

**EXHIBIT NO. __ (EMM-1CT)
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____

**PREFILED DIRECT TESTIMONY OF
ERIC M. MARKELL ON BEHALF OF PUGET SOUND ENERGY, INC.**

REDACTED VERSION

AUGUST 31, 2004

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PUGET SOUND ENERGY, INC.

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PREFILED DIRECT TESTIMONY OF ERIC M. MARKELL

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PUGET SOUND ENERGY, INC.

PREFILED DIRECT TESTIMONY OF ERIC M. MARKELL

I. INTRODUCTION

Q. Please state your name, business address, and position with Puget Sound Energy, Inc.

A. My name is Eric M. Markell. My business address is 10885 N.E. Fourth Street Bellevue, WA 98004. I am the Senior Vice President Energy Resources for Puget Sound Energy, Inc. ("PSE" or "the Company").

Q. Have you prepared an exhibit describing your education, relevant employment experience, and other professional qualifications?

A. Yes, I have. It is Exhibit No. ___(EMM-2).

Q. What are your duties as Senior Vice President Energy Resources for PSE?

A. My present responsibilities include oversight of: (i) the operation and maintenance of the Company's electric generating facilities and gas storage facilities; (ii) contracts for electric supply, transmission services, long-term gas supply, and long-term gas transportation services (by "long-term" I mean longer than two years); (iii) electric resource acquisition activities; and (iv) Least Cost Integrated Resource planning.

1 **Q. Please summarize the contents of your testimony.**

2 A. My testimony describes the Company's activities shortly before and during the
3 July 1, 2003 through June 30, 2004 time period ("PCA Period 2") with respect to
4 planning and managing its long-term natural gas supply for power generation. I
5 address this issue due to the concerns the Commission has expressed in recent
6 orders regarding the Company's attention to potential long-term gas market
7 opportunities.

8 **II. PSE'S LONG-TERM RESOURCE PLANNING AND**
9 **MANAGEMENT ACTIVITIES**
10 **AND THE PCA MECHANISM**

11 **Q. How do PSE's long-term electric resource planning and management**
12 **activities relate to the PCA Mechanism?**

13 A. Under the PCA Mechanism approved in PSE's 2001 general rate case, costs
14 related to a new electric resource, or the costs of a power purchase agreement,
15 with a term of greater than two years are included in the PCA allowable costs
16 through a bridge mechanism until the costs of such resources can be reviewed and
17 approved in a power cost only or general rate case.

1 **Q. Is the Company seeking inclusion of any new long-term electric supply**
2 **resources in the PCA Period 2 power costs?**

3 A. No. We did renew one small long-term contract during PCA Period 2.¹
4 However, the Company has not entered into new long-term electric supply
5 resource transactions in excess of 1 MW related to its electric power portfolio
6 since the Frederickson 1 acquisition, which resource was addressed and
7 incorporated into the PCA Mechanism's power cost baseline rate through the
8 2003-04 power cost only rate case, Docket No. UE-031725 ("PCORC").

9 **Q. What, then, is the purpose of your testimony in this PCA Period 2 true-up**
10 **filing?**

11 A. My testimony addresses the Company's efforts during PCA Period 2 with respect
12 to planning for, and analysis of, the Company's long-term gas-for-power
13 requirements and decisions with respect to fuel supply acquisition for its
14 generation portfolio. I address this topic in response to some of the issues raised
15 by Commission's orders in the PCORC.

16 In its Order No. 14 in the PCORC docket, UE-031735, the Commission
17 determined that PSE's management of fuel supply for the Tenaska generating

¹ On April 1, 2004, the Company entered into an agreement providing for the continued purchase by the Company of the net electrical output of a paper company's 375-kilowatt hydroelectric project. Pursuant to that agreement, PSE purchases energy from the project under PSE's Electric Tariff G, Schedule 91, from April 1, 2004 through December 31, 2008. PSE understands agreements such as this, of under 1 MW, to be too small to specifically call out in rate case or similar proceedings.

1 facility was not prudent during the time period from approximately late 2001
2 through June 30, 2003. *See* Order No. 14 at ¶¶ 90-91. "Instead of developing a
3 comprehensive strategy and a balanced approach considering opportunities in
4 short-term, intermediate-term, and long-term gas markets, PSE simply continued
5 its practice of buying in the short-term market." *Id.* at ¶ 91

6 The Commission's Order No. 15 in the PCORC docket clarified that Order No. 14
7 had not made "any prudence determination concerning periods after June 30,
8 2003." Order No. 15 at n.29. The Commission stated that PSE will bear the
9 burden to show the prudence of its fuel acquisition for Tenaska during PCA
10 Period 2 if the prudence of such acquisition is challenged in PCA Period 2
11 compliance proceeding. Order No. 15 at ¶ 52.

12 PSE's management of fuel acquisition for Tenaska during PCA Period 2 was not
13 unit-specific, but rather was addressed through PSE's approach to short-term and
14 long-term gas-for-power more generally, because of PSE's portfolio approach to
15 resource dispatch and acquisition. As described in Ms. Ryan's direct testimony in
16 this proceeding, such a portfolio approach is more efficient and effective than
17 managing fuel for gas generation on a unit-specific basis. My testimony is
18 intended to demonstrate that PSE was reasonably addressing long-term gas-for-
19 power issues during PCA Period 2.

