Exhibit No. ___ (DN-2T)
Dockets UE-111048/UG-111049
Witness: David Nightingale

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, Complainant, v. PUGET SOUND ENERGY, INC., Respondent.	DOCKET UE-111048 DOCKET UG-111049 (Consolidated)

CROSS-ANSWERING TESTIMONY OF

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WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

Answering the Testimony of Public Counsel on Lower Snake River Phase 1

January 17, 2012

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is David Nightingale. My business address is the Richard Hemstad Building, 1300 South Evergreen Park Drive SW, Olympia, Washington, 98504-7250.

Q. Have you previously offered testimony in this proceeding?

A. Yes, I filed response testimony on behalf of Commission Staff on the prudence of Puget Sound Energy, Inc.'s ("PSE" or "the Company") acquisition of the Lower Snake River Wind Project, Phase 1 ("LSR Phase 1"). I concluded that LSR Phase 1 was a prudent acquisition under applicable Commission standards.

Q. What is the purpose of your cross-answering testimony?

A. I respond to testimony of Mr. Scott Norwood submitted on behalf of Public Counsel. I demonstrate that Mr. Norwood does not appropriately apply the Commission's prudence standard for the acquisition of renewable resources, which leads him to conclude incorrectly that PSE's acquisition of LSR Phase 1 was not prudent.

II. CROSS-ANSWERING TO PUBLIC COUNSEL RE: LSR PHASE 1

Q. Please summarize Mr. Norwood's major concerns with the acquisition of LSR Phase 1.

A. Mr. Norwood's major concerns can be summarized as follows:

- LSR Phase 1 is not needed to satisfy the Renewable Portfolio Standards ("RPS") of the Energy Independence Act ("EIA"), RCW 19.285, until 2018 or later.
- The price paid for LSR Phase 1, which he shows as an average energy price of $139/MWh, is too high because it exceeds the expected market energy price.[1]

In support of his second concern, Mr. Norwood claims the following points regarding PSE's analysis for the acquisition of LSR Phase 1:

- PSE overstated the benefits of acquiring early wind due to incorrect market energy price forecast inputs.
- PSE unreasonably assumed that the time limit to use federal tax incentives for renewable projects such as wind power would not be extended by Congress.
- PSE used outdated and high carbon price forecasts which overstated the benefits of early wind acquisition.
- PSE improperly calculated the "end effects" of the acquisition of early wind.
- PSE failed to evaluate the purchase of renewable energy credits ("RECs") as an alternative to building a new wind resource.[2]

Q. Is Mr. Norwood's first concern valid, that LSR Phase 1 is imprudent because it is not needed to satisfy the RPS until 2018 or later?

A. No.

[1] Exhibit No.__ (SN-1CT), page 3, lines 6-16.
[2] Exhibit No. __(SN-1CT), pages 5-6.

Q. Please explain why his concern is not valid.

A. The Commission's Renewables Acquisition Policy Statement addresses the issue of acquiring renewable resources in advance of an RPS deadline.[3] In particular, the Commission stated that "a resource acquired to comply with the EIA can be acquired in advance of need but must still be prudently acquired."[4] Further, the Commission stated that it is "convinced that the "used and useful" statute does not prevent acquisition of a renewable resource in advance of the RPS deadline."[5] And, because the RPS is mandatory, "when a utility acquires a resource to meet the relevant RPS, the prudency standard's requirement to demonstrate "need" has been satisfied by the statute."[6]

Thus, the Renewables Acquisition Policy Statement negates Mr. Norwood's concern because utilities are allowed to acquire resources in advance of an RPS deadline.

Q. Are there other considerations from the Renewables Acquisition Policy Statement that bear on the prudence issue?

A. Yes. Beyond showing the need for a resource, a utility must also demonstrate that it prudently evaluated available alternatives using reasonable data and methods with the results of the analysis presented to the company's decision-makers.[7] Generally, utilities are expected "to acquire the least-cost resource, so long as other factors are equal."[8] Unique to renewable resources, the Commission stated:

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[3] *In the Matter of the Washington Utilities and Transportation Commission's Inquiry of Regulatory Treatment for Renewable Energy Resources*, Docket UE-100849, Report and Policy Statement Concerning Acquisition of Renewable Resources by Investor-Owned Utilities, page 8, ¶11 (January 3, 2011).
[4] Renewables Acquisition Policy Statement, page 19, ¶40.
[5] Renewables Acquisition Policy Statement, page 25, ¶55.
[6] Renewables Acquisition Policy Statement, page 20, ¶42.
[7] Renewables Acquisition Policy Statement, page 15, ¶29.
[8] Renewables Acquisition Policy Statement, page 21, ¶43.

