EXHIBIT NO. ___(CB-1HCT)
DOCKET NO. UE-12____
WITNESS: CHRIS BEVIL

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Petition of **PUGET SOUND ENERGY, INC.** **for Approval of a Power Purchase Agreement for Acquisition of Coal Transition Power, as Defined in RCW 80.80.010, and the Recovery of Related Acquisition Costs**	**Docket No. UE-12____**

PREFILED DIRECT TESTIMONY (HIGHLY CONFIDENTIAL) OF CHRIS BEVIL ON BEHALF OF PUGET SOUND ENERGY, INC.

REDACTED VERSION

AUGUST 20, 2012

PUGET SOUND ENERGY, INC.

PREFILED DIRECT TESTIMONY (HIGHLY CONFIDENTIAL) OF CHRIS BEVIL

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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 Chris Bevil. My business address is 10885 N.E. Fourth Street Bellevue, WA 98004. I am employed by Puget Sound Energy, Inc. ("PSE") as Manager Resource Acquisition.

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

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

Q. What are your duties as Manager Resource Acquisition?

A. As Manager Resource Acquisition, I manage resource additions to PSE's energy supply portfolio and lead and coordinate key functions, including negotiations and oversight, in the acquisition of new energy generation resources and restructuring of existing resources. For the 2011 Request for Proposals (the "2011 RFP"), I was responsible for managing the quantitative and qualitative evaluation performed by the RFP working groups. I also led negotiations that

resulted in the execution of the proposed 11-year power purchase agreement with TransAlta Centralia Generation LLC for up to 380 megawatts of transition coal power supplied from Centralia Transition Coal Facility.

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

A. This prefiled direct testimony describes the 2011 RFP process and the quantitative and qualitative evaluation of the proposed 11-year power purchase agreement (the "Coal Transition PPA") with TransAlta Centralia Generation LLC ("TransAlta Centralia") for up to 380 megawatts ("MW") of coal transition power supplied from Centralia Transition Coal Facility. This prefiled direct testimony demonstrates the thorough and robust qualitative and quantitative analyses PSE undertook, consistent with the analyses PSE has undertaken for other resource acquisitions in the past. PSE's analyses of the Coal Transition PPA took into account decreasing gas prices, power prices and changes to PSE's forecasted load that occurred between PSE's IRP and the RFP evaluation process. PSE reevaluated revised offers it received after the RFP, and ultimately negotiated this Coal Transition PPA, which reflects reduced contract volumes and a later start date in order to better fit PSE's resource need. This prefiled direct testimony demonstrates that the Coal Transition PPA is the lowest reasonable cost and lowest reasonable risk resource that meets the capacity needs of PSE and its customers.

Q. Has PSE prepared a document that summarizes the qualitative and quantitative analyses undertaken by PSE with respect to the 2011 RFP?

A. Yes. Please see Exhibit No. ___(CB-3HC) for a copy of the 2011 RFP Evaluation Document and Appendices, which summarizes the qualitative and quantitative analyses undertaken by PSE with respect to the 2011 RFP. Please see Exhibit No. ___(CB-4HC) for a copy of the July 2012 Memorandum regarding Evaluation of New and Revised Offers.

Q. Is the 2011 RFP Evaluation Document and Appendices provided as Exhibit No. ___(CB-3HC) the same document provided as Attachment B to the PSE Report to the Board of Directors, dated July 24, 2012 (Exhibit No. ___(RG-8HC) at pages 54 through 368)?

A. The 2011 RFP Evaluation Document and Appendices provided as Exhibit No. ___(CB-3HC) is substantively identical to the same document provided as Attachment B to the PSE Report to the Board of Directors, dated July 24, 2012 (Exhibit No. ___(RG-8HC) at pages 54 through 368). Subsequent to the meeting of the Board of Directors, dated July 24, 2012, PSE discovered that some of the data reflected in the 2011 RFP Evaluation Document and Appendices provided as Attachment B to the PSE Report to the Board of Directors contained outdated data. PSE has refreshed these data in the 2011 RFP Evaluation Document and Appendices provided as Exhibit No. ___(CB-3HC). The refreshed data produces

immaterial changes to the 2011 RFP Evaluation Document and Appendices provided to PSE's Board of Directors on July 24, 2012.

Q. Is the July 2012 Memorandum regarding Evaluation of New and Revised Offers provided as Exhibit No. ___(CB-4HC) the same document provided as Attachment C to the PSE Report to the Board of Directors, dated July 24, 2012 (Exhibit No. ___(RG-8HC) at pages 370 through 389)?

A. The July 2012 Memorandum regarding Evaluation of New and Revised Offers provided as Exhibit No. ___(CB-4HC) is substantively identical to the same document provided as Attachment C to the PSE Report to the Board of Directors, dated July 24, 2012 (Exhibit No. ___(RG-8HC) at pages 370 through 389). Subsequent to the meeting of the Board of Directors, dated July 24, 2012, PSE discovered that some of the data reflected in the July 2012 Memorandum regarding Evaluation of New and Revised Offers provided as Attachment C to the PSE Report to the Board of Directors also contained outdated data. PSE has refreshed these data in the July 2012 Memorandum regarding Evaluation of New and Revised Offers provided as Exhibit No. ___(CB-4HC). The refreshed data produces immaterial changes to the July 2012 Memorandum regarding Evaluation of New and Revised Offers provided to PSE's Board of Directors on July 24, 2012.

