EXHIBIT NO. ___(DEM-1CT)
DOCKET NO. UE-07___
PCA 5 COMPLIANCE
WITNESS: DAVID E. MILLS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition of **PUGET SOUND ENERGY, INC.** **For Approval of its March 2007 Power Cost Adjustment Mechanism Report**	**Docket No. UE-07____**

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF DAVID E. MILLS ON BEHALF OF PUGET SOUND ENERGY, INC.

REDACTED VERSION

MARCH 30, 2007

PUGET SOUND ENERGY, INC.

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF DAVID E. MILLS

PUGET SOUND ENERGY, INC.

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I. INTRODUCTION

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

A. My name is David E. Mills. My business address is 10885 N.E. Fourth Street, Bellevue, Washington, 98004-5591. I am the Director, Power & Gas Supply Operations 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. ___(DEM-2).

Q. What are your duties as Director, Power & Gas Supply Operations for PSE?

A. I am responsible for the Company's Power Supply Operations and Gas Supply Operations Departments. In this capacity, my responsibility area manages all PSE short-term and medium-term wholesale power and natural gas portfolios (up to two years for the six-month period discussed in this filing, but has recently been extended to include a third year), and my area works with Mr. Eric Markell's responsibility area to plan for long-term hedging requirements. Mr. Markell is the

Senior Vice President Energy Resources for PSE.

Q. Please summarize the contents of your testimony.

A. I first provide some brief background information regarding the Power Cost Adjustment ("PCA") Mechanism and how it addresses the volatility of PSE's power costs. I then describe new resources and efforts undertaken by PSE to manage, control and moderate its power costs during the six-month period that began on July 1, 2006 and ended on December 31, 2006 ("PCA Period 5"). Finally, I compare the Company's actual power costs for PCA Period 5 to its baseline power cost rate.

II. BACKGROUND REGARDING THE PCA MECHANISM

Q. Why does the Company have a PCA Mechanism?

A. The parties to the Company's 2001 general rate case were keenly aware from the experience of the Western Power Crisis in 2000-01 how volatile power prices can be. In response to that potential volatility, uncertainty in the wholesale energy markets and PSE's need to add resources to meet its load obligations, the parties who participated in the Power Cost Adjustment Collaborative in the 2000-01 general rate case agreed to a negotiated Power Cost Adjustment ("PCA") Mechanism. The Commission approved the PCA Mechanism in its Twelfth Supplemental Order in Docket Nos. UE-011570 and UG-011571.

Q. Please describe why PSE's power costs can be volatile.

A. PSE's power supply portfolio contains a diverse mix of resources with widely differing operating and cost characteristics. Although there are many complex variables embedded in the portfolio, the major volume and price drivers of power cost volatility are: (1) streamflow variation affecting the supply of hydroelectric generation; (2) risk of forced outages of generating units; (3) weather uncertainty affecting power usage; (4) variations in market conditions such as wholesale gas and electric prices; and (5) transmission and transportation constraints. All of these have an impact on load and resource volatility, which PSE balances with wholesale market purchases and sales.

Q. How does the PCA Mechanism work?

A. Generally, the PCA Mechanism sets forth an annual accounting process for a sharing of costs and benefits between PSE and its customers over four graduated levels (so-called "bands") of power cost variances for the first $120 million of power cost variances. On power cost variances over $120 million, the PCA sharing mechanism allocates 95% of costs or benefits to customers and the remaining 5% of costs or benefits to PSE.

Q. What do you mean by "power cost variances"?

A. Power cost variances are the difference between: (i) the "baseline" fixed and variable power costs that are built into PSE's electric rates and (ii) the variable

power costs that PSE actually incurs, plus the fixed power costs as determined in the most recent rate proceeding.

The PCA Mechanism requires an annual true-up of PSE's actual power costs (in contrast to the projected power costs that are generally included in rates) and an accounting of the amount in the deferral account that tracks excess costs or benefits. See Order No. 04 in Docket No. UE-031389 (Jan. 14, 2004), in which the Commission approved PSE's 2003 PCA Annual Report regarding the true-up for the PCA Period 1.