> With regard to renewable resources, we employ the same regulatory principle with the following significant exception: When evaluating alternatives, the question for the utility, and for the Commission, is not whether the utility made the appropriate decision by comparing the cost of renewables with the cost of conventional resources. Rather, the question for the utility, and for the Commission, is whether the utility made a prudent decision in choosing among available renewable options. Therefore, we will not expect a utility to present evidence comparing a renewable generator with a non-renewable alternative.[9]

Within that context, the Commission "would support the acquisition of renewable resources in advance of RPS deadlines if the early acquisition can be cost-justified."[10]

Q. In light of these additional considerations, please comment on Mr. Norwood's second major concern that the acquisition of LSR Phase 1 was imprudent because the price PSE paid exceeded the expected market price?

A. Mr. Norwood's comparison of LSR Phase 1 and forecasted market price should be given no weight by the Commission. The Renewables Acquisition Policy Statement provides that a company's evaluation of renewable resources must be made "in choosing among available renewable options." Forecasted energy market prices are typically based on a combination of hydroelectric and combustion fueled generators in the region. Mr. Norwood presents no comparison between the price of LSR Phase 1 and other renewable options. Therefore, Mr. Norwood's second major concern must be dismissed.

Q. Does Mr. Norwood present any other evidence to support his claim that the price of LSR Phase 1 is too high?

[9] *Id.* (footnote omitted).
[10] Renewables Acquisition Policy Statement, page 24, ¶52.

A. No. However, certain of his arguments mislead the reader into questioning the financial analysis performed by PSE. Also, Mr. Norwood uncovered an error in the Company's analysis, but that error was inconsequential.

Q. Generally, what is needed to show that the early acquisition of a renewable resource is cost-justified?

A. The justification for advance acquisition of renewables needs to be based on "technical and economic analyses" of all available renewable alternatives at the time the decision to acquire is made.[11] And, as previously stated, the utility's ultimate objective is "to acquire the least-cost resource, so long as other factors are equal."[12]

Q. What methods did PSE employ to evaluate available options to meet the RPS under these standards?

A. PSE used a two-part evaluation. First, a screening evaluation was performed to eliminate the most costly and most risky/least feasible proposals from further consideration. After the initial screening process, the Company performed a very detailed set of optimization analyses to understand more precisely how various combinations of the remaining proposal affects the overall financial performance of the portfolio. In addition, the Company has an internal evaluation team of subject-matter experts who review the qualitative aspects of each proposal, such as offer terms, dispatchability, maturity of project development and many other non-financial factors. The process, metrics and methods are described further in my Exhibit No. __ (DN-3T).

[11] Renewables Acquisition Policy Statement, page 25, ¶54.
[12] Renewables Acquisition Policy Statement, page 21, ¶43.

Q. What did the analysis of available renewable resources show about the cost-effectiveness and risk of LSR Phase 1?

A. When the evaluation of all available renewable energy proposals during the 2010 RFP process was complete, LSR Phase 1 was among the lowest cost alternatives and, among the lowest cost alternatives, it presented the lowest overall risk of construction and ability to take advantage of federal Treasury Grant and state tax incentives.[13]

Q. Were the data and methods used by PSE reasonable and consistent with the Commission's Renewable Acquisition Policy Statement and existing practices?