II. PSE'S EVALUATION OF RESOURCE ALTERNATIVES

A. Overview

Q. How does PSE acquire new resources?

A. PSE may acquire new resources to meet the needs of customers in several ways. Washington Administrative Code ("WAC") 480-107-001 states that a utility may acquire additional generation resources:

1) through a competitive bidding process, which PSE refers to as its request for proposal process;

2) by constructing additional electric resources ("self-build"); or

3) by purchasing power through negotiated contracts.

If PSE identifies a need, it will issue a Request for Proposals ("RFP") after publication of its Integrated Resources Plan ("IRP"), which occurs every two years. In between RFPs, PSE is actively involved in the marketplace discussing and evaluating potential resource opportunities. In fact, several of the proposals that are typically submitted in the RFP are opportunities that PSE has followed closely and has an understanding of the key benefits and risks associated with the project and/or proposal. Furthermore, PSE is also actively evaluating the cost to develop its own self-build resources, most typically renewables, such as wind and solar, and natural gas-fired generation, such as combined-cycle and peakers. This knowledge of the marketplace and costs is critical in informing the IRP process

and allows PSE to be commercially astute with any opportunities that come to us whether through unsolicited proposals or through the RFP process.

Q. Did PSE issue a RFP?

A. Yes. After PSE's IRP was published in May 30, 2011, PSE submitted a draft RFP to the WUTC. The WUTC accepted the RFP with no comments or conditions and PSE issued the final RFP on October 17, 2011 seeking proposals from all generation resources by November 1, 2011. *See* Exhibit No. ___(RG-5).

Q. How many responses did PSE receive to its 2011 RFP?

A. PSE received 27 proposals from many different generation sources in response to the 2011 RFP. Some proposals included multiple offers from one or more generating sources. PSE also evaluated two additional proposals submitted outside the 2011 RFP ("Unsolicited Proposals"). *See* Exhibit No. ___(CB-3HC) at page 43 for a list of all proposals received.

Q. Did PSE consider self-build resource options in response to the 2011 RFP?

A. Yes. PSE evaluated a self-build simple-cycle gas turbine ("SCGT") peaker project with two different technology options. *See* Exhibit No. ___(CB-3HC) at page 19 for a discussion of PSE's self-build options.

Q. How did PSE organize and document its efforts during the 2011 RFP processes?

A. From October 2011 until the completion of the 2011 RFP in June 2012, PSE staff responsible for the 2011 RFP evaluation met regularly to review, discuss, and document findings and recommendations.

During the course of the evaluation process, PSE staff regularly presented updates to PSE's management on the status of the evaluation and any preliminary conclusions. Furthermore, PSE staff made periodic updates to the Staff of the Washington Utilities and Transportation Commission ("Commission Staff") on the 2011 RFP evaluation process and results.

PSE's evaluation process and conclusions, reached at various stages of its analysis, are further explained below, and were documented in reports and presentations prepared during the course of the evaluation. *See generally* Exhibit No. ___(CB-3HC) and Exhibit No. ___(CB-4HC).

B. Evaluation Process Used for the 2011 RFP

Q. Please describe the 2011 RFP evaluation process.

A. PSE divided the 2011 RFP evaluation processes into two phases. In Phase 1, PSE conducted the initial screening and fatal flaw analysis and produced a list of the most promising resources (the "Candidate Short List"). In Phase 2, PSE

subjected the resources on the Candidate Short List to additional due diligence, commercial discussions, and additional analytical modeling.

Q. Please describe the role of the 2011 RFP evaluation team.

A. PSE's Resource Acquisition department guides a cross-functional evaluation team (the "2011 RFP evaluation team") in screening and eliminating proposals with high costs, unacceptable risks, or feasibility constraints. The 2011 RFP evaluation team consists of staff from specific functional/technical areas within PSE (also referred to as "working groups") that led the evaluation from each working group's area of expertise (e.g., transmission, environmental, real estate, and quantitative analysis).

The working groups screen each proposal according to the evaluation criteria set forth in Exhibit No. ___(CB-3HC) at page 47. PSE reviewed both the qualitative and quantitative attributes of a proposal, including price, development and construction status, commercial terms, environmental impacts, permitting issues, real estate, technical considerations, operating characteristics, transmission and interconnection, community impacts and project-specific economic analysis. *See generally* Exhibit No. ___(CB-3HC) at page 20.

Q. What evaluation criteria did PSE use during the evaluation process?

A. In general, PSE prefers offers that benefit customers by complementing PSE's resource and timing needs, minimizing cost, minimizing risk, providing strategic

and financial benefits, and providing additional public benefits. Each of these evaluation criteria contains a set of sub-criteria or guidelines that specify PSE's preferences for a successful proposal. Please see Exhibit No. ___(CB-3HC) at page 21 for a discussion of the primary evaluation criteria.