Q. How does the PCA Mechanism treat PSE's costs related to new resources brought into the Company's power portfolio?

A. Under the PCA Mechanism, new resources with a term of less than or equal to two years are included in allowable PCA costs, with the prudence of such resources determined in the Commission's review of the annual PCA true-up. Some costs related to a new electric resource with a term of greater than two years are included in the PCA allowable costs through a bridge mechanism until the prudence of such resources can be reviewed and approved in a Power Cost Only or General Rate Case.

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III. PCA PERIOD 5 POWER COSTS

A. New Resources During PCA Period 5

Q. Is the Company seeking inclusion of any new long-term electric supply resources in the PCA Period 5 power costs?

A. No. The Company sought recovery of and received a prudence determination on several resource items in PSE's 2006 general rate case proceeding, Docket No. UE-060266 and UG-060267 (the "2006 GRC"). These included the Wild Horse wind project, the 20-year purchased power agreement between PSE and OrSumas, LLC, the relicensing of the Baker River Hydroelectric Project, and the 20-year purchased power agreement and related transmission agreement between PSE and Public Utility District No. 1 of Chelan County, Washington (including recovery of interest at the net of tax rate of return). In addition, PSE recently acquired the Goldendale Generating Station, a 277 MW natural gas-fired plant in Goldendale, Washington, and has filed a Power Cost Only Rate Case, Docket No. UE-070565, in which it seeks recovery of and a prudence determination on the Goldendale Generating Station, including its associated capital costs, operating costs, transmission costs, and costs for natural gas pipeline capacity.

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Q. Did PSE acquire any new resources during PCA Period 5 with a term of less than or equal to two years?

A. Yes. PSE acquired such resources in connection with short- and intermediate-term off-system physical or financial purchases and sales of power and/or fuel to generate power. The majority of such transactions during this period were short-term balancing transactions of power and natural gas for power purchases and sale contracts. Such balancing transactions are made in response to changes in market heat rates, which guide decisions whether to hedge power versus natural gas for power, and changes in load or resource availability. Such transactions include intermediate term transactions entered into pursuant to PSE's programmatic portfolio hedging efforts.

The Company purchased winter capacity and entered into one power exchange to improve the reliability of supply to PSE's system. In addition, the Company acquired additional BPA transmission rights for the winter 2006-07, which was approved in the 2006 GRC.

Q. Why did PSE enter into the various transactions described above?

A. These transactions were undertaken within a comprehensive portfolio and risk management system of organizational structure, technological tools, and human resources designed to allow PSE to: (1) deliver reliable energy when our customers demand it; (2) serve our customers while mitigating price volatility; and (3) enhance the value of PSE's energy resources.

The Company has organizational structures in place to provide upper level oversight and policy direction and decisions while also permitting Energy Portfolio Management Department staff the flexibility to implement PSE's policies and manage the portfolio on a day to day basis. The Company has also developed systems and tools to aid its personnel in performing their portfolio management duties. The Company is continually looking for ways to improve its existing systems and tools to further enhance its risk management capabilities.

The following section of my testimony first provides a description of these systems and tools. I then illustrate their application for PCA Period 5 by describing actual hedging strategy decisions and their execution undertaken by PSE with respect to its power supply for July 2006.

B. PSE's Management of its Power Portfolio and Related Fuel Supply for PCA Period 5

1. Overview of PSE's Portfolio and Risk Management Systems

Q. What organizational structures are in place to provide oversight and control of power portfolio management activities?

A. PSE's Energy Portfolio Management Department ("EPM Department") – composed of energy market analysts, quantitative analysts, and other professionals – is responsible for identifying, quantifying, and reporting on risk factors. The EPM Department also develops and recommends risk management strategies for the

Company. The EPM Department includes the Power and Gas Supply Operations Departments ("PGSO"), which perform these tasks and manage PSE's short-term portfolios.

PSE's Energy Management Committee ("EMC") – composed of senior PSE officers – oversees the activities performed by the EPM Department and PGSO staff. The EMC provides policy-level and strategic direction on a regular basis. In addition, the EMC reviews monthly position reports, sets risk exposure limits, approves policy and procedures, reviews proposed risk management strategies, and approves the appropriate strategies for implementation by staff.

