

**EXH. BDJ-1T  
DOCKETS UE-240004/UG-240005  
2024 PSE GENERAL RATE CASE  
WITNESS: BIRUD D. JHAVERI**

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**Docket UE-240004  
Docket UG-240005**

**PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF**

**BIRUD D. JHAVERI**

**ON BEHALF OF PUGET SOUND ENERGY**

**FEBRUARY 15, 2024**

**PUGET SOUND ENERGY**

**PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF  
BIRUD D. JHAVERI**

**CONTENTS**

I. INTRODUCTION .....1

II. PSE’S TIME VARYING RATE PILOT .....2

III. PSE’S ENERGY BURDEN ANALYSIS.....15

    A. Executive Summary .....15

    B. Introduction .....17

    C. Methodology .....19

    D. Results .....24

    E. Applications.....31

IV. PSE’S EQUITY CONSIDERATIONS FOR RESIDENTIAL RATES .....33

V. CONCLUSION.....41

**PUGET SOUND ENERGY**

**PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF  
BIRUD D. JHAVERI**

**LIST OF EXHIBITS**

Exh. BDJ-2	Professional Qualifications of Birud D. Jhaveri
Exh. BDJ-3	PSE’s 2022 Energy Burden Analysis

1 **PUGET SOUND ENERGY**

2 **PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF**  
3 **BIRUD D. JHAVERI**

4 **I. INTRODUCTION**

5 **Q. Please state your name, business address, and position with Puget Sound**  
6 **Energy.**

7 A. My name is Birud D. Jhaveri, and my business address is 355 110th Avenue NE,  
8 Bellevue, Washington 98004. I serve as the Director of Regulatory Affairs for  
9 Puget Sound Energy (“PSE” or the “Company”).

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

12 A. Yes, I have. It is Exh. BDJ-2.

13 **Q. What are your duties as Director of Regulatory Affairs for PSE?**

14 A. I am responsible for cost of service, tariffs, and overall regulatory affairs at PSE.

15 **Q. What topics are you covering in your testimony?**

16 A. In my testimony, I address PSE’s time varying rate (“TVR”) pilot and PSE’s  
17 proposal for offering TVR to its electric residential customers. I provide an  
18 update on PSE’s Energy Burden Study, including an evaluation of moderate-  
19 income customers’ energy burden, and related issues. I also discuss equity  
20 considerations related to PSE’s rates.

1 **Q. How are you considering equity in your testimony?**

2 A. Incorporating energy equity is key to PSE successfully serving all customers,  
3 particularly keeping energy bills affordable for customers who are low-income  
4 and energy-burdened during this clean energy transformation. To achieve this,  
5 PSE is applying the four energy justice tenets—through (i) regulatory policies,  
6 orders, and tariffs (restorative justice), (ii) identification of priority populations,  
7 such as energy-burdened and low-income customers (recognition justice), (iii)  
8 engagement with advisory groups and the community seeking feedback  
9 (procedural justice), and (iv) improving program designs, customer journeys, and  
10 participation to reduce customers’ energy bills and provide other benefits and  
11 services (distributional justice).

12 For more information on PSE’s strategy and approach on incorporating energy  
13 equity across the Company and the four energy justice tenets, please refer to the  
14 Prefiled Direct Testimony of Troy A. Hutson, Exh. TAH-1T. Additionally, for  
15 more information about PSE’s energy assistance programs, please refer to the  
16 Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T.

17 **II. PSE’S TIME VARYING RATE PILOT**

18 **Q. Please summarize this section of your testimony.**

19 A. In this section, I describe PSE’s implementation of its TVR pilot program. Final  
20 Order 24/10 in the 2022 general rate case required PSE to establish a TVR pilot  
21 program, including new optional time of use (“TOU”) rate schedules. PSE began

1 with residential service under the pilot on October 1, 2023, and began general  
2 service beginning January 1, 2024.<sup>1</sup> The TVR pilot, and TOU rates in general, are  
3 designed to lower peak demand and lower system costs by providing pricing  
4 signals via base energy rates that encourage customers to reduce usage during  
5 periods of peak demand. The TVR-related tariffs are as follows:

- 6 • Schedule 307 – This schedule provides for a residential electric service that  
7 offers predictable time-of-use rates, applying set pricing tiers for electric  
8 service depending on when a customer is using it throughout the day. The  
9 time-of-use rates under this schedule are broken into peak and off-peak times.
- 10  
11 • Schedule 317 – This schedule provides for a residential electric service that  
12 offers both predictable time-of-use rates and the opportunity for customers  
13 taking service under this schedule to receive a rebate for reducing energy use  
14 during PSE-called events, relative to each customer’s baseline energy use, as  
15 determined by PSE.
- 16  
17 • Schedule 327 – This schedule provides for a residential electric service that  
18 offers predictable whole-home time-of-use rates for electric vehicle charging,  
19 applying set pricing tiers for electric service depending on when a customer is  
20 using it throughout the day. The time-of-use rates under this schedule are  
21 broken into peak, off-peak, and super off-peak times.
- 22  
23 • Schedule 324 – This schedule provides for non-residential general service  
24 electric service that offers both predictable time-of-use rates and the  
25 opportunity for customers taking service under this schedule to receive a  
26 rebate for reducing energy use during PSE-called events, relative to each  
27 customer’s baseline energy use, as determined by PSE.
- 28

29 **Q. Has PSE been able to implement the TVR pilot in alignment with the**  
30 **originally proposed schedule?**

31 A. Yes, recruitment of residential customers began in August 2023 with customers  
32 beginning service on the TOU rate schedules in October. General service

---

<sup>1</sup> *WUTC v. PSE*, Dockets UE-220066, UG-220067 & UG-210918, Order 24/10 at ¶¶ 291-97.

1 customer recruitment began in December 2023, with service starting January  
2 2024. With both classes recruiting and onboarding customers, PSE is confident it  
3 will be able to meet its goal of collecting data from the majority of two heating  
4 seasons for the pilot evaluation, measurement, and verification (“EM&V”). This  
5 should allow for the final EM&V report to be released on schedule in early 2026.

6 **Q. Has the pilot been implemented substantially the same as presented in PSE’s**  
7 **original proposal?**

8 A. Yes. PSE has been able to implement and deploy the TVR pilot substantially the  
9 same as proposed; however, there have been a few modifications mostly resulting  
10 from the settlement agreement in the 2022 General Rate Case,<sup>2</sup> as follows:

- 11 • Provide enabling technology to half of the low-income program participants at  
12 no cost to the low-income participants, funded through Schedule 120, and  
13 examine the results in the EM&V plan.
- 14
- 15 • Provide bill protection to half of the low-income program participants and  
16 examine the results in the EM&V plan.
- 17

18 **Q. Have the settlement modifications impacted the goals of the TVR pilot?**

19 A. The pilot’s overall goals remain unchanged: to conduct an empirically sound  
20 study of how time-varying rates might achieve the following objectives:

- 21 • lower system costs by influencing customer usage patterns;
- 22
- 23 • increase customer choice by offering more rate options;
- 24
- 25 • enhance equity and accessibility by providing customers the means to control  
26 their energy costs through alternative rate designs; and

---

<sup>2</sup> See *id.* at App. A (the “Settlement”).

- expand renewable generation integration by providing demand-side pricing tools.

The respective settlement modifications further encourage data collection on bill protection and enabling technology for half of the low-income population in the treatment groups to be reported in the EM&V process.

**Q. What customer treatment groups were ultimately established for the TVR pilot?**

A. The pilot aims to test six treatments and enroll a minimum target of 7,500 customers, with a maximum cap of 15,000. The treatments are listed in Table 1 below. The settlement resulted in modifications that necessitated the addition of “low-income sub-treatments” for TVR pilot customers. Given that the TVR pilot was designed in parallel with, but independent from the bill discount rate (“BDR”), the TVR pilot was designed to populate the low-income treatment groups with BDR customers.

**Table 1. TVR Pilot Treatments**

Treatments
Residential Service Time-of-Use
Residential Service Time-of-Use (Low Income) <ul style="list-style-type: none"> <li>• Enabling Technology (Smart Meter)</li> <li>• Bill Protection</li> </ul>
Residential Service Time-of-Use with Peak Time Rebate
Residential Service Time-of-Use with Peak Time Rebate (Low Income) <ul style="list-style-type: none"> <li>• Enabling Technology (Smart Meter)</li> <li>• Bill Protection</li> </ul>
General Service Time-of-Use with Peak Time Rebate
Residential Service Time-of-Use with Super Off-Peak

1 **Q. How many customers did PSE solicit to participate during pilot recruitment?**

2 A. PSE targeted a minimum of three percent opt-in rate, by pre-selecting 175,000  
3 residential electric customers at random. Recruitment involved five waves  
4 targeting 25,000-50,000 customers per wave using personalized estimates of bill  
5 impacts between a default rate and a TOU rate, resulting in an average opt-in rate  
6 of roughly four percent. For the general service recruitment, PSE pre-selected  
7 40,000 small business electric customers, and recruitment was conducted in two  
8 waves of 20,000 customers using personalized estimates of bill impacts.

9 **Q. How was PSE able to present customers with personalized recruitment**  
10 **materials?**

11 A. PSE utilized customers' advanced metering infrastructure interval meter data  
12 from the previous year to model customers' hypothetical bill impacts of  
13 participating in the TVR pilot. Customers were further able to tailor the analysis  
14 to account for behavior changes that could move energy consumption outside of  
15 peak hours and allow them to see what their potential savings could be between  
16 the bill impact comparisons.