Q. How did PSE apply the qualitative criteria?

A. For each proposal, individual working groups sought particular information related to their areas of expertise to identify any fatal flaws or areas of concern, as well as any associated benefits. These working groups documented their findings with the teams. For example, members of the commercial and development working group met weekly to discuss the proposals with certain key elements in mind, such as the viability of the project, counterparty risk, commercial terms and whether the development timeline was realistic. Other working groups asked different questions, such as:

- Does the project have permits, fuel supply agreements and transmission and interconnection agreements in place? If not, can they reasonably be obtained in time to meet the commercial online date?
- Does the project proponent have site control?
- What are the operational or technology risks?
- Are there risks associated with public opposition or sensitive environmental habitat?
- What are the costs associated with the proposal, and how do the benefits and costs compare with other proposals?

See also Exhibit No. ___(CB-3HC) at page 21.

Q. How did PSE apply the quantitative criteria for Phase 1?

A. PSE used the Portfolio Screening Model (the "Screening Model") to identify proposals with prohibitively high costs. Please see the Prefiled Direct Testimony of Ms. Aliza Seelig, Exhibit No. ___(AS-1T), for a discussion of the Screening Model and an overview of the quantitative analysis employed by PSE for the 2011 RFP.

Q. How did the working groups work together to discuss the risks and merits of each individual proposal?

A. The RFP evaluation team regularly met to discuss the risks and merits of the proposals. To ensure a thorough discussion of each proposal, team members were encouraged to ask questions and to discuss the findings of other groups. Based on the combined findings of the working groups, the RFP evaluation team made recommendations to either continue to evaluate proposals in greater detail or cease due diligence on a proposal due to fatal flaws, high risks or unfavorable economics.

Following the weekly meeting, working groups submitted data requests to bidders seeking answers to outstanding questions or concerns related to proposals not eliminated during the initial screening. Once a working group completed its evaluation of a particular proposal, they prepared a memo or submitted comments to the RFP evaluation team summarizing their findings, with particular attention

paid to the merits and risks of the proposal and any outstanding questions or areas of concern.

Q. Did the RFP evaluation team identify a list of the most promising resources for further quantitative analysis and targeted qualitative evaluation?

A. Yes. Upon completing the initial screening, the RFP evaluation team identified the most promising resources for further quantitative analysis and more targeted qualitative evaluation in Phase 2 (i.e., the Candidate Short List). The selected proposals were generally those identified as having a positive portfolio benefit and showed to have less risk compared to other proposals. *See, e.g.,* Exhibit No. ___(CB-3HC) at page 41 (Candidate Short List).

Q. What further qualitative analysis did PSE employ for those proposals selected for the candidate short list?

A. PSE subjected the proposals selected for the Candidate Short List to more rigorous examination during Phase 2 again using the evaluation criteria discussed above. This second phase is typified by greater interaction with the bidders in order to gain a deeper understanding of the qualitative risks and benefits of the proposals and their ability to execute and perform as proposed. The working groups had an opportunity to contact bidders regarding outstanding or unclear data request responses, discuss commercial terms and explore any other open issues.

Q. What further quantitative analysis did PSE employ for those proposals selected for the candidate short list?

A. The quantitative working group employed its portfolio optimization model (the "Optimization Model") to perform more in-depth quantitative due diligence and designed to evaluate the proposals' performance within PSE's portfolio. Please see the Prefiled Direct Testimony of Ms. Aliza Seelig, Exhibit No. ___(AS-1T), for a discussion of the Optimization Model and an overview of the quantitative analysis employed by PSE for the 2011 RFP.

Q. Did the 2011 RFP evaluation team develop a recommended short list?

A. Yes. The 2011 RFP evaluation team held a final working group meeting to review their findings and to recommend a final short list. Those proposals selected for the recommended short list were those with the lowest reasonable cost and risk that best complement PSE's resource and timing needs. Please see Exhibit No. ___(CB-3HC) at page 59 for an executive summary of findings that outlines the qualitative risks and advantages, quantitative metrics, as well as each proposal's selection status and the rationale for that selection status.

III. 2011 RFP EVALUATION

A. Determination of Need for Resources

Q. How did PSE determine its need for capacity and renewable resources?

A. PSE determined its need for capacity and renewable resources based on the analyses performed for PSE's 2011 Integrated Resource Plan (the "2011 IRP"), which PSE filed with the Commission in May 2011. Please see Exhibit No. ___(RG-4) for a copy of the 2011 IRP.

Q. Please describe how the 2011 IRP guides PSE's efforts to acquire resources.

A. The 2011 IRP guides PSE's efforts to acquire new resources at the lowest reasonable cost, as directed by the Revised Code of Washington chapter 19.280. Each Integrated Resource Plan provides an updated customer demand forecast and an analysis of the costs and risks involved in securing new energy supplies to meet identified shortfalls. PSE biennially prepares a revised Integrated Resource Plan.

Q. What capacity need did the 2011 IRP identify?

A. The 2011 IRP identified a need for 917 MW of additional supply-side and demand-side capacity resources by 2012, 1,478 MW by 2016, and 2,595 MW by 2020. *See* Exhibit No. ___(RG-4) at page 7.

