

Exh. KAF-1T
Dockets UE-170033/UG-170034
Witness: Kyle A. Frankiewicz

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**DOCKETS UE-170033
and UG-170034**

TESTIMONY OF

Kyle A. Frankiewicz

**STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION**

*Energy Imbalance Market
and
Washington State's Clean Air Rule*

June 30, 2017

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List of Exhibits

Exh. KAF-2 – PSE’s Response to Public Counsel Data Request No. 290 (not including any attachments)

Exh. KAF-3 – PSE’s Response to UTC Staff Data Request No. 323 (including Attachments A-E) and PSE’s response to UTC Staff Data Request No. 410 (including attachment A)

Exh. KAF-4 – PSE’s Response to UTC Staff Data Request No. 327 (including Attachment A)

Exh. KAF-5 – PSE’s Response to UTC Staff Data Request No. 331

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Exh. KAF-7 – PSE’s First Supplemental Response to UTC Staff Data Request No. 328 (including Attachment E)

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1 I. INTRODUCTION

2

3 Q. Please state your name and business address.

4 A. My name is Kyle Aaron Frankiewich. My business address is 1300 S. Evergreen
5 Park Drive SW, P.O. Box 47250, Olympia, WA 98504.

6

7 Q. By whom are you employed and in what capacity?

8 A. I am employed by the Washington Utilities and Transportation Commission
9 (Commission) as a Regulatory Analyst in the Conservation and Energy Planning
10 section of the Regulatory Services Division.

11

12 Q. How long have you been employed by the Commission?

13 A. I have been working at the Commission since October of 2016.

14

15 Q. Please state your educational and professional background.

16 A. I earned a Master of Public Administration degree with a focus on energy policy at
17 the University of Washington's Evans School of Public Policy and Governance. I
18 also obtained a Bachelor of Arts in Political Science and French from the University
19 of Nevada, Reno. I completed the Public Utilities Reports Guide's "Principles of
20 Public Utilities Operations and Management" in June of 2017. I have also attended
21 and participated in numerous sector-specific workshops, trainings and conferences.

22

1 **Q. Have you previously submitted testimony to this Commission?**

2 A. No, I have not.

3

4 **II. SCOPE AND SUMMARY OF TESTIMONY**

5

6 **Q. Please explain the purpose of your testimony.**

7 A. My testimony presents Commission staff's (Staff) recommendations regarding Puget
8 Sound Energy's (PSE) general rate case on the topics of the Energy Imbalance
9 Market (EIM) and Washington State's Clean Air Rule (CAR).

10

11 **Q. Please summarize your testimony with regards to the EIM.**

12 A. Staff has reviewed PSE's decision to join the EIM, and has found no evidence that
13 PSE's investment in the EIM was imprudent. However, PSE's EIM-related pro
14 forma adjustment and its method for recovering EIM-related costs is not fair to
15 customers. PSE's assignment of EIM-related costs and benefits fails to meet the
16 Commission's stated principles of "complementary equitable principles that 'reward
17 follows risk' and 'benefit follows economic burden.'"¹ Staff recommends that the
18 Commission reject the pro forma adjustment in this general rate case.

¹ *In the Matter of the Petition of Puget Sound Energy for an Accounting Order Approving the Allocation of Proceeds of the Sale of Certain Assets to Public Utility District #1 of Jefferson County*, Docket UE-132027, Order 04, 16, ¶22 (Sept. 11, 2014) (citing *In re the Matter of the Application of Avista Corp. for Authority to Sell its Interest in the Coal-Fired Centralia Power Plant*, Dockets UE-991255, UE-991262, and UE-991409, Third Supplemental Order, 49, ¶183 (Mar. 14, 2000) (Hemstad dissent, dissenting); *id.* at ¶47-49; *Democratic Cent. Comm. v. Wash. Metro. Area Transit Comm'n*, 485 F.2d 786 *passim* (D.C. Cir. 1973)) ("Jefferson PUD Petition").

1 Instead, Staff proposes that all EIM-related costs be recovered as a line item
2 adjustment to actual costs in the Power Cost Adjustment (PCA) process;
3 commensurately the Company will realize EIM-related benefits within the operation
4 of the PCA. Staff's proposal properly balances the risks and rewards associated with
5 PSE's decision to join the EIM, fully considers EIM's offsetting factors, and follows
6 Commission precedent with regards to power costs. These issues are discussed in
7 Section III of my testimony.

8
9 **Q. Please summarize your testimony with regards to the CAR.**

10 A. The estimate supporting the Company's inclusion of CAR compliance costs as an
11 adjustment to baseline power costs is insufficient on a number of counts, as
12 discussed in Section IV of my testimony. The costs of compliance with the CAR are
13 not known and measureable at this time. It is unclear that the Company will
14 experience net costs in the rate year, or at all. Staff recommends that the Commission
15 reject including PSE's CAR compliance cost within the pro forma power cost
16 baseline until identifiable costs materialize.

17
18 **III. ENERGY IMBALANCE MARKET**

19
20 **Q. What is the Energy Imbalance Market?**

21 A. The EIM is "a regional 15- and 5-minute balancing energy market, including real-
22 time unit commitment capability," developed by the California Independent System

1 Operator (CAISO).² The EIM enables participating utilities to buy and sell small
2 amounts of energy with very little lead time. As stated in David Mills’ testimony:
3 “Utilities participating in this real-time market share resources more cost effectively
4 across a larger geographic footprint, which significantly lowers the cost of delivering
5 power to customers.”³

6 The EIM was launched in 2014, and has since grown to include other utilities
7 outside of CAISO’s geographic footprint.⁴ Pacific Power & Light Company (Pacific
8 Power) was the first voluntary member, joining at launch in 2014.⁵ PSE is the most
9 recent member to join the EIM, and other public and private utilities will join soon.⁶

10

11 **Q. How does PSE present the costs and benefits of its participation in the EIM?**

12 A. The table below shows PSE’s EIM-related costs and benefits as represented in their
13 general rate case.

² Mills, Exh. DEM-3 at 9 (page 1 of E3 report).

³ Mills, Exh. DEM-1T at 18:9-11.

⁴ *Western EIM FAQ*, California Independent System Operator,
<https://www.caiso.com/Documents/EnergyImbalanceMarketFAQs.pdf>.