17 **Q. How else will customers' advanced metering infrastructure data be used in**  
18 **the TVR pilot?**

19 A. TVR represents PSE's pivot to utilizing advanced metering infrastructure interval  
20 data for customer billing on next generation rate designs. The pilot utilizes hourly  
21 interval data for its EM&V analysis in order to inform TVR pilot efficacy and

1 tailor full scale rates in the future. Please see the Prefiled Direct Testimony of  
2 Roque B. Bamba, Exh. RBB-1T, for more information on PSE’s advanced  
3 metering infrastructure benefit use cases.

4 **Q. Has PSE achieved the minimum pilot treatment targets necessary for**  
5 **statistically valid results in the EM&V?**

6 A. The residential schedules enrollment has reached over 8,500 residential  
7 customers; of this total, over 8,000 were recruited as part of the pilot recruitment  
8 efforts, which surpasses the 5,500 overall residential target. This substantial  
9 residential participation level should allow for a robust EM&V process for the  
10 pilot to achieve statistically valid results. General service recruitment began  
11 December 7, 2023, with service beginning January 1, 2024. Open enrollment will  
12 continue in the coming months, but has reached approximately 1,100 of a  
13 minimum target of 2,000 customers.

14 **Q. How has PSE designed the pilot to incorporate low-income considerations?**

15 A. PSE’s EM&V consultant will estimate TVR pilot impacts for different customer  
16 segments based on known attributes. Income eligible (80 percent AMI or 200  
17 percent federal poverty level) customers will be verified via BDR participation  
18 and customer insights’ energy burden analysis data. EM&V will also evaluate  
19 additional low-income sub-treatments and their impacts on participant behaviors.

1 **Q. What challenges did PSE encounter in order to reach low-income treatment**  
2 **population targets?**

3 A. The TVR pilot was designed to populate the low-income treatments with  
4 designated BDR customers, with the rationale being this would be the  
5 differentiator for PSE to know who was eligible to be studied in the low-income  
6 treatments with the requisite randomized sampling for recruitment. This  
7 dependence however resulted in two complications, the first of which was the  
8 deployment timing for both programs. Because TVR and BDR deployed  
9 simultaneously, the TVR team had to recruit without a pre-existing defined low-  
10 income population. The second complicating factor in reaching the low-income  
11 treatment population targets is the distinct enrollment processes between the two  
12 programs, requiring customers targeted for and enrolled in TVR to then enroll in  
13 BDR.

14 **Q. Is PSE taking measures to increase confidence of EM&V results for low-**  
15 **income treatment groups?**

16 A. In order to compensate for TVR's concurrent launch with BDR, the TVR team  
17 leveraged existing data (customer insights' energy burden analysis data), used in  
18 the creation of BDR, to segment and oversample low-income recruitment  
19 population in order to reduce potential gaps in enrollment. PSE is also continuing  
20 targeted and full TOU population marketing in coordination with BDR and other  
21 teams to encourage participation in BDR and thereby conversion into the  
22 respective treatment groups. Finally, this risk may be further alleviated by the fact

1 that the EM&V can potentially re-treat a customer as low-income in the analysis  
2 if a customer were to later participate in BDR.

3 **Q. What analysis and reporting will be included in the TVR EM&V plan?**

4 A. The EM&V plan will:

- 5 • track and analyze pilot enrollments;
- 6 • evaluate customer motivations, engagement, satisfaction, and behavior  
7 changes;
- 8 • estimate electricity demand, energy, and bill impacts of TVR treatments;  
9 and
- 10 • document pilot design, implementation, and lessons learned.

11 Table 2 shows the primary activities and milestones for the EM&V plan and

12 Figure 1 provides the overall schedule for the TVR pilot and EM&V plan.

13 **Table 2. Primary EM&V Activities and Milestones**

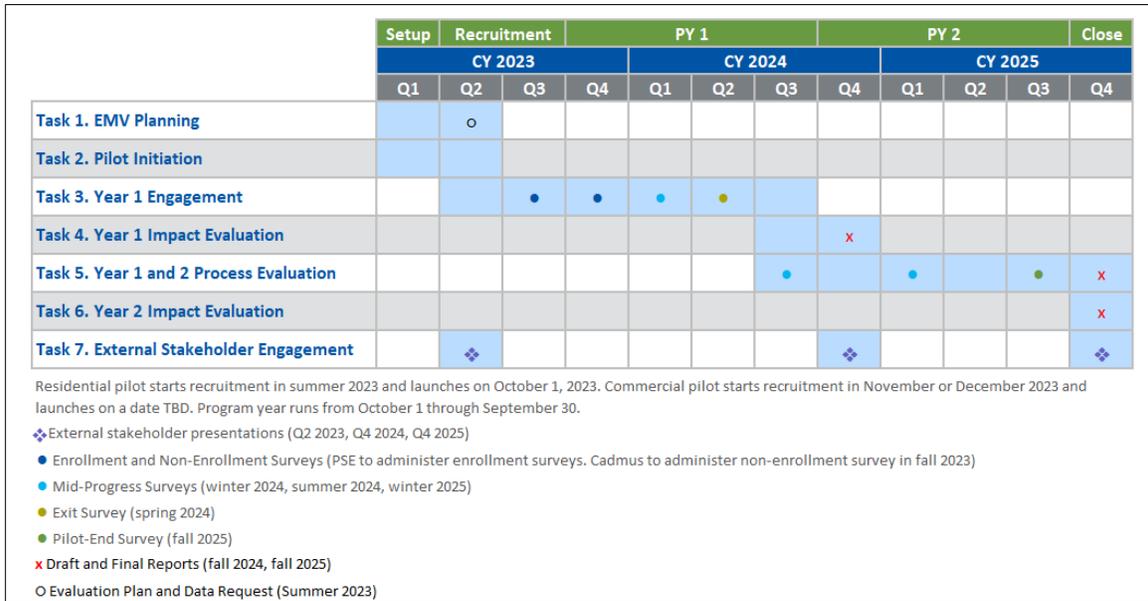
Task #	Task Name	Task Detail	Timing
1	EM&V Planning	• Develop pilot research plan.	Q2-Q3 2023
2	Pilot Initiation	• Customer enrollment, non-enrollment, mid-progress, and exit survey instruments. • Customer feedback questionnaire and protocol for data collection.	Q3-Q4 2023
3	Year 1 Engagement	• Document results of tests and customer feedback received to date.	Q2 2023 to Q3 2024
4	Year 1 Impact Evaluation	• Year 1 Impact report provided. • Identification of opportunities for adjustment to achieve program goals.	Q4 2024 to Q1 2025
5	Process Evaluation	• Program evaluation report documenting program activities, achievements, and customer experience. • Recommendations for future TVR programs.	Q4 2025 to Q1 2026

6	Year 2 Impact Evaluation	<ul style="list-style-type: none"> <li>• Year 2 Program impact evaluation report.</li> <li>• Opportunities /Adjustments to achieve future program goals.</li> <li>• Final evaluation findings.</li> </ul>	Q4 2025 to Q1 2026
---	--------------------------	---	--------------------

1

2

**Figure 1. TVR Pilot EM&V Timeline**



3

4

**Q. What type of qualitative information will be solicited from customers for the EM&V regarding customer journey, understanding, and perception?**

5

6

**A.** Customers will be surveyed throughout the pilot and these findings will be a

7

critical way for PSE to diagnose best practices and areas of the customer

8

experience that need improvement. Table 3 details the survey dimensions to be

9

incorporated in EM&V reports.

1

**Table 3. TVR Pilot Customer Survey Design**

Survey	Question Topics	
Enrollment Survey	<ul style="list-style-type: none"> <li>• How customers heard about the offering</li> <li>• Reasons for enrolling</li> <li>• Feedback on Rate Advisor tool</li> <li>• Awareness of TOU rates</li> <li>• Energy usage behaviors, expectations, and concerns</li> <li>• Residence dwelling type</li> </ul>	<ul style="list-style-type: none"> <li>• Renter or owner</li> <li>• HVAC equipment</li> <li>• Smart thermostat ownership and eligibility to receive smart thermostat</li> <li>• EV ownership and charger type</li> <li>• Concern for climate change</li> </ul>
Non-Enrollment Survey	<ul style="list-style-type: none"> <li>• Awareness of the offering</li> <li>• Reasons for not enrolling</li> <li>• Awareness of TOU rates</li> <li>• Energy usage behaviors</li> <li>• Residence dwelling type</li> <li>• Renter or owner</li> </ul>	<ul style="list-style-type: none"> <li>• HVAC equipment</li> <li>• Smart thermostat ownership and eligibility to receive smart thermostat</li> <li>• EV ownership and charger type</li> <li>• Concern for climate change</li> </ul>
Exit Survey	<ul style="list-style-type: none"> <li>• Confirmation that the customer is electing to be removed from the program</li> <li>• Motivations for enrolling</li> <li>• Reasons for unenrolling from the program</li> <li>• Program expectations and awareness</li> <li>• Self-reported level of participation and effort</li> <li>• Ease/difficulty of participation</li> </ul>	<ul style="list-style-type: none"> <li>• HVAC equipment</li> <li>• Customer-suggested improvements</li> <li>• Likelihood to re-enroll in the future if improvements are made</li> <li>• Program experience’s impact on customer opinion of utility</li> </ul>
Mid-Progress Surveys	<ul style="list-style-type: none"> <li>• Recall and recognition of TOU rates and/or event communications</li> <li>• Usefulness of TOU rate communications including information in monthly bills and/or event communications (timing, channel, and content)</li> <li>• TOU rate and PTR event energy-shifting behaviors</li> </ul>	<ul style="list-style-type: none"> <li>• Reasons for participating in energy-shifting behaviors</li> <li>• Satisfaction with PSE, TOU rates, and PTR rebates</li> <li>• Perceived TOU rate bill impacts</li> </ul>
Pilot-End Survey		

2

**Q. Given that the TVR pilot data evaluation period is anticipated to run through fall 2025, what data might be available to PSE and interested parties in order to facilitate informed discussions on additional rate designs?**

3

4

5

A. PSE intends to share relevant survey findings and TVR pilot impacts by customer segments as it is available over the life of the pilot; however, the primary conduits to share quantitative pilot results will be the EM&V interim and final impact reports. The objective of the year 1 impact evaluation is to demonstrate the

6

7

8

1 participant demand, energy, and billing impacts of the TVR pilot treatments  
2 during the pilot first year. This would include:

- 3 • Demand impacts: the reduction in demand during the TOU rate on peak  
4 period or shift in load from TOU rate on-peak period to off-peak period or  
5 super-off peak period (Sch. 327 only). Also, the demand impacts before,  
6 during, and after peak-time rebate (“PTR”) events.  
7
- 8 • Energy impacts: the change in overall energy consumption from enrollment in  
9 a TOU rate or a TOU rate with PTR.  
10
- 11 • Billing impacts: the impacts of enrollment in a TOU rate or TOU rate with  
12 PTR on the customer’s bill.  
13

14 The year 2 impact evaluation will repeat this analysis and will compare the year 1  
15 to year 2 energy and demand impact results to identify changes in TOU rate and  
16 PTR energy, demand, and bill impacts.

