ORDER NO. 99-697

ENTERED NOV 12 1999

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

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In the Matter of the Application of	)	
NORTHWEST NATURAL GAS	)	ORDER
COMPANY for a General Rate Revision.	)	

SUMMARY

This order approves new rate schedules for Northwest Natural Gas Company, d.b.a. Northwest Natural (NW Natural). Under the new schedules, NW Natural's rates increase approximately $246,000, or 0.1 percent in Oregon revenues. NW Natural's original filing sought an increase of almost $15 million, or 3.8 percent. The rate increase is the first overall revenue requirement based increase approved by the Commission for NW Natural in over ten years. A results of operations spreadsheet is attached to this order as Appendix A.

To more properly align rates with actual costs of service, the Commission adopts a rate spread that assigns a greater percentage of costs to residential customers. The rate spread adopted for the new schedules will result in decreases in rates for certain commercial and large industrial customers, and an increase of approximately 1.3 percent for residential customers. While this rate spread methodology will not eliminate the current rate disparity, it will achieve a more balanced distribution of the costs of service without subjecting residential customers to rate shock. A summary of the rate spread methodology adopted in this case is attached as Appendix B.

INTRODUCTION

Procedural Background

On October 16, 1998, NW Natural filed Advice No. 98-20, an application for a general rate increase of $14,739,911, or 3.8 percent, in Oregon revenues. NW Natural's proposed price schedules are based on an adjusted 1998 test year, an average system rate base, and a proposed return on equity of 11.25 percent.

On November 17, 1998, we found good and sufficient cause to investigate the propriety and reasonableness of the rates pursuant to ORS 757.210 and 757.215. In Order No. 98-437, we ordered the rates be suspended for a period of six months pending investigation. In Order

No. 99-343, we ordered the further suspension of Advice No. 98-20. Subsequently, NW Natural waived the statutory suspension period and agreed to a suspension of the rates through November 12, 1999.

Prehearing Conference

On November 6, 1998, Michael Grant, an Administrative Law Judge, held a prehearing conference in Salem, Oregon, to identify parties and interested persons and to adopt a procedural schedule. The following participated as parties to this proceeding: NW Natural, the Northwest Industrial Gas Users (NWIGU), Portland General Electric (PGE), Citizens' Utility Board (CUB), and the Commission Staff (Staff).

Issues

After a review of NW Natural's tariff filing, Staff proposed 23 adjustments. Staff designated each adjustment numerically, with each preceded by the letter S. Staff summarized its proposed adjustments in exhibit Staff/102. We utilize Staff's numbering system in our discussion of the issues.

Stipulations

On July 19, 1999, NW Natural and Staff submitted a stipulation intended to resolve ratemaking treatment and other issues related to the company's CIS investment (Issue S-18), subject to our approval. The stipulation is attached to this order as Appendix C. The stipulation is supported by direct, rebuttal, and surrebuttal testimony previously filed by both NW Natural and Staff on this issue, as well as the joint testimony of Bruce R. DeBolt.

On July 28, 1999, NW Natural and Staff submitted a second stipulation intended to resolve 16 adjustments proposed by Staff, subject to our approval. The stipulation is attached as Appendix D. The stipulation is supported by direct and rebuttal testimony previously filed by both NW Natural and Staff on the various issues.

Both Stipulations and supporting testimony were entered into the record of this proceeding as evidence pursuant to OAR 860-014-0045(1).

Evidentiary Hearings

On July 7, 15, August 18, 20, and 23, 1999, Michael Grant, an Administrative Law Judge, held hearings in Salem, Oregon. During those proceedings, the following appearances were entered: Susan Ackerman, Susan Bergles, James Paine, Carla Kelley, and Marcus Wood, attorneys, appeared on behalf of NW Natural; Paul Graham, Assistant Attorney General, appeared on behalf of Staff; Edward Finklea, attorney, appeared on behalf of the Northwest

Industrial Gas Users (NWIGU); and Denise Saunders, attorney, appeared on behalf of Portland General Electric Company (PGE).

Based on the record in these proceedings, we make the following:

FINDINGS OF FACT AND CONCLUSIONS OF LAW

I. APPLICABLE LAW

In this rate case, the Commission's function involves two primary steps. First, we must determine how much revenue NW Natural is entitled to receive. A utility's revenue requirement is determined on the basis of the utility's costs. *See, e.g., American Can Co. v. Lobdell,* 55 Or App 451, 454-55, *rev den* 293 Or 190 (1982). Second, we must allocate the revenue requirement among the utility's customer classes.

In the revenue requirement phase of a rate case, we must determine: (1) the gross utility revenues; (2) the utility's operating expenses to provide utility service; (3) the rate base on which a return should be earned; and (4) the rate of return to be applied to the rate base to establish the return to which the stockholders of the utility are reasonably entitled. *See Pacific Northwest Bell Tel. Co. v. Sabin*, 21 Or App 200, 205 n. 4, *rev den* (1975). The purpose of answering these questions is to determine the utility's reasonable costs of providing service and expected revenues so the Commission can set utility rates at just and reasonable levels.

As the petitioner in this rate case, NW Natural has the burden of proof on all issues. ORS 757.210 provides that, in a rate case, "the utility shall bear the burden of showing that the rate or schedule of rates proposed to be established or increased or changed is just and reasonable." Thus, NW Natural must submit evidence showing that its proposed rates are just and reasonable. Once the company has presented its evidence, the burden of going forward then shifts to the party or parties who oppose including the costs in the utility's revenue requirement. Staff or an intervenor, if it opposes the utility's claimed costs, may in turn show that the costs are not reasonable.

II. STIPULATED ISSUES

In the July 19th stipulation covering Issue S-18: CIS, NW Natural, and Staff agree to a gross CIS plant amount for ratemaking purposes of $37,119,497, an accumulated depreciation balance of $4,819,291, and an annual depreciation expense of $2,819,839. NWIGU and the Citizens Utility Board (CUB) are not parties to the stipulation and oppose it. Accordingly, we treat Issue S-18: CIS as a contested issue and address it with other issues below.

The July 28th Stipulation is intended to resolve 16 adjustments proposed by Staff: S-2: Repricing Effect; S-3: Weather Normalization; S-4: Transportation Margins; S-5: Other Revenues; S-6: Federal Income and State Excise Tax; S-8: Memberships, Dues and Donation; S-10: Property Tax Expenses; S-11: Uncollectible Expenses; S-12: Corporate Communications, Governmental and Public Relations; S-14: Workforce Adjustment; S-16: Payroll Overhead Adjustment; S-17: Mist Adjustment; S-19: Y2K Expenditures; S-20: Insurance Cost; S-21: Low Pressure Conversion Retirement; and S-22: Capital Stock Expense. It also clarifies certain matters relating to revenue sensitive factors.

NW Natural and Staff believe that the ratemaking adjustments contained in the stipulation are supported in the evidence and are reasonable for purposes of this proceeding. NWIGU has reviewed the stipulations and, while not a signatory, does not object to any portion of the stipulation. No other party has filed any objection to the stipulation.

We have reviewed the July 28th Stipulation and find the proposed adjustments contained therein to be reasonable. Accordingly, the stipulation, set forth in Appendix D, is adopted.

III. CONTESTED ISSUES

The July 28th Stipulation did not address eight issues identified by Staff. Those issues are: S-0: Rate of Return; S-00: Postage; S-1: Demand Charge Adjustment; S-7: Advertising Expense; S-9: Sales and Marketing Expense; S-13: Wage and Salary; S-15: Bonus Adjustment; and S-23: Rate Spread and Rate Design. To this list of contested issues we add Issue S-18: CIS, the subject of the July 19th stipulation. We address these nine issues separately in numerical order.

ISSUE S-0: RATE OF RETURN

Summary of Issue

In *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 591, 603 (1944), the United States Supreme Court established the standard for determining cost of capital allowance:

> "[T]he return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital[.]

To determine a rate of return on rate base that is appropriate for NW Natural, we must first identify the costs and components of the company's capital structure. The cost of each capital component is estimated and weighted according to its percentage of total capitalization. These weighted costs of capital are combined to calculate NW Natural's overall cost of capital, which becomes the allowed rate of return on rate base.

A. Capital Structure

Positions of the Parties

In its filing, NW Natural presented the following capital structure:

Capital Source	**Ratio**
Long-Term Debt	45.25%
Preferred Stock	4.55%
Common Equity	50.2%
Total	100%

Staff and NWIGU each challenge one aspect of NW Natural's proposed capital structure. Staff recommends that the Commission deduct $38,513,127 from common equity to remove NW Natural's investment in non-regulated subsidiaries. Staff notes that the reported equity of the company includes its investment in NNG Financial Corp. and Canor Energy Ltd. Staff contends that the assets of these non-regulated companies do not belong in the utility's rate base and equity investment in these assets should be removed from the utility capital structure. Staff's recommendation would reduce the percentage of common equity from 50.2 percent to 47.71 percent.

NWIGU contends that the Commission should include short-term debt in NW Natural's capital structure. NWIGU states that the company regularly uses short-term debt to finance working capital and for other general corporate purposes. NWIGU believes that ratepayers should realize some of the benefits of inexpensive short-term debt, which NW Natural regularly uses to finance investments that are added to ratebase.

In response to Staff, NW Natural contends that, for ratemaking purposes, the Commission should use the company's actual capital structure rather than what it terms an adjusted hypothetical structure. It states that the assets of the unregulated subsidiaries are not included in rate base and argues that the company's utility operations on a stand-alone basis would not require a lower equity ratio than that maintained by the company as a whole. NW Natural also points out that, because the equity investments in its subsidiaries are so small, Standard and Poor's has observed that "NW Natural's credit quality is not materially affected by these operations."

With regard to NWIGU's proposal, NW Natural states that short-term debt is not used to finance long-term assets included in the company's rate base. Rather, NW Natural explains, short-term debt is used to handle intra-month and inter-seasonal variations of cash requirements, as well as to finance construction work in progress (CWIP) that are not included in rate base. Because short-term debt is already imputed to calculate the allowance for funds used during construction (AFUDC), NW Natural contends that including the same debt in the company's capital structure would constitute a double counting of the same capital.

Commission Resolution

We adopt Staff's proposal to remove NW Natural's equity investment in non-regulated subsidiaries from the common equity of the company's regulated operations. As Staff notes, NW Natural already earns a profit on its investments in these non-regulated operations. NW Natural should not be allowed to receive an additional return on equity for these investments through the rates of its utility operations. Moreover, the fact that the equity in question is parent company equity does not mean that it is equity supporting utility operations. The exclusion of NW Natural's subsidiary expenses from its capital structure is consistent with general ratemaking principles.

We decline, however, to adopt NWIGU's proposal to include short-term debt in the company's capital structure. Although the company regularly employs short-term capital, we are not persuaded that short-term debt should be treated as a form of permanent capital by including an amount in the company's capital structure for ratemaking purposes. Furthermore, NW Natural has established that customers already receive benefits from the company's use of short-term debt as bridge capital for investment in rate base assets. For example, NW Natural notes that it used the short-term interest rate to calculate the AFUDC of the Mist Storage Project. As a result, the project went into the rate base at a lower cost than if the company had financed in advance using long-term debt or common stock.

B. Cost of Debt and Preferred Stock

The parties do not dispute NW Natural's cost of debt and cost of preferred stock. NW Natural and Staff agree that the authorized cost of debt should be 7.75 percent and that the authorized cost of preferred stock should be 7.06 percent. We agree with the parties' calculations and adopt them.

C. Cost of Equity

NW Natural contends that it should be allowed to earn a return on equity (ROE) of 11.25 percent. NW Natural emphasizes that this return is commensurate with returns on investments in other enterprises having similar risks and provides a return sufficient for the company to maintain financial integrity. NW Natural adds that an ROE of 11.25 percent is

supported by two methodologies used to estimate cost of equity and is consistent with the equity return authorized by the Commission in its last rate case, as adjusted for changes in the capital markets. Staff and NWIGU contend that NW Natural's ROE request is excessive. Staff recommends an ROE of 8.7 percent, while NWIGU recommends an ROE range of 8.75 to 9.34 percent.

The differences in the parties' recommended rates of return result from, among other things, the use of different methodologies for determining the appropriate return on equity and disagreement on a number of issues relating to the variables used in the methodologies. In estimating cost of equity, NW Natural and Staff primarily rely on discounted cash flow (DCF) and capital asset pricing model (CAPM) analyses. NWIGU also used a DCF analysis and an inflation adjusted risk premium method. To understand the parties' recommendations, we begin with a discussion of these primary methodologies.

Methodologies

1. Discounted Cash Flow (DCF)

The DCF model is a stock valuation approach to estimating the cost of equity. The underlying theory to this model maintains that the firm's current stock price represents the sum of future dividends, discounted to the present. The rate of return on common equity under the DCF model is the rate that compensates investors for risk and time, assuming that the security is efficiently priced. To calculate an investor's expected return on equity, the DCF formula uses the current stock price, the expected dividends in the coming year, and the expected growth rate of future dividends.

In this case, the parties used two DCF models. The basic, single growth DCF formula assumes a constant growth rate in future dividends. It is generally expressed as:

$$k_e \text{ (cost of equity)} = \frac{D_1 \text{ (dividends per share)}}{P_0 \text{ (current stock price)}} + g \text{ (future growth)}$$

The multi-stage, or complex DCF formula, assumes that growth rates may change over time. That formula is expressed as:

$$P_0 \text{ (current stock price)} = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \ldots + \frac{D_n}{(1+k)^n}$$

2. Capital Asset Pricing Model

Another method of estimating cost of equity is using a CAPM analysis. The CAPM is a risk premium analysis that calculates the expected equity return by adding a risk premium to a "risk free" rate of return. Risk is represented by the term "beta," which measures the stock's volatility relative to the market as a whole. The beta for the market is equal to one. Therefore, a stock with a beta greater than one is more risky than the average market stock, while a stock with a beta of less than one is less risky than the average market stock. The risk premium is generally calculated by multiplying the company's beta by the difference between the overall market risk premium and the risk free rate. The formula is generally stated as follows:

K_e (cost of equity) = Risk-free rate + beta (market risk premium)

3. Inflation Adjusted Risk Premium

The risk premium method recognizes that common equity capital is more risky than debt, and that investors correspondingly require higher returns on stocks than bonds to compensate for that additional risk. Therefore, under this method, the required rate of return is typically determined by the current yield to maturity on bonds plus a risk premium. The risk premium, which reflects the higher returns required by investors for investing in stocks, is commonly measured on the basis of historical differences between the cost of equity and the cost of debt.

In this proceeding, NWIGU uses a modified risk premium method. NWIGU believes that, because the risk premium has declined significantly in recent years, the use of historic differences between stocks and bonds would result in unreasonably high estimates for return on equity. Accordingly, NWIGU believes that cost of equity can be reasonably calculated by adding the historic inflation premium to investor's current expectation for inflation. NWIGU contends that the stability of the historic inflation premium is a more reliable measure than a historically based bond interest risk premium.

Positions of the Parties

NW Natural

NW Natural's recommendations on cost of capital are based on the testimony of its expert witness Dr. Thomas Zepp, an economist and Vice President of Utility Resources, Inc. Dr. Zepp presented ROE estimates using a multi-stage DCF model, several CAPM models, and a comparison of actual determinations of required equity returns in other jurisdictions.

1. DCF analysis

Dr. Zepp applied the multi-stage DCF model to a sample of 17 local distribution companies (LDCs). Dr. Zepp contends that a multi-stage DCF improves on the implicit assumption in the single-stage DCF that dividends grow indefinitely at the same rate. His dividend growth is separated into three stages. Dr. Zepp explains that the multi-stage DCF assumes, more realistically, that there can be one rate of growth expected for the immediate future (next year), another rate of growth over a short-term period extending three to five years in the future, and finally, a stabilized "terminal" growth rate over the indefinite future.

Dr. Zepp's first stage growth rate is contained in the yield component (D_1/P_0). His yield term uses stock prices as of two dates, February 12, 1999, and February 26, 1999, and Value Line forecasts of dividends per share (DPS) for the next year. These two stock prices form a "top" and "bottom" yield range. His second stage growth rate is comprised of Value Line forecasts of DPS growth for the period 2001 to 2003.

To determine terminal growth, Dr. Zepp used the formula $g^t = BR + VS + Z$. Dr. Zepp explains that an investor expects long-term growth from three sources. The first source of growth is from the earnings a company will retain and invest in the business over the long term rather than paying out dividends. Retained earnings add to the company's book value, and the investor has the right to expect that these additions will yield returns in the future. This growth is represented in the term BR, in which B represents the retained earnings and R represents the rate of return investors expect to earn on the company's book value.

The second source of growth in dividends is from the capital the company will raise through the sale of common stock over book value. This growth is represented in the term VS, where V is the portion of the proceeds from future stock expected to exceed book value, and S is the growth rate of the stock outstanding.

The third source of growth in dividends, according to Dr. Zepp, is from the potential that retained earnings will grow at an accelerated rate if growth in earnings per share (EPS) exceeds growth in DPS. This additional growth, represented as Z, measures the investor's expectation of dividend growth to the extent that earnings grow at a higher rate.

Using his multi-stage DCF, Dr. Zepp calculated a cost of equity range of 11.69 to 11.85 percent for the typical LDC, and 11.46 to 12.02 percent for NW Natural. In rebuttal testimony, Dr. Zepp also updated his calculations to use Staff's spot dividend yield and dividend growth data from the June 1999 Value Line reports. Using these updates, Dr. Zepp reports DCF return requirements of 11.55 percent for the comparable LDCs, and 11.47 percent for NW Natural.

2. CAPM analysis

At the outset, Dr. Zepp recommends that the Commission reconsider its use of the traditional CAPM methodology to estimate cost of equity. Dr. Zepp believes that CAPM cannot reliably project the specific required returns for individual companies due to difficulties in accurately determining the various input assumptions. First, Dr. Zepp expresses concern over the selection of a risk-free rate. He contends that, instead of relying on published intermediate-term U.S. Treasury security rates, the Commission should use long-term U.S. Treasury rate forecasts. Second, Dr. Zepp is concerned about the uncertainty of market risk premium estimates. He believes that the S&P 500 index is a more appropriate portfolio of assets to use as a proxy for the theoretical market portfolio than is the NYSE/AMEX/NASDAQ portfolio. Dr. Zepp also questions the validity of beta estimates, noting that they are difficult to measure or to project with any degree of confidence.

In light of these concerns, Dr. Zepp provided cost of equity estimates using the following equation:

Expected return = Risk-free rate + company specific risk premium

Under his approach, Dr. Zepp used two alternative methods to estimate company-specific risk premiums that he combines with a risk-free rate determined by forecasts of yields on 30-year Treasuries. In his primary analysis, Dr. Zepp calculated 1983-1997 annual equity cost estimates for eight LDCs by use of a historic DCF formulation. The corresponding annual yield on 30-year Treasury bonds is subtracted from the annual DCF cost rates to estimate annual LDC risk premiums, which he averages for the time periods 1983-1997 and 1986-1997. He combines these with the range of forecasts for 30-year Treasury bond yields (4.8 percent and 6.0 percent) to estimate a cost of equity range of 10.82 to 12.02 percent.

Dr. Zepp's second methodology uses ROEs authorized by regulatory commissions as an estimate of the cost of equity facing LDCs at different points in time. He compiled 419 decisions from the years 1983, 1991, and 1993-1998, then subtracted 30-year risk-free rates lagged two months from the order date to develop a series of risk premia. Dr. Zepp then regressed his risk premia on the 30-year rates to estimate a cost of equity range of 10.17 to 11.03 percent.

If the Commission elects to use the traditional CAPM formula, Dr. Zepp recommends the methodology used by the Water Division Staff of the California Public Utility Commission. Under this approach, Dr. Zepp again adopts a forecast of the 30-year Treasury rate for his risk-free rate. For a measure of market risk premium, he uses an Ibbotson Associates estimate of the arithmetic average risk premium of large company stocks minus long-term government bonds of 7.8 percent. His beta is a beta calculated by Value Line for NW Natural. This produces an equity cost range of 10.1 to 10.5 percent.

3. ROEs Authorized by other Regulatory Commissions

In addition to his DCF and CAPM estimates, Dr. Zepp relies on ROEs authorized by other regulatory commissions to support a cost of common equity estimate. Citing a compilation of recent common equity return decisions published in *Public Utilities Fortnightly*, Dr. Zepp notes that, except for two unique decisions, no authorized common equity return was less than 10 percent. Excluding the highest and lowest three authorized returns, Dr. Zepp points out that the range for decisions issued in 1997 and 1998 was 10.7 to 12.5 percent. Accordingly, Dr. Zepp contends that NW Natural should be awarded a common equity return within this range.

Staff

Staff's estimates of the rate of return on common equity is based on the testimony of its expert witness, John S. Thornton, Jr., a financial economist with the Commission. Mr. Thornton used the DCF model and CAPM analysis to estimate NW Natural's cost of equity.

1. DCF Model

Like Dr. Zepp, Mr. Thornton applied a multi-stage DCF model to a sample of 17 LDCs and to NW Natural. Mr. Thornton separated dividend growth into three stages: (1) short to near term; (2) near to long term; and (3) long term.

