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IDAHO PUBLIC
UTILITIES COMMISSION

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION)	CASE NO. AVU-E-08-01
OF AVISTA CORPORATION FOR THE)	CASE NO. AVU-G-08-01
AUTHORITY TO INCREASE ITS RATES)	
AND CHARGES FOR ELECTRIC AND)	
NATURAL GAS SERVICE TO ELECTRIC)	DIRECT TESTIMONY
AND NATURAL GAS CUSTOMERS IN THE)	OF
STATE OF IDAHO)	TARA L. KNOX
)	

FOR AVISTA CORPORATION

(ELECTRIC AND NATURAL GAS)

1 I. INTRODUCTION

2 Q. Please state your name, business address and
3 present position with Avista Corporation?

4 A. My name is Tara L. Knox and my business address
5 is 1411 East Mission Avenue, Spokane, Washington. I am
6 employed as a Senior Rate Analyst in the State and Federal
7 Regulation Department.

8 Q. Would you briefly describe your duties?

9 A. I am responsible for preparing the regulatory
10 cost of service models for the Company, as well as
11 providing support for the preparation of results of
12 operations reports.

13 Q. Would you describe your educational background
14 and professional experience?

15 A. Yes. I am a 1982 graduate of Washington State
16 University with a Bachelor of Arts degree in General
17 Humanities, and a Master of Accounting degree in 1990. As
18 an employee in the Rate Department at Avista since 1991, I
19 have attended several ratemaking classes, including the EEI
20 Electric Rates Advanced Course that specializes in cost
21 allocation and cost of service issues. I have also been a
22 member of the Cost of Service Working Group since 1999,
23 which is a discussion group made up of technical
24 professionals from utilities throughout the United States
25 and Canada concerned with cost of service issues.

1 **II. REVENUE NORMALIZATION**

2 **Electric Revenue Normalization**

3 **Q. Would you please describe the electric revenue**
4 **adjustment included in Company witness Ms. Andrews pro**
5 **forma results of operations?**

6 A. Yes. The electric revenue normalization
7 adjustment represents the difference between the Company's
8 actual recorded retail revenues during the 2007 test period
9 and retail revenues on a normalized (pro forma) basis. The
10 total revenue normalization adjustment decreases Idaho net
11 operating income by \$632,000 as shown in column (u) on page
12 6 of Ms. Andrews Exhibit No.13, Schedule 1. The revenue
13 normalization adjustment consists of three primary
14 components: 1) re-pricing customer usage (adjusted for any
15 known and measurable changes) at present base tariff rates
16 in effect, 2) adjusting customer loads and revenue to a
17 calendar-year basis (unbilled revenue adjustment), and 3)
18 weather normalizing customer usage and revenue.

19 **Q. Would you please briefly discuss electric weather**
20 **normalization?**

21 A. Yes. The Company's weather normalization
22 adjustment calculates the change in kWh usage required to
23 adjust actual loads during the 2007 test period to the
24 amount expected if weather had been normal. This
25 adjustment incorporates the effect of both heating and

1 cooling on weather-sensitive customer groups. The weather
2 adjustment is developed from regression analysis of five or
3 ten years (as explained later) of billed usage per customer
4 and billing period heating and cooling degree-day data.
5 The resulting seasonal weather sensitivity factors are
6 applied to monthly test period customers and the difference
7 between normal heating/cooling degree-days and monthly test
8 period observed heating/cooling degree-days.

9 In addition to its use as a component of the revenue
10 normalization adjustment, Company witness Mr. Kalich
11 includes the combined Washington and Idaho adjustment with
12 2007 loads to reflect the normal load shape for 2009 pro
13 forma loads in the modeling for the Pro Forma Power Supply
14 costs.

15 **Q. How are normal heating and cooling degree days**
16 **defined?**

17 A. Normal heating and cooling degree days are based
18 on a rolling 25-year average of heating and cooling degree-
19 days reported for each month by the National Weather
20 Service for the Spokane Airport weather station. For
21 heating, the 25 years are included on a heating season
22 basis, July through June, so (for example) the October
23 average reflects all the Octobers beginning in 1982 and
24 through 2006 whereas the May average reflects all of the
25 Mays beginning in 1983 and through 2007. For cooling, the

1 25 years reflect the cooling season calendar years
2 beginning in 1983 and through 2007. Each year the normal
3 values will be adjusted to capture the next heating and
4 cooling season with the oldest data dropping off, thereby
5 encapsulating the most recent information available at the
6 end of each calendar year.

