EXHIBIT NO. ___(KJH-1CT)
DOCKET NO. UE-09 ___/UG-09___
2009 PSE GENERAL RATE CASE
WITNESS: KIMBERLY J. HARRIS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY, INC.,** **Respondent.**	**Docket No. UE-09____** **Docket No. UG-09____**

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF KIMBERLY J. HARRIS ON BEHALF OF PUGET SOUND ENERGY, INC.

REDACTED VERSION

MAY 8, 2009

PUGET SOUND ENERGY, INC.

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF KIMBERLY J. HARRIS

PUGET SOUND ENERGY, INC.

PREFILED DIRECT TESTIMONY (CONFIDENTIAL) OF KIMBERLY J. HARRIS

I. INTRODUCTION

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

A. My name is Kimberly J. Harris. My business address is 10885 N.E. Fourth Street, Bellevue, WA 98004. I am the Executive Vice President and Chief Resource Officer 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. ___(KJH-2).

Q. What are your duties as Executive Vice President and Chief Resource Officer for PSE?

A. My duties include oversight of: (i) energy efficiencies resources; (ii) the operation and maintenance of the Company's electric generating facilities and the Jackson Prairie gas storage facility; (iii) purchase and sale of power and natural gas to meet customer loads in real time and long-term; (iv) contracts for long-term electric supply, transmission service, long-term gas supply, and long-term gas

transportation service; (v) generation resource acquisition; (vi) integrated resource planning; (vii) forecasting power costs for planning and rate cases; (viii) the Company's green power program and emerging technologies; and (ix) federal legislative policy issues that impact the Company's existing and future resource decisions.

Q. What is the nature of your testimony in this proceeding?

A. My testimony presents a summary of the Company's long-term electric supply portfolio, including an overview of PSE's gas in storage for power, and I discuss the changes to that portfolio over the past decade and since PSE's 2007 general rate case, Docket Nos. UE-072300 and UG-072301 (consolidated) ("2007 GRC"). I provide an update on the projects resulting from PSE's 2008 All Generation Sources Request for Proposals ("2008 RFP"). Additionally, I present a summary of the Company's natural gas supply portfolio, including a description of the expanded Jackson Prairie gas storage facility.

I then describe the Company's continuing need to acquire new or replacement resources to meet the projected demands of PSE's electric customers. I provide a brief overview of the status of the 2009 Integrated Resource Plan ("IRP") that is currently being developed and will be submitted to the Commission in July 2009, and I will describe some of the challenges that PSE faces in acquiring resources.

I provide a summary of the Company's recently acquired resources resulting from the Company's 2008 RFP and related acquisition activities. I also provide an

update on PSE's compliance with the Greenhouse Gases Emissions Performance Standard in RCW 80.80, and I request a determination by the Commission that the Mint Farm Generating Station and Sumas Generating Station are baseload electric generation that comply with the emissions performance standard.

Finally, I provide updates on the status of (i) the relicensing of the Baker River Hydroelectric Project; (ii) the planned maintenance schedule for the Snoqualmie Hydroelectric Project; and (iii) the pending sale of assets from PSE's White River Hydroelectric Project to the Cascade Water Alliance, and I request that the Commission approve the appropriateness of the sale transaction.

II. PORTFOLIO SUMMARY

A. The Company's Electric Supply Portfolio

Q. Please describe the principal components of the Company's electric supply portfolio.

A. PSE electric supply "portfolio" consists of a mix of resources, both PSE-owned and purchased, representing technology, fuel, transmission and geographic diversity. This portfolio helps mitigate the risks of supply disruption and cost volatility by reducing reliance on any one resource, fuel type or geographic location.

The Company's natural gas-fired resources consist of contracted and owned facilities. Contracted facilities include purchased power agreements ("PPAs") with two non-utility generators ("NUGs"), which are the Tenaska and March Point projects. Additionally, PSE owns five natural gas-fired combined cycle combustion turbine ("CCCT") projects: (i) the 169 megawatt ("MW") Encogen Generating Station; (ii) the 277 MW Goldendale Generating Station, (iii) 49.85% of the 276 MW Frederickson 1 Generating Station, (iv) the 133 MW Sumas Cogeneration Station, and (v) the recently acquired 311 MW Mint Farm Generating Station, which I will discuss later in my testimony.

PSE also owns three simple cycle combustion turbine projects and is in the process of acquiring a fourth project. These simple cycle units are generally used to meet PSE's winter peaking needs or during periods of constrained supply. PSE-owned projects include: (i) the 147 MW Frederickson Generating Station; (ii) the 202 MW Fredonia Generating Station; and (iii) the Whitehorn Generating Station Units #2 and #3 which are approximately 147 MW. PSE is in the process of acquiring a fourth project, Units No. 3 and No. 4 of the Fredonia Generating Station which are approximately 110 MW. PSE's lease on these units was terminated on January 13, 2009. All of the Company's natural gas-fueled resources are located in western Washington except for the Goldendale Generating Station, which is located near the Oregon border in south-central Washington.

The Company also has long-term contracts for hydroelectric power from projects located along the middle section of the Columbia River in central Washington (the "Mid-C"). The Company owns three operating hydroelectric projects: (i) the Baker River project (182 MW); (ii) the Snoqualmie Falls project (42 MW); and (iii) the Electron project (22 MW).

The Company has long-term purchase power agreements with diverse fuel sources and capacity, such as a 97 MW coal PPA (which expires December 2010) and several small contracts acquired under the Public Utility Regulatory Policies Act ("PURPA").

The Company owns two recently completed wind facilities in Washington State: (i) Hopkins Ridge Wind Facility (157 MW) principally completed in November 2005 with a 7.2 MW addition completed in 2008; and (ii) Wild Horse Wind Facility (229 MW) completed in December 2006, which is currently being expanded by 44 MW. Additionally, PSE has entered into a Joint Development Agreement with RES Americas ("RES") to acquire a half interest in development-stage wind projects in Columbia and Garfield County with estimated capacity of 1,250 MW.

PSE is in the process of installing a 500 kW solar demonstration project at the Company's Wild Horse wind facility. PSE installed a 450 kW panel in 2007. The remaining 50 kW are expected to be installed in the second half of 2009. PSE invested in the solar demonstration project to advance its experience with

integrating renewable resources into its portfolio, and to support and learn more about solar resources.

