EXH. BDJ-1T
DOCKETS UE-22___/UG-22___
2022 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-22____** **Docket UG-22____**

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF

BIRUD D. JHAVERI

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 31, 2022

PUGET SOUND ENERGY

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I. INTRODUCTION

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

A. My name is Birud D. Jhaveri. I am employed as Manager of Pricing and Cost of Service with Puget Sound Energy ("PSE" of "the Company"). My business address is 355 110th 8 Ave NE, Bellevue, Washington 98004.

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

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

Q. What topics are you covering in your testimony?

A. My testimony presents the following:

1. PSE's restated and normalized test year revenue from electric operations.
2. The derivation of projected rate year revenue used in the multiyear rate plan analysis presented in the Testimony of Ms. Susan E. Free, Exh. SEF-1T.
3. PSE's electric cost of service study.
4. PSE's proposed rate design for electric service.
5. The overall rate impacts for the projected rate years in the multiyear rate plan analysis.
6. PSE's 2017-2020 Decoupling Study evaluation.

7. Updated allowed revenue for PSE's electric and gas decoupling mechanisms.

8. PSE's evaluation of the energy burden for its residential electric and natural gas customers.

9. PSE's proposed Bill Discount Rate for income-qualifying customers, and PSE's proposal to increase low-income assistance.

10. PSE's assessment of expanding the first residential electric energy block from 600 kWh to 800 kWh.

11. PSE's proposal for a Time Varying Rate Pilot for its electric residential and general service customers.

12. A summary of the list of tariff sheets that will potentially be filed as part of the compliance for this case and their overall rate impacts.

Q. Please summarize your testimony

A. I would summarize my testimony as follows:

Normalized Test Year Electric Revenue

- The total normalized test year revenue at current base rates is estimated to be $2.115 billion, based on 22.988 billion kWh in electric sales as presented in Exh. BDJ-5, page 7.

Projected Rate Year Electric Revenues

- The total projected rate year revenue at forecasted base rates is estimated to be $2.077 billion in 2023, based on 22.594 billion kWh in electric sales; $2.097 billion in 2024, based on 22.791 billion kWh in electric sales; and $2.102 billion in 2025, based on 22.805 billion kWh in electric sales as developed in Exh. BDJ-5, pages 11-12.

Electric Cost of Service Study

- Electric Cost of Service Rulemaking - the Company has complied with the new cost of service rules as required by WAC 480-85. Additionally, PSE seeks an exemption from the WAC rules on the treatment of FERC Account 565 – Transmission of Electricity by Others;

- Rate Class Results – based on the Company's proposed cost of service study, most rate classes are near a revenue to cost ratio of 1.00. An exception for being far below the ratio is Schedule 35, Irrigation and Pumping Service), with PSE proposing no change to base rates. On the other extreme are rate

classes Schedule 43, All Electric School, Schedule 46 and Schedule 49, High Voltage Service, which are far enough above the revenue to cost ratio to warrant a larger than average decrease in rates; and

- Lighting Cost of Service Study – The methodology employed in PSE's proposal is consistent with that approved in 2019 general rate case. The five step process used to conduct this analysis includes 1) identifying the revenue required from the lighting customer class, 2) classifying lighting costs based on relevant cost drivers, 3) identifying the revenue contribution made by each type of lamp and pole, 4) allocating the classified costs and 5) developing lighting and pole rates from the allocated costs.

Electric Rate Design

- Customer base rates on average will be decreased by 0.53 percent;
- For residential customers, PSE is proposing to increase the basic charge by 10 percent or $0.75 per month;
- With two exceptions, most customer classes will experience decreased base energy charges;
- Schedule 449/459 customers served on Choice / Retail Wheeling will experience a decreased monthly customer charge;
- Primary Voltage Irrigation and Pumping customers served on Schedule 35 base rates will not change; and
- New lighting schedules - PSE is proposing to expand the wattage range for Light Emitting Diode ("LED") lamps Rate Schedules 51, 53, 54, 55, 56, 58 and 59 and add Smart LED rate design for Schedules 51 and 53.

Multiyear Rate Plan Riders

- PSE is proposing to remove costs associated with Colstrip from base rates to be recovered through a separate tracking and true-up mechanism in Schedule 141C (Colstrip Adjustment). Additionally, PSE is proposing two new rate schedules, Schedule 141R (Rates Subject to Refund Rate Adjustment) and Schedule 141N (Rates Not Subject to Refund Rate Adjustment) to administer the rates that are subject to and not subject to refund. Schedule 141C has been designed to recover the associated costs in 2023, while Schedule 141N and Schedule 141R have been designed to recover the respective costs in 2023, 2024 and 2025.

Overall Electric Rate Impacts

- PSE requests a multiyear rate plan with increases of 13.6 percent in 2023, 2.5 percent in 2024 and 1.2 percent in 2024, or approximately $310.6 million in 2023, $63.1 million in 2024 and $31.8 million in 2025 as developed in Exh. BDJ-7, pages 2-4. This reflects the net impact on PSE's electric customer rates associated with the proposed update to base rates and multiyear rate plan riders;

- The impact on the monthly bill of PSE's typical residential electric customer using 800 kWh is an increase of $11.88, or 13.36 percent over current levels for 2023, an additional increase of $2.78, or 2.76 percent for 2024 and another additional increase of $1.30, or 1.26 percent in 2025 as developed in Exh. BDJ-7, page 5; and

- The overall revenue request and impacts by customer class of the proposed changes to base rates, Schedule 95 (Power Cost Adjustment Clause), Schedule 139 (Green Direct), Schedule 141C (Colstrip Adjustment), Schedule 141N (Rates Not Subject to Refund), Schedule 141R (Rates Subject to Refund) are shown in Table 1 below (general rate case impacts). Table 1 also presents the customer impacts, including the adjusting price schedules in 2023 (general rate case impacts, plus other riders). Other riders include Schedule 95 Supplemental, Schedule 141X, Schedule 142 Supplemental, which will be set to zero on January 1, 2023.

Table 1. Customer Impact of Proposed Rates

		2023		2024	2025
Customer Class	Rate Schedule	GRC Impact %	GRC Impact + Other Riders %	GRC Impact %	GRC Impact %
Residential Service	7	15.80%	12.92%	2.68%	1.23%
General Service, <51 kW	8/24	10.98%	7.51%	2.10%	1.16%
General Service, 51-350 kW	7A/ 11/ 25/ 29	12.11%	9.45%	2.26%	1.22%
General Service, >350 kW	12/26	10.40%	7.15%	2.18%	1.17%
Primary Service, General	10/31	10.86%	7.19%	2.35%	1.34%
Primary Service, Irrigation	35	26.69%	22.83%	4.17%	1.50%
Primary Service, Schools	43	8.68%	6.29%	1.88%	0.54%
High Voltage Service	46/49	4.71%	1.55%	1.96%	1.55%
Lighting Service	50-59	22.25%	20.48%	4.11%	1.27%
Retail Wheeling	449/459	1.71%	1.62%	0.37%	0.06%
Special Contract	SC	2.29%	-10.83%	3.17%	0.47%
Firm Resale	5	83.52%	78.13%	2.87%	1.32%
Total Sales		13.59%	10.58%	2.47%	1.22%

Electric and Gas Decoupling Study

- Overall, the electric and gas decoupling mechanisms have performed well and to expectations after the latest changes to the mechanisms which occurred in 2017, producing modest rate impacts and removing PSE's throughput incentive associated with the recovery of its delivery system costs; and

- PSE proposes that these decoupling mechanisms become permanent and continue until such time as PSE proposes, and the Commission approves, to have them discontinued or modified.

Energy Burden Analysis

- Pursuant to RCW 19.405.120, PSE developed the Energy Burden Analysis to estimate the number of PSE's low-income customers, their respective energy burdens, and energy assistance need;

- Based on the Energy Burden Analysis, 44 percent of PSE's residential customers meet the low-income criterion of 80 percent area median income and are therefore eligible for multiple low-income programs. Additionally, 13 percent of PSE's residential customers are currently estimated to be low-income and energy-burdened (i.e., spend 6 percent or more of annual income on energy costs); and

- PSE's Energy Burden Analysis found that energy-burdened customers use more energy on average than overall residential customers and are more likely to be among already vulnerable customers – based on demographic characteristics such as ethnic background, education, homeownership, dwelling type, and age.

PSE Bill Discount Rate and Low-Income Assistance Increase

- Pursuant to RCW 80.28.068, PSE is proposing a two-tier Bill Discount Rate for PSE's electric and gas low-income customers with income levels at or below 50 percent area median income:

    1) a 45 percent discount rate for PSE customers within 0-30 percent area median income bracket; and

    2) a 15 percent discount rate for PSE customers within 30-50 percent area median income bracket.

- The discount rate will be applied to the net bill (all charges except any applicable taxes and voluntary programs). The tiered design allows PSE to prioritize providing assistance to those customers who are most in need while balancing the program cost impacts to all PSE's customers. PSE's Bill Discount Rate has been designed to complement and be additive to the Company's existing energy assistance programs; and

- To help mitigate the effect of the proposed residential rate increases on its most vulnerable customers, PSE is proposing to increase the level of low-income energy assistance funding (Schedule 129) by double the proposed increase to residential customer base rates in each year of the multiyear rate plan. For electric low-income assistance funding, this results in proposed

increase of 31.60 percent in 2023, 5.37 percent in 2024, and 2.46 percent in 2025, or an increase of $8.27 million in 2023, $1.40 million in 2024, and $0.64 million in 2025. For gas low-income assistance funding, this results in proposed increase of 24.30 percent in 2023, 4.40 percent in 2024, and 3.49 percent in 2025, or an increase of $0.77 million in 2023, $0.14 million in 2024, and $0.11 million in 2025.

Residential Electric Block Study

- As per the Commission's directive in PSE's 2019 general rate case, PSE conducted a feasibility study to assess the impacts of expanding the first electric block energy rate from 600 kWh to 800 kWh;

- Expanding the first energy block to 800 kWh creates an aggregated revenue shortfall of approximately $24 million. Depending on how the shortfall is recouped, the change may have unintended consequences, particularly for low-income energy-burdened customers. Since 63 percent of low-income energy-burdened customers use more than 800 kWh on average per month, some of these customers could experience substantial bill increases based on how the shortfall is allocated back to the blocks; and

- Based on the findings of the study, PSE does not recommend expanding the first energy charge block from 600 kWh to 800 kWh.

Time Varying Rate Pilot

- PSE is proposing a two-year Time Varying Rate pilot for electric residential and general service customers. The Company proposes to conduct six separate treatment groups targeting residential, residential low-income, and small general service customers to test:

- Residential and Low-Income: Two Period Time of Use (TOU) – inclusive of on-peak and off-peak periods;

    - Residential, Low-Income, and Small General Service: Two Period TOU + Peak Time Rebate (PTR) – inclusive of on-peak and off-peak periods with a PTR on a number of event days; and

    - Residential and Low-Income: Three Period TOU – inclusive of on-peak, off-peak and super off-peak periods.