7 **Q. What revisions have you made to the weather**
8 **adjustment methodology since the company's last general**
9 **rate case in Idaho?**

10 A. In prior cases, annual average sensitivity factors
11 were derived and applied uniformly to all heating and
12 cooling degree days throughout the year. In this new
13 process the definition of the independent variables has
14 been adjusted to produce seasonal sensitivity factors.
15 Seasonal sensitivity factors change depending on the time
16 of year, therefore it is important to determine when the
17 deviations from heating and cooling degree days occurred,
18 which is why we now use a monthly calculation to determine
19 the adjustment volumes. This modification addressed
20 concerns that applying the annual factors on a monthly
21 basis produced some counter-intuitive results during
22 shoulder and summer months, as well as concerns
23 (particularly for natural gas) that the baseload value
24 should approximate observed summer usage.

1 Also, we re-examined the question of whether five
2 years of data included enough data points. Based on trend
3 variables testing for systematic changes over time, we were
4 comfortable with the use of ten year data sets for electric
5 residential customers and all weather-sensitive natural gas
6 customer groups in Idaho (as well as all electric and
7 natural gas weather-sensitive customer groups in
8 Washington). However, in response to visual inspection of
9 graphed residuals (error values) over time, a marked change
10 appeared to occur in Idaho electric general service
11 customer groups about halfway through the ten year period.
12 Consequently, the Idaho residential customer group utilizes
13 a ten year regression analysis whereas the weather-
14 sensitive general service customer groups utilize a five
15 year regression analysis.

16 Finally, in the methodology utilized in prior cases,
17 two statistical tests were used to determine whether a
18 regression result was acceptable. Namely, the t-statistic
19 for all independent variables must be greater than the
20 absolute value of two, and the adjusted R-square statistic
21 must be greater than sixty percent. For the new method we
22 have added a third test to satisfy concerns that auto-
23 correlation of error terms may have been present in the
24 data. Now in addition to the first two tests, the

1 regression result must also pass the Durbin-Watson test for
2 auto-correlation at five percent significance.

3 **Q. How has the definition of normal heating and**
4 **cooling degree days changed?**

5 A. In prior cases the Company has used NOAA (National
6 Oceanographic and Atmospheric Administration) published
7 Monthly Station Normals for the Spokane airport weather
8 station which represents a 30-year average. As mentioned
9 above, in this case the Company is proposing a 25-year
10 average instead.

11 **Q. Why are you proposing to change from a 30-year to**
12 **a 25-year average for normal degree days?**

13 A. The NOAA normal publication utilizes the same
14 National Weather Service data to develop their 30-year
15 average or "normal", but it is only updated every ten
16 years, so those statistics now reflect 1971 to 2000 data,
17 which does not include the most current weather. During
18 the years since the last NOAA publication, the Inland
19 Northwest has experienced consistently warmer weather.
20 Therefore, use of the outdated 30-year average may tend to
21 overstate expected heating requirements and understate
22 expected cooling requirements. Moving to a shorter average
23 period, and maintaining the rolling average to keep current
24 with the weather that has been experienced in Avista's

1 service territory, helps to overcome the limitations of the
2 published "normal" data.

3 **Q. What was the impact of electric weather**
4 **normalization on the 2007 test year?**

5 A. Weather was warmer than normal during the 2007
6 test year, especially during the month of July, resulting
7 in a net reduction to usage. The adjustment to normal
8 required the addition of 77 heating degree-days and the
9 deduction of 139 cooling degree-days. The net adjustment
10 to Idaho sales volumes was a reduction of 14,411,360 kWhs
11 which is slightly less than one-half of one percent of
12 billed usage.

