

1 efficient or robust, compared with the average of the most recent ten days' forward
2 price strips. The analysis also indicates that the average forward prices quotes for
3 the period December 2004 - February 2005 (seven months) are the best estimates of
4 spot prices during the rate year (March 2005-February 2006). Taking the last three
5 months of the data available to Staff to estimate rate year prices may not be valid
6 because the goal is to forecast prices that may prevail in about seven months (March
7 2005) from the date on which the last forward price quotes were available (July
8 2004). However, this rate proceeding has to be finalized before March 2005. Thus,
9 a compromise approach is to compute a three-month rolling average of forward
10 strips for the period December 2003-~~April~~ July 2004 (~~five~~ seven months).¹ This
11 study attempts to infer forecast prices about ~~at least~~ six months from actual purchase
12 dates (March 2005 to February 2006). Therefore, taking the average of the three-
13 month rolling average of prices quoted over the past ~~five~~ seven months (~~December~~
14 ~~September~~ 2003- ~~April~~ July 2004) is a good approximation of forward spot prices in
15 the rate year. Thus, Staff's recommendation is based in part on empirical analyses
16 and in part on logical inferences.

17

18 **Q. Please explain how the results of your statistical analysis were used to determine**
19 **forward spot prices.**

20 A. PSE provided Sumas forward prices for the period December 22, ~~2002~~ 2003 to July

¹ Graphical analysis for the data showed a sharp increase in forward price in May 2004. Test for means of average price for two periods (December 2003 to April 2004, and May 2004 to July 2004) reveals that prices in these two periods are significantly different. Using forward prices after May 2004 would bias average or "normal" gas price for use in the rate year. Thus, forward prices from May to July 2004 were removed from the analysis. Some researchers have argued that forward prices of up to six months could be used as estimator of forward spot prices. Therefore, using rolling averages for about ~~five~~ seven months as a predictor of spot prices in the next six months is a sound assumption.

1 30, 2004. Staff calculated three-months forward rolling averages for the period
2 December 22, 2003 to April 30, 2004 ~~entire period~~. Then, the averages of these
3 rolling average forward strips were computed.

4 This method produced an average forward price for the rate year of
5 \$4.69/mmbtu. PSE proposes a rate year average forward price of \$4.38/mmbtu.
6 Thus, Staff's proposed gas price represents an increase of about \$0.30/mmbtu, or
7 about 7%. (Exhibit __ (YKGM-7)).

8

9 **Q. Do these prices differ from prices forecasted the Energy Information**
10 **Administration (EIA) of the Department of Energy?**

11 A. Yes. EIA's most recent forecast of forward prices for 2005-2006 ranges from \$5-
12 \$6/mmbtu. (Exhibit __ (YKGM-8)). Therefore, the forward price calculated by Staff
13 lies within $\pm 10\%$ of the low forecast scenario produced by the EIA.