⁵ *Western Energy Imbalance Market (EIM) participants*, California Independent System Operator,
<https://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyImbalanceMarketParticipants.aspx>.

⁶ *News Release Seattle City Light signs agreement to join western EIM*, California Independent System Operator (Dec. 12, 2016),
<https://www.caiso.com/Documents/SeattleCityLightSignsAgreementToJoinWesternEIM.pdf>. Portland General Electric plans to join the market on October 1, 2017. Idaho Power plans to join on April 1, 2018, and Seattle City Light’s target is April 2019. As of June 28, 2017, CAISO has published news releases announcing agreements with BANC, Salt River Project, Powerex, and the Los Angeles Department of Water and Power. These announcements can be found on CAISO’s website:
<https://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=d8c4733f-a937-49ee-8659-ad41ab9ed228>.

1

Table 1: PSE’s Proposed EIM-Related Costs and Benefits⁷

	Rate Year 2018
Power costs	\$2,333,246
Rate base costs	\$6,137,517
Total costs	\$8,470,763
Benefits	\$(8,470,763)
Net benefits	\$0

2

Staff disagrees with the Company’s inclusion of \$8.47 million in EIM

3

benefits as a downward adjustment of, or reduction to, the Company’s proposed

4

power cost baseline; this is discussed in Section III.B of my testimony.⁸ Staff does

5

not contest the calculation of PSE’s \$16.12 million in capital costs, the resulting

6

\$6.14 million revenue requirement,⁹ or the EIM operational expense of \$2.33

7

million.¹⁰ However, Staff recommends that PSE’s pro forma adjustment be rejected

8

as-filed. Staff proposes an alternative method for recovery of these costs in Section

9

III.C. of my testimony.

10

Whether the Commission approves PSE’s pro forma adjustment, or whether

11

the Commission adopts Staff’s method of recovering costs, a review of PSE’s

12

decision to join and participate in the EIM is warranted.

13

⁷ Table reproduced from Exh. KAF-2, PSE’s response to Public Counsel Data Request No. 290.

⁸ Wetherbee, Exh. PKW-1CT at 46:12-21.

⁹ Barnard, Exh. KJB-1T at 50:6-7.

¹⁰ Wetherbee, Exh. PKW-1CT at 47:3.

1 **A. Prudency of PSE’s Decision to Join EIM**

2

3 **Q. Was PSE’s Decision to Join the EIM Prudent?**

4 A. Yes. Staff believes that PSE’s expectation that joining the EIM would yield lower
5 net power costs was reasonable and well-supported. The Company has also
6 demonstrated its evaluation of alternatives. PSE explored and compared the possible
7 benefits of a Northwest Power Pool EIM, and found that the CAISO EIM was likely
8 to offer far more potential cost savings.¹¹

9 The Commission has been consistent in its expectation that utilities should
10 pursue least-cost alternatives when evaluating capital projects subject to the “need
11 for resource” criterion.¹² The same expectation can be applied to a utility’s decision
12 to participate in newly developing power markets. By rule, utilities regulated by the
13 Commission are required “to meet its system demand with a *least cost* mix of energy
14 supply resources and conservation.”¹³ Guided by these principles, projects that
15 reduce costs should be considered by utilities as alternatives to current business
16 practices.

17 Staff reviewed the Company’s decision-making process and is satisfied that
18 the Energy Management Committee (EMC), which has authority “to approve outlays
19 of capital up to \$25 million,” was informed and made the decision to join the EIM.¹⁴

¹¹ Mills, Exh. DEM-1T at 20:1-14.

¹² The Commission’s least-cost principle has its origins in both statute and rule. *See, e.g.*, RCW 80.01.040(3); RCW 80.28.010(2); WAC 480-100-238(1).

¹³ WAC 480-100-238(1) (emphasis added).

¹⁴ Frankiewicz, Exh. KAF-3 at 2.

1 Presentations on the EIM business case were made to PSE’s internal decision-
2 making body, the EMC, at their September and October 2014 meetings.¹⁵ The EMC
3 approved the EIM project on October 20, 2014.¹⁶ PSE then worked with CAISO and
4 various vendors to integrate the EIM into their trading floor and dispatch systems,
5 and joined the market in October 2016.¹⁷ Throughout the discovery process, Staff
6 found that PSE kept adequate contemporaneous records of these decisions.

7 Since Staff agrees that PSE was prudent in choosing to participate in the
8 EIM, the costs to do so simply follow and staff accepts those as prudent as well.

9
10 **B. Unknown EIM Benefits Should Not Be Allowed into Power Cost Baseline**

11
12 **Q. What are the EIM benefits?**

13 A. Throughout my testimony, I refer to the anticipated positive impacts brought about
14 by PSE’s participation in the EIM as “EIM benefits.” In pages 1-3 of its study of the
15 EIM business case, the consulting firm Energy and Environmental Economics Inc.
16 (E3) summarizes the myriad of benefits manifested through participating in the
17 EIM.¹⁸ Some of those factors are:

- 18 • “[S]ub-hourly dispatch efficiency and flexibility reserves savings in the range
19 of \$18.3 to \$20.1 million per year” by 2020.¹⁹

¹⁵ Exh. KAF-3 at 3-35. Attachments A and C are presentations to the EMC; attachments B and D are EMC meeting minutes.

¹⁶ Exh. KAF-3 at 2. The EMC’s approval is documented in Exh. KAF-3 at 41-44.

¹⁷ Mills, Exh. DEM-1T at 21:9.

¹⁸ Mills, Exh. DEM-3.

¹⁹ Mills, Exh. DEM-3 at 9 (page 1 of E3 report).

- 1 • The potential to “facilitate cost effective renewable integration.”²⁰
- 2 • The possibility of “avoiding curtailment of renewable energy resources,” if
- 3 PSE can balance its wind resources within its Balancing Authority Area.²¹
- 4 • Potential improvements in the hour-ahead and day-ahead markets.²²
- 5 • The possibility of “reliability benefits tied to the increased situational
- 6 awareness and resource control that the EIM creates.”²³

7

8 **Q. How does PSE represent EIM benefits in its GRC?**

9 A. PSE claims, and Staff agrees, that the magnitude of EIM benefits are currently
10 neither known nor measurable.²⁴ To the Company’s credit, rather than opting to
11 leave these benefits out of its rate case entirely, PSE represented the savings within
12 power costs as an “EIM Benefit” adjusting the power cost baseline down by \$8.47
13 million. This attempt to adjust the power cost baseline is based on suppositions with
14 little facts to back it up.

