

Exh. JLB-1T
Dockets UE-170033/UG-170034
Witness: Jason L. Ball

**BEFORE THE WASHINGTON
UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**DOCKETS UE-170033 and
UG-170034 (*Consolidated*)**

TESTIMONY OF

Jason L. Ball

**STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION**

Cost of Service
Rate Spread
Rate Design

June 30, 2017

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1 **I. INTRODUCTION**

2

3 **Q. Please state your name and business address.**

4 A. My name is Jason L. Ball. My office address is the Richard Hemstad Building,
5 1300 S Evergreen Park Drive SW, P.O. Box 47250, Olympia, Washington, 98504.
6 My email address is jball@utc.wa.gov.

7

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

9 A. I am employed by the Washington Utilities and Transportation Commission
10 (Commission) as a Regulatory Analyst. Among other duties, I am responsible for
11 policy, economic, financial, and accounting analysis, and for evaluating certain
12 power supply issues of the investor-owned electric and gas utilities under the
13 jurisdiction of the Commission.

14

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

16 A. I have been employed by the Commission since June 2013.

17

18 **Q. Would you please state your educational and professional background?**

19 A. I graduated from New Mexico State University in 2010 with a Bachelor of Arts dual-
20 major in Economics and Government. In 2013, I graduated with honors from New
21 Mexico State University with a Master of Economics degree specializing in Public
22 Utility Policy and Regulation.

1

2 **Q. Have you previously testified before the Commission?**

3 A. Yes. I testified on cost of service, rate spread, and rate design for both electric and
4 natural gas in Avista Corporation's (Avista) general rate case in Docket UE-160228.
5 I sponsored testimony in Pacific Power & Light Company's (Pacific Power) general
6 rate case in Docket UE-152253 on overall policy, revenue requirement, decoupling
7 mechanism, and proposed rate plan. I provided testimony on restating and expense
8 adjustments in Avista's 2015 general rate case Docket UE -150204. I presented
9 power supply and load forecasting testimony in Avista's general rate case in Docket
10 UE-140188. I presented an economic feasibility study relating to line extensions for
11 Puget Sound Energy (PSE or Company) in Docket UE-141335.

12

13 **II. EXECUTIVE SUMMARY**

14

15 **Q. What is the purpose of your testimony?**

16 A. My testimony addresses Cost of Service and Rate Design issues for both natural gas
17 and electric service. In general, I present recommendations that are based on
18 applicable Commission precedent as well as four key cost causation principles:

19 1. Energy and Capacity Allocation Factors: Cost allocations should be driven
20 first by how the system is used, and second by the reason the system was
21 built.

- 1 2. Benefit Follows Burden: The individuals causing costs should pay for those
2 costs. Additionally, the benefits related to certain costs should flow to those
3 who pay those costs and have the best opportunity of realizing the benefits.
4 3. Matching Principle: Costs should match the period of time over which they
5 occur, otherwise known as the matching principle.
6 4. Reduce Cross-Customer Subsidization: Subsidization of individual customer
7 classes by other customer classes should be reduced or eliminated, unless
8 purposely done to achieve a specific policy purpose
9

10 **Q. How did you apply these principles in your recommendations?**

11 A. To arrive at each of my recommendations, I first analyzed the actual operations and
12 usage of the Company's electric and natural gas distribution systems as well as the
13 type of customers who are connected to these systems. Wherever possible, I used
14 actual consumption data to drive not just the allocation of costs but the actual setting
15 of rates. The end-result of any cost allocations and final rates should appropriately
16 align the benefits and burdens of using PSE's natural gas and electric service
17 systems. The rates and the spread of Staff's proposed revenue requirement are also
18 based on reducing, and in some cases eliminating, the cross-subsidization of specific
19 customer classes.
20
21
22

1 **Q. Please summarize your recommendations.**

2 A. In summary, I recommend the Commission:

3 Cost of Service

- 4 • Accept the Company's electric cost of service methodology in accordance
- 5 with the 2014 Cost of Service and Rate Design Collaborative Settlement;¹
- 6 • Reject the Company's use of design day in allocating natural gas peaking
- 7 costs;
- 8 • Accept for the purposes of this case only the Company's proposed main
- 9 allocation methodology;

10 Rate Spread

- 11 • For both natural gas and electric service, accept the Company's proposed rate
- 12 spread methodology to address cost shifting between customer classes;

13 Residential Rate Design

- 14 • For electric residential customers, implement a minimum bill equal to the
- 15 fully allocated level of customer related costs;
- 16 • For electric residential customers, implement seasonal volumetric rates;
- 17 • For natural gas residential customers, accept the Company's proposed basic
- 18 charge;

19 Rate Design for Other Electric Schedules

- 20 • Close electric Schedule 40 to new customers and require within 12 months of
- 21 the final order that all current Schedule 40 customers either (i) transition to
- 22 other schedules or (ii) negotiate a special service contract with PSE;

¹ Wash. Utils. & Transp. Comm'n v. Puget Sound Energy, Inc., Docket UE-141368 (Jan. 29, 2015).

- 1 • Order PSE to prioritize Advance Metering Infrastructure (AMI) deployment
2 for all electric net-metering customers;
- 3 • Accept the Company’s proposed electric lighting tariff changes;
- 4 • Increase the demand charges for electric high-voltage customers;

5 *Rate Design for Other Natural Gas Schedules*

- 6 • Accept the Company’s proposed changes to the demand charges for non-
7 residential natural gas customers;
- 8

9 **Q. What is the starting point of your rate analysis?**

10 A. My analysis begins with the rates as they exist in the tariffs today, referred to by Ms.
11 Cheesman as “2011 base rates”.² Presently, base schedule rates do not include
12 several schedules that serve as additional line items to a customer’s bill. These rates
13 will be rolled into base-rates at the conclusion of this proceeding.³ The bill impact
14 analysis takes into account these expiring schedules.

15

16 **Q. What is the starting point of your bill impact analysis?**

17 A. To analyze billing impacts I have included the effects of the various rate riders on
18 customers’ total bills.⁴ Functionally, my analysis is based on the total amount billed
19 to customers each billing cycle. Identifying the impact on customers’ total bills is an

² Cheesman, Exh. MCC-1T at 3:9-11.

³ This include Schedules 95 – Power Cost Adjustment Clause (for electric service only), 141 – Expedited Rate Filing Adjustment, and 142 – Revenue Decoupling Adjustment Mechanism.

⁴ These include for electric service Schedules: 95A – Federal Incentive Credit, 120 – Conservation Rider, 129 – Low Income Program, 132 – Merger Rate Credit, 140 – Property Tax Tracker, and 194 – Residential and Farm Exchange Benefit. For natural gas service, these include Schedules: 101 – Gas Cost Rates, 106 – Deferred Account Adjustment, 120 – Conservation Rider, 129 – Low Income Program, 132 – Merger Rate Credit, 140 – Property Tax Tracker, and 149 – Cost Recovery Mechanism for Pipeline Replacement.

1 important tool for understanding how customers are affected by various rate design
2 proposals. This approach is also consistent with the Company's presentation of bill
3 impacts.

4 5 III. COST OF SERVICE

6 7 **Q. What is the purpose of a cost of service study?**

8 A. Cost of service (COS) studies identify the costs incurred to service particular classes
9 of customers, and provide a roadmap for how to spread the change in revenue
10 requirement amongst customers. Two important results from a cost of service study
11 inform equitable cost allocation: the revenue-to-cost ratio and the parity ratio.

12 1) Revenue-to-cost ratio shows how much of a class' costs, as identified in the
13 COS, are recovered with test-year revenues. When the revenue-to-cost ratio
14 does not equal one, a subsidy is occurring between customer classes. The
15 revenue-to-cost ratio describes the relationship between costs and revenues *as*
16 *they exist today*.

17 2) Parity ratio adjusts the revenue-to-cost ratio to reflect the new proposed revenue
18 requirement. Parity serves as a starting point for assigning class responsibility
19 for the proposed revenue requirement increase. The parity ratio describes the
20 relationships between costs and revenue *as they may exist in the rate year*.

21 Both ratios are important, however, revenue-to-cost ratios are the better indicator of
22 the extent of any cross-class subsidization currently taking place.

1 **Q. How do the recently convened generic COS proceedings impact the present**
2 **case?**

3 A. The generic COS proceedings are still too preliminary to influence this case. While
4 the generic proceedings provide an important forum for collaboration, they are long
5 processes that have only just initiated. The generic COS proceedings also do not
6 address rate design. While I believe the generic proceedings are the best forums for
7 establishing uniform cost of service policies for both gas and electric service, they
8 cannot inform how COS issues should be resolved in this case. Accordingly, PSE's
9 COS for this case should be based on applicable Commission precedent.

10

11 **A. ELECTRIC COST OF SERVICE**

12

13 **Q. Please describe the Company's Electric COS Study.**

14 A. The Company's Electric COS Study was developed in accordance with the
15 settlement from the 2014 Electric Cost of Service and Rate Design Collaborative
16 (Rate Design Settlement).⁵ Consistent with the Rate Design Settlement, the
17 Company uses a "peak credit" methodology. The Company, however, proposes to
18 update the data used by the peak credit method with information from the 2015 and
19 2017 Integrated Resource Plans as well as the Company's proposed rate of return.⁶
20 These proposed updates change the demand/energy allocation ratio from the current
21 25 percent demand and 75 percent energy to 18 percent demand and 82 percent
22 energy.

⁵ *Wash. Utils. & Transp. Comm'n v. Puget Sound Energy, Inc.*, Docket UE-141368 (Jan. 29, 2015).

⁶ Piliaris, Exh. No. JAP-1T at 27:17-28:2.

1

2 **Q. Do you agree with the Company's updates?**

3 A. Yes, in principle. The information in the Rate Design Settlement will be 3 to 5 years
4 old by the end of this proceeding. Using more recent information is consistent with
5 one of the primary objectives of the Rate Design Settlement, which was to use more
6 recent information to inform cost of service. It would also provide a cost of service
7 study that is more reflective of the present day costs to serve customers.

8

9 **Q. Have you made any changes to the methodology underlying the Company's cost
10 of service?**

11 A. No. But I did prepare different versions of the Company's cost of service study that
12 demonstrate the effect of Staff's rate design proposals and incorporate Staff's
13 revenue requirement information. Exhibit JLB-2 provides a comparison of the
14 electric model's results of Staff and the Company.

15

16 **B. NATURAL GAS COST OF SERVICE**

17

18 **Q. Please describe the Company's Natural Gas COS study.**

19 A. The Company based its Natural Gas COS study on its last fully developed study,
20 which was used to support its 2011 general rate case (GRC).⁷ In the 2011 GRC, the
21 Commission approved a Natural Gas rate spread based on an all-party settlement; the
22 Commission, however, did not expressly approve the underlying Natural Gas COS

⁷ *Wash. Utils. & Transp. Comm'n v. Puget Sound Energy, Inc.*, Dockets UE-111048 and UG-111049.

1 methodology used by the Company. In fact, PSE's Natural Gas COS studies have
2 been settled in each of its GRCs since 1994 – over 23 years ago.⁸

3

4 **Q. How have the Company's Natural Gas COS studies evolved since 1994?**

5 A. There have been numerous changes of varying effect since the Company's last fully
6 litigated COS study. One obvious example is the Company's allocation of mains
7 between customer classes. In 1994, the Commission approved a 51 percent demand,
8 49 percent energy split based on a peak and average calculation.⁹ In 2004, PSE
9 began using a direct assignment method that was based on detailed engineering
10 studies.¹⁰ In 2009, the Company proposed its present main allocation methodology,
11 described in detail by Mr. Piliaris.¹¹ Unfortunately, the Commission has not had the
12 opportunity to explicitly approve or reject any of the changes because the
13 Company's Natural Gas COS has been settled in every GRC for the last 23 years.