The Company also owns a 50% undivided interest in Colstrip Units No. 1 and No. 2 and a 25% undivided interest in Colstrip Units No. 3 and No. 4. The Colstrip Project is a 2,094 MW pulverized coal/steam electric generating plant located in eastern Montana. The geographic locations of the Company's electric portfolio resources are illustrated in Exhibit No. ___(KJH-3).

Q. How do PSE's various resources contribute to meeting the energy requirements of the Company's electric customers?

A. During the rate year of this proceeding, which is April 2010 through March 2011, PSE's ownership share and contractual interests in the Colstrip Project are projected to provide 23% of Company's energy requirements. Hydroelectric generation is projected to supply approximately 25% of the Company's annual energy requirements, which will of course depend on the availability of water over the rate year. Hydro resources also provide valuable ancillary services to "firm" the Company's growing portfolio of wind resources. Natural gas-fired generation resources, including non-utility generators, provide another approximately 18% of PSE's annual energy requirements, depending on market conditions. The Company's wind projects are expected to supply about six percent of PSE's energy load in an average wind year. Short-term market

purchases and various other purchase power contracts comprise the remaining resources needed to meet the energy requirements of PSE's electric customers.

The estimated relative contributions of these various resources are based on the AURORA run for power costs. For additional detail, please see the Prefiled Direct Testimony of Mr. Mill's prefiled testimony Exhibit No. ___(DEM-1C).

Q. How has PSE's electric resource mix changed over the past decade?

A. Since 2002, the Company's resource mix has shifted away from short-term contracts and more towards owned generation resources. Hydro resources have become less available to the Company, causing generation to shift more towards natural gas and wind resources. *See* Exhibit No. ___(KJH-4).

Q. Why is the Company acquiring more owned resources and long-term purchased power agreements?

A. It has been necessary for PSE to acquire generation resources and long-term purchased power agreements in order to (i) avoid excessive risks associated with the short-term wholesale power market; and (ii) comply with the terms and intent of the Power Cost Adjustment mechanism ("PCA") Settlement Stipulation.[1] One of the harsh lessons learned from the Western Power Crisis that occurred at the start of this decade is the risk of relying too much on purchasing power in short-term wholesale markets to serve load. In 2002, in the wake of the Western Power

Crisis it was recognized that PSE could be subject to increased risk due to increased reliance on the short term wholesale power market.

As discussed by Commission Staff witness Mr. Lott at the PCA settlement hearing:

> One of the parts of this mechanism is . . . the integrated resource planning process, and that new resources should be coming out of the integrated resource planning process. And in other words, there should be discussion about and the company should be following that process. . . .
>
> . . . . And it has not been the company's plan and is definitely not Staff's thought that the company should be going to a market purchase type of portfolio or a short-term type of portfolio. It is Staff's belief that the company should be going to a utility-type portfolio, where they have the resources and control the resources..[2]

Q. Have there been changes to PSE's long-term electric resource portfolio since the Company's 2007 GRC?

A. Yes. PSE has acquired, or extended contracts to retain, or is proceeding with the acquisition of, additional resources, as described briefly below and more fully described in Mr. Roger Garratt's Prefiled Direct Testimony, Exhibit No. ___(RG-1HCT). These include: (i) short-term and long-term PPAs, including a four-year winter PPA agreement with Barclays Bank PLC (beginning after the rate year in this proceeding), a four-year and three-month PPA with

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1 *See WUTC v. Puget Sound Energy, Inc.*, Docket Nos. UE-011570 and UG-011571 (Fifteenth Supp. Order) (May 13, 2003).

2 *See WUTC v. Puget Sound Energy, Inc.*, Docket Nos. UE-011570 and UG-011571, Lott, TR. 2170:15-2171:21.

Credit Suisse to replace a PPA executed with the now bankrupt Lehman Brothers PPA, a five-year PPA extension with Puget Sound Hydro LLC, and a five-year PPA with Qualco Energy LLC; (ii) the acquisition of the Mint Farm Generating Station from Wayzata Investment Partners; (iii) the acquisition of the Fredonia Generating Units No. 3 and No. 4, which PSE currently leases; (iv) the expansion of Wild Horse ; and (v) the execution of the Joint Development Agreement with RES to build, construct, own and contract wind generation in Columbia and Garfield Counties.

Q. Have there been any significant changes to PSE's natural gas transportation that serve its electric resource portfolio since the 2007 general rate case?

A. Yes. PSE recently made the following two changes:

1. FB Energy Capacity - PSE purchased the equivalent of 25,500 decatherms ("Dth") per day of Westcoast Energy T-South pipeline capacity commencing November 1, 2009 through October 31 2018, with renewal rights, to serve a portion of its gas-fired generation fleet. This acquisition is discussed by Mr. Riding in his profiled direct testimony, Exhibit No. ___(RCR-1CT).

2. Northwest Pipeline Capacity - PSE purchased Northwest Pipeline ("NWP") transportation capacity to serve Mint Farm as discussed by Mr. Riding.

Q. Does the Company's electric supply portfolio have access to natural gas storage?

A. Yes, as discussed in the Prefiled Direct Testimony of Mr. Clay Riding, Exhibit No. ___(RCR-1CT), PSE recently completed a storage expansion at its Jackson Prairie storage facility. Because it is anticipated that PSE's natural gas supply portfolio will take several years to grow into all of the expanded storage, 50,000 MMBtu per day of storage deliverability and 500,000 MMBtu of storage capacity has been assigned, at market value, to PSE's electric supply portfolio for the time period December 1, 2008 through March 31, 2010. Prior to termination of this initial term, PSE will determine if the arrangement can continue for a subsequent term, based on the planning criteria used by PSE to determine natural gas supply portfolio requirements.

Additionally, PSE recently took assignment of a small Jackson Prairie storage resource through an asset management arrangement that will reside in the electric portfolio, involving 6,704 MMBtu per day of deliverability and 140,622 MMBtu of storage capacity. The assignment has an initial term of three years, but continues year-to-year thereafter, subject to timely termination notice by either party. For further details of the assignment, please see the Prefiled Direct Testimony of Mr. Clay Riding, Exhibit No. ___(RCR-1CT).