To compute his yield component, Mr. Thornton used reported stock prices for June 2, 1999, and Value Line forecasts of DPS for the next year. Mr. Thornton's first stage growth (short to near term) used Value Line forecasts of DPS growth from 2001-2004. He defined his second stage growth (near to long term) as the years 2005 to 2008, and estimated it as a transition period between short-term and long-term growth. He identified the third stage growth as the year 2009 onwards and considered individually five different growth rates. Those five methods are Value Line's implied future dividend growth by company for 1998 to 2000-2004, and historical sample averages of dividends, earnings, book value, and internal growth. Under this methodology, Mr. Thornton's DCF estimates range from 7.5 to 8.5 percent for the industry, and 7.3 to 8.8 percent for NW Natural.

As a sensitivity analysis, Mr. Thornton also calculated a multi-stage DCF using long-term growth rates from several "economy-wide forecasts." In this analysis, Mr. Thornton used DRI[1] forecasts of economy-wide growth. Mr. Thornton used five forecasts for the period from 2009 to 2023: (1) DRI Corporate dividend growth; (2) DRI S&P 500 earnings per share growth; (3) DRI gross domestic product growth (trend); (4) DRI gross domestic product growth (optimistic); and (5) DRI gross domestic product growth (pessimistic). Mr. Thornton's DCF estimates using

[1] DRI is a professional forecasting service to which the State of Oregon subscribes.

economy-wide forecasts average of 10.2 percent for the LDC industry, and 10.3 percent for NW Natural.

2. CAPM Model

Mr. Thornton's CAPM analysis relies on the traditional formula set forth above. He begins with an assumption that investors' holding periods are intermediate in length and calculates a risk-free rate based on an average of intermediate-term Treasury notes. Averaging the yields-to-maturity of the five-, seven-, and ten-year U.S. Treasury securities quoted in the June 3, 1999 edition of the Wall Street Journal, Mr. Thornton calculated a rate of 5.98 percent. For a risk-free rate, Mr. Thornton corrected this figure downwards to 5.9 percent for use in a average-of-period investment base to be consistent with the average rate base NW Natural proposed in this case.

Mr. Thornton then estimates a beta for NW Natural of 0.46. He first calculated a "raw" beta for the company of 0.43 by "regressing" NW Natural's stock returns on the risk-free rate plus a combined portfolio of NYSE/AMEX/NASDAQ stock returns minus a risk-free rate proxy. Mr. Thornton then adjusted the raw beta towards the average beta of his sample group of LDCs. Using a means square error test to determine the optimal weighting formula, Mr. Thornton weighted the raw beta 60 percent towards the LDC industry average beta of 0.48, to arrive at a final beta estimate of 0.46.

To estimate the expected market risk premium, Mr. Thornton used the long-run average market risk premium. Mr. Thornton's method assumes that the average market risk premium over a large number of historical intermediate term holding periods is a reasonable estimate of the expected intermediate term market risk premium. He estimates the average historical intermediate term market risk premium by calculating the difference between expected compounded returns on the market portfolio and the compounded returns on the risk free asset over an intermediate period. The difference is then annualized.

Mr. Thornton took 876 monthly returns from 1926 to 1998 for all NYSE/AMEX/NASDAQ stocks and grouped them into 12 sets of 73-month holding periods to reflect a compounding return. He made the same calculation for intermediate term U.S. Treasury securities rates. Mr. Thornton then calculated the average rate of return difference between holding the market portfolio and holding the risk-free rate over the intermediate term. He averaged the market risk premium estimates for each of the holding periods, then took the 73rd root to calculate the geometric monthly average market risk premium. Finally, he annualized the monthly risk premium to produce a nominal annual average market risk premium.

Utilizing stock and treasury rate data from 1926 to 1998, Mr. Thornton determines a range of historical market-risk premium of 6.6 to 7.0 percent. Inserting these figures into the CAPM formula, Thornton estimates a range of cost of capital for NW Natural from 8.9 to 9.1 percent.

NWIGU

NWIGU's ROE recommendations are based on the testimony of its expert witness, James A. Rothschild, President of Rothschild Financial Consulting. Mr. Rothschild used a simplified and complex DCF model, as well as an inflation adjusted risk premium analysis, to estimate NW Natural's cost of equity

1. DCF Model

Mr. Rothschild first performed a single stage DCF, or "simplified DCF" using a dividend yield based on stock prices on May 31, 1999, and also an average price for the year ended May 31, 1999. He multiplied the dividend yield by half the future growth rate to reflect dividend increases during the coming year.

To calculate a growth rate in his simplified DCF, Mr. Rothschild used a BR + VS formula similar to that used by Dr. Zepp. Rothschild, however, did not also include the growth factor Z. Mr. Rothschild performed these DCF calculations using three groups of companies: (1) Value Line Distribution Companies; (2) the 17 LDCs used by Zepp and Thornton, and (3) NW Natural. His simplified DCF results produce a cost of equity range of 8.80 to 8.82 percent.

Mr. Rothschild also used a multi-stage DCF. For his first stage growth under this formula, he used Value Line's forecast of EPS and DPS for the years 1999 to 2002. He determined second stage earnings by multiplying the future book value per share by the future expected return on book equity used in his simplified DCF model. Mr. Rothschild's complex DCF results produce a cost of equity range of 9.33 to 9.34 percent.

2. Risk Premium

As noted above, Mr. Rothschild also uses a modified risk premium approach to calculate cost of equity. Under this method, Mr. Rothschild believes that a reasonable estimate of NW Natural's cost of equity may be obtained by adding the historic inflation premium to investors' current expectation for inflation. Mr. Rothschild first estimates the expected rate of inflation to be 2.0 percent by comparing the yields on Treasury bonds with inflation-indexed Treasury bonds. He then adds this 2.0 percent factor to a 6.6 to 7.2 percent historic return on common stocks net of inflation to get a "inflation risk premium cost of equity for a company of average risk."

To apply this result to NW Natural, Mr. Rothschild adjusts the return to account for the lower than average market-risk inherent in an investment in gas distribution utility stocks. To accomplish this, he subtracts the 4.6 percent yield on 90-day Treasury bills from the historic return on common stocks. He then multiplies this figure by a Value Line beta of 0.63 for LDCs to derive a 1.26 to 1.64 percent "risk adjusted equity premium." Finally, Mr. Rothschild adds this risk adjusted equity premium back to the 6.6 to 7.2 percent range of historic returns on common stocks to derive a 7.86 to 8.84 percent risk premium for LDCs. The mid-point of this range is 8.35 percent.

Disputed Issues

We first address certain issues raised by the parties' analyses of the cost of common equity. While all three parties generally used the same analytical tools, the variation of their recommendations is significant. The differences in the parties' DCF estimates primarily result from the use of different methods to calculate dividend growth and retention ratios. The parties' CAPM estimates differ considerably due to different input assumptions and methodologies used for calculating risk premium and the use of different sources to determine betas. We will separately address issues relating to DCF and CAPM estimates, as well as the other cost of capital methodologies presented.

1. DCF Estimates

Although the parties generally agree to the basic theory of the DCF formula, the witnesses differed on a number of issues relating to the variables used under this method. As stated above, the DCF model requires identification of: (1) dividends expected over the next year, (2) the current stock price, and (3) future dividend growth rates. The first two variables are used to calculate the dividend yield component in the DCF formula. The third variable, future dividend growth, requires an estimate of both short-term and long-term dividend growth.

a. Dividend Yield

Staff contends that the Commission should reject Dr. Zepp's dividend yield calculations because he used stock prices and expected dividends for two different dates (February 12 and 26, 1999). In prior cases, we have generally relied on the use of the most current spot price for the P_0 term in the DCF model. As we explained in Order No. 94-336:

> Conceptually, the stock price to use is the current price of the security at the time of estimating the cost of equity. In an efficient market, the current stock price provides the best information of future prices. An efficient market implies that prices adjust instantaneously to the arrival of new information. Therefore, current

prices reflect the fundamental economic value of the security. *See also* Order Nos. 97-171 and 94-336

In response, NW Natural requests the Commission to reexamine this policy. While recognizing the efficient market assumption, NW Natural states that it is impossible to know what affect daily changes in earnings or growth assumptions, merger rumors, or other factors may have on a stock price for a given day. Because equity returns may remain in effect for several years, NW Natural contends they should not be determined based on a particular day's stock price. Therefore, it believes that the use of an average dividend yield over a several month period might bring greater stability to equity return forecasts.

This Commission has used a short-term average stock price in at least one prior case. In Order No. 87-406, the Commission used a ten-day average stock price due to wide fluctuations in the utility's stock.[2] In this case, however, there is no evidence of price aberrations to warrant consideration of an averaged stock price for use in the DCF model. Therefore, we conclude that Staff's method of calculating stock price based on spot prices is reasonable and adopt it. Accordingly, we discard Dr. Zepp's DCF estimates derived through the use of multiple stock prices.

Staff next criticizes Dr. Zepp's dividend yield component because he failed to update his stock price and growth data for more recently available information. As NW Natural notes, however, Dr. Zepp did provide an updated DCF estimate in his rebuttal testimony. As stated above, Dr. Zepp updated each growth projection to match the forecasts reported in the June 1999 Value Line report. Moreover, his updated results included the use of Mr. Thornton's spot dividend yield.

b. Future Dividend Growth

i. First Stage Growth

NW Natural argues that Mr. Thornton failed to correct a plain error in his data entries. The company contends that Mr. Thornton used a beginning dividend for his first stage growth that was different from the dividend used to calculate his dividend yield. NW Natural fails to recognize, however, that Mr. Thornton did not calculate a dividend yield, but rather used a multi-stage DCF formula that requires a forecasted stream of dividends in an internal rate-of-return calculation. A dividend yield is only needed in a constant-growth DCF and added to a dividend growth forecast. Moreover, as noted by Staff, all of the forecasted dividend data relied upon by Mr. Thornton came from the same source, The Value Line Investment Survey.

[2] *In the Matter of Revised Tariff Schedules filed by Pacific Northwest Bell Telephone Company*, UT 43.

Staff argues that Dr. Zepp mismatched his data and growth periods for first stage growth. To calculate expected dividends for years 2000, 2001, and 2002, Dr. Zepp used Value Line's implied forecasted dividend growth from 2000 to 2001-2003. Staff alleges error, arguing that Dr. Zepp should not have relied on forecasts through the year 2003 when his first stage of growth lasts only through 2002. NW Natural responds that the Value Line reports used by Dr. Zepp actually forecast an average dividend for 2002 to 2004; *i.e.,* the dividend that Value Line expects to be achieved, on average, by the year 2003. Thus, NW Natural contends that Dr. Zepp's growth estimates properly matched his data. With this explanation, NW Natural continues and asserts that Mr. Thornton erred in relying on Value Line's forecasts of dividend growth rates for 2002-2004 (*i.e.,* average for 2003), because his first stage ends in 2004.

Staff and NW Natural obviously disagree on the proper interpretation and application of Value Line's forecasted dividend growth rates. Although NW Natural contends that these projections forecast an average dividend forecast for the mid-point of each period, there is no evidence in the record to support that interpretation. It may be equally reasonable to conclude that the Value Line 2002-2004 projection is not an average of 2002-2004 (i.e., 2003), but rather a recognition that projections of future earnings are not as accurate. As a result, it might be reasonable for Value Line to use a range of future years for the projected figures, rather than a range of projections for a single year. In any event, neither party was able to quantify the impact of the differing interpretations and applications of the Value Line data. Therefore, for purposes of this docket, we will accept both parties' results.

ii. Terminal Growth

Staff and NWIGU challenge many aspects of Dr. Zepp's terminal growth calculations. As stated above, Dr. Zepp used the formula $g^t = BR + VS + Z$ to estimate perpetual dividend growth for NW Natural and the sample of LDC companies. Staff and NWIGU first criticize Dr. Zepp's reliance on Value Line forecasted returns on equity to calculate the BR growth rate. Based on NWIGU's study comparing projected returns with realized returns for eight LDCs, both parties believe that Value Line systematically over estimates returns by an average of 1.28 percent. In fact, NWIGU's expert witness Mr. Rothschild used the results of this study to justify a downward adjustment to the Value Line growth forecast he used in his DCF analysis.

NW Natural responds that the comparative study is inconclusive. First, it contends that an eight-company comparison is simply too small to support any inference about the accuracy of a publication that forecasts for over 1,700 companies. Second, NW Natural notes that actual returns of individual companies will vary substantially from year to year. Due to this variation, NW Natural states it is not surprising that the forecasting error of 1.28 percent is substantially less than one standard deviation (2.49 percent) in the data computed to reach that conclusion. For these reasons, NW Natural contends that Dr. Zepp reasonably relied on Value Line projections, and that Mr. Rothschild's ad hoc adjustment is unjustified.

We are uncertain what weight to give NWIGU's comparative study. On its face, it shows that, since 1977, Value Line has overestimated the future expected return on book equity to be achieved by eight LDCs, four years out, by an average of 1.28 percent. Although NWIGU's comparative study is limited to just eight of the 1,700 companies for which Value Line projects future earnings, its analysis properly focuses on projections for LDCs, including NW Natural. For these reasons, we can not conclude that it would be unreasonable for one to rely on the study to adjust the forecasts downward in a DCF analysis. At the same time, however, others could reasonably conclude that the study fails to provide persuasive evidence that an upward bias exists or, if so, will continue in the future. Therefore, we decline to reject either party's DCF analysis on this basis.

Both NW Natural and NWIGU accuse each other of using biased estimates of the BR term because of "mismatched" dividend yields and retention rates. NWIGU asserts that Dr. Zepp computed his BR growth based on the increased retention rate that Value Line's forecasted retention ratio for 2002, but computed his dividend yield based on dividends derived from a 1999 retention rate. NWIGU contends that this mismatch exaggerates the cost of equity because it ignores the inherent interrelationship between earnings and dividends. NW Natural, in turn, claims that Mr. Rothschild's BR term mismatches year-end dividend levels with annual earnings, which improperly lowers the retention ratios by computing payout ratios by dividing current (1999) year-end book dividend yield by the forecasted equity return.

We observe that both NW Natural and NWIGU have combined information from different time periods in the development of their respective BR calculations. Both parties provide a reasonable basis for their methodologies, even though neither can be categorically demonstrated as reflecting the precise manner in which investors estimate future growth. As a result, while we do not endorse either party's methodology, we find no compelling reasons to reject either party's BR calculation in this docket.

Staff also contends that the Commission should reject Dr. Zepp's VS growth rate. Staff states that Dr. Zepp simply relied on a VS estimate from another docket whose evidence is not in the record. We agree that, in his testimony, Dr. Zepp referred to Mr. Thornton's estimate in UM 903 of a 1.0 percent VS growth rate for LDCs. NW Natural correctly points out, however, that Dr. Zepp also prepared his own VS forecast of 0.97 percent for the comparable companies and 0.86 percent for NW Natural.

Both Staff and NWIGU also express skepticism of Dr. Zepp's so-called Z factor as a measure of earnings growth when EPS growth exceeds DPS growth. Both parties contend that the Z factor lacks theoretical support or explanation. NW Natural admits that the Z factor is a new concept, but contends that it is well supported in the record and should be adopted. We reject Dr. Zepp's proposed Z factor. At hearing, Dr. Zepp admitted that there was not an actual formula for the Z factor, and he has failed to provide persuasive evidence that EPS growth that exceeds DPS growth will lead to higher sustainable growth. We also note that the Z factor is not

a traditional component of the DCF equation and, to our knowledge, has not been considered or approved by any other regulatory commission.

NW Natural also challenges Mr. Thornton's long term growth projections. The company points out that, while academic literature strongly supports the use of forward-looking forecasts to estimate future growth, Mr. Thornton relied almost exclusively on historic measures. NW Natural contends that this backward-looking approach produced particularly unreasonable results, given the predicted increase in retention ratios of NW Natural and the comparable LDCs. While retention ratios are expected to increase to 42 percent in the future, Mr. Thornton relied on historic ratios for the sample of gas LDCs of just 20 to 25 percent.

We agree that forward-looking projections should be used if available. There is evidence in this record that forecasts of earnings growth provide superior estimates of DCF growth than historical measures, such as past BR, EPS, or DPS growth. This higher performance is likely due to the fact that, while all estimates rely on past data, forward-looking estimates use a larger amount of past data and adjust for abnormalities that are not considered relevant for future growth. We conclude that, in this docket, Staff has failed to demonstrate that historic growth rates are representative of future growth and accordingly, give more weight to Mr. Thornton's sensitivity analysis based on broader proxies.

2. CAPM Estimates

Under CAPM, the required rate of return on common equity is the sum of a risk free rate and a risk premium component adjusted to reflect the systematic risk of the security. Again, the parties dispute the proper source of information and various calculations used to obtain these input assumptions. Before turning to those arguments, however, we must first address Dr. Zepp's challenge to the CAPM methodology.

Dr. Zepp offers three cost of equity estimates under his CAPM analysis, although his first two employed nontraditional methodologies. His primary estimate is based on a "DCF minus Risk-Free Rate" method, while his first alternative estimate uses an "Authorized ROE minus Risk-Free Rate" method. Neither method uses a beta to measure the systematic risk. Dr. Zepp recommends the use of these nontraditional methods due to his belief that the CAPM formula cannot reliably project the specific required common equity returns for individual companies.

This Commission has relied on the CAPM as an appropriate method for estimating a utility's cost of common equity for over 20 years. The CAPM, developed by Nobel Prize winning economists Markowitz and Sharpe, is widely advocated in corporate finance textbooks and is often used by other regulatory commissions in cost of capital proceedings. In recent cases here in Oregon, some utilities have argued against its use on the same grounds presented by Dr. Zepp in this proceeding. We have consistently rejected these arguments, concluding that the CAPM remains a viable method for determining cost of equity. *See, e.g.,* Order No. 97-171.

We acknowledge the growing concerns raised that the CAPM methodology produces unreliable estimates. Interestingly, one of the common arguments against the use of the CAPM is that it overstates the cost of common equity. *See e.g., Pacific Power, d.b.a. Utah Power & light*, 192 PUR 4th 289 (1999); *Re Hawaii Electric Light Company, Inc.*, 178 PUR 4th 82. Nothing presented in this docket, however, convinces us that the CAPM methodology should be rejected. We continue to believe that CAPM analyses provide a useful and reliable addition to the DCF results for determining cost of equity. Of course, as with other financial models, we must review the results carefully before concluding that they should be adopted.

In addition, we reject Dr. Zepp's alternative CAPM methodologies. In his "DCF minus Risk-Free Rate" analysis, Dr. Zepp relied on stock prices that were averaged over a one-year period. As stated above, however, current stock prices, not historical averages, reflect the fundamental economic value of the security. Dr. Zepp's analysis based on averaged stock prices, therefore, is inconsistent with the efficient markets hypothesis. Moreover, both Staff and NWIGU identified numerous errors in Dr. Zepp's calculations. We conclude that Dr. Zepp's "DCF minus Risk-Free Rate" method fails to correct for changing industry risk over time and adds no information that is not already presented in a properly performed DCF analysis.

Dr. Zepp's second alternative CAPM analysis relies on authorized ROEs from other jurisdictions to develop a series of what he terms authorized risk premia. We find this "Authorized ROE minus Risk-Free Rate" method to be inappropriate for two primary reasons. First, financial markets, not regulatory decisions, set a utility's cost of equity. Second, the ROE authorized by a commission is just one component in setting rates and is commonly tied to other, unknown elements in a rate case. Therefore, we are reluctant to base an ROE for NW Natural on unknowable parameters from other cases, set in other jurisdictions and different capital market conditions.

a. Risk-Free Rate

Dr. Zepp uses a Value Line interest rate forecast of long-term U.S. Treasury securities for a risk-free rate. Staff disagrees with Dr. Zepp's recommendation for three reasons. First, it argues that the Commission should use a risk-free rate based on published market data, not forecasts. Second, Staff contends that U.S. Treasury rates with five to ten years' maturity should be used, not long-term treasuries. Finally, Staff states that, if the Commission decides to use a long-term bond yield to determine a risk-free rate, it must subtract the liquidity risk premium.

In prior dockets, we have stated a preference for the use of financial market data to determine risk-free rates. Published rates, as determined by capital markets, are objective, verifiable, and readily available. Moreover, we agree with Staff that Dr. Zepp's risk-free rate has a liquidity premium that should be extracted. As described in Brealey and Myers' book, *Principles of Corporate Finance*:

> The risk-free rate could be defined as a long-term Treasury bond yield. If you do this, however, you should subtract the risk premium of Treasury bonds over bills[.] This figure could be in turn be used as an expected average future *rf* in the capital asset pricing model.

For these reasons, we find that Mr. Thornton's risk-free rate is more appropriate. Before adopting it in this proceeding, however, we conclude it should be updated to reflect current information. We take official notice that the spot rates for five-, seven-, and ten-year U.S. Treasury securities, as reported in the October 19, 1999 edition of the *Wall Street Journal*, averaged 6.37 percent.[3] We agree with Mr. Thornton that this average rate should be adjusted downwards to be consistent with the average rate base NW Natural proposed in this case. After adjustment, we calculate the risk-free rate to be 6.3 percent.

b. Beta

Staff and NW Natural disagree on the appropriate measure of systematic risk. NW Natural favors the use of betas estimated by Value Line. It contends that Value Line betas should be used because they are widely circulated in the investment community and more likely to be used in setting stock prices. Staff recommends the Fisher-Kamin technique to estimate betas. It notes that the Commission has consistently relied on the Fisher-Kamin methodology in prior cases.