17 **Q. What key issues has PSE identified that must be thoughtfully and more**  
18 **robustly available in future TVR offerings?**

19 A. The following are key issues PSE has identified:

- 20 • The need for intuitive educational materials for customers both during  
21 enrollment and throughout their participation in TVR. To this end, PSE built  
22 customizable analytics for the TOU experience, but recognizes a future need  
23 to better isolate and explain what is changing for customers due to TVR  
24 versus that of class-wide rate structures and changes.  
25
- 26 • As PSE pivots to a more robust clean-energy future, PSE is better appreciating  
27 the multitude of intersecting customer journeys, be it electrification on the part  
28 of the customer or participating in multiple voluntary rates and programs; as it  
29 is not always immediately intuitive how certain combinations are  
30 complimentary and others are fundamentally mutually exclusive.  
31
- 32 • TVR deployment has also highlighted how time-differentiated pricing will  
33 drive the need for more scalable IT solutions, from bill impacts,

1 billed/unbilled process updates, and adjustments to the decoupling calculation  
2 process.

3 **Q. Please provide PSE’s proposal for expanding the residential TVR pilot to a**  
4 **full-scale program.**

5 A. PSE proposes to incorporate the data driven findings from the EM&V reporting  
6 process to inform two full-scale voluntary opt-in residential TVR programs – (1)  
7 two-tier TVR rate structure, and (2) whole-home electric vehicle-focused TVR  
8 rate structure. Completion of the EM&V for the pilot will help identify the most  
9 effective and actionable adjustments to rate designs that are appropriate for  
10 customers’ energy needs. PSE anticipates that the EM&V-informed and adjusted  
11 TVR rate designs will have refined peak to off-peak ratios appropriate for our  
12 winter peaking residential class. PSE seeks to deploy rate structures materially  
13 similar to what is being tested in the TVR pilot, but improved by incorporating  
14 the lessons learned in the pilot and discussed in the EM&V report. A simple,  
15 easily understood and more broadly relevant TOU rate structure with two pricing-  
16 tiers (such as a calibrated Schedule 307) will allow for a non-technology specific  
17 base energy rate offering. Such a rate could potentially pair with other demand  
18 response and enabling technology offerings PSE will continue iterating to help  
19 meet our clean energy goals. To this end, PSE intends to compare the efficacy and  
20 value to customers of a two-tier TOU rate (like Schedule 307) with a TOU+PTR  
21 (like Schedule 314) versus combining a two-tier TOU rate with programs and  
22 offerings not directly tied to base energy, such as “flex” conservation events.  
23 Additionally, given the relevance of rate design to enable transportation

1 electrification, PSE also proposes to offer the whole-home electric vehicle  
2 focused TOU rate with a super off-peak (such as a calibrated Sch. 327) to  
3 residential customers.

4 **Q. When does PSE propose to launch the new TVR rate designs?**

5 A. PSE expects to file the comprehensive proposal inclusive of the final program and  
6 rate designs, tariff sheets and rates for the aforementioned TVR rate structures  
7 concurrently with the Company's submission of the final EM&V report in a  
8 separate filing to the Commission in early 2026.

9 **Q. Would full TVR programs for residential or other customer classes need to  
10 be included in the decoupling calculation?**

11 A. Yes. Any future full scale TVR programs would need to maintain the respective  
12 intra-class benefit of a respective default base energy schedule. This maintains the  
13 prevailing rationale for the application of decoupling in default base energy rates,  
14 given that any future TVR programs will continue to be designed to maintain  
15 intra-class revenue neutrality. Decoupling future TVR rates allows for a more  
16 seamless and equitable application of any customer benefits or costs accrued as  
17 they migrate between default or voluntary base schedules.

18 **Q. Does PSE intend to offer TVR programs for customer classes not included in  
19 the current TVR pilot?**

20 A. PSE is evaluating potential benefits for other customer classes, including  
21 transportation electrification customers. As discussed in the Prefiled Direct

1 Testimony of Aaron A. August, Exh. AAA-1T, PSE will continue to collaborate  
2 with customers and interested parties in order to explore rate demonstrations  
3 relevant to customers' clean energy needs. PSE is currently in early exploration  
4 stage for demonstrating electric vehicle fleet rate design with large fleet  
5 customers, likely to launch in 2025.

6 **III. PSE'S ENERGY BURDEN ANALYSIS**

7 **A. Executive Summary**

8 **Q. Please summarize this section of your testimony.**

9 A. This section of my testimony provides an overview of the 2022 Energy Burden  
10 Analysis ("EBA"). This is an update and extension of the 2020 Energy Burden  
11 Analysis that PSE undertook pursuant to RCW 19.405.120, which was explained  
12 and provided in my 2022 general rate case testimony.<sup>3</sup>

13 The EBA allows PSE to estimate the number of PSE's low-income customers,  
14 their respective energy burdens, and energy assistance need. The EBA has also  
15 served to analyze and better understand some of the shared characteristics of the  
16 higher energy-burdened customers. This allows PSE to design and target products  
17 and energy assistance to better address the needs of its customers that are most in  
18 need of energy assistance.

---

<sup>3</sup> See Docket UG-220066-67, the Tenth Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-11, filed on January 31, 2022.

1 Based on 2022 analysis data,<sup>4</sup> PSE’s EBA shows that 46 percent of PSE’s  
2 residential customers meet the low-income criterion of 80 percent area median  
3 income (“AMI”),<sup>5</sup> and are therefore eligible for multiple low-income energy  
4 assistance programs.<sup>6</sup> Additionally, the EBA shows that 16.2 percent of PSE’s  
5 residential customers are currently estimated to be energy-burdened, meaning that  
6 the proportion of their annual income spent on energy costs (electricity, natural  
7 gas, and other heating fuels such as propane, heating oil, wood, and other) is over  
8 six percent.<sup>7</sup> About 98 percent of these energy-burdened households are estimated  
9 to be low-income. Based on the EBA study data, the percentage of PSE’s 2022  
10 customer base that is estimated to be low-income and energy-burdened is  
11 approximately 15.8 percent. Of that 15.8 percent, 60 percent are PSE’s electric  
12 only customers, 21 percent are PSE’s gas only customers, and 19 percent are  
13 PSE’s combined electric and gas customers.

14 PSE also evaluated energy burden of moderate-income customers, defined as  
15 households with income between 80 percent and 115 percent AMI.<sup>8</sup> PSE’s 2022  
16 EBA includes about 250,000 moderate-income customers (22 percent of total

---

<sup>4</sup> The EBA study population amounts to roughly 80 percent of PSE’s total residential population based on PSE’s 2022 Form 10-K.

<sup>5</sup> RCW 19.405.020(25).

<sup>6</sup> Exh. BDJ-3.

<sup>7</sup> RCW 19.405.020(17); *see also* Washington Department of Commerce, *Guidelines for RCW 19.405.120*, Version 03.09.202, available at <https://www.commerce.wa.gov/wp-content/uploads/2020/03/Guidelines-for-19.405.120.pdf>.

<sup>8</sup> RCW 84.14.010(19).

1 study population), out of which about one percent are energy-burdened, and the  
2 average energy burden of moderate-income customers is well below six percent.<sup>9</sup>

3 PSE’s EBA found that estimated energy-burdened customers use more energy on  
4 average than overall residential customers. Additionally, energy-burdened  
5 customers are more likely to be among already vulnerable customers, based on  
6 named community designations outlined in the Clean Energy Transformation Act  
7 (“CETA”): highly impact community (“HIC”),<sup>10</sup> high vulnerability populations  
8 (“High VP”),<sup>11</sup> and electric deepest need from PSE’s 2021 Clean Energy  
9 Implementation Plan (“CEIP”).<sup>12</sup>

10 Key findings are discussed below, and for more details see PSE’s 2022 Energy  
11 Burden Analysis, Exh. BDJ-3.

12 **B. Introduction**

13 **Q. Why does PSE conduct the EBA?**

14 A. PSE conducts the EBA as part of its effort to comply with RCW 19.405.120:

- 15 • all Washington electric utilities must provide energy assistance funding and  
16 programs to low-income households by July 31, 2021, and “[t]o the extent

---

<sup>9</sup> Exh. BDJ-3.