Mr. Riding also discusses other options that are being explored that will provide gas storage for the electric portfolio in the future. As Mr. Riding explains in his

testimony, this natural gas storage increases electric service reliability by allowing PSE to withdraw gas from storage to dispatch its combustion turbine fleet as needed—including intra-day and weekend dispatch to support sudden, unexpected changes in load or generation, particularly wind generation.

B. The Company's Natural Gas Supply Portfolio

Q. What are the principal components of the Company's natural gas supply portfolio?

A. PSE's natural gas supply portfolio (often referred to as the "Core Gas" portfolio) consists of:

(i) a mix of long-term natural gas supply contracts (more than two years) and short-term natural gas supply contracts (two years or less) to meet the average loads of PSE's retail gas customers during different months;

(ii) natural gas peaking supply and capacity resources to meet peaking requirements or short-term operational needs for PSE's retail gas customers;

(iii) natural gas pipeline capacity resources (both "direct connect" capacity, which moves supplies from production areas, storage or interconnections with other pipelines directly into PSE's distribution system, and "upstream" capacity, which accesses production, storage and market centers further upstream from the direct connect capacity);

(iv) natural gas storage resources: Jackson Prairie and Clay Basin; and

(v) natural gas supply and transportation resources for power generation needs for PSE's electric portfolio.

Please see Chapter 6 of PSE's 2007 IRP, Exhibit No. ___(KJH-5), for more information regarding the Company's natural gas resource portfolio.

Q. Have there been any significant changes to PSE's existing natural gas supply portfolio for service to gas customers since the Company's 2007 general rate case?

A. Yes. As Mr. Riding discusses, PSE recently completed a storage expansion at its Jackson Prairie storage facility. The additional capacity resulting from this expansion will be used to meet current and future natural gas load growth in PSE's service territory. As discussed above, it is anticipated that PSE's natural gas supply portfolio will take several years to grow into all of the expanded storage service so some of this additional storage is being assigned, at market value, to PSE's electric supply portfolio.

III. THE COMPANY'S NEED TO ACQUIRE ADDITIONAL ELECTRIC RESOURCES

Q. Does the Company need to acquire additional electric resources?

A. Yes. In several proceedings over the past six years, the Company has extensively documented its need to acquire additional power resources now and well into the future.

Q. What analyses did the Company undertake in determining that it needed to acquire the additional electric resources that are presented in this case?

A. PSE engaged in an extensive process to analyze its long term power resource needs prior to acquiring the resources presented in this proceeding. This process is documented in the Company's 2007 IRP. *See generally* Exhibit No. ___(KJH-5). The need for the resources presented for a prudence determination in this proceeding was documented in the 2007 IRP, and the acquisition process began shortly after the filing of the 2007 IRP. The 2007 IRP documents the Company's significant near-term need for resources, a need that is projected to grow materially over time. *See* Exhibit No. ___(KJH-5).

Q. What factors continue to drive the growing need for resources?

A. As stated in the 2007 IRP, "[t]he combination of economic growth and expiring supply contracts means that PSE faces large electric resource needs in the years ahead." *See* Exhibit No. ___(KJH-5), at page 8.

Q. What is the Company's strategy to meet the growing needs noted above?

A. In its 2007 IRP, the Company's strategy employs aggressive increases in demand-side resources (primarily energy efficiency) and aggressive acquisition of wind resources in order to meet renewable portfolio standards, as well as gas-fired generation to make up the balance of energy needs that cannot reasonably be met

through demand-side and renewable resources. *See* Exhibit No. ___(KJH-5), at pages 218-19.

Q. Did the Company reassess its needs before beginning the 2008 RFP process?

A. Yes. Before beginning the 2008 RFP process, the Company reevaluated the load resource balance and updated the need with the Company's most recent demand forecast and supply side resource information. *See* Exhibit No. ___(WJE-1HCT) and Exhibit No. ___(WJE-3).

Q. Has the Company reassessed its electric resource need for the 2009 IRP?

A. Yes. The Company updated its planning standard in November 2008 to target the amount of capacity needed in order for the Company to achieve a 5% loss of load probability. Mr. Mills describes the new planning standard in greater detail in his Prefiled Direct Testimony, Exhibit No. ___(DEM-1CT).

Q. Did updating the capacity planning standard increase PSE's resource needs?

A. Yes, as shown in Exhibit No. ___(DEM-5C), the new planning standard increased capacity needs by approximately 300 MW in the early years and by approximately 500 MW in the later years of the 20-year planning horizon.

Q. Has this updated planning standard been discussed with external stakeholders?

A. Yes. An overview of the methodology and results were presented at an IRP Advisory Group meeting on June 19, 2008. A full description of the methodology and results will be provided in the 2009 IRP, scheduled to be filed by July 30, 2009.

IV. CHALLENGES AND OPPORTUNITIES AFFECTING PSE'S ABILITY TO ACQUIRE ELECTRIC RESOURCES

Q. Please describe the challenges facing PSE as it pursues its resource strategies.

A. There are numerous challenges facing PSE. These include turbulent financial markets, evolving renewable portfolio standards and climate change initiatives at both the state and federal levels, increasing constraints in resource supply and delivery diversity, plus debt and equity financing pressures as PSE continues to seek out new plants for ownership.

Q. At the time of the acquisition of the resources presented for prudence in this rate proceeding, were all of these challenges apparent?

A. No. Although certain challenges have been apparent to the Company for several years, such as the evolving renewable portfolio standards and climate change initiatives, the collapse of the financial markets did not become apparent until the latter part of 2008. Energy prices remained robust and commodity prices high

through the completion of 2008 RFP process in July 2008 and the presentation of the Mint Farm acquisition to the Board of Directors in early August 2008.

A. Collapse of the Financial Markets

Q. Please explain how the collapse of the financial markets has affected the wind industry.

A. One effect of the turbulent financial markets has been a decrease in the number of investors who are willing and able to invest in wind project development and ownership. Private wind developers that do not have the taxable income necessary to claim wind production tax credits ("PTCs") rely on tax equity financing (from tax investors) to develop and build wind projects. In the first half of 2008, there were an estimated 17 tax investors, (i.e., large investment banks), willing and able to invest in wind project development and ownership. With the collapse of the financial markets in the third and fourth quarters of 2008, only four to six tax investors remain active in the wind development markets. As a result, the Company has seen wind projects in the Pacific Northwest placed on hold until these developers can acquire necessary funding.

