

EXHIBIT NO. ___(EMM-5)
DOCKET NO. UE-04_____
2004 PSE PCA 2 COMPLIANCE
WITNESS: ERIC M. MARKELL

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition of

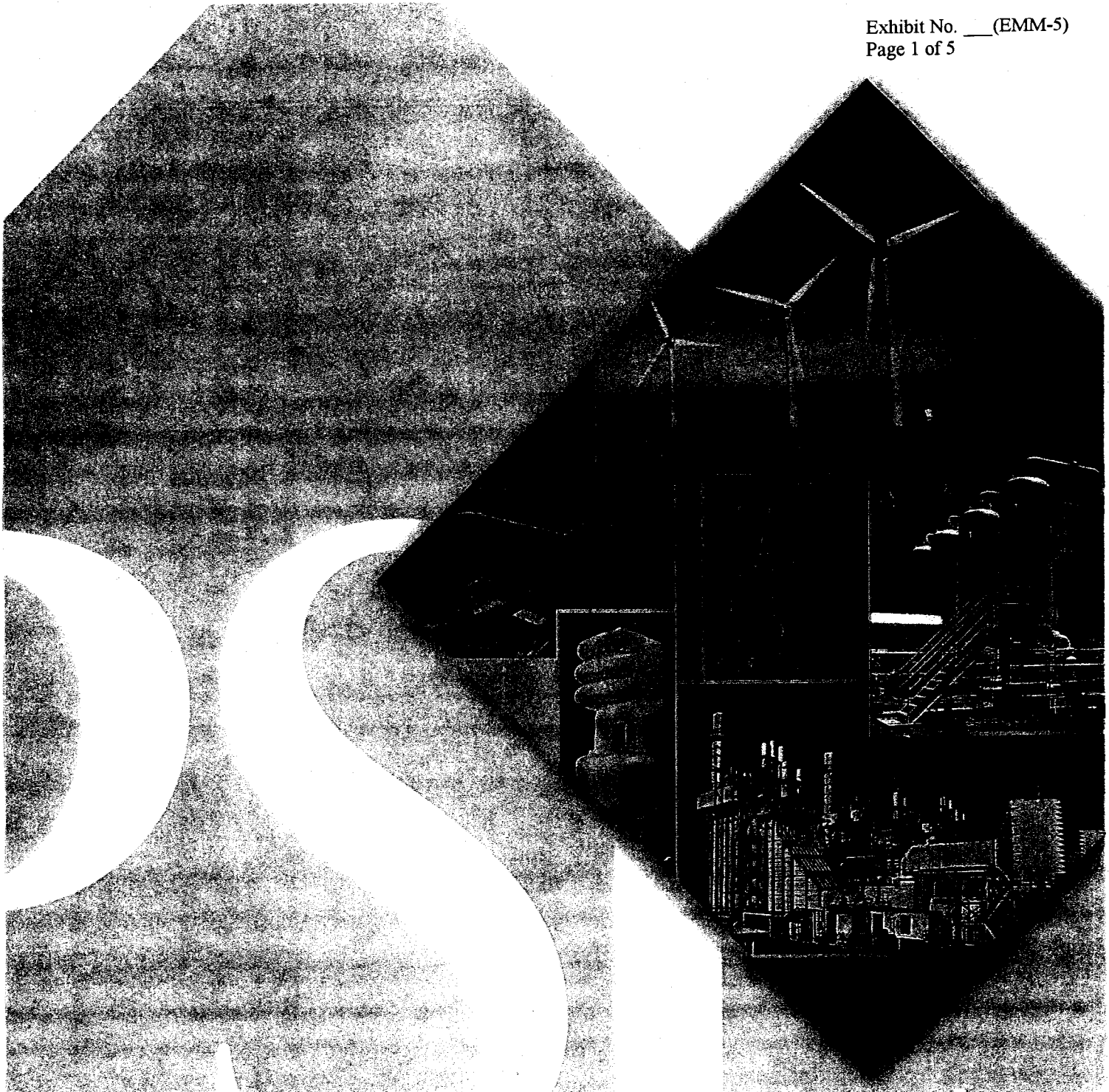
PUGET SOUND ENERGY, INC.

**For Approval of its 2004 Power Cost Adjustment
Mechanism Report**

Docket No. UE-04_____

**FOURTH EXHIBIT (NONCONFIDENTIAL) TO
PREFILED DIRECT TESTIMONY OF ERIC M. MARKELL
ON BEHALF OF PUGET SOUND ENERGY, INC.**

AUGUST 31, 2004



Least Cost Plan Update

August 2003



Gas Load Forecasts

Gas-load forecasts generally are updated each fall and thus are not part of the August 2003 LCP Update. Nevertheless, the next gas-sales forecast, when completed, is expected to be somewhat lower than the April 2003 LCP forecast because of long-term projections for lower employment levels and lower population growth, and for higher retail gas rates stemming from increased gas costs.