20 **Q. Please summarize your testimony.**

21 A. My testimony describes (1) PSE's enhancement in 2003 of the organizational and
22 staffing resources committed to long-term resource planning; (2) PSE's analysis

1 and conclusions related to gas-for-power requirements during PCA Period 2,
2 including a description of significant challenges facing the Company in managing
3 gas-for-power acquisitions and hedging; (3) steps undertaken by PSE to manage
4 long-term gas-for-power supply and related costs; and (4) continuing concerns
5 PSE has regarding committing to long-term, fixed-price gas contracts.

6 Ms. Ryan's direct testimony discusses the short-term, less than two years,
7 portfolio management approach in her testimony.

8 **III. PSE'S PLANNING FOR AND MANAGEMENT OF LONG-**
9 **TERM NATURAL GAS FOR POWER SINCE 2003**

10 **Q. Has PSE taken steps to enhance the organizational and staffing resources**
11 **committed to long-term resource planning and acquisition?**

12 A. Yes. Early in 2003, the Company's long-term Least Cost Plan ("LCP") and the
13 many analyses underlying it began to take final shape. At the core of the LCP
14 process is the analysis of the projected cost and potential risk of a number of
15 alternate long-term resource portfolios. Risks modeled through this process
16 include exposure to volatility of future gas and electric prices, as well as
17 hydroelectric conditions. The LCP process seeks to identify and select future
18 resource portfolios that present the best balance of cost and risk, and, in doing so,
19 is a key component of the Company's strategy to address long-term fuel cost risk.

20 Based upon the analyses conducted, forecasts made by the Company and the input
21 from numerous participants in the Company's open and public resource planning
22 process, such analyses, combined with an assessment of "realities on the ground"

1 with respect to existing resources actually available for acquisition, began to
2 suggest that in addition to conservation, wind, and coal-fired resources, long-term
3 least cost portfolios would likely include some additional gas-fired electric
4 generating resources to be acquired by power purchase agreements or possible
5 direct asset ownership. *See* April 2003 LCP, Chapter XIII, Electric Resource
6 Strategy; August 2003 LCP Update, Chapter IX, Long Term Electric Resource
7 Strategy.

8 Cognizant of that finding in the planning and resource acquisition processes, PSE
9 continued the resource acquisition process that ultimately resulted in (1) the
10 Frederickson 1 transaction, and (2) development and issuance of three requests for
11 proposals ("RFPs") for conservation and electric supply. PSE also increased its
12 efforts with respect to planning for and management of possible changes in long-
13 term fuel supply needs, including natural gas, coal and wind resources.

14 Toward this end, the Company worked toward improving the analytical tools
15 available to it to plan and analyze various resource options, including the range of
16 possible fuel requirements, related costs and the possible consequences of under-
17 buying and over-buying fixed-price fuel. To better understand the fuel
18 requirements of existing gas-fired generation and plan for a possible increase in
19 gas fired generation, the Company set out to: (1) acquire and improve the
20 analytical tools needed to forecast long-term gas for power requirements;
21 (2) redefine and restructure leadership responsibilities and staff roles for long-
22 term gas resource planning and acquisition; (3) improve coordination of gas
23 resource planning and management activities among various teams within the

1 Company whose areas impact long-term gas for power management; and
2 (4) improve the Company's access to information about and understanding of
3 important developments and trends in the gas markets that could affect supply
4 reliability and price.

5 **A. Enhancement of PSE's Analytical Tools Available for Long-Term Resource**
6 **Planning**

7 **Q. Please describe what analytical tools have been acquired and/or improved by**
8 **PSE during PCA Period 2?**

9 A. Throughout PCA Period 2, PSE has worked to improve its modeling and
10 forecasting capability with respect to its long-term gas needs and the variability in
11 such estimates so that any changes to existing practices are well informed. Near
12 the beginning of PCA Period 2, the Company completed the 2003 LCP using a
13 combination of the AURORA model ("AURORA") and the Portfolio Screening
14 Model.

15 The AURORA model was used to develop a 20-year forecast of hourly power
16 market prices given the electric resource supply (over 3,000 generating units) and
17 demand in 12 regions throughout the Western Electricity Coordinating Council
18 ("WECC"). A key AURORA input assumption is a natural gas price forecast for
19 the WECC. The resulting power prices and assumed gas prices are inputs to the
20 Portfolio Screening Model ("PSM"), a model that PSE developed in late 2002 and
21 during 2003.

1 The PSM is a simple hourly dispatch model of PSE's load and existing electric
2 resources that can be run with a variety of possible future power purchase
3 agreements and generation resources. The primary output of PSM is the forecast
4 of customer revenue requirement of alternative PSE portfolios. The PSM is a
5 major tool the Company uses to assess the cost and long term risks of a broad
6 array of resource options. Unlike AURORA, PSE permits the Company to model
7 fixed costs resulting from addition of potential new resources into PSE's system,
8 and variations can be run relatively quickly. The PSM simulates long-term
9 volatility in gas and electric prices as well as hydro conditions. The PSM enables
10 the Company (and LCP advisory group) to evaluate the cost and long-term risk
11 management attributes of various resource strategies. A more thorough
12 discussion of the Portfolio Screening Model is presented in the August 2003 LCP
13 Update, Appendix B, Detail on Electric Portfolio Screening Model.