Q. Are there opportunities for PSE resulting from the turmoil in the markets?

A. Because PSE still has a projected resource need for wind and natural gas resources, the current economic situation may very well give rise to the prospect

of pursuing "opportunistic" purchases, meaning PSE may be able to find valuable acquisitions at a discount relative to project cost levels before the financial crisis.

B. Renewable Portfolio Standards ("RPS") and Climate Change Initiatives

1. Renewable Portfolio Standards

Q. Please explain how the Washington Energy Independence Act (the "Act"), RCW 19.285, has affected the acquisition of resources by the Company.

A. The Act demonstrates the voters' desire to have more renewable energy developed in the Northwest, and it establishes annual targets for renewable energy generation levels by utilities. Today, the primary cost effective renewable resource is wind generation. With (i) the codification of the Act in 2006; (ii) the State of California increasing its RPS targets; and (iii) the overall increase in the number of states passing RPS legislation, the Company observed significant increases in the cost of acquiring wind energy. The following chart shows the increase in levelized cost of wind and other resource bids submitted in 2004, 2006, and 2008 in response to the Company's request for proposal ("RFP") processes.

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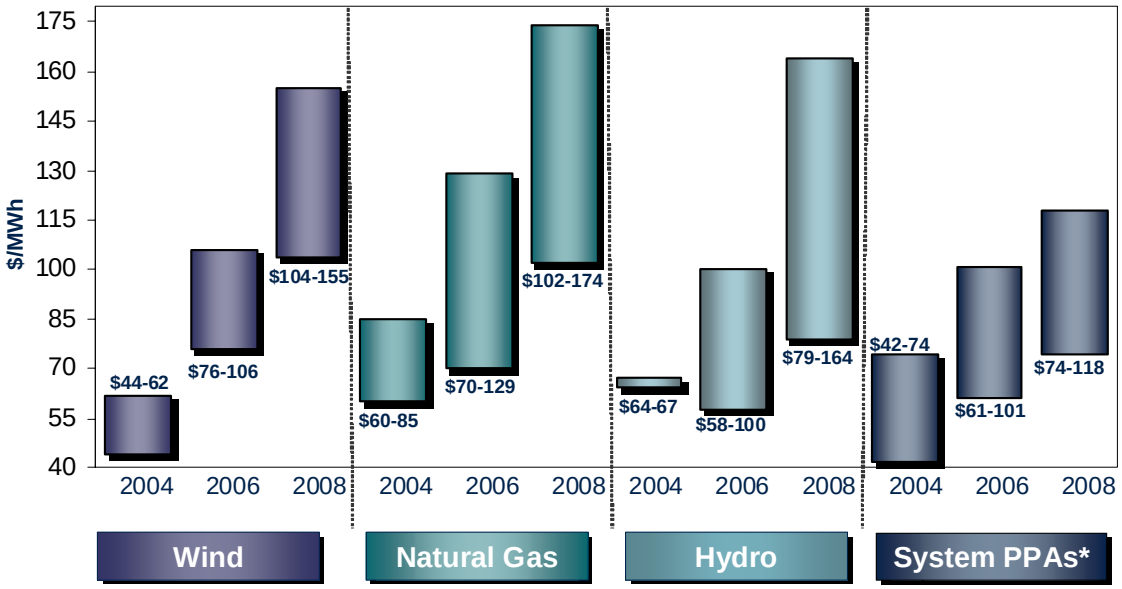
Levelized Resource Cost Comparison



Notes:
2004 prices represent Mid-C delivery.
2006 and 2008 prices represent deliveries to PSE's system.
*System PPAs are offers that are shorter term in nature and not tied to a specific resource.

Q. Please compare the Company's renewable energy with the Act's requirements.

A. The Company currently has enough wind generation to meet approximately 5% of load, which exceeds the Act's January 1, 2012 target of 3% but is short of the January 1, 2016 target of 9% and the January 1, 2020 target of 15%. The Company's 2007 IRP estimates over 900 MW of additional wind generation will need to be acquired and placed in service before 2020 in order to meet the requirements of the Act. *See* Exhibit No. ___(KJH-5), at page 11. The Company also has significant hydro generation, but PSE's hydro projects are not considered renewable resources under the Act.

Q. How have the federal PTCs affected the acquisition of renewable resources by the Company?

A. PTCs, investment tax credits ("ITCs"), and tax grants provide a significant reduction in the cost of renewable resources for customers. With the enactment of the 2009 American Recovery and Reinvestment Act, the following tax credits have been extended and expanded:

- Three year extension of the wind PTCs (through 2012);
- Three year extension of other renewable PTCs (through 2013);
- Election to take the ITC instead of the PTCs (through 2012); and
- Grants in lieu of ITCs through 2010 or 2012 provided construction starts by 2010.

Q. Are changes in the state or federal renewable requirements being considered?

A. There is a great deal of uncertainty about the levels of renewable generation that could be required at the federal and state levels in the future. However, climate change and energy independence have been in the forefront of energy policy debate and these issues are central in President Obama's energy agenda. A few bills have been proposed at the federal level that would require the addition of significant amounts of new renewable generation.

Q. What impact would increases in renewable requirements have on the Company?

A. As I discuss earlier in my testimony, we have seen significant increases in the levelized cost of wind generation from 2004 to 2008 as more utilities have needed to add wind generation to meet renewable requirements. I would expect significant upward price pressure on the cost of renewable energy resources if the standard is increased. Additionally, a federal renewable portfolio standard would make it more difficult to maintain the level of federal tax incentives for new renewable generation based on the current tax capacity of the federal government. A federal standard requiring 20% renewable generation in 2020 would require the Company to acquire approximately 1,350 MW of additional wind capacity by that date.[3]

2. <u>Climate Change Initiatives</u>

Q. What would be the implications of a carbon emissions cap for the Company?

A. Implications of a carbon emissions cap would depend on the specific parameters included in the legislation; however, with a national climate initiative the Company would likely need to become less reliant on its coal resources and its less efficient gas fired generation. The need for new capacity resources would grow. Additionally, there would be more competition for renewable generation

[3] Estimated based on the 2007 IRP, portfolio More Renewables with Gas (Exhibit No. ___(KJH-5) at page 441).

and the carbon offsets produced by technologies that are fueled by wind, biomass, geothermal, and solar energy.