B. Gas Price Forecast

Original Forecast – April 2003 Least Cost Plan

In its April 2003 Least Cost Plan, PSE used the gas-price forecast from the PIRA Energy Group (PIRA), an international energy-consulting firm offering data, analysis, and forecasting on international oil, natural gas, and electricity markets. The PIRA forecast selected was the fall 2002 long-range forecast for individual supply basins in the Western regions of the U.S. and Canada. The PIRA forecast provided annual natural gas prices for selected years through 2015. Because annual price forecasts over a 20-year planning horizon were required for PSE's Least Cost Plan, PSE developed a straight-line curve for interpolating the missing years from the PIRA forecast and projecting annual prices to 2023.

Revised Forecast – August 2003 Update

In anticipation of the August 2003 Least Cost Plan Update, PSE determined that a review of the PIRA gas-price forecast was warranted in light of the gas market's volatility in early 2003, which resulted in a significant run-up in near-term gas prices. Growing concern in the industry regarding an imbalance in supply and demand suggested that near-term prices would stay relatively high until equilibrium in the markets was re-established. In addition, the PIRA forecast results were low relative to other gas-price forecasts in the region, notably the "Medium" gas-price forecast of the Northwest Power and Conservation Council (NPCC).

Upon reviewing additional PIRA gas-price data (including previously missing years), the underlying assumptions regarding the availability of new resources at certain high gas-price points resulted in a return to lower-equilibrium price levels. These lower price levels reflect the cyclical pricing from boom-and-bust gas-supply development (as opposed to the smooth price

curve previously developed from the data). Revised annual gas-price projections were developed ("PIRA-Revisited" forecast) using the cyclical pattern from new PIRA data, including the outer years of the planning period (2015 to 2023).

PSE then acquired access to Cambridge Energy Research Associates' (CERA) December 2002 long-range gas-price scenarios for North America, provided under CERA's North American Gas and Power Advisory Service. CERA's long-term, regionally specific price scenarios provide average annual market prices by supply basin or trading hub through the year 2020. PSE extended the CERA data from 2020 to 2023 based on the average annual gas-price change from 2006-2020. The four available CERA supply/price scenarios were reviewed for applicability based on the underlying economic and supply-development assumptions of each scenario. CERA's four scenarios are described as follows:

- **Rear-View Mirror** - The economy recovers from the recession in late -2002(3?), but economic uncertainty remains, and a crisis of confidence emerges.
- **Technology Enhanced** - The recession proves to be mild and short-lived, and the North American economies return to a sustained period of economic growth as new technological developments abound.
- **World in Turmoil** - The current recession is not a short detour. Instead, the North American economy mirrors the recent performance of the Japanese economy.
- **Shades of Green** - The economy recovers steadily and the environment becomes an increasing concern. Some international agreements are reached to control greenhouse-gas emissions.

Two scenarios, World in Turmoil and Technology Enhanced (including their associated supply- and infrastructure-development assumptions) were judged the most apt descriptors of the range of economics in the western U.S. markets affecting PSE. [RT: this judgment seems contradictory – one scenario says the economy improves soon, the other says we're in for a prolonged slump] In particular, these two scenarios anticipate more aggressive development of new resources in the Western Canadian Sedimentary Basin of Alberta and British Columbia, and the emergence of gas supplies from the McKenzie Delta prior to the end of the decade. Rather than relying on a single forecast or scenario to predict long-term gas prices, PSE elected to average four of the known forecasts used in the region, including the two previously mentioned CERA scenarios. The four forecasts are:

- NPCC Medium Gas Price Forecast
- PIRA "Revisited" (including cyclical shaping data)
- CERA - World in Turmoil Scenario
- CERA - Technology Enhanced Scenario

While the average of the four gas-price scenarios provided an adequate representation of long-term regional gas prices based on objective, independent research and analysis, PSE determined that none of the four scenarios (or their average) adequately considered the recent run-up in market prices. Such consideration would have shown a more profound price impact on near-term resource planning. Therefore, the forecasted gas-price results for 2004 were replaced with currently available market-price quotes from June 2003.

In order to consider the impacts of extremes in gas pricing, PSE chose a High Price forecast (defined as the NPCC Medium Price Forecast) and a Low Price forecast (defined as the PIRA straight-line forecast used as the base-case forecast in the April 30, 2003, LCP analyses).

