BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Docket Nos. UE-121697 and UG-121705
Puget Sound Energy, Inc. and NW Energy Coalition
Joint Petition for Approval of a Decoupling Mechanism

Docket Nos. UE-130137 and UG-130138
Puget Sound Energy, Inc. Expedited Rate Filing

PUBLIC COUNSEL DATA REQUEST NO. 110

PUBLIC COUNSEL DATA REQUEST NO. 110:

Re: Dr. Michael J. Vilbert Rebuttal Testimony, p. 36, ll. 8-15.

a. What is the r-squared result of Mr. Hill's initial regression of net revenues if "first differences" are accounted for? Please provide numerical support for your response.

b. Please explain how the use of net income rather than net revenues impacts any "first differences" deficiencies in Mr. Hill's initial regression analysis. Please provide numerical support for your response.

Response:

a. Attached as Attachment A to Puget Sound Energy, Inc.'s ("PSE") Response to Public Counsel Data Request No. 110 is the first differences regression discussed in the Prefiled Rebuttal Testimony of Dr. Michael J. Vilbert, Exhibit No. ___(MJV-18T). The regression is of the year-over-year differences in each of the columns of values found on page 1 of Exhibit No. ___(SGH-19). First differences are determined for the column Y (PSE Net Revenues), the column X1 (WA Gross State Product), and the column X2 (Heating Degree Days).

The adjusted R-squared value is shown as 0.26 on Attachment A to PSE's Response to Public Counsel Data Request No. 110. The R-squared value of 0.28 in the Prefiled Rebuttal Testimony of Dr. Michael J. Vilbert, Exhibit No. ___(MJV-18T), at page 36, line 15, is a scrivener's error. The R-squared value should have been 0.26 and not 0.28.

The simple R-squared value is 0.38, but adjusted R-squared is a better measure. Overall, the results of the first differences regression indicate the R-squared

value of 0.90 used cited in the Prefiled Direct Testimony of Stephen G. Hill, Exhibit No. ___(SGH-2T), is misleadingly high.

For the additional reasons discussed in the Prefiled Rebuttal Testimony of Dr. Michael J. Vilbert, Exhibit No. ___(MJV-18T), Dr. Vilbert is not saying that simply substituting a first differences regression would put Mr. Hill's analysis on a reasonable footing. In Dr. Vilbert's view it would not.

b. The use of net income would not solve the first differences deficiencies in Mr. Hill's regression analysis. The correlation would continue to be biased upward because it is between two magnitudes that show positive secular growth and trend together over time. This is the case for the values of WA gross state product, PSE's Net Revenues, and PSE's Net Income. Dr. Vilbert discussed net income because it is closer to market returns than net revenues, not because net income solves the trending issue in any way.

ATTACHMENT A to PSE's Response to PUBLIC COUNSEL Data Request No. 110

Please see PSE's Response to Public Counsel Data Request No. 110 for an explanation of the dependent and independent variables in this regression. The names in the "Call" command below are just abbreviations.

```
Time series regression with "numeric" data:
Start = 1, End = 14

Call:
dynlm(formula = diff(rev.total) ~ diff(gsp) + diff(hdd), data = data)

Residuals:
       Min         1Q     Median         3Q        Max
-155974124  -38951004    6620806   38509854  119248376

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 64892993   27728963   2.340   0.0392 *
diff(gsp)       3533       2809   1.258   0.2345
diff(hdd)    1922886     924661   2.080   0.0617 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 78610000 on 11 degrees of freedom
Multiple R-squared:  0.3758,  Adjusted R-squared:  0.2623
F-statistic: 3.311 on 2 and 11 DF,  p-value: 0.07486
```