14

15 **Q. Should the Commission rely on the results of the Company's Natural Gas COS**
16 **study?**

17 A. No. As I discuss below, the Commission has issued clear guidance that the use of
18 design day is not acceptable for allocating peak costs. Further, the Company's COS
19 study results do not incorporate the effects from Staff's proposed treatment of the
20 Water Heater Rental customer classes. Staff's Natural Gas COS Study incorporates

⁸ *Wash. Utils. & Transp. Comm'n v. Wash. Nat'l Gas Comp.*, Dockets UE-940034 and UG-940814.

⁹ *Id.* Fifth Supplemental Order, at 10-12.

¹⁰ *Wash. Utils. & Transp. Comm'n v. Wash. Nat'l Gas Comp.*, Dockets UG-040640 and UE-040641, Direct testimony of Colleen E. Paulson, Exh. CEP-1T at 5:11 – 6:20.

¹¹ Piliaris, JAP-1T at 44:10 – 47:15.

1 the effects of this proposal and presents an acceptable allocation of demand-related
2 costs.

3

4 **1. Staff Natural Gas COS Study**

5

6 **Q. Please describe the Staff-proposed Natural Gas COS study.**

7 A. Staff's proposed natural gas COS study is based on the Company's presentation and
8 incorporates four specific recommendations:

9 1) The Commission should continue to reject the use of the design day
10 method for allocating capacity costs. Staff's proposed Natural Gas COS
11 Study allocates peak-related costs based on an average of the top 5 days
12 in each of the last three years.

13 2) The Company's proposed main allocation methodology should be
14 accepted for the purposes of this case only.

15 3) Consistent with the recommendation of Staff witness Elizabeth
16 O'Connell, the revenues associated with the rental of water heaters should
17 be imputed as the same level of their cost of service.

18

19 **a) Allocation of Capacity Costs**

20 **Q. How does the Company propose to allocate capacity costs?**

21 A. The Company's Natural Gas COS study uses a key allocation factor that has been
22 explicitly rejected by the Commission. Specifically, PSE used the system demand

1 day to develop its peak demand allocator.¹² As I discuss below, the Commission has
2 made clear that a design day allocator is inappropriate for allocating capacity costs.

3
4 **Q. Why is design day an inappropriate allocator of demand related costs?**

5 A. Design day allocates capacity costs based on how PSE *designs the system* to be used.
6 An average peak, however, allocates costs based on how the *system is actually used*
7 by customers. The use of average peak is, thus, more consistent with the principle of
8 cost causation than the Company's proposed main allocation methodology. The
9 Commission has recognized this and explicitly rejected the use of design day in
10 allocating peak costs:

11 The arguments against [the design day allocator] are persuasive: actual
12 use on the design day is unknown and speculative, and the design day
13 fails to consider actual use by all classes on real peak days and thus the
14 classes' actual responsibility for the fixed costs of providing service.

15 Design day would offer stability -- but a part of our concern in requiring
16 periodic cost studies is that they reflect actual usage patterns as they
17 change over time. The design day fails to reflect those changing
18 patterns. The peak usage calculated from design day changes, too, as
19 the number of customers grows and as installed technology affects gas
20 use on the HDD. It may be prudent for the Company to oversize some
21 of its facilities to accommodate reliability and reasonable growth
22 expectations. The design day analysis is less likely to consider future
23 use and growth patterns than alternative measures of peak. Finally, the
24 record fails to show a sufficient relationship between design day usage
25 and embedded costs to support its use as a cost allocator.

26 The Commission believes that the appropriateness of the design day for
27 planning purposes has no necessary bearing on its appropriateness for
28 cost allocation purposes. The purposes are indeed very different and
29 the selection of an appropriate measure is made in each instance for
30 widely different reasons and policy considerations. The design day
31 should be rejected as a criterion for cost allocation.¹³

¹² Piliaris, Exh. JAP-1T at 376:-38:4.

¹³ *Wash. Utils. & Transp. Comm'n v. Wash. Nat'l Gas Comp.*, Dockets UE-940034 and UG-940814, fifth supplemental order at page 7 (Apr. 1 1995).

1 **Q. Please describe Staff's proposed allocation of capacity related costs.**

2 A. Staff allocates capacity costs using the average class use in the highest five-day
3 period for each of the last three years. Under this proposal, the average represents
4 each class's actual use during periods of peak demand on the system. This proposed
5 methodology is the same one used by the Commission in the Company's last fully
6 litigated Natural Gas COS case.¹⁴ Staff's Natural Gas COS Study results in a fairer
7 cost allocation between customer classes because it utilizes recent historical data to
8 reflect how the system is actually used.

9

10 **b) Allocation of Distribution Mains**

11 **Q. Please describe the Company's proposed main allocation methodology?**

12 A. The Company's proposed main allocation methodology uses various factors,
13 including the size of distribution mains, annual throughput, peak demand, and
14 customer type to assign distribution plant costs to each of the customer classes.
15 Company witness John Piliaris describes in detail the steps to produce this
16 allocation.¹⁵

17

18 **Q. Do you agree with the Company's proposed main allocation methodology?**

19 A. For the purposes of this case, the main allocation methodology as presented by the
20 Company is acceptable. The Company presented what appears to be a fair and
21 consistent methodology that recognizes both how a system is designed and how it is
22 actually used.

¹⁴ *Wash. Utils. & Transp. Comm'n v. Wash. Nat'l Gas Comp.*, Dockets UE-940034 and UG-940814, fifth supplemental order at page 7 (Apr. 1 1995).

¹⁵ Piliaris, Exh. JAP-1T at 44:10-47:15.

1 Staff, however, continues to support the generic proceedings as the most
2 appropriate venue for discussing significant changes to COS. Specifically, the COS
3 generic proceedings allow for a more diverse and richer discussion since a larger
4 number of stakeholders and all of the IOU's can participate. While the Company's
5 proposed methodology is acceptable for the purposes of this case, the COS generic
6 proceedings should continue to evaluate main allocations for all natural gas IOU's.

7
8 **c) Rental Contracts**

9 **Q. What is Staff's proposed treatment of the rental customer class?**

10 A. The revenue level for the rental customer class should be imputed and the class'
11 overall revenue requirement should be set at parity. This treatment is based on the
12 recommendation by Staff witness Elizabeth O'Connell to eliminate the rental
13 program through a winding down process.

14
15 **Q. What is the basis of this recommendation?**

16 A. Eliminating the rental program will also eliminate the program specific rate base,
17 expenses, and revenues. However, because this occurs over several years, it is not
18 feasible to determine the effects this may have on the class as a whole for rate setting
19 purposes. By setting the classes revenue requirement at parity, cross-class
20 subsidization that exists today is eliminated. This is especially important because the
21 rental class has a revenue-to-cost ratio of 1.79—meaning, rental program customers
22 are subsidizing other customers.

1 **d) Summary of Staff Natural Gas COS Study Results**

2 **Q. What are the results of the Staff-proposed Natural Gas COS methodology?**

3 A. The table below compares the results of Staff's and the Company's natural gas COS.

4 Table 1 – Comparison of Staff and Company Natural Gas COS Results

	Staff Natural Gas COS		Company Natural Gas COS	
	Parity	Revenue-to-Cost	Parity	Revenue-to-Cost
Residential (16, 23, 53)	106%	104%	108%	105%
Comm. & Indus. (31, 31T)	78%	77%	79%	77%
Large Volume (41, 41T)	96%	95%	95%	92%
Interruptible (85, 85T)	126%	124%	102%	99%
Limited Interruptible (86, 86T)	161%	158%	121%	117%
Non-Exclusive Interruptible (87, 87T)	175%	172%	76%	73%
Special Contracts	94%	93%	59%	57%
Rentals	183%	179%	185%	179%

5
6 **IV. RATE SPREAD**

7
8 **Q. Please describe Staff's proposed rate spread for electric service.**

9 A. Although Staff recommends an overall revenue requirement decrease, Staff agrees
10 with the Company's proposed method to address disparities between rate
11 schedules.¹⁶ Based on the Company's allocation between rate schedules to move all
12 schedules closer to parity, Staff has developed the following proposed rate spread:

13
14
15

¹⁶ Piliaris, JAP-1T at 52:18-55:13.

1

Table 2 – Staff Electric Rate Spread

	Percent of Uniform Decrease	Allocated Base Revenue Change	Resulting Parity Ratio
Residential (7)	100%	\$21,708,626	96%
Small General Service (8, 24)	75%	\$4,060,703	107%
Medium General Service (11, 25, 7A, 29)	75%	\$3,835,714	106%
Large General Service (12, 26)	75%	\$2,306,521	106%
Primary Service (10, 31, 35)	75%	\$1,753,984	106%
Primary Service, Schools (43)	100%		99%
Campus Rate (40)	100%	\$4,279,394	105%
High Voltage (46, 49)	75%	\$61,380	109%
Lighting Service (50 – 59)	100%	\$347,753	97%
Choice/Retail Wheeling (448, 449)	100%	\$455,716	109%

2

3 **Q. Please describe Staff’s proposed rate spread for natural gas service.**

4 A. As with electric service, Staff’s natural gas revenue requirement decrease is based on
5 the Company’s proposed method to achieve a greater level of parity.¹⁷ Further,
6 Staff’s proposed cost of service model resulted in lower parity ratios for some classes
7 and higher parity ratios for others.

8

¹⁷ Piliaris, Exh. JAP-1T at 88:15-21.

1

Table 3 – Staff Natural Gas Rate Spread

	Percent of Uniform Decrease	Allocated Revenue Decrease	Resulting Parity Ratio
Residential (16,23,53)	100%	\$(1,533,784)	103%
Comm. & Indus. (31,31T)	150%	\$(636,519)	79%
Large Volume (41,41T)	100%	\$(51,333)	97%
Interruptible (85, 85T)	150%	\$(71,858)	127%
Limited Interruptible (86, 86T)	50%	\$(2,478)	162%
Non-Exclusive Interruptible (87, 87T)	150%	\$(35,047)	176%
Contracts	N/A	\$85,770	98%
Rentals	Class Revenues Imputed to Equal Class Costs		

2

3

V. RESIDENTIAL RATE DESIGN

4

5

Q. How does the 2014 Electric Cost of Service and Rate Design Collaborative (2014 Rate Design Settlement) affect residential rate design?

6

7

A. The 2014 Rate Design Settlement established certain agreements between the signing parties for the present case.¹⁸ Staff continues to support the Rate Design Settlement, except for the establishment of a third block for residential customers. As discussed below, additional analysis conducted since the 2014 Rate Design Settlement necessitates a more flexible approach. On June 29, 2017, the settling parties filed a joint motion in Docket UE-141368 to modify the 2014 Rate Design Settlement and eliminate subsection B, which binds the parties to supporting a third-block proposal.

8

9

10

11

12

13

14

¹⁸ *Wash. Utils. & Transp. Comm'n v. Puget Sound Energy, Inc.*, Docket UE-141368. (The parties to the settlement were: Commission Staff, Puget Sound Energy, Public Counsel, the Industrial Customers of Northwest Utilities, Kroger Company, Wal-Mart Stores Inc., Federal Executive Agencies, and The Energy Project.).