The four forecast scenarios, the resulting average of the four, and the adopted High and Low price strip for the three main trading hubs affecting PSE's supply costs are depicted in Exhibits III-8 to III-10:

Exhibit III-8
Sumas Gas Price (\$/Dth)

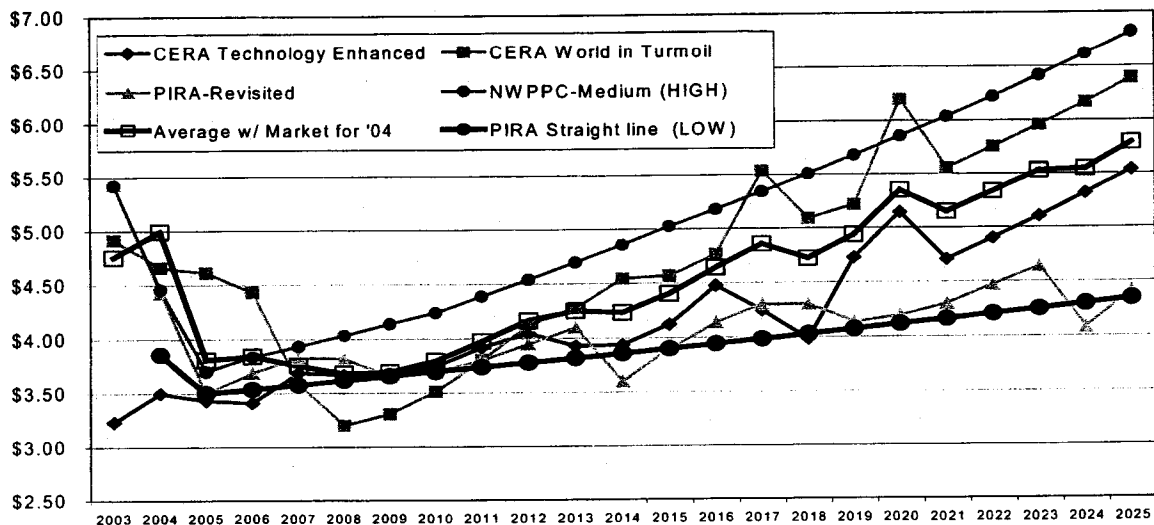


Exhibit III-9

AECO Gas Price (\$/Dth)

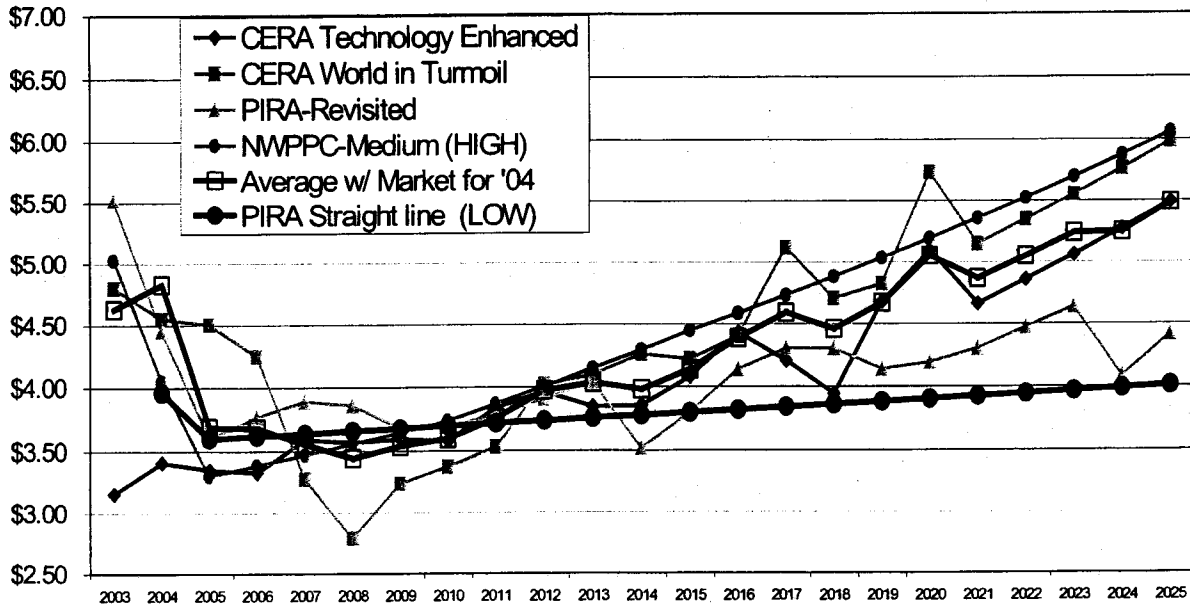


Exhibit III-10

Rockies Gas Price (\$/Dth)