14 During PCA Period 2, AURORA and PSM were updated and improved. Both
15 models were updated with a new fundamental gas price forecast. *See* Exhibit
16 No. ___(EMM-3C). The PSM was revised with updated assumptions on power
17 and gas price variability, and was also revised with modeling logic to include the
18 annual variability of wind generation in an effort to better quantify the cost
19 variability of portfolios that included potential wind generation resources.

1 **Q. How have these tools been utilized to produce better gas-for-power forecasts?**

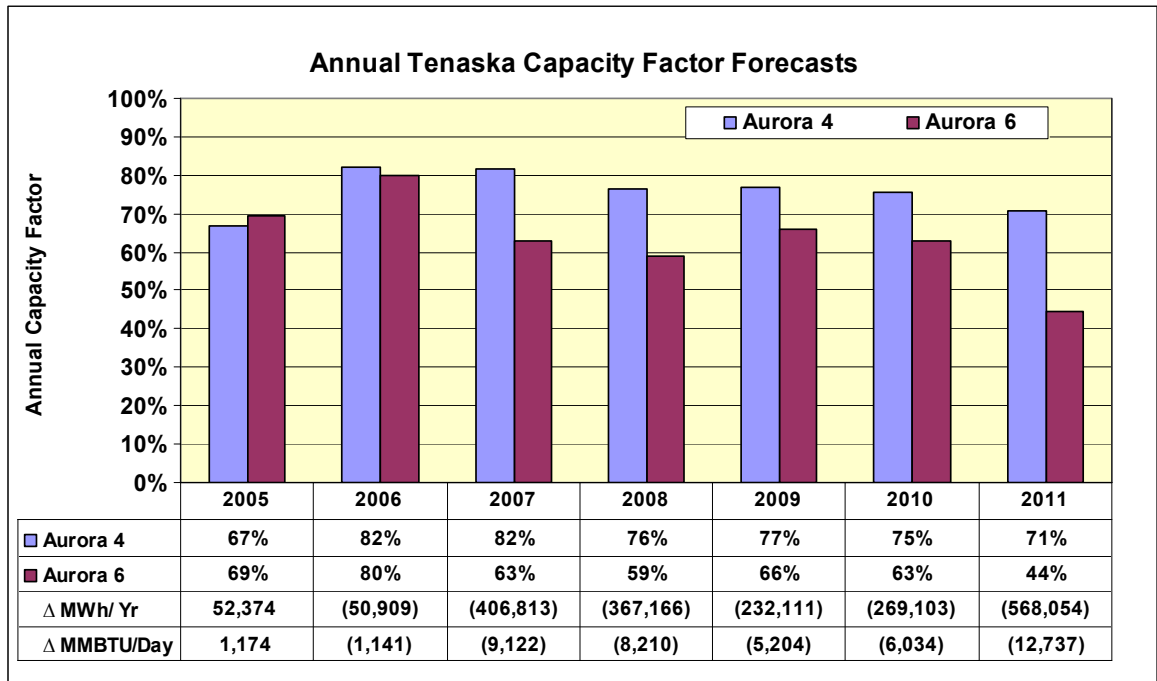
2 A. Both AURORA and PSM provide a 20-year forecast of the dispatch of PSE's gas
3 fired generation resources and related gas-for-power requirements. Maintaining
4 these models with updated gas price forecasts allows the Company to periodically
5 assess long-term natural gas fuel requirements. As gas price forecasts change,
6 these tools allow the Company to re-evaluate its gas-for-power needs.

7 **Q. Could you provide an example of how these tools allow PSE to reevaluate its**
8 **gas-for-power needs?**

9 A. Take, for example, the Tenaska generating facility. The difference between the
10 gas price forecast contained in the 2003 LCP (PSE AURORA 4) near the
11 beginning of PCA Period 2² and the CERA forecast used in mid-2004 (PSE
12 AURORA 6) near the end of PCA Period 2³ for the evaluation of possible
13 resource additions has caused a material downward trend in projected gas-for-
14 power requirements. A comparison of the annual capacity factor and change in
15 gas requirements for the Tenaska generating facility as forecast with the
16 AURORA model between the beginning of PCA Period 2 and the end of PCA
17 Period 2 is depicted on the chart below. Based upon the updated gas price
18 forecast, the annual capacity factor estimated for the Tenaska plant has increased
19 slightly in 2005 and then decreased in each subsequent year from 1,000

² AURORA 4 has an approximate run date of June 2003.

1 MMBtu/day in 2006 to over 12,000 MMBtu/day in 2011. This resulted in a seven
 2 year combined reduction in projected gas need for Tenaska of over 15 million
 3 MMBtu. This is nearly the quantity needed to run the Tenaska plant at full
 4 capacity for a full year (16 million MMBtu).