With respect to hedging strategies for specific time periods or quantities of energy, the EMC has approved a programmatic hedging plan. EPM staff follows this plan to systematically reduce the Company's net power portfolio exposure beginning [redacted] months in advance of the month in which the power will be needed to serve PSE's load. This process is described in greater detail below. Such exposure reduction is subject to minimum and maximum monthly limits to reduce timing and market risks associated with hedging activities. EPM staff may also recommend hedging [redacted] or more months out that departs from this plan, but execution of such hedges is subject to EMC approval.

By [redacted] ahead of delivery, the bulk of the hedging strategies and transactions have been made. Decisions about hedges for delivery [redacted] months or less after execution ("[redacted]", also referred to as "[redacted]") are made

by EPM staff, within limits set out in PSE's Energy Supply Hedging and Optimization Procedures Manual ("Procedures Manual").

Q. How does PSE integrate hedging activities into its provision of electric power to customers?

A. PSE employs production cost modeling techniques to estimate future demand for on-peak power, off-peak power, and natural gas for PSE's fleet of gas-fired power plants through its KW3000 risk system. The KW3000 risk system permits PSE to model scenarios of price, hydro, load, generating resources and other inputs as required to represent future projected portfolio needs.

Q. Please further describe what the KW3000 risk system does.

A. In order to model a variety of scenarios regarding PSE's gas-fired generation, KW3000 takes into account each plant's individual operating characteristics, including: conversion efficiency, start-up costs, variable operating costs, ramp rates, minimum run times, planned outages, and unit availability. KW3000 performs simulations of different market conditions and random outages in order to develop an estimate of how much gas would be required and how much power would be produced. The plants are modeled on an hourly basis, and the information is aggregated into daily and monthly time frames for purposes of developing a forward-looking position.

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KW3000 incorporates the inter-relationship between gas and power prices in developing its probabilistic gas and power positions. In different market scenarios, PSE would have different gas or power requirements. The reason for this is twofold. First, the plants have different heat rates and become economic to dispatch at different price differentials between power and gas. Second, the forward market prices for power and gas are volatile, and the price relationship between power and gas, the "implied market heat rate," changes as well. At certain implied market heat rates, PSE will expect to run each plant at an expected rate, and the total of all the plant requirements can be calculated. But if market conditions change, then PSE will expect to adjust its gas and power purchases and sales, in order to serve load with the most economic resource. For example, it may be more economic to purchase power than to purchase gas to generate the power PSE needs to serve its load. KW3000 also incorporates the hedges that PSE has already executed as part of PSE's resource stack.

Q. How does PSE use KW3000 to help make hedging decisions?

A. KW3000 generates a volumetric position report for gas for power, on-peak power, and off-peak power. The position report shows, for each of the [redacted] months following the date of the report, the resource types in PSE's power position grouped by Short-term Purchase and Sale transactions, Long-term contracts, Frederickson 1 (Fred 1), Tenaska and Encogen, Combustion Turbines (CT's), NUGs/QFs, Coal Plants, and Hydro (both PSE owned and Mid-Columbia ("MidC") Contracts). The gas-fired generation is therefore categorized by heat rate efficiency of the facilities.

Tenaska and Encogen have very similar heat rates, and are grouped together. Fredonia, Fredrickson, and Whitehorn CT's are grouped together because of their similar heat rate conversions. Frederickson 1 is separate from the others because of its lower heat rate.

Based on this volumetric position for each month, KW3000 also generates a report showing the potential exposure associated with the "open" positions (defined as any net surplus or deficit amount). *See* Exhibit No. ___(DEM-4C).

Once PSE's aggregated energy position and net exposure are defined for a particular period, the risk management staff evaluates and develops risk management strategy proposals and/or executes transactions around the purchase or sale of gas or power, as appropriate to balance the position and reduce the exposure. Execution entails entering into specific transactions with approved counterparties, using both approved instruments and executed master agreements.