<sup>10</sup> See RCW 19.405.020(23); see RCW 19.405.140; see PSE 2021 CEIP, at 59-63, [https://irp.cdn-website.com/dc0dca78/files/uploaded/2022\\_0201\\_Chapter3.pdf](https://irp.cdn-website.com/dc0dca78/files/uploaded/2022_0201_Chapter3.pdf).

<sup>11</sup> RCW 19.405.020(40); see also PSE 2021 CEIP, at 51-59 (discussing PSE’s breakdown of CETA’s “vulnerable populations” into three categories (low, medium, and high) based on the frequency that each population category experienced a given metric).

<sup>12</sup> Customers in electric “deepest need” as defined by the methodology that PSE developed with its Equity Advisory Group, Low Income Advisory Committee, and Conservation Resources Advisory Group (“CRAG”) in response to Condition 20 of the Final Order 08 in Docket UE-210795 (“CEIP Order 08”).

1 practicable, priority must be given to low-income households with a higher  
2 energy burden”;<sup>13</sup>

- 3 • all Washington electric utilities are required to assess energy assistance  
4 available to low-income households across the state, the energy burden of  
5 low-income households, and the need for more assistance, and provide their  
6 findings to the Washington State Department of Commerce (“Commerce”);<sup>14</sup>  
7 and
- 8 • Commerce is required to compile and aggregate these data and publish  
9 biennial reports.<sup>15</sup>

10 **Q. Has the Company provided a comprehensive EBA report to better**  
11 **understand the composition of PSE customers and their energy burden?**

12 A. Yes. PSE submitted the 2020 EBA and findings in its 2022 general rate case. In  
13 addition, the Company submits its updated 2022 EBA in this docket as Exh.  
14 BDJ-3.

15 **Q. Has PSE provided energy burden data for Commerce biennial reports per**  
16 **RCW 19.405.120?**

17 A. Yes. PSE used its 2020 EBA to submit PSE’s utility report<sup>16</sup> on low-income  
18 energy assistance that was used in Commerce’s low-income energy assistance  
19 2023 legislative report, which summarized data for 2019 and 2020 and was  
20 published on March 6, 2023.<sup>17</sup>

---

<sup>13</sup> RCW 19.405.120(2).

<sup>14</sup> RCW 19.405.120(4).

<sup>15</sup> RCW 19.405.120(3).

<sup>16</sup> Docket UE-200629, PSE Energy Assistance Report per RCW 19.405.120, available at <https://apiproxy.utc.wa.gov/cases/GetDocument?docID=92&year=2020&docketNumber=200629>.

<sup>17</sup> Washington State Department of Commerce, *Low Income Energy Assistance 2023 Legislative Report*, (March 6, 2023) available at [https://app.leg.wa.gov/ReportsToTheLegislature/Home/GetPDF?fileName=CommerceReports\\_2023\\_Energy\\_Energy%20Assistance%20Report\\_Final\\_5001c308-6921-403b-b140-bd6e15d1a31a.pdf](https://app.leg.wa.gov/ReportsToTheLegislature/Home/GetPDF?fileName=CommerceReports_2023_Energy_Energy%20Assistance%20Report_Final_5001c308-6921-403b-b140-bd6e15d1a31a.pdf).

1 **Q. When will PSE provide its next utility report to Commerce?**

2 A. On December 4, 2023, Commerce made available final reporting template for  
3 utility low-income energy assistance reports. Utility reports will be due to  
4 Commerce by April 1, 2024.<sup>18</sup>

5 **C. Methodology**

6 **Q. How does PSE estimate customer energy burdens?**

7 A. PSE compiled a master dataset of PSE's electric and/or gas residential customers  
8 within PSE service territory and all the relevant data to perform the EBA, such as  
9 usage, billing, estimated non-PSE energy costs, and estimated income. PSE used  
10 income estimates from third-party and public databases, PSE surveys, and PSE  
11 energy assistance applications to identify its low-income customers and to  
12 develop an analysis of its residential customers.

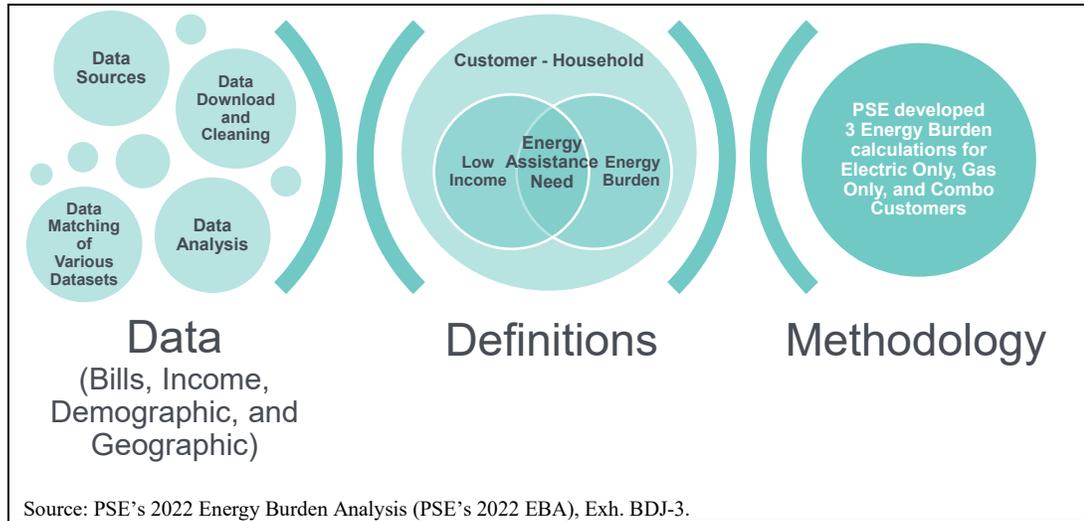
13 Figure 2 below illustrates the overview of the EBA methodology.

---

<sup>18</sup> Washington State Department of Commerce, *CETA Section 120 Energy Assistance*,  
<https://www.commerce.wa.gov/growing-the-economy/energy/ceta/ceta-energy-assistance/>.

1

**Figure 2. PSE 2022 EBA Methodology Overview**



2

Pursuant to RCW 19.405.020, the definition of “low-income” is the higher of either 80 percent AMI or 200 percent federal poverty level, adjusted for household size.<sup>19</sup> In addition to the definition of low-income, RCW 19.405.020 also defines “energy burden,”<sup>20</sup> “energy assistance,”<sup>21</sup> and “energy assistance need.”<sup>22</sup>

3

4

The following is the energy burden formula that PSE used in its EBA:

5

$$\text{energy burden} = \frac{\text{annual home energy expenses}}{\text{annual household income}}$$

6

<sup>19</sup> RCW 19.405.020(25).

<sup>20</sup> The share of annual household income used to pay annual home energy bills. RCW 19.405.020(17).

<sup>21</sup> A program undertaken by a utility to reduce the household energy burden of its customers. RCW 19.405.020(15).

<sup>22</sup> The amount of assistance necessary to achieve a level of household energy burden established by the department or commission. RCW 19.405.020(16).

1 Energy burden is limited to expenses for residential purposes. It includes any fuel  
2 source for energy and excludes non-energy utilities and transportation-related  
3 energy expenses.<sup>23</sup>

4 The following are the three energy burden formula permutations that PSE used in  
5 its EBA for electric only, gas only, and combined electric and gas customers:<sup>24</sup>

- PSE's Combined Electric and Gas customers:  
$$\text{Yearly } \frac{\text{PSE Electricity Bill} + \text{PSE Gas Bill} + \text{Other Heating Fuels Bill}}{\text{Income}}$$
- PSE's Electric Only customers:  
$$\text{Yearly } \frac{\text{PSE Electricity Bill} + \text{Other Gas Bill} + \text{Other Heating Fuels Bill}}{\text{Income}}$$
- PSE's Gas Only customers:  
$$\text{Yearly } \frac{\text{Other Electricity Bill} + \text{PSE Gas Bill} + \text{Other Heating Fuels Bill}}{\text{Income}}$$

6  
7 Commerce's threshold for determining energy assistance need, and for defining  
8 an "energy-burdened" customer, is a customer whose energy burden is greater  
9 than six percent.<sup>25</sup>

10 **Q. What data sources did PSE use in its EBA?**

11 A. PSE used the following in its 2022 EBA:

- *Income data:*
  - o 2022 third-party data vendor;
  - o 2022 PSE surveys;
  - o 2022 PSE energy assistance applications; and

---

<sup>23</sup> Washington Department of Commerce, *Guidelines for RCW 19.405.120*, Version 03.09.2020 available at <https://www.commerce.wa.gov/wp-content/uploads/2020/03/Guidelines-for-19.405.120.pdf>.

<sup>24</sup> Note that current electric transportation-related energy expenses are included in the electric bills data.

<sup>25</sup> Washington Department of Commerce, *Guidelines for RCW 19.405.120*, Version 03.09.2020, at 4, available at <https://www.commerce.wa.gov/wp-content/uploads/2020/03/Guidelines-for-19.405.120.pdf>.

1 o 2018 Department of Energy / National Renewable Energy Lab Low-  
2 Income Energy Affordability Tool data (“DOE/NREL LEAD Tool  
3 Data”).<sup>26</sup>

4 • **Billed amounts:**

5 o 2022 PSE billing data; and  
6 o 2018 DOE/NREL LEAD Tool data - for data estimates PSE did not have,  
7 such as other heating fuels bill estimates, gas bill estimates for PSE’s  
8 electric only customers, and electric bill estimates for PSE’s gas only  
9 customers.

10 • **Geographic Information:**

11 o 2010 U.S. census jurisdictions: census block groups aggregated to tracts;  
12 and  
13 o 2023 PSE premise locations aggregated to block groups.