We note NW Natural's criticisms of the Fisher-Kamin betas, but find them unpersuasive. Although Value Line betas are widely available, this record does not include the data and methods used to derive them. Consequently, we are unable to determine the validity of the underlying Value Line methodology. Furthermore, we question Value Line's adjustment of its raw betas towards 1.02, a point slightly higher than the average risk security. It is undisputed that LDC's securities are less risky than the average stock. Moreover, the LDC sample average beta has not gravitated towards 1.0 over time. In fact, the beta estimates presented in NW Natural's last general rate case were higher than more recent estimates.

For these reasons, we adopt Mr. Thornton's beta estimates. The Fisher-Kamin technique assumes that betas can change over time, assigns more weight to recent data, and incorporates statistical corrections to improve efficiency. In addition, while all beta estimates contain large forecasting errors, mean square error studies show that forecast error is reduced for LDCs when raw betas are adjusted to the industry average. Because we want to use the best information available, we find Fisher-Kamin beta estimates, adjusted toward the industry average, to be appropriate for use in our CAPM calculations.

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[3] The individual rates were 6.28 percent, 6.39 percent, and 6.44 percent. Pursuant to OAR 860-014-0050(2), a party may object to a fact officially noticed within 15 days of the date of this order.

c. Market Risk Premium

In his traditional CAPM analysis, Dr. Zepp uses an arithmetic approach to market risk premia. His estimates are the arithmetic difference between annual stock returns and annual bond returns. In past rate cases, however, we have concluded that the arithmetic average of data is proper only if the assumed holding period is the same length of the data frequency. *See, e.g.*, Order No. 94-336. Because Dr. Zepp has assumed differing holding periods through his choice of a risk-free rate and betas, his CAPM analysis is inconsistent and biased upward.

We conclude that Mr. Thornton's mix of arithmetic and geometric averaging to calculate the market risk premium is more reasonable than the arithmetic average proposed by Dr. Zepp. Moreover, we favor Mr. Thornton's use of the NYSE/AMEX/NASDAQ, as opposed to the S&P 500 index used by Dr. Zepp, to model the theoretical portfolio of all risky securities. We conclude that the broader index is a better proxy for the theoretical portfolio of all risky assets in estimating the market risk premium.

We do not, however, adopt Mr. Thornton's market risk premium estimates as filed. NW Natural contends that Mr. Thornton's estimates should be adjusted upward for two reasons. First, it argues that Mr. Thornton failed to acknowledge the inverse relationship between interest rates/inflation and market risk premiums. Citing academic studies, NW Natural contends that, at times of low interest rates and low inflation, market risk premiums are higher than the historical average premiums. Second, the company argues that an incorrect algorithm in the CAPM computer program used by Mr. Thornton understates the expected returns of all securities with a beta larger than zero. NW Natural explains that, rather than subtracting the holding period risk-free return from the holding period market return to derive a holding period market premium, Mr. Thornton's program computes the market risk premium as a ratio of the holding period market return and risk-free return. NW Natural takes the position that the CAPM theory requires that subtraction, not division, be used.

We agree with NW Natural that Mr. Thornton's risk premium estimates should be adjusted to reflect the inverse relationship between equity returns and interest rates. As NW Natural points out, another member of Staff acknowledged this relationship in a prior rate proceeding:

> Q: Is there a reason to believe that the current market-risk premium could be significantly different from the long-run average market-risk premium?
>
> A: Yes. The theory suggests that relatively high inflation narrows the risk spread between stocks and bonds and that relatively low inflation widens the spread. This is because the risk of inflation affects common stocks and bonds differently. Stock prices are hurt during inflationary periods because of rising common equity cost rates, but stockholders are not necessarily hurt by inflation, on balance. The reason is that stocks

tend to benefit from inflation because companies can raise the prices of their products. Bond prices, on the other hand, can only go down during inflationary periods. This is because increases in the rate of inflation lead to higher interest rates. Bond prices and interest rates are inversely related; i.e., when interest rates rise, bond prices fall. In general then, the market-risk premium will be below average when inflation is relatively high and above average when inflation is relatively low, in keeping with the changing relative risk of stocks and bonds. Testimony of Philip Nyegaard, Docket UT 85.

Given the recent decline in interest rates, and the low level of inflation, we agree with NW Natural that current market risk premia are higher than the historical average premia used by Mr. Thornton is his analysis. While difficult to quantify the appropriate adjustment to reflect this inverse relationship, we conclude that, for purposes of this docket, Mr. Thornton's market risk premium estimates should be increased by 150 basis points.

We are reluctant, however, to further adjust Mr. Thornton's estimates due to the alleged error in his CAPM computer program. As Staff notes, NW Natural first raised this assertion in post-hearing briefs. Given the timing of the argument, there has been insufficient time to fully explore this matter and make an independent determination of whether such an error exists. Moreover, the fact that Dr. Zepp wrote the program code that NW Natural now alleges to be faulty places a greater emphasis on the need for a careful and objective analysis.

3. Inflation-Adjusted Risk Premium Estimate

The risk premium method is commonly used to estimate the cost of equity by analyzing the historic difference between the cost of equity and the cost of debt. Mr. Rothschild uses a modified risk premium analysis, however. He believes that a reasonable estimate of NW Natural's cost of equity may be obtained by adding the historic inflation premium to investors' current expectation for inflation. Under this approach, Mr. Rothschild first estimates the expected rate of inflation to be 2.0 percent, then adds a 6.6 to 7.2 percent historic return on common stocks net of inflation to get a "inflation risk premium cost of equity for a company of average risk."

We decline to accept Mr. Rothschild's risk premium analysis. We find his method to be unconventional. Mr. Rothschild did not demonstrate to us that his methodology is properly based on any accepted regulatory principles, nor is it apparent that any other regulatory commission has previously employed this methodology. As was the case for Dr. Zepp's Z factor, we are not persuaded that this Commission should be the first regulators to accept such a methodology.

4. Comparison to other Authorized ROEs

NW Natural contends that, in setting a target ROE in this proceeding, this Commission should rely on recent common equity return decisions made in other jurisdictions. We disagree. As Staff and NWIGU point out, there is frequently a substantial lag between the time evidence is prepared in a rate case and when a decision is finally rendered. Because interest rates have been steadily declining during the past several years, the failure to account for the regulatory lag could result in an overstatement of cost of capital. Moreover, as noted above, the authorized ROE is just one component of setting rates and is often tied to other, unknown elements in a rate case. Therefore, while other ROE determinations may provide evidence to confirm a decision, we are reluctant to base an award for NW Natural on unknowable parameters from other cases, set in other jurisdictions and different capital market conditions.

Commission Resolution

We begin with the range of rates of return on common equity offered by each of the parties. For the reasons stated above, we discard Dr. Zepp's DCF estimates based on outdated stock prices and his CAPM recommendations, Mr. Thornton's DCF calculations using historic growth rates, and Mr. Rothschild's Inflation-Adjusted Risk Premium analysis. We also reject Mr. Rothschild's simple DCF results in favor of his complex DCF analysis. We agree with Staff and NW Natural that a multi-stage DCF improves on the implicit assumption in the single-stage DCF that dividends grow indefinitely at the same rate.

Accordingly, under our DCF analysis, we consider Dr. Zepp's updated DCF results using Staff's dividend yield, but recalculate it to eliminate the Z factor. Approximating his methodology, we conclude that Dr. Zepp's DCF derived cost of equity is, as recalculated, 11.3 percent for the industry and 11.2 percent for NW Natural, with a mid-point of 11.25 percent. With this estimate, we include for consideration Mr. Thornton's DCF sensitivity estimate of 10 percent based on economy-wide forecasts, and Mr. Rothschild's complex DCF range of 9.3 to 9.4 percent, with a mid-point of 9.35 percent. This gives us a DCF produced range of 9.35 to 11.25 percent, with a mid-point of 10.3 percent.

As discussed above, we consider only Mr. Thornton's CAPM analysis, as recalculated to reflect an updated risk-free rate (6.3 percent) and adjusted market risk premium (8.5 percent). His CAPM result, as recalculated, rounds to 10.2 percent.[4]

In prior rate cases, this Commission has averaged the DCF and the CAPM results to estimate a reasonable cost of common equity. The DCF analyses adopted above yield a result of 10.3 percent. The CAPM analysis yields a result of 10.2 percent. Following our practice of averaging these results, we calculate a cost of common equity of 10.25 percent. We will adopt

[4] 10.21 percent = 6.3 percent + (0.46 x 8.5 percent).

this average of 10.25 percent as an appropriate and reasonable cost of equity for NW Natural. Evidence shows that this award will allow NW Natural to maintain a reasonable financial structure and attract capital at a reasonable cost. Moreover, it is consistent with the downward trend of ROEs authorized by other regulatory commissions. As noted by Staff in its reply brief, the Nevada Commission recently established a return on equity of 9.85 percent for an electric utility which, like NW Natural, is engaged only in distribution. *See Sierra Pacific Power Company*, Docket No. 99-4001, issued September 23, 1999.

Using this figure in connection with other capital costs and the company's capital structure yields a rate of return for NW Natural of 8.91 percent.

Capital Component	Ratio	Cost	Weighted Cost
Long-term Debt	47.51 %	7.75 %	3.68 %
Preferred Stock	4.78 %	7.06 %	0.34 %
Common Equity	47.71 %	10.25 %	4.89 %
Total	100.00 %		8.91 %

ISSUE S-00: POSTAGE

Summary of Issue

Staff and NW Natural disagree on whether the 1998 test year should be adjusted to include a postage adjustment of $34,000. The proposed adjustment reflects the one-cent increase in postage rates that took effect in early January 1999.

Positions of the Parties

In its filing, NW Natural restated 1998 test year postage expense by multiplying the test year's mail count by the new postal rate ordered by the U. S. Postal Commission on July 28, 1998, effective in 1999. Because the postage adjustment reflects a federally imposed rate increase of a known amount, NW Natural contends that it is a reasonable pro forma adjustment of test period costs.

Staff disputes NW Natural's proposed postage adjustment. It contends that adjustments outside the test period should only be made for costs that represent extraordinary and material changes that will be of an ongoing nature. While acknowledging that one-cent increase in postage rates is an ongoing nature, Staff argues that it is clearly not extraordinary or material.

Commission Resolution

The Commission agrees with Staff that no such adjustment should be made. To preserve the integrity of the 1998 test period, NW Natural should not be permitted to identify and adjust

for normal cost increases occurring after the test period, especially if such cost increases are immaterial.

ISSUE S-1: DEMAND CHARGE

Summary of Issue

Staff and NW Natural disagree whether test period revenues should be reduced by $1.46 million to reflect the "demand charge recalculation" that takes place in Purchased Gas Adjustment (PGA) tracking filings. The pipeline demand charge recalculation resets the demand charge increment in each PGA filing based on more recent therms.

Positions of the Parties

In its filing, NW Natural proposed a $1.46 million reduction in operating revenues to reflect the fact that pipeline demand charges—and the per therm rate increment related to the recovery of demand charges—are reset each December I in the PGA filing. The company asserts that, when current demand charges are recalculated using updated therm information, the demand charge increment is reduced. As a result, NW Natural contends that its test period revenues, which do not reflect the lower demand charge rate increment, are overstated.

Staff disputes NW Natural's proposed reduction in operating revenues. It acknowledges that the rate increment related to demand charges might decrease (or increase) in a PGA filing from the prior year. Staff contends, however, that such changes are not relevant for purposes of setting a revenue requirement for NW Natural in this rate case. The issue, Staff contends, is whether the test period results are representative of expected results for establishing base rates.

After an analysis of historical normalized results, Staff found that NW Natural's recovery of demand charges on an annual basis has exceeded actual demand charges by $2.4 million to $3.9 million every year for the past four years. As for the test period, Staff found that demand charge revenues exceed demand charges by $1.99 million. This over-recovery occurs primarily due to load growth. The PGA filing resets demand charges each fall by using normalized therms for the 12 months ending the preceding June 30. Thus, any demand charge increment is in effect from six to 17 months after the date for volumes used to calculate this increment. Due to this lag, NW Natural will over-recover its demand charges by the amount of its load growth from June 30 to the following December through November period when the rate increment is in effect.

Staff argues that the Commission should recognize this systematic over-recovery of annual demand charges in setting base rates. It takes the position that NW Natural's excess recovery of demand charges is a persistent, ongoing occurrence. Because it believes that NW Natural's future over-recovery will probably be at least $2 million annually, Staff contends

that test period results are representative for rate setting purposes and that the Commission should reject the company's proposal adjustment.

In response, NW Natural challenges Staff's claim that the company will always over-recover its demand charges. NW Natural states that, under existing PGA policies, it bears the risk of under-recovering demand charges if normalized sales do not occur due to warm weather or customer losses. It contends that this risk is legitimate, noting that weather has been warmer than normal in nine of the past 11 years. Had Staff's proposal been in effect, NW Natural alleges that it would have failed to recover demand charges in three of the past four years due to warm weather. Thus, it argues that Staff's adjustment effectively modifies the PGA mechanism to NW Natural's disadvantage by eliminating the reward of possible over-recovery due to load growth, while leaving the risk of under-recovery due to warm weather.

NW Natural also contends that Staff's demand charge recalculation adjustment is an impermissible forward-looking adjustment to an historical test year. It states that the over-collected demand charges that Staff proposes to include in test period revenues would actually occur, if at all, after December 31, 1998. Thus, Staff's adjustment fails the basic ratemaking principle that a utility's gross revenues should be determined in the chosen test period. NW Natural contends that Staff's proposal to recognize future revenues related to growth is arbitrary, because it ignores future costs due to growth.

Commission Resolution

As noted by NW Natural, Oregon's treatment of recovery of demand charges is unique. Most jurisdictions allow LDCs to recover pipeline demand charges actually incurred. In testimony, NW Natural noted that the Commission could implement a similar 100 percent PGA deferral mechanism for demand charges, thereby resolving this issue. In briefs, Staff supports such a modification and, as an alternative argument, recommends the Commission modify the PGA process to allow NW Natural to recover no more and no less than 100 percent of its demand charges.

After review, we support the alternative recommendation. A 100 percent recovery mechanism eliminates the weather-related risk for both NW Natural and customers inherent in the PGA mechanism. The company would not risk under-collecting demand charges in warm weather, and customers would not risk over-paying demand charges in cold weather. For purposes of this proceeding, it would eliminate the normalized over-recovery of demand charges that is built into the PGA, thus alleviating the need to adjust for the over-recovery in base rates.

Accordingly, the Commission adopts a 100 percent demand charge recovery mechanism for NW Natural. Following this proceeding, NW Natural shall file revised tariffs that specify 100 percent recovery of demand charges, calculated using the actual demand charges and actual therms sold during the period covered by the PGA filing. In this proceeding, test year revenues

should be reduced by $1.99 million in order to set NW Natural's test period demand charge related revenues equal to demand charges.

ISSUE S-7: ADVERTISING EXPENSE

Summary of Issue

To determine the allowable advertising expense level that should be included in the test period, Staff and NW agree that the Commission should apply the criteria set forth in a 1992 stipulation between the parties. The parties, however, dispute the interpretation and application of that stipulation. NW Natural seeks $1,345,000 in total allowable advertising expenses. Staff believes that only $265,132 should be allowed.

Stipulation

Staff and NW Natural also contested the advertising expense issue in the company's last general rate case, docket UG 81. There, the Commission applied the advertising guidelines set forth in administrative rules. Those guidelines, now set forth in OAR 860-026-0022, establish presumptions of reasonableness of advertising expenses in utility rate cases. Utility advertising is divided into five categories that are treated differently for ratemaking purposes:

> Category A – Energy efficiency or conservation advertising expenses not related to a Commission approved program, utility service and information advertising expense. These expenses are presumed reasonable up to 0.125% of gross operating revenues.
>
> Category B – Legally mandated advertising expense. These expenses are presumed reasonable.
>
> Category C – Institutional and promotional advertising expenses, and any other not fitting in other categories. These expenses carry no presumption. The utility is required to show such expenses are just and reasonable.
>
> Category D – Political and non-utility advertising expenses. These expenses are presumed to be not reasonable
>
> Category E – Energy efficiency or conservation advertising expense related to a Commission-approved program. These expenses may be capitalized.

In UG 81, NW Natural sought total recovery of $1,041,000 in rates for advertising expenses. Applying the guidelines, this Commission permitted total recovery of $387,000. It allowed recovery of $370,000 in Category A advertising, and $17,000 in Category B advertising,

but no recovery of any Category C advertising. *See In the Matter of Revised Tariff Schedules filed by NW Natural Gas Company for a General Rate Increase*, Order No. 89-1372. In a concurring opinion, however, Commissioner Ryles expressed concern about the existing advertising policies. She noted that the administrative rules make no allowance for the size of the utility, the service it provides, or its position in the industry. Because she believed that these factors may affect the reasonableness of a utility's level of advertising, she asked the parties to explore the possibility of making the rules more reflective of current marketplace realities.

Following the conclusion of UG 81 and in response to the comments of Commissioner Ryles, NW Natural and Staff began negotiations regarding advertising expense recovery. On April 16, 1992, the parties entered an advertising stipulation to be used in NW Natural's next general rate proceeding. The relevant provisions of that stipulation provide:

> Article II. Categories A and C Advertising Allowance
>
> 2.0 For the purpose stated in Article I of this stipulation, NNG and Staff agree to a combined allowance for Categories "A" and "C" advertising equal to the product of (1) the calculation of NNG's UG 81 allowance per NNG customer times (2) the total number of serviceable Oregon residential households.
>
> 2.1 The first multiplicand referenced in paragraph 2.0 of this Stipulation is calculated by multiplying NNG's Gross Retail Operating Revenue determined in UG 81 times one eighth of one percent (the UG 81 allowance), and dividing the UG 81 allowance by total Oregon Residential Customers established in UG 81. This calculation equals $1.44 per customer and is shown on Appendix A attached.
>
> 2.2 The second multiplicand referenced in paragraph 2 of this Stipulation will be calculated based on a reasonable estimate of serviceable households in NNG's Oregon Service territory. This estimate will be based on the assumption that a maximum of 80 percent of households are attainable in any given service area. A sample of this calculation is shown on Appendix B, attached to this Stipulation and incorporated herein by this reference.
>
> 2.3 The advertising allowance calculated pursuant to this Article is an advertising allowance for NNG's Oregon territory, and shall not be reduced by a state split between NNG's Oregon and Washington service territory.
>
> ARTICLE III: Advertising Content
>
> 3.0 As a condition of recovering the allowance calculated pursuant to Article II of this Stipulation, NNG must demonstrate that advertising expenses

exceeding the UG 81 allowance meet the following criteria: (a) the primary message conveyed by each advertising program promotes energy efficiency; and (b) the information conveyed by each advertising program is useful to the consuming public by conveying accurate price or service information. Upon a reasonable showing by company that the advertisement provides useful information other than energy efficiency to the public, Staff will agree to waive the requirement of the first criterion.

3.1 Staff and company agree that the advertising content criteria established in paragraph 3.0 of this Stipulation replace the "specific ratepayer benefits" and the Order No. 87-406 "monetary benefits" tests referenced by the Commission in Order No. 89-1372. Specifically, Staff and company agree that if company demonstrates that advertising expenses exceeding the UG 81 allowance were for advertising programs meeting the tests established in 3.0, then NNG will not be required to also satisfy the "specific ratepayer benefit" test or the "monetary benefits" test.

Positions of the Parties

NW Natural seeks inclusion of $1,041,000 in rates as allowable advertising. The company contends that this amount represents the advertising allowance calculated pursuant to the provisions of the stipulation set forth above. Based on a review of the company's test period advertising, Staff believes that only 20 percent of the advertising expense ($256,132) meets the stipulation criteria and should be included in rates.

The first disagreement between the parties arises from differing interpretations of paragraphs 2.0 and 3.0 in the stipulation. NW Natural contends that the stipulation provides for a combined allowance for Category A and C expenses, and that this allowance is calculated as follows:

$1.44 (UG 81 allowance/customer)	X	799,760 (80% of serviceable households)	= $1.15 million

To recover the full amount of that allowance, NW Natural reads the stipulation to require the company to demonstrate that expenses exceeding the UG 81 allowance meet specific content criteria set forth in paragraph 3.0. Therefore, NW Natural interprets that stipulation as allowing a maximum advertising expense of $1.51 million, and a minimum expense of $350,000, the UG 81 allowance.[5] It does acknowledge, however, that if, as in this case, the company seeks an

[5] This figure is taken from an appendix to the stipulation in UG 81, not the actual allowance awarded by the Commission in the prior rate case. In Order No. 89-1372, the Commission allowed NW Natural to recover in rates $370,000 in Category A advertising. That figure was derived by multiplying 0.125% by NW Natural's adjusted total operating revenues reported in docket UG 55 ($296,291,000). In the 1992 stipulation, the parties calculated

allowance above the $350,000 floor, it is appropriate to review all the advertisements. In other words, NW Natural cannot first request automatic recovery of $350,000, then ask the Commission to examine selected advertising for recovery above and beyond the $350,000 minimum.

