EXHIBIT NO. ___(DEM-3C)
DOCKET NO. UE-13____
PCA 11 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 2013 Power Cost Adjustment Mechanism Report**	**Docket No. UE-13____**

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

REDACTED VERSION

MARCH 29, 2013

PUGET SOUND ENERGY, INC.

SECOND EXHIBIT (CONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF DAVID E. MILLS

REDACTED

PUGET SOUND ENERGY, INC.

ILLUSTRATION OF PSE'S PORTFOLIO AND RISK MANAGEMENT ACTIVITIES FOR PCA PERIOD 11 POWER SUPPLY FOR THE SINGLE MONTH APRIL 2012

I. PUGET SOUND ENERGY'S HEDGING PLAN

The purpose of this exhibit is to illustrate the manner in which Puget Sound Energy, Inc. ("PSE") manages its electric portfolio, including risk management activities, by describing how PSE managed power supply and costs for a single month during Power Cost Adjustment Mechanism ("PCA") Period 11: April 2012.

The Energy Management Committee ("EMC") is responsible for providing oversight and direction on all portfolio risk issues in addition to approving long-term resource contracts and acquisitions. Power and Gas Supply Operations Staff ("Staff") follow the EMC approved Programmatic Hedge strategy to guide them in the specific time periods and quantities of energy to hedge. PSE manages its short-term energy supply hedging and portfolio risk activities in accordance with the EMC-approved Energy Supply Hedging & Optimization Procedures Manual ("Procedures Manual"). In addition, the Audit Committee of PSE's Board of Directors provides oversight of these activities in accordance with PSE's Energy Risk Policy.

On July 22, 2004, the EMC approved the original programmatic hedging strategy, with a Staff transactional purview of [redacted]. The programmatic hedge strategy authorizes Staff to use a dollar cost averaging informed by Margin at Risk ("MaR") analysis, with defined minimum and maximum monthly exposure limits. *See* Exhibit No. ___(DEM-5C) for a PowerPoint presentation on MaR. This hedging plan increases

Staff's ability to react to position changes due to stream or hydro flow variation, forced thermal plant outages and changing market conditions.

The term of the EMC approved strategy, known as the "Programmatically Managed Hedge" period, consisted of the last [redacted] of the [redacted] purview - this was also known as the "Rolling [redacted] Hedge". The first [redacted] (current month plus the following [redacted]) of the [redacted] purview were actively managed ("Actively Managed Hedge") in accordance with the Procedures Manual.

On January 7, 2006, the "Rolling [redacted] Hedge" was amended to be a "Rolling [redacted]Hedge" and the Actively Managed Hedge was extended to include the current month plus the next [redacted]. In October 2007, consistent with PSE's benchmarking of hedging best practices and market research efforts tailored to measure the value of energy commodity hedging to customers, PSE extended its hedging tenor from [redacted] to [redacted]. At that time, the first [redacted]of this period became the Actively Managed Hedge period and the remaining [redacted] through [redacted]) became the Programmatically Managed Hedge period in accordance with the EMC approved strategy. The Programmatically Managed Hedge period is currently referred to as the "Rolling 23 [redacted]" hedge. The Programmatically Managed Hedge is designed to reduce PSE's net power portfolio exposure starting [redacted] in advance of delivery, subject to minimum and maximum exposure reduction, based upon a fundamental view and is intended to remove commodity price volatility.

All of the transactions for the "sample PCA month" (April 2012) were executed after the extension of the hedging strategy and many were transacted more than [redacted] prior to delivery, leaving primarily shorter-term balancing transactions to respond to

changes in market heat rates, customer demand, current hydro conditions, unit assumptions and other variables.

The Programmatically Managed Hedge is designed to reduce the power portfolio's total net exposure for each month, so that the total net exposure will fall below the EMC exposure limits set forth in the Procedures Manual when each month falls into Staff's Actively Managed Hedge. The "maximum" monthly hedge is calculated by dividing the total net exposure by the remaining months prior to the time when the position falls into the Actively Managed Hedge term. The "minimum" monthly hedge is calculated by dividing the total net exposure (plus or minus the Director's limit authority) by the remaining months prior to the time when the position falls into the Actively Managed Hedge. The "mid-point" monthly hedge is the average of the "maximum" and the "minimum" monthly hedge amounts. If such a month's position already falls within the Director's exposure limit authority, there is no monthly hedge requirement. As defined in Schedule F of the Procedures Manual, "Spot Market Exposure for Gas and Power Portfolios", the Director has exposure authority up to the CFO/CRO level ($[redacted] monthly or $[redacted] for the rolling [redacted] period). Spot market exposure above the CFO/CRO level requires notification to the EMC. See Exhibit No. ___(DEM-10C) for the Schedule F excerpt from the Procedures Manual.