Compliance Filing

- The rates in a number of PSE's adjusting price schedules will need to be reset simultaneously with the proposed changes to base rates in this general rate case. While electric Schedule 139 and the annual adjusting price section of Schedule 142 will not be filed as part of this case, Schedule 139 will be

included among the tariff sheets filed as part of the final compliance filing. The full list of adjusting price schedules that will be included in the final compliance filing are as follows: [1]

- Electric Schedule 95 (Power Cost Adjustment Clause and Power Cost Only Rate Case);
- Electric Schedule 139 (Voluntary Long-Term Renewable Energy Purchase Rider);
- Electric Schedule 141C (Colstrip Adjustment);
- Electric Schedule 141N (Rates Not Subject to Refund Adjustment);
- Electric Schedule 141R (Rates Subject to Refund Adjustment); and
- Electric Schedule 142 (Revenue Decoupling Adjustment Mechanism).

II. NORMALIZED TEST YEAR REVENUE FROM ELECTRIC OPERATIONS

Q. What is normalized test year revenue?

A. Normalized test year revenue is an estimate of test year revenue based on normalized and proformed test year billing determinants (e.g., energy sales, billed demand, number of bills) and the rates that are in place at the time of filing for a rate change. It is developed to ensure that the test year revenue used in calculating the revenue deficiency: (1) reflects only those rate schedules that are being considered in the present case, (2) encompasses any rate changes that have taken place during or since the test year, and (3) is consistent with the normalized test year revenue requirement and loads. The billing determinants used to produce

[1] As discussed later in this testimony, other rate schedules will need to be updated shortly after the conclusion of this case.

normalized test year revenue are also used to estimate the revenue from proposed rates.

Q. Have you prepared an exhibit that demonstrates PSE's development of its normalized test year revenue from electric operations?

A. Yes. Please see the Second Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-3, for an exhibit that demonstrates PSE's development of its normalized test year revenue from electric operations.

Q. Please explain page one of Exh. BDJ-3, normalized test year delivered sales.

A. Normalized test year revenue is based on test year billing determinants, which is primarily based on energy sales. Therefore, a key step in developing normalized test year revenue involves making normalizing adjustments to test year energy sales. PSE's adjustments to test year electricity sales for this case are summarized on page one of Exh. BDJ-3. Column d of page one shows the billed electricity sales for the test year in this proceeding, which is the twelve months ending June 2021. Column e includes an adjustment for unbilled electricity sales. This column adjusts for the fact that customers' bills are issued throughout the month and do not correspond to calendar months. The unbilled sales in column e, which underlies PSE's income statement, removes the portion of sales that was consumed in the previous month, and adds an estimate of sales that occurred during the calendar month but were not yet billed. The Schedule 40 migration adjustment in column f reflects estimated movement of customers and sales

between Schedule 40, concluded in Dockets UE-190529/UG-190530 ("2019 general rate case"), and Schedules 24, 25, 26 and 31 to which customers were ultimately migrated. Additionally, a small amount of normalized sales related to PSE's Special Contract (effective April 1, 2019) have been removed from Schedule 40 and placed into its own customer class. The temperature adjustment to electricity sales presented in column g adjusts for the effect of non-normal temperatures from test year loads, so that test year loads and revenues are more reflective of normal operating conditions. This adjustment is described in the Prefiled Direct Testimony of Kelly Xu, Exh. KHX-1T. Normalized test year electricity sales that reflect all of these adjustments are totaled in column c. Total normalized test year electricity sales are used for calculating the normalized test year revenue that is presented in column h on page one of Exh. BDJ-3.

Q. Please explain page two of Exh. BDJ-3, normalized test year revenue summary.

A. Page two of Exh. BDJ-3 presents explanations of the differences between test year revenue, as presented in PSE's income statement, and normalized test year revenue, as calculated based on billing determinants and rates. The revenue included in the test year income statement is presented in row one of page two, and normalized test year revenue based on billing determinants and current rates is in row 36. The items presented in rows four through 25 are explanations of the differences between the income statement and normalized test year revenue. These items are related to: 1) removal of revenue from municipal taxes and

certain adjusting price schedules (rows 4-18); 2) an adjustment to revenue to reflect the temperature normalization adjustment to electricity sales (row 19); 3) other adjustments for rate changes (rows 20-22); 4) a schedule migration adjustment that reflects customer movement from Schedule 40 to Schedules 24, 25, 26, 31, and Special Contract (row 30), and 5) pro forma adjustments to remove revenues associated with Schedules, 140 and 142 (rows 31-32).

Q. Will rates in any of the adjusting electricity price schedules in rows 4 through 13 or rows 23 through 25 change as a result of this filing?

A. Yes. Certain adjusting electricity price schedules will be reset contemporaneously with the approval of new base rates in this proceeding. First, as has commonly been required in past rate cases, rates within Schedule 95 (Power Cost Adjustment Clause) associated with the recovery of power costs will be reset to zero. Similarly, Schedule 141X PLR revenue associated with Docket UE-190529 will also be removed. Finally, and as discussed more fully in Section 6 later in this testimony, revenue per unit rates and allowed revenue per customer within electric Schedule 142, Revenue Decoupling Adjustment Mechanism, will be reset to align with the new base rates approved in this case.

Q. What are PSE's resulting normalized test year electricity sales and revenue?

A. The total normalized electricity sales for the test year is 22.988 billion kWh, and is presented in column c of page one of Exh. BDJ-3. The total normalized test year revenue is $2.115 billion and is presented in column b of page two.

III. PROJECTED RATE YEAR REVENUES FROM ELECTRIC OPERATIONS

Q. What are projected rate year revenues?

A. Projected revenue for each rate year is an estimate of rate year revenue based on forecasted rate year billing determinants (e.g., energy sales, billed demand, number of bills) and the base rates that are in place at the time of filing for a rate change. Exh. BDJ-5, page 11 and 12, columns f-t presents the forecast load and estimated revenue at current rates for the projected rate year periods.

Q. How did PSE project base rate revenues into the rate year periods?

A. Rate year revenues are developed for each of the multiyear rate periods (2023, 2024 and 2025). Rate year revenues are developed by applying the current rates to the forecasted billing determinants. The billing determinants used to produce rate year revenues are also used to estimate the revenue from proposed rates.

Q. What load and customer forecast did PSE use to forecast its revenues?

A. PSE used its F2021 forecast approved by its Energy Management Committee in July 2021. No modifications were made to the forecast for the purpose of developing the rate year revenue or revenue from proposed rates.

IV. ELECTRIC COST OF SERVICE STUDY

Q. What is an electric cost of service study and what is its purpose?

A. An electric cost of service study is an engineering-economic study, which separates the revenue, expenses, and rate base associated with providing electric service to designated groups of customers. The groups are made up of customers with similar load characteristics and facilities requirements. Costs are assigned or allocated to each group based on (among other things), test period load and facilities requirements, resulting in an evaluation of the cost of the service provided to each group. The parity ratios by customer group indicates whether the revenue provided by the customers in each group recovers the cost to serve those customers. The study results are used as a guide in determining the appropriate rate spread among the groups of customers.

Q. What is the basis for the electric cost of service study provided in this case?

A. The electric cost of service study provided by the Company as Exh. BDJ-4 is based on the 12-months ended December 2021 test year pro forma results of operations presented by Ms. Free as Exh. SEF-3.

A. Cost of Service Rulemaking

Q. Are Cost of Service studies a required component of general rate case filings?

A. Yes. WAC 480-07-510(6), which discusses cost studies in general rate proceeding filings, was recently amended by General Order R-599 on July 7, 2020 to state

that a company's initial general rate case filing must include a cost of service study that complies with the new chapter WAC 480-85.

Q. Was PSE a party to the generic cost of service collaborative that culminated in the Dockets UE-170002/UG-170003 rulemaking and General Order R-599?

A. Yes. Commission Staff initiated the generic cost of service collaborative in 2017 as instructed by the Commission in its December 2016 Order in Dockets UE-160228/UG-160229 (consolidated). PSE participated in Staff's information gathering efforts and multiple workshops over three years as the collaborative evolved into the rulemaking proceeding in Dockets UE-170002/UG-170003.

Q. Has the Commission provided guidance since PSE's last rate case as to how the Company should conduct its cost of service studies?

A. Yes. Based on General Order R-599 issued in Dockets UE-170002/UG-170003, the Commission established minimum filing requirements for any cost of service study filed with the Commission. The result was a set of new cost of service rules requiring electric and gas utilities to file a cost of service model in compliance with both the presentation requirements and new data requirements associated with the allocation methods in WAC 480-85. These filing requirements intend to allow for comparison of cost of service studies, improve and promote efficiency in analyzing rate cases, and provide clarity of presentation and ease of understanding.

Q. What does the Commission require as part of the WAC 480-85 rules?

A. The Commission set minimum filing requirements under WAC 480-85-040, which require cost of service results be filed in the electric and gas cost of service templates available from the Commission. In addition to this, the Commission set guidelines for supporting testimony, exhibits, work papers and electronic models.

The Commission further identified sources for the cost of service study inputs under WAC 480-85-050. Additionally, in WAC 480-85-060, the Commission mandated that the cost of service study use an embedded cost method and provided explanation on how costs should be functionalized, classified and allocated. Lastly, the Commission provided instruction on how to seek exemptions from the rules in WAC 480-85-070.

Q. Has PSE complied with these rules?

A. Yes. The Company has complied with the new cost of service rules as required by WAC 480-85.[2] PSE does seek an exemption from the WAC rules on the treatment of FERC Account 565 – Transmission of Electricity by Others. I provide additional detail for this request later in my testimony.

[2] Please see Dr. Chhandita Das' testimony, Exh. CD-1T, for more information on compliance with cost of service study input requirements related to WAC 480-85-050.

B. Methodology

Q. Does the Electric Base Case cost of service study utilize the same methodology as the Company's last electric case in Docket UE-190529?

A. No. As indicated earlier, the Base Case cost of service study was prepared using the methodology outlined in WAC 480-85-060 resulting from the rulemaking approved in July 2020. This methodology differs from the cost studies the Company has provided in previous electric general rate cases.

Q. Would you please explain the cost of service study?

A. Yes. Exh. BDJ-4 presents the results of the cost of service study in the form of the Electric cost of service template available from the Commission in compliance with WAC 480-85-040(1). The template consists of five workbook tabs that are presented in the exhibit as separate sections.

Section A is the Revenue Requirement Cross-reference, which shows PSE's revenue requirement development as presented in Exh. SEF-4, expressed at the FERC Account level to facilitate assignment of costs to customer rate classes in the study. Section B presents the FERC Account level cost of service results for all customer rate classes. Section C shows the allocation factors used to assign each type of cost to the customer rate classes. Section D is a summary of the revenue requirement adjustments shown in Section A and is comparable to pages 2-33 of Exh. SEF-4. Finally, Section E is a high-level summary of the cost of

service results showing the parity ratios at present rates and Revenue-to-Cost ratios at proposed rates.