Staff agrees with NW Natural's calculation of a maximum combined allowance of $1.51 million for Category A and C advertising expenses. It also agrees that the stipulation establishes a minimum advertising allowance of $350,000. However, Staff states that very little of NW Natural's advertising can be categorized as allowable Category A expenses. Thus, it applies the content criteria to all advertising submitted and concluded that only 20 percent, or $265,132 should be allowed under the stipulation. It explains:

> Staff believes that just about all of NW Natural's advertising is primarily promotional or institutional (Category C). OAR 860-026-0022 does not provide an allowance for Category C advertising in rates. Since staff agreed that Categories A and C advertising that meet the advertising content criteria should be allowable up to the stipulation allowance, staff applied the criteria to all advertising submitted by NW Natural in support of the company's UG 132 test period expenses. All advertising expenses that either met the OAR 860-026-0022(2)(a) Category A advertising definition or met the stipulation criteria are included in the $265,132, which Staff recommends is a reasonable UG 132 advertising expense level. Staff/1400, Kittilson/1-2 (citations omitted).

Staff apparently believes that the $350,000 minimum allowance applies only to Category A advertising, and that the company must meet the content criteria for all Category C advertising.

The second area of dispute between the parties centers on the application of the content criteria. NW Natural contends that an objective evaluation of all of the 1998 test year advertisements shows that expenses totaling $1.17 million—a figure in excess of the maximum allowable amount—meet the content criteria of the stipulation. Its analysis and recommendations primarily rely on the spirit of the 1992 stipulation, as defined by the comments of Commissioner Ryles. NW Natural contends that, in her concurring opinion, Commission Ryles acknowledged that gas utilities, unlike electric utilities, are providers of a "fuel of choice," and that the existing advertising rules did not provide sufficient flexibility to meet the different needs that gas utilities have in gaining and maintaining customers. Because the use of natural gas in homes and businesses is a choice, NW Natural argues that its advertising messages must focus on establishing its company name, reputation and service, and promote the many uses of natural gas.

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the "UG 81 allowance" by multiplying 0.125% by the gross retail operating revenues reported in UG 81 ($279,871,000). The lower UG 81 operating revenues explains the difference between the $370,000 allowed in Order No. 89-1372 and the $350,000 figure used as the "UG 81 allowance" in the stipulation.

NW Natural believes that Staff's analysis is unnecessarily restrictive and its standards were applied inconsistently. For example, NW Natural notes that, while the criteria listed in (a) of paragraph 3.0 only requires the primary message to promote energy efficiency, Staff concluded that an advertisement could meet this requirement only if it used the words "high efficiency natural gas appliances." NW Natural believes that, in interpreting the phrase "promote energy efficiency," the Commission should use the definition set forth in OAR 860-026-0005(4), which states that energy efficiency "means any installation or action intended to reduce the amount of energy required to achieve a given purpose." Therefore, NW Natural contends that advertising that generally promotes the use of natural gas over other less efficient energy sources for a given purpose serves to promote overall energy efficiency.

Moreover, NW Natural argues that Staff's interpretation and application of the content criteria is contrary to the spirit of the stipulation. While the stipulation was intended to provide NW Natural with a greater opportunity to recover advertising expenses than it did in UG 81, Staff proposes that the company recover $122,000 less in allowed advertising expenses than the company actually received ten years ago.

Staff responds that a majority of NW Natural's advertisements focus on promoting increased use of gas and the company's corporate image without providing specific information on prices or services that would be useful to customers. Others promote gas equipment and appliances, such as fireplaces, dryers, ranges, barbecues, and patio heaters, with no focus on promotion of energy efficient equipment. After its review, it concludes that advertising expense levels should be reduced by $1.08 million to account for the advertisements that do not meet the content criteria, resulting in an allowance of $265,132.

Staff disputes NW Natural's argument that the phrase "promotes energy efficiency" should be interpreted broadly to apply to all promotion of natural gas use over less efficient energy sources for any given purpose. It believes that a 1991 ODOE/OPUC Fuel Switching Analysis report, published during the time period that the parties were negotiating the advertising stipulation, refutes NW Natural's interpretation. That report examined the effects of using natural gas instead of electricity for residential space and water heating. That report states, in part:

> Any fuel switching actions must be in conjunction with programs to encourage *energy efficiency* * * * LDCs should be encouraged to propose fuel switching programs which may include the following or reasonable alternatives: Rebates, customer financing, and/or dealer incentive programs for converting worn-out or marginal electric water heaters to *high-efficiency natural gas water heaters* [and] for converting forced-air electric space heating customers to *high-efficiency natural gas space heating systems.* (Emphasis added).

Relying on the italicized language above, Staff believes that any promotion of fuel switching by gas companies necessarily requires high efficiency equipment and that any utility seeking rate recovery for such promotion would be required to provide a rigorous analysis of the economics of the activities for each end use. Staff notes that NW Natural has obtained Commission approval of fuel switching programs involving high efficiency gas water heaters and furnaces. For this reason, Staff believes that the company's advertising to promote the use of high efficiency gas water heaters and furnaces should be allowable up to a reasonable level in rates. However, Staff further believes that the company would need to obtain the Commission's approval for promoting other appliances and equipment, such as fireplaces, patio heaters, and barbecues, before advertising expenses related to those items should be included in rates.

Staff also challenges NW Natural's assertion that its advertising provides useful information to the public in general, and that its advertising should focus on the company's name, reputation, service, and the various uses of natural gas. Staff believes that NW Natural's argument is contrary to the specific language of the stipulation, which requires the advertising to convey "accurate price and service information."

Commission Resolution

Both parties support the use of the UG 81 stipulation in this rate case. That stipulation, however, is not binding on the Commission. A threshold question, therefore, is whether we should adopt the stipulation for use in determining NW Natural's recovery of advertising expenses in this docket.

NW Natural believes that the Commission should interpret and apply the principles of the stipulation for three primary reasons. First, NW Natural notes that the stipulation has the support of both Staff and the company, both of whom assumed that the stipulation would govern NW Natural's advertising expense recovery in this rate case. Second, NW Natural points out that the parties have acted in accordance with the terms of the stipulation during the past six years, such as the company's filing of semi-annual advertising reports with Staff. Finally, NW Natural argues that the stipulation was intended to address the concerns raised by Commissioner Ryles suggesting a different method be used to determine the appropriate amount of advertising allowance for a gas utility.

We acknowledge the parties' efforts in preparing and carrying out the terms of the stipulation. This issue was highly disputed in NW Natural's last rate case, and the parties are commended for their attempt to clarify the ratemaking treatment of advertising expenses, as well as address the concerns raised by Commissioner Ryles. Despite these efforts, however, the extensive amount of testimony and argument presented here on this issue leads us to the inescapable conclusion that the stipulation has not accomplished its intended purposes. Because many of the provisions are ambiguous and poorly worded, the two stipulating parties disagree on such basic matters as the minimum amount of recovery allowed under the stipulation. Similarly,

the content criteria standards are not defined and, as indicated by the parties' arguments, are subject to various interpretations. Furthermore, the stipulation did not address and clarify other disputed matters relating to advertising expense, such as establishing clear definitions to determine whether advertising is properly classified as Category A or Category C. The parties apparently acknowledge these difficulties, as neither believes that the stipulation should be used in future cases.

Under the circumstances, we do not believe it would be prudent to enforce the disputed stipulation. Accordingly, for the reasons stated above, we reject the stipulation and determine NW Natural's advertising allowance based on the guidelines set forth in OAR 860-026-0022(3). Under these guidelines, the company's allowable advertising expense for Category A advertising are presumed reasonable up to 0.125% of its gross operating revenues. Because expenses for Category C advertising carry no reasonableness presumption, NW Natural must prove all expenditures to be just and reasonable for recovery in rates. The allowable expense for Category C advertising is determined under the traditional ratepayer benefits test. *See* Order No. 89-1372 at 6.

NW Natural submitted an extensive amount of information regarding its actual advertising expenditures and related materials that is sufficient for our review under OAR 860-026-0022. After our evaluation, we conclude that, for purposes of this docket, NW Natural is entitled to the full presumptive amount of expenses for Category A advertising, which amounts to $536,690. We do not believe, however, that the company has established that any of its expenditures for Category C advertising provide recognizable benefits to ratepayers.

In reaching this decision, we acknowledge that our conclusion does not address the comments expressed by Commissioner Ryles about the limitations and difficulties that gas utilities face in recovering advertising expenditures from customers. NW Natural has suggested that we consider initiating a rulemaking docket to modify the existing rule to establish clear and objective criteria for assessing advertising expenses for both gas and electric utilities. We decline NW Natural's proposal at this time, noting the demands on this agency related to the mandatory restructuring of the electric industry pursuant to SB 1149. Moreover, the recovery of advertising expenses may be addressed during that process and may include consideration of the issues raised by Commissioner Ryles.

ISSUE S-9: SALES AND MARKETING

Summary of Issue

In this issue, Staff and NW Natural disagree over two expense categories: customer service and marketing. NW Natural seeks recovery of $4.6 million[6] in customer service expense, and $2.3 million in nonpromotional sales and marketing expense. Staff proposes the

[6] This figure does not include the $1.39 million related to uncontested conservation expenses included in Account 908 in the original filing.

Commission disallow half, $2.3 million, of the customer service request, and all of the sales and marketing request, for a combined disallowance of $5.3 million. We address each expense category separately.

Background

To fully understand the parties' arguments, it is necessary to start with a preliminary discussion about accounting. In its opening testimony, Staff reported that NW Natural had recorded $7.6 million in FERC Accounts 911, 912, and 916, which Staff considers to be reserved for promotional expenses only. Staff initially proposed 100% disallowance of the expenses recorded in these accounts because Staff considered them to be "promotional" by definition.

NW Natural does not believe the FERC Accounts to be as restrictive as it has recorded promotional expenses, as well as customer service expenses in FERC accounts 911, 912 and 916 for a number of years. NW Natural states that it did this for two reasons. First, from conversations with Staff in 1993, NW Natural believed that Staff wanted FERC Accounts 907, 908, and 910 to be reserved for conservation and other DSM-related expenses only.[7] Therefore, the company recorded non-DSM customer service and marketing expenses in FERC accounts 911, 912 and 916. Second, NW Natural recorded these costs in those accounts to provide financial information to assist company managers in managing costs and understanding company business processes. This misunderstanding of accounting preferences complicated the discovery process, as the company could not provide Staff with detailed information about the accounts.

To address the problem, NW Natural, in its rebuttal filing, completely reclassified its customer service and marketing expense into the FERC Accounts according to their literal definitions and Staff's preferences. This filing established the company's level of customer service expense separate from marketing expense.

A. Customer Service

Positions of the Parties

NW Natural maintains that its rebuttal testimony fully describes and justifies the company's customer service expenses. It contends that, although its marketing employees perform a wide variety of services and activities, the majority of these are directed at customer service.

[7] Staff does not recall these conversations. It believes that Staff may have agreed with the company that conservation-related expenses should be recorded in sub-accounts of FERC Account 908. It does not believe, however, that Staff would have initiated or agreed with the company that it is appropriate to record non-conservation-related customer service expenses in FERC Accounts 911, 912, and 916.

NW Natural's testimony is divided into the three general market segments that the company serves: residential customers, commercial and small business customers, and large industrial customers. It states that, in the residential segment, NW Natural marketing representative's activities include coordinating service requests, responding to customer inquiries about rates, safety, equipment and efficiency, assisting builders and customers in the construction process, and identifying trenching opportunities to reduce costs. According to NW Natural, these customer service activities comprise about 70 to 80 percent of the work time of the residential marketing employees.

NW Natural's commercial and small business segment consists of a wide range of customers including offices, retail sales and services, hotel and motels, grocery stores, and restaurants. NW Natural states that its commercial account representatives perform numerous customer service functions by setting up accounts, providing technical assistance on installing, operating, and maintaining natural gas fired equipment, negotiating contracts, verifying code compliance, settling billing and service issues, developing training programs, and performing numerous other activities. NW Natural contends that the costs associated with these customer service activities have been reclassified in the FERC customer service accounts.

NW Natural further states that the customer service activities that serve the industrial customers are vital given the competitive nature of nature of this segment. NW Natural believes that, while the process of attempting to retain large industrial customers is complex and customer-specific, the benefits to smaller customers are not reasonably subject to question. NW Natural explains that the retention of high load customers provides the company with load diversification and size, thereby allowing it to purchase a gas supply portfolio at lower costs for smaller customers. The services that NW Natural's industrial customer representatives perform on behalf of this important customer segment include providing billing services for sales and transportation services; providing rate analysis; administering service agreements; and providing education, analysis, auditing, and technical advice on equipment design, application, and operation.

After reviewing NW Natural's rebuttal testimony, Staff agrees that some of the expenses initially booked to FERC Accounts 911, 912, and 916 should have been booked to customer service accounts 907-910. However, Staff also believes that the company's reallocated customer expense level is too high to represent a reasonable level to include in rates.

Staff takes the position that NW Natural has not met the burden of proof for its customer service expenditures. While the company has provided an extensive reallocation of costs formerly classified as sales and marketing, Staff argues that the accounting reallocation does not constitute justification for these activities. Moreover, Staff contends that there is no way to substantiate the company's allocation, because NW Natural did not track the customer service activities of its marketing personnel. Rather, it explains the company examined each job category and subjectively

declared that a certain percentage of time was spent doing customer service activities, while the remaining percentage was spent on sales and marketing.

Given the company's inability to provide activity-based information, Staff compared NW Natural's proposed customer service costs against those of other regional gas utilities. Based on this analysis, Staff recommends an allowance for customer service activities of $2.3 million (plus $1.4 million in uncontested conservation-related expenses). Staff's allowance is computed by multiplying the average customer service costs per customer of four regional utilities (Puget Sound Energy (PSE), Avista Utilities, Intermountain Gas Company, and Cascade Natural Gas Company) by the total NW Natural customer count. According to this study, the average, per customer cost of the four utilities for customer service is $4.96. Multiplying that figure by NW Natural's 464,701 test period customers produces Staff's recommended allowance of $2,314,917.

In response, NW Natural disputes the validity of Staff's utility comparison. First, the company notes that, in its analysis, Staff simply compared NW Natural's expenses to the costs that the other four utilities had booked to FERC Accounts 907-910 in their 1998 FERC 2 filings. Because general accounting practices can and do yield significantly different allocation to the FERC Accounts, NW Natural contends that Staff has no basis to claim that the expenses recorded by the four other utilities are for the same activities recorded by NW Natural. To demonstrate this point, NW Natural notes that its original filing contained a total of $1.3 million in FERC Accounts 907-910. Thus, under Staff's approach, the company's customer service costs would be just $2.99 per customer, among the lowest of Staff's four regional test utilities.

Second, NW Natural criticizes Staff's selection of utilities used in its comparative analysis. Of the four, two are combined utilities (PSE and Avista) that presumably achieve economies of scale in customer service that a stand-alone gas LDC could not obtain. NW Natural also contends that a combined utility need not worry about customer retention as virtually every building has electric service. On this basis, NW Natural believes one would expect customer service expenses to be lower for combined utilities than they would be for an independent natural gas distribution company that must work to gain and keep every customer. Furthermore, NW Natural questions whether differences in accounting practices could make a direct comparison difficult. Unlike a gas utility, combined utilities must split costs between electric and natural gas divisions for purposes of FERC Form 1 and Form 2 filings. NW Natural emphasizes that the process for assigning costs between electric and gas divisions is not specified by FERC, meaning that each utility assigns these costs according to its own conventions.

NW Natural also questions the comparative value of Intermountain Gas. While Intermountain is a stand-alone LDC, it is a closely held company not subject to Commission jurisdiction. Furthermore, its corporate structure is much different from NW Natural's, as it is a subsidiary of Intermountain Industries. Intermountain Industries also owns IGI Resources, from which Intermountain Gas receives all of its commodity and upstream services. NW Natural also

believes that Intermountain's recorded customer service costs in Account 907-910 of $2.57 per year are so low as to call into question the accounting conventions used to record the expense.

Of the four utilities used by Staff, NW Natural believes that only Cascade is arguably comparable. Like NW Natural, Cascade is a publicly traded and independent gas LDC regulated by the Commission. It has a similar corporate structure, is also a growth LDC that competes against electric utilities, and is also at risk to bypass. Given these similarities, NW Natural states that it is not surprising that NW Natural's and Cascade's customer service costs are very similar. Cascade reported customer service expenses of $12.07 per customer per year, a figure that, if multiplied by NW Natural's customer base, would yield a customer allowance of $5.6 million.

Commission Resolution

The resolution of this issue has been made more difficult by the accounting issue described above. NW Natural's original allocation of expenses prevented the company's ability to provide detailed information about the FERC 900-series accounts and activities to Staff. In its rebuttal, NW Natural did perform an extensive reallocation of all of its customer service and non-promotional marketing costs. However, the time of this filing, and the volume of rebuttal testimony, left Staff little time to review the activities and expenses.

As a result, Staff relies on a comparative study to recommend a disallowance of half of NW Natural's customer service expenditures. Under the circumstances presented, one cannot fault Staff's attempt to determine a reasonable level of customer service costs by comparing NW Natural's proposed levels to other utilities. Nonetheless, we share NW Natural's concerns about Staff's comparison. This case has demonstrated the fact that accounting practices can differ significantly between utilities and may lead to varying allocations to FERC Accounts. For this reason, Staff's unverified examination of costs booked to the FERC Accounts by other utilities may provide little value in determining a reasonable level of customer service expense for NW Natural. Furthermore, a comparison of costs recorded by combined utilities may not be appropriate, due to problems caused by the assignment of costs between electric and gas divisions and the greater ease these utilities have in obtaining and retaining customers.

While Staff did not have an adequate opportunity to fully review NW Natural's reallocation of its customer service expenses, the procedural schedule has allowed adequate time for the Commission to examine the company's filing. We conclude that NW Natural has met its burden of supporting the reasonableness of its customer service activities and expenses. The company's reallocated filing contained extensive testimony from its three market segment managers who described with particularity the company's customer service activities for its residential customers, its commercial and small industrial business customers, and its large industrial customers. Through this testimony, NW Natural established that these activities are directed at responding to customer requests, inquiries, and safety concerns; resolving customer complaints; extending service to new customers; and providing information about safety and

service issues. The company's provision of activity-based information would have facilitated a more straightforward and precise review of its customer service activities.[8] Nevertheless, we conclude that NW Natural has justified full recovery of its customer service expenditures.

B. Marketing

Applicable Law

The standards regarding promotional activities are set forth in Chapter 26 of the Commission's administrative rules. OAR 860-026-0010 defines "promotional activity"as

> [A]ction by a utility or its affiliate with the objective of increasing or preventing a decrease in the quantity of the utility's service used by present and prospective customers; inducing any person to use an energy utility's service rather than a competing form of energy, the cost of which is properly chargeable to account number 911, 912, 913, or 916[.]

OAR 860-026-0020(1) provides:

> All promotional activities and concessions[9] shall be just and reasonable, prudent as a business practice, economically feasible and compensatory, and reasonably beneficial both to the utility and its customers. The cost of promotional activities and concessions must not be so large as to impose an undue burden on the utility's customers in general and must be recoverable through related sales stimulation within a reasonable time.

Positions of the Parties

At the outset, NWN contends that Commission rules and prior decisions on promotional expense are broad and flexible. It believes that, in reviewing the company's promotional activities, the Commission should focus on whether the expenditures were just and reasonable, prudent as a business practice, economically feasible, and reasonably beneficial to both the utility and its customers. It notes that this is the approach the Commission used in its last rate case, UG 81. In Order No. 89-1372, the Commission stated:

> The Commission is persuaded that NNG's [marketing] expenditures meet the requirements of the rule in this case. It is reasonable and prudent for NNG to * * * present natural gas as a viable alternative to other choices.

[8] NW Natural should provide such information in future rate case filings.

[9] Promotional concessions are defined in OAR 860-026-0015. NW Natural does not request recovery of any promotional concessions in this case.

NW Natural further contends that neither administrative rules nor past Commission orders support Staff's argument that, to recover such expenses, the company must demonstrate "net ratepayer benefits." NW Natural points out that the Commission has never defined "net ratepayer benefits," and only adopted the test on which Staff relies in docket UE 102, issued after the filing of the company's case. Furthermore, NW Natural faults Staff for its inability to provide an example of a successful demonstration of ratepayer benefits. In a response to data requests, Staff could only state that such a test would be similar to a conservation program's cost-effectiveness analysis.

Despite its objection, NW Natural crafted a ratepayer benefits analysis that shows an overall quantifiable benefit to customers from NW Natural's marketing activity. NW Natural begins its analysis with the understanding that growth may affect customers in three ways: (1) growth adds more to revenue than to cost; (2) growth adds more to cost than to revenue; or (3) growth adds the same amount to costs and revenues. When growth adds more to revenue than cost, existing customers benefit by allowing the company to absorb cost increases and margin losses without the need to raise rates. NW Natural notes that its extension policy is premised on the belief that new growth would be profitable and adds that this profitable growth has helped eliminate the company's need for a general rate revision for over a decade.

From this reasoning, NW Natural develops the concept of marketing "headroom," which is defined as the amount of money the company can spend to gain a new customer and still have the customer yield an acceptable rate of return. Thus, NW Natural contends that increased earnings resulting from the expense of marketing dollars up to the headroom limit can be considered a ratepayer benefit, as the elimination of marketing activities within the headroom will reduce profitable growth and ultimately result in higher rates. NW Natural makes the assumption that a portion of the company's customer growth would not occur but for the company's marketing activities.

NW Natural assessed the level of headroom available in each market segment based on the company's long run incremental cost (LRIC) study and reasonable assumptions about the rate of return the company is currently experiencing without rate relief from this docket. Overall, NW Natural's analysis shows that the company's marketing activity and reclassified marketing expense produce net ratepayer benefits in total, across all customer categories, of $1,051,445.