During the Actively Managed Hedge period, Staff manages the monthly net exposure in accordance with the Procedures Manual. The exposure is calculated individually for peak, off-peak, and gas for power positions. The authority limit is calculated on the net spot exposure of all three positions. Spot market exposure is

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measured by multiplying the open position by the hourly spot price. See Exhibit No. ___(DEM-10C) for the spot market exposure limits from the Procedures Manual.

Margin at Risk measures risk reduction as a result of incremental hedging. As PSE's hedging strategy evolved, the MaR concept was added to the evaluation process in May 2004 for the Programmatically Managed Hedge strategy to measure risk reduction for various alternatives. MaR analysis shows how much risk reduction is gained by month and by strategy – providing an additional tool to determine which commodity is the best choice and for which month given a credit-constrained environment. The MaR calculation shows the amount of portfolio risk removed for each hedging dollar spent when 25 MW of on-peak or off-peak power or 5,000-MMBtu/day of gas is transacted as these represent typical volumes for market transactions.

The remainder of this report will illustrate the systems and tools used by Staff and their application for PCA Period 11 by describing actual hedging strategy decisions and the execution thereof by PSE. Please reference section II through V which provide a summary of [redacted], and review the analysis and fundamental views Staff relied upon to make hedging decisions for April 2012. Section IV provides a description of the exhibits, Exhibit No. ___(DEM-4C) through Exhibit No. ___(DEM-13C), which provide additional detail supporting this narrative.

II. PROGRAMMATICALLY MANAGED HEDGE PERIOD

A. [redacted] MARCH 2012

In [redacted], April 2012 rolled into Staff's Programmatically Managed Hedge purview. At the beginning of [redacted], the position report indicated the April 2012 net

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exposure was [redacted] with a [redacted] MW on-peak power [redacted] position, a [redacted] MW off-peak power short position and a [redacted] MMBtu/day natural gas [redacted] position. The then current portfolio position indicated that the on- and off-peak power positions, valued at the then current market price, resulted in an on- and off-peak power exposure of [redacted] and ([redacted], respectively. This power exposure, combined with the [redacted] natural gas exposure totaled a net exposure of [redacted]. See Exhibit No. ___(DEM-4C) for the April 2012 exposures over the hedging period.

The "maximum" monthly reduction in exposure yet to be accomplished by Staff is the net exposure noted above divided by the remaining months prior to the time when the position falls into the Actively Managed Hedge. In May 2009, with [redacted] remaining before April 2012 fell into Staff's Actively Managed Hedge, the maximum monthly reduction was $[redacted]). The "minimum" reduction is the total net exposure noted above, less the Director's limit authority, divided by the remaining months prior to the time when the position falls into the Actively Managed Hedge and is approximately [redacted]. The "mid-point" reduction, or the average of the "maximum" and "minimum" amounts, is [redacted].

During May 2009, as part of the Programmatically Managed Hedge, Staff reviewed market fundamentals and came up with a hedging strategy for the [redacted] through April 2012 time frame. Given the ongoing economic weakness, Henry Hub and regional gas prices were sliding lower. In addition to weak demand, natural gas prices were pressured by a large supply overhang, as a result of high gas production. Added to that, El Nino appeared to be making a comeback, which decreased forecasted levels of the upcoming Atlantic hurricane activity. However, the potential existed for prices to move higher -

rather than lower - if weather in the Eastern U.S. were to get hotter than normal during the summer or if hurricane activity were to increase. Staff elected to hedge to [redacted] for the Programmatically Managed Hedge. As a result, Staff reduced the total net exposure for April 2012 by $0.5 million by purchasing 50 MW of on-peak power and 25 MW of off-peak power for the entire second quarter of 2012. Often the tenure of an entered hedge transaction spans a full quarter or full calendar year, and the pricing and volume reflects the availability at that time. See Exhibit No. ___(DEM-11C) for the fundamentals and Exhibit No. __ (DEM-13C) for market prices that affected April 2012.