Q. How are generation costs treated in this study?

A. Consistent with WAC 480-85-060, generation costs (production plant-related rate base, and expenses such as operation and maintenance, depreciation, and taxes) have been classified as energy or demand-related, based on a renewable future peak credit ratio, with variable power costs considered 100 percent energy-related. The demand-related portions of generation costs were allocated to customer rate classes based on the average of 12 system coincident peaks, determined from power supply native load excluding renewable generation. The energy-related portions of generation costs were allocated to customer rate classes based on annual energy usage at the point of generation. The renewable future peak credit method compares the cost of battery storage (demand) to wind turbine (energy) derived from the Company's 2021 IRP at 2023 cost assumptions. This analysis resulted in 80 percent demand and 20 percent energy peak credit allocation. This proportion is exclusive of all energy-related variable power costs.

Q. Is this methodology different from PSE's prior electric cost of service studies?

A. Yes. In prior electric cost of service studies, the Company utilized a peak credit method that was applied to all generation costs (including variable power costs). The new methodology removes power costs, thereby increasing the proportion

considered demand-related costs. Additionally, in prior studies, the demand allocation factor was based on the average of four winter month system coincident peaks.

Q. How are transmission costs treated in the Company's proposed study?

A. All transmission costs, except costs related to FERC account 565 - Transmission of Electricity by Others, which are part of power costs included in PSE's power cost adjustment mechanism, are considered demand-related and allocated to customer rate classes using the average of 12 system coincident peaks.

Q. Is this methodology different from PSE's prior electric cost of service studies?

A. Yes. In prior cases the transmission function was treated as an extension of production costs and, as such, was subject to the peak credit methodology.

Q. Do these changes have a material impact on the cost of service study results?

A. No. The replacement of the previous peak credit method with the Company's proposed method have an immaterial impact on the cost of service study results. The use of the renewable future peak credit method, along with allocating all variable power costs to energy and all transmission costs, except FERC Account 565, to demand, results in a minimal net effect. The impact of the change to the parity ratios are insufficient to change the results of the rate spread.

Q. What is included in PSE's power costs?

A. Power costs include the costs of fuel to run generating units, purchased power, costs of third-party transmission capacity and various other costs incurred directly in connection with the purchase of electricity.

Q. Is it appropriate to classify FERC Account 565 – Transmission of Electricity by Others as energy, similar to variable power costs, instead of classifying the costs as demand, similar to other transmission costs?

A. WAC 480-85-060 classifies FERC Account 565, a transmission expense account, as demand. The Company proposes to seek an exemption to this rule and classify these costs as energy and allocate the costs similar to other variable power costs. PSE incurs FERC Account 565 costs so that it can wheel energy, either to load or to market, over other utility transmission systems on behalf of PSE customers. Transmission itself does not meet customers' peak demands. These costs are not typically viewed as demand related costs and have historically been charged to customers as variable power costs on a dollars per MWh basis as they relate to the supply of energy and not necessarily a cost that provides additional capacity on the PSE system.

Q. Was the traditional peak credit method used for the allocation of any other costs?

A. Yes, the following riders and trackers use the peak credit results for cost allocation and rate spread:

- Schedule 95 – Power Cost Adjustment Clause;
- Schedule 95a – Federal Incentive Tracker;
- Schedule 120 – Electricity Conservation Service Rider;
- Schedule 137 – Temporary Customer Charge or Credit;
- Schedule 139 – Voluntary Long Term Renewable Energy Purchase Rider; and
- Schedule 142 – Decoupling Adjustment Mechanism.

Q. Should the renewable future peak credit demand/energy proportion be applied to the riders and trackers similar to the traditional peak credit?

A. The traditional peak credit has been used to allocate costs of rider and tracker rates that are generation related. Historically, the demand and energy allocation factors developed through the peak credit method included all generation costs, including power costs. Applying the result of the renewable future peak credit will significantly increase the demand related cost proportion of riders and trackers as variable power costs are excluded from demand/energy proportion resulting from the renewable future peak credit. Therefore, to get a more accurate cost allocation for generation costs, the demand/energy cost proportion from all fixed and variable power costs, inclusive of FERC Account 565, in the cost of service model may provide a better demand/energy proportion instead of the renewable future peak credit result for rider and tracker cost allocation and rate spread. The resulting factor is 25 percent demand and 75 percent energy in 2023, 24 percent demand and 76 percent energy in 2024, and 25 percent demand and 75 percent energy in 2025, as presented in Exh. JAP-5. This is similar to the

demand/energy cost proportion as developed by the fixed peak credit method currently in use.

Q. Is the Company proposing to use the demand/energy cost proportion from all fixed and variable power costs in the cost of service model for all rider and tracker cost allocation and rate spread going forward?

A. The Company proposes that, with the exception of Schedule 141C and Schedule 142, the remaining riders mentioned above use the demand/energy cost proportion from all fixed and variable power costs. Further, the Company proposes to use the renewable future peak credit proportion allocations for Schedule 141C and Schedule 142, as the costs included in these schedules are rate base related and do not include variable power cost items.

Q. Please identify any changes to the methodology associated with distribution substation costs.

A. No change was required for the direct assignment of distribution substations, poles, conduit, and wires because the Company has consistently directly assigned those costs to the high voltage general service and special contract customer classes based on the load ratio share of substations they are fed from.

However, the methodology set forth in WAC 480-85-060 calls for some different allocation factors for the customer rate classes that are not directly assigned. For distribution substations, this study allocates these classes by the average of the relative share of the summer distribution system coincident peak and the relative

share of the winter distribution system coincident peak. In prior cases, for each month, each customer class's percentage contribution to the peaks of individual distribution substations, was calculated using the average hourly consumption of each class's load on the substation, divided by the non-coincident peak ("NCP") load factor of that class in that month. Each class's contribution to the peak load on each individual substation was then averaged across the months of the year. This average monthly contribution to each substation's peak load was then multiplied by the booked cost of the individual substation in current dollars to derive the allocated cost of each substation. These allocated substation costs were then summed by customer class and compared with PSE's total substation investment in current dollars to develop the substation cost allocations for FERC Accounts 360-362.

Q. Please identify any changes to the methodology associated with distribution poles, conduit and wire costs.

A. This study allocates poles, conduit, and wires to customer groups (not directly assigned) using the average of 12 monthly distribution system non-coincident peaks separately for primary system and secondary system customers. This method is different from prior PSE electric cost of service studies.

In prior studies, PSE leveraged customer information system ("CIS") and geographic information system ("GIS") to associate each customer with a feeder. PSE used monthly NCP load factors to determine each class's percentage peak load contribution for each feeder. Each class's contribution to monthly peak load

on the feeder was multiplied by the number of overhead and underground miles on the feeder. These load-weighted line miles were then summed across all feeders to develop the total load-weighted overhead and underground distribution line miles allocated to each class. Allocation factors for overhead and underground lines were developed by dividing the total load-weighted line miles attributable to each class by the total load-weighted line miles for all classes. The overhead allocators were then applied to FERC Accounts 364 and 365, and the underground allocators were applied to FERC Accounts 366 and 367.

Q. Please identify any changes to the methodology associated with line transformer costs.

A. There are no changes to the methodology associated with line transformer costs. Line transformer costs are allocated to customers who receive power at secondary voltage by the relative ratio of transformers at current installation. The Company's prior studies used this same methodology.

Q. How are customer-related distribution costs treated in this study?

A. Service line costs and meter costs are allocated to customer rate classes by customer count, multiplied by installed cost of new service lines and meters, respectively. Customer service and billing operating expenses are allocated by customer counts weighted by meter counts and direct assignment of costs. In the Company's prior electric cost of service studies, service line costs were allocated by average secondary customer counts without weighting.

Q. How are administration and general operating expenses and general plant costs treated in this study?

A. Property insurance and taxes are functionalized and allocated based on plant in service. Pensions and employee insurance expenses are allocated based on salary and wages. FERC fees are identified and allocated based on energy consumption. Revenue-based fees, uncollectible accounts expenses, and excise taxes are allocated by relative share of total revenue. Other administrative and general costs that can be directly associated with production, transmission, distribution, or customer relations functions based on Company departments are directly assigned to those functions and then allocated to customer class by the relevant plant or number of customers associated with the function. The remainder of administrative and general expenses and general plant costs are allocated based on internal allocation factors generated by the cost of service model.

Q. Has the Company submitted a cost of service study that complies with the WAC 480-85 rules?

A. Yes. As per the requirements in General Order R-599, the Company has submitted two cost of service studies, one which complies with WAC 480-85, as well as another which is based on the Company's proposal to classify FERC Account 565 as energy and allocate similar to variable power costs. The results of both cost of service studies are presented in Exhibit BDJ-4. PSE's proposed cost of service study results informed the calculation for the Company's proposal for rate spread and rate design.

C. Rate Class Results

Q. What are the results of the Company's electric cost of service study presented in this case?

A. In Section E of Exh. BDJ-4, I present a high-level summary of the rate class results in the form required by the WAC 480-85-040(1) Electric cost of service template. Table 2 below shows the rate of return and the relationship of the customer class return to the overall return (relative return ratio) in addition to the revenue-to-cost parity ratio at present rates for each rate schedule:

Table 2– Electric Cost of Service Base Case Results

Customer Class	Customer Schedule	Rate of Return	Return Ratio	Parity at Present Rates
Residential	7	7.17%	0.95	0.99
General Svc, < 51 kW	8/24	9.63%	1.27	1.05
General Service, 51 – 350 kW	7A, 11, 25, 29	7.24%	0.96	0.99
General Service, >350 kW	12, 26	6.71%	0.89	0.98
Primary Service	10/31	7.23%	0.96	0.99
Primary Irrigation	35	-6.28%	(0.83)	0.60
Primary Interrupt Schools	43	10.36%	1.37	1.07
Special Contract	SC	3.33%	0.44	0.79
High Voltage	46, 49	16.13%	2.13	1.16
Lighting Service	50-59	11.44%	1.51	1.23
Choice/Retail Wheeling	448/449	7.38%	0.98	1.00
Firm Resale/Special Contract	5	-9.03%	(1.19)	0.60

As can be observed from the above table, Schedule 35 shows under-recovery of the costs to serve them. Schedules 43, 46 and 49 show over-recovery of the costs to serve them (currently providing in excess of the requested rate of return). The remaining schedules are relatively close to unity with the overall return from present rates. The summary results of this study are used to develop proposed rates.

V. ELECTRIC RATE SPREAD AND RATE DESIGN

A. Electric Rate Design Guidelines and Overview

Q. What are the guidelines used by PSE in designing customer rate development?

A. Rates should (1) provide for recovery of the Company's total revenue requirement, (2) provide revenue stability and predictability to the utility, (3) provide rate stability and predictability to the customer, (4) reflect the cost of providing service, (5) be fair, (6) send proper price signals; and (7) be simple and understandable. These principles are consistent with those presented in Principles of Public Utility Rates, by James C. Bonbright, et al. (2nd ed. 1988).

Q. Would you please summarize PSE's proposed electric rate spread?

A. Based upon the parity percentages shown in PSE's electric cost of service study and the desire to move towards full parity (a parity percentage of 100 percent) in a gradual manner, PSE proposes to 1) apply, with three exceptions, an adjusted

average rate decrease to retail classes within 5 percent of full parity; 2) apply a rate decrease that is 125 percent of the adjusted average to the class that is more than 5 percent above full parity (All Electric Schools); 3) apply a rate decrease to that is 150 percent of the adjusted average to the class that is more than 10 percent above full parity (High Voltage); and 4) apply no change to the one retail class that is 20 percent or more below full parity (Primary Voltage Irrigation and Pumping).