Staff objects to NW Natural's net ratepayer analysis because it evaluated the company's reclassified marketing expense on an aggregate basis, rather than on a program-by-program or activity-by-activity basis. Staff contends that the Commission rules require a utility to account for and justify the benefits of each promotional activity on a subprogram basis. It cites OAR 860-026-0035, which provides:

(1) Each utility shall file * * * a report of each promotional activity and concession of the utility and its affiliates during the preceding calendar year. The report shall show the amounts expended with respect to each promotional activity and concession and a statement of the benefits achieved from each.

(2) In reporting on each promotional activity or concession under this rule, a utility shall employ the lowest practicable subprogram for budget and accounting purposes.

Staff takes the position that the Commission has evaluated the reasonableness of ratepayer support for utility marketing activities on an activity-by-activity basis since UE 79, PGE's general rate case. It notes that, in UE 88, the Commission evaluated the reasonableness of PGE's "High Value Electrical Applications" for each promotional activity. Staff also makes the point that this "activity-by-activity" approach is consistent with the Commission's evaluation of individual energy efficiency measures and utility fuel switching proposals during the past several years.

Consistent with these policies, Staff made several requests to NW Natural asking for descriptions of each of the company's sales and marketing activities and justification for including the expenditures as utility costs in rates. Staff believes the company budgets its marketing activities on an activity or program basis, but states that NW Natural has not provided any such information to describe and support its budgeted sales and marketing costs. Without such program-specific information, Staff was unable to determine whether any related expenses are reasonable. For this reason, Staff recommends the Commission exclude NW Natural's entire marketing costs from customer rates.

Commission Resolution

To start, we note that Staff and NW Natural disagree on the legal standard for recovery of nonadvertising marketing expenses. Staff first contends that, for recovery of such expenses, NW Natural must demonstrate net ratepayer benefits. Staff next argues that promotional activities must be evaluated on an activity-by-activity basis. NW Natural disputes both assertions, noting that administrative rules governing promotional activities simply provide that such activities be "just and reasonable, prudent as a business practice, economically feasible and compensatory, and reasonably beneficial both to the utility and its customers."

Addressing the second argument first, we reject Staff's contention that promotional activities must be evaluated on a project-by-project basis. Although OAR 860-026-0035 requires a description of and amounts spent on each activity, its does not limit the general standards for recovery of promotional activities set forth in OAR 860-026-0020. As NW Natural notes, that rule requires a general examination of whether promotional expenditures are just and reasonable, prudent, and reasonably beneficial to the utility and ratepayers. While a utility may rely on its

annual reports to support its expenditures in a rate case proceeding, it may also provide support on an aggregate basis.

With regard to the legal standard, we need not resolve whether NW Natural must demonstrate net ratepayer benefits. Despite its objection to such a test, the company presented an analysis intended to show that its marketing activities do provide net ratepayer benefits. Based on that analysis, we agree with NW Natural that its promotional activities provide quantifiable benefits to customers of over $1 million. The company has established that its promotional activities focusing on "profitable growth" improve the relationship between incremental revenues and incremental costs to benefit existing and future ratepayers. Eliminating such activities would reduce the company's profitable growth and ultimately produce higher rates for the company's customers.

Therefore, for purposes of this docket, we conclude that, if OAR 860-026-0020 requires a showing of net ratepayer benefits, NW Natural has met that burden. NW Natural's analysis, however, does not support full recovery of its promotional expenditures. OAR 860-026-0020(1) provides that the cost of promotional activities "must be recoverable through related sales stimulation within a reasonable time." The company's own analysis indicates that expenditures in excess of $1.05 million would produce a net ratepayer detriment. Accordingly, recovery shall be limited to $1.05 million, the amount substantiated by NW Natural's net ratepayer benefits analysis.

ISSUE S-13: WAGE AND SALARY ADJUSTMENT

Summary of Issue

Staff and NW Natural have stipulated to the appropriate staffing levels for the company in the July 26, 1999, Stipulation. The parties, however, dispute the appropriate test period levels for wages and salaries of the workforce levels. Using a three-year wage and salary formula—applied to both union and nonunion wages—Staff proposes reductions of almost $2.2 million to NW Natural's test period payroll and related expenses.

Positions of the Parties

To estimate appropriate payroll levels, Staff has traditionally used a three-year wage and salary formula. As a starting point, Staff's formula uses the utility's actual average wage and salary level as they existed three years prior to the test year. From there, Staff applies the annual changes to the All Urban (DRI Forecast) Consumer Price Index (CPI)[10] to adjust wages and

[10] The All Urban CPI measures price changes in a fixed market basket of goods and services in 200 categories, generally including housing, apparel, transportation, medical care, recreation, education, and others to urban consumers.

salaries for each of the three subsequent years to establish a forecast of test-year wage and salary levels. If the utility's projected wage and salary level is within ten percent of Staff's projection, the difference between projections is shared between customers and shareholders. Outside the ten-percent band, shareholders keep all of the benefit or pay all the cost.

NW Natural does not oppose the use of Staff's formula to its non-union wages and salaries, provided that the model uses an index that measures actual—as opposed to hypothetical—local labor market wages. NW Natural argues that the All-Urban CPI has no relationship to local wage and salary patterns. Rather than adjusting historical salaries with a measure of national inflation rates, NW Natural recommends the Commission use labor indices that actually consider conditions in the state labor market in which the company must compete for employees.

NW Natural cites three indices produced by the Oregon Department of Administrative Services (DAS). These indices are Oregon Historic Manufacturing, Oregon Historic Services, and Oregon Historic Average. Of the three, NW Natural favors the Oregon manufacturing wage index, because manufacturing employment is more representative of utility employment than the service category. Alternatively, it recommends use of the Oregon average wage index. NW Natural notes that, if either of these two measures were used in Staff's formula and applied to the company's non-union salaries, no salary expense adjustment would be warranted because wage increases were within Oregon labor market wage increases.

NW Natural does object to the use of Staff's three-year wage formula to evaluate the company's union wages. Historically, Staff has recommended automatic adoption of changes in union compensation, due to the fact that such pay increases are set during arms-length negotiations between the company and labor unions. In this case, however, Staff recommends that the Commission scrutinize union compensation in the same manner as non-union wages and salaries. Staff concludes that, otherwise, there could be little incentive for the company to control costs.

NW Natural does not suggest that the Commission should never review a labor agreement. Rather, it contends that Staff has provided no persuasive justification in this case to overturn the Commission's past practices with union wages. The company asserts that the negotiations with the union were conducted at arms-length, involved 34 meetings, took over 280 hours, and resulted in an agreement that was substantially less costly than the union's original requests (at a savings of about $4.2 million annually). It adds that the resulting wage increases were consistent with actual comparable compensation levels in other local and regional industries. In preparation for the negotiations, NW Natural conducted a survey of wages paid for similar positions in 19 separate businesses and institutions, such as Tri-Met, Cascade Natural Gas, Pacific Power and Light, Portland General Electric, City of Portland, Port of Portland, and METRO. That market survey showed that NW Natural's union wages were average to significantly below average in 17 of 22 job categories. Thus, NW Natural argues that its pay

increases under the union contract were warranted by existing market conditions and cannot be considered unreasonable or excessive.

Commission Resolution

The Commission adopts Staff's three-year wage and salary formula to estimate proper non-union payroll levels for NW Natural. This Commission has relied on this model for several years to monitor the wages and salaries of energy utilities. The model incorporates actual market-based data by using, as a starting point, actual historic wages. We also agree with Staff's use of the All Urban CPI index to adjust historic wages and salaries. Adjusting payroll levels by changes in inflation provides the employees the same real level of compensation as in the base year, and provides an incentive to companies to minimize labor costs. Contrary to the assertions by NW Natural, local economic conditions are represented in the All-Urban CPI, as the Bureau of Labor Statistics includes prices in Oregon when it conducts its survey. Moreover, Staff's method of sharing the difference between payroll projections equally between ratepayers and shareholders also allows NW Natural some ability to increase wages above the rate of inflation in response to changes in market conditions without allowing unchecked escalation.

We do not believe that any of the three indices recommended by NW Natural to adjust wages are appropriate. NW Natural has not demonstrated that wages of its officers and non-union employees are related to manufacturing or governmental wages, and admitted in testimony that utility wages are not closely related to service wage patterns.

With regard to union wages, however, the Commission declines Staff's proposal to break tradition and apply the three-year wage and salary formula to project union payroll levels. As noted above, this Commission has traditionally accepted changes in union compensation resulting from the collective bargaining process. We do not believe Staff has provided an adequate explanation to justify a departure from that policy. Of course, we have the right and responsibility to examine all utility costs, including negotiated collective bargaining agreements. If there were evidence that a negotiated contract was clearly excessive, it would be appropriate for the Commission to take corrective action.

In this case, NW Natural has demonstrated that its union wages are reasonable. The company's negotiations with the union were extensive and at arms-length. The resulting wage increases were consistent with actual comparable compensation levels in other similar industries. Furthermore, the wage increases, at 3.25 percent per year, were almost exactly the inflation rate experienced just prior to and at the time of the company's negotiations. For these reasons, the company's union wages should be approved as filed.

ISSUE S-15: BONUS ADJUSTMENT

Summary of Issue

Two questions are presented regarding performance bonuses. For non-officer performance bonuses, NW Natural proposes a 50/50 sharing with shareholders and ratepayers, while Staff proposes a 75 percent disallowance. For merit-based bonuses, NW Natural proposes that 100 percent of the non-officers' bonuses be included in utility expense. Staff recommends a 50/50 sharing for both non-officers' and union employees' merit-based bonuses.

Positions of the Parties

NW Natural first contends that performance bonuses paid to supervisors and managers be shared 50/50 between customers and shareholders. The company believes that the 50/50 sharing of non-officer bonuses is reasonable because the bonuses are designed to make the company's total compensation package for these employees competitive with comparable jobs in the regional labor market.

Second, NW Natural proposes that 100 percent of the non-officers merit-based bonuses, Key Goals program, be included in rates. NW Natural explains that there are five Key Goals, three of which directly relate to customer interests. These include rate stability, customer satisfaction, and productivity. The other two goals, profitability and market share, benefit customers over time. Because the Key Goal program benefits customers, NW Natural maintains that the merit-based bonuses—including those paid to union employees—should be included in utility expense.

Staff proposes a 75 percent disallowance of performance-based bonuses, and a 50/50 sharing of merit-based bonuses. Staff explains that the Commission has traditionally disallowed 75 percent of performance-based bonuses, because they are generally focused on the company's increased earnings and, therefore, bring more benefit to shareholders. It adds that the Commission has generally allowed equal sharing of merit-based bonuses, because they equally benefit shareholders and ratepayers. It contends that the company's Key Goals program should be similarly treated, noting that shareholders clearly benefit through increase earnings if the profitability and market share goals are achieved. Finally, it contends that the Commission should apply these recommendations to all bonuses, including those paid to union employees. It notes that the Commission has always treated union bonuses in the same manner, because the same rationale applies.

Commission Resolution

After our review, we find Staff's bonus adjustments to be reasonable and adopt them. Staff's recommendations are consistent with past ratemaking treatment of bonuses in prior electric and natural gas rate cases. NW Natural has not persuaded us that a change in policy is warranted.

ISSUE S-18: CIS

Summary of Issue

The history of NW Natural's Customer Information System (CIS) development is complex. The analysis of the argument is also difficult, caused primarily by the different approaches used by the parties to evaluate the CIS. There are, however, just two primary questions presented for Commission resolution.

First, the Commission must decide the standard of review for the recovery of NW Natural's CIS investment. Second, the Commission must determine whether the CIS stipulation allows for a reasonable level of CIS recovery and, therefore, should be approved. To fully understand this issue, a review of the history of NW Natural's CIS development is necessary.

Facts

In 1991, NW Natural began an effort to develop a new CIS to serve its residential and commercial accounts. The company's old CIS, the Legacy system, had been constructed in stages beginning in the 1960s. Over the years, NW Natural made numerous modifications and upgrades to the system, but encountered increasing reliability problems and functional limitations. Moreover, the Legacy system was not Year-2000 compliant.

After a bidding process, NW Natural hired IBM to perform a study on CIS implementation strategies. Based on the results of the study, NW Natural awarded a fixed-price contract to IBM for the development of a customized CIS. The overall projected budget, as approved by NW Natural's Board of Directors, was $24 million, which included a $12 million fixed fee to be paid to IBM for its services. NW Natural hoped to have the new system in place and operational by January 1996.

The CIS project was intended to proceed in five phases, whereby each succeeding phase added increased functionality. The first phase, called Application Function Group 1 (AFG1), was intended to allow inquiry of customer data that had been converted from the Legacy system. During AFG1 development, however, the project team experienced significant difficulties in two primary areas. The first problem pertained to the use of an object-oriented database. The project team initially chose to use a relational database[11] in combination with an object-oriented graphical user

[11] A relational database essential stores data in a matrix format of columns and rows, while an object-oriented

interface (GUI). In the course of development, the project team encountered difficulties with interfaces between the object-oriented code in the GUIs and the relational database. Due to these difficulties, the team decided in September 1994 to shift to an object-oriented database called ObjectStore.[12] They believed that a switch to ObjectStore would allow for a faster delivery of AFG1. A memorandum to NW Natural's Board of Directors explained the decision as follows:

> We have been analyzing the data base choice for several months, and IBM now has recommended that we convert from the more traditional, relational data base to the newer and more dynamic (but technologically frontier like) object-oriented data base.

As the project proceeded, however, the team identified numerous risks with the ObjectStore technology. As recognized in the memorandum above, object-oriented database technology was just emerging at that time and, consequently, carried a high risk of unfeasibility. While it provided for some interesting capabilities, the analytical tools to support the platforms were either missing or immature. For these reasons, the project team expressed concerns that major delays were inevitable and that one or more of the components would be incapable of supporting the real-time updates and batch processing updates necessary to run a CIS. By February 1995, the project team concluded that ObjectStore was unable to provide the required performance and would not be able to meet the targeted release dates.

The second major problem encountered during the AFGl development was the cleansing, conversion, and migration of data from the old Legacy system to the new CIS. The Legacy system data files had many problems, including incorrect data, coded data with little or no documentation, free-form data that did not conform to any conventions, inconsistent data, deliberately incorrect data, truncated data, and multi-use fields. The Legacy system also processed various portions of the code at different rates, which varied from time to time during the processing cycle.

As early as May 1993, Staff expressed concern about NW Natural's proposed expenditures for a customized CIS project. In a letter to the company, Staff questioned the company's CIS planning decisions and expected costs:

> Staff does not disagree with NNG about the need for a new CIS. Furthermore, the CIS development plan, if properly implemented, should deliver a functional CIS. Staff is concerned, however, that the proposed CIS utilizing an open systems architecture and customized application will not benefit ratepayers beyond a more traditional and less costly approach. Consequently, when NNG requests recovery of the CIS costs in its next general rate application, staff may review and recommend different cost recovery than the budgeted CIS costs. * * * [W]e would be interested in further discussing rate treatment of CIS expenditures, and your numerical analysis

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database maintains data in "objects" or functional groups.

[12] An object-oriented database maintains data in "objects" or functional groups.

> of the benefits this system provides. While we realize developing a solid cost-benefit analysis for CIS projects is difficult, we also believe that this analysis is critical to any prudence review.

Later, in October 1993, Staff sent another letter to NW Natural restating concerns about the CIS. Again, after agreeing that NW Natural needed a new CIS, Staff stated that it was "not yet persuaded that [NW Natural's] approach is any more beneficial to ratepayers than a less costly approach. You have not provided any numerical cost-benefit analysis, as we previously requested, to illustrate how your system will provide greater benefits to ratepayers to offset the higher costs."

In April 1995, IBM completed the first system deliverable, the AFG1. The AFG1, complete with a cleansed and converted database, enabled user groups to view customer information, print statements of accounts, and create duplicate bills. Increasing concerns about timeliness of delivery and cost for the customized CIS, however, overshadowed the completion of AFG1. The work required to develop AFG1 had been much more extensive and taken much longer than either NW Natural or IBM had expected. IBM had already expended about $7 million of its $12 million fixed-price contract. Their experts were estimating that it would take at least another $30 million to finish the object-oriented development effort.

IBM's concerns about the project were documented in its periodic evaluation reports. During this period, IBM was grading the project as a "D," noting that there were major problems with financial exposure and customer dissatisfaction. It summarized the project as follows:

> This is a project where a greater amount of work has been undertaken in less time and less experience using newer technology than has been undertaken previously by either organization. This background and the track record to date indicate that the successful completion of the project as currently defined is problematic, a condition which is acknowledged by both organizations.

Due to escalating costs and Year 2000 concerns, NW Natural and IBM determined that the customization effort should not continue at any cost. Therefore, the parties agreed that it would be prudent to reexamine whether advances in hardware technology made an off-the-shelf software system a realistic alternative to meet NW Natural's CIS needs. During the summer and late fall of 1995, the project team analyzed existing systems to determine if any were compatible with NW Natural's CIS requirements. The team eventually determined that Orcom's Mirror Pond system was the best option. The system ran on a well-known and well-understood mainframe system, the AS/400, and was the most flexible, cost-effective, and easiest to access.

When it became clear that the project would be shifting directions to a "purchase and modify" course, NW Natural and IBM negotiated a memorandum of understanding setting forth terms of the transition. The MOU first called for a "gap" analysis, in which the project team would complete an analysis of Mirror Pond's capabilities to determine whether and at what cost the system

could be modified to meet NW Natural's needs. The MOU also required IBM to support NW Natural's efforts to obtain Commission approval of the CIS expenditures.

The gap analysis proved successful, and the parties agreed to purchase and modify Orcom's Mirror Pond software instead of continuing with the customized project. NW Natural amended its contract with IBM, and obtained a license from Orcom. The revised contract with IBM, approved by NW Natural's Board of Directors in December 1995, was for $21.5 million, including the amounts already paid. In addition, IBM agreed to pay $2.8 million to NW Natural for equipment that the company had bought, outside of the contract, to serve the AFG1 development system.

At the time of the contract amendment with IBM, NW Natural had several concerns about the CIS project. Given the projections of huge cost overruns in continuing the customized project, the company was concerned that IBM might decide to breach the original contract rather than finish it. NW Natural recognized that there was a tremendous risk if IBM walked away from the contract, leaving the company without a vendor and with not enough time to reliably replace its CIS before the year 2000. In view of these risks, NW Natural concluded that it was not prudent to hold IBM to the original contract and hope that a new customized CIS would be completed and placed in service before the year 2000.

NW Natural was willing to agree to a new fixed-price amount, because it wanted to retain the IBM development team with its knowledge of the utility's CIS needs and practices. Payments were to be made in two streams: $7.6 million for amended contract deliverables, and $7.75 million in quarterly payments over a five-year period. As part of the deal, IBM received some, but not all, of its cost overages. NW Natural estimated that IBM would be left with no profit on the job, and would have to absorb $2 million in unreimbursed costs.

The new contract was designed to bring the CIS project on-line by the beginning of 1998. In November 1997, after 19 months, NW Natural successfully converted from the Legacy system to the new CIS within budget and ahead of schedule. All elements of the new CIS have been in useful service since the changeover. In total, NW Natural spent $40.3 million on CIS development.

Most of the work done in the customized CIS development phase, prior to the decision to seek an off-the-shelf product, was subsequently used to modify Mirror Pond. In early stages of development, NW Natural completed a detailed analysis of all the company's business areas and functions affected by the CIS. The work group also developed business rules to document the business policy and procedures within NW Natural. These business rules, together with an understanding of NW Natural data requirements, served as the basis for the gap analysis phase of the package implementation project and eliminated at least six months from the process.

Furthermore, during the initial phase of the project, NW Natural and IBM created conversion programs to move data from the complicated Legacy system. Project team members experienced serious difficulties with data conversion due to deficiencies with the Legacy system. Eventually,

they developed a set of algorithms to successfully extract data from the old system and place it in a modern database structure. This work was directly transferable to the Mirror Pond system.

In addition, the effort to create the AFG1 database significantly benefited the Mirror Pond customization. The data that was cleansed and extracted from the Legacy system became the clean input for Mirror Pond. The original AFG1 data cleansing routines used to populate the ObjectStore database were rewritten to migrate the cleansed data to the Mirror Pond database. The rules developed for the collection and storage of new customer data were also transferred. NW Natural estimates that the data conversion alone gave the project team a year's head start in its later CIS efforts.

Not all of the work completed in the development of the AFG1, however, was usable in the Mirror Pond conversion phase. The work devoted to the GUI, which included data retrieval and workstation display routines, could not be reused. Based on a calculation of IBM's expenditures in employee and contract hours, this non-salvageable work amounted to 20 percent of the $7 million dollars paid at that point to IBM, or $1.4 million. Similarly, some of the equipment purchased for AFGI was no longer needed. As discussed above, the terms of the amended contract required IBM to pay $2.8 million to NW Natural for most unneeded systems related assets. In 1996, NW Natural also sold some CIS hardware assets, which resulted in charges to utility plant and accumulated depreciation.

CIS Stipulation

After the filing of testimony, NW Natural and Staff entered a stipulation intended to resolve all issues related to the company's CIS investment. The parties agree to a gross CIS plant amount of $37,119,497, resulting in a plant disallowance of $2.7 million. The CIS plant allowance of $37.1 million is based on the amount recommended in Staff's testimony. The parties also agree to an accumulated depreciation balance of $4,819,291, and an annual depreciation expense of $2,819,839.