Q. How does PSE's staff develop a view of appropriate hedging strategies for the power portfolio?

A. The EPM Department utilizes a wide set of tools and sources of information to help them make informed decisions about dispatching plants, purchasing fuel, executing hedges approved by the EMC and optimizing excess capacity in the power portfolio. They also hold weekly strategy meetings so that the combined teams can review operational events, discuss market trends, and review supply/demand information. With this context, they work together to understand the greatest

exposures in the portfolio, and discuss where hedging priorities occur.

The EPM Department collects a wide range of data to monitor supply/demand factors which include but are not limited to: weather trends; macro economic factors; crude oil complex; gas storage inventories across the U.S., Canada and in the western U.S.; hydro run-off forecasts; reservoir storage; precipitation and snowpack. Additionally PSE staff review other energy companies' forecasts of price and supply/demand fundamentals, such as trading firm newsletters and consulting service forecasts.

EPM staff also receive real-time information from a variety of sources which include information feeds as well as email newsletters from industry sources such as: McGraw Hill (Gas Daily, Megawatt Daily), Future Source, Genscape, Intercontinental Exchange (live price data), and broker lines that act as PA systems where current transactions are communicated though a speaker system. EPM staff has live data coming from the systems operations staff so they can view real-time load data and real-time generation dispatch.

Q. Does the Company use any other tools to manage its energy portfolio?

A. Yes. The Company also uses an on-line counterparty credit risk management system to assist the Credit department and the EPM staff in evaluating potential transactions with respect to credit issues. With this tool, the reader can review data including: Moody's and S&P rating of the entity; applicable information about the parent of the entity; amount of parental guarantee credit provided to PSE if

applicable; the entity's amounts payable and receivable; the aggregate mark to market exposure of all open forward transactions with the entity (the dollar value of the difference between the original contract price and current market price); the credit line assigned to the entity, the existence of netting terms; and FAS 149 designation for accounting purposes. This information is calculated daily.

Furthermore, PSE traders can model what impact an incremental trade could have with a specific counterparty. The counterparty credit risk management system models the impact on the credit exposure of the Company and the counterparty of the incremental trade itself, as well as the impact that would result if the market moved significantly away from the price at which the deal was struck. If a significant market movement would cause the credit exposure to exceed the amount allowed with that counterparty, the system would indicate that the trade should not be performed with that counterparty. In that case, the trader would find a different counterparty to complete the transaction.

Q. What guidance does the Company have in place for approaching risk management strategy proposals?

A. Over the past several years, PSE moved from a more "discretionary" model of making hedging decisions to a more "programmatic" approach to hedging. The dollar-cost averaging strategy established a disciplined approach to purchasing a defined volume of gas or power on a monthly basis. In applying this strategy, PSE typically established plans to purchase hedges for specific forward time periods,

with the goal of purchasing a defined amount of power and of gas in order to ratably reduce the deficit positions by a small amount each month.

By Spring 2003, the EMC approved expansion of this concept to an "Exposure-based Dollar Cost Averaging." This refinement moved the Company from defining a specific commodity and volume to be hedged every month to a dollar amount of risk reduction to be accomplished every month. Under this approach, the EMC would approve a dollar figure of risk to be reduced, and PSE staff would determine whether it was better to hedge gas or power. As markets moved up or down, the dollar amount would allow for less or greater volumetric purchases.

During PCA Period 2, the Company began to employ a metric called Margin at Risk ("MaR"), which measures risk reduction as a result of incremental hedging. *See* Exhibit No. ___(DEM-4C). PSE has incorporated the MaR concept into the evaluation process for hedge strategies to measure risk reduction for various alternatives. A series of hedge strategies (transaction types) are run through the portfolio, providing a table of how much risk reduction is gained by month and by strategy. The MaR concept assists with deciding how to allocate dollars in a credit-constrained environment, thus providing an additional tool for choosing between available commodities. *See* Exhibit No. ___(DEM-7C).

In July 2004, the EMC approved a continuation of a dollar cost averaging strategy informed by MaR. However, the EMC directed that PSE staff monitor and more actively address the exposure associated with PSE's power portfolio position

[redacted] months ahead of the time the power would be needed. Under this Rolling [redacted]-Month Hedging Plan, EPM staff more actively manage the next rolling [redacted] months beyond their [redacted]-month ([redacted]) purview. This hedging plan increased staff's ability to react to position changes as a result of forecast customer demand, stream-flow variations, forced thermal plant outages, and changing market conditions. *See* Exhibit No. ___(DEM-4C).