A. Yes. In addition to the Commission's express policy regarding the acquisition of renewables, PSE also complied with the Commission's 1994 "Prudence Order" regarding the acquisition of generation resources. This order contains specific instructions which bear on Mr. Norwood's testimony. Specifically, the Commission stated that when a company seeks to acquire a resource, the utility must use "**up to date information**, and adjusting for such factors as **end effects**, capital costs, dispatchability, transmission costs, and whatever other factors its planning has disclosed need specific analysis."[14]

Q. How does the Commission's requirement to use up to date information bear on Mr. Norwood's testimony?

A. Mr. Norwood relies on information that is not up to date, contrary to the Prudence Order. Instead, he relies on information developed during PSE's 2009 IRP process and leading

[13] Exhibit DN-1THC, pages 21-22.
[14] *WUTC v. Puget Sound Power & Light Co.*, Dockets UE-920433, *et al.*, Nineteenth Supplemental Order, page 2 (September 27, 1994). (Emphasis added.)

up to, but not including, the analyses used during the actual evaluation of alternatives in PSE's 2010 RFP process. This can be seen wherever Mr. Norwood's cites scenario analyses labeled "2009 BAU" (2009 Business As Usual), "2009 Trends", and the like.[15] This contrasts with the up to date information used by the Company that include scenario analyses labeled "2010 Trends" as seen in the "Scenarios for the 2010 RFP" table on page 163 of Exhibit No. __ (AS-3HC). Use of old information by Mr. Norwood, such as the financial analysis from the IRP process, is counter to Commission direction and brings into question the veracity of his conclusions.

Q. Are you saying that IRP analysis is irrelevant to the prudence evaluation?

A. No. The Prudence Order states that once a resource need has been demonstrated, companies must evaluate available resources against standards such as self-build options as well as other factors "identified in the company's least cost plan."[16] Further, WAC 480-107-035(2) includes an extensive list of factors a company must consider in ranking proposals during an RFP process, and it concludes by requiring the ranking process to "complement power acquisition goals identified in the utility's integrated resource plan."

Thus, the role of an IRP in the RFP process is limited to general power planning goals. The IRP, and the analysis underlying it, is just one piece of the RFP process, and, by itself, is insufficient, as a decision-making tool. In contrast, the results of the RFP process are more extensive and are specific to proposals submitted. The RFP results provide a more complete basis for decision-making by a company.

[15] For example, Exhibit No. __ (SN-1CT), page 4, Figure 1, page 7, Figure 2, and page 23, Figure 3.
[16] Prudence Order at page 11.

Q. Please elaborate on your point that an IRP alone is inappropriate to use as a decision-making tool?

A. There are a number of reasons why it is inappropriate to solely rely on the results of an IRP for decision-making. IRPs are planning tools that examine the needs of an electric system over time using the existing suite of resources and contracts together with non-specific resource types including traditional generators, conservation, demand-response and renewables. The IRP process relies on a hypothetical set of generic resources with pre-determined attributes. The results assume that there may be resources of that specific type available, but it is by nature a planning exercise to model how the system may benefit from adding different types of generic resources, not specific resources. The modeled generic resource may not actually be available at the time the resource is needed. It is not possible to reliably predict the availability of a certain resource type ahead of the RFP process.

Moreover, there is typically a significant delay, often 6 months or more, between when the analysis is performed for an IRP and bid responses from the RFP are fully analyzed. In this case, the time delay was at least 10 months.[17] Market and economic conditions can change significantly during that timeframe, which may invalidate the modeling done in the IRP at the time the RFP analysis occurs. This goes to the need to use "up to date information" mentioned earlier.

In summary, the IRP process identifies the likelihood of future resource needs and suggests what kind of resources might best fill that need. It provides a set of factors to consider when the utility moves toward acquisition of resources. But it does not provide specific analysis relative to any particular resources bid into a future RFP nor does it

[17] Exhibit No. __ (DN-1HCT), page 14, PSE Timeline and Treasury Grant Deadline.

identify what specific resource should be used to fill identified needs. The IRP provides a roadmap of various types of resources that are likely to lead to fulfilling future needs, but the RFP determines which specific resources will fulfill the identified need most effectively.

Q. How does the Commission's evaluation requirement to examine end effects bear on Mr. Norwood's testimony?

A. Mr. Norwood claims that PSE's end-effects analysis unfairly disadvantaged scenarios that assumed the Company would to buy wind just in time to meet an RPS ("No Early Wind") in favor of scenarios that assumed PSE would acquire wind in advance of an RPS ("Early Wind"). He suggests, instead, applying the average of all end effects from all scenarios to all results.[18] This would eliminate any end effects differences between different IRP-derived wind build-out scenario assumptions.