15

16 **Q. Please describe PSE’s consideration of EIM benefits in this rate case.**

17 A. As noted above, the E3 study’s purported benefits are stated as a “potential” or a
18 “possibility.” PSE presents its EIM benefit of \$8.47 million to “equally offset the

²⁰ Mills, Exh. DEM-3 at 9 (page 1 of E3 report).

²¹ Mills, Exh. DEM-3 at 10 (page 2 of E3 report).

²² Mills, Exh. DEM-3 at 11 (page 3 of E3 report).

²³ Mills, Exh. DEM-3 at 11 (page 3 of E3 report).

²⁴ Wetherbee, Exh. PKW-1CT at 46:19-21.

1 revenue requirement associated with the fixed EIM costs.”²⁵ PSE’s internal estimates
2 of EIM benefits are greater than its proposed value.²⁶

3
4 **Q. Can EIM benefits be sufficiently determined to support inclusion in power**
5 **costs?**

6 A. No. While EIM costs are fairly well known, the EIM benefits are inherently
7 unknowable, especially in this nascent stage of the market’s development. The
8 energy imbalance market is a reaction to the imperfections built into the power cost
9 model used to calculate the power cost baseline. Staff understands that the power
10 cost model, AURORA, builds market prices for power sales or purchases based on
11 generation plant availability, hydro-generation based on average water levels, wind
12 plant production based on average times and strength of winds, and gas price
13 projections. These inputs are informed by long-term trends that create “normal”
14 expectations for megawatts of load in every hour of the year and total generation
15 available to meet that load. The market prices determined by AURORA are built into
16 its decisions to dispatch each generation plant when it is profitable for that plant to
17 do so. These “make or buy” decisions occur not only in the model, but also every
18 day in real time.

19 “Every hour” is an important constraint in the power dispatch model. Given
20 the ephemeral nature of winds that do not produce power consistently across time,
21 even during one hour, there must be resources available to counteract the appearance
22 and disappearance of power in periods much shorter than an hour – this is what is

²⁵ Barnard, Exh. KJB-1T at 50:1.

²⁶ See Frankiewich, Exh. KAF-4.

1 driving the growth of the energy imbalance market. The participants in the EIM will
2 have the opportunity to buy or sell into a market of five or fifteen minute segments.
3 Hence, the EIM is a reaction to the hourly assumptions in the AURORA model,
4 which operates in one hour increments. Power generation now needs to react in
5 periods much shorter than an hour. It is very difficult to model the EIM's impact for
6 the purpose of rolling those costs, or avoided costs, into power pricing for
7 ratemaking purposes.

8
9 **Q. What aspect of PSE's proposed adjustment for EIM costs is Staff concerned**
10 **about?**

11 A. Primarily, Staff is concerned that PSE's proposed cost recovery for EIM does not
12 balance the complementary equitable principles that the reward should follow the
13 risk, and that benefits should follow economic burdens.

14 Staff characterizes the \$8.47 million EIM benefit as a placeholder rather than
15 a calculated estimate. The Company did not specifically determine the value of EIM
16 benefits. PSE may include \$8.47 million to customers' benefit by reducing the
17 baseline power costs, but it also increases general rates by \$6.14 million in known
18 EIM capital costs, and increases the power cost baseline by \$2.33 million for EIM
19 operational costs.²⁷ The Commission has a long and consistent history of orders
20 reinforcing the concept that rates are set based on a modified historical year, and that
21 pro forma costs and related offsetting factors "demand a high degree of analytical

²⁷ See Table 1, Section III.B.

1 rigor.”²⁸ PSE’s testimony does not contain that analytical rigor. While Staff readily
2 acknowledges that net present value calculations should not be mistaken as robust
3 enough for use in rate making, PSE based much of its decision to join the EIM on
4 this study.

5 Due to this lack of analytical rigor in determining the offsetting benefits,
6 Staff recommends excluding PSE’s EIM adjustment and the operational costs from
7 general rates or power cost baseline.²⁹ However, Staff recognizes the potential for
8 benefits from the EIM, though currently unquantified and perhaps unquantifiable,
9 and suggests that both the capital costs and operational costs be included in the PCA
10 actual expenses. See Section III.C. for greater explanation.

11 PSE’s internal estimates of EIM benefits are greater than its placeholder
12 value, yet these are nebulous and best used as indicators of directional movement.³⁰
13 Staff does not dispute the direction indicated. PSE’s pro forma adjustment places the
14 burden on ratepayers to cover capital costs directly through general rates, yet the
15 benefit of that burden – EIM benefits – accrue in part to customers by reducing
16 power costs, but mostly to the Company.

17

²⁸ *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy, Inc.*, Dockets UE-090704 and UG-090705, Order 11, 11-12, ¶26 (Apr. 2, 2010).

²⁹ See WAC 480-07-510(2)(e)(iii). “‘Pro forma adjustments’ give effect for the test period to all known and measurable changes that are not offset by other factors.”

³⁰ See Frankiewich, Exh. KAF-4.

1 **Q. How does the Company’s PCA mechanism work?**

2 A. The Power Cost Adjustment (PCA) mechanism shares the inherent risks of power
3 costs between PSE and ratepayers.³¹ The Company tabulates the over- or under-
4 recovered net power costs by comparing actual power costs to a baseline set in a
5 general rate case or in a power cost only rate case (PCORC). The PCA has
6 “deadbands” which create a \$34 million range – \$17 million above and below the
7 power cost baseline.³² If actual power costs fall within this range, PSE benefits from
8 any over-recovery of power costs or suffers from any under-recovery.³³ If actual
9 power costs extend beyond the deadband, an excess of cost over the baseline is
10 shared 50/50 with customers up to the third band, and if actual costs are more than
11 \$17 million below the baseline these are shared 65 percent to customers, 35 percent
12 to PSE. As Mr. Wetherbee states in his testimony, “any financial benefits PSE
13 realizes will ultimately flow through power costs.”³⁴ The PCA is structured such that

³¹ See *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy, Inc.*, Dockets UE-130583, UE-130617, UE-131099, and UE-131230, Settlement Stipulation, 5, ¶9 (Mar. 27, 2015) (PCA Settlement Stipulation); PCA Settlement Stipulation, Attachment A, 1, ¶1, stating “The PCA is a mechanism that accounts for differences in PSE’s modified actual power costs relative to a power cost baseline. This mechanism provides for a sharing of costs and benefits....”