During the months [redacted] through [redacted], Staff managed the April 2012 spot market exposure similar to [redacted] –to reduce the monthly exposures at a [redacted] level pursuant to the Programmatically Managed Hedge strategy – with an eye towards the power and natural gas market fundamentals which include water supply and weather conditions. In [redacted], the last month that April 2012 was in the Programmatically Managed Hedge period, PSE reduced the April 2012 exposure at a [redacted] level. Given the then current hydro forecast of near normal runoff for the January through July timeframe and pricing for the second quarter of [redacted] prices for April 2012 appeared to be inflated assuming normal hydro conditions for the next water year.

At the beginning of June 2009, looking at delivery month April 2012, PSE's MaR analysis indicated that the most effective exposure reduction would be to [redacted] off-peak power, though the expected exposure reduction for peak, off-peak and gas for power were very similar with not one exceptionally greater than the other. See Exhibit No. ___(DEM-6C) for the April 2012 MaR over the hedging term. For example, if 5,000 MMBtu/day gas was purchased for April 2012, it would reduce risk by nearly [redacted] for every $100 spent or

[redacted] for every dollar spent, compared to [redacted] with the purchase of 25 MW of on-peak power or [redacted] with the purchase of 25 MW of off-peak power. The MaR analysis indicated greater risk reduction would be gained from the [redacted] of off-peak power. Staff considers various factors in addition to the MaR when determining what commodities to purchase and when. During this period of time, both the gas position and the on- and off-peak power positions were [redacted]. However, volumetrically, the on-peak and off-peak power positions were significantly [redacted] than the gas position. For example, beginning [redacted], the gas exposure was [redacted] MMBtu/day [redacted]) compared to the ([redacted] MW) on-peak and ([redacted] MW) off-peak power short positions. Therefore, in June [redacted], Staff planned to [redacted] for April 2012. However, there was a lack of physical power counterparties so staff evoked the 12/22/08 amendment to the Programmatically Managed Hedge, allowing for not meeting monthly minimum or maximum limits due to a lack of physical power counterparties. During the [redacted], PSE continued to [redacted] the April 2012 exposure at the [redacted] level given similar MaR and power and gas for power positions. In [redacted], PSE updated its customer load forecast to reflect the economic downturn, reducing the April 2012 demand forecast by [redacted]. This demand reduction resulted in a less short position for the on- and off-peak power positions for April 2012. Staff [redacted] a total of [redacted] MW of off-peak power and 150 MW on-peak power for the entire second quarter of 2012, to reduce April 2012 exposure, during the third quarter of 2009. PSE's net exposure was reduced [redacted] million during this time.

During the months of [redacted], Staff [redacted] an additional [redacted] gas for power, [redacted] MW of on-peak power and [redacted] MW

of off-peak power which, when combined with the continued decline of market prices, reduced April 2012's net exposure to [redacted]. In [redacted], PSE again updated its customer load forecast to better reflect the on-going economic impact to its service territory. As a result, the April 2012 demand forecast [redacted].

By the end of [redacted], when April 2012 was to roll into the actively managed hedging period, PSE was [redacted].

III. ACTIVELY MANAGED HEDGE PERIOD

In [redacted], April 2012 rolled into Staff's Actively Managed Hedge period. This allowed Staff to more actively manage the April 2012 position for a full [redacted] prior to delivery. At the beginning of [redacted], the position report indicated the April 2012 net exposure was short at [redacted] with a [redacted] or [redacted] MW on-peak power [redacted] position, a [redacted] or [redacted] MW off-peak power [redacted] position and an [redacted] or [redacted] MMBtu/day natural gas [redacted] position. See Exhibit No. ___(DEM-4C) for the April 2012 exposures over the hedging period. At that time, forecast flat heat rates for April 2012 were averaging around [redacted], a level where none of PSE's gas-fired generators were forecast to be economically dispatched, causing a [redacted] power demand and a [redacted] gas position. See Exhibit No. ___(DEM-12C). The total net exposure was [redacted]. In other words, the position was somewhat [redacted], but mostly [redacted] power. Staff was not compelled to [redacted] [redacted] [redacted] (buy power and sell gas) at the time given normal

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price volatilities which could create a gas [redacted] position on any given day. Also, prices were continuing in a downward trend, for the most part. The [redacted] prices were much lower than the [redacted] prices with slightly above normal hydro runoff forecasts at Grand Coulee for the January through July 2011 period. Therefore, staff chose, at that time, to [redacted]. In [redacted], PSE again updated its customer load forecast. As a result, demand increased by 20 MW on-peak and 16 MW off-peak for April 2012, creating a slightly [redacted] power position.