As in PSE's last rate case, rates in the Special Contract and Choice/Retail Wheeling, are such that the rates are based on the cost of service. This results in a calculated rate spread amount for these classes, rather than a rate spread based on a class-specific cost of service and rate spread analysis.

The Firm Resale/Special Contract class is allocated an amount that would move it to full parity so that there is not a cross-jurisdictional subsidy.

The adjusted average electric rate decrease is the average electric rate decrease after accounting for the effect of above-average or below-average decrease to certain classes. Since the customer class receiving an above average decrease generates less revenue for PSE than the retail class receiving the below-average decrease, the adjusted average retail electric decrease of 0.59 percent is less than PSE average retail electric decrease of 0.62 percent.

A summary of PSE's proposed electric rate spread is provided in Table 3. Please also see Exh. BDJ-5 for a detailed worksheet of PSE's rate spread proposal.

Table 3 - Proposed Electric Rate Spread

Customer Class	Customer Schedule	Parity Ratio	Proposed Rate Change
Residential	7	0.99	-0.59%
General Svc, < 51 kW	8/24	1.05	-0.59%
General Service, 51 – 350 kW	7A, 11, 25, 29	0.99	-0.59%
General Service, >350 kW	12, 26	0.98	-0.59%
Primary Service	10/31	0.99	- 0.59%
Primary Irrigation	35	0.60	-0.0%
Primary Interrupt Schools	43	1.07	-0.74%
Special Contract	SC	0.79	-18.16%
High Voltage	46, 49	1.16	-0.88%
Lighting Service	50-59	1.23	-0.59%
Choice/Retail Wheeling	448/449	1.00	-0.43%
Firm Resale/Special Contract	5	0.60	66.87%

Q. Please summarize the changes PSE proposes to make to its electric rate design.

A. PSE is proposing several changes in this case to the design of existing rates. With only a few exceptions, all energy revenue in a customer class will be decreased by the adjusted class average percentage decrease. The exceptions include:

1. Schedule 7, where the monthly basic charge is increased by 10 percent, the first block and the tail block energy charge is decreased by the remaining class average decrease.

2. Schedules 50-59, where individual charges within and among these lighting schedules were first calculated based on a lighting cost study (discussed later in this testimony) and where these cost-based rates were scaled to generate the revenue proposed for this group of customers.

3. Choice and Retail Wheeling, where its customer charge was set to cost based levels.

4. Special Contract, where its customer charge was set to cost based levels and the customer's distribution rates are charged in accordance with its contract.

B. Proposed Residential Electric Rate Design

Q. Please summarize PSE's current residential electric rate design.

A. The current rate is a two-block energy rate with a monthly basic charge of $7.49 for single phase, a first-block energy rate of 9.1344 cents per kWh, and a second block energy rate of 11.1175 cents per kWh. The first block energy rate applies to usage up to 600 kWh per month, with all monthly usage above that level charged the second-block rate.

Q. Please summarize PSE's proposed residential rate design under the two block rate structure.

A. The Company proposes to increase the single- and three-phase basic charges by 10 percent, which equates to $8.24 for the single phase charge and $19.79 for the three-phase basic charge. The energy charges for the first and tail blocks were decreased by the remaining adjusted class decrease of 1.48 percent.

Q. Why is the Company increasing the residential basic charge at this time?

A. PSE has not increased the residential basic charge since 2012 as ordered in its 2011 general rate case, Docket UE-111048. The cost of service study continues to indicate a growing variation between customer charge-related costs and what is being assigned to the basic charge. As per the cost of service study, the customer charge should be set at $9.61. This implies fixed customer costs to serve residential customers are greater than the basic charge supported in the cost of service study used nearly a decade ago. Therefore, the Company proposes a modest increase in the basic charge from $7.49 to $8.24 to incrementally move the basic charge closer to the fixed customer costs.

C. Proposed General Service Rate Design

Q. Please summarize the proposed rate design for the General Service rate class.

A. The General Service (Rate Schedule 24) class has a monthly basic charge and a single-block energy rate that varies by season. This rate schedule does not have a demand charge. PSE's proposal is to decrease the base energy charge component by the adjusted average decrease of 0.65 percent.

Q. Please summarize the proposed rate design for Small Demand General Service.

A. The Small Demand General Service (Rate Schedule 25) class currently has a basic charge rate, two-block seasonal energy rates and a two-block seasonal demand rate. The first 50 kW block of billing demand has no demand charge and demand

related costs are recovered in the first block of the energy rate. Under PSE's proposal, the base energy charges for Schedule 25 rates are decreased by the adjusted average decrease of 0.70 percent.

Q. Please summarize the proposed rate design for large general service customers.

A. These customers are served under two principal schedules: Large Demand General Service (Rate Schedule 26) and Primary General Service (Rate Schedule 31). Both schedules have basic charges, a single-block energy charge and seasonally-differentiated demand charges. The demand and energy rates of the two schedules are linked such that the lower rates for Schedule 31 reflect the lower voltage transformation costs and associated lower energy losses.

Q. Why does PSE link the demand rates of the two schedules?

A. Since the loads and load factors for these schedules are comparable, PSE's intent is to provide a cost-based differential between the two rate schedules that create an end-point where customer motivation to take primary service will be based upon customer needs. In other words, PSE's proposal is an effort to incentivize customer to take service at either primary or secondary voltage based on their actual service needs rather than a desire to qualify for the schedule with the lower rate.

Q. Please describe the proposed Schedule 26 and Schedule 31 rate designs.

A. PSE decreased the energy charges for Schedule 31 and Schedule 26 by the class' adjusted average decrease. PSE proposes that the Schedule 26 base energy charge be reduced by 0.85 percent and the Schedule 31 base energy charge is decreased by 0.86 percent.

D. Proposed High Voltage Rate Design

Q. Please summarize the high voltage rate design.

A. These customers are served under two schedules: High Voltage General Service (Schedule 49) and High Voltage Interruptible Service (Schedule 46). Both schedules have demand charges and a single-block energy charge. The energy rates for these schedules are tied together, and only the demand charge differs to reflect the lower cost of providing interruptible service. The energy charge for Schedule 49 and Schedule 46 was decreased by the adjusted average decrease of 1.13 percent.

E. Retail Wheeling Rate Design

Q. Please summarize the retail wheeling rate design.

A. PSE proposes to set the only charge, a basic charge, for Power Supplier Choice and Retail Wheeling Service (Schedules 448 and 449) at its cost of service. This is a decrease of $169 per month.

F. Special Contract Rate Design

Q. Please summarize the special contract rate design.

A. There are two charges that PSE proposes to set for the special contract – the customer charge and distribution service charges for specific campuses served under the special contract. The customer charge is proposed to be set at its cost of service, which is $396 per month or an increase of $160. The distribution rate for each of the four campuses is designed to recover customer-specific distribution costs on a levelized basis. PSE reviewed the distribution service charge for each campus and adjusted the distribution transformer, circuit, and substation costs based on plant additions and retirements that have occurred since PSE's last 2019 general rate case proceeding. These updates will be made in the special contract contemporaneously with rate changes resulting from this proceeding.

G. Other Rider Schedule Rate Design

Q. Has PSE prepared the rate spread for the Schedule 141C Colstrip Tracker?

A. Yes, the rate spread for the Schedule 141C tracker can be found in Exh BDJ-5. PSE used the renewable peak credit methodology to allocate the revenue requirement developed by Ms. Free in Exh. SEF-19

Q. How is the Schedule 141C rider charge designed for customers?

A. PSE is proposing to remove costs associated with Colstrip from base rates to be recovered through a separate tracking and true-up mechanism in Schedule 141C

(Colstrip Adjustment). The Renewable Future Peak Credit ratio was used to allocate the Colstrip adjustment revenue requirement developed by Ms. Free in Exh. SEF-19. The Schedule 141C tariff reflects the proposed charges for 2023 only as the rider will be updated annually. Nonetheless, PSE calculated the estimated rates for 2024 and 2025 in Exhibit BDJ-5 in an effort to provide transparency on the future charges related to Schedule 141C; actual charges are likely to vary from the estimate. PSE developed the energy charges on a $/kWh basis using 2023, 2024 and 2025 forecasted load for all customer rate schedules.

Q. How are the Schedule 141N and Schedule 141R rider charges designed for customers?

A. PSE is proposing two new rate schedules, Schedule 141R (Rates Subject to Refund Rate Adjustment) and Schedule 141N (Rates Not Subject to Refund Rate Adjustment) to administer the rates that are subject to and not subject to refund. The multiyear plan rate spread for the Schedule 141N (Rates Not Subject to Refund Adjustment) and Schedule 141R (Rates Subject to Refund Adjustment) riders can be found in Exh BDJ-5. Rate base costs from the electric cost of service study by rate class were used to allocate the multiyear rate plan revenue requirement developed by Ms. Free in Exh. SEF-4. PSE's revenue requirement for Schedule 141N was adjusted for base rate revenue changes caused by forecast billing determinant changes between the multiyear rate plan periods. PSE developed the energy charges on a $/kWh basis using 2023, 2024 and 2025 forecasted load for all customer rate schedules.

Q. What is the basis for the charges under the 141N and 141R rider schedules?

A. PSE developed energy charges on a $/kWh basis for all customer rate schedules, except Schedule 449/459 (Choice/Retail Wheeling), which is designed as a monthly customer charge. Charges are developed for 2023, 2024 and 2025 using forecasted load and customers.

H. Summary of Electric Rate Design Proposal

Q. Has PSE prepared an exhibit consistent with its base rate design proposals in this case?

A. Yes. Please see Exh. BDJ-5, for the derivation of PSE's proposed base rates in this case.

Q. Has PSE prepared new base electric tariff schedules based upon the electric cost of service study results and consistent with its rate design proposals in this case?

A. Yes. Please see Exh. BDJ-19 for the proposed electric tariff schedules.

I. Summary of Electric Rate Impacts

Q. What are the impacts of PSE's proposed electric rates in this case?

A. Several electric rider schedules will be reset concurrent with the effective date of new base electric rates resulting from this rate case. Specifically, the impacts of the base electric rate changes must be added to the impacts of electric rate

changes associated with the concurrent changes to and Schedule 95 (Power Cost Adjustment Clause) and Schedule 141X (Protected-Plus Excess Deferred Income Tax (EDIT) Reversals). The bill impacts also incorporate the proposed Schedule 141C (Colstrip Adjustment), Schedule 141N (Rates Not Subject to Refund) and Schedule 141R (Rates Subject to Refund). The combined impact of these changes, based on rates currently in effect using forecasted billing determinants for each of the rate years, is presented in the Exhibit BDJ-7. See Table 4 below for rate schedule revenue requirements and bill impacts by rate schedule.