³² The PCA creates other cost- and savings-sharing bands for large divergences as well. See PCA Settlement Stipulation, Attachment A.

³³ Note: pro forma variable power costs total \$839 million per Barnard, Exh. KJB-14, Adj. 14.01:16. The \$17 million deadband is two percent more or less than the power cost baseline. The PCA agreement specifies that, when power cost actuals fall outside the deadband, over- or under-recovery is deferred; rates are adjusted upward or downward when deferrals total approximately \$20 million in under- or over-recovered revenue. See, PCA Settlement Stipulation, Attachment A, 2, ¶3.

³⁴ Wetherbee, Exh. PKW-1CT at 46:17.

1 all power cost variances – including EIM savings – are assigned exclusively to PSE
2 within the deadbands.³⁵

3 The Company’s proposal increases general rates by recovering the return on
4 and of capital costs (\$6.14 million) and increases the power cost baseline by the
5 operating costs of the EIM (\$2.33 million), and then decreases the power cost
6 baseline by the sum of these EIM-related increases (\$8.47 million).³⁶ Recovering
7 capital costs in general rates but accounting for benefits in power costs results in the
8 Company getting its return on the EIM capital investments in full with little risk or
9 burden of EIM’s costs. This arrangement does not follow the Commission’s
10 principle that the benefits of an investment should be allocated to the party that paid
11 the investment’s costs, or that reward follows risk.³⁷

12
13 **C. Staff’s Proposal Prompts EIM Benefits to Follow EIM Costs**

14
15 **Q. What is Staff’s proposal for addressing the costs and benefits of PSE’s**
16 **participation in the EIM?**

17 A. Staff proposes arranging costs and benefits such that the Company’s EIM
18 participation costs would follow EIM benefits. Staff proposes that a line item for all
19 EIM-related costs be included as actual costs in the annual PCA filing that

³⁵ This is the case when actuals fall within the first deadband. Power costs well above or below the baseline would be shared per the terms of the PCA.

³⁶ This is a net reduction to the power cost baseline of \$6.14 million.

³⁷ Jefferson PUD Petition., 16, ¶22. The Commission also quoted the observation of the DC Circuit Court of Appeals in *Democratic Cent. Comm. v. Wash. Metro. Area Trans. Comm’n*, 485 F.2d 786, 806 (1973), directly in Order 04: “[A]n investor can hardly muster any equitable support for a claim to appreciation in asset value where he has been shielded against the risk of loss on his investment, or has already been rewarded for taking that risk.”

1 determines whether PSE over- or under-collected on power costs. In effect, PSE will
2 get cost recovery on EIM-related costs just as it gets cost recovery for other actual
3 power costs. This proposal does not necessitate renegotiating the PCA; it is simply
4 an adjustment which sums up EIM-related costs and includes that total with the rest
5 of PSE's actual power costs.

6 Since this proposal would be implemented during the PCA true-up, it would
7 fall outside of this GRC. For this reason, Staff proposes removing PSE Pro Forma
8 Adjustment 14.08 – decreasing the proposed rate base by \$6.14 million – and
9 removes both EIM operating costs of \$2.33 million and EIM benefits of \$8.47
10 million from Pro Forma Adjustment 7.01 Power Costs. It is important to clarify that
11 removing these pro forma adjustments *does not mean* Staff advocates against
12 recovery of these costs. On the contrary, Staff supports recovery of these costs, but
13 by including both in the actual costs of a PCA. Recovery through power cost actuals
14 allows for the potential value of any EIM benefits to contemporaneously offset the
15 costs of participation in the EIM.

16
17 **Q. Why does Staff prefer this proposal over PSE's pro forma adjustment?**

18 A. Staff's proposal improves on PSE's adjustment by increasing fairness, better
19 achieving the Commission's principles, and better following the Commission's
20 precedents. From the ratepayer perspective, this approach keeps EIM-related costs in
21 the PCA, not in general rates. To include EIM-related costs in general rates would
22 saddle ratepayers with a higher general rate burden while EIM benefits go mostly or
23 exclusively to PSE through the PCA mechanism. Under Staff's proposal, the benefits

1 of EIM participation follow the burden of EIM costs; all costs and savings are
2 subject to the deadbands and sharing bands.

3 Staff also believes this accounting approach treats the Company fairly. In
4 assigning both the burdens and the benefits of EIM to PSE, Staff's proposal
5 incentivizes the Company to maximize the value of the EIM to find as much savings
6 as possible, to the benefit of both PSE and its ratepayers.

7 Staff's proposal follows previous decisions by the Commission. First, it
8 follows Commission precedent by not allowing adjustments to the power cost
9 baseline unless supported by rigorous analysis. This treats PSE fairly by keeping the
10 power cost baseline at a more conservative, higher level, allowing for greater
11 likelihood that any EIM-generated reductions in PCA actuals will more than offset
12 EIM-related costs; PSE will be first in line for these savings. PSE's position as first-
13 in-line would be inappropriate if ratepayers were covering EIM costs (as in PSE's
14 proposal), but it is entirely appropriate when PSE is first in line for both EIM costs
15 and benefits.

16 Second, Staff's proposal aligns with the Commission's decision to approve a
17 settlement which implemented a very similar arrangement in Pacific Power's most
18 recent general rate case:

19 When fixed costs that reduce variable power costs are included in
20 general rates, the PCAM's baseline power costs must be reset to
21 reflect the benefits in order for ratepayers to realize the net benefits
22 of the fixed costs they are being asked to pay for. Doing so
23 matches the benefits with the burden. The Commission approves,
24 with the following modifications, Pacific Power's final proposal to
25 remove EIM costs from non-power cost rates and include them

1 instead in the actual power costs of its annual PCAM true-up
2 filing.³⁸

3 Staff believes that the reasoning for accepting this arrangement for Pacific
4 Power’s GRC rings just as true for PSE. Staff acknowledges that the Commission
5 directed Pacific Power to adjust this arrangement in the next rate case, and expects
6 that sometime in the future, when the benefits of participation in the EIM are better
7 understood, this may be accomplished for both Pacific Power and PSE.³⁹ Until PSE
8 obtains a better understanding of its EIM benefits, this arrangement for cost recovery
9 will continue to be the best approach to matching EIM’s risks with its rewards, and
10 benefits with burdens.