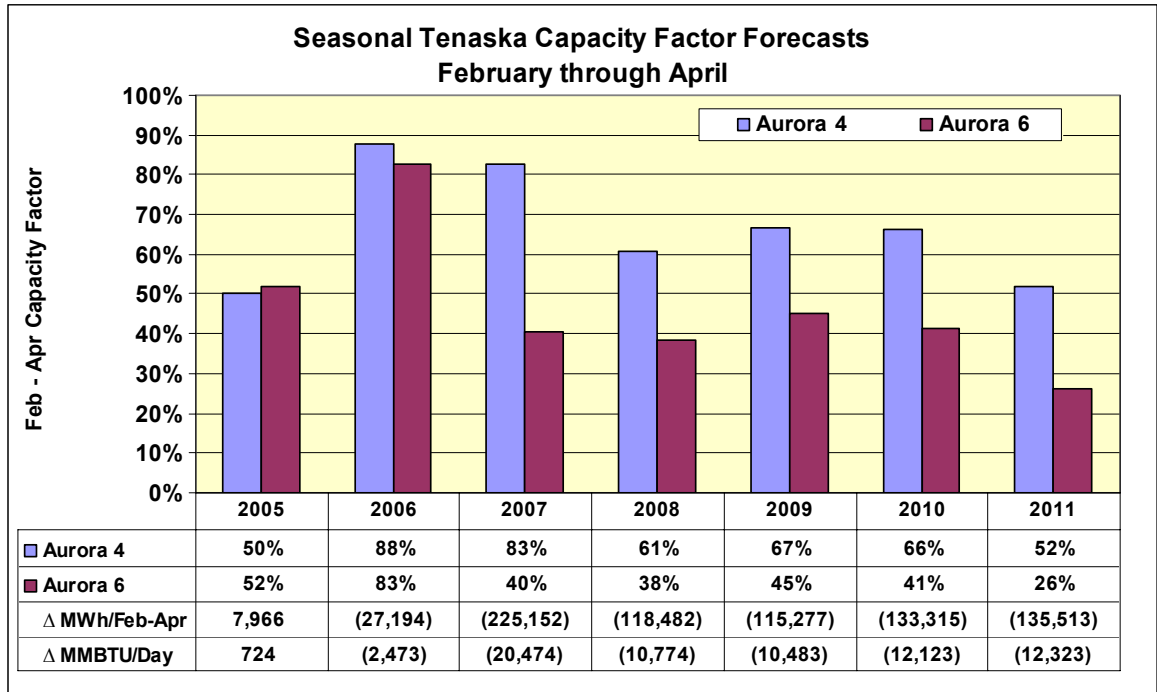
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6 Further complicating the situation, the volume of gas needed decreased a different
 7 amount each year.

8 Likewise there was a seasonal decrease in the gas volumes. The chart below
 9 depicts the seasonal capacity factor and change in gas requirement forecast during
 10 February through April for the same seven year period. This period of late winter
 11 through early spring has the greatest change in generation plant dispatch between

³ AURORA 6 has an approximate run date of June 2004.

1 the two gas forecasts because the heat rate of the plant is relatively close to the
 2 heat rate in market prices. Thus a small change power or gas prices during this
 3 period means a relatively large change in gas needs.



4

5 **Q. What impact does such information have on PSE's approach to fuel**
 6 **management?**

7 A. Both the annual and seasonal changes in gas forecasts for Tenaska (as well as
 8 other gas-fired generating facilities) add complexity to the determination of an
 9 appropriate level of gas purchases or hedges.

10 **Q. How do the AURORA and PSM models differ from the KW3000 model that**
 11 **Ms. Ryan describes in her direct testimony in this proceeding?**

12 A. AURORA and PSM provide long-term forecasts over a twenty-year horizon,

1 while KW3000 models probabilistic forecasts over a much shorter horizon – from
2 one to two years.

3 **Q. Has PSE checked the results obtained from its long-term modeling against**
4 **those obtained from KW3000?**

5 A. Yes. For the common modeling period of 2005, the PSM and KW3000 model
6 provide similar estimates of dispatch for a hypothetical hourly tolling option.
7 Given similar assumptions about heat rate and variable strike price entered in both
8 KW3000 and PSM, the models showed similar results during 2005.

9 **B. Enhancement of PSE's In-House Capabilities With Respect To Long-Term**
10 **Resource Planning**

11 **Q. Please describe the Company's efforts with respect to personnel committed to**
12 **long-term gas resources?**

13 A. In the Spring of 2003, PSE began a nationwide employment search for a Director
14 of Natural Gas Resources.

15 In September 2003 a Director was hired and the Natural Gas Resources Group
16 was re-organized. Drawing on resources from various PSE groups, and in
17 coordination with Ms. Ryan's department and the Energy Resources Planning
18 Department, the role of the Natural Gas Resources Group and its Director is to:
19 (1) develop and implement strategies for the long-term acquisition, transportation
20 and storage of natural gas (Strategic Planning); (2) develop gas industry
21 relationships and represent PSE in the supplier marketplace (Market

1 Development); (3) negotiate and manage long-term gas supply, transportation and
2 storage agreements (Procurement and Contract Administration); (4) assist the
3 Portfolio Management Group and the financial team in identifying means and
4 methods to reduce price volatility and provide needed credit and collateral support
5 for such activities; and (5) manage the operations of the Jackson Prairie gas
6 storage facility as managing co-tenant. Examples of the activities that have been
7 undertaken by the Natural Gas Resources Group with respect to such matters are
8 described in greater detail later in my testimony.