Table 4. Estimated Customer Impact of Proposed Rates

		2023				2024		2025	
Customer Class	Rate Schedule	GRC Impact $M	GRC Impact %	GRC Impact + Other Riders $M	GRC Impact + Other Riders %	GRC $M	GRC %	GRC $M	GRC %
Residential Service	7	$ 196.1	16%	$ 160.3	13%	$ 38.0	3%	$ 18.0	1%
General Service, <51 kW	8/24	$ 35.0	11%	$ 23.9	8%	$ 7.3	2%	$ 4.1	1%
General Service, 51-350 kW	7A/ 11/ 25/ 29	$ 38.3	0%	$ 29.9	0%	$ 7.9	0%	$ 4.4	0%
General Service, >350 kW	12/26	$ 19.1	10%	$ 13.1	7%	$ 4.3	2%	$ 2.4	1%
Primary Service, General	10/31	$ 14.3	11%	$ 9.5	7%	$ 3.3	2%	$ 1.9	1%
Primary Service, Irrigation	35	$ 0.1	27%	$ 0.1	23%	$ 0.0	4%	$ 0.0	1%
Primary Service, Schools	43	$ 1.1	9%	$ 0.8	6%	$ 0.3	2%	$ 0.1	1%
High Voltage Service	46/49	$ 2.1	0%	$ 0.7	0%	$ 0.9	0%	$ 0.7	0%
Lighting Service	50-59	$ 3.8	22%	$ 3.5	20%	$ 0.8	4%	$ 0.3	1%
Retail Wheeling	449/459	$ 0.2	2%	$ 0.2	2%	$ 0.0	0%	$ 0.0	0%
Special Contract	SC	$ 0.1	2%	$ (0.7)	-11%	$ 0.2	3%	$ 0.0	0%
Firm Resale	5	$ 0.3	84%	$ 0.3	78%	$ 0.0	3%	$ 0.0	1%
Total Sales		$ 310.6	14%	$ 241.6	11%	$ 63.1	2%	$ 31.8	1%

Q. What is the impact on the typical electric residential customer monthly bill?

A. Exhibit BDJ-7, page 5, presents residential bill impacts for a typical residential customer. The impact on the monthly bill of PSE's typical residential customer using 800 kWh is an increase of $11.88, or 13.36 percent over current levels in 2023; an additional increase of $2.78, or 2.76 percent over 2023 levels in 2024, and an additional increase of $1.30, or 1.26 percent over 2024 levels in 2025.

J. Lighting Rate Design

Q. Is PSE proposing any changes to its electric lighting tariffs in this case?

A. Yes, PSE is proposing to update overall lighting rates to better reflect cost causation with a more detailed and current cost analysis.

Q. Please provide an overview of how this lighting analysis was performed.

A. The methodology employed in PSE's proposal is consistent with that approved in 2019 general rate case. The five step process used to conduct this analysis was as follows:

1. Identify the revenue required from the lighting customer class based on electric rate spread and rate design for approximately $17.7 million in revenue, as identified in Exhibit BDJ-5.

2. Classify lighting costs based on relevant cost drivers in the following categories: Capital, Distribution O&M, Administrative and General, Demand-Related and Energy-Related costs, through the electric cost of service study in the Exhibit BDJ-4.

3. Identify the contribution made by each type of lamp and pole towards these cost drivers based on the lamp/pole types, wattage, O&M expenses associated with each lamp/pole type, financer and installation costs. These influencing characteristics are used in developing unitized costs (used to allocate costs) and subsequently used to calculate the proposed rate for each lamp wattage range or pole size/type on each lighting schedule.[3]

4. Allocate the classified costs based on each lamp and pole size/type contribution to the cost drivers. These allocated costs are then summed to find the total monthly charge for each type of lamp, pole or connected watt (in the case of Schedule 57).

5. Develop lighting and pole rates from the allocated costs.

Through this process, the lighting revenue requirement is allocated directly to each lamp size/type or pole based on the characteristics of that lamp or pole and the schedule under which the customer takes service. This provides continuity in rates across all lighting schedules and sets rates proportional to the estimated cost of service for each lamp size/type or pole.

These total monthly charges, and their derivation, are included in the Exhibit BDJ-6.

Q. Is PSE proposing any changes to the lighting rate calculations in this case?

A. Yes, PSE is proposing to make the following changes to lighting rate calculations:

1. Expand the wattage range for Light Emitting Diode ("LED") lamps by creating a new lamp size, "0-30 watt," for both company and customer owned lights under Rate Schedules 51, 53, 54, 55, 56, 58 and 59.

2. Add Smart LED rate design for Schedules 51 and 53 (company owned lights).

3. Establish lighting base rates for the period of January 2023 through December 2025.

[3] Or, in the case of Schedule 57, the rate for each connected watt.

4. Request additional lighting revenue recovery for the period of January 2023 through December 2025 related to multiyear rate design, through new rider Schedule 141C (Colstrip Adjustment), Schedule 141N (Rates Not Subject to Refund), and Schedule 141R (Rates Subject to Refund), which are discussed in more detail in Ms. Free's testimony, Exh. SEF-1T.

Q. Why is PSE proposing to create the new lamp size "0-30 watts" for LED lamps?

A. In Dockets UE-170033/UG-170034 ("2017 general rate case"), PSE proposed a continuous range of rates (i.e., without gaps) that could accommodate new LED offerings as they become available. The new LED wattage ranges were expanded to 30 watt ranges. In order to establish consistent offerings across schedules, all lighting schedules offered LED wattage ranges beginning with 30 – 60 watts and ending with 270.01 – 300 watts. Additionally, to accommodate schedule specific customer needs, more ranges were added to Schedules 58 and 59 for ranges over 100 watts beginning with 300.01 – 400.00 watts and ending with 800.01 – 900.00 watts. However, with increased technology and energy efficiency efforts, PSE is discovering customers are also using lower wattages. This drives the need to create new LED rates for the range of 0-30 watts.

Q. What are some of the benefits of adding a new wattage range for LEDs?

A. Adding the new lower range for LED rates of 0-30 watts will eliminate a small amount of cross subsidization. Within each 30 watt range, lamp rates are calculated with the assumption that lamps in that range have wattage at the middle of the range (e.g., for the range of 30 – 60 watt, the prices are calculated at 45 watt). Consequently, new low wattage lamps would be charged slightly less than

what they are currently being charged under the existing 30 – 60 watt range, as the price will be calculated at 15 watts average.

Q. Why is PSE proposing to add company owned Smart LED rate in the Lighting Cost of Service ("COS") model for Schedules 51 and 53?

A. Effective January 1, 2022 PSE received WUTC Commission approval in Docket UE-210759 for Smart LED Light rates that are incorporated into electric Company Owned Schedule 51 LED Lighting Service and Schedule 53 Street Lighting Service. A Smart LED Street Lighting system includes Advanced Metering Infrastructure software and new smart lighting control hardware. Some customer advantages for the Smart LED lamps include alerts for when lights go out, automatic dimming and the measurement of energy usage to enhance PSE's existing Company-Owned LED lighting services. Incorporating the Schedule 51 and Schedule 53 Smart LED lamps in the Lighting COS model will re-establish the rates to recover its current share of Capital, Distribution O&M, Administrative and General, Demand and Energy related costs from based on PSE's proposed electric cost of service, illustrated in the Exhibit BDJ-6.

Q. What is PSE's proposal for assigning cost recovery for the Company Owned Smart LED lighting in the lighting COS model?

A. Currently, Smart LED approved rates are set based on a per-kWh energy charge developed from the measured consumption of each lamp and a monthly basic charge based upon the wattage of each light, established in 2019 general rate case.

The proposed lighting cost of service model in Exh. BDJ-6 assigns capital, distribution O&M, Administrative & General, Demand and Energy related costs for new Smart LED lamps as one per-kWh energy charge to recover for all those costs.

Q. What changes are proposed to Base Rates in the lighting cost of service model due to PSE's proposed Multiyear Rate Design?

A. Base rates included in the Lightning COS model are costs from the test year of the twelve-month period ending June 30, 2021, with proforma adjustments through December 31, 2021, as identified in the electric cost of service study in Exhibit BDJ-4. The base rates are proposed to be carried forward unchanged through end of 2025.

Q. What changes are proposed to the Lighting COS model related to the Multiyear rate design and revenue recovery, through Schedules 141C, 141N, and 141R?

A. PSE proposes to have separate lighting rates that recover revenue from each of the new rider schedules, as presented in Exhibit BDJ-6. The proposed lamp rates are based on the demand and energy costs allocated to each of the lamp sizes and is imputed into a per lamp charge (or per Watt charge for Schedule 57). The proposed lamp rates for each rider schedule are set for the multiyear rate plan period of January 2023 through December 2025, changing annually, with an exception for the Schedule 141C, where proposed rates are only set for 2023 in

the 2022 general rate case and proposed to be annually trued up in the following years for 2024 and 2025. The proposed lighting revenue for each light schedule is allocated based on the F2021 forecasted kWh energy usage for each of the twelve-month periods.

Q. Has PSE prepared the impacts associated with the proposed rates for each lighting schedule?

A. Yes, rate impacts for each lighting schedule are presented in Table 5 below. Rate impacts are presented as changes in revenue relative to existing base rates. The proposed rate revenue change for lighting schedules represents the total revenue impact for base portion as well as revenue change due to Schedules141C, 141N and 141R. Table 3 shows rates are 23.29 percent higher than current light base rate revenue in the year 2023, 4.01 percent higher in year 2024 and 1.22 percent higher in year 2025. More detail is provided in the Exhibit BDJ-6.

Table 5 – Proposed Revenue Change for Lighting Schedules

	2023	2023	2024	2024	2025	2025
Rate Schedule	Base + SCH 141C, 141N, SCH 141R Revenue Change	Overall Impact	Base + SCH 141C, 141N, SCH 141R Revenue Change	Overall Impact	Base + SCH 141C, 141N, SCH 141R Revenue Change	Overall Impact
03E	$333	67.14%	$71	8.55%	$28	3.15%
50E-A	$3,231	62.03%	$661	7.84%	$212	2.32%
50E-B	$44	65.89%	$10	9.09%	$3	2.68%
51-LED	$160,087	65.87%	$36,844	9.14%	$10,947	2.49%
51-Smart Light LED	N/A	N/A	N/A	N/A	N/A	N/A
51 – Facilities charges	$30,479	4.41%	$0	0.00%	$0	0.00%
52-Facilities charges	$36,769	4.41%	$0	0.00%	$0	0.00%
52E	$659,660	65.86%	$148,847	8.96%	$47,688	2.63%
53E	$2,069,373	17.58%	$440,591	3.18%	$138,404	0.97%
53E – Smart Light LED	N/A	N/A	N/A	N/A	N/A	N/A
54E	$341,824	65.88%	$77,477	9.00%	$24,807	2.64%
55E & 56E	$200,948	18.71%	$41,871	3.28%	$13,416	1.02%
57E	$381,128	80.97%	$72,746	8.54%	$23,575	2.55%
58E & 59E	$128,286	31.67%	$27,269	5.11%	$8,768	1.56%
Old Poles	$(7,197)	-15.46%	$0	0.00%	$0	0.00%
New Poles	$(15,773)	-23.98%	$0	0.00%	$0	0.00%
Total Retail Sales	**$3,989,193**	**23.29%**	**$846,386**	**4.01%**	**$267,848**	**1.22%**

VI. PROPOSED UPDATES TO PSE'S ELECTRIC AND GAS DECOUPLING MECHANISMS

A. Decoupling Mechanisms: Overview of Existing Mechanisms

Q. What is a revenue decoupling mechanism and what is its purpose?

A. As described in the Commission's *Report and Policy Statement on Regulatory Mechanisms, Including Decoupling, To Encourage Utilities to Meet Or Exceed Their Conservation Targets*[4] ("Decoupling Policy Statement"), decoupling is "a means to separate a utility's recovery of costs and return from the amount of energy it sells."[5] As the Commission noted in its order originally approving PSE's mechanisms, decoupling "removes the so-called throughput incentive, thus promoting PSE's more aggressive pursuit of cost-effective conservation."[6] Decoupling is also a useful tool to better align the utility's interests with public policy goals, thus making it easier to achieve those goals.