14 • **Named Community Information:**

15 o 2022 Washington State Department of Health environmental health  
16 disparities map data;  
17 o 2023 PSE vulnerable populations analysis per PSE 2021 CEIP Order 08;  
18 and  
19 o 2023 PSE electric deepest need analysis per PSE 2021 CEIP Order 08.

20 **Q. What are the named community designations?**

21 A. In conjunction with CETA requirements, PSE identified a set of geographies  
22 known as named communities that capture differences in vulnerability along a  
23 variety of spectrums. The two types of geographies that comprise named  
24 communities—highly impacted communities<sup>27</sup> and vulnerable populations<sup>28</sup>—are  
25 defined according to different criteria. Both highlight areas that are more likely to  
26 face barriers to program participation and energy security.

---

<sup>26</sup> Department of Energy, *National Renewable Energy Lab Low-Income Energy Affordability Data Tool*, available at <https://www.energy.gov/eere/slsc/maps/lead-tool>.

<sup>27</sup> See RCW 19.405.020(23); see RCW 19.405.140; see *In re Puget Sound Energy*, Docket UE-210795, PSE 2021 CEIP, Ch. 3 at 59-63.

<sup>28</sup> RCW 19.405.020(40); see *In re PSE*, Docket UE-210795, PSE 2021 CEIP, Ch. 3 at 51-59.

1           **Highly Impacted Communities:** A community designated by the department of  
2 health based on the cumulative impact analysis required by RCW 19.504.140 or a  
3 community located in census tracts that are fully or partially on “Indian country.”

4           **Vulnerable Populations:** Communities that experience a disproportionate  
5 cumulative risk from environmental burdens due to: adverse socioeconomic  
6 factors, including unemployment, high housing and transportation costs relative to  
7 income, access to food and health care, linguistic isolation, and sensitivity factors,  
8 such as low birth weight and higher rates of hospitalization.

9           **High VP:** Census block groups with high level VPs. PSE located higher  
10 concentrations of vulnerable populations for those census block groups with a  
11 four or five for a given metric.

12           **Electric deepest need:** Customers in “deepest need” are electric residential  
13 customers defined by the methodology that PSE developed with its Equity  
14 Advisory Group, Low Income Advisory Committee, and Conservation Resources  
15 Advisory Group in response to Condition 20 of the 2021 CEIP Order 08.<sup>29</sup> PSE  
16 used a threshold of electric severe energy burden<sup>30</sup> for determination of deepest  
17 need threshold because it aligns with the goal of CETA to reduce energy burden.  
18 In addition, PSE used a spatial analysis technique to identify clusters of individual  
19 electric customers with severe energy burden and included in deepest need

---

<sup>29</sup> This joint collaboration and engagement with these advisory groups further demonstrates PSE’s efforts in procedural justice, engaging in conversations and dialogue, seeking feedback to integrate into PSE’s methodology.

<sup>30</sup> Here defined as 10 percent or more of household income allocated to household energy expenses.

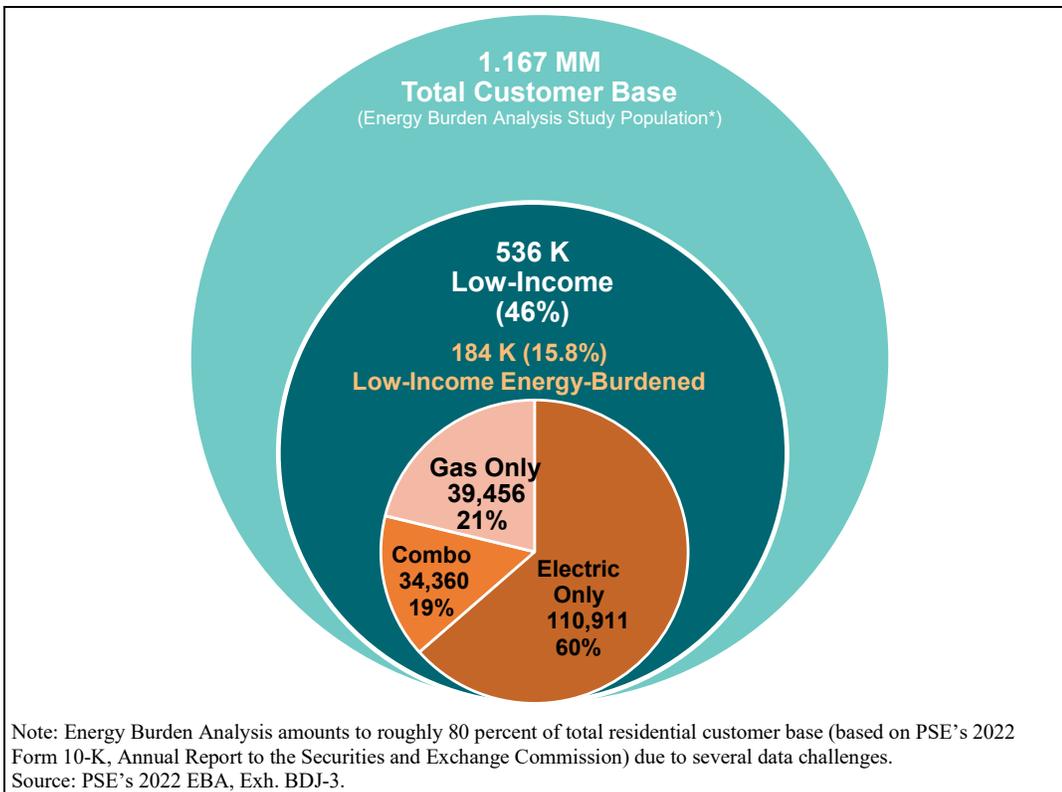
1 electric customers in the top 50<sup>th</sup> percentile of block groups with high counts of  
2 severe energy-burdened electric customers.

3 **D. Results**

4 **Q. What are the key results from the 2022 EBA?**

5 A. Figure 3 illustrates the summary results of PSE’s 2022 Energy Burden Analysis.

6 **Figure 3: Summary of PSE’s 2022 Energy Burden Analysis Results**

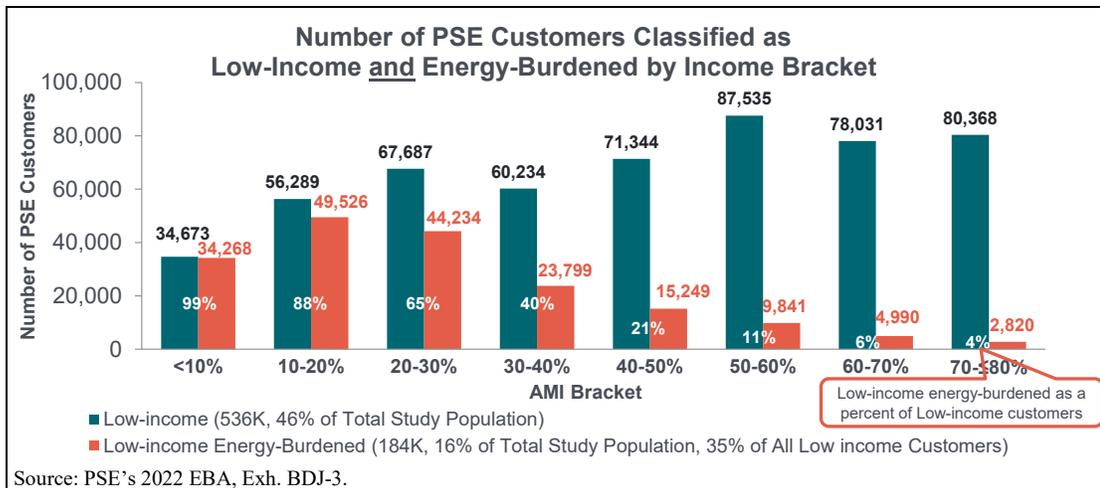


7 The following are key takeaways from the 2022 EBA, keeping in mind that these  
8 are estimates based on PSE’s analysis:

- 9 1. About 536,000 (46 percent) of the population are estimated low-income  
10 customers.
- 11 2. About 184,000 (15.8 percent) are estimated low-income and energy burdened.

- a. Out of all PSE’s estimated energy-burdened customers, 98 percent are classified as estimated low-income.
  - b. Additionally, 88 percent of all energy-burdened customers are estimated to earn below 50 percent AMI.
3. About three quarters (79 percent) of the estimated low-income and energy-burdened customers are electric customers (Electric Only and Electric-Combo), as seen in Figure 3.
  4. As income increases, the proportion of energy-burdened customers decreases.
    - a. To illustrate, 99 percent of customers in the 0-10 percent AMI bracket are estimated to be energy-burdened in the EBA; however, only 4 percent of customers in the 70-80 percent AMI bracket are estimated to be energy-burdened. See Figure 4 below.

**Figure 4. Number of PSE customers estimated as low-income and energy-burdened by income bracket**



5. Estimated low-income and energy-burdened customers use more energy on average than overall residential customers.
6. A geographical view of energy burden across PSE service territory highlights areas with more energy-burdened customers on average. While it is valuable to view energy burden across PSE’s service area, the EBA also highlights that there are energy-burdened customers within each area. Within each census tract, energy burden tends to reflect right-skewed distribution shape. As a result, talking about “average” energy burden within any geography is misleading. Each geography will have many households with energy burden significantly higher than the average.
7. The median energy burden for all customers in 2022 EBA is 2.4 percent, where:

- 1 a. the median energy burden for estimated upper-income<sup>31</sup> customers is 1.5  
2 percent;  
3 b. the median energy burden for estimated moderate-income<sup>32</sup> customers is  
4 2.1 percent; and  
5 c. the median energy burden for estimated low-income customers is 4.4  
6 percent,  
7 i. the median energy burden for customers who are estimated low-  
8 income but not estimated as energy-burdened is 3.3 percent; and  
9 ii. the median energy burden for customers who are classified as low-  
10 income and energy-burdened is 10.2 percent.