Q. Did PSE use the capacity identified in the 2011 IRP for purposes of the 2011 RFP?

A. No. At the time of the publication of the 2011 RFP, PSE showed its need for supply-side resources only and included updates to reflect the F2011 load forecast and resources added after publication of the 2011 IRP. The projected need for electrical resource capacity at the time of publication of the 2011 RFP was 385 MW by 2012:

Projected Need for Electric Resource Capacity (October 2011)

Year	2012	2013	2014	2015	2016
Projected Need (MW)	385	434	636	713	862

Q. Did PSE continue to update its capacity need throughout the 2011 RFP?

A. Yes. PSE continued to update the capacity need throughout the 2011 RFP process by incorporating resources added after publication of the 2011 IRP[1] and results from the F2012 load forecast.[2]

PSE updated its capacity need in November 2011, which resulted in a projected need for electric resource capacity of 241 MW by 2012:

[1] Approximately 500 MW of short-term resources (various contract starts and lengths) and transmission contract extensions were not known for inclusion in the analysis for the 2011 IRP which partially meet PSE's 2012 capacity need.

[2] The 2011 RFP analysis uses the **draft** F2012 load forecast from April 17, 2012. This difference between the April 17, 2012 peak forecast and the **final** F2012 forecast is less than 0.1% through 2025 and grows to 0.5% by 2031.

Projected Need for Electric Resource Capacity (November 2011)

Year	2012	2013	2014	2015	2016
Projected Need (MW)	241	451	653	730	879

Furthermore, PSE delayed finalizing the short list selection to reflect the new load forecast information (F2012) that PSE was developing internally. Pursuant to this F2012 load forecast, the projected need for electric resource capacity was 138 MW by 2012:

Projected Need for Electric Resource Capacity (F2012 Load Forecast)

Year	2012	2013	2014	2015	2016
Projected Need (MW)	138	242	460	554	728

Q. Why did PSE delay the short list selection to reflect the new F2012 load forecast?

A. PSE delayed the short list selection to reflect the new F2012 load forecast because PSE wanted the 2011 RFP evaluation to reflect the latest updates (both for load forecast and gas price forecast) even if it meant a delay in moving forward with commercially advantageous proposals. Thus, the 2011 RFP would reflect contemporaneous information and avoid the potential risk of acquiring surplus capacity beyond PSE's need.

Q. Were there other reasons that PSE delayed its final 2011 RFP analysis?

A. Yes. PSE was also commercially aware of stagnant power prices in the marketplace resulting from the economic outlook. Thus, PSE also delayed the

final 2011 RFP analysis to incorporate the most recent gas price forecast received in April. Indeed, the gas price forecast showed a lower than expected future power price, which resulted in a shift in the competitiveness of resources and established a more contemporaneous price forecast baseline.

Q. What renewable need did the 2011 IRP identify?

A. The 2011 IRP renewable energy compliance forecast predicted that PSE would be able to achieve its renewable targets through 2019 with its current portfolio of renewable resources. By the time PSE filed its final RFP in October 2011, PSE's updated renewable resource outlook reflected a need of approximately 771,000 RECs in 2020. Updates to PSE's forecast continue to predict that PSE has sufficient renewable resources to achieve its near-term compliance targets under the Washington renewable portfolio standards ("RPS"). Exhibit No. ___(CB-3HC) at page 8 depicts the final 2011 RFP renewable outlook, which PSE prepared using the F2012 load forecast and updated REC banking assumptions.

Q. How did PSE evaluate renewable resources?

A. Because the 2011 IRP identified a near-term capacity need but not a near-term renewable need, PSE determined that any renewable offer would need to be competitive with capacity offers to be selected.

B. 2011 RFP Phase 1 Evaluation Results

Q. What was the purpose of Phase 1 evaluation?

A. The Phase 1 evaluation screened resource proposals to find the most cost effective and viable projects available to meet PSE's near-term capacity need so that PSE could quickly focus on a more detailed qualitative due diligence and robust quantitative analytical process.

Q. What types of resources did PSE evaluate in Phase 1 of the 2011 RFP?

A. PSE evaluated 29 proposals in Phase 1 of the 2011 RFP--many of which included multiple offers--from a very diverse mix of generation fuel types, including hydro, biomass, wind, natural gas, and battery storage. Please see Exhibit No. ___(CB-3HC) at page 16 for a summary of the overall resource mix and number of MWs proposed.

Q. What observations were made during the Phase 1 evaluation?

A. More than 2,200 MW of operating capacity from eleven proposals evaluated favorably in the 2011 RFP screening analysis and provided positive portfolio benefits to meet PSE's near-term and long-term capacity need. Generally, existing thermal resources were more competitive and had fewer risks than new greenfield development proposals. Resources that avoided third-party transmission services typically had economic advantages and avoided the risk of uncertain transmission provider practices.

Although, some shorter term proposals evaluated favorably in Phase 1 and seemed to be aligned with short-term market forecast, the evaluation team was concerned about the exposure remaining at the end of the offered term. Thus, PSE wanted to further evaluate the risks of short term resources versus long term capacity resources to fulfill its need.

Q. How many proposals were eliminated in Phase 1?

A. PSE eliminated 18 proposals (including the two unsolicited proposals) after completing the Phase 1 screening because of quantitative and/or qualitative flaws. Examples of such flaws included:

- Project is not viable as proposed.
- Unacceptable risk associated with counterparty, commercial terms, development schedule, technology, permitting, etc.
- No transmission or interconnection proposed and no clear solution available to ensure commercial operation date ("COD") by date needed.
- Project costs are high relative to other alternatives.