Q. What is wrong with his analysis of end effects?

A. His analysis, shown in Exhibit No. __ (SN-11C), is based on data from the 2009 IRP, not the modeling contemporaneous with the decision to build LSR Phase 1 from the 2010 RFP. This violates the Commission's order to use "up to date information".

Furthermore, PSE is required to make adjustments to the analysis of resource options using end effects.[19] This requirement is needed to fairly judge resources expected to have useful lives beyond the 20-year planning timeframe. As modern utility scale wind turbines have an average useful life of 25-30 years, most if not all modern wind

[18] Exhibit No.__ (SN-1CT), page 42.
[19] Prudence Order, page 2.

resources will have useful lives beyond the 20-year planning timeframe. A wind turbine project with a 25-year useful life built in 2010 will have 10 fewer years of end effects to adjust back into the 20-year planning timeframe than a wind project built in 2020. Thus, Mr. Norwood's use of the average of all end effects applied to all scenarios, with or without wind, is inappropriate method for determining end effects for differently timed resources.

Q. What is your analysis of Mr. Norwood's Figure 1 on page 4 of his testimony regarding the relative cost of Early Wind versus No Early Wind?

A. Using data from the 2009 IRP, Figure 1 provides a limited cost analysis of building early wind versus waiting to buy wind just in time to meet the RPS.[20] Ignoring the fact that the IRP data is insufficient, as I discussed earlier, there are still serious problems with Figure 1 and Mr. Norwood's arguments based upon it.

Q. Please explain.

A. Mr. Norwood asserts that, in the early years, the cost of building early wind is greater than the cost of not building early wind. This should surprise no one. If you wait to build until later, there will be no capital costs in the early years. Consequently, the majority of the cost differentials in the 5-yr NPV column of Figure 1 are due to the fact that Early Wind has been built starting in 2012 in most cases, and No Early Wind is not booking costs until 2016. This is not an analysis that considers the life-cycle cost of similar resources acquired at different times. Rather, it is limited to the first 5 years.

[20] Exhibit No. __(SN-1CT), pages 19-21.

Similarly, the 20-yr NPV column in Figure 1 matches the end of the planning timeframe, but does not include end effects. Even with this analytical bias, the 2009 Trends indicate that most scenarios become positive by the 20-year mark. The 2009 BAU scenarios cost differentials become smaller and smaller by year 20, but have not yet become positive for Early Wind by year 20. This slower switchover to positive is likely influenced by the fact that the 2009 BAU scenario models low gas prices. In Figure 1, end effects are ignored in an apparent attempt to show that Early Wind was not beneficial to ratepayers. This was shown to be incorrect in PSE's analysis in the 2010 RFP evaluation process when life cycle costs and benefits (including end effects) were included together with up to date information.[21]

Q. What is your analysis of Mr. Norwood's testimony at page 5 regarding a mistake in the prices used in the IRP 2009 BAU modeling scenario?

A. Mr. Norwood discovered an error in the market energy price forecast inputs to the IRP 2009 BAU scenario modeling. When the model was rerun using the correct values the types of generic resources chosen did not change substantially. The ranking of the No Early Wind option went only from eighth place out of eight to seventh place out of eight. The development of 600 MW of Early Wind was still the lowest cost planning option before and after the correction to the model.[22] Again, the model rerun was not applicable to LSR Phase 1 or any other specific resource bid into the 2010 RFP process and did not use "up to date information" to evaluate any actual resource. Consequently,

[21] Exhibit No.__ (AS-3HC).
[22] PSE Response to Public Counsel Data Request 345, Attachment A, Revised Table 6.

Mr. Norwood's suggestion to adjust recovery of costs for any resource acquisition at the end of the RFP procurement process is inappropriate.[23]

Q. What is your analysis of Mr. Norwood's testimony at pages 34-35 regarding PSE's failure to account the REC banking provision?