Moving into the [redacted], the U.S. economy had slightly improved, yet unemployment rates were still high. The unemployment rate in PSE's service territory was hovering just below nine percent. It was observed that forecasted gas and power prices continued to drop over the second quarter of 2012. Exhibit No.__(DEM-13C). The cooler spring in the West resulted in delayed hydro runoff and weather was slow to warm resulting in muted demand regionally. Nationally, gas production remained healthy providing downward pressure on gas prices. In late [redacted], in part due to the above average hydro flows that continued into the [redacted] months, power prices for the April 2012 delivery period dropped. As a result of the decrease in prices, during [redacted], Staff [redacted] MW of off-peak power for April 2012 delivery, by [redacted] the entire second quarter 2012, to remove some exposure and lock in power supply below the incremental generation rate (IGR) of the Colstrip units. *See* Exhibit No. ___(DEM-12C).

In [redacted], staff [redacted] MW of on-peak power for April 2012 delivery, by [redacted], in an effort to remove exposure. Power and gas prices had continued their decline and the early Grand Coulee runoff forecasts had

improved slightly to be right around normal. In [redacted], heat rates had [redacted] such that the on-peak and off-peak power positions went from [redacted] to [redacted] and the gas position got [redacted]. Gas and power prices were dropping but the pace of the gas price decline outweighed that of the power decline, thus increased heat rates. Near the end of December 2011, staff [redacted] MMBtu/day to [redacted] the gas [redacted] position. Given the increase in heat rate and gas demand, staff thought it was prudent to remove a portion of the gas for power exposure at the lower gas prices. April 2012 Sumas gas prices had declined over 20% in a four month period. In early February 2012, the January through July runoff forecast at Grand Coulee was below normal at 90 percent of normal. Expectations were for a delayed runoff season, when upper level snow melts, as there was a lack of lower level snow at the time. Heat rates [redacted] again in February 2012 so staff [redacted] an average 8,117 flat heat rate for April 2012 by [redacted] MW on-peak and [redacted] MW off-peak power and [redacted] MMBtu/day of gas. At this heat rate level, only a few of PSE's gas fired generators were forecast to be economically dispatched. Given the volatile market surrounding weather and runoff forecasts, heat rates [redacted] and the power position went from [redacted] to [redacted] so staff [redacted] MW of off-peak power. In [redacted], as PSE switched to a [redacted] for April 2012, PSE [redacted] at total of 375 MW of on-peak power,125 MW of off-peak power, 50 MW of flat power and sold [redacted] MMBtu/day of gas. Within those transactions, staff [redacted] an average 7,547 on-peak heat rate for April 2012 by [redacted] MW on-peak power at Mid-C and [redacted] [redacted] MMBtu/day gas at Sumas. Power prices had been on the decline as the forecasted water supply increased. In early March 2012, the Jan-July forecast for outflows at Grand Coulee was around 96 % of normal, up from a low of 84% of normal forecasted in [redacted]

2012. The weather forecasts for the Pacific Northwest were calling for a wet and cool March and April, which added pressure to both the April 2012 power and gas prices. At the end of March 2012, the net exposure for April 2012 was [redacted] and within the Actively Managed hedging limits defined by the Procedures Manual.

IV. SUPPORTING EXHIBITS

The monthly exposure for April 2012 is included in Exhibit No.___(DEM-4C). PSE's PowerPoint presentation on MaR is included in Exhibit No.___(DEM-5C). The monthly MaR analysis for April 2012 can be found in Exhibit No.___(DEM-6C). As stated previously, the MaR analysis shows how much risk reduction is gained by month and by strategy – providing Staff with an additional tool to evaluate which commodity to hedge given a credit-constrained environment.