9 **Q. Has the Company taken steps to enhance the efficiencies of its organization**
10 **and staffing with respect to gas supply activities?**

11 A. Yes, PSE has established several active working groups for the purpose of better
12 coordinating and utilizing the expertise of staff. For example, the Coordination
13 Committee meets every other week and brings together representatives from
14 Resource Planning, Gas & Power Supply Operations, Energy Risk Management,
15 Natural Gas Resources, Energy Production and Storage. The purpose of this
16 working group is to address initiatives and operations that cross group boundaries
17 and/or could benefit from the contribution of others within the Company. There
18 is a Technical Advisory Group that meets to coordinate, enhance and develop
19 modeling tools. And there is a Long-Term Gas Supply Team that works together
20 to implement PSE's planning, acquisition, and storage strategies.

21 **C. PSE's Analysis and Conclusions Related to Gas for Power Requirements**
22 **During PCA Period 2**

1 **Q. What was PSE's approach to addressing long-term gas-for-power**
2 **requirements during PCA Period 2?**

3 A. In the Fall of 2003, in connection with PSE's decision to purchase a 49.85% share
4 of the 249 MW Frederickson 1 facility located near Tacoma, Washington, the
5 Company documented its then-current analysis of long-term fuel supply
6 acquisition in the whitepaper *Natural Gas for Power – Fuel Management*
7 *Strategy: Integration of Frederickson 1 Plant Acquisition* (hereinafter referred to
8 as the "*Fuel Management Strategy Whitepaper*"). This document was filed with
9 the Commission in October 2003 as Exhibit No. ____ (EMM-43C) to my prefiled
10 direct testimony in Docket No. UE-031725. A copy of the *Fuel Management*
11 *Strategy Whitepaper* is provided as Exhibit No. ____ (EMM-4C) to my testimony
12 in this PCA Period 2 proceeding, and is described in greater detail below.

13 The Company subsequently continued to monitor issues associated with long-
14 term gas-for-power supplies and costs and took steps to enhance its ability to
15 manage these issues in the future.

16 **Q. What were the Company's background concerns with respect to estimating**
17 **gas-for-power needs at the time it developed the *Fuel Management Strategy***
18 ***Whitepaper*?**

19 A. The Company had already observed in connection with preparing the 2003 LCP
20 that forecasts of long-term natural gas prices could vary quite a lot over just a few
21 years' period. *See* August 2003 LCP Update, Chapter III, a copy of which is
22 provided as Exhibit No. ____ (EMM-5). In addition, we observed that long-term

1 models could produce widely varying results in their predicted spot power prices
2 and implied market heat rates in both the short- and long-term.

3 This volatility is troubling because, depending on such input assumptions, the
4 models that predict plant utilization rate and gas consumption requirements can
5 suggest that combustion turbines will be run far more than turns out to be
6 economic in real time. This can lead one to make commitments to "overbuy" gas
7 for the long term. If such long-term volumetric commitments are made subject to
8 fixed prices, one can be surplus ("long") supply that has to be sold off in the
9 market because it is not needed. If the associated fixed price is above market at
10 the time excess volumes must be disposed of, customers face the additional costs
11 of selling gas at a loss and buying power in the marketplace instead.

12 **Q. What did the Company conclude from such observations?**

13 A. The Company concluded that it should integrate the long-term estimated gas
14 requirements forecast for the Frederickson 1 facility into the overall gas position
15 of PSE's power portfolio, including requirements for other gas-fired facilities such
16 as Tenaska, rather than being addressed in isolation. *See Fuel Management*
17 *Strategy Whitepaper*, Exhibit No. ____ (EMM-4C) at 1-2.

18 **Q. Did the Company commit to purchase additional long-term, fixed-price gas**
19 **at that time?**

20 A. No. We concluded that fixed-price gas purchase opportunities for longer than two
21 years, to the extent they were even available, would not be attractive at that time.

1 Instead, PSE concluded that the Company's Portfolio Management Team should
2 manage the gas position for the electric portfolio on a short-term basis (12-24
3 months). *See Fuel Management Strategy Whitepaper*, Exhibit No. ____ (EMM-4C)
4 at 15. This conclusion was based on: (1) PSE's analysis in the summer of 2003
5 of short- and long-term price forecasts for natural gas available from a variety of
6 forecasting and consulting services, *see id.* at 3-4;⁴ (2) analysis of long-term and
7 short-term market fundamentals impacting natural gas supply and demand, *see id.*
8 at 5-8; and (3) a market survey PSE conducted in August 2003 to explore the
9 availability and price of long-term, fixed-priced natural gas supply contracts, *see*
10 *id.* at 9-10. It was further supported by PSE's inability to supply the credit or
11 collateral required to support long-term gas supply acquisitions. *See id.* at 14.

12 **Q: Did the Company therefore conclude that it would not address fuel supply**
13 **issues on a long-term basis for 12-24 months?**

14 A: No, not at all. The Company resolved to continue to improve its knowledge of
15 market fundamentals and commercial transactions, improve its forecasting and
16 analysis tools and enhance its creditworthiness to be able to in the future utilize its
17 balance, if needed, to support expanded resource and gas supply acquisitions. In
18 the same *Fuel Management Strategy Whitepaper*, the Company indicated that it
19 would also continue to monitor the market with respect to long-term forecasts and

⁴ Additional details regarding the Company's analysis of gas price forecasts were set forth in PSE's August 2003 LCP Update, Chapter III at 8-11, a copy of which is provided as Exhibit ____ (EMM-5) to my testimony.