13 **Natural Gas Revenue Normalization**

14 **Q. Would you please describe the natural gas revenue**
15 **adjustment included in Ms. Andrews pro forma results of**
16 **operations?**

17 A. Yes. The natural gas revenue normalization
18 adjustment is similar to the electric adjustment and
19 represents the difference between the Company's actual
20 recorded retail revenues during the 2007 test period and
21 retail revenues on a normalized (pro forma) basis. The
22 adjustment includes the re-pricing of pro forma sales and
23 transportation volumes at present rates using pro forma
24 sales volumes that have been adjusted for unbilled sales,
25 abnormal weather, and any material customer load or

1 schedule changes. The rates used exclude: 1) Temporary
2 Gas Rate Adjustment Schedule 155, which reflects the
3 approved amortization rate for deferred gas costs approved
4 in the Company's last PGA filing and 2) Public Purposes
5 Rider Adjustment Schedule 191.

6 **Q. Does the Revenue Normalization Adjustment contain**
7 **a component reflecting normalized gas costs?**

8 A. Yes. Purchase gas costs are normalized using the
9 gas costs approved by the Commission in Case No. AVU-G-07-
10 02, the Company's 2007 PGA filing, as set forth under
11 Schedule 150. Those gas costs are then applied to the pro
12 forma retail sales volumes so that there is a matching of
13 revenues and gas costs.

14 The total net amount of the natural gas revenue
15 normalization, which includes the purchase gas cost
16 adjustment, is a decrease to net operating income of
17 \$42,000, as shown in column (i), page 5 of Ms. Andrews
18 Exhibit No.13, Schedule 2.

19 **Q. Would you please briefly discuss natural gas**
20 **weather normalization?**

21 A. Yes. The natural gas weather adjustment is
22 developed from a regression analysis of ten years of billed
23 usage per customer and billing period heating degree-day
24 data. The resulting seasonal weather sensitivity factors
25 are applied to monthly test period customers and the

1 difference between normal heating degree-days and monthly
2 test period observed heating degree-days. This calculation
3 produces the change in therm usage required to adjust
4 existing loads to the amount expected if weather had been
5 normal.

6 **Q. How are normal heating and cooling degree days**
7 **defined?**

8 A. Normal heating degree-days are based on a rolling
9 25-year average of heating degree-days reported for each
10 month by the National Weather Service for the Spokane
11 Airport weather station. The 25 years are included on a
12 heating season basis, July through June, so (for example)
13 the October average reflects all the Octobers beginning in
14 1982 and through 2006 whereas the May average reflects all
15 of the Mays beginning in 1983 and through 2007. Each year
16 the normal values will be adjusted to capture the next
17 heating season with the oldest data dropping off, thereby
18 encapsulating the most recent information available at the
19 end of each calendar year.

20 **Q. Does this proposed weather adjustment methodology**
21 **reflect the same revisions that were discussed regarding**
22 **electric service?**

23 A. Yes, both the revisions to the process for
24 determining the weather sensitivity factors and the change
25 to the definition of "normal" are reflected in the

1 Company's weather normalization adjustment to natural gas
2 usage.

3 **Q. What was the impact of natural gas weather**
4 **normalization on the 2007 test year?**

5 A. Weather was warmer than normal during the 2007
6 test year. A colder than normal January was offset by
7 warmer than normal February, March, and December resulting
8 in a relatively small annual weather adjustment. The
9 adjustment to normal required the addition of 77 heating
10 degree-days. The adjustment to sales volumes was an
11 addition of 331,196 therms which is less than one-third of
12 one percent of billed usage.

13 **III. PRODUCTION PROPERTY ADJUSTMENT**

14 **Q. What is the purpose of a Production Property**
15 **Adjustment?**

16 A. The purpose of using a Production Property
17 Adjustment is to avoid an over-collection of fixed and
18 variable production costs resulting from an increase in
19 retail load from the historical test period to the pro
20 forma rate period. In this general rate case Avista is
21 using a 2007 historical test period, and a 2009 pro forma
22 rate year. The illustration below shows, for Avista's
23 present case: 1) the 2007 historical test year, 2) the date
24 of the current rate case filing, and 3) the pro forma rate