Q. How does the Rolling [redacted]-Month Hedging Plan work?

A. The plan is set up to systematically reduce the total net exposure for each month of the [redacted] months beyond the [redacted] timeframe, within maximum and minimum limits on the amount of hedging that can or must be done each month, so that the total net exposure for a month will fall within existing exposure limits when each month falls into EPM staff's [redacted]-month purview.

The maximum monthly hedge is calculated by dividing the total net exposure by the remaining months before the position enters the [redacted]-month purview. The minimum monthly hedge is calculated by dividing the total net exposure – minus the Director's limit authority ($7 million) – by the remaining months before the position enters the [redacted]-month purview. For example, in [redacted] the total net exposure for July 2006 was approximately -$10 million. With [redacted] months remaining before July 2006 fell into staff's [redacted]-month purview, the maximum reduction in exposure to be undertaken by EPM staff would be [redacted], and the minimum reduction in exposure to be undertaken by staff would

be [redacted]. In addition, EPM staff review market fundamentals, hydro conditions, and other available information as well as the MaR analysis to determine which commodity to hedge (and for which month given a credit constrained environment) and whether to hedge to the minimum or maximum exposure reduction level (or somewhere in between).

Additional illustration of the application of the Rolling [redacted] Month Hedging Plan and PSE's other risk management tools and systems are provided in Exhibit No. ___(DEM-3C).

Q. Has the Company addressed long-term hedging issues?

A. Yes. These efforts have taken place on a number of fronts, including through: analysis conducted for the Company's Least Cost Plan (filed with the Commission on May 2, 2005); building PSE's modeling capabilities; surveying customer preferences with respect to price volatility and hedging costs; benchmarking of best practices by other utilities; assessing the amount of credit available to PSE to engage in longer-term hedging; and engaging in long-term market fundamental analysis.

Q. Does the Company plan to make any changes to its power hedging strategy?

A. Yes. The Company is planning to extend the term of the power hedging strategy from [redacted] to [redacted] months as well as to augment the active position management period from the first [redacted] months to the first [redacted] months. The revised strategy will retain

many of the same features as the existing hedging strategy. These include:

(i) A required ratable reduction of monthly commodity exposure is removed each month;

(ii) The volume of monthly hedging and intra-month timing for hedging is informed by market fundamentals; and

(iii) Hedging targets are established on the basis of the minimum or maximum amount of commodity exposure allowed under the Company's Procedures Manual.

The revised plan requires that on or before [redacted] months ahead of delivery, the bulk of the hedging strategies and transactions have been made per this programmatic plan. Beyond the [redacted] months just prior to delivery, the revised strategy employs a "Rolling [redacted]-Month Hedging Plan", making the cumulative term a total of [redacted] months.

These revisions will enable the Company to monitor and more actively address the exposure associated with PSE's power portfolio position [redacted] months ahead of the time the power would be needed to serve load, thus enabling staff to more actively manage the next rolling [redacted] months.

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2. Application of PSE's Risk Management System to PCA Period 5 Power Costs

Q. Would you please provide some examples of how PSE applied the risk management systems, tools and strategies described above with respect to PCA Period 5 power supply and costs?

A. Yes, I would be pleased to. Take, for example, PSE's energy requirements for July 2006. Beginning in [redacted], PSE's short-term risk management team began to actively reduce spot market price exposure for the delivery period July 2006. From [redacted] through [redacted], on a monthly or bi-monthly basis, EPM staff developed strategies to reduce PSE's exposure with respect to its electric supply needs for July 2006. Such strategies were based on updated Position and Exposure Reports generated by KW3000, market heat rates, hydro conditions and weather fundamentals, and other available information. In accordance with the EMC approved Rolling [redacted] Month Hedging Plan and within the limits described in PSE's Procedures Manual, PSE staff executed these strategies by entering into hedging transactions. EPM staff can make recommendations to depart from this plan, but execution of such hedges are subject to EMC approval. With respect to July 2006 power supply, EPM staff did not make any such recommendations, but instead, kept the EMC informed of its analyses and activities.