Although the parties do not agree with each other's assessment of the CIS project, they believe the $37.1 million figure is supported by the testimony of each party, although for different reasons. In addition, the parties agree that the entire plant disallowance should be applied to the company's CIS software account, and that all CIS costs should be allocated to the company's residential and commercial rate schedules.

A. Standard of Review

Positions of the Parties

All parties agree that we must evaluate NW Natural's CIS expenditures according to traditional regulatory concepts applicable to the evaluation of any utility plant project. These concepts require an examination of whether the CIS project is "used and useful" in providing

service, and whether the business decisions made by NW Natural during the CIS development were "prudent."

The parties have two primary areas of disagreement, however, as to the application of the "used and useful" standard to NW Natural's early efforts to develop a custom CIS. First, NWIGU and CUB contend that ORS 757.355 prohibits the recovery of most expenditures related to the customized CIS effort. The statute, enacted by voters through an initiative measure in 1978 (Measure 9), provides:

> No public utility shall, directly or indirectly, by any device, charge, demand, collect or receive from any customer rates which are derived from a rate base which includes within it any construction, building, installation or real or personal property not presently used for providing utility service to the customer.

NWIGU and CUB take the position that the application of this statute is broad and applies to all investment in utility property. Thus, they argue that this Commission must examine all CIS expenditures and deny recovery of any portion that did not ultimately contribute to used and useful utility property.

In response, Staff and NW Natural assert that ORS 757.355 does not require an examination of all expenditures in order to determine whether the CIS project is used and useful. Rather, they view the application of ORS 757.355 to be a question of fact, not law. No party disputes that NW Natural's new CIS is used and useful utility property. Therefore, Staff and NW Natural contend that the issue presented in this case is whether the company's initial effort to develop a custom CIS was a separate project, or whether it was reasonably related to the completion of the final CIS. In other words, they argue that ORS 757.355 applies only if the Commission determines that the company's custom CIS efforts were a separate, unrelated project that is not providing service.

As an example to demonstrate how ORS 757.355 should be applied, Staff states that a natural gas company should be able to recover the cost of test holes drilled on a parcel of land that, after additional drilling, eventually produces gas. Although not directly used for the production of gas, the test holes are reasonably related to an investment that provides service to customers. On the other hand, Staff contends that ORS 757.355 would preclude the recovery of money spent drilling test holes at a distant location prior to finding and producing gas at another location. Under this scenario, Staff believes the Commission would find that the money spent on the remote testing was not reasonably related to the production of gas at another location.

The second area of disagreement arises from NWIGU's and CUB's contention that ORS 757.355 strictly prohibits rate recovery for any facility not used and useful to ratepayers, including retired facilities. In support of this argument, they rely on *Citizens' Utility Board v.*

PUC, 154 Or App 702 (1998).[13] In that case, the Court of Appeals overturned a Commission decision authorizing Portland General Electric a return on its investment in the Trojan Nuclear power plant. Although that case dealt with the interpretation of ORS 757.355—in conjunction with ORS 757.140(2)—as applied to return on undepreciated nuclear plant investment, NWIGU and CUB assert the decision establishes the "used and usefulness" standard as a strict prerequisite for rate recovery.

NW Natural and Staff respond that ORS 757.355 does not automatically bar recovery of plant that is not used and useful. They note that the Oregon legislature effectively overturned *Citizen's Utility Board v. PUC* with the recent passage of HB 3220.[14] In that measure, the legislature amended ORS 757.140 to read:

> (2) Notwithstanding ORS 757.355, in the following cases the commission may allow in rates, directly or indirectly, the return of and a return on amounts on the utility's books of account which the commission finds represents the undepreciated investment in utility property that has been retired from service:
>
> (a) When the retirement is due to ordinary wear and tear, causalities, acts of God, acts of governmental authority; or
>
> (b) When the commission finds that the retirement is in the public interest.

Because HB 3220 also contains provisions that the amendments to 757.140 apply prospectively and retroactively, NW Natural and Staff conclude that the Commission may allow recovery of plant no longer "used and useful" if it finds the decision to retire the plant to be in the public interest.[15]

Commission Resolution

In determining whether NW Natural's CIS project is used and useful, we agree with Staff and NW Natural that our inquiry must focus on the project as a whole. This has been the traditional regulatory approach for determining whether an asset is used and useful in providing utility service and should be put in rate base. In this case, we must determine whether NW Natural's expenditures for the original CIS system were reasonably related to the completed CIS system, so that both may be considered as part of the same project.

[13] The Court of Appeals decision is currently on appeal.
[14] The Governor signed HB 3220 on June 16, 1999. The bill was assigned to Chapter 259 of the 1999 Session Laws.
[15] NWIGU and CUB do not address HB 3220.

We reject the arguments of NWIGU and CUB that ORS 757.355 requires that all CIS expenditures must be "used and useful" and that the Commission must reject all those expenses not directly providing service to customers. Prior Commission decisions focus on whether utility "property" is used and useful, not whether each and every expenditure currently provides service. *See, e.g.*, *Portland General Electric*, Order No. 87-1017. Similarly, the court in *Citizens Utility Board v. PUC*, concluded that ORS 757.355 applies to "property" that is not reasonably necessary to and actually providing utility service. *See* 154 Or App at 710.

This focus on the project as whole, rather than individual expenditures, is likely due to the recognition that all construction projects inevitably involve some difficulties. As Staff points out, a construction crew may need to remove and repour a section of concrete due to improper curing. An unexpected shortage of certain materials may require the redesign of a building after construction has started. Although the initial efforts expended in these examples were not directly used in the final project, they may be, nonetheless, legitimate costs of construction.

For this reason, prudent contractors anticipate that some problems will occur and, in their bids, include recovery of costs resulting from them. We believe that a utility should be similarly treated and allowed to recover the costs of all expenditures reasonably related to the completion of a project that is used and useful in providing utility service. Furthermore, from a practical standpoint, it would be difficult, if not impossible, to review each line-item expenditure and determine whether each was used and useful in contributing to a final project.

Of course, this decision does not eliminate the need to carefully review company decisions during the construction of utility plant. If we determine that utility property is used and useful and should be included in rate base, we must still examine the prudence of the company's business decisions in determining the value of the plant in service. As the Commission stated in *Portland General Electric*, Order No. 87-1017:

> Prudence in planning and constructing a plant is relevant for determining the valuation of the facility once placed in rate base. If a plant shown to be used and useful was constructed at an unnecessarily high cost, only the cost deemed appropriate rather than the actual historical cost, would be placed in rate base.

In this review, therefore, we must determine whether the NW Natural's actions and decisions, based on what it knew or should have known at the time, were prudent in light of existing circumstances. This analysis includes a review of not only the company's decision to make an investment, but also to the amount of money it decided to invest. Expenditures found excessive, unaccounted for, or caused by lack of proper foresight should be deemed imprudent and disallowed.

Concerning the second area of disagreement between the parties, we also agree with NW Natural and Staff that ORS 757.355 does not automatically bar recovery of projects that are not used and useful. As amended by HB 3220, ORS 757.140(2) expressly provides for the possibility of return on investment for plant no longer used or useful that would otherwise be prohibited by ORS 757.355. Thus, if we conclude that the custom CIS effort was a separate project not used and useful in utility service, we must then determine whether recovery may be allowed under the conditions set forth in ORS 757.140(2)(a) and (b).

To summarize, in applying traditional regulatory concepts to the evaluation of NW Natural's CIS project, we begin with an analysis of whether the CIS project is "used and useful" in providing service. In this review, we focus on the project as a whole, and must determine whether NW Natural's efforts to develop a custom CIS were reasonably related to the completed CIS in service today. If we conclude that the custom CIS effort was a separate project, we must then determine whether recovery may be allowed under amended ORS 757.140. In either case, we then proceed with a review of whether the business decisions made by NW Natural during the CIS development were reasonable and prudent.

B. Recovery of CIS Investment

As stated above, NW Natural and Staff have entered a stipulation addressing the recovery of NW Natural's CIS investment. In order to determine whether the stipulation is reasonable and should be adopted, we must make our own independent inquiry into the facts and draw our own conclusions.

1. Used and Useful

Positions of the Parties

NW Natural and Staff contend that the CIS is fully in service and that a majority of the effort and expense associated with the customized CIS work during the 1992-1995 time period was directly transferable to later CIS efforts. Although the parties acknowledge that some of the money spent during the customized effort was not used in the final CIS, they assert that those efforts were reasonably related to the completion of the CIS. Virtually all construction involves some problems. The parties take the position that it is not surprising that a large CIS development effort encountered some difficulties and delays with computer technology.

NWIGU and CUB dispute the claim that a majority of the effort and expense associated with the custom CIS was directly transferable to the second phase of the project. They contend that the custom CIS and the Mirror Pond CIS are separate projects, one of which did not reach completion. Consequently, both parties dispute NW Natural's expenditures related to the development of the customized CIS during 1992 to 1995 and recommend the Commission disallow expenses not related to producing the final CIS. NWIGU also raise questions about NW Natural's accounting practices related to the CIS investment. Based on a review of an

extensive amount of CIS-related information, NWIGU and CUB contend that, pursuant to ORS 757.355, the Commission must disallow $19.2 million in CIS costs. This amounts to almost half of the dollars expended by NW Natural during 1992 to 1995, as well as the $7.75 million in payments to IBM. NWIGU believes that only the data cleansing effort completed during the AFGI development was used in the modified Mirror Pond CIS.

Commission Resolution

We conclude that NW Natural's efforts to develop a custom CIS were reasonably related to the completed CIS system, and that both efforts should be considered as part of the same project. As noted above, it is not unexpected that a project, so large and complex in scope, would encounter some problems requiring a change in direction. Furthermore, contrary to the arguments raised by NWIGU and CUB, a majority of the work and cost expended during the custom phase of the CIS project was moved forward into the final CIS system that is serving customers today. Indeed, the record shows that most of the work done in the custom phase was not only salvageable, but was also necessary to ensure the completion of the Mirror Pond project prior to the Year 2000 deadline. This work involved developing documentation requirements and business rules, extracting, cleansing and converting data, and the completing of the new data network with high-speed capability. These findings support the conclusion that the custom CIS work was not a separate project abandoned by NW Natural, but rather preliminary work that contributed to the completed CIS.

2. Prudence

Positions of the Parties

Although Staff does not claim that any part of NW Natural's CIS is not used and useful, it does believe that NW Natural's CIS costs are too high. It contends that the company should have known of the risks of pursuing untried technology and the high cost experiences of other businesses pursuing custom CIS solutions. It faults NW Natural's decision to use object-oriented technology in its initial efforts. Staff notes that such technology was cutting-edge[16] and carried a higher risk of failure. Staff contends that, by mistakenly discounting the risk of failure relative to the new technology, NW Natural made questionable choices for which it now asks its customers to pay.

Staff further argues that NW Natural unnecessarily increased the scale of its data conversion in the final product to include many more elements than it originally intended with the initial customized approach. It believes that the company showed a lack of proper foresight in system development by deciding to generate additional customer history, develop more data fields and tables to accommodate enhancements to the Mirror Pond product, and by redesigning

[16] IBM later used the term "bleeding edge" to describe the emerging technology.

data access to the system. Staff explains that NW Natural's choice of design and system development led to increased system complexity and, consequently, increased costs.

While Staff believes that certain company decisions were imprudent, it does not identify specific disallowances because NW Natural was not able to provide Staff with required information. Staff asked NW Natural to provide costs in formats, such as activity based costing, that would disclose the functionality of the different developmental stages of the project. NW Natural responded that it could not produce cost information in such a manner without, in its opinion, introducing inaccuracies. In data requests, Staff asked the company for costs for the data conversion, data cleansing, data testing, and Joint Application Development (JAD). NW Natural responded that its records were not recorded or allocated in this manner and that they "simply do not have costs broken down in this fashion." NW Natural stated that it did not track IBM's costs due to the fixed-price nature of the contract.

Due to the lack of data, Staff performed a cost comparison study of CIS projects performed by other utilities. Staff believes that comparing NW Natural's CIS per customer costs with CIS per customer costs incurred by other utilities is a reasonable basis for determining whether plant investment is reasonable. Staff explains that the per customer cost, taken as a whole, captures the sum total of the company's decisions on what CIS to buy, what mistakes were made, and what combination of software and hardware the company finally uses. In other words, examining the expenditures incurred by other utilities in obtaining similar CIS functions during a similar period is an appropriate basis for determining whether NW Natural's expenditures were prudent.

In its study, Staff examined the CIS project costs of 17 other utilities, stated on a cost per customer basis. Staff then adjusted the CIS costs for inflation to determine what the project costs would be in 1998 dollars. Staff used the information from the comparative study to create a set of CIS cost per customer data points so as to create a sample distribution of utility CIS costs. Using these data points, Staff estimated a cost line showing an average CIS cost for the distribution. It then defined a reasonableness cost range for utility CIS projects equal to one standard deviation above and below the average cost line.

Based on its comparative analysis of other utilities, Staff calculated an estimated CIS cost per customer of $49.75 for a utility of NW Natural's size. Taking one standard deviation above this amount, Staff then calculated an upper reasonableness figure for the CIS project of $79.46 per customer. This latter figure, multiplied by the number of customers served by NW Natural, equals $37.1 million. Staff contends that NW Natural's request for CIS recovery should be reduced to this upper reasonableness boundary. Staff believes that an inflation-adjusted amount of $37.1 million is a reasonable amount of CIS costs that should be included in rates.

NW Natural does not agree with Staff's comparative methodology. It criticizes the use of a comparative analysis to determine reasonable CIS costs, and believes that there is no statistical relationship between a utility's CIS costs and the number of customers it serves. The company

contends that its testimony supports a total recovery of $39,825,187 for its CIS investment. This amount consists of the total gross plant cost of $40,343,000, less about $523,000 reflecting the cost of some CIS hardware assets that were sold in 1996. NW Natural contends that the business judgments made by the company during development of the CIS project were prudent and that the new CIS is providing valuable service to its customers.

Although NW Natural does not agree with Staff's assessment of the CIS project, it views Staff's $37.1 million gross plant allowance, and the resulting plant disallowance of $2.7 million, to be a reasonable compromise resolution. For that reason, it agreed to enter the stipulation with Staff. It believes the stipulation is substantially supported by its testimony, albeit for reasons that differ from Staff's analysis.

NWIGU opposes the stipulation and argues that it should be rejected. Based on its own analysis of information provided by NW Natural, NWIGU argues that the Commission should allow the company to include in rate base only $21.161 million of CIS costs. Although NWIGU's proposed disallowance is based on costs it concludes are not "used and useful" under its interpretation of ORS 757.355, a majority of its arguments are also relevant in examining whether the costs were prudently incurred. NWIGU also criticizes NW Natural for making a prudence review difficult and contributing no effort of its own to perform such an analysis or assisting Staff's review. It notes that its own witness had to examine 45 unorganized boxes of documents in making its determination.

NWIGU disapproves of Staff's comparative analysis that served as the basis for the stipulated disallowance of $2.7 million. It specifically questions Staff's use of one standard deviation above the CIS cost per customer estimate to establish the upper end of a reasonable level of expenditures. NWIGU contends that neither Staff nor the company has provided any justification for that decision. Had Staff simply used the average CIS cost per customer estimate from the comparison analysis to determine a prudent investment figure, the disallowance would be $17.2 million.

CUB also opposes the CIS stipulation based on its "used and useful" analysis under ORS 757.355. It adopts NWIGU's conclusion that, at most, only $21.16 million of NW Natural's CIS investment should be included in rate base. It also faults NW Natural for not providing activity-based cost information to assist Staff in its prudence review.

Commission Resolution

Like Staff and NWIGU, we agree that NW Natural's CIS expenditures were too high—caused in part by mistakes in company decision making. In choosing an object-oriented database for the customized CIS effort, NW Natural acknowledged the risks of pursuing an untried technology. At that time, however, NW Natural apparently lacked the foresight to adequately evaluate these risks in determining a proper CIS development path. By mistakenly discounting the risk of failure relative to the benefits of the new technology, NW Natural made questionable

choices for which it now wants its customers to pay. NW Natural's choice of design and system development also led to increased system complexity and costs, such as the additional data conversion processes needed to make the Mirror Pond modification operable.

We also agree with Staff and NWIGU that NW Natural made a prudence review difficult. The company's inability to provide activity-based cost information, its failure to complete the requested cost-benefit analysis, and its unorganized CIS records have made this review extremely difficult. We acknowledge the company's claim that this information is not available due, in part, to the fact that IBM performed its work under a fixed-price contract. That fact, however, does not eliminate NW Natural's burden of proof to establish that its expenditures were prudently incurred. Moreover, we note that, despite NW Natural's claims that such information could not be obtained, IBM was contractually required to support and assist NW Natural's efforts to obtain Commission approval of its CIS investment.

Under these circumstances, we find that Staff's comparative analysis to be a proper method to evaluate the reasonableness of NW Natural's CIS costs. At the outset, we note that the Commission has relied on similar cost comparison methods to assess the prudence of utility expenditures in other rate cases. *See, e.g., In the Matter of the Revised Tariff Schedules for Electric Service in Oregon filed by Portland General Electric Company*, Order No. 95-322. In this case, Staff's study appropriately compares the choice of technology and range of CIS costs incurred by similar utilities during approximately the same time NW Natural made its CIS project decisions. This information provides a reasonable context for determining what NW Natural knew or should have known about CIS development and evaluation of the company's expenditures. Staff's comparative analysis confirms that NW Natural's CIS costs were much higher than average for a utility of its size.

We do not believe, however, that we should rely solely on Staff's cost comparison to determine the prudence of NW Natural's actions. As Staff acknowledges, the figures used in its study represent total costs, not just those found prudent by other regulatory commissions. The CIS costs for those utilities that underwent a prudence review are much lower than the overall average per customer cost. For this reason, comparing total costs, as opposed to prudently incurred CIS costs of other utilities, may produce inflated results. Staff's addition of one standard deviation to this figure may inflate the determination even further.

Fortunately, in addition to performing a comparative analysis, Staff also considered a historical approach to determine and evaluate NW Natural's CIS costs. This approach is based on the assumption that the original project cost is a good estimate of the current cost, after escalating costs for inflation. Using this method, Staff determined a CIS cost of $26.9 million. We find this historical cost approach to be another appropriate method to evaluate the reasonableness of NW Natural's CIS costs. As Staff explains, historical cost is a valid approach because NW Natural conducted planning studies, compared and evaluated alternative CIS systems, and developed project cost estimates prior to the Board of Director's approval in 1993

of $24 million for the CIS project. Because NW Natural diligently prepared its studies and cost estimates, this amount represented NW Natural's best estimate of its CIS project in 1993.

By using both the historical and comparable cost approach, we can define a reasonable range of CIS costs between $26.9 million and $37.1 million. Rather than choose the top of this range for NW Natural, as Staff did, we select the midpoint of the range as a reasonable cost determination. This equals a gross CIS plant amount of $32 million, resulting in a $7.8 million disallowance. Based on this record, we find that this level of recovery is appropriate for NW Natural's CIS investment.

Accordingly, the stipulation between NW Natural and Staff, allowing $37.1 million recovery of gross CIS plant, should be rejected. Based on Staff's comparative and historical cost analyses, we conclude that NW Natural should be entitled to recover $32 million for its CIS investment. We believe that this reflects the amount of expenses prudently incurred by the company in replacing its Legacy CIS system. This recovery leaves an accumulated depreciation balance of $4.4 million, and an annual depreciation expense relating to the CIS of $2,479,000 in the test period results.

Although we reject NW Natural's and Staff's stipulated amount of CIS recovery, we agree with other provisions of the stipulation not challenged by any party. Accordingly, pursuant to those agreements, NW Natural will, for ratemaking purposes, allocate the entire plant disallowance to the CIS software account. Furthermore, as further addressed in our discussion of rate spread, all CIS costs will be allocated to the company's residential and commercial rate schedules. The parties' other stipulated ratemaking adjustments for the CIS, including deferred taxes and interest coordination, are adopted.

ISSUE S-23: RATE SPREAD AND RATE DESIGN

Summary of Issue

In its filing, NW Natural sponsored a full LRIC study that showed NW Natural's rates for small sales customers were below 100 percent of LRIC results, while schedules for large industrial customers were above 100 percent of costs. The question presented is how far we should move rates towards the LRIC results.

Positions of the Parties

NWIGU points out that the company's LRIC study reveals that there is no relationship between the incremental costs NW Natural incurs and the rates it charges to its various customers. That study shows the following rate disparities:

Schedule	Percent of Avg. Marginal Cost Recovery at Current Rates
1 – General	76%
2 – Residential	88%
3 – Commercial	87%
4 – Industrial	158%
5 – Industrial	309%
6 – Industrial	193%
10/11 – Seasonal	105%
21 – Industrial	120%
23 – Industrial	616%
55 – Industrial	378%
90 – Transport	175%
91 – Transport	161%

NWIGU contends that these rate disparities are unfair to the company's industrial customers and send inaccurate price signals. Consequently, NWIGU is recommending that the Commission promptly eliminate these rate disparities and to move all rate schedules to equal recovery of LRIC.