11 **Q. How many customers are designated vulnerable when considering all**  
12 **populations of interest?**

13 A. Combining PSE’s EBA, named community analyses performed for CETA, and  
14 electric deepest need analysis performed for CEIP, PSE finds that based on PSE’s  
15 current active residential customers (as can be seen in Figure 5):<sup>33</sup>

- 16 • 46 percent of PSE’s current active residential customers are estimated  
17 low-income;  
18 • 33 percent are designated to be in High VP;  
19 • 25 percent are designated to be in HIC;  
20 • 16 percent are estimated low-income and energy-burdened; and  
21 • 4 percent are designated electric deepest need.

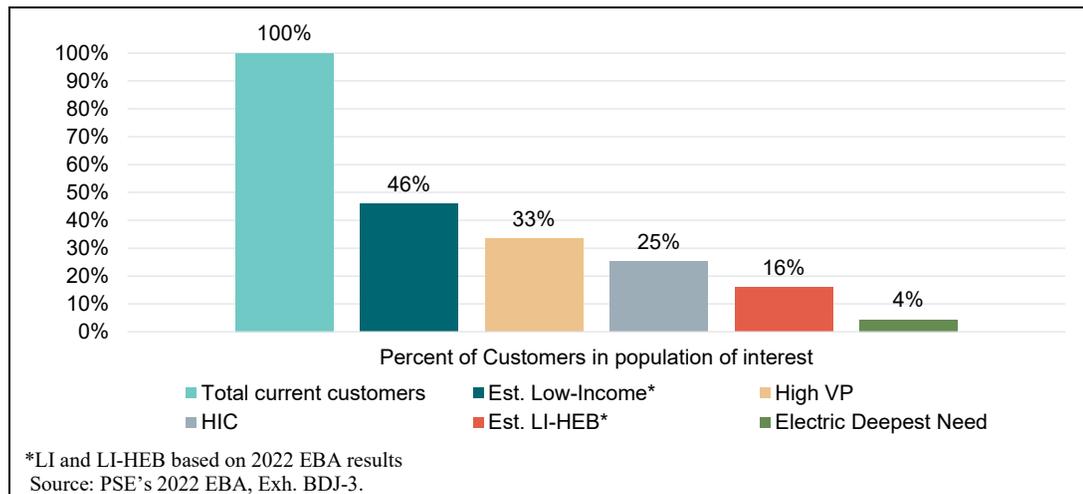
---

<sup>31</sup> Households with estimated income greater than 115 percent AMI.

<sup>32</sup> Households with estimated income between 80 percent and 115 percent AMI, per “affordable housing” rules. RCW 84.14.010(9).

<sup>33</sup> The 2022 EBA study population reflects about 80 percent of total residential customers in PSE’s 2022 Form 10-K, while for this analysis, PSE is able to look at total current active residential customers. As of January 10, 2024, this is about 1.51 million customers. PSE applied findings from the 2022 EBA to estimate the number of low-income (LI) and low-income energy burdened (LI-HEB) customers, using 46 percent and 16 percent, respectively.

1  
2  
**Figure 5. Proportion of PSE’s current customers estimated in various populations of interest**



3 **Q. How are named community designations reflected in the estimated low-**  
4 **income and energy-burdened group?**

5 A. Combining PSE’s EBA and CEIP named community analyses, PSE finds that  
6 among the estimated low-income and energy-burdened customer group (Figure  
7 6):

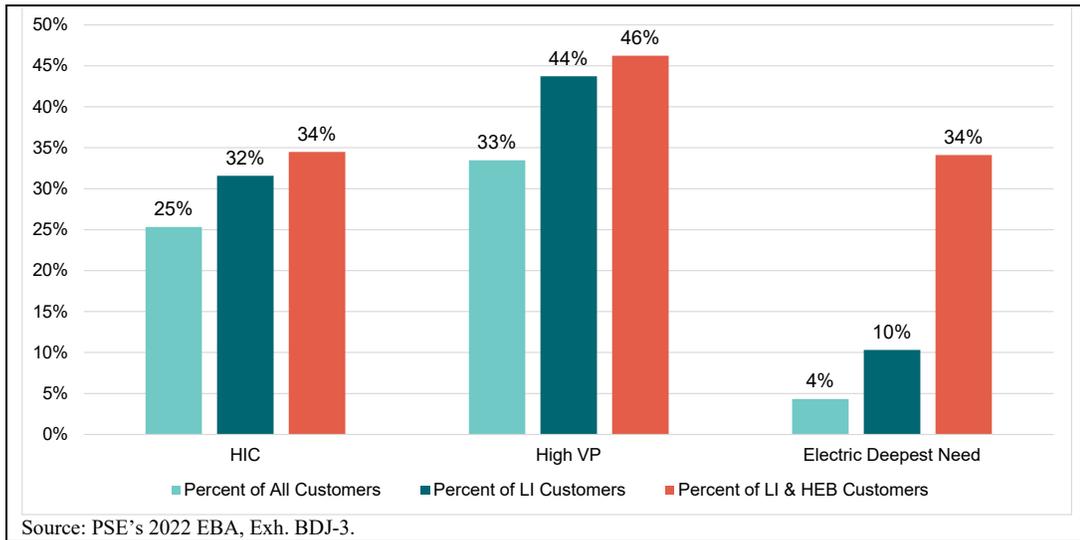
- 8 • about 34 percent of LI-HEB are in HIC;
- 9 • about 46 percent of LI-HEB are in High VP; and
- 10 • about 34 percent of LI-HEB who are also designated as electric deepest  
11 need.

12 In addition, the EBA found that estimated low-income and energy-burdened  
13 customers are significantly more likely to be an electric deepest need customer,  
14 than PSE’s residential customers overall (Figure 6):

- 15 • for PSE’s current residential customers overall, 4 percent are designated as  
16 electric deepest need;
- 17 • for PSE’s estimated low-income customers, 10 percent are designated  
18 electric deepest need; and
- 19 • for PSE’s estimated low-income and energy-burdened customers, 34  
20 percent are designated as electric deepest need.

1  
2

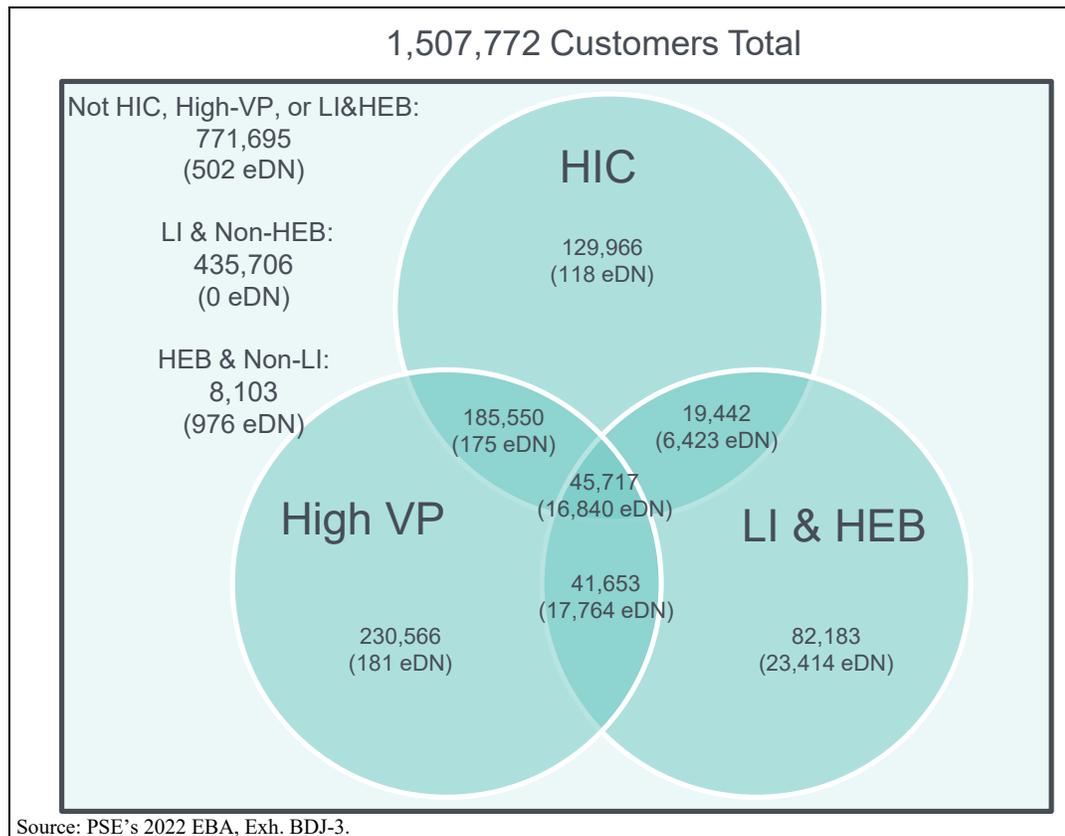
**Figure 6. Customers in named community as a percent of total, low-income, and low-income and energy-burdened populations**



3  
4  
5  
6

Additionally, PSE's analyses also show that about 46,000 (or about 3 percent of total) customers of PSE's current residential customers are in all four populations of interest: HIC, High-VP, low-income, and energy-burdened, out of which 17,000 are also electric deepest need customers; see Figure 7.

