial and commercial customers in Washington is fairly modest: about 3,600. With modern computers, this size analysis is quite practical. Each customer was allowed to "choose" the rate schedule that afforded the lowest annual margin payment. Those customers who were firm on NW Natural's rates were forced to choose firm service on PSE and Avista rates, though all were free to choose transportation where it was available.

For Avista rates and then for PSE rates, a Visual Basic macro in Excel took a year of individual customer usage data (by month) for each customer and calculated an annual bill for each rate schedule. The customer was assigned to the rate schedule that afforded the lowest annual bill.[3] When completed, it was possible to calculate total margin for

[3] Data by customer, by month, for commercial and industrial users was readily available for the year ended December 31, 1998. These are slightly different than the figures for the year ended December, 1999. Still, customer counts and volumes were quite similar to the 1999 figures, but

NW Natural sales volumes at PSE and Avista rates, and to compare the fraction of margin collected from each customer class. A proper comparison to NW Natural's rates, however, required one additional step.

The allocation of NW Natural's commercial and industrial customers to PSE and Avista rate schedules assumed that each customer chose the least costly service. Previous studies of NW Natural's customers and rates suggests, however, that customers do not always choose the lowest cost rate schedules. This could be the result of simple inertia, or of ignorance or of other unknown preferences, but it does occur. By assuming that NW Natural's customers all select the cheapest service when moving to PSE and Avista rates tends to understate probable revenues. One solution would be to apply an "inertia" factor to the calculated PSE and Avista margins, but that presumes a knowledge, which we do not have, of the specific "rate inertia" effect. A more workable approach is to re-assign existing NW Natural customers to various NW Natural rates by using the Visual Basic macro to guide them to the lowest-cost NW Natural rate choices.

Q. What did the rate comparison reveal?

A. The re-pricing of NW Natural volumes at PSE and Avista rates yielded the flowing comparison of the percentage of margin collected by class of service:

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slightly smaller (1998 volumes were 97% of 1999 volumes). Since detailed volumes for 1999

	NW Natural	PSE	Avista
Residential	53.5%	58.3%	62.9%
Commercial	28.3%	29.8%	23.1%
Industrial Firm	6.5%	7.8%	5.2%
Industrial Interruptible	11.7%	8.5%	8.8%
Total	100.0%	100.0%	100.0%

(These figures are shown graphically in Exhibit 10 (FPF-Exhibit/1).

The fraction of margin collected by class is quite similar between the three set of utility rates, but remarkably so between NW Natural and PSE rates. This is the more significant as PSE has fairly recently completed a thoroughly reviewed cost of service study in Washington. Avista's rather higher residential share might have been at least somewhat lower if some of the larger residential customers had been assigned to schedules 111 or 121.

Q. What does NW Natural conclude from the rate comparison?

A. The overall impression created by the study is that NW Natural's rates are reasonably in accord with the cost of service allocations which drive the two other gas utilities' rates. NW Natural's rate spread compares favorably with utilities that have completed carefully reviewed, fully allocated cost studies fairly recently. Because NW Natural's rates do not differ significantly from these utilities in their pattern of margin collection, the company concludes that a fully allocated cost of service study would

were not readily at hand, the 1998 volumes were used, and the results scaled up to 1999 levels.

not produce significantly different results, and therefore seeks a waiver of any requirements to undertake such a study in this filing.

Q. Does this conclude your testimony?

A. Yes, it does.