1 **A. RESIDENTIAL RATE DESIGN POLICY**

2

3 **Q. What is the goal of residential rate design?**

4 A. Rate design goals can vary by region and commission. Based on the current trend of
5 rate cases and policy statements in Washington, the residential rate design structure
6 should accomplish five goals:

- 7 1. Appropriately reflect the cost of kWh or therm use during peak periods;¹⁹
8 2. Send proper price signals about long-term portfolio supply costs;²⁰
9 3. Actively encourage conservation;²¹
10 4. Allow the company some certainty of fixed cost recovery;²² and
11 5. Minimize rate shock to individual customers.²³

12 While these goals do not necessarily contradict each other, they are challenging to
13 balance.

14

15 **Q. Please describe the Company’s proposed electric residential rate structure.**

16 A. The Company proposes keeping the current residential Schedule 7 rate structure,
17 with updated rates based on the current proceeding. The current rate structure has 2
18 blocks separated at 600 kWh regardless of season. The Company also proposes an

¹⁹ *Wash. Utils. & Transp. Comm’n v. Wash. Nat’l Gas Comp.*, Dockets UE-940034 and UG-940814, fifth supplemental order at page 5 (Apr. 1 1995)..

²⁰ *Wash. Utils. & Transp. Comm’n v. Wash. Water Power Comp.*, Docket UG-901459, Third Supplemental Order, at 5 (Mar. 9, 1992).

²¹ *Wash. Utils. & Transp. Comm’n v. Avista Corp.*, Dockets UE-140188 and UG-140189, consolidated., Order 05 at ¶28

²² *See In re WUTC Investigation into Energy Conservation Incentives*, Docket U-100522, Report and Policy Statement on Regulatory Mechanisms, including Decoupling, To Encourage Utilities To Meet or Exceed Their Conservation Targets, (Nov. 4, 2010).

²³ *Wash. Utils. & Transp. Comm’n v. Puget Sound Energy, Inc.*, Dockets UE-111048 and UG-111049, Order 08, 124-25, ¶ 350 (May 7, 2012).

1 increased basic charge based on its COS study, but that increase is not sufficient to
2 recover the full-level of customer-related costs.

3

4 **Q. Does the current electric residential rate structure adequately balance the five**
5 **goals of residential rate design that you identified from Commission precedent?**

6 A. No. None of the five goals is adequately addressed by the current electric residential
7 rate design because:

8 1. The current structure does not delineate between seasons, and therefore,
9 is less effective at reflecting costs of peak usage;

10 2. The lack of seasonal variation does not reflect long-term portfolio supply
11 costs because resource planning is based on expected peak usage;

12 3. The rate difference between the two blocks presents some conservation
13 incentive, but lacks a seasonal variation. Consequently, the conservation
14 incentive is decreased for the higher-use winter period when it is most
15 needed;

16 4. The current structure has a low basic charge, which reduces the amount of
17 fixed monthly revenue the Company receives; and,

18 5. The current structure's low basic charge is so far below the Company's
19 COS study results that increasing this charge to the appropriate level
20 would have too large of a bill impact on the lowest-usage customers.

21

1 **Q. Why is addressing seasonal variation in electric residential rate design so**
2 **important?**

3 A. Seasonal variation in rates provides an important signal about the costs of supplying
4 electricity. While a third-block structure could theoretically provide a similar signal,
5 it does so on a marginal basis. As I discuss below, customers are generally more
6 responsive to their total bill than they are to the marginal price signals contained in
7 the individual per-unit charges. An electric residential customer's current bill
8 contains as many as 11 distinct per-unit charges, all of which serve as individual
9 price signals on the consumption of electricity.²⁴ As discussed below, the electric
10 residential tariff should be redesigned to more appropriately reflect customer
11 behavior.

12
13 **B. OVERVIEW OF STAFF PROPOSED RESIDENTIAL RATE DESIGN**

14
15 **1. Electric Service**

16 **Q. Please describe Staff's proposed electric residential rate design for Schedule 7.**

17 A. Staff's proposed electric residential rate design incorporates a higher basic charge
18 and a minimum bill with a seasonal rate structure. The seasonal rates maintain two
19 blocks in both summer (April – September) and Winter (October – March). The first
20 block uses 600 kWh's for both summer and winter; the same as the current year-
21 round first block. The figure and table below summarize Staff's proposed residential
22 rate design.

23

²⁴ PSE Response to Staff Data Request No. 99.

1

Table 4 – Staff Residential Rate Design Proposal

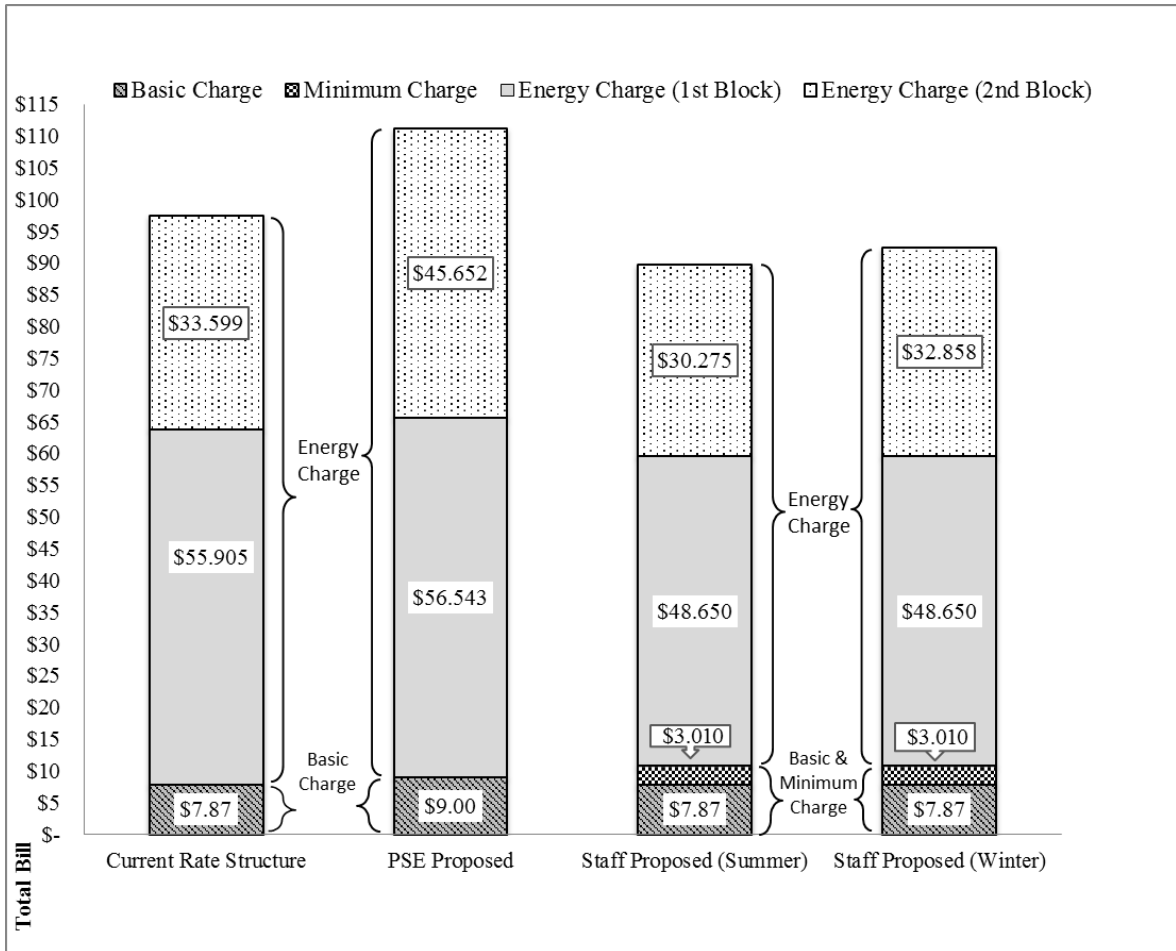
Rate Component	Description	Rate
Basic Charge		\$7.87
Minimum Charge	40 kWh's @ \$.091996 / kWh	\$3.01
Summer	1 st Block - First 600 kWh	\$.086107 / kWh
	2 nd Block - Remaining kWh	\$.100917/ kWh
Winter	1 st Block - First 600 kWh	\$.086107 kWh
	2 nd Block - Remaining kWh	\$.109528/ kWh

2

3

4

Figure 1 – Comparison of Rate Structures Using 900 kWh Bill



5

1 **Q. How does Staff’s electric Schedule 7 proposal meet the goals of residential rate**
2 **design?**

3 A. Staff’s proposed electric rate structure:

- 4 1. Reflects the cost of usage during peak periods through a seasonal rate block
5 structure that is based on the difference between average usage and the individual
6 winter and summer peak;
- 7 2. Sends price signals about long term portfolio supply costs by incorporating a
8 higher energy rate in the second block to reflect the cost of available peaking
9 capacity.
- 10 3. Actively encourages conservation by maintaining a higher cost of energy
11 consumed in the second block, especially during the winter peaking period.
- 12 4. Provides the Company a better opportunity to recover fixed costs through a
13 higher basic charge and minimum billing amount.
- 14 5. Minimizes rate shock to most customers with lower usage levels as shown in
15 figures 2 and 3 above.

16
17 **2. Natural Gas Rate Service**

18 **Q. Please describe Staff’s proposed natural gas residential rate design for Schedule**
19 **23.**

20 A. Staff’s natural gas residential rate design proposal includes an increase to the basic
21 charge, but no minimum bill. Staff is also not proposing a seasonal rate structure for
22 Natural Gas Schedule 23. Table 5 below summarize Staff’s proposed rate design for
23 Schedule 23.

1 Table 5 - Staff Proposed Natural Gas Residential Rate Structure

Rate Component	Current Rate	Staff Proposed
Basic Charge	\$10.34	\$12.04
Delivery Charge	\$.36492	\$.33579
Commodity Charge	\$.41790	\$.40920
Other Volumetric Charges	\$.14858	\$.09091
Total Volumetric Charge	\$.91450 / Therm	\$.81960 / Therm

2
 3 **Q. Why is Staff not proposing seasonal variation or a minimum bill for natural gas**
 4 **residential rates?**

5 A. In natural gas, delivery and commodity charges are independent of each other and
 6 shown separately, or unbundled, on the customer's bill. This unbundling provides an
 7 avenue to refine the demand related charges when AMI demand data becomes
 8 available, which PSE has indicated it will do soon.

9 Accurate demand data would allow the rate structure to more clearly reflect
 10 the cost of usage during peak, the first goal of residential rate design. The second
 11 goal, signaling long-term supply costs, are more related to commodity purchases and
 12 contracts than capital projects for natural gas service. Consequently, a different tariff
 13 structure accomplishes the same overall residential rate design goals.

14
 15 **Q. Are there other advantages to Staff's rate design proposals?**

16 A. Yes. Staff's proposed residential rate design also:

- 17 1. Aligns the electric residential rate schedule with the design of other
 18 schedules, such as small commercial general service, by incorporating a
 19 seasonal block structure;

- 1 2. Takes into account the mitigating impact of decoupling on fixed cost
2 recovery and places more emphasis on the other four goals of residential rate
3 design;
- 4 3. Begins to address cross-customer subsidization by increasing the basic charge
5 and implementing a minimum bill to recover the full-level of customer costs;
- 6 4. Reflects the value of “ready-to-serve” service, that is instantaneous access to
7 electricity and natural gas, for low-usage or seasonal usage customers; and
- 8 5. Provides an avenue to introduce residential demand charges and unbundled
9 rates in the future.

10 Staff discusses its proposed rate structure in greater detail in the following sections.

11

12 **C. BASIC CHARGES AND MINIMUM BILLING**

13

14 **Q. Please describe the Company’s proposed residential and natural gas basic**
15 **charges.**

16 A. The Company proposes to increase the basic charge per customer per month for
17 electric service to \$9.00, and for natural gas to \$11.00. The Company justifies these
18 increases by comparing the proposed rates to the compounded increases from the K-
19 factor adjustments from the Company’s three-year rate plan.²⁵ The Company also
20 surveyed other utilities’ rates to determine how their proposed basic charge compares
21 to the national average.²⁶

²⁵ Piliaris, Exh. JAP-1T at 66:7-15, 92:15-93:5.