1 fixed-price opportunities, to engage in fundamental analysis, and to evaluate its
2 long-term gas requirements and the credit requirements demanded in the long-
3 term marketplace. PSE also noted efforts already underway to increase the
4 number of potential long-term suppliers. *See Fuel Management Strategy*
5 *Whitepaper*, Exhibit No. ____ (EMM-4C) at 10-11.

6 **Q. Has the Company engaged in such efforts since Fall 2003?**

7 A. Yes. PSE's modeling of long-term gas for power needs, described above, took
8 place throughout PCA Period 2. Additional steps undertaken by PSE during PCA
9 Period 2 to address long-term fuel supply needs are described below. *See also*
10 Exhibit No. ____ (EMM-6C); Exhibit No. ____ (EMM-7C).

11 **D. Steps Undertaken to Improve Potential Long-Term Fuel Supply and**
12 **Contract Opportunities**

13 **Q. What steps has PSE taken to increase the number of potential long-term**
14 **suppliers?**

15 A. PSE has implemented an initiative to increase its visibility as a significant natural
16 gas customer within the industry and strengthen its relationships with suppliers.
17 This initiative included meeting with natural gas suppliers and attending industry
18 conferences and supplier workshops. PSE also worked to develop mutually
19 acceptable terms for master agreements with a greater number of suppliers so as
20 to provide PSE with a broader, more liquid marketplace in which to enter into
21 long-term, fixed-price agreements should they be determined to be needed.

1 **Q. Please describe PSE's meetings with natural gas suppliers.**

2 A. On November 11 and 12, 2003, PSE representatives traveled to Calgary to meet
3 with the Canadian natural gas and shipper community. As part of its
4 presentations, PSE invited suppliers to propose concepts for long-term gas supply
5 arrangements. This event also provided an opportunity to discuss several
6 potential gas acquisition options. PSE representatives made a similar trip to
7 Denver, Colorado, from November 24-26, 2003.

8 PSE followed up on the initial Calgary meetings by sending a number of
9 executives to Calgary to meet their counterparts among Calgary's leading gas
10 suppliers. Subsequent to the executive meetings, PSE's team returned to Calgary
11 on December 10 and 11, 2003, to follow up on leads that the earlier meetings
12 generated.

13 Since this initial effort, PSE has continued to meet with suppliers, attend
14 conferences and monitor market trends.

15 **Q. Has PSE expanded the number of suppliers with which it has enabling
16 agreements for gas supplies?**

17 A. Yes. Through the market development activity described above and negotiations
18 with others, PSE has executed twenty enabling agreements, including seventeen
19 NAESB Purchase/Sale Agreements and three ISDA Master Agreements. NAESB
20 Purchase/Sale Agreements streamline physical gas purchase or sale transactions
21 by allowing parties to attach one or more Transaction Confirmations to a

1 previously negotiated Base Agreement. A Transaction Confirmation contains
2 only the specific commercial terms of each deal, such as price, volume, term and
3 quality of service and delivery location. A Base Agreement contains all the other
4 contractual terms and conditions negotiated between the parties, including
5 provisions concerning payment arrangements, credit, events of default, notices,
6 choice of law and many others. A NAESB Purchase/Sale Agreement allows
7 either party to be the buyer or the seller without requiring an additional
8 agreement. ISDA Master Agreements streamline transactions involving financial
9 hedging instruments. As with NAESBs, ISDAs are structured to allow
10 Transaction Confirmations to be attached to a pre-negotiated Master Agreement
11 containing the full range of terms and conditions agreed to by the parties.

12 **Q. Has PSE taken other steps to address its long-term fuel supply needs and**
13 **costs?**

14 A. Yes. The Company pursued some conventional and unconventional ideas with
15 respect to opportunities to improve its gas-for-power portfolio. These efforts
16 included: (1) Executing turnback and dispatch options associated with the
17 Encogen gas and pipeline agreements; and (2) Undertaking preliminary
18 assessments of the technology and economics of landfill gas (LFG) development
19 potential at landfills in the Company's service territory.

20 **Q. What were the turnback and dispatch options associated with the Encogen**
21 **gas and pipeline agreements?**

22 A. PSE acquired the Encogen Northwest, LP cogeneration facility in November

1 1999. Such acquisition included attendant gas supply and transportation
2 arrangements. A legacy agreement allows the counterparty to manage the firm
3 Northwest Pipeline TF-1 transportation capacity contract that is required to serve
4 the Encogen facility. Under the agreement, PSE delivers gas to the counterparty
5 at various locations along Northwest Pipeline, and the counterparty re-delivers
6 such gas to the Encogen plant or to some other mutually agreeable point near the
7 plant.