Q. Please elaborate how the decoupling mechanism can further policy goals.

A. PSE is supportive of Washington State's clean energy transition and recognizes that conservation and other clean energy programs are beneficial to the public at large. The Company wishes to provide products, services and rate designs to customers that reflect their needs and priorities. As PSE continues to accelerate the clean energy transition, it will result in lower revenues due to conservation and other clean energy programs since customers will use less power and/or take

[4] Docket U-100522 (November 4, 2010).
[5] *Id.* at ¶ 7.
[6] Dockets UE-121697/UG-121705, Order 07, Synopsis.

the power they do use in times when the rates are lower for those customers on time varying rates. Decoupling removes the utility's inherent motive to sell more energy to increase revenues and allows the Company to continue to embrace forward looking clean energy policy, innovation, products and services.[7]

Q. How do PSE's revenue decoupling mechanisms generally operate?

A. PSE's electric and gas decoupling mechanisms decouple distribution system costs and for electric operations it also decouples fixed power costs ("FPC"). For distribution system costs the mechanism links allowed revenue to the number of customers it serves. Specifically, PSE's mechanisms calculate the Company's allowed delivery revenue as the product of its monthly allowed delivery revenue per customer multiplied by the number of customers served in each month and for each decoupling rate group. For fixed power costs, allowed revenue is based on the amount the Commission authorizes in a general rate case or power cost only rate case and is allocated to the decoupling groups using the allocation factors for generation and transmission as described in WAC 480-85-060, with the exception of FERC Account 565, which the Company excluded from fixed power costs. Each month and for each decoupling rate group, PSE defers the difference between its allowed delivery and FPC revenue and actual revenue, including effects of weather, and trues up this amount in the following year in the Company's annual Schedule 142 rate filing. Allowed annual delivery revenue per

[7] *See* Prefiled Direct Testimony of Dr. Mark N. Lowry, Exh.MNL-1T, for more information.

customer and FPC revenue is shaped by month to, ideally, minimize fluctuations in the monthly deferrals.

Q. What rate classes are in each of the decoupling mechanisms' rate groups?

A. For the electric decoupling mechanism, there are currently six rate groups: (i) Schedule 7, (ii) Schedules 8 and 24, (iii) Schedules 12 and 26, (iv) Schedules 10 and 31, (v) Schedule SC, and (vi) a group comprised of Schedules 7A, 11, 25, 29, 35 and 43. For PSE's gas decoupling mechanism there are currently three rate groups: (i) Schedules 23 and 53, (ii) Schedules 31 and 31T, and (iii) a group comprised of Schedules 41, 41T, 86 and 86T.

Q. Are there any customer protections in place with PSE's decoupling mechanisms?

A. Yes. As part of the approval of its decoupling mechanisms, PSE proposed and the Commission approved an Earnings Test and a Rate Test. The Earnings Test shares 50 percent of the amount PSE earns in excess of its authorized rate of return. The Rate Test provides that electric customers will not experience more than a three percent increase in rates each year and gas customers will not experience more than a five percent increase in rates each year as a result of the decoupling mechanism. The Rate Test operates as a "soft cap", where amounts not recovered due to limitations on rate increases are allowed to be recovered in a subsequent rate period.

Q. What benefits have customers received as a result of PSE's decoupling mechanisms?

A. Customers received benefits from the approval of the Company's decoupling mechanisms through more low-income bill assistance and conservation. Each year low-income customers receive additional funding for bill assistance which is tied to any increases in the residential Schedule 142 decoupling rate[8]. PSE also committed to achieving five percent more conservation than required by RCW 19.285 in each two-year reporting biennium.

B. Decoupling Mechanisms: Review of Operation of the Decoupling Mechanisms

Q. How have the electric and gas decoupling mechanisms generally performed?

A. Over the last four years since the Commission last approved the extension of the decoupling mechanisms[9], the mechanisms have performed consistent with expectations.

Q. Has a third party reviewed the Decoupling Mechanisms since they were last approved by the Commission?

A. No, the Commission in approving the extension of the decoupling mechanisms in Dockets UE-170033/UG-170034 did not require a third party review of the mechanisms. However, a third party review of the mechanisms was performed in

[8] Dockets UE-130137/ UG-130138, Order 07 at ¶ 177.
[9] Dockets UE-170033/UG-170034, Order 08.

the past by H. Gil Peach & Associates LLC, which covered the period of July 1, 2013 to June 30, 2016 and was presented in Dockets UE-170033/UG-170034.[10]

Q. Did PSE perform a study of the operation of its decoupling mechanisms?

A. Yes, PSE performed an internal study similar to the study that was performed by H. Gil Peach & Associates LLC. These study results are reflected in the Exhibit BDJ-7.

Q. What time period was covered by PSE's internal study of the decoupling mechanisms?

A. The Company performed a study of its decoupling mechanisms for the period of January 1, 2018 through December 31, 2021. This time frame was chosen as the Commission last approved the extension of the decoupling mechanisms effective December 19, 2017 and it also follows the Commission's requirement to review the operation of the decoupling mechanisms again after they have operated for "four more years."[11] Since this study was completed before the end of 2021, PSE used actual data through October 2021 and forecasted data for November and December 2021.

[10] Dockets UE-170033/UG-170034, Piliaris, Exh. JAP-29.
[11] Dockets UE-170033/UG-170034, Order 08 at ¶ 262.

Q. What topics were studied?

A. PSE's internal study of its decoupling mechanisms addressed the following topics:

i) What were the bill impacts of the decoupling mechanisms on low-income residential customers?

ii) What was the impact of decoupling on conservation during the study period?

iii) What was the results of the rate test during the study period?

iv) What were the overall rate impacts for decoupled customers from the annual decoupling filings?

v) What was the impact of the decoupling mechanism on the Company's revenue?

vi) What was the impact of weather on the decoupling deferrals?

Q. What were the bill impacts of the decoupling mechanisms on low-income residential customers?

A. Currently PSE does not have a rate schedule dedicated to low-income customers; therefore, low-income residential customers have the same rates as all residential customers (with payment assistance for qualifying customers (i.e. PSE HELP bill-payment assistance)). Therefore, to evaluate the impact of the decoupling mechanisms on low income customers, data was used for electric residential customers on Schedule 7 and gas residential customers on Schedule 23, where low-income customers were defined as customers who received bill assistance through the HELP program within the same calendar year of the evaluation time period. The study found that for electric low income customers the bill impacts

from the Schedule 142 decoupling rate have been small, ranging from -0.20 percent to 0.71 percent as a portion of the customer's bill. For gas low income customers the bill impacts have been higher ranging from 1.30 percent to 5.64 percent as a portion of the customer's bill. The higher bill impacts for the gas customers in the first couple of years of the study were due to clearing out previous decoupling deferrals that had accumulated due to the rate test constraining deferral recovery during the period prior to the study. The deferral balance has since cleared and in recent years the bill impacts have been 1.46 percent and 1.30 percent for 2020 and 2021 respectively. The study and results can be found in Exh. BDJ-8.

Q. What was the impact of decoupling on conservation during the study period?

A. Decoupling is an important tool for PSE to actively promote conservation. As a condition of approving the current decoupling mechanism, PSE committed to increasing its electric conservation achievement five percent above the biennial targets set by the Commission pursuant to the Energy Independence Act (RCW 19.285) and submit itself to penalties equivalent to those outlined in RCW 19.285 for failure to achieve these incremental savings. For gas conservation, PSE committed to increasing its conservation achievement to five percent above the targets required to meet the guidance from the PSE Integrated Resource Plan over the same two-year reporting biennium as is used to determine compliance with the electric conservation requirements in RCW 19.285. PSE also committed to penalties for not meeting the gas incremental savings in the amounts of $20,000

for meeting between 4.5 percent and 5.0 percent, $50,000 for meeting between 3.75 percent and 4.5 percent, and $75,000 for less than 3.75 percent achievement. For the electric conservation goals, PSE exceeded the goal for 2018 and 2019. For 2020, PSE achieved 75 percent of its goal with the COVID-19 pandemic limiting PSE's ability to achieve more conservation achievement. For 2021, there is currently only data available through October 31, 2021, but 95 percent of the goal has been met with two months to go in the year. For the gas conservation goals, PSE has exceeded its goals in each of the years except for 2020 where due to the pandemic the Company reached 89 percent of the goal. For 2021, which includes actual achievement through October 31, 2021, PSE has exceeded its goal by 477 thousand therms, almost matching the 525 thousand therm shortfall from 2020 and is on track to make up the remainder of the prior year shortfall by the end of 2021. An important finding of the conservation savings analysis was that approximately 90 percent and 98 percent of the conservation volumes during the four-year evaluation period came from electric and gas decoupling customers respectively. This highlights the importance of the decoupling mechanism in ensuring that PSE is able to aggressively pursue conservation and is not harmed financially by its achievements. The study and results can be found in Exh. BDJ-8.

Q. What was the results of the rate test during the study period?

A. As part of the approval of the decoupling mechanisms, the Commission required a Rate Test for the annual decoupling filings to set rates to amortize the decoupling

deferrals. The Rate Test ensures that electric customers will not experience more than a three percent increase in rates each year as a result of the decoupling mechanism while gas customers are limited to a five percent increase. Since PSE's decoupling mechanism is a "Full Decoupling" mechanism, as defined by the Commission's Decoupling Policy Statement, any deviation in use per customer up or down is therefore included in the decoupling deferrals. The Company reviewed the results of the annual filing Rate Tests for the past four years and for electric customers the three percent Rate Cap was triggered multiple times during the study period. A closer look at the electric results shows that the majority of the Rate Test issues were associated with PSE's 2021 decoupling filing to amortize 2020 deferrals with every decoupling rate group triggering the Rate Cap except for the residential Schedule 7 group. The likely cause of this is the COVID-19 pandemic causing commercial and industrial customers to lower their usage. PSE notes that while the pandemic likely increased decoupling deferrals for commercial and industrial customers the opposite is true for residential customers as their increased usage during the pandemic contributed to the residential decoupling group getting a rate decrease for 2021. PSE's study of the Rate Test includes a forecast for the 2022 filing which shows that most commercial and industrial decoupling groups will not trigger the Rate Cap which suggests that the pandemic impacts on decoupling are lessening. Additionally, residential customers are likely to continue to receive a rate credit as the revenue per customer for the residential decoupling group exceeds the allowed revenue per customer. For gas customers there were no instances where the five percent

Rate Cap was triggered. The highest Rate Test percentage observed for gas customers during the study period was 4.10 percent. The study and results can be found in Exh. BDJ-8.