²⁶ *Id.* at 66:19-9, 93:6-19 (PSE observed that the average basic charge of the 44 electric utilities surveyed in Washington State was \$17.76, well above PSE’s proposed \$9.00 electric basic charge. For natural gas, the

1 **Q. Do you agree with the Company's proposed natural gas basic charge?**

2 A. No. As discussed above, the basic charge should be set to recover the full level of
3 customer related costs. However, the bill impacts are too high for both a minimum
4 billing rate structure and a basic charge set at the full level of customer related costs.
5 These bill impacts are included in Exh. JLB-5 For this reason, Staff proposes to
6 increase the basic charge by one-third, or \$1.70, of the difference between the
7 current and COS calculated basic charge. This results in a natural gas basic charge of
8 \$12.04.

9
10 **Q. Do you agree with the Company's proposed electric basic charge?**

11 A. No.²⁷ The Company's proposal does not adequately address the issue of cross-
12 customer subsidization. Both the current natural gas and electric residential basic
13 charge and the Company's proposed increases are below the Company's COS study
14 results, even though these costs are fixed customer-related expenses.

15 When fixed customer-related expenses are not included in the basic charge
16 they will be recovered through the volumetric delivery charge. Customers with
17 higher volumetric usage are thus paying for the fixed costs of serving customers with
18 low volumetric usage. A basic charge set below the cost of service results is a form
19 of cross-customer subsidization that is inconsistent with the principle of cost

company surveyed 92 utilities across the United States and found an average residential basic charge of \$15.07, again above the PSE proposed \$11.00).

²⁷ In the 2016 Avista GRC, I recommended that the Commission reject Avista's increased basic charges. This recommendation was because Avista had not sufficiently demonstrated a need for a higher basic charge in the first year of their decoupling mechanism. In this case, PSE has fully supported an increased basic charge, but is limiting its proposal to less than the level shown in the cost of service model. Staff now has the opportunity to review the PSE decoupling mechanism, and supports an increase in the minimum revenue collected from each residential customer. Further, the basic charge and minimum bill proposed by Staff is based on a review of current customer related costs.

1 causation. Ultimately, an inadequate basic charge establishes inappropriate price
2 signals to customers because their rates reflect the costs of serving a different
3 customer.

4

5 **Q. What is Staff's proposed electric basic charge?**

6 A. As I discuss in more detail below, Staff proposes a minimum bill for electric
7 residential Schedule 7 customers such that every customer is billed at least their total
8 customer related costs. This approach minimizes the impact of an increased basic
9 charge and maintains the conservation incentive for high usage customers.

10

11 **1. Electric Residential Basic Charge Policy**

12

13 **Q. Please describe Commission policy regarding the residential basic charge.**

14 A. In 1992, the Commission adopted the Basic Customer Method which recovers only
15 the meter, service drop, and associated expenses.²⁸ The Commission has been
16 hesitant to depart from the Basic Customer Method because it “does not promote,
17 and may be antithetical to, the realization of conservation goals.”²⁹

18

19 **Q. Should the Commission depart from the Basic Customer Method?**

20 A. No, but the Basic Customer Method should be revised to include the costs of line
21 transformers.

²⁸ Final Report, Rate Design Task Force, at 14 (Feb. 20, 1992).

²⁹ *Wash. Utils. & Transp. Comm'n v. Pacific Power & Light*, Docket UE-140762, Order 08, at ¶ 216 (Mar. 25, 2015).

1 **Q. Why should line transformers be included in the Basic Customer Method?**

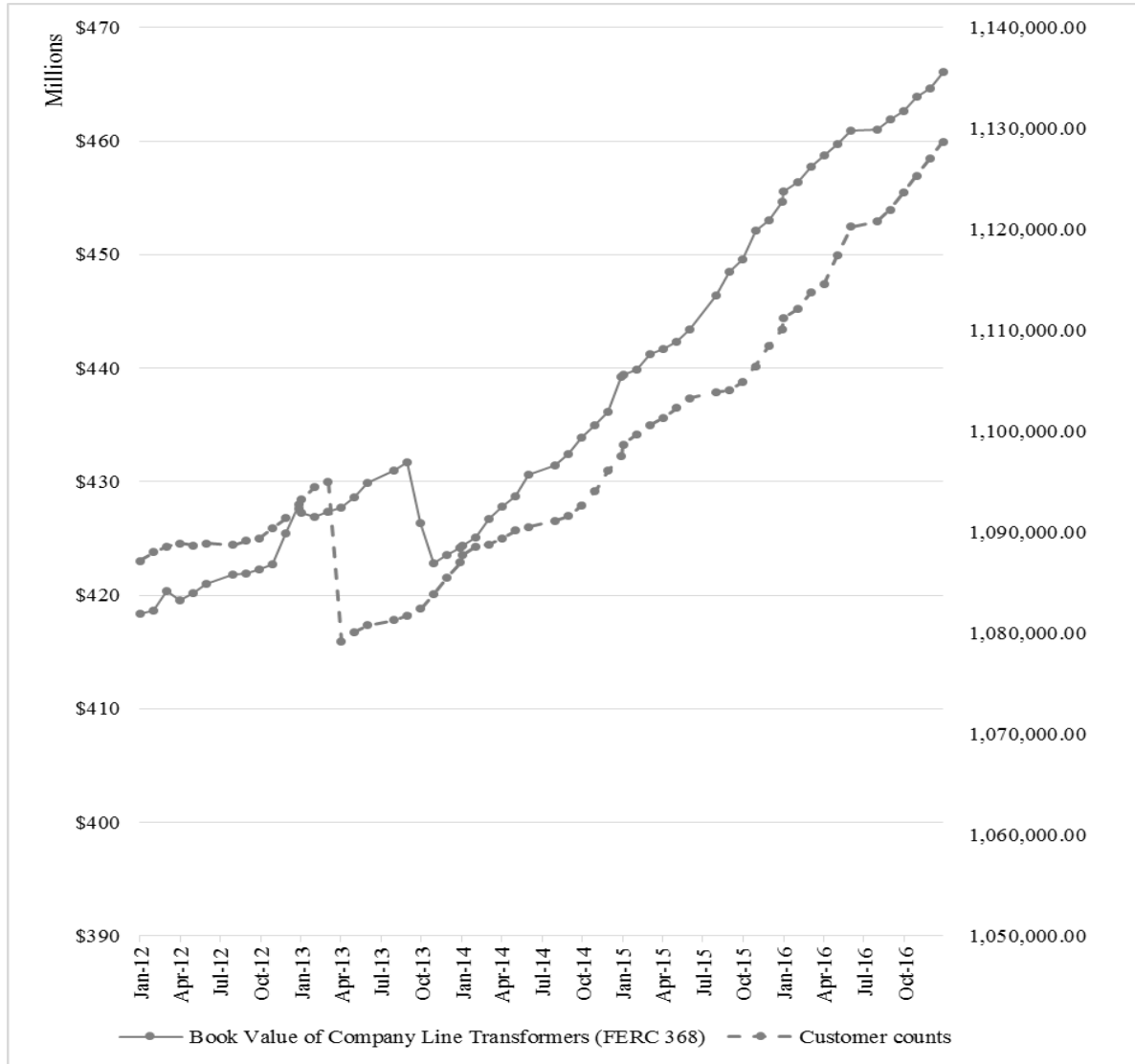
2 A. Line transformers are a customer dedicated facility that are required to provide
3 service for each customer and they have more in common with meters than overall
4 distribution plant. Line transformers step down the intensity of power on the
5 distribution conductors from the distribution level (approximately, 5 kV) to the
6 household level (120 or 240 volts). Like the meter and service drop, line
7 transformers are essentially customer dedicated facilities. This is true even though
8 one line transformer can serve up to five or six residential or small commercial
9 customers.

10 The costs of these transformers are not usage sensitive, exist regardless of
11 customer kWh use, and stand ready to serve when the customer “flips the switch”.
12 Although transformers have been excluded from basic customer costs, they are
13 directly related to the customer count. The figure below shows the relationship
14 between transformer plant balances and total customer counts.

15

1

Figure 2 – Comparison of Transformer Plant Balances with Customer Counts



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A regression analysis of this data shows that the change in transformer plant balances is explained by the customer count. The analysis resulted in a R^2 of 88%³⁰ indicating strong correlation between customer count and transformer plant balances. This

³⁰ R^2 , also known as the coefficient of determination, is a “goodness of fit” test that determines how well a regression equation explains a set of data. In this case, the regression equation consisted of one dependent or response variable, transformer plant balances, and one independent or explanatory variable, customer count.

1 makes intuitive sense – a transformer, like a meter or a service drop, is necessary for
2 each and every customer to receive service from the distribution system.

3 Importantly, the installation of a transformer occurs without regard to a
4 customer’s monthly energy usage.³¹ Transformer resizing because of a change in
5 customer load is rare - except in the case of redevelopments, which reflect a change
6 in the number of customers.³² The only difference between a transformer and a
7 meter is that transformers can be shared by a few customers, reducing the number
8 needed and their associated per unit cost. Just as with meters, it is reasonable for the
9 monthly charge to include transformers, which are a necessary part of the cost to
10 access power instantaneously.

11
12 **Q. Is Staff’s proposed electric minimum bill and basic charge consistent with the**
13 **Commission’s policy?**

14 A. Yes. Staff’s proposed minimum bill recovers *the full level* of customer specific
15 charges while the basic charge remains lower to encourage conservation. The current
16 basic charge of \$7.49 is below the needed \$7.87 just to recover costs of meters and
17 service drops.³³

31 PSE Response to Staff Data Request No. 424 (Some customers may require a service level beyond what is typically provided by PSE. If so, a specialized transformer would be installed. The specific customer would then be responsible for reimbursing PSE for the full level of cost associated with the expanded service.)

32 *Id.*

33 PSE Response to Staff Data Request No. 441 (PSE provided an updated cost of service model that does not include transformer costs in the basic charge).

1 **2. Staff Proposed Electric Basic Charge and Minimum Bill**

2
3 **Q. Please describe Staff's proposed electric basic charge.**

4 A. Staff's proposed electric basic charge is the difference between the total basic
5 customer related costs in the cost of service study and the revenue collected from the
6 minimum billed amount. As the minimum bill goes up, the basic charge decreases.
7 However, Staff is not advocating to eliminate the basic charge. Rather, the basic
8 charge should be adjusted to reflect the 35 kWh, or 1.15 percent of all customers, of
9 minimum usage under Staff's proposed minimum bill.

10
11 **Q. How did Staff calculate its proposed electric minimum bill?**

12 A. The minimum bill is calculated to achieve two goals:

13 1) A target impact of 1 percent of customers - Based on PSE's bill impact
14 information, approximately 1.15 percent of customers use 35 kilowatt-
15 hours or less of electric energy per month

16 2) The total minimum bill is equal to total customer related costs - Using the
17 Company's COS Studies, Staff determined customer-related costs to be
18 equal to \$10.88 per month for electric service.

19
20 **Q. Why should the electric minimum bill be set at a level that recovers the**
21 **remaining amount of basic customer costs?**

22 A. If the minimum amount a customer pays each month is set too low, then customers
23 with higher usage pay for the fixed costs to serve lower use customers. This is

1 because customer related expenses that are not included in the basic charge will be
2 recovered through the volumetric energy charge. However, basic customer costs,
3 such as meters, line drops, and transformers are all fixed costs that do not vary with
4 kWh sales. Ultimately, a basic charge set below the cost of service results in a form
5 of cross-customer subsidization that is inconsistent with the principle of cost
6 causation. Further, any cost included in the volumetric energy charge is
7 automatically subject to decoupling. This increases the volatility in the decoupling
8 mechanism.