**Figure 7. Overlap between named communities and low-income & energy-burdened customers**



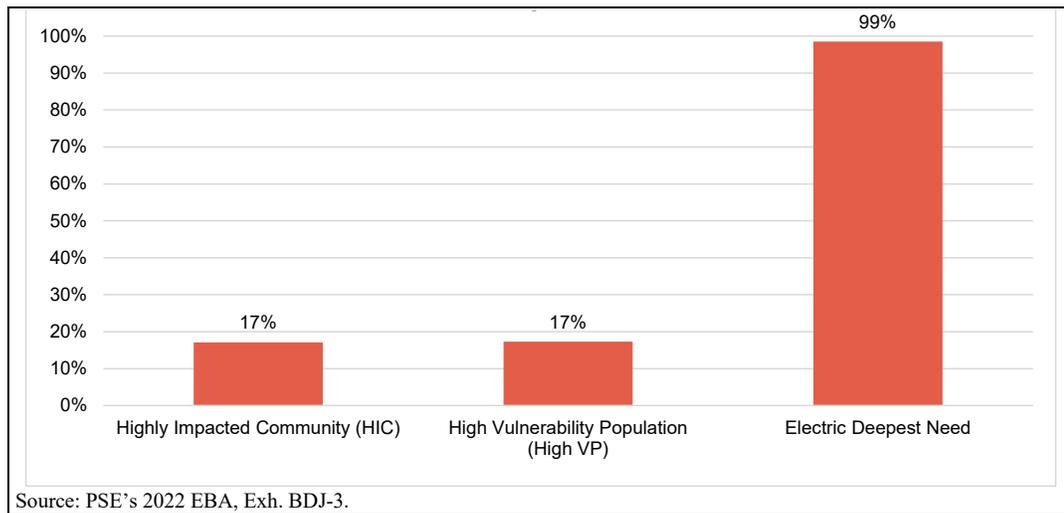
**Q. How are estimated low-income and energy-burdened customers reflected in named communities?**

**A.** PSE finds that based on PSE's current active residential customers (Figure 8):

- about 17 percent of customers in HIC are estimated low-income and energy-burdened ("LI-HEB");<sup>34</sup>
- about 17 percent of customers in High VP are LI-HEB; and
- about 99 percent of electric deepest need customers (64 thousand) are LI-HEB.

<sup>34</sup> Customers that are both estimated low-income and energy-burdened (with high energy burden ("HEB"), defined as energy burden above six percent).

1  
2  
**Figure 8. Proportion of low-income and energy-burdened customers in named communities**



3 **Q. What conclusions can be drawn from the 2022 EBA?**

4 A. Here are some of the key takeaways from the 2022 EBA.

- 5
- 6 • Most customers have low energy burden (over 84 percent).
  - 7 • The majority of energy-burdened customers are estimated low-income (98 percent).
  - 8 • While just over a third of estimated low-income customers are energy-
  - 9 • burdened, energy burden tends to concentrate at lower end of income
  - 10 • spectrum.
  - 11 • Most energy-burdened customers are electric customers.
  - 12 • Energy-burdened customers use more energy on average than overall
  - 13 • residential customers.
  - 14 • High energy burden is more likely among vulnerable populations in
  - 15 • named communities.

16 In addition, from named community analyses for CETA, energy burden emerges

17 among the highest factors for determining vulnerability designations and may be a

18 helpful lead consideration to engage multiple dimensions of vulnerability in

1 PSE’s service area.<sup>35</sup> Because PSE can estimate energy burden for residential  
2 customers, using this as a lead consideration may help address some of the  
3 concerns of census jurisdiction level designations (such as HIC and High VP)  
4 obscuring individual instances of vulnerability.<sup>36</sup> See the Prefiled Direct  
5 Testimony of Troy A. Hutson, Exh. TAH-1T, for more information about PSE’s  
6 proposed energy-burden efficacy metric.

7 **E. Applications**

8 **Q. How should the EBA results be used?**

9 A. The EBA results can be used to understand the interconnection between home  
10 energy costs and affordability, estimate the number of low-income customers,  
11 their respective energy burdens, and energy assistance need. Additionally, the  
12 energy burden data set can also aid as a general tool to draw meaningful insight  
13 regarding the shared characteristics of higher energy-burdened customers and  
14 low- and moderate-income customers. This information can be used to address  
15 institutional and structural affordability issues through low- and moderate-income  
16 program design and development, as well as with outreach and targeted marketing  
17 for various programs such as energy efficiency, demand response, time varying  
18 rates, and other demand management and reduction products and services.  
19 Finally, updated energy burden analyses inform PSE’s understanding of named  
20 community analyses per 2021 CEIP. Energy burden is a key vulnerability factor

---

<sup>35</sup> *In re PSE*, Docket 210795, PSE 2021 CEIP, at Ch. 3.

<sup>36</sup> *Id.*

1 identified in PSE’s vulnerable population methodology, and severe energy burden  
2 is the main factor defining electric deepest need methodology.

3 **Q. What are the concerns and shortcomings of the EBA?**

4 A. The EBA estimates energy burden, demographic and shared characteristics  
5 information based on third-party data. While this information allows for broad  
6 understanding of customers and can be used to advance certain policies to  
7 increase affordability as well as marketing and outreach of programs, products  
8 and services, the EBA does not provide the customer level precision needed to use  
9 the data to confirm income levels, low- and moderate-income status, or energy  
10 burden. Therefore, the EBA should not be used to assume or confirm specific  
11 customer status with respect to income, characteristics, or demographics.

12 **Q. How has PSE used its EBA?**

13 A. In addition to RCW 19.405.120 reporting requirements, results of the EBA are  
14 used in PSE’s CEIP (a four-year roadmap of clean electricity actions, programs  
15 and investments, which was filed with the Commission on December 17, 2021<sup>37</sup>)  
16 and in PSE’s 2023 Biennial CEIP Update.<sup>38</sup> PSE has also utilized the EBA for  
17 residential rate design studies and for designing low-income program design, such  
18 as the Crisis Affected Customer Assistance Program (“CACAP”), arrearage  
19 management program, and the new six-income-tier Bill Discount Rate (“BDR”),

---

<sup>37</sup> *In re Puget Sound Energy*, Docket UE-210795, PSE 2021 CEIP, Ch. 3, available at <https://irp.cdn-website.com/dc0dca78/files/uploaded/FCEIP%20Chapter%203.pdf>.

<sup>38</sup> *Id.* at 2023 Biennial CEIP Update, available at [https://www.pse.com/-/media/PDFs/CEIP/2023/001\\_BU23\\_Chapters\\_Final.pdf](https://www.pse.com/-/media/PDFs/CEIP/2023/001_BU23_Chapters_Final.pdf).

1 which aims to make utility bills more affordable for income-qualified customers.  
2 For details on PSE’s low-income programs and proposed approaches for reducing  
3 energy burden via a combination of existing and new programs, see the Prefiled  
4 Direct Testimony of Carol L. Wallace, Exh. CLW-1T. In addition to low-income  
5 program design, the EBA has been used for customer engagement, targeted  
6 marketing and outreach of low-income customers, for conservation programs, and  
7 the TVR pilot and demand response pilot.<sup>39</sup> When pre-qualifying customers for  
8 income qualified programs, PSE requires customers to confirm their income  
9 through self-attestation to continue receiving benefits beyond a temporary period.

10 **IV. PSE’S EQUITY CONSIDERATIONS FOR RESIDENTIAL RATES**

11 **Q. How has PSE considered equity in the development of its residential rates?**

12 A. PSE’s cost allocation and residential rates are developed based on the  
13 methodology as outlined in the cost of service rules as required by Ch. 480-85  
14 WAC. While PSE complies with the Commission approved cost allocation, the  
15 Company offers an array of assistance programs that address both equity and  
16 affordability for its customers.<sup>40</sup>

17 **Q. How do PSE’s rates impact named communities and other priority groups?**

18 A. Nearly 70 percent of low-income and energy-burdened customers can be  
19 classified as customers who are in highly impacted communities, high vulnerable

---

<sup>39</sup> To comply with paragraph 20 in Order 01 in Docket UG-230470.

<sup>40</sup> See, e.g., Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T.

1 population, or electric deepest need categories.<sup>41</sup> While PSE’s residential rates,  
2 coupled with high energy use by the customer, may produce energy burden for  
3 vulnerable customers in the aforementioned customer groups, the Company offers  
4 a variety of low-income assistance programs that help reduce energy burden and  
5 meet the affordability needs of these customers. Efficacy of PSE’s low-income  
6 assistance programs in focusing on the populations of interest is provided below.

7 **Q. How do PSE’s low-income programs address both equity and affordability?**

8 A. As discussed above, PSE conducted analyses to understand the proportion of  
9 customers who are in highly impacted communities, in high vulnerable  
10 population, are electric deepest need, are energy-burdened, and are estimated low-  
11 income customers.

12 PSE’s energy assistance programs address affordability and equity by targeting  
13 these very customers. PSE’s energy assistance programs are available to all low-  
14 income customers, many of which come from populations of interest. PSE’s EBA  
15 found, as discussed above, that by providing energy assistance to low-income  
16 customers, where many of these low-income customers are also designated as  
17 either estimated energy-burdened, electric deepest need, in HIC, in High-VP, or in  
18 multiple of these populations of interest, PSE’s available energy assistance  
19 programs address the affordability needs of vulnerable customers.

---

<sup>41</sup> See Exh. BDJ-3.

1 PSE also leverages its analyses of the EBA, named community analyses, and the  
2 four energy justice tenets<sup>42</sup> to continue making progress towards improving  
3 energy equity in many aspects, including program design, customer outreach,  
4 marketing, and customer engagement, interested party engagements, and program  
5 benefits prioritization. More and other details on PSE’s commitment to equity are  
6 discussed in the Prefiled Direct Testimony of Troy A. Hutson, Exh. TAH-1T, and  
7 the Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T.