C. Resource Supply and Delivery Constraints

1. Transmission Constraints

Q. What transmission challenges does PSE face in acquiring new resources?

A. Placement of future PSE-owned resources will be greatly affected by transmission resource availability in the area and placement of new transmission resources. Currently, there is not enough transmission capacity to integrate all the projected new resources in Bonneville Power Administration's ("BPA's") territory and transmit those new resources to the Puget Sound area.

Q. What is being done to address this lack of BPA transmission capacity?

A. BPA has created a process called Network Open Season ("NOS") to identify the greatest need areas for additional transmission resources and to ease these constraints by expanding current lines or by building new lines. The NOS procedure is discussed in more detail in the Prefiled Direct Testimony of Mr. Mills, Exhibit No. ___(DEM-1CT).

Q. Did PSE participate in the BPA NOS process?

A. Yes. PSE participated in the 2008 Network Open Season and applied for a total of 784 MW in four locations. Please see the Prefiled Direct Testimony of Mr. David Mills, Exhibit No. ___(DEM-1CT), for a more thorough discussion of PSE's participation in this process.

Q. Are there other steps being taken to address transmission constraints?

A. Yes. The ColumbiaGrid and the Northern Tier Transmission Group have been formed to establish processes for coordinated planning of transmission expansion in the region. Additionally, transmission entities in the Northwest have formed an ad hoc group, called Big Tent, to coordinate the planning of a number of proposed transmission projects.

2. <u>Wind Integration Challenges</u>

Q. Are there other challenges the Company faces in terms of acquiring electric resources?

A. Yes. Wind generation presents some unique challenges because of the unpredictable and variable nature of the resource. As discussed in the Prefiled Direct Testimony of Mr. Mills, Exhibit No. ___(DEM-1CT), there can be large differences between the short-term wind generation forecast for the hour- and day-ahead time frames compared to actual generation. Although hydro generation has to date been the primary balancing resource for wind, we expect

that gas fired generation will also be used for balancing, given the increasing amount of wind resources needed to meet RPS mandated targets.

D. Financial Pressures on the Company

Q. Are there other challenges the Company faces in acquiring electric resources?

A. Yes. Acquisition of resources to meet the continuing, extensive electric resource need summarized above and set forth in PSE's 2007 IRP places significant financial pressures on PSE. PSE must have the financial strength to raise capital and secure credit in the financial markets, and to negotiate effectively with counterparties and acquire long-term power purchases and fuel supplies in wholesale markets. These challenges are discussed in more detail in the Prefiled Direct Testimony of Mr. Eric Markell, Exhibit No. ___(EMM- 1CT).

Q. Has the Company projected the potential capital costs to meet its growing energy needs?

A. The Company has projected the capital costs of resource acquisitions could be as much as [redacted] from 2009 to 2013.

Q. How does the Company's financial condition affect its resource acquisition program?

A. To the extent the Company partners with others in development and ownership of

generating projects, PSE's potential business partners are going to be concerned about its ability to continue to operate as a strong partner in a project. Similarly, if the Company is the purchaser of energy from a third party in connection with a PPA, the counterparty must have confidence the Company will be able to perform its objections under the agreement over the long term.

V. RESOURCE STRATEGIES

Q. Please describe PSE's strategy for acquiring wind resources.

A. In response to challenges PSE was facing in 2006-2008 in acquiring wind resources, PSE formulated a development strategy ("Development Strategy") for procuring wind resources. Under this Development Strategy, PSE has acquired, and will continue to acquire, wind resources in the early stages of planning with the intent to build the project to completion.

Q. Why did the Company formulate the Development Strategy?

A. In the past, PSE acquired its wind generation resources when the development rights were mature. However, as renewable portfolio standards in the West and Pacific Northwest were passed by voters, competition for renewable resources, most notably wind, increased significantly. Additionally, global competition for commodities and fuel placed upward pressure on input prices, such as wind turbines, transformers and transportation. As competition for wind resources increased, wind developers began to resist selling projects and began charging

premiums for selling long-term power purchase agreements. PSE decided to circumvent these pressures as much as possible by entering the development arena earlier and leveraging the relationships the Company has established with companies in the industry to control cost increases.

Q. What progress has PSE made in procuring wind resources as a result of this Development Strategy?

A. PSE has made significant progress in implementing the Development Strategy. In January 2008, PSE acquired the development rights to expand PSE's existing Wild Horse. Since then, PSE has submitted the permit for the expansion, received the permit, signed a Turbine Supply Agreement with Vestas for 22 wind turbines, secured RES Construction as the Balance of Plant engineering, procurement and construction contractor for the build-out of the project and issued a notice to proceed, on April 6, 2009, to commence construction to add 44 MW to Wild Horse.

Additionally, in December 2008, PSE entered into a Joint Development Agreement with RES to jointly develop, construct and operate approximately 1,250 MW of wind energy over the next five to ten years, in Columbia and Garfield Counties in Southeastern Washington. Under the Joint Development Agreement, PSE will own half of the project assets, approximately 625 MW, and will have the first right of refusal from RES to purchase the power from the other half of the project owned by RES. PSE and RES teams are currently permitting

the projects located in Garfield County. Roger Garratt describes both of these transactions in more detail in his Prefiled Direct Testimony, Exhibit No. ___(RG-1HCT).

Q. Are there other resource strategies the Company is pursuing?

A. Yes, one such strategy is the diversification of the Company's natural gas supply portfolio. This is discussed in more detail in the Prefiled Direct Testimony of Mr. Clay Riding, Exhibit No. ___(RCR-1CT).

VI. THE COMPANY'S ACQUISITION OF THE ADDITIONAL RESOURCES PRESENTED IN THIS CASE WAS PRUDENT

A. Overview

Q. What are the new portfolio resources for which the Company is seeking a prudence determination from the Commission in this case?