9
10 **Q. Could Staff's proposal be accomplished with just an increased basic charge?**

11 A. Yes. Exhibit JLB-5 provides a description of the bill impacts from increasing the
12 basic charge to recover the full-level of customer related expenses. In Staff's view,
13 the bill impacts of a full basic charge increase are too high and affect too many
14 customers. To minimize rate shock, which is one of the principle goals of residential
15 rate design, Staff is recommending a minimum bill combined with a basic charge to
16 offset some of the impacts on the lowest usage customers.

17
18 **Q. Is decoupling affected by a low basic charge and minimum bill?**

19 A. Yes. The decoupling program provides the Company a better opportunity to achieve
20 fixed cost recovery by reducing the impact of changes in kilowatt-hour sales. From a
21 practical standpoint, a minimum bill or a higher basic charge reduces the volatility in
22 the decoupling mechanism. This is discussed in more detail by Staff witness Jing Liu
23 in her direct testimony.

1 **Q. Will seasonal rates undermine conservation?**

2 A. No. The conservation incentive to large-usage customers still exists through higher
3 volumetric rates in the second block. Moreover, seasonal rates will amplify the
4 conservation incentive during the time of the year when demand is higher, and thus,
5 conservation is most needed. Under Staff's proposed minimum bill and basic charge,
6 customers with the largest average use will still see a bill increase for usage during
7 the winter.

8

9 **Q. Will seasonal rates impact energy efficiency programs?**

10 A. Not necessarily. Energy efficiency is marketed to a customer as a way to reduce their
11 total bill and not individual components of a bill. Staff's rate design incorporates the
12 focus on total billing, through rates designed for variation across multiple months.
13 Customers' investment in energy efficiency resources will still produce the benefit of
14 reduced bills.

15

16 **3. Alternative Recommendation**

17

18 **Q. Have you prepared any alternative rate design proposals for the Commission to**
19 **consider?**

20 A. Yes. In prior cases, the Commission has expressed interest in the individual impacts
21 of different components of a proposed rate structure. Exhibit JLB-2 includes an
22 electric seasonal rate structure with a basic charge that excludes the costs of
23 transformers. Of note is that a minimum bill component is not necessary in this

1 alternative because the basic charge increase would be small, and thus, sufficient to
2 recover the customer related costs exclusive of transformers. However, Staff prefers
3 the inclusion of transformer costs in the definition of customer related costs as
4 discussed above.

5
6 **D. SEASONAL RATES**

7
8 **Q. Please describe Staff's proposed seasonal structure for residential rates.**

9 A. Staff's proposed seasonal structure for residential rates contains different rates for
10 two seasons: summer rates for May through October, and a winter rates for
11 November through April. Staff's proposed two-season structure also maintains two
12 rate blocks for each season. The first rate block for usage up to 600 kWh would
13 remain the same throughout the entire year. The second rate block for usage in
14 excess of 600 kWh would change between seasons.³⁴

15 The difference in the second rate block between seasons is based on the
16 difference in average dollar per megawatt-hour costs between seasons. Since these
17 prices include market purchases as well as PSE's embedded generation costs, both
18 short and longer term capacity cost signals are reflected in the price difference. This
19 accomplishes the first two goals of residential rate design, which are to (1)
20 appropriately reflect the cost of energy use during peak periods, and (2) send proper
21 price signals about long-term portfolio supply costs. Exhibit JLB-4 provides a
22 technical appendix with detailed calculations for these rates.

³⁴ Final Report, Rate Design Task Force, at 14 (Feb. 20, 1992). (The 600 kWh usage level is principally based on the equal sharing of the hydro system and its low cost benefits.).

1 **Q. Why is Staff proposing a seasonal structure for residential rates?**

2 A. The current residential rate structure should be revised to reflect the reality of
3 customer behavior. Customers value some sort of price signal when consuming
4 electricity. However, customers tend not to respond to the marginal price signal
5 contained in the volumetric energy rate—rather, they respond to their total bill. A
6 seasonal rate structure provides a more appropriate cost signal based on customers’
7 current behavior.

8

9 **Q. Why do customers not respond to the current marginal price signals?**

10 A. Customers do not know what their usage or associated bill will be at the “point of
11 sale”—i.e., when a decision is made to use electricity or not. Thus, the impact of the
12 marginal price signal or rate is substantially mitigated because of the disconnection,
13 in real time, between the decision to consume and the bill. This is supported by a
14 study of customers in southern California which showed that “consumers do not
15 know what marginal price they face during a billing period, because they do not
16 know what demand shocks will occur during the period.”³⁵ Demand shocks, such as
17 outdoor temperature and household occupancy, strongly influence customers’ energy
18 usage and are based on factors other than marginal price.

19 Moreover, because few customers would be able to say with any accuracy the
20 quantity of energy consumed for each electric device in their household, they are
21 unable to apply a marginal rate in making a decision to engage in a specific use for
22 electricity (e.g. turning on a light, leaving on a computer, increasing the temperature

³⁵ Severin Borenstein, *To What Electricity Price Do Consumers Respond? Residential Demand Elasticity Under Increasing-Block Pricing*, University of California Energy Institute (2009).

1 of a water heater, etc.). Consequently, it isn't until after the billing period is over that
2 a customer knows which tier of pricing they were paying for additional kilowatt-
3 hours.

4

5 **Q. What information would customers need to be able to better respond to**
6 **marginal price signals?**

7 A. Customers would need to know their usage of electricity in real time, how their
8 decisions affect their electricity usage, what their total energy costs are, and when
9 they will incur a marginal price change.

10

11 **Q. Do PSE customers generally have access to this information?**

12 A. No. Providing this information is not feasible given PSE's current metering
13 infrastructure.³⁶

14

15 **Q. Are all residential customers equally unresponsive to marginal price?**

16 A. Not necessarily. Some customers may be extremely sensitive to price swings and
17 study their bill and meter frequently,³⁷ while, other customers are basically
18 unresponsive to price changes. Budget billing, provided under Schedule 80, allows a
19 customer to annualize their bills subject to certain adjustments. Nearly 10 percent of
20 all customers currently participate in a budget billing plan:

³⁶ PSE Response to Staff Data Request No. 442.

³⁷ For instance, customers who elect to receive "Home Energy Reports", which compare a customer's energy usage to their neighbors, could be more responsive to changes in the price of electricity. Based on PSE's response to Staff Data Request No. 88, the number of customers who receive these reports is roughly equivalent to the number of customers who participate in budget billing.

1

Table 6 – Budget Billing Customers

	Electric ³⁸		Natural Gas ³⁹	
	Customers	% Total Customers	Customers	% Total Customers
2013-2014	90,718	9.48%	65,556	9.08%
2014-2015	86,053	8.91%	63,247	8.63%
2015-2016	82,178	8.41%	60,289	8.12%
Average	599,387	8.94%	63,031	8.61%

2

3 Budget billing, combined with other options such as auto-pay, effectively insulates
4 customers from even having to review a bill except on an annual basis.

5

6 **Q. How does budget billing affect residential rate design?**

7 A. Customers who voluntarily participate in budget billing do so because they value bill
8 stability. No matter how the underlying rate structure is changed, these customers
9 will remain equally unresponsive to marginal price signals. The program, however,
10 is voluntary, which implies that non-budget billing customers value some sort of
11 price signal.⁴⁰ Accordingly, it appears that customers generally value the
12 information from their total bill and not the marginal price signals presented through
13 individual rates.

14

15 **Q. Are seasonal rates the most effective way of accomplishing the rate design
16 goals?**

17 A. Based on the information currently available to PSE customers, yes. The most
18 accurate rate structure would recover the seasonality of costs through a demand

³⁸ PSE Response to Staff Data Request Nos. 84 and 299.

³⁹ PSE Response to Staff Data Request Nos. 85 and 299.

⁴⁰ PSE Response to Staff Data Request No. 86 (It is unlikely that customers are simply unaware of the program. PSE engages in extensive communication efforts targeting as many customers as possible.).

1 charge, with variable and delivery charges identified through separate rates. PSE's
2 automatic meter readers are capable of tracking the data necessary to establish
3 demand charges, but the system does not have the bandwidth to reliably transmit all
4 of the data.⁴¹ Therefore, the next best alternative is to focus on total energy usage.
5 Looking at energy usage, seasonality combined with an inclining block structure
6 functions as a surrogate demand charge by increasing costs for high usage during
7 seasonal periods of natural peaks.

8
9 **Q. Have you reviewed seasonal rate structures in Washington and other**
10 **jurisdictions?**

11 A. Yes. Specific to PSE, residential Schedule 7 had a seasonal rate structure until a
12 2001 settlement.⁴² Additionally, the general service schedules, seasonal irrigation,
13 and primary service schedules all incorporate seasonality into either the demand or
14 energy charges. Since cost of service and rate design issues have been settled in
15 almost all rate cases since that time, there has not be a full review of the present
16 structures for almost 20 years.

17 Some states have looked at seasonal rate design and rejected the idea because
18 fixed distribution costs don't have large variations between seasons.⁴³ However,

⁴¹ PSE Response to Staff Data Request No. 442. (Further, the AMR equipment used by PSE is no longer being manufactured, making upgrading the current system impossible.).

⁴² *Wash. Utils. & Transp. Comm'n v. Puget Sound Energy, Inc.*, Dockets UE-011570 and UG-011571, Exh. D to Settlement Stipulation (May 6, 2002).

⁴³ *In re Application of Potomac Electric Power Company for Adjustments to Its Retail Rates for the Distribution of Electrical Energy*, Maryland Public Service Commission, Case No. 9336., Order No. 86411, at 111- 115 (July 2, 2014);

In re Application of United Illuminating Company to Increase Rates and Charges, Connecticut Public Utilities Regulatory Authority, Docket No. 13-01-19, at 150 (Aug. 14, 2013).

1 these investigations were in jurisdictions with unbundled energy rates and focused
2 only on distribution plant. Even so, the state of Maine found that the variation in load
3 factor due to changes in temperature did impact distribution values and set rates
4 accordingly.⁴⁴