Of the 18 proposals eliminated during Phase 1, 17 were development resources with higher costs and more significant qualitative risks than existing alternatives. See Exhibit No. ___(CB-3HC) at pages 24 for a summary of the proposals eliminated from Phase 1 and pages 59-74 for the Phase 1 quantitative results.

Q. Did PSE select any renewable resource proposals for further consideration in Phase 2?

A. Yes, PSE selected the two most favorable renewable resource offers from Phase 1 to compare with existing capacity alternatives in Phase 2—an operating wind project and a biomass project in development.

Q. What proposals did PSE select for further consideration in Phase 2?

A. Upon completion of the Phase 1 screening, PSE selected a candidate short list comprised of twelve proposals for further evaluation. The selected proposals represent the most attractive offers from several resource types when both qualitative and quantitative factors are considered together. They included both shorter-term offers, longer-term offers, and a mix of ownership and PPAs. Please see Exhibit No. ___(CB-3HC) at page 25 for a summary of the proposals selected for Phase 2 evaluation.

C. 2011 RFP Phase 2 Evaluation Results

Q. What analysis did PSE undertake in the Phase 2 of the 2011 RFP?

A. PSE performed additional quantitative and qualitative review of the "Candidate Short List." PSE sent data requests to bidders to obtain information about project operating and maintenance history; plant performance data; status of environmental permits; updates about emissions performance; transmission service requests; and for the new development projects, information about

development progress. Discussions were also held with bidders to help clarify and understand the terms and pricing of the proposals. These data requests and discussions helped PSE refine the quantitative and qualitative analyses, and further, actually led to bidders revising and updating pricing on their proposals. Revisions and updated pricing are summarized for the following resources:

- [redacted] **(#11124) –** [redacted];
- **Coal Transition PPA (#11102) –** [redacted];
- [redacted] **(#11117) –** [redacted]; and
- [redacted] **(#11126) –** [redacted].

Q. Did PSE's consideration of data responses, discussions with bidders and other ongoing qualitative review result in the elimination of any proposals in Phase 2?

A. Yes. Consideration of data responses, discussions with bidders and other ongoing qualitative review led the team to eliminate four proposals due to risks PSE was

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not willing to accept given that other proposals presented much lower risk profiles.

In addition to the four eliminated proposals, PSE eliminated the [redacted] (#11103) because [redacted]. PSE also eliminated the [redacted] (#11102) because [redacted]. PSE continued to evaluate the [redacted] (#11103) and the stand-alone Centralia 14-year PPA option (#11102) throughout Phase 2.

In addition to the above offers and options, PSE eliminated the [redacted] (#11127) proposal in Phase 2 because the bidder never provided pricing and eventually withdrew the proposal.

Please see Exhibit No. ___(CB-3HC) at page 27 for a summary of the rationale that led to the elimination of these proposals.

Q. After the elimination of the proposals described above, which proposals were selected for further consideration in the Phase 2 evaluation?

A. The seven proposals shown in the below table were further considered through a rigorous quantitative analysis, including portfolio optimization, scenarios

analysis, sensitivity analysis, and risk analysis; and PSE continued to scrutinize these proposals through the qualitative assessment.

Proposal	Term (yrs)	MW
[redacted] (#11124)	[redacted]	[redacted]
[redacted] (#11117)	[redacted]	[redacted]
[redacted] (#11110)	[redacted]	[redacted]
[redacted] (#11126)	[redacted]	[redacted]
Centralia Coal Transition PPA (#11102)	14	Up to 500
[redacted] (#11118)	[redacted]	[redacted]
[redacted] (#11103)	[redacted]	[redacted]

Q. Please describe the purpose of the Phase 2 quantitative evaluation.

A. PSE designed the Phase 2 quantitative evaluation to create optimal, integrated portfolios for each scenario and sensitivity considered and to evaluate the costs and risks of different portfolio selections while varying peaks, load, hydro generation, wind generation, natural gas prices, and power prices. Additionally, PSE ranked the proposal offers in the scenario that best reflects the most current assumptions for PSE's peak demand, power prices, and gas prices.

Q. Which resources fared best in the scenario optimization results?

A. The Coal Transition PPA (#11102) and the [redacted] (#11117) were least cost in four of five scenarios. Although each scenario is not necessarily equally weighted, selection across more scenarios is considered more favorable because the proposal is demonstrating that it is least cost across a wide

range of possible futures. Furthermore, the "Base with New Gas" scenario represents the most current forecast of natural gas and power prices, and both the Coal Transition PPA and [redacted] (#11117) are least cost in this scenario.

Please see Exhibit No. ___(CB-3HC) at figure 13 on page 28 for the optimization results for the five scenarios considered in the 2012 RFP.

D. Sensitivity Analyses

Q. Did PSE conduct sensitivity analyses as part of its 2011 RFP Phase 2?

A. Yes. PSE conducted sensitivity analyses as part of its 2011 RFP Phase 2 analyses. Although the scenario analyses identify the least cost resources, such analyses do not indicate how close one resource decision is compared to another decision. To better understand the optimization results, the quantitative evaluation team considered sensitivity analyses. PSE posed the following questions in these analyses:

1. [redacted] the Coal Transition PPA (#11102) [redacted]?
2. Would a [redacted] (#11118) [redacted] change selections?
3. Would a [redacted] (#11124) [redacted] change selections?