April 2012 hedges are shown for both power and gas for power in Exhibit Nos. ___(DEM-7C) and ___(DEM-8C).

As of the 2012 water supply season, the Northwest River Forecast Center ("NWRFC") water supply forecasting procedures changed whereby Ensemble Streamflow Prediction ("ESP") generated forecasts replaced regression-based forecasts. Water supply forecasts were no longer released on a scheduled three times per month basis. The new ESP forecasts are published on the NWRFC website at a minimum of once a week but may be updated daily. There is no longer a NWRFC Final forecast for each month. The current published forecast is designated as the NWRFC Official Forecast and is valid until it is replaced with an updated forecast. The NWRFC issued its first official water supply forecast of the 2012 water year on July 11, 2011. The January-July period run-off at Grand

Coulee was projected to be 61,092 thousands of acre feet ("KAF"). The 30-year average (1971-2000), also referred to as "normal," for the January-July period at Grand Coulee is 62,900 KAF. Thus, the NWRFC predicted the January-July 2012 runoff to be 97 percent of normal at Grand Coulee (61,092 KAF/62,900 KAF). The actual January-July 2012 runoff was 128 percent of normal at Grand Coulee, or 80,597 KAF. All subsequent forecasts for the 2012 water year can be found in Exhibit No. ___(DEM-9). The monthly runoff volumes at Grand Coulee for water years 2007 through 2012 are also shown in Exhibit No. ___(DEM-9).

A copy of Schedule F from the Procedures Manual, "Spot Market Exposure for Gas and Power Portfolios", which provides the monthly exposure limits, is provided in Exhibit No. ___(DEM-10C). Exhibit No. ___(DEM-11C) provides a summarized retrospective of the market prices and fundamentals over the hedging term [redacted] through [redacted]– all of which played a key role in Staff's management of, and hedging decisions for April 2012. The above referenced tools, forecasts, and fundamental views were used to manage the monthly spot market exposure for delivery month April 2012. April 2012 hedges were executed in accordance with both the Programmatically Managed Hedge and Actively Managed Hedge strategies and the hedge details are shown for both power and gas for power in Exhibit No. ___(DEM-7C).

Daily heat rate trends for April 2012 can be found in Exhibit No.___(DEM-12C), as well as the dispatch heat rate of PSE's gas fired turbines. Implied market heat rates fluctuate daily depending on the power and gas prices, and are part of the dispatch logic used in the risk model to determine which gas fired turbines are "in the money" and may dispatch economically.

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Daily commodity prices for April 2012are in Exhibit No.___(DEM-13C). This chart illustrates on-peak power, off-peak power, and gas for power prices as they evolved over the [redacted] hedging period.

V. APRIL 2012 – WITHIN MONTH OVERVIEW

At the end of [redacted], the net exposure for April 2012 was [redacted], which represented a [redacted]), respectively. As PSE entered April 2012, market observers were taking into consideration the weather forecasts for the remainder of the spring and summer months, as above normal temperatures nationally and regionally could lead to increased demand and potential price spikes. In early April 2012, weather forecasts for the West called for continued below normal temperatures and mountain snow for the first week of April, turning to normal conditions for the remainder of the month. Grand Coulee outflows for the month were expected to be up due to the draft requirements to reach the targeted end of month elevation of 1,220-1,230 feet for flood control due to recent increased snowpack. The month began with flat market heat rates near 6,300 Btu/kWh and ended near the 3,000 Btu/kWh level. The average daily flat heat rate for the month was 5,099 Btu/kWh, with on-peak power prices averaging $15.03/MWh and off-peak power prices averaging $2.17/MWh.

From May 2009 through March 2012, Staff purchased 1,375 MW of on-peak power at an average price of $32.63/MWh, 875 MW of off-peak power at an average price of $19.25/MWh and 50 MW of flat power at an average price of $12.13/MWh. Staff also sold

75 MW of on-peak power at an average price of $ 19.88/MWh and 50 MW of off-peak power at an average price of $10.00/MWh. From May 2009 through March 2012, Staff purchased 30,000 MMBtu/day of natural gas at an average price of $3.93/MMBtu and sold 17,500 MMBtu/day of natural gas at an average price of $2.08. *See* Exhibit Nos. ___(DEM-7C) and ___(DEM-8C).