5
6 **E. BILL IMPACTS**

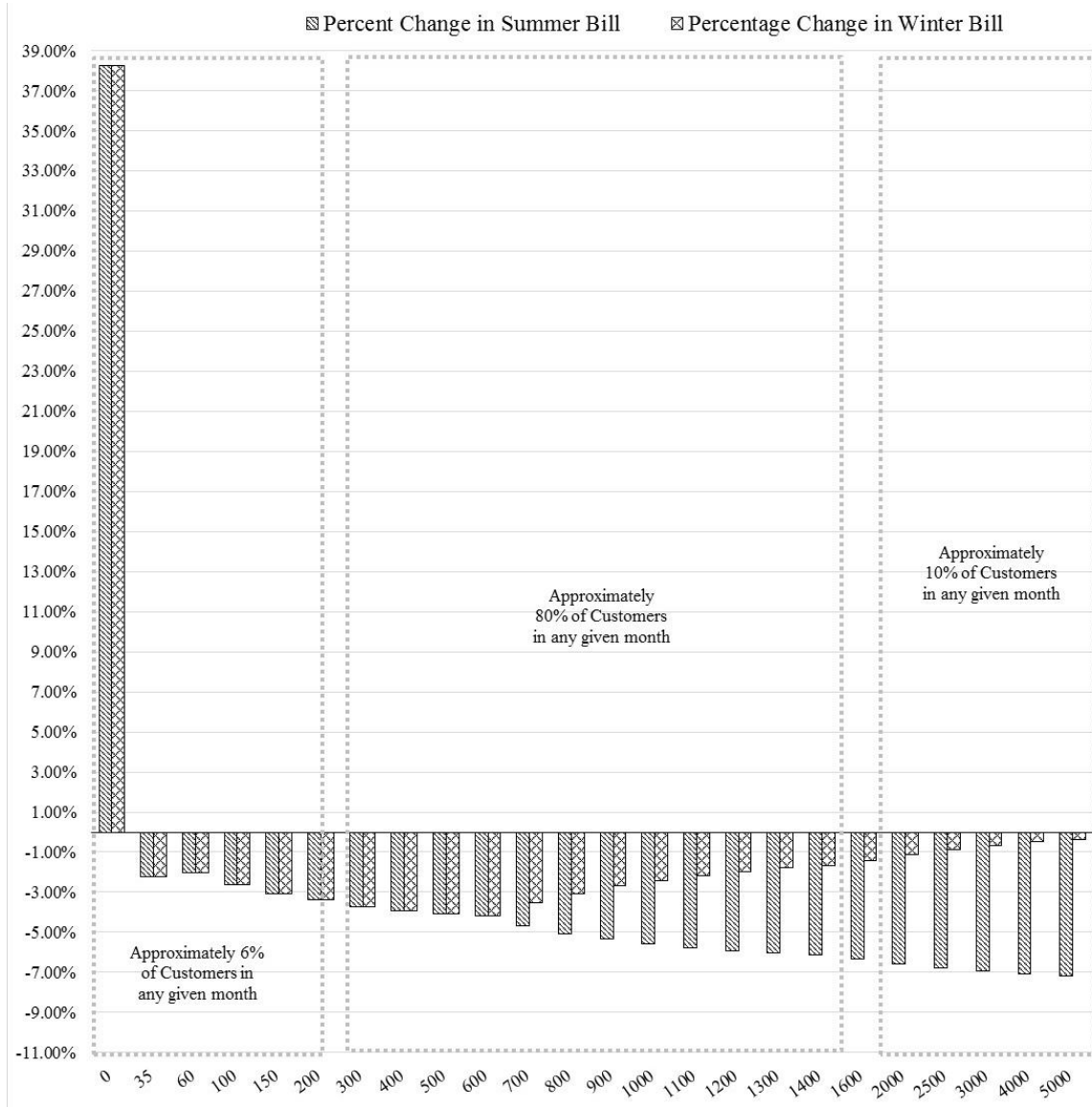
7
8 **Q. How will electric residential customers be impacted by Staff’s proposed rate
9 design?**

10 A. Figure 3 below summarizes the impact of Staff’s electric rate design proposal on
11 customers based on their usage. The bars represent summer and winter bill impacts
12 for customers based on their usage level. For example, a customer with 600 kWh of
13 average monthly usage is in the middle of the chart and will see almost no change to
14 their overall summer or winter bills.

⁴⁴ *In re Central Maine Power Company, Request for New Alternative Rate Plan* (“ARP 2014”), Docket No. 2013-00168, Order on Rate Design Issues (Part II), at 16-18 (Oct. 14, 2014).

1

Figure 3 – Bill Impact of Staff Electric Rate Design Based on Monthly Usage



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7

The lowest usage customers—specifically those with between 0 and 35 kWh’s of usage—have the largest bill impacts in both summer and winter. These low usage customers can actually be several different groups of ratepayers such as seasonal vacation homeowners, customers with significant alternative energy sources, distributed generation customers, or customers experiencing metering issues. In each

1 case, even when a customer uses zero kilowatt-hours, the customer received a
2 service by virtue of having access to any level of electricity at any time.

3 Additionally, this is a relatively small amount of energy – 35 kilowatt-hours
4 is equivalent to four LED lightbulbs running 24 hours a day for a month. These
5 customers also represent an extremely small portion of PSE’s customer base, only
6 0.57 percent. Importantly, the bill impact in the above figures is on a percentage
7 basis; on a dollar basis, customers with usage 0 to 35 kWh’s a month only face an
8 average \$3.01 bill increase.

9

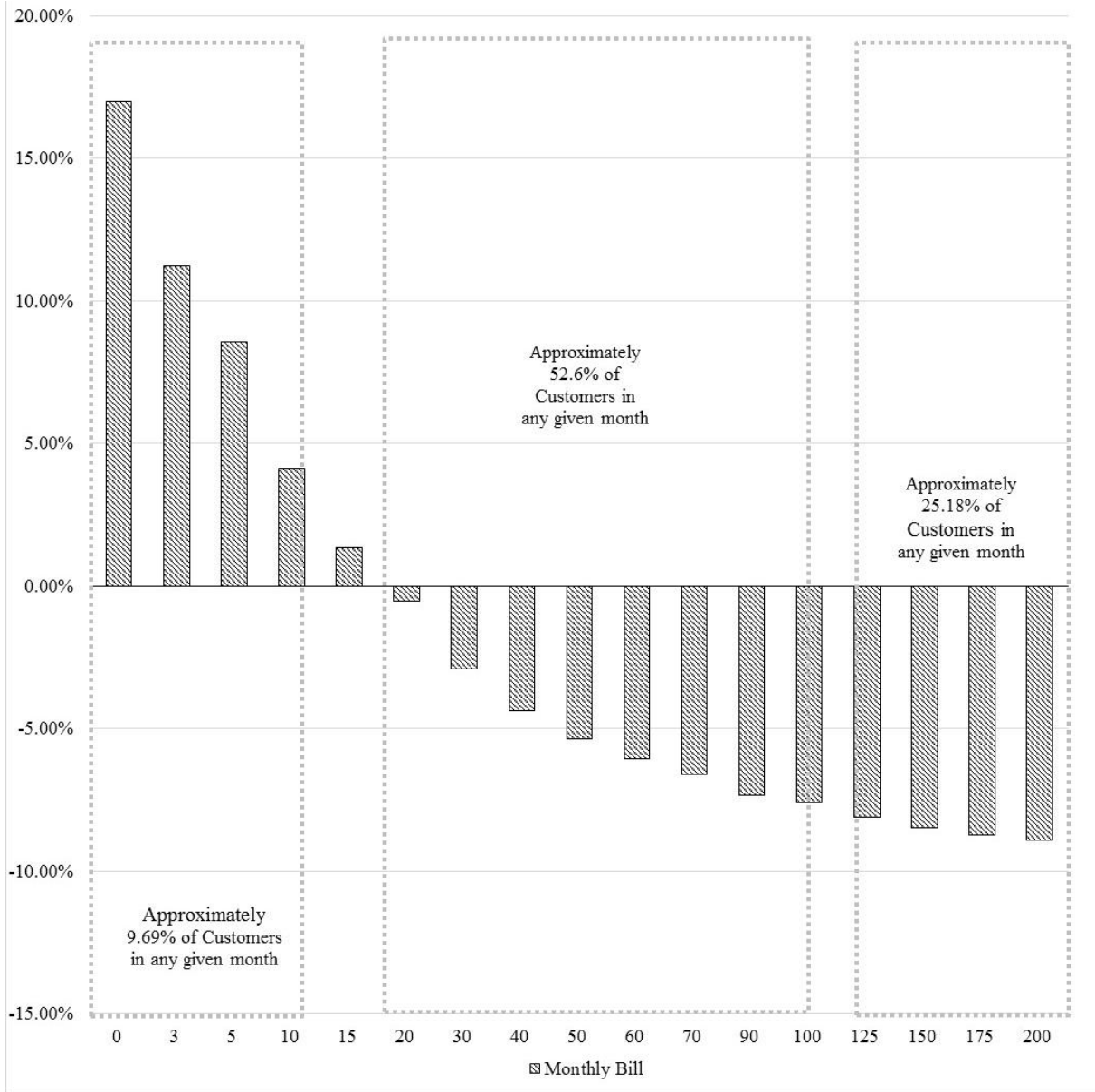
10 **Q. How will natural gas residential customers be impacted by Staff’s proposed rate**
11 **design?**

12 A. Figure 4 below summarizes the impact of Staff’s natural gas rate design proposal on
13 customers based on their usage.

14

1

Figure 4 – Bill Impact of Staff Natural Gas Rate Design Based on Monthly Usage



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The lowest usage customers, specifically those that use between 0 and 5 therms, would have the largest bill impacts. Again, these low-usage customers can actually be several different groups of ratepayers such as seasonal vacation homeowners, customers with significant alternative energy sources, or customers experiencing metering issues. In each case, even when a customer uses zero therms, the customer

1 received a service by virtue of having access to any level of natural gas at any time.
2 These customers also represent an relatively small portion of PSE’s customer base,
3 5.7 percent. importantly, the bill impact in the above figures is on a percentage basis;
4 on a dollar basis, customers with usage 0 to 5 therms only a month face an average
5 \$1.55 bill increase.

6

7 **Q. Did you also analyze the impact of Staff’s proposal on low-income customers?**

8 A. Yes. The Commission has previously expressed concern about the impact of changes
9 in residential rate design on low-income customers:

10 . . . the evidence does not dispel the concerns raised by the Energy
11 Project that the rate design proposals by the Company and Staff will
12 disproportionately impact the customers least able to afford high basic
13 charges and high third-block usage rates. We expect the Company and
14 others to continue developing data and undertaking analyses of low-
15 income customer usage patterns⁴⁵

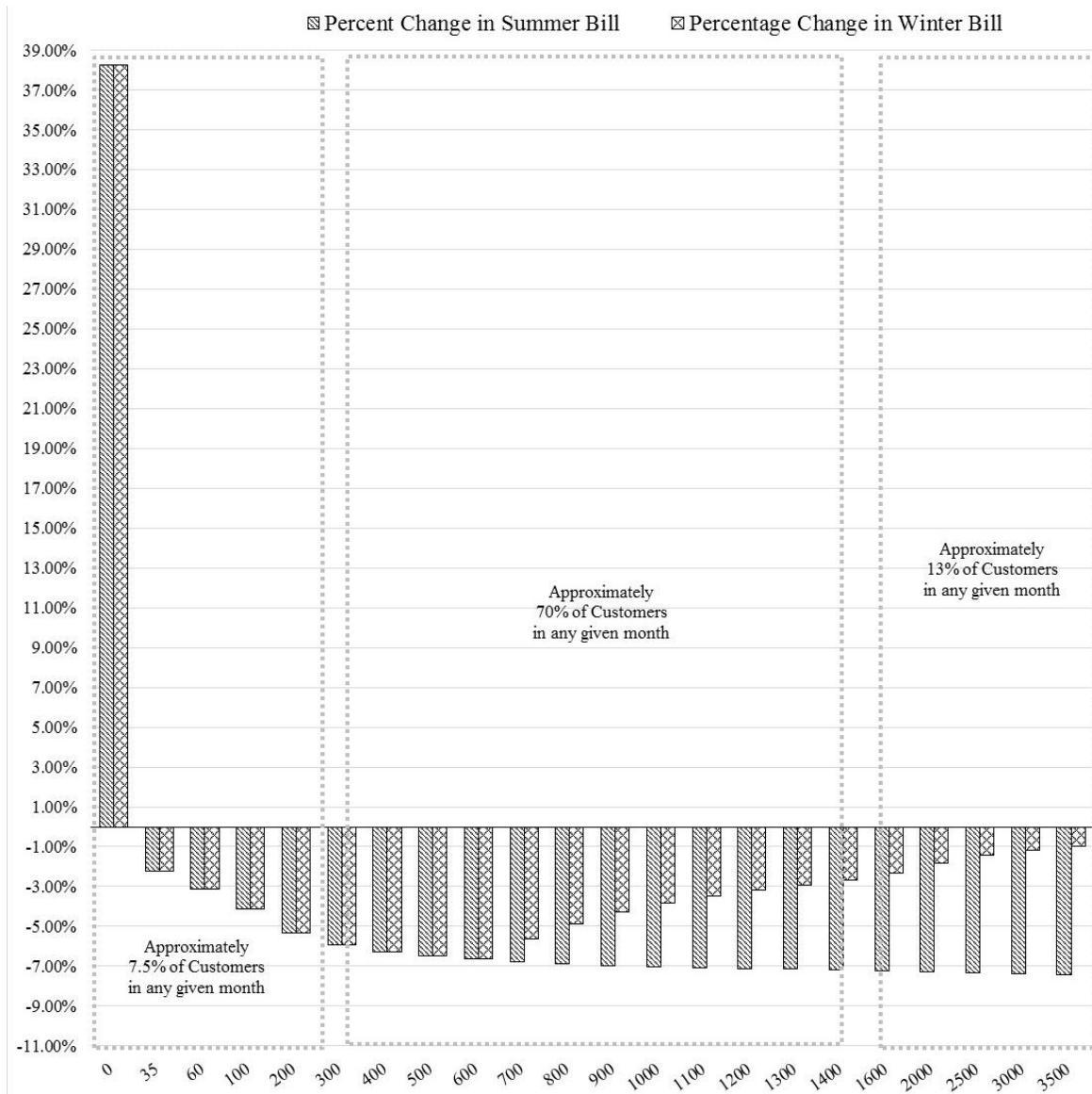
16 Staff also analyzed the potential impact of this rate structure on customers
17 participating in the federal LIHEAP or PSE HELP program.