Q. What were the overall rate impacts for decoupled customers from the annual decoupling filings?

A. For this item PSE consolidated and reviewed the electric and gas rate impacts, overall and by rate schedule, for the annual decoupling filings that were filed during the study period. For electric, the overall revenue impact of the annual filings ranged from $4.4 million or 0.22 percent of revenues for the 2020 filing to $21.4 million or 1.01 percent of revenues for the 2021 filing. For gas, the overall revenue impact of the annual filings ranged from -$45.9 million or -5.35 percent of revenues for the 2019 filing to $15.0 million or 1.52 percent of revenues for the 2021 filing. The study and results can be found in Exh. BDJ-8.

Q. What was the impact of the decoupling mechanism on the Company's revenue?

A. For this study PSE compared the total revenue by year with and without decoupling deferrals and also compared the data on a volumetric and per customer basis. For electric and gas, the total decoupling deferrals for the study period was an under-collection of $84.4 million and $34.8 million respectively. An under-collection means that use per customer during the study period declined which

could be due to multiple reasons including weather, conservation, economic or other factors. The study and results can be found in Exh. BDJ-8.

Q. What was the impact of weather on the decoupling deferrals?

A. As noted above, PSE's decoupling mechanism is a "Full Decoupling" mechanism as defined by the Commission's Decoupling Policy Statement. As such this means the decoupling deferrals pick up any changes in use per customer up or down including weather impacts. All of the electric and gas decoupling groups are weather sensitive and for this study PSE quantified the amount of the decoupling deferrals for each group that were due to weather. For the study period the weather was been mostly warmer than normal which has led to less usage for those customers that are weather sensitive. The residential decoupling groups are the most weather sensitive as heating makes up a large portion of their usage, especially for gas residential customers. For electric, the study found that an under-collection of $15.5 million was due to weather during the study period compared to a total deferral under-collection amount of $84.4 million. For gas, the study found that an under-collection of $45.9 million was due to weather for the study period compared to a total deferral under-collection of $34.8 million. The study and results can be found in Exh. BDJ-8.

C. Decoupling Mechanisms: Proposal to Extend the Mechanisms.

Q. Is PSE proposing to continue its electric and gas decoupling mechanisms?

A. Yes, it is. The mechanisms have generally performed well and there continues to be a public interest in mitigating PSE's throughput incentive. The mechanisms also allow for a symmetrical framework, which allows the Company to collect its allowed revenue per customer when load growth is stagnant, as well as provide refund to customers if load growth is higher than expected.

Q. Is PSE proposing any changes to the mechanisms?

A. PSE is not proposing any substantive changes to the operation of the mechanisms at this time. The decoupling rate groups for electric and gas would remain the same as the current groups along with the Rate Test caps of three percent for electric customers and five percent for gas customers. The Company proposes minor modifications to allow the decoupling mechanisms to conform to other elements of PSE's multiyear rate proposal. These minor modifications include:

1. Removal of Colstrip costs out of the rate base and into the Schedule 141C (Colstrip Adjustment) rider, which is reconciled annually. This change removes all Colstrip related costs from the fixed power cost allowed revenues calculation.

2. Inclusion of base rate rider Schedule 141N (Rates Not Subject to Refund) and Schedule 141R (Rates Subject to Refund) into the decoupling mechanisms since the multiyear plans require multiyear base rate additions be separated in a separate rider for tracking purpose.

3. Establishing the allowed revenue and revenue per unit rates for 2023, 2024, and 2025 using forecasted loads and customer counts to coincide with the changes to the Schedule 141N (Rates Not Subject to Refund) and Schedule 141R (Rates Subject to Refund) rates during the multiyear rate plan.

4. Updating the fixed power cost allowed revenue by decoupling group to incorporate the new classifications and allocation rules as stipulated in WAC 480-85-060, with the exception of FERC Account 565, which the Company excluded from fixed power costs.

5. Moving the earnings sharing test from the decoupling mechanisms into the Company's annual commission basis report filings as per new RCW80.28.425(6) requirements.

Q. Why is PSE proposing to remove the earnings sharing test from the decoupling mechanisms?

A. RCW 80.28.425(6) requires earnings sharing for any earnings that are in excess of 0.5 percent higher than the rate of return authorized by the Commission. Prior to the new requirement, the earnings sharing test was conducted in the decoupling mechanism during the Schedule 142 annual filings. As specified by this statute the earnings sharing test will now be performed in the Company's annual commission basis report filings.[12]

Q. Is PSE proposing any changes to the conservation achievement requirements?

A. No, PSE is not proposing any changes to the conservation achievement requirements. PSE continues to be committed to achieve five percent above the biennial targets set by the Commission for electric and five percent above the targets required to meet guidance from the PSE Integrated Resource Plan for gas.

[12] *See* Free, Exh. SEF-1T, for more information.

Q. Is PSE's proposing any changes to low income funding?

A. PSE will continue its commitment of increasing funding for low income bill assistance in its annual low income filings in proportion to the residential bill impacts of any increases in its Schedule 142 rates from the annual decoupling filings.

Q. What is the proposed duration of the decoupling mechanisms proposed in this filing?

A. PSE proposes that these decoupling mechanisms become permanent and continue until such time PSE proposes, and the Commission approves, to have them discontinued or modified. PSE has been operating with decoupling mechanisms in place since 2013 and after the latest changes to the mechanisms that occurred in 2017, the mechanisms have been performing well and to expectations. With the continued growth in the use of decoupling mechanisms around the country and the lack of evidence that there are significant adverse impacts associated with these mechanisms, there is little risk in the Commission approving the indefinite continuation of PSE's decoupling mechanisms.

Q. Has PSE prepared exhibits illustrating the proposed calculations of allowed revenue for its electric and gas decoupling mechanisms?

A. Yes. Calculations associated with PSE's electric decoupling mechanism are provided in Exh. BDJ-9 and Exh. BDJ-10. Calculations associated with PSE's gas decoupling mechanism are provided in Exh. JDT-7.

Q. How did the MYRP impact the decoupling allowed revenue and revenue per unit rate calculations?

A. For the MYRP, Schedule 141N (Rates Not Subject to Refund) and Schedule 141R (Rates Subject to Refund), were created to recover changes in the revenue requirement during the MYRP and these rates will change annually each January 1st. PSE is proposing to include the revenues associated with these schedules in the decoupling mechanism so the allowed revenue and revenue per unit rates were reset annually for 2023, 2024 and 2025 to coincide with these rate changes. Details for the electric decoupling calculations can be found in Exh. BDJ-9 and Exh. BDJ-10 while the gas decoupling calculations can be found in Exh. JDT-7.

VII. PSE'S 2020 ENERGY BURDEN ANALYSIS

A. Executive Summary

Q. Please summarize this section of your testimony.

A. This section of my testimony presents the results of the Energy Burden Analysis ("EBA") that PSE developed pursuant to RCW 19.405.120.

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

Based on 2020 analysis data (where the EBA study population amounts to roughly 80 percent of PSE's total residential population based on 2020 10K), PSE's EBA shows that 44 percent of PSE's residential customers meet the low-income criterion of 80 percent Area Median Income ("AMI"), and are therefore eligible for multiple low-income programs.[13] Additionally, the EBA shows that 14 percent of PSE's residential customers in the EBA are currently estimated to be energy-burdened, meaning that the proportion of their income spent on energy costs (electricity, natural gas, and other heating fuels such as propane, heating oil, wood, and other) is equal to or over 6 percent. About 98 percent of these energy-burdened households are estimated to be low-income (fall below 80 percent AMI). To summarize, based on the EBA study data, the percentage of PSE's 2020 customer base that is estimated to be low-income and energy-burdened is approximately 13 percent. Of that 13 percent, 60 percent are PSE's Electric Only customers, 24 percent are PSE's Gas Only customers, and 16 percent are PSE's Combined Electric and Gas customers.

PSE's EBA found that the estimated energy-burdened customers use more energy on average than overall residential customers in the energy burden study. And energy-burdened customers are more likely to be among already vulnerable customers – based on demographic characteristics such as ethnic background, education, homeownership, dwelling type, and age.

[13] See the Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T, for more information.

Key findings are discussed below, and for more details see PSE's 2020 Energy Burden Analysis report which is provided in Exh. BDJ-11.

B. Introduction

Q. Why did PSE conduct the EBA?

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

- all Washington electric utilities must provide energy assistance funding and programs to low-income households by July 31, 2021. "To the extent practicable, priority must be given to low-income households with a higher energy burden."; [14]
- all Washington electric utilities are required to assess energy assistance available to low-income households across the state, the energy burden of low-income households, and the need for more assistance, and provide their findings to the Washington State Department of Commerce ("Commerce"); [15] and
- Commerce is required to compile and aggregate these data and publish biennial reports.[16]

C. Methodology

Q. How did PSE estimate customer energy burdens?

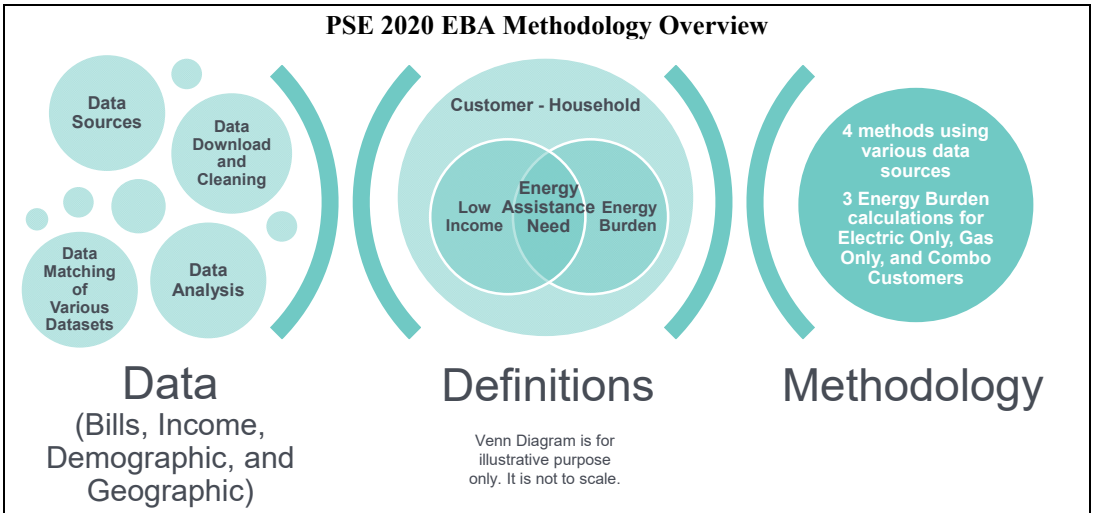
A. PSE compiled a master dataset of PSE's electric and/or gas residential customers, with a single account and location within PSE service territory and all the relevant data to perform the EBA, such as usage, billing, estimated non-PSE energy costs, and estimated income. PSE used income estimates from a third-party database,

[14] RCW 19.405.120(2).
[15] RCW 19.405.120(4).
[16] RCW 19.405.120(3).

Experian, PSE surveys, and PSE energy assistance applications to identify its low-income customers and to develop an analysis of its residential customers.