11

12 **Q. Is Staff concerned that the power cost baseline could be inaccurate due to the**
13 **Company’s participation in the EIM?**

14 A. Yes. While PSE should always try to improve their models by attempting to correct
15 any known inaccuracy in its projections, in this case Staff’s proposal satisfactorily
16 accounts for the inaccuracy of the power cost baseline caused by an unknown and
17 unmeasurable EIM benefit because the PCA’s purpose is to account for these types
18 of variability and uncertainty. The EIM’s performance and impact on total power
19 costs is similar to any other outside variable for which the Company cannot account.
20 However, over time, EIM savings should percolate into the historical data used to
21 determine the PCA baseline, and the EIM will become one of many tools used by
22 PSE’s trading floor to provide reliable, least-cost service to ratepayers. At that time,

³⁸ *Wash. Utils. & Transp. Comm’n v. Pacific Power & Light Co.*, Docket UE-152253, Order 12, 73-74, ¶222 (Sept. 1, 2016).

³⁹ *See id.* at 74, ¶224.

1 PSE could request a different accounting treatment from what Staff is currently
2 proposing.

3

4 **Q. What is Staff's recommendation?**

5 A. In sum, Staff recommends that (a) the Commission determine that the EIM costs are
6 prudently incurred, and (b) the Commission allow PSE to recover the costs of the
7 EIM investment and operations in the actual costs of the PCA, not within the
8 baseline or general rates. Staff's recommendation arranges cost and benefits in a way
9 that is consistent with the Commission's principles.

10

11

IV. CLEAN AIR RULE

12

13 **Q. What is the Washington State Department of Ecology's (Ecology) Clean Air
14 Rule (CAR)?**

15 A. The CAR establishes emissions baselines and emission reduction requirements for
16 various types of greenhouse gas (GHG) emission sources located in Washington
17 State. Mr. Wetherbee provides a more detailed overview of the CAR in his
18 testimony.⁴⁰

19

⁴⁰ Wetherbee, Exh. PKW-1CT at 47:6 - 48:2.

1 **Q. Are any of the companies regulated by the Commission subject to the CAR?**

2 A. Yes, all five of the energy utilities regulated by the UTC are subject to the CAR. A
3 “covered party” includes the owner or operator of a stationary source located in
4 Washington or a natural gas distributor in Washington.⁴¹ PSE has six generating
5 stations in Washington which are understood by PSE and Staff to qualify as
6 “stationary sources,” and therefore qualify PSE as a covered party under the rule.⁴²
7 PSE’s natural gas distribution line of business is also impacted by the CAR, although
8 PSE has not proposed the recovery of any compliance costs from their natural gas
9 side in this general rate case filing.⁴³

10

11 **Q. Does PSE account for the Clean Air Rule for its electric operations?**

12 A. Yes. PSE estimates that its compliance costs under the CAR are \$19.2 million.⁴⁴ In
13 his testimony, Mr. Wetherbee explains how this calculation was constructed and
14 describes the methodology PSE used.⁴⁵

15

16 **Q. Is Staff familiar with the Clean Air Rule and its requirements?**

17 A. Yes. Staff has become familiar with the CAR, though ultimately Ecology is the state
18 agency responsible for the rule’s interpretation, application, and enforcement. Staff
19 has reviewed the rule to develop an understanding of how it could potentially affect
20 the companies regulated by the Commission.

⁴¹ WAC 173-442-020(1)(k); WAC 173-442-020(3); WAC 173-400-030(86).

⁴² Wetherbee, Exh. PKW-1CT at 48:9-10.

⁴³ Frankiewicz, Exh. KAF-5, PSE’s response to UTC Staff Data Request No. 331; *see* WAC 173-442-020(1)(k); WAC 173-442-020(3); WAC 173-400-030(86).

⁴⁴ Wetherbee, Exh. PKW-8CT at 6:8.

⁴⁵ Wetherbee, Exh. PKW-1CT at 73:4-74:2; Exh. PKW-8CT at 6:10-19.

1 **Q. What is Staff’s understanding of the process for reducing emissions under the**
2 **CAR, as it applies to PSE’s electric line of business?**

3 A. Ecology assigns a baseline GHG emissions value for each non-energy intensive trade
4 exposed (EITE) covered party, like PSE.⁴⁶ This emissions value is then reduced by
5 1.7 percent each year until 2036; the schedule of yearly reductions is called an
6 emissions reduction pathway.⁴⁷ Each compliance period under the CAR is three
7 years in length, after each of which covered parties must show that their emissions
8 meet the requirements in the rule.⁴⁸ Each covered party, including PSE, must
9 demonstrate compliance with its obligations for 2017-2019, the first compliance
10 period, by July 28, 2021.⁴⁹

11
12 **Q. In what ways can a covered party comply with the CAR?**

13 A. A covered party can comply by reducing its emissions to match its annual limit, or
14 by obtaining Emission Reduction Units (ERUs) to offset any emissions exceeding its
15 limit.⁵⁰ An organization may generate ERUs by emitting less than its maximum
16 allowable emissions, creating one ERU for each metric ton of carbon dioxide
17 equivalent (MTCO_{2e}) not emitted.⁵¹ ERUs may then account for increased emissions

⁴⁶ WAC 173-442-050. An “EITE covered party” is defined by rule at WAC 173-442-020(1)(m). PSE does not meet the requirements in this definition. EITE is an energy-intensive, trade-exposed industry.

⁴⁷ WAC 173-442-060, 1.7 percent annual reduction found at (1)(b)(i).

⁴⁸ WAC 173-442-200(2); WAC 173-442-250(2). Compliance reporting described in WAC 173-442-200. ERUs are discussed in WAC 173-442-100 through -170.

⁴⁹ WAC 173-442-250(2).