8 Because of the disparity in pricing among western gas market trading hubs, since
9 1999 PSE has managed this transportation agreement as though it were a base-
10 load contract in order to capture value for our customers from such basin
11 differentials. Even during periods when the plant was not running, it was
12 economical to transport Rocky Mountain supplies to a Sumas market for
13 re-delivery to PSE. However, in the second quarter of 2003, the price spread
14 between Sumas and the Rocky Mountain region narrowed and market heat rates
15 fell, making Rocky Mountain's gas for gas-fired generation less attractive. As a
16 result of this narrowing of basis, there was no longer an economic incentive to
17 transport Rocky Mountain supplies to a Sumas market. Thus, in mid-2003, as a
18 means to reduce its gas transportation costs, PSE initiated discussions with the
19 counterparty to negotiate a reduction in volumes required for re-delivery during
20 certain months.

21 Such negotiations proved successful and the counterparty agreed to PSE's request
22 to reduce delivery volumes and related costs. Beginning in April 2004, PSE
23 requested that the counterparty transport only the minimum amount of gas

1 required to meet Encogen's fuel requirements. As of the end of June 2004, PSE
2 had saved customers approximately \$250,000 in incremental Northwest Pipeline
3 fuel costs.

4 **Q. Please describe the Company's interest in and inquiries with respect to the**
5 **potential for development of Landfill Natural Gas ("LFG") in the**
6 **Company's service territory.**

7 A. Local LFG resources hold the unique potential ability to provide PSE's gas-fired
8 facilities with long-term low cost gas supply, i.e. a locally controlled in-ground
9 gas reserve. Within PSE's service territory lie three landfills capable of producing
10 significant quantities of high Btu natural gas. Since the Fall of 2002, the
11 Company has been monitoring and analyzing potential development of LFG
12 resources in the area. The Company continues to advance its understanding of
13 available technology and commercial opportunities to develop LFG. The
14 Company remains in dialogue with parties that own or control LFG resources and
15 that are interested in possibly joining with PSE in their development.

16 **Q. Has the Company continued to monitor market developments regarding**
17 **potential availability of long-term, fixed-price fuel supply contracts since the**
18 ***Fuel Management Strategy Whitepaper of October 2003?***

19 A: Yes. High-priced, volatile markets remained in effect through February 2004. In
20 informal discussions with suppliers and producers, PSE learned that they were
21 unwilling even to enter into long-term, indexed based agreements that extended
22 beyond four years. Producers with secure sources of production were willing to

1 consider agreements of up to five years, but only if sales agreements had "market
2 mean reverting" price structures under which the pricing was periodically
3 readjusted to the market price. *See* Exhibit No. ___(EMM-6C).

4 PSE also solicited fixed-price gas supply in connection with its Request for
5 Proposals From All Generation Sources issued on February 3, 2004 ("All-Source
6 RFP"). Section 3.4 of PSE's All-Source RFP requested a proposal for a "long-
7 term stable price and firm supply" of gas for projects requiring such needed fuel.
8 If a proposer did not offer a fixed price supply arrangement, PSE requested an
9 explanation of the reasons why. Exhibit No. ___(EMM-8).

10 Of the eighteen proposals PSE received that depended on natural gas, fourteen
11 proposals did not offer a fixed supply arrangement and either offered no reason or
12 provided little explanation for not including a fuel supply proposal. Some of the
13 responses stated in the proposals are summarized below:

- 14 • Not willing to transact long-term products due to volatility and
15 liquidity
- 16 • Does not have the ability to provide 20-year fixed price gas due to
17 market liquidity issues for long-term contracts
- 18 • Current project buys spot gas
- 19 • No long term gas supplies, project holds flexible market responsive
20 gas supply portfolio

1 • Does not have in-house expertise in managing gas supply

2 **Q. Did any respondents include a fuel supply proposal?**

3 A. Yes, four respondents out of eighteen offered proposals for fuel supply.

4 The first offered a commercial arrangement by a third party gas supplier for two
5 pricing structures: an indicative 5-year fixed and a 5-year collar, each beginning
6 in November 2007, the specific pricing of which would be based on forward
7 market prices determined at the time of execution. At the time this proposal was
8 submitted, such products were expected to become more readily available in the
9 marketplace but were not very common.

10 The second and third proposals offered a purchase of gas reserves for either of the
11 two projects being proposed by the developer. The fuel supply offer was very
12 vague and appears to propose a purchase of gas reserves at net present value of
13 future market price. PSE considered this option to present a significant volume
14 risk coupled with current (high) market pricing. Such supply was only available
15 with acquisition of the proposed project.

16 The fourth proposal imbedded the fuel pricing in the energy charge wherein the
17 fuel price was based on current gas price forecasts and would be adjusted to
18 account for changes in gas prices at execution of the PPA.

1 **Q. What did you make of this reaction to PSE's All-Source RFP solicitation for**
2 **long-term, fixed-price fuel supply?**

3 A. While disappointing, it was not surprising given the other market information PSE
4 had collected over the prior year indicating the lack of a market for long-term,
5 fixed price contracts.