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4. Would a [redacted] (#11103) [redacted] change selections?

5. Could PSE rely on short-term market purchases until 2015?

6. How would a portfolio without the Coal Transition PPA compare to a portfolio with the Coal Transition PPA?

To answer the sensitivity analyses questions posed above, PSE staff studied one change at a time in its analysis.

Q. What were the results of these sensitivity analyses?

A. From the Coal Transition PPA (#11102) [redacted], the Coal Transition PPA (#11102) would [redacted].

From the [redacted] (#11118) [redacted], the [redacted] (#11118) [redacted].

From the [redacted] (#11124) [redacted], the [redacted] (#11124) [redacted] (#11124) was selected with Coal Transition PPA (#11102).

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From the [redacted] (#11103) [redacted], the [redacted] (#11103) [redacted].

The sensitivity performed to determine if PSE could rely on short term market purchases demonstrated that the Coal Transition PPA (#11102) remained least cost in three of five scenarios.

The sensitivity comparing portfolios with and without Coal Transition PPA demonstrated that when the Coal Transition PPA is included in the portfolio it lowers portfolio costs in four of five scenarios. Furthermore, the sensitivity showed that the Coal Transition PPA (#11102) provides the biggest portfolio benefits when gas and power prices are higher.

Please see Exhibit No. ___(CB-3HC) at pages 27-29 for a discussion of, and results from, these sensitivity analyses.

Q. What does PSE conclude from the sensitivity analyses conducted?

A. Generally, PSE's quantitative analysis demonstrates that the valuation of resource alternatives is close in terms of economics and performance in PSE's portfolio. Small changes to price, volume, timing, or PSE's capacity need impact the combination of resources that are being selected. However, the qualitative analysis indicated there are key risks that may not be overcome by economics alone. All things being equal, PSE prefers lower risk propositions when

economics are relatively close or insignificant. Ultimately, it is a combination of the quantitative results *and* the qualitative findings that determine PSE's resource strategy.

Q. Did PSE consider a risk analysis that considered a range of portfolio costs varying natural gas prices, power prices, hydro generation, wind generation, and peak and energy loads?

A. Yes. For the same portfolios with and without the Coal Transition PPA (#11102) discussed above, PSE performed risk analysis consistent with the approach in the 2011 IRP. PSE analyzed the range of the portfolio costs varying natural gas prices, power prices, hydro generation, wind generation, and peak and energy loads to assess the cost and risk of the resource alternatives. Also, to test the robustness of the choice of portfolios with and without Coal Transition PPA (#11102), portfolio optimization was performed for each of the 250 draws of power prices, gas prices, hydro generation, wind generation, and peak/energy loads created by the Stochastic model.

Q. What were the results of the risk analysis?

A. The risk analysis demonstrates that the portfolio with the Coal Transition PPA (#11102) reduces both costs as well as risk.

For the portfolio optimization test of the risk analysis results, the Coal Transition PPA (#11102), in combination with other resource acquisitions or generic resources, was least cost in about 56% of the 250 optimal portfolios.

Please see Exhibit No. ___(CB-3HC) at pages 33-35 for a discussion and the results from the risk analysis.

E. Short List Selection

Q. What resources did PSE select for its 2011 RFP short list?

A. PSE selected three resources for its 2011 RFP short list:

(i) the Coal Transition PPA (#11102), which contained a long-term fixed price, ramped to match PSE's capacity need, reflected the public policy resource preference of the State of Washington, and had strong public support;

(ii) the [redacted] (#11117), a [redacted]; and

(iii) the [redacted] (#11124), a [redacted]-year PPA for [redacted] MW from an existing natural gas-fired combined cycle facility, [redacted].

Please see Exhibit No. ___(CB-3HC) at pages 39 for a summary of the primary qualitative and quantitative findings that led to PSE's short list selection decisions at the end of Phase 2.

IV. REEVALUATION OF REVISED OFFERS

A. Developments in June and July of 2012

Q. Did PSE recommend proceeding with the three resources on its 2011 RFP short list to its Energy Management Committee and Board of Directors?

A. On June 12, 2012, the RFP evaluation team recommended to the EMC that PSE pursue three resource proposals based on the results of PSE's 2011 RFP analysis. The three resources were:

- the Coal Transition Power PPA (#11102);
- the [redacted] (#11117); and
- the [redacted] (#11124).

The analysis indicated that the three selected resources represented the lowest cost portfolio with the lowest risk compared to other alternatives in the 2011 RFP.

See Exhibit No. ___(CB-3HC) at pages 187 for the EMC presentation on the recommendation of the short list.

1. PSE Received Three Revised Offers in June 2012

Q. Did PSE proceed with the three resources on its 2011 RFP short list?

A. No. After PSE notified bidders of their selection status in the 2011 RFP, PSE received three revised offers by June 22, 2012, from the following three bidders that were not selected to the short list in the 2011 RFP:

- [redacted] (#11103-r);
- [redacted] (#11118-r); and
- [redacted] (#11117-r).

Additionally, shortly after the short list recommendation to the EMC the evaluation team identified a new transmission risk for the Coal Transition Power PPA (#11102) that could limit PSE's ability to purchase contract volumes in excess of 380 MW.