⁵⁰ WAC 173-442-060(1)(b); WAC 173-442-100; WAC 173-442-110.

⁵¹ ERU generation through emissions reduction covered in WAC 173-442-110(1). ERUs could also be generated in other ways: by undertaking an emission reduction project program or activity which results in real, specific, identifiable and quantifiable emissions reductions; or, by converting an Ecology-approved tradable certificate into an ERU. The WAC describes generation of ERUs 173-442-110.

1 at another resource, or may be sold, or banked for future compliance.⁵² The CAR
2 also identifies a number of activities that would generate certificates or allowances
3 that would be eligible for conversion into ERUs.⁵³ Two such activities could fit well
4 with PSE’s current business activities: energy conservation savings in excess of the
5 Company’s conservation goal;⁵⁴ and the acquiring and retiring of Renewable Energy
6 Certificates (RECs) associated with renewable energy projects within Washington
7 State.⁵⁵

8

9 **Q. What Commission standards have Staff reviewed in consideration of PSE’s**
10 **power cost adjustments related to compliance with CAR?**

11 A. In PSE’s last general rate case, the Commission highlighted that it will allow only
12 identifiable costs and benefits in power costs if they can be satisfactorily forecast.⁵⁶
13 Staff also considered direction by the Commission requiring that power cost
14 adjustments be “reasonable and supported by the evidence presented.”⁵⁷ The
15 Commission recognized that a rigorous analysis of power cost adjustments is
16 necessary, stating:

17 Power cost models yield expected net power costs by rigorously
18 matching costs and revenues. While these models employ

⁵² WAC 173-442-100; WAC 173-442-130; WAC 173-442-140.

⁵³ WAC 173-442-160 describes activities and programs recognized as generating ERUs. Subsection (1) lists a number of options across myriad industries.

⁵⁴ WAC 173-442-160(5)(a). Other measures in the energy sector are described in Section 173-442-160(5).

⁵⁵ WAC 173-442-160(5)(b). RECs are tradable certificates representing the environmental benefits (or lack of harm) associated with renewable energy. RECs are used by electric utilities in Washington to meet the state’s Renewable Portfolio Standard (RPS).

⁵⁶ *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy, Inc.*, Dockets UE-111048 and UG-111049, Order 08, 89, ¶ 252 (May 7, 2012).

⁵⁷ *Wash. Utils. & Transp. Comm’n v. Avista Corp.*, Dockets UE-090134 and UG-090135, Order 10, 14, ¶ 28 (Dec. 22, 2009).

1 assumptions, estimates, and forecasts as inputs, the modeled results
2 are generally acceptable if the model inputs are reasonable and the
3 modeling is comparable in analytical rigor to what is brought to
4 bear in making normalizing adjustments.⁵⁸

5 Staff understands the Commission’s decisions to mean that the known and
6 measurable standard is not as strictly applied to power costs, but power cost
7 projections still “demand a high degree of analytical rigor.”⁵⁹

8

9 **Q. Does Staff believe that PSE’s cost projections for compliance with the CAR
10 meet the Commission’s standards for inclusion in power costs?**

11 A. No. Staff has identified a number of ways in which the Company’s CAR compliance
12 cost estimate does not meet the Commission’s standards. Staff recommends that the
13 Commission exclude all \$19.2 million of CAR compliance costs in PSE’s pro forma
14 adjustment for power costs from the final power cost baseline determination in this
15 general rate case.

16

⁵⁸ *Wash. Utils. & Transp. Comm’n v. Avista Corp.*, Dockets UE-090134 and UG-090135, Order 10, ¶ 49 (Dec. 22, 2009).

⁵⁹ *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy, Inc.*, Dockets UE-090704 and UG-090705, Order 11, 11-12, ¶ 26 (Apr. 2, 2010), discussing the known and measurable test for pro forma adjustments, stating: This means that the amount [of a pro forma change] typically cannot be an estimate, a projection, the product of a budget forecast, or some similar exercise of judgment – even informed judgment – concerning future revenue, expense or rate base. There are exceptions, such as using the forward costs of gas in power cost projections, but these are few and demand a high degree of analytical rigor.

1 **A. PSE’s Emissions Baseline Is Unknown Until Ecology Makes It Known**

2

3 **Q. Does Staff know PSE’s baseline GHG emissions value?**

4 A. No. Baselines are assigned by Ecology to covered parties. The method used by
5 Ecology to determine baseline GHG emissions values is specified in WAC 173-442-
6 050. The rule directs Ecology to create a baseline emissions value for a covered party
7 by calculating the average annual emissions levels from the five-year period of 2012
8 through 2016 for any facilities owned or operated by the covered party, such as
9 PSE.⁶⁰ Ecology may exclude up to two calendar years worth of emissions data from
10 the overall five-year average.⁶¹ This allows Ecology some discretion in determining
11 what years of emissions data to include when calculating a covered party’s baseline
12 GHG emissions value. None of the entities involved in this general rate case have
13 control over this calculation.

14

15 **Q. Does PSE know its emissions reduction obligation for 2017, or for the first**
16 **three-year compliance period starting in 2017?**

17 No. Neither PSE nor the Commission know, or can know, what the Company’s
18 compliance obligations will be until Ecology issues its regulatory order as provided
19 in WAC 173-442-060(2) or, at minimum, publishes the Company’s baseline
20 emissions value and corresponding emissions reduction pathway. Ecology has not

⁶⁰ WAC 173-442-050(3)(a)(i); WAC 173-442-060(1).

⁶¹ WAC 173-442-050(3)(a)(ii) provides for using at minimum three years of data; WAC 173-442-050(3)(b) provides details on how Ecology may exclude a year.

1 yet issued such an order, or provided the Company’s baseline emissions value and
2 emissions reduction pathway.⁶² The Commission and the Company will know PSE’s
3 compliance obligations by no later than – and perhaps no earlier than – January 30,
4 2018.⁶³

5
6 **Q. If its emissions obligations are unknown, how did PSE estimate its CAR**
7 **compliance costs?**

8 A. PSE made a good faith effort at estimating its baseline emissions values, but diverges
9 from the CAR’s baseline calculation methodology in two key ways that concern
10 Staff: (1) the Company’s estimates do not include emissions data for 2016,⁶⁴ and
11 (2) the Company’s estimates do not – to be fair to the Company, they cannot –
12 account for the potential exclusion of certain years of emissions data. The
13 Company’s estimates of costs are only predictions of what Ecology may ultimately
14 determine, and therefore cannot be known and measurable for recovery in this
15 general rate case. Both of these factors concern Staff because they could have a
16 significant impact on PSE’s final baseline emissions value.