Beginning in [redacted], July 2006 rolled into Staff's [redacted] purview, allowing Staff to more actively manage the position by responding to short-term market fundamentals. Staff analyzed PSE's position for July 2006 on a monthly or

bi-monthly basis and, based on market conditions and other information available to them at the time, took actions to reduce PSE's exposure under the authority and limits of the Procedures Manual.

Documenting the details of these activities requires extensive description and explanation of the information and reports used by the Company at each stage of its consideration, decision making, and execution of PSE's risk management strategies. Thus, this description and documentation is separately presented in my Exhibit No. ___(DEM-3C).

Q. Are the activities described in Exhibit No. ___(DEM-3C) the only risk management activities that PSE undertook for PCA Period 5?

A. No, similar activities were undertaken with respect to managing PSE's portfolio and exposure for the entire PCA Period 5. Some of that information is evident from the materials presented in Exhibit No. ___(DEM-3C) and the other exhibits presented with my testimony. However, describing and documenting all of the details of such activities for the entire PCA Period 5 would be a monumental task.

Q. How did the Company manage gas supply for Tenaska during PCA Period 5?

A. The Company managed gas supply for Tenaska as part of its overall power portfolio by applying the risk management tools and systems described above. The Company ultimately hedged the financial exposure associated with its power portfolio taking into account the probabilistic dispatch rate of the Tenaska and other

plants. This means that the Company hedged fuel supply in the financial gas derivatives market over time as necessary to reduce open position exposure and ultimately balance the position on a probabilistic basis. The Company then acquired only the estimated physical fuel requirement in the monthly or daily spot market, whichever was determined to be most advantageous at the time.

3. Winter Peaking Contracts and Exchanges

Q. Why does PSE enter into winter peaking contracts?

A. Winter peaking contracts are procured so that PSE will be able to serve high loads that occur during an extreme winter peak event.

Q. How else does PSE plan for winter peaking events?

A. In the power market, the preponderance of transactions relevant for PSE occur at the MidC market. Therefore, during an extreme cold event, the Company makes incremental purchases in the short term or spot MidC market if the prices are less than the cost of generating or if additional supplies are needed to supplement the Company's resources. However, there is inadequate transmission capacity to move all of the Company's long- and short-term purchases and incremental purchases during an extreme cold event. Therefore, some precautions must be taken to augment the Company's electric portfolio to allow deliveries of wholesale supply to the distribution system even during extreme cold winter events.

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During an extreme cold event, there is a risk that no short-term firm capacity will be available. Additionally, curtailments of non-firm hourly transmission are likely to occur. PSE has developed two strategies to deliver additional winter supply to its system so that it has adequate transmission capacity to meet peak demand. [redacted].

Q. [redacted]**?**

A. [redacted].

Q. How did PSE approach the decisions whether and how to enter into winter peaking contracts and exchanges for the Winter of 2006-07?

A. PSE approached these decisions within the context of its portfolio and risk management systems and procedures.

The Company specifically considered how it should plan for and execute contracts to provide peaking capacity or related hedges. As part of that assessment, PSE considered the effectiveness of entering into various call options that were available in the market versus "self-insuring" against extreme winter peak events. The

Company ultimately decided that it would purchase a limited quantity of winter peaking hedges.

[redacted].

C. PSE's PCA Period 5 Power Costs

Q. How did PSE's actual power costs during PCA Period 5 compare to the power costs recovered in rates?

A. As detailed in PSE's 2006 PCA Report, PSE's actual power costs were nearly equal to the amounts recovered through the Power Cost Baseline Rate during PCA Period 5. In total, actual power costs were lower by $57,848 (after adjustment for Firm Wholesale).

IV. CONCLUSION

Q. Do you believe that PSE has met the Commission's prudence standard with respect to its power costs during PCA Period 5?

A. Yes, I do. PSE's management of its power costs during PCA Period 5 was reasonable. The Company has structures and processes in place to formulate strategies for controlling power costs and executed those strategies, taking into

account information and variables associated with managing a complex resource portfolio within a dynamic natural and market environment.

Q. Does that conclude your testimony?

A. Yes, it does.