6 PSE continues to investigate potential opportunities in this area.

7 **E. PSE Continues to Have Significant Concerns Regarding the Advisability of**
8 **Entering Into Long-Term, Fixed-Price Gas for Power Contracts**

9 **Q: Does PSE continue to have concerns about entering into additional long-**
10 **term, fixed-price fuel supply contracts at this time?**

11 A: Yes. Projections for the gas portfolio's need for gas in 2005 has decreased about
12 10% from 2004 notwithstanding the addition of 125 MW of highly efficient
13 generation capacity in 2004. Continued high gas prices and the addition of low
14 variable cost generation in the western market region during PCA Period 2
15 continued to depress market heat rates and adversely affected the competitiveness
16 of gas fired generation. Moreover, there is much risk that resources such as wind,
17 biomass, coal, and hydro resources that have highly competitive variable costs
18 (and many of which have attractive environmental characteristics and are incented
19 by favorable tax treatment and other development friendly policies) could
20 continue to depress market heat rates for years to come, making increased
21 utilization of long-term fixed-price gas contracts a significant risk, even if the

1 Company gradually developed the requisite credit to support such agreements. In
2 such event, the Company could be saddled with long-term, fixed-price contracts
3 that are well above market prices over the next several years and have scarce
4 credit capacity tied up as well.

5 **Q. Does the Company have reason to believe that these concerns are justified?**

6 A. Yes, we do, from our own RFP processes that are currently underway.

7 **Q. Please explain what you mean.**

8 A. In March 2004, PSE received 89 proposals involving 47 projects in response to its
9 All-Source RFP. 18 of the 47 projects were natural gas-fired generation, 13 were
10 wind, and the rest were a variety of fuel sources.

11 Although the Company's 2003 LCP anticipated addition of significant natural gas-
12 fired resources to the portfolio, none of the natural gas-fired generation proposals
13 made it to PSE's short list for Stage II evaluation. Instead, consideration of PSE's
14 Stage I evaluation criteria, including potential future price volatility, resulted in a
15 short list of three wind projects, one alternate fuel project, and three power
16 purchase contracts that are not dependent on natural-gas fired generation. Natural
17 gas-fired projects did not make the short list because current and forward high gas
18 prices and long-term forecasts rendered the gas-fired proposals uneconomic as
19 compared to other short listed resources. *See* Exhibit No. ___(EMM-9C).

1 **Q. Why doesn't PSE then just procure fixed-price supply for a portion of its**
2 **projected gas-for-power needs?**

3 A. The Company has actually already accomplished this. During PCA Period 2,
4 PSE's gas-for-power portfolio had [REDACTED] Dth/d of long-term physical supply
5 under contract. Of that amount, [REDACTED] Dth/d is fully hedged by fixed-price
6 physical contracts while another [REDACTED] Dth/d is hedged by financial
7 instruments. In total, approximately [REDACTED]% of PSE's total expected 2005 average
8 daily gas-for-power demand ([REDACTED] Dth/d) is fully hedged.

9 **Q. Does PSE have other concerns with respect to long-term, fixed-price**
10 **contracts?**

11 A. Yes. Even if PSE could identify a counterparty that was prepared to offer a
12 reasonable long-term, fixed-price contract, PSE is concerned about long term
13 counterparty credit risk.

14 **Q: Please describe some of the credit risks and concerns associated with long-**
15 **term gas purchases.**

16 A. Market counterparties that do business with PSE require varying degrees of credit
17 support from PSE. Thus, if PSE were the purchaser under a long-term gas
18 contract, PSE could need to incur debt to post cash or a cash equivalent such as a
19 letter of credit if the markets moved the contract "out of the money" – i.e., if the
20 contract price exceeded the market price. But if the market price moved away
21 from (i.e., exceeded) the contract price, then the contract would become more

1 valuable to PSE as the buyer – but less valuable to the seller. In that situation,
2 PSE could face risk exposure if the counterparty failed to post cash or collateral to
3 the benefit of PSE. And in the event of a bankruptcy filing by the counterparty,
4 the counterparty could move the bankruptcy court to reject out-of-market
5 contracts to reduce the financial burden upon the debtor's estate. Of particular
6 concern is the risk that PSE continues to perform during a period when changes in
7 the market work to the advantage of the counterparty, only to have the
8 counterparty default when the market moves in favor of PSE.

9 **Q. Does PSE have reason to believe its concerns regarding counterparty**
10 **performance are justified?**

11 A. Yes, as shown by recent events involving the Company's actual long-term gas-
12 for-power contracts.

13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]

5 **Q. Is the situation described above unique?**

6 **A.** No. PSE is also experiencing difficulty with the performance of the contracting
7 party under [REDACTED]

8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]

13 [REDACTED]
14 [REDACTED]
15 [REDACTED]

16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]

1 **IV. CONCLUSION**

2 **Q. Please summarize your testimony.**

3 A. PSE is providing a description of its long-term fuel supply management in this
4 proceeding in response to some of the issues the Commission raised in its Order
5 Nos. 14 and 15 in the PCORC docket. PSE undertook reasonable efforts during
6 PCA Period 2 to address its long-term gas-for-power costs. PSE utilized
7 analytical tools to model PSE's long-term gas-for-power needs, committed human
8 capital to investigating and analyzing various options for meeting its needs, made
9 reasonable decisions with respect to meeting its needs, and took steps to enhance
10 PSE's long-term position within the marketplace in order to increase the
11 opportunities available to PSE in the future with respect to its gas-for-power
12 portfolio.

13 **Q. Does that conclude your testimony?**

14 A. Yes, it does.