17 While Staff does not intend to speculate on what Ecology’s determination
18 might be, Staff has developed a number of defensible predictions of what Ecology

⁶² Exh. KAF-6, PSE’s Response to UTC Staff Data Request No. 329.

⁶³ WAC 173-442-200(6)(a) states: “By January 30 of the second year of a covered party’s first compliance period, ecology will issue a regulatory order establishing emission reduction requirements for each covered party consistent with their emission reduction pathway.”

⁶⁴ Exh. PKW-5 shows the data used for PSE’s CAR compliance estimates. Data for 2016 is absent. Preliminary data, which has not been validated by Ecology at this time, was provided by PSE in its First Supplemental Response to UTC Staff Data Request No. 328. This response and the related attachment are included as Exh. KAF-7.

1 might do to illustrate how different these predictions could reasonably be. A table of
 2 these illustrative predictions is included as Exhibit KAF-8.⁶⁵ Some examples of these
 3 defensible but widely varying predictions are presented in the table below.

Table 2. Illustrative Examples of Variance in Reasonable Estimates of CAR Baseline⁶⁶

	2012-2015 average, PSE's estimate in GRC	2012-2016 average, no outliers removed	2012-2016 average, +-15% outliers removed	2012-2016 average, +-20% outliers removed	2012-2016 average, +-35% outliers removed	2012-2016 average, +-50% outliers removed
<i>Total PSE plant emissions (metric tons CO2e)</i>	1,779,572	1,750,427	1,833,677	1,810,704	1,843,315	1,834,250
<i>percentage difference from PSE's emissions baseline calculation</i>	100.0%	98.4%	103.0%	101.7%	103.6%	103.1%

4 Staff developed these estimates to highlight how baseline estimates might
 5 vary by as much as 5 percent, a large amount when the reduction of annual limits is
 6 1.7 percent. This wide range of reasonable estimates sits in contrast to PSE's position
 7 that Ecology's future actions are sufficiently known and measurable for inclusion in
 8 rates. This variability supports Staff's opinion that, at this time, there is no precision
 9 for what PSE's compliance obligations will be and, therefore, insufficient certainty
 10 as to the costs associated with those obligations.

11

⁶⁵ Staff developed these estimates based on data from Exh. PKW-5 and Exh. KAF-7, PSE's First Supplemental Response to UTC Staff Data Request No. 328 (including Attachment E).

⁶⁶ In Exh. KAF-8, Staff assumes that, in the event that three or more years' data exceed this 15 percent threshold, the least-divergent years' data would be used in accordance with the CAR's requirement that no fewer than three years' data is used. This assumption is not intended to predict Ecology's actions, and is just one example of the many guesses that must be made in any attempt to account for Ecology's discretion.

1 **B. PSE’s Model Leads to Significant Overcompliance with the CAR**

2

3 **Q. Does PSE’s model for CAR compliance project that the Company will achieve**
4 **its estimated CAR compliance limits?**

5 A. Yes, but perhaps by too great of a margin. The model lowers PSE’s emissions by
6 significantly more than the Company estimates is required by the CAR. The
7 Company estimates that its annual reduction obligation in 2018 will be 30,253
8 MTCO_{2e}, appropriately 1.7 percent less than its estimated baseline.⁶⁷ However,
9 PSE’s model projects emissions reductions of 166,664 MTCO_{2e}, well over five times
10 more than is required per PSE’s own estimates.⁶⁸ PSE does not offer any explanation
11 or support for its planned overcompliance, nor why overcompliance in the rate year
12 is the optimal, least-cost approach.

13

14 **C. Emissions Flexibility in the CAR Is Not Accurately Modeled by PSE**

15

16 **Q. Does PSE’s model accurately represent the emissions flexibility offered to**
17 **covered parties under the CAR?**

18 A. No, it does not. PSE’s model uses estimated emissions limits that are applied to each
19 of its six CAR-impacted emissions sources separately, rather than modeling the

⁶⁷ Staff calculated this using data from Wetherbee, Exh. PKW-5. PSE’s “2018 Cap” estimate is 1,749,319 MTCO_{2e}, which is 30,252 MTCO_{2e}, and 1.7 percent, less than its estimated “2017 Cap” of 1,779,572 MTCO_{2e}.

⁶⁸ Wetherbee, Exh. No. PKW-1CT at 76:7-8, stating: “[E]missions are below the collective PSE cap by 136,411 metric tons of CO_{2e}, or 7.8 percent.”

1 emissions limits on a company-wide basis. The model calculates an “emissions cap
2 shadow price” which adjusts each plant’s marginal cost such that AURORA’s
3 economic dispatch will keep the plant’s modeled emissions under what PSE
4 estimates the CAR would allow.⁶⁹ This is a fundamental misrepresentation of the
5 CAR. Whether the limit Ecology issues is aggregated to include all of the resources
6 PSE owns in the state, or broken down into limits for each of PSE’s resources, PSE
7 is not prevented from making dispatch decisions that cause one or more resources to
8 go over their individual limits (or share of PSE’s aggregated emissions limit) so long
9 as other resources balance this with fewer emissions.

10 Under the CAR, PSE could decide to dispatch its most emissions-efficient
11 facilities more, and its least efficient facilities less. This approach would cause some
12 generating facilities to exceed their baseline emissions values, but still keep PSE
13 under its fleet-wide emissions limit. Any analysis of least-cost CAR compliance
14 alternatives should thoroughly consider options for emissions-optimized dispatch,
15 and any model which does not reflect this flexibility within the CAR is bound to be
16 inaccurate in its compliance cost estimates.

⁶⁹ Exh. KAF-9 at 1, PSE Response to UTC Staff Data Request No. 419.