18

⁴⁵ *Wash. Utils. & Transp. Comm’n v. Pacific Power & Light*, Docket UE-140762, Order 08, at ¶ 219 (Mar. 25, 2015)..

1
2

Figure 5 – Bill Impact of Staff Electric Rate Design on Low Income Customers



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6

Similar to Figure 3 above, low income customers with usage at or near zero kilowatt-hours per month face the largest impact.

1 **Q. Did you include low-income customers who do not participate in the low-income**
2 **programs?**

3 A. Yes. Staff issued several data requests to the Company, Public Counsel, and the
4 Energy Project for data regarding low-income customers and their usage regardless
5 of their participation in an electric subsidy program.⁴⁶ Unfortunately, these parties
6 were able to provide very little information specific to PSE's service territory.

7 Given the lack of analysis, Staff cross-referenced billing information with
8 median income in a billing zip-code. If the zip-code had a median income less than
9 300% of the federal poverty line, all customers in that zip code were used in the
10 analysis. Customers who participate in the PSE low-income programs were also
11 included, regardless of zip-code.

12

13 **F. ALTERNATIVE PROPOSAL**

14

15 **Q. Have you calculated an alternative proposal for the electric residential rate**
16 **structure?**

17 A. Yes. As an alternative, I have created a third block calculation that also balances the
18 goals of residential rate design. Included as Exhibit JLB-2 is a rate design structure
19 that does not incorporate seasonal rates. The detailed calculations and bill impacts of
20 this rate structure is included in a technical appendix, Exhibit JLB-6. Using the three
21 block levels identified in the Rate Design Settlement, I calculated the follow rates:

22

⁴⁶ PSE Response to Staff Data Request No. 464 through 467; Public Counsel Response to Staff Data Request No. 1 through 4; Energy Project Response to Staff Data Request No. 1 through 4.

1

Table 7 – Staff Alternative Residential Third Block

Rate Component	Basic Charge without Transformers	Basic Charge with Transformers
Basic Charge	\$10.88	\$7.80
1 st Block - First 800 kWh	\$.082148 / kWh	\$.085841 / kWh
2 st Block – Next 1000 kWh	\$.105271 / kWh	\$.108453 / kWh
3 rd Block – Above 1800 kWh	\$.127174 / kWh	\$.130216 / kWh

2

3 **Q. Can a third block incorporate all of the goals of residential rate design?**

4 A. Yes. But, it is difficult to balance all of the residential rate design goals with a three-
5 block structure because of the amount of inherent volatility the third block would
6 cause. For instance, a third block that is based on a true marginal cost calculation
7 may follow the benefits of cost causation, but could reduce the incentive for
8 conservation. This counter-intuitive results is shown in the third block calculation
9 presented by PSE.⁴⁷ It is also important to note that *when* a customer decides to
10 consume electricity is just as important as *how much* electricity is consumed, which
11 Staff address through its two-block seasonal rate structure.

12

13 **Q. Did the Company propose a third-block charge?**

14 A. Yes. However, while based on expected marginal costs, the Company’s third block
15 calculation meets only one of the five principles of rate design: to reflect long-term
16 portfolio supply costs. The Company’s block calculation would actually reverse the
17 conservation incentive, create more revenue volatility, and induce rate shock. The
18 calculation also fails to reflect the cost of usage during peak times. This is perhaps

⁴⁷ Piliaris, Exh. JAP-1T at 57:8-13, 63:14-19.

1 **Q. What is your recommendation regarding Schedule 40?**

2 A. I recommend Schedule 40 be eliminated through a sun-setting process. First,
3 Schedule 40 should be closed to new customers. Second, in the year following the
4 implementation of rates from this rate case, Schedule 40 customers should be
5 transitioned to other appropriate schedules. Alternatively, customers served under
6 Schedule 40 could negotiate special service contracts with PSE if it would be
7 appropriate to recognize a unique situation. Third, the Company should, through a
8 compliance filing, eliminate Schedule 40 once all the current customers have been
9 transitioned to other schedules.

10

11 **Q. Why are you recommending Schedule 40 be eliminated?**

12 A. Schedule 40 serves only 14 customers, and involves a convoluted calculation of the
13 individual distribution assets for which each customer is responsible.⁴⁸ Since the
14 tariff must specify the calculation of these rates, there are two pages and 25 different
15 subparts just for the distribution rate. This calculation is fundamentally opposed to
16 the purpose of tariffs: to group similar customers together and calculate aggregate
17 rates.

18 Further, combining a tariff from several others results in a nonsensical rate
19 structure where components are unrelated. For example, a discounted energy charge
20 from Schedule 49 does not have any relation to the demand charge from Schedule 26
21 – yet a Schedule 40 customers bill includes both of these rates.

⁴⁸ Piliaris, Exh. JAP-18.

1 There are additional engineering challenges in calculating these rates as well.
2 Attached as Exhibit JLB-7 is the Company's response to Staff Data Requests 103
3 and 104, which explain the complexities faced by PSE's engineering groups in
4 calculating the Schedule 40 distribution rates.

5
6 **Q. Is Schedule 40 further complicated by PSE's proposed changes to Schedule 40?**

7 A. Yes. The Company has proposed to

8 . . . grandfather locations already served under Schedule 40 from
9 losing their eligibility in future GRC's when these locations would
10 have otherwise qualified for service under Schedule 40 but for the
11 fact that electric service at this location was subsequently provided
12 from a different substation.⁴⁹

13 This illustrates the problem of using a tariff to accomplish what would otherwise be
14 a special service contract. Functionally, the Company is proposing to engage in a
15 but-for analysis for each Schedule 40 customer before each general rate case to
16 determine if they remain qualified for this service. Eligibility for a tariff should be
17 dependent on a customer's service characteristics and not based on overall changes
18 to the distribution system.

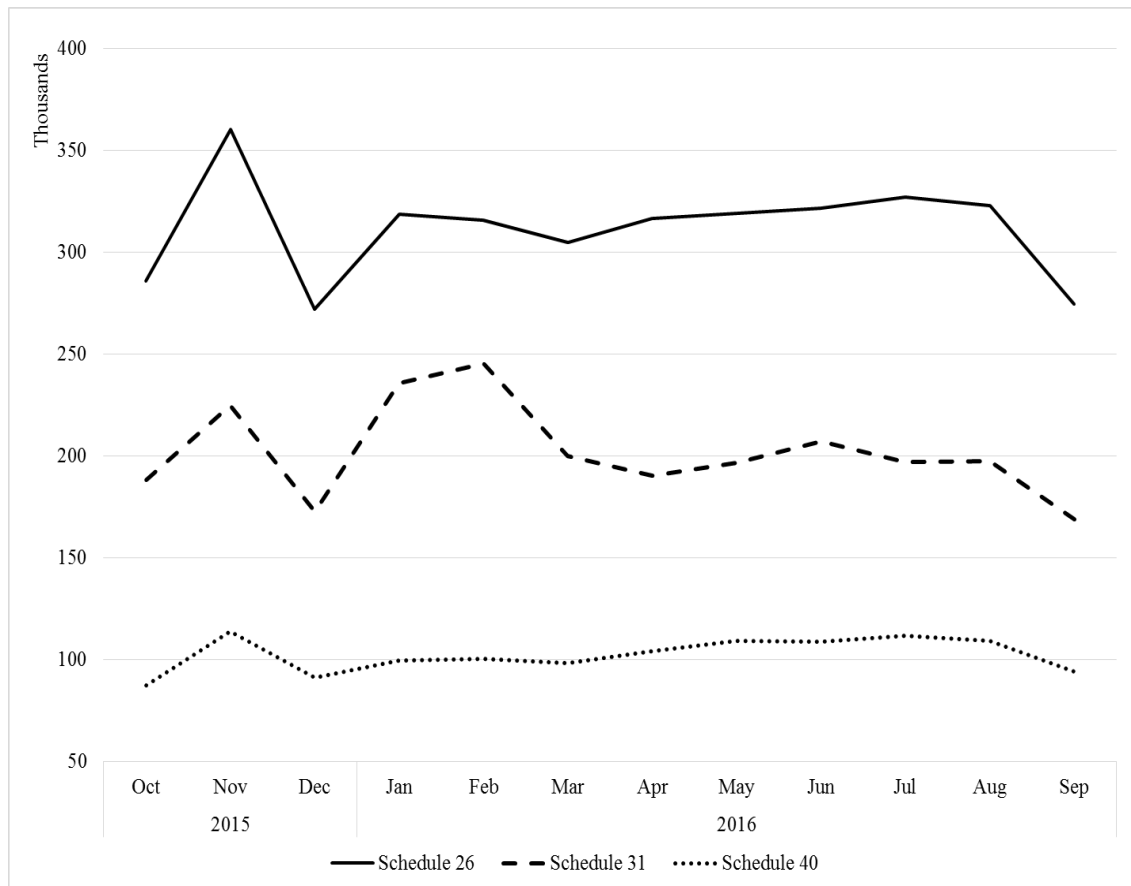
19
20 **Q. Are Schedule 40's demand characteristics similar to other PSE Schedules?**

21 A. Yes. Schedule 40 customers could receive the same service through PSE Schedules
22 26 and 31. Schedule 40 customers demand profile is strikingly similar to customers
23 served under these other schedules. The chart below compares each of these
24 schedules' load profiles:

⁴⁹ Piliaris, Exh. JAP-1T at 70:8-11.

1

Figure 6 – Comparison of NCP Load Between Schedules 26, 31, and 40



2

3 **Q. Are Schedule 40's rates similar to other PSE Schedules?**

4 A. Yes. The rates of Schedule 40, except for the delivery charge, are explicitly tied to
5 other schedules, as summarized in the table below.