A. PSE seeks a prudence determination in this proceeding with respect to the following PPAs and acquisition projects, including their associated capital costs, operating costs, transmission costs and other related costs:

- a 75 MW four-year winter power purchase agreement with Barclays Bank PLC;
- the 311 MW Mint Farm Energy Center from Wayzata Investment Partners;
- the expansion of Wild Horse to add 44 MW of capacity to the facility;

- a four-year and three-month power purchase agreement with Credit Suisse;
- a five-year power purchase agreement with Puget Sound Hydro LLC;
- a five-year power purchase agreement with Qualco Energy, LLC; and
- the acquisition of the Fredonia Generating Units No. 3 and No. 4.

In the following testimony, I sometimes refer to these resources collectively as the "Acquired Resources".

Q. What is your understanding of the Commission's prudence standard?

A. In the Company's 2003 Power Cost Only Rate Case proceeding, Docket No. UE-031725, the Commission reaffirmed the standard it applies in reviewing the prudence of power generation asset acquisitions:

> The test the Commission applies to measure prudence is what a reasonable board of directors and company management would have decided given what they knew or reasonably should have known to be true at the time they made a decision. This test applies both to the question of need and the appropriateness of the expenditures. The company must establish that it adequately studied the question of whether to purchase these resources and made a reasonable decision, using the data and methods that a reasonable management would have used at the time the decisions were made.[4]

In addition to this generic reasonableness standard, the Commission has cited several specific factors that inform the question of whether a utility's decision to acquire a new resource was prudent. These factors include the following:

- First, the utility must determine whether new resources are necessary.[5]

- Once a need has been identified, the utility must determine how to fill that need in a cost-effective manner. When a utility is considering the purchase of a resource, it must evaluate that resource against the standards of what other purchases are available, and against the standard of what it would cost to build the resource itself.[6] The utility must analyze the resource alternatives using current information that adjusts for such factors as end effects, capital costs, impact on the utility's credit quality, dispatchability, transmission costs, and whatever other factors need specific analysis at the time of a purchase decision.[7]

- The utility should inform its board of directors about the purchase decision and its costs. The utility should also involve the board in the decision process.[8]

- The utility must keep adequate contemporaneous records that will allow the Commission to evaluate its actions with respect to the decision process. The Commission should be able to follow the utility's decision process; understand the elements that the utility used; and determine the manner in which the utility valued these elements.[9]

Q. Did the Company's acquisition of the resources listed above meet this standard?

A. Yes. The Company had a clear, documented need for power in both the near and long term. The Company also performed the analyses, decision-making and documentation processes expected by the Commission, as summarized below and explained in more detail in the prefiled direct testimonies in this case of

[4] Order No. 12, Docket No. UE-031725, at ¶ 19.

[5] *See e.g., WUTC v. Puget Sound Power & Light Co.,* Docket No. UE-921262, *et al.,* Nineteenth Supplemental Order (September 27, 1994) ("*Prudence Order*") at 11.

[6] *Id.*

[7] *Id.* at 2, 33-37, 46-47.

[8] *Id.* at 37, 46.

Mr. Garratt, Exhibit No. ___(RG-1HCT) and Mr. W. James Elsea, Exhibit No. ___(WJE-1HCT).

B. The Company's Resource Acquisition Strategy Was Informed By the IRP Process

Q. What analyses did the Company undertake in determining that it needed to acquire additional power resources?

A. The acquisitions that the Company is presenting for approval in this proceeding were evaluated contemporaneously with the 2008 RFP process that began shortly after the Company filed its 2007 IRP with the Commission. As I described earlier in my testimony, the 2007 IRP showed that the Company had a significant and growing need for new resources.

During the course of the 2008 RFP process, the Company continued to educate itself about developments and opportunities in the marketplace, worked to improve its analytical tools, updated analyses such as long-term resource needs, updated projected development and construction costs of generation technologies, and projected wholesale natural gas and electric prices for use in its on-going long-term planning process. Such data, estimates, and analyses informed the acquisitions presented in this case.

[9] *Id.* at 2, 37, 46.

C. The Company Issued a Request For Proposals To Meet Its Resource Needs

Q. How did the Company implement its strategy to meet the growing electric supply needs noted above?

A. Shortly after completing and filing its 2007 IRP, the Company commenced the 2008 RFP process by filing with the Commission a draft RFP under the Commission's competitive bidding rules (WAC Chapter 480-107). Please see Exhibit No. ___(KJH-6) for a copy of the 2008 RFP. The Commission received and considered public comment on the draft RFP and ultimately approved the RFP for issuance in Order 01 in Docket No. UE-072023.

Q. What response did PSE receive to its 2008 RFP?

A. PSE received 31 project proposals from 25 different respondents in response to the 2008 RFP. Many of the All-Source proposals contained multiple offers such as purchased power agreements, asset ownership, and hybrid options. Considering all the options offered under each proposal, more than 93 different proposals were submitted. Messrs. Garratt's and Elsea's respective prefiled direct testimonies present the results of the 2008 RFP in greater detail.

Q. How did the response to the 2008 RFP compare to the response to PSE's previous RFP?

A. While PSE was generally pleased with the number of proposals, there was a

noticeable upward shift in proposed prices and costs, a decrease in wind ownership proposals, and no diversity in renewable technology proposals. Further, many of the proposals faced considerable development and execution challenges. From a review of the resources presented, it appears that much of the "low-hanging fruit" is gone and that renewable resources, in particular, are going to be difficult to obtain in sufficient quantity to meet the requirements of the Energy Independence Act.

Q. Could you elaborate on renewable resources that were proposed in response to the 2008 RFP?

A. Yes. The Company received wind proposals, but no proposals for biomass, geothermal or solar resources. Projects powered by wind energy face many challenges with respect to permitting, acquisition of transmission service, acquisition of integration service and timely and economic acquisition of turbines and construction services.