Q. How did PSE respond to these developments in mid-June 2012?

A. Given the revised proposals, PSE decided to delay any recommendations to the Energy Management Committee and the Board of Directors with respect to pursuing the Coal Transition Power PPA (#11102) and the other two short list selections, to ensure PSE could make the best decision in light of changing circumstances. The RFP evaluation team reevaluated the revised offers to determine if the short list should be updated. This reevaluation involved further qualitative assessment and a re-run of the quantitative analytics. In addition, PSE manually constructed portfolios to analyze the comparison of the [redacted] (#11118-r) offer and the Coal Transition Power PPA. This also allowed time for PSE to consider the impacts of limited PSE transmission transfer capability for the Coal Transition Power PPA (#11102).

Q. What were the results of the initial reevaluation of the optimization analysis?

A. With the revised offers, the portfolio optimization analysis showed that the Coal Transition Power PPA (#11102) would be least cost in only one of five scenarios compared to the four of five scenarios in which it previously was selected as least cost. With this analysis and the risks around the transmission capability beyond 380 MW, PSE discontinued its pursuit of the Coal Transition Power PPA (#11102).

2. TransAlta Centralia Revised the Commercial Structure of the Coal Transition Power PPA (#11102-r) in Early July 2012

Q. How did TransAlta Centralia respond to the notification that PSE was discontinuing its pursuit of the Coal Transition Power PPA (#11102)?

A. On July 5, 2012, TransAlta revised the commercial structure of the Coal Transition Power PPA (#11102-r) by reducing the contract volumes and pushing out to a later start date. PSE then reevaluated the revised commercial structure along with the other revised offers.

Q. Please summarize the revised offers received by PSE in June and July of 2012.

A. [redacted] reduced the purchase price of the [redacted] (#11103-r) offer from $[redacted] million to $[redacted] million. [redacted] proposed the [redacted] (#11118-r) offer at a purchase price of $[redacted]

million; the original 2011 RFP offer was a [redacted]-year tolling option (#11118). [redacted] restructured the [redacted] (#11117-r) offer to a [redacted]. TransAlta revised the Coal Transition Power PPA (#11102-r) offer to include a later start—December 1, 2014, rather than December 1, 2012—and a reduced volume with a maximum volume of 380 MW.

See Exhibit No. ___(CB-4HC) at Figure 1 on page 3 for a table showing a summary of the revised offers.

B. Reevaluation Process

Q. How did PSE proceed with the reevaluation process?

A. For the reevaluation, PSE considered both the quantitative and qualitative merits of each revised offer. Specifically, PSE took the following steps to perform the reevaluation:

- performed optimization analysis with revised offers in five scenarios to reexamine short-list;
- performed a qualitative review of the revised offers;
- manually constructed portfolios to compare:
  - [redacted] (#11118-r),
  - Coal Transition Power PPA (RFP Volumes) (#11102),

- o [redacted] (#11118-r) combined with Coal Transition Power PPA (revised volumes) (#11102-r); and

- performed risk analyses on manually constructed portfolios.

1. Reevaluation Process: Qualitative Analyses

Q. What was the result of the qualitative analysis PSE conducted on the revised offers?

A. As shown in Exhibit No. ___(CB-4HC) at Figure 6 on page 8, evaluation of the revised proposals continued to show more qualitative risks than advantages for both the [redacted] (#11103-r) and the [redacted] (#11117-r) offers. PSE identified more advantages than risks for both the Coal Transition Power PPA (revised volume) (#11102-r) offer and the [redacted] (#11118-r) offer.

2. Reevaluation Quantitative Process

a. Screening Model Results

Q. Did PSE analyze the revised offers with the Screening Model?

A. Yes. To be consistent with the Phase 1 analysis, the evaluation team performed the Screening Model analysis with the revised offers along with the other Phase 2 resources. The relative ranking of each proposal from the Screening Model can be seen at Exhibit No. ___(CB-4HC) at page 18.

b. Optimization Model Results

Q. Did PSE analyze the revised offers with the Optimization Model?

A. Yes. Although the Screening Model results show relative rankings, it has the following relative limitations:

- the Screening Model represents the results of only one scenario—Base with New Gas;
- the Screening Model uses the PSM I simple dispatch logic;
- the Screening Model includes additional transmission costs on market purchases that the PSM III and IRP did not include.

Therefore, PSE reevaluated the revised proposals in the Optimization Model to see how they might affect the 2011 RFP decisions.

Please see Exhibit No. ___(CB-4HC) at page 4 for the results of the optimization analysis with the revised offers received by PSE. (Although PSE previously eliminated the [redacted] (#11117) offer due to qualitative risks, PSE decided to reevaluate the revised offer with the lowered prices in order to see if the revised pricing would warrant accepting the additional risks associated with the proposal.