A. Mr. Norwood uses the hypothetical wind build scenarios from the 2009 IRP update to imply a lost opportunity value in dollars for the RFP-based decision to build Early Wind. This again misapplies the data used in the planning analysis from the IRP to the decision to acquire Early Wind. It is an isolated analysis that does not consider the life cycle costs of alternative projects and ignores the 2010 financial modeling of available renewable options made during the RFP process. The REC banking provision could move a small amount of RECs to future years, but most excess RECs available through 2016 were already committed to other utilities during these early years and would not have been available for banking.[24] Mr. Norwood ignored these facts.

Q. What is your analysis of Mr. Norwood's testimony at pages 36-38 that PSE should have assumed that federal tax credits would still be available to acquire a wind resource at a later time?

A. Mr. Norwood's position regarding the action or inaction of Congress regarding the tax code or incentive extensions is speculative. Basing investment decisions on what may be anticipated for future tax treatment is not prudent. PSE's decision to act on existing law at the time the decision was made was prudent.

[23] Exhibit No.__ (SN-1CT), page 5.
[24] This commitment was invalidated recently by California regulators, but that was not known at the time of the RFP evaluation and decision-making process that led to the development of LSR Phase 1.

Q. What is your analysis of Mr. Norwood's testimony at pages 38-41 regarding the use of outdated and overstated future carbon prices?

A. Again, Mr. Norwood provides high future carbon prices from the updated 2009 IRP analysis, but those prices were not used during the 2010 RFP resource evaluation. That the prices from the 2009 Trends in his Table 8 were not used by PSE can be seen in the next column listing lower carbon prices from the 2010 RFP that were used by PSE.

Mr. Norwood does estimate the value of the difference between the 2010 RFP carbon prices and the IRP 2009 Trends carbon prices in combination with the generic 600 MW of Early Wind that was preferred in the updated IRP analysis.[25] However, this calculation has no bearing on the options available to PSE through the RFP process. Therefore, his updated carbon prices should be discounted in evaluating PSE's decision to acquire Early Wind.

Q. What is your analysis of Mr. Norwood's testimony at pages 43-44 that PSE did not evaluate low cost options to purchase RECs instead of building a new renewable resource?

A. Mr. Norwood assumes that there will be RECs available at reasonable prices to satisfy the RPS for the years 2018 through 2020.[26] His analysis relies in part on updated 2009 IRP data in Figure 9, which again is an inappropriate to apply to the later 2010 RFP acquisition of specific resources.

[25] Exhibit No. __ (SN-10).
[26] Exhibit No.__ (SN-12C).

Furthermore, during the 2010 RFP there were bidders who proposed REC products to PSE. The Company evaluated these proposals to see if they were the low cost options that Mr. Norwood assumed would exist. These offers were relatively small compared to PSE's needs and the pricing was not favorable enough to be selected by the optimization model when compared to other renewable proposals.[27]

Because PSE is the largest utility in the state its need for RECs in 2020 is also relatively large. Relying exclusively on the prospect that other parties may provide RECs to meet the RPS entails a higher level of market risk and RPS compliance risk than acquiring long term renewable resources early to meet long term RPS compliance requirements. Even with the development of LSR Phase 1, PSE will still need to acquire additional renewables or RECs beginning in 2020.[28]

Q. Please summarize your criticisms of Mr. Norwood's conclusion that the Company's acquisition of LSR Phase 1 was imprudent.

A. Mr. Norwood selectively picks narrow sets of calculations based on out of date information to suggest flaws in PSE's decision to acquire LSR Phase 1. Importantly, he performs his analysis using data from the 2009 IRP process which is incompatible with the Commission's requirement to use up to date information when a company evaluates acquisition options. This myopic analysis fails to recognize the more comprehensive analysis the Company used to evaluate resource options and also fails to demonstrate that there were no more cost-effective and less risky resource options available at the time the decision was made to commence construction of LSR Phase 1. Furthermore,

[27] Exhibit No.__ (AS-3HC), pages 117 and 125, REC proposals.
[28] Exhibit No.__ (AS-3HC), page 410.

Mr. Norwood testimony directly conflicts with the Commission's policy statement on renewables acquisition.

Q. Does this complete your cross-answering testimony?

A. Yes.