1 **D. PSE’s Model Includes Assumptions for Actions of Third Parties**

2

3 **Q. Does PSE’s model make assumptions about the actions of parties other than**
4 **PSE?**

5 A. Yes, PSE’s model assumes specific actions on the part of other parties. The model
6 contains estimated emissions limits for not just the Company’s own generating
7 facilities, but also for facilities not under PSE’s ownership or operational control.
8 PSE’s AURORA model calculates a “shadow price” for these facilities as well,
9 presuming that the owners’ decision-making processes will be identical to PSE’s
10 modeled process.⁷⁰ While PSE is being consistent in modeling the CAR’s impact for
11 all plants in AURORA’s modeling area, assuming third party actions is a large
12 weakness. Other covered parties may decide to comply with the CAR in other ways,
13 or may alter their dispatch decisions based on other market dynamics. This
14 assumption also amplifies the other model issues already discussed.

15

16 **E. Factors Outside PSE’s CAR Compliance Cost Estimation Model**

17

18 **Q. Please describe any important factors that are outside of, and hence not**
19 **considered in, PSE’s representation of CAR compliance costs.**

20 A. In addition to the issues identified within PSE’s CAR compliance cost model, there
21 are other significant issues which must be addressed by PSE before the Commission
22 should consider accepting the Company’s CAR compliance cost estimates for

⁷⁰ Mr. Wetherbee discusses other generating plants and PSE’s CAR estimates in his testimony, Exh. PKW-1CT at 73:11 - 84:2.

1 inclusion into the power cost baseline. The exclusion of these factors from PSE's
2 analysis fundamentally compromises the analysis's usefulness to the Commission.

3 *Compliance alternatives.* PSE does not analyze, or show that it contemplated,
4 any alternative methods of compliance with the CAR in its assessment of CAR-
5 related power costs. As discussed in the beginning of my testimony on the CAR,
6 ERUs can be generated in many ways. Some of these ways may ultimately cost less
7 than PSE's modeled approach. The Company has failed to present any analysis of
8 these options. Without a comparison of these alternative methods to PSE's modeled
9 approach, Staff is not at all persuaded that capping emissions at each source is the
10 least-cost alternative to achieve CAR compliance.

11 *ERU market and range of low-cost outcomes for PSE.* Perhaps the biggest
12 variable in estimating PSE's compliance costs for the CAR is the price of an ERU.
13 The market for ERUs is currently unknown, but it is reasonable to posit that PSE's
14 electric line of business is well-situated to respond to market signals when the market
15 becomes more established. A functioning ERU market and the CAR's relationship
16 with Washington State's RPS standard make possible a number of scenarios.

17 If ERUs are inexpensive, purchasing ERUs may be the least-cost method for
18 CAR compliance. If ERUs are expensive, PSE has the flexibility to respond to this
19 price signal by generating ERUs. PSE may purchase energy from the market or
20 generate electricity from sources not regulated under the CAR, keep its CAR-
21 impacted fleet of generating sources under PSE's emissions limit, and generate
22 ERUs.

1 In addition, PSE is able to take advantage of the differing requirements
2 between the CAR and the RPS with regards to RECs. The Company may generate or
3 purchase RECs for RPS compliance from outside of the state, freeing up any RECs it
4 generates within the state for conversion into ERUs.⁷¹ These ERUs could then be
5 sold, retired, or banked for PSE’s own compliance needs. PSE is well-positioned to
6 implement REC-arbitrage in this way, and is aware of the relationship between the
7 RPS and the CAR as it pertains to RECs.⁷²

8 The variety of scenarios, and the ability of PSE’s electric line of business to
9 take full advantage of the CAR’s design, means there is a possibility that the
10 Company’s least-cost compliance approach could actually lead to net revenue
11 generation. In other words, PSE’s electric line of business might even make money
12 because of the CAR.

13 The Commission’s prudence criteria for power cost adjustments, as explained
14 in the testimony of Staff witness David Gomez,⁷³ requires the Company to analyze
15 many routes to CAR compliance, and to demonstrate to the Commission’s
16 satisfaction that the projected path is reasonably expected to be least-cost. PSE has
17 not done this analysis or made any such demonstration. Indeed, it may be impossible
18 to take these actions until Ecology issues PSE’s emissions reduction pathway and
19 until the ERU market is established. Staff does not blame the Company for not
20 having this information, but this analysis is necessary before any of these costs are

⁷¹ See WAC 173-442-100; WAC 173-442-110; WAC 173-442-160(5)(c)(i)(C).

⁷² See PSE’s cover letter to Advice No. 2016-34 to UTC filed on November 29, 2016, under Docket UE-161251 where the Company states that, “beginning in spring 2016, PSE suspended sales of excess RECs due to the uncertainty surrounding the proposed Clean Air Rule and its related compliance alternatives.”

⁷³ Gomez, Exh. DCG-1CT at 5:15 - 6:16.

1 allowed into rates. Any future prudency determination will require the Company to
2 show that it looked at all compliance options and took what it reasonably expected to
3 be the least-cost approach.

4
5 **Q. To summarize, what is Staff's recommendation with regards to PSE's request**
6 **to include CAR compliance costs in the power costs baseline?**

7 A. Staff recognizes that complying with the CAR may increase power costs for PSE's
8 electric line of business, but the costs may be prove negligible, nonexistent, or even
9 result in a decrease in net power costs. If there are costs, they certainly are not
10 known and measurable at this time, nor are they reasonably expected to occur within
11 the rate year. In Staff's view, PSE's attempt to estimate CAR compliance costs fails
12 to meet the standards of rigor and precision required by the Commission.
13 Accordingly, Staff recommends excluding all CAR compliance costs in PSE's pro
14 forma adjustment for power costs from the final power cost baseline determination in
15 this general rate case.

16
17 **V. CONCLUSION**

18
19 **Q. Please summarize Staff's conclusion.**

20 A. Staff recommends that PSE's decision to join the EIM be deemed prudent. Staff
21 recommends that PSE's capital and operating costs related to the Company's
22 participation in the EIM be recovered as part of the power cost actuals in the PCA
23 process. Staff further recommends that PSE's power cost adjustment for CAR

1 compliance costs be rejected at this time. The Company may file a PCORC or
2 similar proceeding when CAR compliance costs become known and measurable, and
3 when it can be demonstrated that all CAR compliance alternatives were evaluated
4 and that the Company pursued the least-cost option.

5

6 **Q. Does this conclude your testimony?**

7 A. Yes, it does.