Q. What could PSE conclude from the results of the reevaluation quantitative analyses?

A. With the elimination of the [redacted] (#11117) due to qualitative risks, the Coal Transition Power PPA (#11102-r) is lowest cost in four out of five scenarios. Even keeping the [redacted] (#11117) as a resource alternative in the portfolio optimization analysis, the difference in portfolio cost of the "Base with New Gas" scenario is only $9.28 million dollars (or approximately 0.09%) less than the portfolio with the Coal Transition Power PPA (#11102-r). This differential in portfolio costs was insufficient for PSE to accept the additional risks associated with the [redacted] (#11117).

c. <u>Manual Portfolio Results</u>

Q. Did PSE undertake further quantitative analyses to verify the results?

A. Yes. The evaluation team also constructed manual portfolios to demonstrate the quantitative merits of potential portfolios while minimizing surpluses created by the model. PSE constructed the following manual portfolios in the Optimization Model to better identify the costs and risks of specific portfolios:

- [redacted] (#11118-r),
- Combined Coal Transition Power PPA (revised volumes) (#11102-r) and [redacted] (#11118-r), and
- Coal Transition Power PPA (RFP volumes) (#11102).

Please see Exhibit No. ___(CB-4HC) at pages 19-20 for the resources included in the manually constructed portfolios and their surpluses.

After manually constructing portfolios, the team considered each portfolio's costs in the five scenarios consistent with the 2011 RFP analysis. Exhibit No. ___(CB-4HC) at Figure 7 on page 12 demonstrates the [redacted] (#11118-r) offer and the Coal Transition Power PPA (New Volumes) (#11102-r) offer provide the lowest cost portfolio in four of five scenarios.

d. Risk Analysis

Q. Did PSE perform risk analyses consistent with the approach used in the 2011 RFP?

A. Yes. PSE analyzed the range of the portfolio costs varying natural gas prices, power prices, hydro generation, wind generation, and peak and energy loads to assess the cost and risk of the manually constructed portfolios. Please see Exhibit No. ___(CB-4HC) on pages 15-16 for results of these risk analyses. This shows that the [redacted] (#11118-r) and the Coal Transition Power PPA (New Volumes) (#11102-r) offers provide a lower cost and lower risk portfolio compared to either the Coal Transition Power PPA (Original Volumes) (#11102-r) offer or the new [redacted] (#11118-r) option alone.

C. Key Findings of the Reevaluation Process

Q. What did PSE conclude from the 2011 RFP after reevaluating those revised offers received by PSE in June and July of 2012?

A. Taking into consideration the quantitative and qualitative analysis, PSE concluded that the [redacted] (#11118-r) offer and the Coal Transition Power PPA (New Volumes) (#11102-r) offer are least cost and least risk. The [redacted] (#11118-r) offer is a low cost existing resource that is well-known to PSE and provides system benefits. At the new term and volumes, the Coal Transition Power PPA (New Volumes) (#11102-r) is a least-cost resource that provides PSE customers a hedge against higher prices that no other resource has been able to offer for the duration and at the price offered by TransAlta.

Although the revised [redacted] (#11117) offer seems competitive from a cost perspective with the least-cost offers identified, there are numerous risks to reaching a binding agreement and the project does not have the ability to provide system benefits such as load management and wind-integration. The [redacted] (#11103-r) offer, although offered at a lower purchase price, greatly exceeds PSE's current capacity need in the near-term, thereby making such offer less cost-competitive.

Exhibit No. ___(CB-4HC) at Figure 11 on page 15 shows the selected resources from the reevaluation to meet PSE's needs. Since a combination of the [redacted]

[redacted] (#11118-r) offer and the Coal Transition Power PPA (New Volumes) (#11102-r) offer fits closely with PSE's near-term need, the [redacted] (#11124) is no longer needed until 2017. PSE believes it is better to first pursue the [redacted] (#11118-r) and the Coal Transition Power PPA (New Volumes) (#11102-r) offers prior to beginning negotiations for the [redacted] (#11117).

V. CONCLUSION

Q. Please summarize your conclusions.

A. As described in this testimony, the results of PSE's 2011 RFP evaluation and the July 2012 re-evaluation of revised offers led the evaluation team to recommend pursuing both the Coal Transition Power PPA (#11102-r) and the [redacted] (#11118-r) offer.

This testimony has described the determination of the resource need and has demonstrated a robust and exhaustive evaluation of available resource alternatives in the market and through PSE's self-build approach. Before the final decision to pursue the Coal Transition Power PPA, a last minute reevaluation occurred to ensure that the recommendation to management was sound and reasonable and that PSE is selecting the lowest reasonable cost and risk resource available at this time. The benefits of the Coal Transition Power PPA include:

- PPA economic benefits are favorable compared to alternatives.
- Fixed price structure provides a hedge against rising power costs and stability compared to variability and uncertainty of natural gas tolling resource alternatives.
- Firm power backed by physical asset, [redacted].
- Existing resource with demonstrated reliable operating history avoids development risk and operational performance of new resources.
- Capacity quantity ramps up over the term to match PSE's updated capacity need.
- 380 MW of long-term firm transmission is held by PSE for contract term; 280 MW directly interconnected to PSE's system, which avoids third party transmission costs, and 100 MW BPA firm point-to-point transmission from C.W. Paul; in addition, PSE avoids supplying operating reserves (supplied by BPA).
- Counterparty [redacted].
- New state law recognizes coal transition power as a public policy resource preference, which allows and provides incentives for long-term contracts.
- Entering into PPA helps the State of Washington to achieve its greenhouse gas emission reduction goals and potentially helps provide financial assistance to host communities.
- Coal transition power has strong public, local community, environmental groups and government support.
- Known counterparty with long history of international ownership/operator performance.

Q. Does that conclude your prefiled direct testimony?

A. Yes, it does.