NWIGU maintains that this can be done without causing rate shock to any customer class. It explains that, if there is no revenue increase or decrease resulting from this case, the significant disparities can be eliminated with a one-time 9.2 percent increase to all residential and commercial customer rates. NWIGU adds that the one-time increase would be even less if the Commission adopts Staff's overall recommendation for a revenue reduction. If there is an overall increase in rates, NWIGU acknowledges that there may be a need to phase in the changes, but adds that, in any event, the company's rates should be brought into parity within two years.

NWIGU also urges the Commission to eliminate the current tariff requirement that customers must maintain alternate fuel in order to qualify for interruptible sales or transportation service. NWIGU contends that customers should be free to halt production rather than install alternate-fuel-burning equipment in order to qualify for interruptible service. It also contends that the tailblock rate for Schedule 55 should be decreased to 1.5 cents per therm. NWIGU contends that the current 2-cent per therm floor rate may be causing the company to lose sales that would contribute to fixed cost recovery.

NWIGU concludes its arguments with a proposal to create an additional declining block for Schedules 90 and 91 for monthly usage similar to the larger blocks of the special contracts. NWIGU notes that both schedules currently have a tailblock for all usage in excess of 250,000 therms per month. NWIGU recommends the Commission create a new block for usage

from 250,000 to 1,000,000 therms per month, and then add a new tailblock for usage in excess of 1,000,000 per month. NWIGU contends that the rate for the new tailblock should be 1.5 cents per therm for Schedule 91 and 1.9 cents per therm for Schedule 90.

Staff objects to most of NWIGU's proposals. At the outset, Staff notes that NW Natural's LRIC study is conceptual and should not be applied directly for rate determination purposes. Staff notes that LRIC revenues are understated compared to embedded cost of service, partly because NW Natural did not allocate $34 million per year in administrative and general expenses to LRIC margins. Further, Staff notes that the company's study excludes about $22 million per year in British Columbia transportation charges. It also points out that the value of service (elasticity) factors have been used to gross up "indicated" margins rather than using a cost of service reconciliation. For these and other reasons, Staff maintains that NW Natural's LRIC study is not accurate enough to be the sole basis for final rates, as advocated by NWIGU.

Staff agrees that rates should be moved towards, but not to, LRIC results. It first recommends that certain schedules be targeted for rate decreases. Staff proposes that Schedules 23 and 91 receive a 10 percent decrease, which would shift $632 thousand and $607 thousand, respectively, in revenue requirement to other schedules. Staff also advocates a 20 percent decrease in Schedule 90 rates, and that the rates be replicated for Schedule 6 rates to give industrial customers a comparable choice between firm transportation service on Schedule 90 or firm sales on Schedule 6.

Staff next recommends that the revenue requirement for NW Natural's CIS be allocated to residential and commercial schedules based on the number of customers and that, for rate design purposes, customer charges on these two schedules be increased by $1.00 per month. It also proposes that the Mist II storage costs be spread to low load factor sales schedules in relation to their contribution to peak load demand. Staff also believes that the residual revenue requirement change should be spread to Schedules I through 21, except Schedules 5 and 6, on an equal percentage of margin allocation. Staff notes that this residual might be either a positive or negative number depending upon the final resolution of the issues in this case. Staff adds that equal percentage of margin is an appropriate allocator for the residual because margins are not distorted by commodity gas cost.

Staff recommends no general rate change for Schedules 5 or 55. Staff explains that, for all practical purposes, Schedule 5 is currently used only in conjunction with special contracts. Because these contracts are negotiated to compete with market-based alternatives such as bypass and oil, Staff does not believe that this schedule should be adjusted for any general rate change. Similarly, Staff further explains that Schedule 55 is market-based and rates are automatically adjusted each month based on an oil price formula. Again, for this reason, Staff recommends that no general rate change be applied to Schedule 55. It does not believe that the tailblock rate should be decreased from 2 cents per term, as advocated by NWIGU.

Staff does not support NWIGU's tailblock proposals for Schedule 90, Firm Transportation Service. Staff explains that NWIGU's proposed new tailblock size of 1 million therms per month averages out to usage of more than 32,000 therms per day. Staff does not believe it would be appropriate to offer a tailblock incentive for very large sized firm loads at what are essentially interruptible tailblock rates. Staff does agree, however, with NWIGU's proposal to establish a new tailblock for Schedule 91, Interruptible Transportation Service. Because the utility does not have an obligation to provide interruptible transportation during times when distribution system capacity is needed for higher priority loads, Staff believes that large interruptible load can generally be accommodated. Staff notes that the tailblock rate on Schedule 91 should be 2.0 cents per therm, not 1.5 cents per therm as recommended by NWIGU. Staff explains that the higher amount corresponds to LRIC results that are adjusted to include a reasonable allocation of the administrative and general expenses.

Finally, Staff supports NWIGU's proposal to eliminate the alternative fuel capability requirement for Schedules 23, 90, and 91 if sufficient conditions exist to control the unauthorized use of gas. Staff notes that, although NW Natural's tariffs already establish certain requirements and penalties to ensure proper use of gas by interruptible customers, the existing tariff conditions alone are insufficient to control unauthorized use. Therefore, if the alternative fuel capacity requirement is eliminated, Staff recommends the Commission specify that customers who have been in substantial violation of curtailment or entitlement notices shall be involuntarily transferred to Schedule 4 firm sales service for a 12-month period beginning the following May 1. Staff also asks the Commission to explicitly authorize NW Natural to physically close off industrial service valves during times of unauthorized use as necessary to preserve system integrity. It further believes that, in any event, the alternative fuel capability requirement be retained for Schedule 55 because its monthly market-based rates are driven by the customers' ability to burn a certain type of fuel.

NW Natural generally agrees with Staff's recommendations. Although it believes that its LRIC study is an objective and thorough review of the cost of serving customers, the company contends that Staff's proposals to move rates towards the LRIC results are reasonable and should be adopted. In response to NWIGU's arguments, NW Natural notes that the Commission is not legally required to move rates entirely to LRIC results and adds that no regional utility has gone all the way to marginal cost pricing concepts. It also adds that adopting NWIGU's proposal to move rates to LRIC results would cause high levels of customer migration from higher to lower margin schedules, thereby generating revenue and margin loss that would either prohibit the company from earning a fair return or ensuring customer rate increases in the future. According to NW Natural, these and other considerations dictate against wholesale movement to LRIC.

NW Natural also supports the elimination of the alternate fuel requirement on all interruptible sales and transportation schedules with the exception of Schedule 55. NW Natural expands on the conditions proposed by Staff, and states that it would accept the elimination of the requirement if:

1. The interruptible customer must make their site ready to accommodate the use and installation of electronic metering devices.

2. The interruptible customer must provide NW Natural with up to three pager and fax numbers of authorized persons that will respond to a call for curtailment.

3. The interruptible customer agrees to accept curtailment/entitlement notification by fax/page only, and agrees to be responsible to contact NW Natural to confirm the notice, ask questions, or request emergency gas, as applicable.

4. NW Natural must be able to enforce a curtailment order with:

   a. the right to physically disconnect or valve-off an interruptible customer that does not comply with a curtailment order, and to assess a restoration charge of $150.00 during normal business hours and $600.00 after normal business hours; and

   b. the right to transfer the customer to a firm service rate schedule for a minimum one-year term, for all or part of the customer's gas usage. The portion to be transferred to a firm service rate schedule would be determined as the total of the volumes taken by the customer in excess of the volumes allowed in the curtailment order, converted to an equivalent daily amount. The effective date of the rate schedule transfer will be the first full gas day following the date of service restoration; and

   c. the right to assess an unauthorized use charge in the amount of $10.00 per therm for all volumes taken in excess of the volumes allowed in the curtailment order.

5. NW Natural would reserve the right to permanently refuse to provide interruptible sales or transportation service to any customer that violates two or more curtailment orders.

6. Emergency gas will continue to be made available at company's sole discretion.

If the Commission agrees to eliminate the alternate fuel requirement from all schedules (except Schedule 55) on the these conditions, NW Natural states that it will conform its interruptible and transportation schedules other than Schedule 55 accordingly in the company's compliance filing in this docket.

Finally, NW Natural does differ with Staff's response to NWIGU's proposal to reduce the Schedule 55 floor rate from 2 cents to 1.5 cents per therm. Because Schedule 55 is a market-based rate tied to the price of oil, NW Natural contends that lowering the floor price would prevent the migration of these customer to oil when oil prices are low.

Commission Resolution

After our review, we reject NWIGU's proposal to immediately move NW Natural's rates all the way to LRIC results. First, we share the concerns identified by Staff about the accuracy of the company's LRIC study. The exclusion of certain demand and capacity charges from the LRIC study has exaggerated over-recovery of some schedules results, while understating recovery of others. Staff has provided persuasive evidence that, if these costs are included, the industrial schedules are not massively overpriced as claimed by NWIGU. Second, we agree that rates should be moved towards actual costs caused by each customer class. With increasing competition, public policy dictates continued movement towards rate parity. However, rates should be moved in a manner that prevents rate shock. Moreover, moving NW Natural's rates fully to LRIC would potentially injure the company's competitive position.

We find Staff's approach to be a more reasonable method of moving rates towards LRIC in this docket. While not agreeing with all the particulars of the company's LRIC study, Staff reasonably considered the results of the study and addressed NWIGU's concerns by targeting certain schedules for rate reductions. Staff also recognized that the revenue requirement resulting from the Mist II and CIS investments should not be borne by transportation service customers members, but rather allocated to the commercial and residential customers for whom the investments were made. In short, Staff has reasonably moved the company's schedules by reducing key industrial rates, maintaining rates for current market-based schedules, and increasing residential and commercial rates.

We also agree with Staff's suggestion to adopt NWIGU's proposed new tailblock for Schedule 91, but not Schedule 90. Because NW Natural can generally accommodate large loads on the distribution system with interruptible class schedules, an additional declining rate for interruptible transportation service is appropriate for Schedule 91. The company does not have such flexibility with firm class schedules, which imply an obligation to provide firm service regardless of the customer's location on the distribution system. Therefore, we share Staff's view that a new tailblock is not appropriate for Schedule 90. Instead, we agree with Staff that the Schedule 90 rates should be reduced 20 percent and replicated for Schedule 6. In addition, we adopt Staff's rate policy that tailblock (as well as any preceding block) rates be no less than 2 cents per therm for interruptible class transportation service. This applies to both Schedule 91 and Schedule 55. NWIGU's and NW Natural's reliance on the LRIC study to support a lower rate is misplaced, given the problems with the study identified by Staff.

We accept NWIGU's proposal to eliminate the alternative fuel capability requirement for Schedules 23, 90, and 91. As noted by NWIGU, the alternative fuel requirement was included in NW Natural's tariffs to help ensure that interruptible customers could comply with curtailment orders by switching to alternative fuels, such as oil, propane, or wood fuel. That requirement is not needed if other safeguards are established. We find those conditions proposed by NW Natural would reasonably allow the company to assure that interruptible customers comply with curtailment orders. Accordingly, the Commission adopts them.

We do not believe that the alternative fuel capability should be eliminated for Schedule 55. Because the pricing structure of Schedule 55 is based on the customer having a real competitive alternative in fuel oil, we agree with NW Natural that Schedule 55 must remain available only to those industrial customers who actually have alternative fuel capability.

Finally, NW Natural and Staff concur on amortization of prudently incurred Y2K expenditures. The annual $1.2 million amortization expense related to Y2K activities will be recovered through a separate tariff instead of being included in base rates. *See* page 6 of Appendix D. After gross-up for revenue sensitive effects, the related revenue requirement is $1,234,000 per year on a system basis, or $1,165,000 per year for Oregon. The Y2K costs will be spread to rate schedules 1, 2, 3, 4, 10, 19, and 21 on an equal percent of margin basis. This is similar to Staff's rate spread for the residual revenue requirement; however, the Y2K rate increments are temporary and will be removed once the costs have been fully recovered.

IV. ADDITIONAL ISSUE: PGA EARNINGS REVIEW

In our recent investigation to examine policies and procedures related to the recovery of purchased gas costs, we concluded that the ROE determined in this docket shall serve as the baseline ROE for NW Natural's PGA-related spring earnings review. *See* Order No. 99-272 at 9. This baseline ROE is adjusted annually by the amount of change in the average of the 5-, 7- and 10- year U.S. Treasury interest rates. We also concluded that, for purpose of the first adjustment, the amount of change would be calculated using the risk-free rate that was used to determine the ROE in UG 132.

Accordingly, we clarify that the 10.25 percent cost of equity we calculated above for NW Natural shall serve as the initial benchmark ROE for the company's PGA-related earnings review. Furthermore, that benchmark ROE shall be adjusted by the change in the risk-free rate, 6.3 percent, used in this case.

CONCLUSIONS

1. NW Natural is a public utility subject to the Commission's jurisdiction.

2. The stipulation, attached as Appendix C, should be rejected. The stipulation, attached as Appendix D, should be adopted.

3. Based on the record in this case, NW Natural's rates that result from the stipulation and the Commission's conclusions in the body of this order are just and reasonable.

ORDER

IT IS ORDERED that:

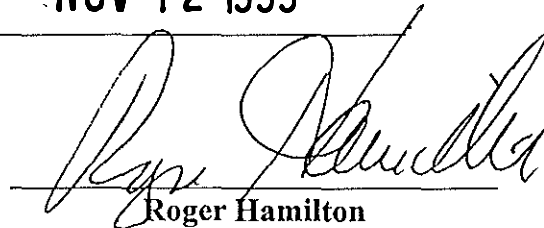
1. The tariff revisions filed by NW Natural on October 16, 1998, are permanently suspended.

2. The stipulation attached as Appendix D is adopted in its entirety.

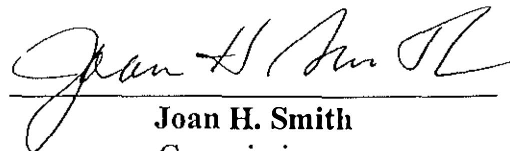
3. NW Natural may file revised tariffs consistent with findings of fact and conclusions of law contained in this order, to be effective no earlier than three business days after receipt by the Commission.

Made, entered, and effective NOV 12 1999

Ron Eachus
Chairman



Roger Hamilton
Commissioner



Joan H. Smith
Commissioner

A party may request rehearing or reconsideration of this order pursuant to ORS 756.561. A request for rehearing or reconsideration must be filed with the Commission within 60 days of the date of service of this order. The request must comply with the requirements of OAR 860-014-0095. A copy of any such request must also be served on each party to the proceeding as provided by OAR 860-013-0070. A party may appeal this order to a court pursuant to ORS 756.580.

Order

NW Natural
Results of Operations - UG 132
Twelve Months Ended December 31, 1998
($000)

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		Test Year Results (a)	Adjustments (b)	Adjusted Results (c)	Required Change for Reasonable Return (d)	Results at Reasonable Return (e)
1	**Operating Revenues**				0.1%	
2	Sale of Gas	$381,495	$10,515	$392,010	$260	$392,270
3	Revenue & Technical Adjustments	274	(274)	0		0
3	Transportation	21,020	(1,509)	19,511		19,511
4	Miscellaneous Revenues	1,353	238	1,591		1,591
5	**Total Operating Revenues**	$404,142	$8,970	$413,112	$260	$413,372
6	**Operating Revenue Deductiuons**					
7	Gas Purchased	$174,894	$6,833	$181,727		$181,727
8	Uncollectible Accrual	1,630	(257)	1,373	1	1,374
9	Other O&M Expenses	73,916	(4,421)	69,495		69,495
10	**Total O&M Expenses**	$250,440	$2,155	$252,595	$1	$252,596
11	Federal Income Taxes	18,637	2,643	21,280	83	21,363
12	State Excise	2,977	489	3,466	16	3,482
13	Property Taxes	8,373	612	8,985		8,985
14	Other Taxes	14,554	162	14,716	6	14,722
15	Depreciation & Amortization	44,038	(1,044)	42,994		42,994
16	**Total Operating Rev. Deductions**	$339,019	$5,017	$344,036	$106	$344,142
17	**Net Operating Revenues**	**$65,123**	**$3,953**	**$69,076**	**$154**	**$69,230**
18	**Average Rate Base**		0			
19	Utility Plant in Service	$1,166,128	$20,161	$1,186,289	$0	$1,186,289
20	Accumulated Depreciation & Amortization	(385,644)	272	(385,372)		(385,372)
21	**Net Utility Plant**	$780,484	$20,433	$800,917	$0	$800,917
22	Aid in Advance Construction	(1,817)	0	(1,817)		(1,817)
23	Materials & Supplies	24,875	2,100	26,975		26,975
24	Water Heater Program	77	0	77		77
25	Leasehold Improvements	1,832	0	1,832		1,832
26	Accumulated Deferred Income Taxes	(51,811)	820	(50,991)		(50,991)
27	**Total Average Rate Base**	**$753,640**	**$23,353**	**$776,993**	**$0**	**$776,993**
28	**Rate of Return**	8.64%		8.89%		8.91%
29	**Implied Return on Equity**	9.69%		10.21%		10.25%

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NW NATURAL
Results of Operations - UG 132
Twelve months ended 12/31/98

INPUT ASSUMPTIONS

COST OF CAPITAL - 12 months ending 12/31/98	% of CAPITAL	COST	WEIGHTED COST
Long Term Debt	47.51%	7.75%	3.68%
Preferred Stock	4.78%	7.06%	0.34%
Common Equity	47.71%	10.25%	4.89%
Total	100.00%		8.91%

REVENUE SENSITIVE COSTS	
Revenues	1.00000
Operating Revenue Deductions	
Uncollectible Accounts	0.00413
Taxes Other - Franchise	0.02150
- OPUC fee	0.00250
State Taxable Income	0.97187
State Income Tax @ 6.24%	**0.06064**
Federal Taxable Income	0.91123
Federal Income Tax @ 35%	0.31893
ITC	0.00000
Current FIT	**0.31893**
Total Excise Taxes	**0.37957**
Total Revenue Sensitive Costs	**0.40770**
Utility Operating Income	0.59230
Net-to-Gross Factor	**1.68834**

99-697

NW NATURAL
Adjustments to Results of Operations - UG 132
Twelve Months ended December 31, 1998
($000)

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		PGA Repricing Effects Adjustment (S-1)	Repricing Effect on Sales Vols. Adjustment (S-2)	Weather Normalization Adjustment (S-3)	Transportation Margins Adjustment (S-4)	Other Revenue Adjustment (S-5)	Federal & State Income Tax Adjustment (S-6)	Advertising Adjustment (S-7)
1	**Operating Revenues**							
2	Sale of Gas	($4,677)	$2,891	$12,705	($404)			
3	Revenue & Technical Adjustments					(274)		
3	Transportation				(1,509)			
4	Miscellaneous Revenues					238		
5	**Total Operating Revenues**	($4,677)	$2,891	$12,705	($1,913)	($36)	$0	$0
6	**Operating Revenue Deductions**							
7	Gas Purchased		2,307	4,526				
8	Uncollectible Accrual	(19)	12	52	(8)	(1)		
9	Other O&M Expenses							(808)
10	**Total O&M Expenses**	($19)	$2,319	$4,578	($8)	($1)	$0	($808)
11	Federal Income Taxes	(1,496)	165	2,567	(610)	(13)	407	265
12	State Excise	(284)	31	488	(116)	(3)	65	50
13	Property Taxes							
14	Other Taxes	(100)	69	305	(46)	6		
15	Depreciation & Amortization							
16	**Total Operating Rev. Deductions**	(1,899)	2,584	7,938	(780)	(11)	472	(493)
17	**Net Operating Revenues**	**($2,778)**	**$307**	**$4,767**	**($1,133)**	**($25)**	**($472)**	**$493**
18	**Average Rate Base**							
19	Utility Plant in Service							
20	Accumulated Depreciation & Amortization							
21	**Net Utility Plant**	$0	$0	$0	$0	$0	$0	$0
22	Aid in Advance Construction							
23	Materials & Supplies							
24	Water Heater Program							
25	Leasehold Improvements							
26	Accumulated Deferred Income Taxes						1	
27	**Total Average Rate Base**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1**	**$0**
	Revenue Requirement Effect	$4,690	($518)	($8,048)	$1,913	$42	$797	($832)

NW NATURAL
Adjustments to Results of Operations - UG 132
Twelve Months ended December 31, 1998
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		Memberships Dues & Donations Adjustment (S-8)	Sales & Marketing Adjustment (S-9)	Property Tax Adjustment (S-10)	Uncollectible Adjustment (S-11)	Communication Governmental Public Relations Adjustment (S-12)	Wage & Salary Adjustment (S-13)	Workforce Adjustment (S-14)
1	**Operating Revenues**							
2	Sale of Gas							
3	Revenue & Technical Adjustments							
3	Transportation							
4	Miscellaneous Revenues							
5	**Total Operating Revenues**	$0	$0	$0	$0	$0	$0	$0
6	**Operating Revenue Deductions**							
7	Gas Purchased							
8	Uncollectible Accrual				(293)			
9	Other O&M Expenses	(121)	(1,288)			(419)	(394)	(517)
10	**Total O&M Expenses**	($121)	($1,288)	$0	($293)	($419)	($394)	($517)
11	Federal Income Taxes	40	423	(128)	96	138	141	185
12	State Excise	8	80	(24)	18	26	27	35
13	Property Taxes			391				
14	Other Taxes						(33)	(39)
15	Depreciation & Amortization							
16	**Total Operating Rev. Deductions**	(73)	(785)	239	(179)	(255)	(259)	(336)
17	**Net Operating Revenues**	**$73**	**$785**	**($239)**	**$179**	**$255**	**$259**	**$336**
18	**Average Rate Base**							
19	Utility Plant in Service						($86)	($230)
20	Accumulated Depreciation & Amortization							
21	**Net Utility Plant**	$0	$0	$0	$0	$0	($86)	($230)
22	Aid in Advance Construction							
23	Materials & Supplies							
24	Water Heater Program							
25	Leasehold Improvements							
26	Accumulated Deferred Income Taxes							
27	**Total Average Rate Base**	**$0**	**$0**	**$0**	**$0**	**$0**	**($86)**	**($230)**
	Revenue Requirement Effect	($123)	($1,325)	$404	($302)	($431)	($450)	($602)