8 **Q. How many low income and energy burdened customers has the Company**  
9 **assisted?**

10 A. From January 2020 to December of 2023, 100,325 unique active residential  
11 customers have received energy assistance from the following programs: PSE  
12 home energy lifeline program (“HELP”), federal low income energy assistance  
13 program (“LIHEAP”), PSE’s CACAP, Commerce’s COVID relief funds, and the  
14 warm home fund.<sup>43</sup> By definition, all these customers are low-income, and 52  
15 percent are estimated as low-income and energy-burdened using the 2022 EBA.

---

<sup>42</sup> See Prefiled Direct Testimony of Troy Hutson, Exh. TAH-1T, for more information.

<sup>43</sup> Since PSE’s new Bill Discount Rate program just launched in October 2023, currently limited data is available and therefore not included here.

1 **Q. Using the 2022 EBA, what impact did low-income programs have on low**  
2 **income and energy burdened customers in 2022?**

3 A. Estimated median energy burden of the 61,868 unique active residential  
4 customers who received energy assistance in calendar year 2022<sup>44</sup> was 7.9  
5 percent, and after receiving assistance, their median energy burden decreased to  
6 4.1 percent.

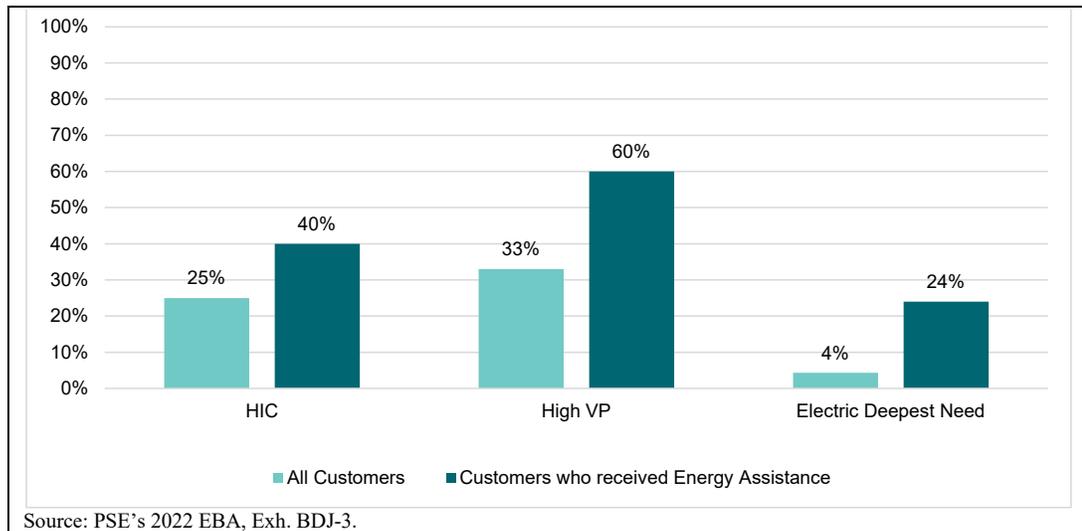
7 **Q. What is the efficacy of PSE's low-income programs in meeting their**  
8 **objectives?**

9 A. PSE's efforts to reduce customers' bills and lower overall arrearages have been  
10 effective at focusing on vulnerable customers. As seen in Figure 9 below, of the  
11 100,325 unique residential customers that have received energy assistance in  
12 2020-2023, 40 percent are in highly impacted communities (versus 25 percent  
13 overall customer base); 60 percent are high vulnerability (versus 33 percent  
14 overall customer base); and 24 percent are electric deepest need (versus 4 percent  
15 overall customer base). Also, as stated above, of these customers, 52 percent are  
16 also estimated as low-income and energy-burdened using the 2022 EBA.

---

<sup>44</sup> Customers who received energy assistance from the following programs: PSE HELP, LIHEAP, CACAPs, Commerce, and Warm Home Fund. See Prefiled Direct Testimony of Carol L. Wallace Exh. CLW-1T.

1 **Figure 9. Proportion of energy-assisted customers in populations of interest**



2  
3  
4 While the efficacy of PSE's low-income programs in reaching vulnerable  
5 customers is robust, the effectiveness to reduce energy assistance need in PSE  
6 territory, has declined since the expansion of the low-income definition per CETA  
7 and RCW 19.405.020. Energy assistance need is defined as the amount of  
8 assistance necessary to achieve a level of household energy burden of equal to six  
9 percent.<sup>45</sup>

10 **Q. Why has total energy assistance not declined?**

11 A. While CETA states in RCW 19.405.120(2) that “[t]o the extent practicable,  
12 priority must be given to low-income households with a higher energy burden,”  
13 energy assistance is not limited to low-income households with a higher energy  
14 burden. Whereas CETA (RCW 19.405.020(15)) defines “energy assistance” as “a  
15 program undertaken by a utility to reduce the household energy burden of its

---

<sup>45</sup> RCW 19.405.020(16); Washington Department of Commerce, *Guidelines for RCW 19.405.120*,  
Version 03.09.2020  
available at <https://www.commerce.wa.gov/wp-content/uploads/2020/03/Guidelines-for-19.405.120.pdf>.

1 customers,” RCW 80.28.068(5) requires low-income discount rate programs be  
2 available for all low-income customers *that request* assistance: “A residential  
3 customer eligible for a low-income discount rate must receive the service on  
4 demand.” RCW 80.28.068 uses the expanded CETA definition of low-income  
5 per RCW 19.405.020.

6 **Q. What are the consequences of offering low-income discounts to customers**  
7 **that are not energy burdened?**

8 A. While energy assistance programs are available to all low-income customers,  
9 utilities are required to submit biennial plans to Commerce to improve the  
10 effectiveness of the assessed mechanisms and strategies toward meeting the  
11 energy assistance need, which is defined in RCW 19.405.020 and determined by  
12 Commerce<sup>46</sup> as the amount of energy assistance necessary to achieve a level of  
13 household energy burden equal to six percent. When energy assistance programs  
14 are available to all low-income customers, regardless of energy assistance need as  
15 defined using the energy-burden threshold, the efficacy of energy assistance  
16 program funding in the context of achieving energy assistance need goals, as set  
17 forth in CETA, would be reduced, thereby requiring higher total program costs to  
18 achieve CETA targets.

---

<sup>46</sup> Washington Department of Commerce, *Guidelines for RCW 19.405.120*, Version 03.09.2020  
available at <https://www.commerce.wa.gov/wp-content/uploads/2020/03/Guidelines-for-19.405.120.pdf>.

1 **Q. Is PSE proposing to offer low-income assistance programs only to energy**  
2 **burdened customers?**

3 A. No. The Company offers an array of assistance programs to low-income  
4 customers to meet various customer needs, as discussed by Witness Carol L.  
5 Wallace in Exh. CLW-1T, which include – (1) providing direct bill assistance, (2)  
6 providing energy security, and (3) reducing the need for long-term assistance.  
7 However, as the number of customers at the upper end of the low-income bracket  
8 has increased, a larger number of non-energy burdened customers are qualified  
9 for low-income benefits, which means providing significant benefits to those  
10 customers could necessitate a substantial increase to program costs while reducing  
11 program cost efficacy to reduce energy burden of high energy-burdened  
12 customers to affordable level. Therefore, to further promote equity and  
13 affordability, the Company is considering how best to prioritize energy assistance  
14 to those low-income customers with high energy-burden, while continuing to  
15 provide low-income assistance on an as-needed basis for low-income customers  
16 who are not energy-burdened but nevertheless may require energy assistance.

17 **Q. Can PSE continue towards a clean energy transition without over-burdening**  
18 **customers?**

19 A. As PSE found in both the 2020 EBA and the 2022 EBA, a majority (over 80  
20 percent) of PSE’s residential customers are estimated to not be energy-burdened.

1 **Figure 10. Estimated median energy burden of PSE’s customer groups**

Customer segment	Median energy burden
All customers in 2022 EBA	2.4%
Estimated Upper-income (income >115% AMI)	1.5%
Estimated Moderate-income (income >80% and ≤115% AMI)	2.1%
Estimated Low-income (income ≤80% AMI)	4.4%
Estimated Low-income & Non-HEB (EB≤6%)	3.3%
<b>Estimated Low-income &amp; Energy-burdened (EB&gt;6%)</b>	<b>10.1%</b>

2  
3 Source: PSE’s 2022 EBA, Exh. BDJ-3.

4 In addition, as discussed in the results section above and as seen in Figure 10, the  
5 median energy burden for upper-income customers and moderate-income  
6 customers is well below the six percent threshold for high energy burden (in the  
7 1.5-2.5 percent range). For estimated low-income customers overall, and for  
8 estimated low-income customers that are not estimated to be energy-burdened the  
9 median energy burden is in the 3.5-4.5 percent range. However, the median  
10 energy burden for customers who are classified as low-income and energy-  
11 burdened is just above ten percent. Furthermore, for customers who received  
12 energy assistance from PSE in 2022, PSE was able to decrease by half their  
13 median energy burden from about eight percent to about four percent (which is  
14 below the six percent threshold target) by providing multiple energy assistance  
15 programs, as discussed above. Therefore, as long as PSE is able to effectively  
16 prioritize energy assistance to the low-income customers with high-energy  
17 burdens to help these customers achieve affordable energy burden levels, while  
18 continuing to provide low-income assistance on an as-needed basis for low-  
19 income customers who are not energy-burdened but nevertheless may require

1 energy assistance, PSE can continue to make progress towards a clean energy  
2 future while keeping bills affordable.

3 **V. CONCLUSION**

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

5 **A. Yes, it does.**