D. The Company Evaluated The Resource Alternatives Using Current Information That Adjusted For Appropriate Factors And Risks

Q. How did the Company evaluate the proposals that were submitted in response to the 2008 RFP?

A. Generally, the Company engaged in a comprehensive process to evaluate the costs and risks associated with each proposal, both as individual projects and

when viewed as potential additions to the Company's resource portfolio. PSE evaluated the proposals in two stages based on the criteria set forth in its 2008 RFP. These criteria were designed to take into account qualitative and quantitative factors impacting the decision whether to acquire a potential resource. They included consideration of end effects, dispatchability, transmission costs, capital costs, impact on the Company's credit quality, and project feasibility, among other factors.

A more detailed description of the Company's 2008 RFP process is presented in this case in the prefiled direct testimonies of Messrs. Garratt and Elsea.

Q. How did the Company evaluate the proposals that were submitted outside the 2008 RFP?

A. The Company examines these resources using a similar process to the RFP to find the resources with the lowest levelized costs and highest portfolio benefits. The projects are reviewed to determine if they fit the Company's need and the costs are compared to other reasonably executable alternatives.

Q. Would you please summarize the benefits of each of the Acquired Resources within the RFP process?

A. Yes. Principal benefits of the Acquired Resources may be generally summarized as follows:

- The Mint Farm Energy Center at approximately [redacted] all - in

cost represents an attractive price and lower risk relative to new construction and helps meet the growing energy need.

- The Barclays Winter Only PPA provides power to PSE during the period of the year (winter months) when PSE's resource need is greatest at an attractive price.

- The expansion of the Wild Horse Wind Project by 44 MW is estimated to contribute $3 million of portfolio benefit and is another resource that helps PSE meet the renewable resource requirements of the Energy Independence Act.

- The four-year and three-month power purchase agreement with Credit Suisse replaces a contract with Lehman Brothers and reduced the cost of the original PPA by $1.05 per megawatt hour.

- The five-year power purchase agreement with Puget Sound Hydro LLC for Nooksack Falls Hydroelectric Project (2.5 MW) generation allows PSE to continue diversification of it electric generation portfolio. The contract output was reliable over the past five years and extends the old contract at a reasonable price for another five years. Additionally, PSE's Green Power Program is purchasing the renewable energy credits ("RECs") from this project.

- A five-year power purchase agreement with Qualco Energy, LLC. The power from this anaerobic digester project helps PSE diversify its electric portfolio and through the Green Power Program, PSE is able to provide its ongoing support to small-scale renewable generation.

- The acquisition of the Fredonia Generating Units No. 3 and No. 4 for a cost of approximately $404 per kW helps PSE meet the peak capacity planning need.

E. The Company Informed and Involved its Board of Directors

Q. Has PSE actively involved its Board of Directors in its resource acquisition process?

A. Yes. PSE's Board of Directors (the "Board") and Energy Management

Committee ("EMC") were involved in PSE's resource acquisition process. The Energy Resources Group made several presentations to the Board and the EMC regarding the status of the Company's analyses of the many potential resource opportunities it was considering to meet its need for additional resources. Mr. Roger Garratt provides these presentations in the exhibits to his Prefiled Direct Testimony. The Board was thereby advised of the management team's evaluation methods, key assumptions, and preliminary conclusions as the RFP evaluation progressed, including evaluations and conclusions regarding resources that came to the Company's attention outside of the RFP process.

F. The Company Kept Contemporaneous Records of its Evaluation and Decision Processes

Q. Did the Company keep contemporaneous records of its evaluation and decision processes?

A. Yes. The exhibits submitted with the respective prefiled direct testimonies of Messrs. Garratt and Elsea demonstrate the Company's contemporaneous documentation.

VII. PLANTS SUBJECT TO THE GREENHOUSE GASES EMISSIONS PERFORMANCE STANDARD

Q. Is the Company seeking a determination of compliance with the greenhouse gases emissions performance standard in RCW 80.80?

A. Yes. PSE is seeking a determination of compliance for the Mint Farm Generating Station, acquired on December 5, 2008, and the Sumas Generating Station, acquired on July 25, 2008. RCW 80.80.060 allows the Commission to review newly acquired baseload electric generation as part of a regulatory proceeding and to make a determination in such proceeding whether the plant is in compliance with the emissions performance standard. The respective prefiled direct testimonies of Messrs. Joey Henderson, Roger Garratt, James Elsea, Clay Riding, and Ed Odom demonstrate that these plants are baseload electric generation that comply with the greenhouse gases emissions performance standard.

Q. Is PSE presenting evidence in this case regarding the need and appropriateness of Mint Farm and Sumas?

A. PSE is presenting evidence in this proceeding demonstrating that PSE has a need for natural gas-fired resources and that Mint Farm is appropriate to meet that need. In the 2007 GRC, PSE presented evidence to the Commission, as part of a prudence determination, demonstrating the need for Sumas and the

appropriateness of Sumas to meet the Company's need.[10] In that case the Commission approved and adopted a settlement agreement in which the parties agreed that PSE had acted prudently in the acquisition of Sumas. The Commission has already ruled on the need and appropriateness of Sumas; therefore, the Company does not present this information to the Commission again in this case.

Q. Are Mint Farm and Sumas baseload electric generation that is subject to the greenhouse gases emissions performance standard?

A. Yes. As discussed in the testimony of Mr. Ed Odom, these combined cycle combustion turbine plants are designed and intended as baseload power plants. Their annual capacity factor, assumed for design and permitting, exceeds the 60% capacity factor set forth in the statute for baseload electric generation. PSE intends to operate these plants, and similar plants, at baseload, and will operate the plants at baseload except for times when principles of economic dispatch dictate that replacement power could be purchased at a lower cost in the market. Please see the Prefiled Direct Testimony of Mr. David Mills, Exhibit No. ___(DEM-1HC) for further discussion of economic dispatch.

PSE's determination that these plants are baseload electric generation subject to RCW 80.80 is supported by the Department of Ecology, which has expressed its

[10] *See WUTC v. PSE*, Docket UE-072300 et al., Exhibit No. (KJH-1HCT), at 30-31; Exhibit No. (WJE-HCT), at 27-34; Exhibit No. (RG-1HCT), at 60-87.

view that these are baseload electric generation subject to the standards in RCW 80.80. Please see the Prefiled Direct Testimony and exhibits of Mr. Joey Henderson for further discussion of correspondence with Ecology regarding these plants. The Company requests that the Commission rule that combined cycle combustion turbines such as Mint Farm and Sumas are designed and intended as baseload electric generation subject to the greenhouse gases emission performance standard in RCW 80.80 to allow for more clarity on this issue for future acquisitions.

