

EXHIBIT NO. ___ (MM-1HCT)
DOCKET NO. UE-13 ___
2013 PSE PCORC
WITNESS: MICHAEL MULLALLY

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY, INC.,

Respondent.

Docket No. UE-13 ___

**PREFILED DIRECT TESTIMONY (HIGHLY CONFIDENTIAL) OF
MICHAEL MULLALLY
ON BEHALF OF PUGET SOUND ENERGY, INC.**

**REDACTED
VERSION**

APRIL 25, 2013

PUGET SOUND ENERGY, INC.

**PREFILED DIRECT TESTIMONY (HIGHLY CONFIDENTIAL) OF
MICHAEL MULLALLY**

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[REDACTED]. PSE also eliminated the [REDACTED]
[REDACTED] (#11102) because [REDACTED]
[REDACTED]
[REDACTED]. PSE continued to evaluate the [REDACTED]
[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]
[REDACTED] (#11127) proposal in Phase 2 because the bidder never provided pricing and
eventually withdrew the proposal.

Please see Exhibit No. ___(MM-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. PSE further considered the seven proposals presented in Table 1 below 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.

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Table 1. Proposals Selected for Further Consideration in the Phase 2 Evaluation

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

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

1 Coal Transition PPA and [REDACTED] (#11117) are least cost
2 in this scenario.

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

5 **D. Sensitivity Analyses**

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

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

- 13 1. [REDACTED] the Coal Transition PPA (#11102) [REDACTED]
14 [REDACTED]?
- 15 2. Would a [REDACTED] (#11118) price reduction
16 change selections?
- 17 3. Would a [REDACTED] (#11124) [REDACTED] change
18 selections?
- 19 4. Would a [REDACTED] (#11103) [REDACTED]
20 change selections?
- 21 5. Could PSE rely on short-term market purchases until 2015?
- 22 6. How would a portfolio without the Coal Transition PPA
23 compare to a portfolio with the Coal Transition PPA?

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

3 **Q. What were the results of these sensitivity analyses?**

4 A. From the Coal Transition PPA (#11102) [REDACTED], the Coal

5 Transition PPA (#11102) would [REDACTED]
6 [REDACTED].

7 From the [REDACTED] (#11118) [REDACTED], the [REDACTED]
8 [REDACTED] (#11118) [REDACTED]
9 [REDACTED].

10 From the [REDACTED] (#11124) [REDACTED], the [REDACTED] (#11124)
11 [REDACTED]
12 [REDACTED] (#11124) was selected with Coal Transition
13 PPA (#11102).

14 From the [REDACTED] (#11103) [REDACTED], the [REDACTED]
15 [REDACTED] (#11103) [REDACTED]
16 [REDACTED].

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

20 The sensitivity comparing portfolios with and without Coal Transition PPA
21 demonstrated that when the Coal Transition PPA is included in the portfolio it

1 lowers portfolio costs in four of five scenarios. Furthermore, the sensitivity
2 showed that the Coal Transition PPA (#11102) provides the biggest portfolio
3 benefits when gas and power prices are higher.

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

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

7 A. Generally, PSE's quantitative analysis demonstrates that the valuation of resource
8 alternatives is close in terms of economics and performance in PSE's portfolio.
9 Small changes to price, volume, timing, or PSE's capacity need impact the
10 combination of resources that are being selected. However, the qualitative
11 analysis indicated there are key risks that may not be overcome by economics
12 alone. All things being equal, PSE prefers lower risk propositions when
13 economics are relatively close or insignificant. Ultimately, it is a combination of
14 the quantitative results *and* the qualitative findings that determine PSE's resource
15 strategy.