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NW NATURAL
Adjustments to Results of Operations - UG 132
Twelve Months ended December 31, 1998
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		Bonus Adjustment (S-15)	Payroll Overhead Adjustment (S-16)	Mist Adjustment (S-17)	CIS Adjustment (S-18)	Y2K Adjustment (S-19)	Insurance Cost Adjustment (S-20)	Low-Pressure Conversion Retirement Adjustment (S-21)
1	**Operating Revenues**							
2	Sale of Gas							
3	Revenue & Technical Adjustments							
3	Transportation							
4	Miscellaneous Revenues							
5	**Total Operating Revenues**	$0	$0	$0	$0	$0	$0	$0
6	**Operating Revenue Deductions**							
7	Gas Purchased							
8	Uncollectible Accrual							
9	Other O&M Expenses	(1,657)	36	172			(9)	
10	**Total O&M Expenses**	($1,657)	$36	$172	$0	$0	($9)	$0
11	Federal Income Taxes	548	(14)	(689)	247	(145)	3	513
12	State Excise	104	(3)	(131)	47	(28)	1	98
13	Property Taxes			221				
14	Other Taxes							
15	Depreciation & Amortization			641	(521)	400		(1,564)
16	**Total Operating Rev. Deductions**	(1,005)	19	214	(227)	227	(5)	(953)
17	**Net Operating Revenues**	**$1,005**	**($19)**	**($214)**	**$227**	**($227)**	**$5**	**$953**
18	**Average Rate Base**							
19	Utility Plant in Service	($352)	$170	$27,322	($7,825)	$1,162		
20	Accumulated Depreciation & Amortization			(321)	593			
21	**Net Utility Plant**	($352)	$170	$27,001	($7,232)	$1,162	$0	$0
22	Aid in Advance Construction							
23	Materials & Supplies			2,100				
24	Water Heater Program							
25	Leasehold Improvements							
26	Accumulated Deferred Income Taxes			(134)	953			
27	**Total Average Rate Base**	**($352)**	**$170**	**$28,967**	**($6,279)**	**$1,162**	**$0**	**$0**
	Revenue Requirement Effect	($1,750)	$58	$4,719	($1,328)	$558	($8)	($1,609)

NW NATURAL
Adjustments to Results of Operations - UG 132
Twelve Months ended December 31, 1998
($000)

	02-Nov-99 07:41 AM	Capital Stock Expense Adjustment (S-22)	Total Adjustments
1	**Operating Revenues**		
2	Sale of Gas		$10,515
3	Revenue & Technical Adjustments		(274)
3	Transportation		(1,509)
4	Miscellaneous Revenues		238
5	**Total Operating Revenues**	$0	$8,970
6	**Operating Revenue Deductions**		
7	Gas Purchased		6,833
8	Uncollectible Accrual		(257)
9	Other O&M Expenses	584	(4,421)
10	**Total O&M Expenses**	$584	$2,155
11	Federal Income Taxes	0	2,643
12	State Excise	0	489
13	Property Taxes		612
14	Other Taxes		162
15	Depreciation & Amortization		(1,044)
16	**Total Operating Rev. Deductions**	584	5,017
17	**Net Operating Revenues**	($584)	$3,953
18	**Average Rate Base**		
19	Utility Plant in Service		$20,161
20	Accumulated Depreciation & Amortization		272
21	**Net Utility Plant**	$0	$20,433
22	Aid in Advance Construction		0
23	Materials & Supplies		2,100
24	Water Heater Program		0
25	Leasehold Improvements		0
26	Accumulated Deferred Income Taxes		820
27	**Total Average Rate Base**	$0	$23,353
	Revenue Requirement Effect	$986	($3.159)

99-697

OREGON RATE SPREAD IN UG-132

Rate Sch	Service Description	OR Margin Revenues	Mist II-OR Allocation	CIS-OR Allocation	Targeted Mitigation	Residual = % of mar	General Change	Annual Therms	Base Rate Change	Y2K Change	Separate Schedule Y2K temp incr	Current Ave Rates	Total Change
1	General Sales	$ 332	$ 4	$ 32		$ (12)	$ 24	488	$ 0.05001	$ 2	$ 0.00323	$ 0.88	6.1%
2	Residential Sales	$ 153,969	$ 2,728	$ 4,660		$ (5,370)	$ 2,018	308,425	$ 0.00654	$ 730	$ 0.00237	$ 0.69	1.3%
3	Com, Inst, Industrial	$ 54,687	$ 1,261	$ 562		$ (1,907)	$ (84)	137,972	$ (0.00061)	$ 259	$ 0.00188	$ 0.59	0.2%
4	Large Firm	$ 32,052	$ 464			$ (1,118)	$ (654)	120,422	$ (0.00543)	$ 152	$ 0.00126	$ 0.46	-0.9%
6	Firm Capacity Sales				$ (467)		$ (467)	29,283	$ (0.01595)			$ 0.33	-4.8%
10	Seasonal & Off Peak	$ 839				$ (29)	$ (29)	2,542	$ (0.01151)	$ 4	$ 0.00157	$ 0.44	-2.2%
19	Gas Light	$ 17				$ (1)	$ (1)	49	$ (0.01210)	$ 0	$ 0.00165	$ 0.55	-1.9%
21	Firm High Load Facto	$ 3,789				$ (132)	$ (132)	11,051	$ (0.01196)	$ 18	$ 0.00163	$ 0.53	-1.9%
23	Hi Priority Interruptible	$ 3,212			$ (632)		$ (632)	18,438	$ (0.03429)			$ 0.34	-10.0%
90	Basic Firm Transport	$ 1,779			$ (356)		$ (356)	16,134	$ (0.02206)			$ 0.11	-20.0%
91	Basic Interrupt Transp	$ 6,077			$ (607)		$ (607)	84,696	$ (0.00717)			$ 0.07	-10.0%
	Totals-Oregon		$ 4,457	$ 5,254	$ (2,062)	$ (8,568)	$ (919)			$ 1,165			

Footnotes:

a. Oregon revenue requirement changes have been taken as 94.445% of system based on company's case. i.e. $1,234 system change is a $1,165 Oregon change.

b. For rate design, increase Schedules 2 and 3 Customer Charges by $1.00/month and decrease usage rates accordingly. i.e. RS 2 ($0.01481)/th; RS 3 ($0.00400)/th.

c. For Schedule 91, add a new 2.0 cent/therm tailblock for usage over 1 million therms/month.

d. There is no general rate change for Rate Schedules C, 5, 15, 54, and 55.

e. Dollars and therms are in thousands.

99-697
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JUL 15 1999

Public Utility Commission of Oregon
Administrative Hearings Division

STIPULATION
(Customer Information System)

Date Entered: July 15, 1999

Parties to Stipulation: Northwest Natural Gas Company ("NW Natural" or "Company"); Oregon Public Utility Commission Staff ("Staff")

Docket: NW Natural General Rate Case
Docket UG 132

Authority: ORS 757.210; OAR 860-014-0085

1. Plant: NW Natural and Staff stipulate to a gross plant amount of $37,119,497 for the Company's new Customer Information System ("CIS"), representing a disallowance for ratemaking purposes of $2,705,687 from the Company's case as filed.

2. Accumulated Depreciation: NW Natural and Staff stipulate to an accumulated depreciation balance of $4,819,291 for the CIS, representing a disallowance for ratemaking purposes of $204,980 from the Company's case as filed.

3. Depreciation Expense: NW Natural and Staff stipulate to annual depreciation expense relating to the CIS of $2,819,839, representing a disallowance for ratemaking purposes of $180,379 from the Company's case as filed.

4. Allocation of Plant Disallowance: NW Natural and Staff stipulate that for ratemaking purposes NW Natural will allocate the entire plant disallowance to the CIS software account. This treatment does not represent an acceptance by either party of the other party's rationale for a disallowance, or a precedent for treatment of this issue in future rate cases or earnings test proceedings.

5. Related Adjustments: NW Natural and Staff stipulate to related ratemaking adjustments for the CIS including deferred taxes and interest coordination.

6. Rate Spread Treatment: NW Natural and Staff stipulate to an allocation of CIS costs to the Company's rate schedules by assigning the CIS cost of service for recovery from residential and commercial customers through a combination of revisions to the customer charges and energy charges in these rate schedules. Specifically, CIS revenue requirement (Oregon) will be allocated 88.7 percent to Schedule 2, 10.7 percent to Schedule 3, and 0.6 percent to Schedule 1. In addition, for rate design purposes, the customer

charges on Schedules 2 and 3 will be increased by $1.00 per month with the difference applied to their respective usage charges.

7. Future Ratemaking Treatment: NW Natural and Staff stipulate that NW Natural will make ratemaking adjustments equivalent to those defined in this Stipulation in future general rate cases and earnings test proceedings, unless and until it is required to record impairment write-downs of its CIS assets due to a settlement of the rate case issue on these terms.

8. Other Provisions: In order to support the incorporation of this Stipulation into a final order of the Commission, NW Natural and Staff further agree:

   (a) NW Natural and Staff have negotiated this Stipulation as an integrated document. Accordingly, if the Commission rejects all or any material part of this Stipulation, or adds elements to any final order which are not contemplated by this Stipulation, then both NW Natural and Staff reserve the right to withdraw from this Stipulation upon written notice to the Commission and to the other party to the Stipulation within five business days of service of the final order rejecting or changing this Stipulation.

   (b) This Stipulation and all transcripts and NW Natural and Staff testimony and exhibits relating to CIS shall be entered into the record as evidence. With respect to the issues covered by this Stipulation, NW Natural and Staff agree to waive cross examination of one another at any hearing held in this docket. NW Natural and Staff agree to support approval of this Stipulation throughout this proceeding.

   (c) NW Natural and Staff have executed this Stipulation to resolve identified issues in this proceeding. With respect to the dollar amounts referenced in this Stipulation, neither NW Natural nor Staff shall be deemed to have accepted or consented to the principles, methods or theories employed in arriving at such amounts referenced in this Stipulation.

SO STIPULATED:

Name:	Name:
Title: Deputy General Counsel	Title:
For Northwest Natural Gas Company	For OPUC Staff

99-697

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UG 132

RECEIVED
JUL 23 1999
Public Utility Commission of Oregon
Administrative Hearings Division

In the Matter of the Application of Northwest Natural Gas Company For a General Rate Revision	)))	STIPULATION AND AGREEMENT

On October 16, 1998, Northwest Natural Gas Company, d.b.a. NW Natural, ("NW Natural") filed for a general rate revision affecting its Oregon price schedules (NWN Advice No. 98-20). The revised price schedules are based on NW Natural's proposed 1998 calendar year test period revenue requirement. In support of the 1998 test period revenue requirement, NW Natural's October 16, 1998 filing included the company's filed testimony, exhibits and work papers. The company's Test Year Results before adjustments (the "Test Year Results") are shown in column (a) of Exhibit NWN/301, Evans/1. The Commission suspended the company's filing for further proceedings. This docket, Docket UG 132, is the proceeding for resolution of the issues raised in the company's filing.

Pursuant to the procedural schedule(s) adopted by the Administrative Law Judge in this docket, Staff of the Oregon Public Utility Commission ("Staff") filed testimony, exhibits, and work papers in support of its position concerning NW Natural's proposed revenue requirement on all issues except cost of capital on March 17, 1999. Also pursuant to the procedural schedule, intervenor Northwest Industrial Gas Users ("NWIGU") filed testimony and exhibits in support of its position concerning NW Natural's revenue requirement and other issues on March 25, 1999. NW Natural supplemented its filed case with additional testimony, exhibits and work papers in support of its position on cost of capital issues on March 30, 1999, and In support of its

CIS plant on January 19, 1999. NW Natural and Staff filed rebuttal testimony on May 14, 1999. On June 11, 1999, Staff filed surrebuttal testimony on certain issues raised in NW Natural's rebuttal testimony. On June 18, 1999, NWIGU filed surrebuttal testimony on certain issues raised in NW Natural's and Staff's rebuttal testimony.

Also pursuant to the procedural schedule in this docket, the parties engaged in formal settlement discussions in February, 1999, pursuant to notice, and the undersigned parties have entered into the following stipulations and agreements as to the resolution and ratemaking treatment of some issues raised in this proceeding. This Stipulation and Agreement ("Stipulation") is presented for the Commission's approval under OAR 860-14-0085 as a partial settlement of issues in this proceeding.

Accordingly, it is hereby stipulated and agreed as follows:

ARTICLE I: Introduction of Evidence

1.0 The direct, supplemental, and rebuttal evidence of NW Natural, and the evidence of other undersigned parties to this Stipulation, on issues in this proceeding which are within the scope of this Stipulation, are jointly offered into evidence in the record in this docket by these parties without objection. As to the issues addressed in this Stipulation and in the evidence of the parties, the undersigned parties agree that the ratemaking adjustments incorporated in this Stipulation are supported in the evidence and are reasonable for purposes of this proceeding. For purposes of future rate proceedings, however, the undersigned parties shall not be deemed to have approved, accepted, or consented to any facts or ratemaking principles or methods that may be represented by these adjustments except where the same is explicitly set forth.

The undersigned parties agree that all applicable rate adjustments incorporated in this Stipulation shall be made in eamings test filings pursuant to Order No. 99-272.

ARTICLE II: Test Year Results

2.0 The undersigned parties agree to the following stipulated adjustments to NW Natural's unadjusted test year results contained in NW Natural's October 16, 1998, filing. Designations beginning with "S-" are issues identified in Staff's March 17, 1999 testimony.

2.1 Staff Issue S-2. The undersigned parties agree to adjust test year results by increasing Sale of Gas revenues by $2,891,000, and by increasing Purchased Gas Costs by $2,307,000, to account for the effects of updating customer counts and re-pricing sales volumes at NW Natural's Oregon permanent rates.

2.2 Staff Issue S-3. The undersigned parties agree that unadjusted test year results will be adjusted by increasing Sale of Gas revenues by $12,705,000 and by further increasing Purchased Gas Costs by $4,526,000, to change test year volumes for the effects of residential and commercial weather normalization and industrial volume normalization.

2.3. Staff Issue S-4. The undersigned parties agree that unadjusted test year revenue will be adjusted by decreasing Sale of Gas revenues by $404,000, and further decreasing transportation revenues by $1,509,000, to reflect normalization of industrial customer revenues and anticipated Schedule 55 interruptible margin based on the most recent 12-month oil prices, consistent with the UG 81 Stipulation and Agreement.

2.4 Staff Issue S-5. The undersigned parties agree that unadjusted test year results will be adjusted to account for "other revenues" by decreasing Revenue and Technical Adjustments by $274,000, and increasing Miscellaneous Revenues by $238,000, to reflect a reasonable representation of test year results.

2.5 Staff Issue S-6. The undersigned parties agree that unadjusted test year results will be restated by increasing Federal Income Tax expense by $407,000, by further increasing State Income Tax expense by $65,000, and by further decreasing Accumulated Deferred Income Taxes by $1,000 to include the appropriate level of income taxes associated with eamings for the test period.

2.6 Staff Issue S-8. The undersigned parties agree that NW Natural will decrease Other Operation & Maintenance Expense by $121,423 to reflect a reasonable settlement of test year memberships and dues expense. The undersigned parties further agree that the adjustment represents recognition of 100% of expenditures associated with industry research organizations and 75% of national and regional trade organization memberships.

2.7 Staff Issue S-10. The undersigned parties agree that unadjusted test year results will be restated to increase Property Taxes by $391,000 to reflect the company's actual property tax expense for the test period.

2.8 Staff Issue S-11. The undersigned parties agree that unadjusted test year results will be restated to decrease Uncollectible Expense by $293,000 to reflect a normalized expense level, calculated using a three-year average of actual net write-offs due to uncollectible accounts.

2.9 Staff Issue S-12. The undersigned parties agree that unadjusted test year results will be adjusted to decrease Other Operation & Maintenance Expense by $419,000 to remove a portion of Corporate Communications and Governmental & Public Relations costs related to non-utility activities.

2.10 Staff Issue S-14. The undersigned parties agree that test year results will be adjusted by a reduction to "Other Operation & Maintenance Expense" of $517,000, and by a further reduction to "Utility Plant in Service" of $230,000, to restate payroll expense based on NW Natural's employee count at year-end 1998.

2.11 Staff Issue S-16. The undersigned parties agree that test year results will be increased by $36,000 for Other Operation & Maintenance Expense and by $170,000 for Utility Plant in Service, to reflect normalized expense levels for payroll overheads—health and life insurance as well as pension costs. Because payroll taxes are a function of labor costs, and because labor costs are an issue that has been reserved for litigation pursuant to Article IV of this Stipulation, an adjustment for payroll taxes will be made consistent with the resolution of the labor issues at the time of the company's compliance filing in this docket.

2.12 Staff Issue S-17. The undersigned parties agree that Utility Plant in Service will be increased by $27,322,000, Accumulated Depreciation by $321,000, Materials & Supplies by $2,100,000, Accumulated Deferred Income Taxes by $134,000, Depreciation Expense by $641,000, Property Taxes by $221,000, and Other O&M Expense by $172,000, to reflect the investment in and related costs associated with Phase II of the NW Natural's Mist underground storage facility.

2.13 Staff Issue S-19. The undersigned parties agree that annual amortization expense will be increased by $400,000 (to an adjusted total of $1.2 million) and rate base by $1,162,000, relating to recovery of unamortized balances of Year 2000 (Y2K) expenditures. The $1.2 million annual amortization expense will be excluded from the UG 132 revenue requirement and recovered through a separate tariff schedule, with amortizations to commence effective with the sooner of the effective date of the tariff, or January 1, 2000.

2.14 Staff Issue S-20. The undersigned parties agree that "Other Operation & Maintenance Expense" will be decreased by $9,000 to reflect the company's most recent rate offerings from its insurance underwriters.

2.15 Staff Issue S-21. The undersigned parties agree that Depreciation Expense will be reduced by $1,564,000, to reflect removal of all expense related to retirement of the company's low-pressure distribution system.

2.16 Staff Issue S-22. The undersigned parties agree that "Other Operation & Maintenance Expense" will be increased by $584,000, to include in the test period an amount for Capital Stock Expense calculated using the average of the company's cost during the most recent three years. The undersigned parties further agree that a historical, three-year average treatment of Capital Stock Expense is a permanent change in policy that will be reflected in Order No. 99-272 earnings test filings until a new treatment is ordered in a future general rate case of NW Natural.

2.17 Revenue Sensitive Factors. The undersigned parties agree that the revenue sensitive factors to be used in the determination of NW Natural's required revenues for the 1998 test year are as follows: (1) for franchise taxes, 2.150%; (2) for

regulatory fees, 0.250%; and (3) for uncollectible accounts, 0.413%. The undersigned parties further agree that the adjustments to test year expenses, including tax deductible interest, should have related tax effects calculated using the following effective rates: Federal, 35%; and State, 6.24%.

ARTICLE III: Other Matters

3.0 The undersigned parties have entered into this Stipulation in good faith and therefore recommend that the Commission adopt this Stipulation and Agreement in its entirety. The parties have negotiated this Stipulation and Agreement as an integrated document. Accordingly, if the Commission rejects any part of this Stipulation, then the stipulating parties may withdraw from the whole Stipulation by giving written notice to the Commission and all parties to this proceeding within 15 days of the date of the Commission's order. The parties may agree to the modification.

3.1 If any issue covered by this Stipulation is challenged by someone not a party to this Stipulation, then the parties agree to support and argue in good faith for the Commission's approval of all of the provisions of this Stipulation.

3.2 To the extent that this Stipulation is partially modified or withdrawn, then neither the Stipulation nor any information obtained in the settlement discussions may be used as evidence by any of the undersigned parties.

ARTICLE IV: Reserved Issues

4.0 The undersigned parties have executed this stipulation to resolve identified issues in this proceeding. The following issues are reserved for hearing:

4.0.1 Staff Issue S-18. CIS Adjustment. Company and Staff have separately stipulated to treatment of the CIS issue, in a Stipulation dated July 15, 1999.

Not all parties have adopted the Stipulation regarding CIS. Accordingly the CIS issue is reserved for decision of the Commission.

4.0.2 Staff Issue S-9. Sales & Marketing Expense.

4.0.3 Staff Issue S-7. Advertising Expense.

4.0.4 Staff Issue S-13. Wage & Salary Adjustment.

4.0.5 Staff Issue S-1. Demand Charge Adjustment.

4.0.6 Staff Issue S-23. Rate Spread and Rate Design.

4.0.7 Staff Issue S-00. Postage.

4.0.8 Staff Issue S-15. Bonus Adjustment.

EXECUTED this 26th day of July, 1999.

Susan K. Ackerman
Manager, Regulatory Affairs &
Associate Counsel
For: NW Natural

Paul Graham
Assistant Attorney General
For: OPUC Staff