VIII. UPDATE ON BAKER RIVER PROJECT, SNOQUALMIE PROJECT AND WHITE RIVER SALE

A. Baker River Hydroelectric Project

Q. Please provide an update on the current status of the license for the Baker River Hydroelectric Project.

A. The Company received the new license for the Baker River Hydroelectric Project from the Federal Energy Regulatory Commission ("FERC") effective October 1, 2008. The license term is fifty years.

Q. Did the new FERC license alter or reject any of the terms of the Settlement Agreement that had been entered into by PSE and stakeholders?

A. No. FERC fully approved the Settlement Agreement and it was incorporated into the license.

Q. What work, if any, is required at the Baker River Hydroelectric Project, under the terms of the newly issued FERC license?

A. The license requires several improvements primarily to improve migratory fish facilities. The large capital improvements consist of construction of upstream and downstream fish passage facilities. A requirement to increase Baker River in-stream flow for fish passage has resulted in a decision to construct a new powerhouse to utilize this water for generation.

The projects are at various stages of engineering and construction. For example:

- Replacement of the Upper Baker downstream fish collection facility, currently in operation.
- Replacement of the existing downstream fish collection facility at Lower Baker, currently at initial design stage.
- Renovation of existing fish hatchery, currently at initial phase of construction.
- Renovation of upstream migratory fish trap, currently at initial phase of construction.

In addition to the large capital projects, several actions required by the many articles of the license are being implemented. These actions are funded as operations and maintenance expense ("O&M") and have resulted in approximately $5.6 million of rate year O&M costs. The actions include but are not limited to: improvement of aquatic resources; improvement of recreational facilities and features; extensive water quality monitoring; improvement of terrestrial habitats, including the maintenance of land dedicated to specific species

habitat and closing of roads for similar reasons; and efforts to preserve cultural and historical sites and features.

B. <u>Snoqualmie Falls Redevelopment Work</u>

Q. Please provide an update on the redevelopment work scheduled for the Snoqualmie Falls Hydroelectric Project.

A. On June 29, 2004, FERC issued a license to operate the Snoqualmie Falls Hydroelectric Project, FERC Project No. 2493. The project consists of a dam and two powerhouses located on the Snoqualmie River in the City of Snoqualmie and King County, Washington. PSE began implementing the license in 2004 and commenced work in July 2004 when it initiated upgrades to Plant 2.

Concurrent with these efforts the U.S. Army Corps of Engineers ("Corps") implemented a flood control project that removed natural obstructions to the river channel upstream of the PSE facilities. Technological advancements identified through the process of detailed engineering and design, coupled with changes to the river hydrology and channel alignment attributable to the Corps project, led to re-examination of alternative means to replace the diversion dam and refurbish Plant 1.

To address these changed circumstances, PSE is proposing revisions to the diversion dam and to the proposed modifications to Plant 1 as contemplated in the license. PSE is also proposing further modifications to the Plant 2 powerhouse

and gatehouse that are necessary to implement improvements to these facilities that are required by the license. The Company submitted an Application for Non-Capacity License Amendment to FERC in December 2007, reflecting these proposed modifications.

Q. Has FERC issued an Order amending the 2004 Snoqualmie Falls License pursuant to the Company's December 2007 application?

A. No. PSE had anticipated a FERC order in late 2008 because its amended application is uncontested, however, FERC has yet to issue its Order approving the amendment. In February 2009, FERC issued its Environmental Assessment for PSE's Application for Non-Capacity Amendment. In its assessment, FERC determined that the proposed action would be preferable to the no-action alternative (the FERC's 2004 License Order) and states that the proposed action should be approved. The public comment period for the FERC's Environmental Assessment ended in March with no dissenting comments submitted by the intervening parties. PSE anticipates a FERC order in 2009 amending PSE's license for Snoqualmie Falls consistent with the Company's December 2007 application.

Q. Has the outage schedule been affected by the delay in FERC's amendment order?

A. Yes. In order to accommodate FERC's processing of PSE's regulatory filing and issuance of an Order approving the proposed amendment application, the outage schedule has been updated to reflect a March 2010 start date as shown in Exhibit No. ___(KJH-7C). This work will be done in accordance with construction schedules approved by FERC and various resources agencies, taking into consideration matters such as seasonal flooding; fisheries interests; water quality; aesthetic, cultural and historic resources; work safety; and other considerations reflected in the FERC license.

C. Sale of White River Assets

Q. What is the status of the White River Hydroelectric Project?

A. PSE retired the White River Hydroelectric Project ("White River") in January 2004. Since then, the Company has been pursuing a range of alternatives and working with various interested parties within the region to sell the project assets on commercially reasonable terms. Marshalling these assets to a point where they can be sold on reasonable commercial terms has taken years of hard work and close attention to the interests of a large number of stakeholders.

Mr. Paul Wetherbee provides details of the sale of certain White River assets to the Cascade Water Alliance, and he provides an update on the progress being

made concerning the sale of other surplus properties in his Prefiled Direct Testimony, Exhibit No. ___(PKW-1T).

Q. Is the Company requesting that the Commission take any action in regard to the sale of the White River Assets to the Cascade Water Alliance?

A. Yes. The Company requests that the Commission approve the appropriateness of the sale transaction.

IX. CONCLUSION

Q. Would you please summarize your testimony?

A. PSE continues to have a significant need to acquire resources to serve its electric customers. The Company faces challenges in its efforts to acquire new resources as competition for attractive projects, particularly for renewable resources, is increasing. Acquisition of new resources will also continue to require very large investments of capital. The Company must also have the financial strength to support its negotiating position with counterparties to PPAs and with project developers.

In the meantime, PSE's acquisition of the resources identified in my testimony has helped to meet this resource need and clearly met the Commission's standard for prudency. The Company's long-term electric acquisition program continues to succeed in bringing into the Company's portfolio acquisitions that have been

thoroughly analyzed and that meet customer load requirements at a reasonable price.

Q. Does that conclude your Prefiled Direct Testimony?

A. Yes, it does.