6

1

Table 8 – Schedule 40 Rate Schedule Breakdown

Rate Component	Referenced Tariff	Current Rate
Basic Charge Secondary Voltage Demand <=350 kW	Schedule 25	\$51.67
Basic Charge Secondary Voltage Demand >350 kW	Schedule 26	\$104.46
Basic Charge Primary Voltage	Schedule 31	\$339.51
Energy Charge Secondary Voltage	Schedule 49	\$.056638 / kWh
Energy Charge Primary Voltage	Schedule 49	\$.055191 / kWh
Demand Charge Secondary Voltage	Schedule 49	\$4.20 / kW
Demand Charge Primary Voltage	Schedule 49	\$4.11 / kW
Reactive Power Charge Secondary Voltage	Schedule 26	\$.00127 / kvarh
Reactive Power Charge Primary Voltage	Schedule 31	\$.00108 / kvarh
Distribution Charge	Unique to Each Customer	

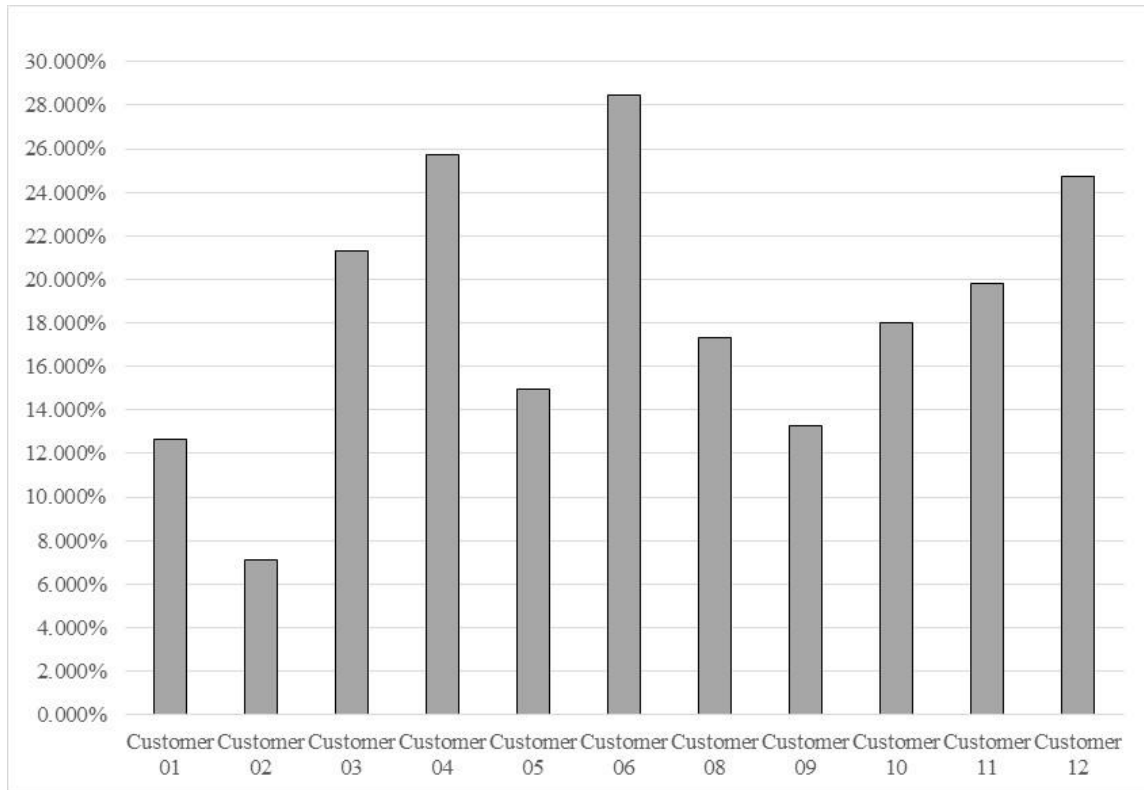
2

3 **Q. Have you analyzed the impact of transitioning Schedule 40 customers to other**
4 **tariffs?**

5 A. Yes. Figure 5 below shows the estimated impact on each Schedule 40 Customer on
6 an annual basis based on their billed usage during the test year.

1

Figure 7 – Percent Change in Schedule 40 Annual Bill After Migration



2

3 **Q. How does Staff propose to mitigate the annual bill impact on these customers?**

4 A. As discussed above, Staff proposes a reasonable transition period of one year. This
 5 allows the effects of the Microsoft special contract transition to be known as well as
 6 for the remaining customers to plan for a rate change. If warranted, the time frame
 7 also allows those customers who wish to negotiate a special service contract
 8 separately with PSE to do so.

9

10 **Q. What is the impact of sun-setting Schedule 40 on an extended timeframe?**

11 A. Included in Exhibit JLB-2 is an analysis showing the difference in rates if Schedule
 12 40 were removed at those customers transitioned into other tariffs at the end of this
 13 proceeding. There is no impact that exceeds 0.5%. Given the size of some of the bill

1 impacts, it is reasonable to proceed with the sun-setting process over the course of
2 the next year as opposed to an immediate transition.

3
4 **VII. ELECTRIC NET-METERING CUSTOMERS**

5
6 **Q. How is Staff proposing to treat electric net-metering customers in the present
7 case?**

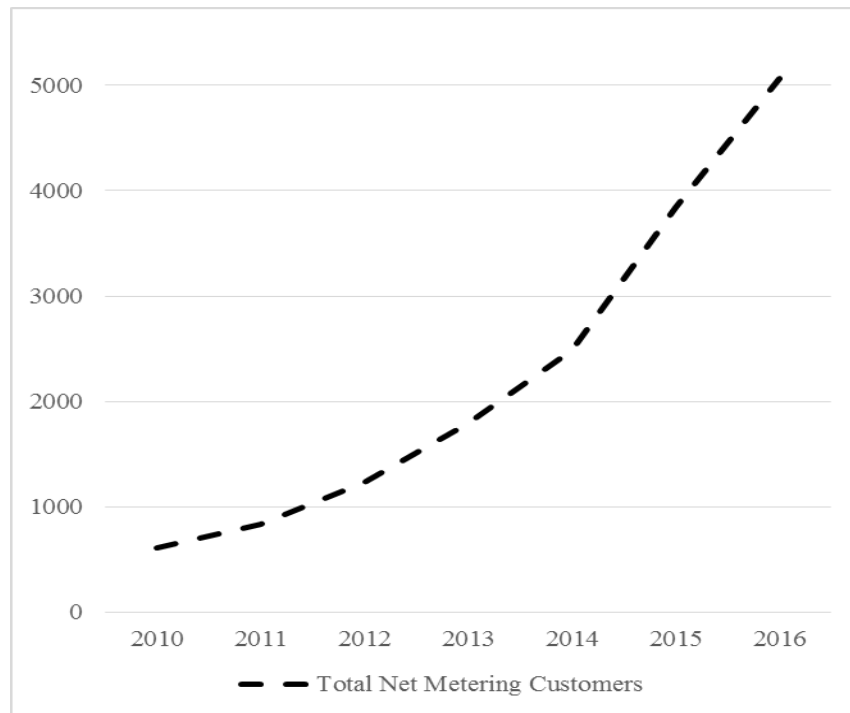
8 A. Net metering customers should be prioritized for advanced metering infrastructure
9 (“AMI”) installations, if possible, before the next general rate case. If the Company
10 is unable to deploy AMI to these customers before the next rate case, then PSE
11 should perform a demand study for these customers. Based on the results of the study
12 or infrastructure upgrades, I recommend that PSE propose a separate tariff schedule
13 for net-metering customers in its next general rate case.

14
15 **Q. What is the rationale for your proposal?**

16 A. The number of electric net-metering customers is growing at a considerable rate.
17 Even though they are currently a small part of total load, the rate of growth is
18 significant. This can be seen in figure 8 below:

1
2

Figure 8 – Growth in Net Metering Customers over Last 5 Years



3
4
5
6
7
8
9
10
11
12

Net-metering customers provide a unique set of benefits and burdens to the electric system. By installing generation resources on their property, future capital investments can be avoided. However, there may be costs and benefits associated with integrating these resources that are not fully recognized. To better understand this group of customers, their effect on PSE’s system, and the appropriateness of including them in other customer classes, it is important to have as much detailed information as possible. AMI will provide a level of demand data sufficient to prepare a more detailed cost study in the future.

1 **VIII. OTHER SCHEDULES**

2

3 **A. ELECTRIC LIGHTING SCHEDULES**

4

5 **Q. What is the Company’s proposal regarding electric lighting schedules?**

6 A. PSE proposes three general changes to electric lighting Schedules 50 – 59:

- 7 1) Consolidate the range of wattage offerings for the Light Emitting Diode
- 8 (“LED”) rates into contiguous groups;
- 9 2) Update rates using current cost study information; and
- 10 3) Remove the “Wattage Including Driver” rate component.⁵⁰

11

12 **Q. Do you agree with the Company’s proposed revisions to the existing lighting**

13 **schedules?**

14 A. Yes. Mr. Piliaris presented a principled cost study that fairly allocates costs across

15 the various lighting schedules. The proposed revisions also simplify the rates for

16 both customers and PSE. The revisions may have the additional benefit of reducing

17 regulatory burden by eliminating the need for PSE to modify its tariff to offer

18 different LED wattage levels. The Commission should approve the Company’s

19 proposed revisions to the existing electric lighting schedules.

20

⁵⁰ Piliaris, Exh. (JAP-1T) at 78:6-9.

1 **B. ELECTRIC HIGH VOLTAGE CUSTOMERS**

2

3 **Q. Please describe Staff’s proposed rate design changes for large industrial and**
4 **commercial electric customers.**

5 A. Staff is proposing an increase of 48% to the demand charges for Schedules 46 and
6 49. This increase assigns the full level of demand related costs identified by the COS
7 Study to the demand charge. Further, this increase provides a stronger guarantee of
8 fixed cost recovery for the Company. Higher demand charges allow these schedules
9 to be exempted from the decoupling mechanism by removing fixed costs from the
10 volumetric per kWh charge. This is explained more fully by Staff witness Jing Liu.

11

12 **C. NATURAL GAS LARGE VOLUME, INTERRUPTIBLE, AND**
13 **TRANSPORTATION CUSTOMERS**

14

15 **Q. What is the Company’s proposal regarding non-residential large volume,**
16 **interruptible, and transportation customers?**

17 A. PSE is proposing to calculate different demand charges for each of these schedules.⁵¹
18 Currently Schedules 41, 41T, 85, 85T, 86, 86T, 87, and 87T have the same demand
19 charge of \$1.15.

20

⁵¹ Piliaris, Exh. JAP-1T at 95:1.

1 **Q. Are PSE's proposed demand charges equal to demand related costs in the**
2 **natural gas cost of service study?**

3 A. No. To mitigate some of the bill impact from these new demand charges, PSE is
4 proposing to move the demand charges 25 percent closer to recovering demand
5 related costs.⁵²

6

7 **Q. Do you agree with PSE's proposed demand charges?**

8 A. Yes. It makes little sense to differentiate customers by schedule but then use the
9 same demand charge for all customers. Not only does this actively create interclass-
10 subsidization, it also runs counter to the principle of cost causation. Further, PSE's
11 concern about gradualism is well reasoned.

12

13 **Q. Do the basic charges need to be increased for these customers to recover the full**
14 **level of customer related costs?**

15 A. No. Each of these schedules already has a minimum bill component that is higher
16 than basic customer related costs. Because customers subject to a minimum bill
17 provision must pay a certain amount every month, regardless of actual usage, every
18 customer will contribute at least their fair share of customer related costs. There is no
19 need to adjust the basic charge for these customers beyond what the Company has
20 proposed.

21

⁵² *Id.* at 95:15.

1 **Q. Have you calculate new demand rates using Staff's proposed natural gas**
2 **revenue requirement and rate spread?**

3 A. Yes. Table 10 below provides updated demand charges for these customers based on
4 Staff's direct case.

5 Table 9 – Natural Gas Non-Residential Demand Charges

Schedule	Demand Charge (Cost of Service)	Demand Charge (Proposed)
Large Volume - 41/41T	\$1.79	\$1.31
Interruptible – 85/85T	\$1.90	\$1.34
Limited Interruptible – 86/86T	\$2.88	\$1.58
Non-Exclusive Interruptible – 87/87T	\$3.24	\$1.67

6

7 **Q. Does this conclude your direct testimony?**

8 A. Yes.

9