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

19 A. Yes. For the same portfolios with and without the Coal Transition PPA (#11102)
20 discussed above, PSE performed risk analysis consistent with the approach in the
21 2011 IRP. PSE analyzed the range of the portfolio costs varying natural gas
22 prices, power prices, hydro generation, wind generation, and peak and energy

1 loads to assess the cost and risk of the resource alternatives. Also, to test the
2 robustness of the choice of portfolios with and without Coal Transition PPA
3 (#11102), portfolio optimization was performed for each of the 250 draws of
4 power prices, gas prices, hydro generation, wind generation, and peak/energy
5 loads created by the Stochastic model.

6 **Q. What were the results of the risk analysis?**

7 A. The risk analysis demonstrates that the portfolio with the Coal Transition PPA
8 (#11102) reduces both costs as well as risk.

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

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

14 **E. Short List Selection**

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

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

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

21 (ii) the [REDACTED] (#11117), a [REDACTED]
22 [REDACTED]
23 [REDACTED]; and

1 **ii. Optimization Model Results**

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

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

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

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

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

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

21 A. With the elimination of the [REDACTED] (#11117) due to
22 qualitative risks, the Coal Transition Power PPA (#11102-r) is lowest cost in four
23 out of five scenarios. Even keeping the [REDACTED]

1 (#11117) as a resource alternative in the portfolio optimization analysis, the
2 difference in portfolio cost of the “Base with New Gas” scenario is only
3 \$9.28 million dollars (or approximately 0.09%) less than the portfolio with the
4 Coal Transition Power PPA (#11102-r). This differential in portfolio costs was
5 insufficient for PSE to accept the additional risks associated with the [REDACTED]
6 [REDACTED] (#11117).

7 **iii. Manual Portfolio Results**

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

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

- 13 • Ferndale Ownership (#11118-r),
- 14 • Combined Coal Transition Power PPA (revised volumes)
15 (#11102-r) and Ferndale Ownership (#11118-r), and
- 16 • Coal Transition Power PPA (RFP volumes) (#11102).

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

19 After manually constructing portfolios, the team considered each portfolio’s costs
20 in the five scenarios consistent with the 2011 RFP analysis. Exhibit
21 No. ___(MM-4HC) at Figure 7 on page 12 demonstrates the Ferndale Ownership

1 (#11118-r) offer and the Coal Transition Power PPA (New Volumes) (#11102-r)
2 offer provide the lowest cost portfolio in four of five scenarios.

3 **iv. Risk Analysis**

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

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

14 **3. Key Findings of the Reevaluation Process**

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

17 A. Taking into consideration the quantitative and qualitative analysis, PSE concluded
18 that the Ferndale Ownership (#11118-r) offer and the Coal Transition Power PPA
19 (New Volumes) (#11102-r) offer are least cost and least risk. The Ferndale
20 Ownership (#11118-r) offer is a low cost existing resource that is well-known to
21 PSE and provides system benefits. At the new term and volumes, the Coal
22 Transition Power PPA (New Volumes) (#11102-r) is a least-cost resource that

1 provides PSE customers a hedge against higher prices that no other resource has
2 been able to offer for the duration and at the price offered by TransAlta.

3 Although the revised [REDACTED] (#11117) offer seems
4 competitive from a cost perspective with the least-cost offers identified, there are
5 numerous risks to reaching a binding agreement and the project does not have the
6 ability to provide system benefits such as load management and wind-integration.

7 The [REDACTED] (#11103-r) offer, although offered at a lower
8 purchase price, greatly exceeds PSE's current capacity need in the near-term,
9 thereby making such offer less cost-competitive.

10 Exhibit No. ___(MM-4HC) at Figure 11 on page 15 shows the selected resources
11 from the reevaluation to meet PSE's needs. Since a combination of the Ferndale
12 Ownership (#11118-r) offer and the Coal Transition Power PPA (New Volumes)
13 (#11102-r) offer fits closely with PSE's near-term need, the [REDACTED] (#11124)
14 is no longer needed until 2017. PSE believes it is better to first pursue the
15 Ferndale Ownership (#11118-r) and the Coal Transition Power PPA (New
16 Volumes) (#11102-r) offers prior to beginning negotiations for the [REDACTED]
17 [REDACTED] (#11117).