Figure 1 below illustrates the overview of the EBA methodology.

Figure 1



Source: PSE's 2020 Energy Burden Analysis report - the 10th Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-11.

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 ("FPL"), adjusted for household ("HH") size.[17] This definition is more inclusive than prior definitions, allowing PSE to provide assistance to more customers. In addition to the definition of low-income, RCW 19.405.020 also defines "energy burden,"[18] "energy assistance,"[19] and "energy assistance need."[20]

[17] RCW 19.405.020(25)
[18] The share of annual household income used to pay annual home energy bills. RCW 19.405.020(17).
[19] A program undertaken by a utility to reduce the household energy burden of its customers. RCA 19.405.020(15).
[20] The amount of assistance necessary to achieve a level of household energy burden established by the department or commission. RCW 19.405.020(16).

The following is the Energy Burden formula that PSE used in its EBA:

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

Energy burden is limited to expenses for residential purposes. It includes any fuel source for energy and excludes non-energy utilities and transportation-related energy expenses.[21]

The following are the three Energy Burden formula permutations that PSE used in its Energy Burden Analysis for Electric Only, Gas Only, and Combined Electric and Gas Customers:

- PSE's Combined Electric and Gas customers:

$$Yearly\frac{PSE\ Electricity\ Bill + PSE\ Gas\ Bill + Other\ Heating\ Fuels\ Bill}{Income}$$

- PSE's Electric Only customers:

$$Yearly\ \frac{PSE\ Electricity\ Bill + Other\ Gas\ Bill + Other\ Heating\ Fuels\ Bill}{Income}$$

- PSE's Gas Only customers:

$$Yearly\ \frac{Other\ Electricity\ Bill + PSE\ Gas\ Bill + Other\ Heating\ Fuels\ Bill}{Income}$$

Commerce's threshold for determining energy assistance need, and for defining an "energy-burdened" customer, is a customer whose energy burden is at or greater than 6 percent.[22]

[21] Washington Department of Commerce. Guidelines for RCW 19.405.120. Version 03.09.2020. <https://www.commerce.wa.gov/wp-content/uploads/2020/03/Guidelines-for-19.405.120.pdf>

[22] *Id.*

Using the master EBA dataset, PSE estimated low-income and energy-burdened customers, then analyzed low-income customers who were energy-burdened by looking at their energy burdens relative to other customers by income brackets, service type, usage, geographic location, age, and other characteristics for which data were available.

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

A. Data sources used in PSE's 2020 EBA:

- **Income data:**
  - o Experian: third-party data vendor;
  - o PSE Surveys;
  - o PSE Energy Assistance applications; and
  - o Department of Energy / National Renewable Energy Lab Low-Income Energy Affordability Tool data ("DOE/NREL LEAD Tool Data").[23]
- **Billed amounts:**
  - o PSE billing data; and
  - o DOE/NREL LEAD Tool data - for data estimates PSE did not have, such as Other heating fuels bill estimates, gas bill estimates for PSE's Electric Only customers, and electric bill estimates for PSE's Gas Only Customers.
- **Demographic Information:**
  - o Census Bureau's American Community Survey ("ACS") data: ethnicity;

[23] Department of Energy / National Renewable Energy Lab Low-Income Energy Affordability Data Tool. <https://www.energy.gov/eere/slsc/maps/lead-tool>

- Experian Marketing Services: own/rent, education, and occupation; and
- ATTOM tax assessor data: housing type and housing vintage (year built).

- **Geographic Information:**
  - U.S. Census Jurisdictions: Census block groups aggregated to tracts; and
  - PSE Premise locations aggregated to block groups.

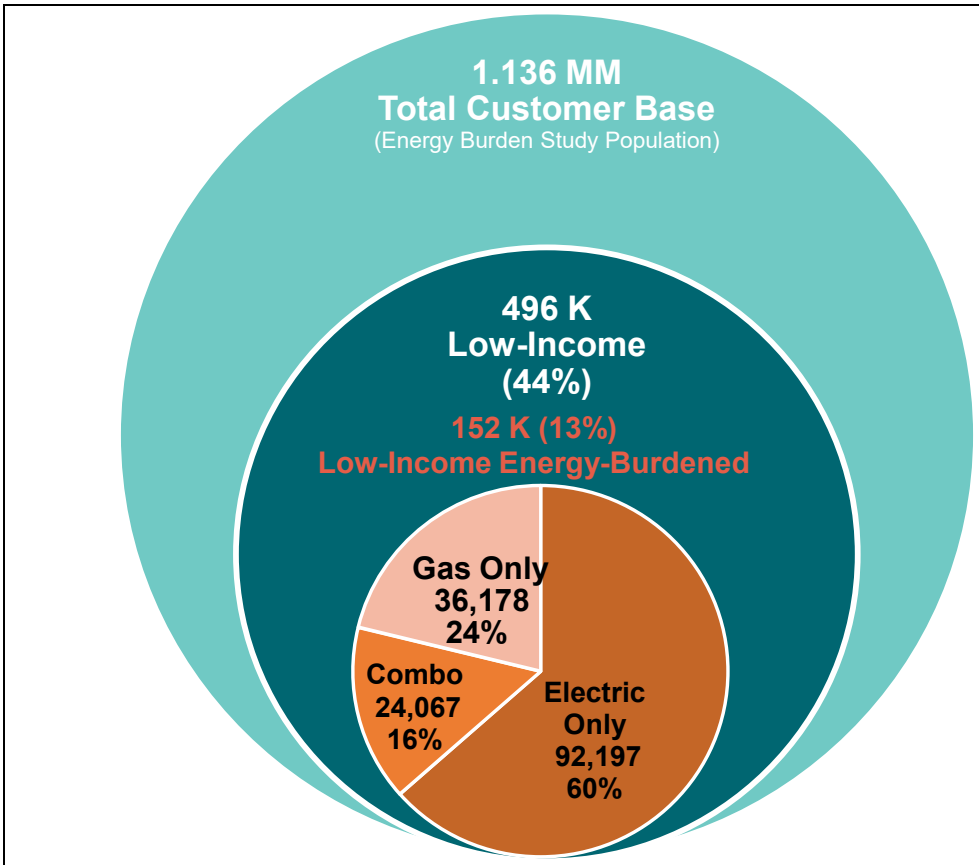
D. Results

Q. What are the key results from the EBA?

A. Figure 2 illustrates the summary results of PSE's 2020 Energy Burden Analysis.

Figure 1

Summary of PSE's 2020 Energy Burden Analysis Results



Note: Energy Burden Analysis amounts to roughly 80% of total residential customer base (based on 2020 10K).
Source: PSE's 2020 Energy Burden Analysis report - the 10th Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-11.

The following are key takeaways from the EBA, keeping in mind that the EBA population amounts to roughly 80 percent of PSE's total residential population based on 2020 10K, and that they are estimates based on PSE's analysis:

1. About 496,000 (44 percent) of the population are low-income customers.
2. About 152,000 (13 percent) are low-income and energy-burdened.
    - o Out of all PSE's estimated energy-burdened customers, 98 percent are classified as low-income; and
    - o Additionally, 88 percent of all energy-burdened customers are estimated to earn below 50 percent AMI.

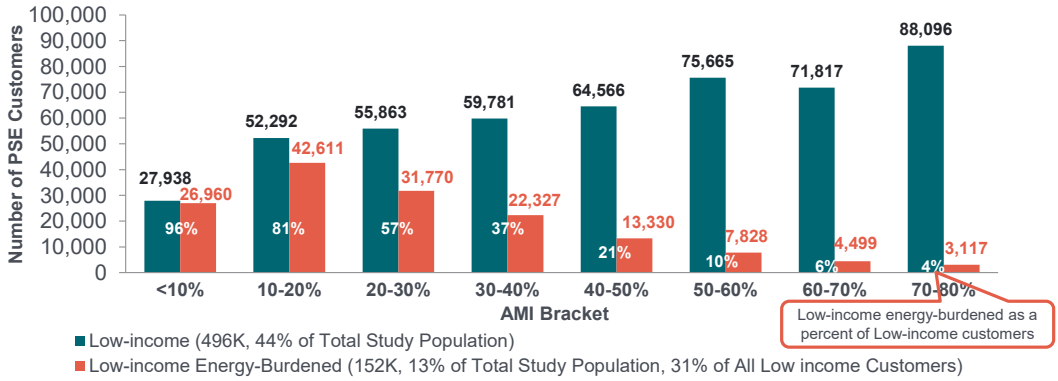
3. About three quarters (76 percent) of the low-income and energy-burdened customers are electric customers (Electric Only and Electric-Combo), as seen in Figure 2.

4. As income increases, the proportion of energy-burdened customers decreases.

   o To illustrate, 96 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 3 below.

Figure 2

Number of Low-Income and Energy-Burdened Customers in the EBA, by Income Bracket



Source: PSE's 2020 Energy Burden Analysis report - the 10th Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-11.

5. 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 is 2.3 percent, whereas the median for low-income customers is 4.1 percent, and the median for customers who are classified as energy-burdened is 9.5 percent.

Q. Based on PSE's 2020 EBA results, what are some other shared characteristics of low-income and energy-burdened customers?

A. The EBA found that low-income and energy-burdened customers share some common characteristics and are more likely to be among already vulnerable customers – based on the following demographic characteristics:

1. **Racial Equity:** The percentage of Hispanic or Black/African American populations in a census block group shows some correlation with higher energy burden. The correlation is less pronounced for Hawaiian/Pacific Islander and American Indian/Alaskan Native populations.

2. **Education Attainment:** Customers with high school diploma or less educational attainment are more likely to be energy-burdened.

    - 48 percent of energy burdened customers have high school or less education, compared to 26 percent of the total study population.

3. **Housing Tenure:** Energy-burdened customers are more likely to be renters; and energy-burdened customers are more likely to live in mobile housing,[24] such as RV trailers.

    - Renters make up 19 percent of energy burdened customers versus 11 percent of the total study population.

4. **Occupation:** Customers who are retired, and possibly on a fixed-income, are more likely to be energy-burdened.

    - Retired customers make up 31 percent of energy-burdened customers vs. 18 percent of the total study population.

5. **Senior customers (62+):** 57 percent of senior customers in the EBA study population are classified as low-income; 20 percent of senior customers in the study are classified as low-income and energy-burdened.

[24] Mobile housing means a factory-built dwelling that includes: (a) plumbing, heating, air conditioning, and electrical systems, normally contained within the belly of the structure and within a rodent barrier; (b) is built on a permanent chassis; (c) can be transported in one or more sections; (d) may, or may not be permanently affixed to a concrete foundation.

E. Stakeholder Outreach

Q. Did PSE engage in stakeholder outreach for its EBA?

A. Yes. PSE presented the EBA to WUTC Staff, Commerce, PSE's Equity Advisory Group ("EAG") and Low-Income Advisory Group ("LIAC") and solicited feedback on methodology and draft results during multiple meetings from April to July of 2021 (Figure 4).

Figure 3

Energy Burden Analysis Stakeholder Outreach Meetings

	Commission Staff	Equity Advisory Group	Low Income Advisory Committee	Dept of Commerce
Energy Burden				
Initial Presentation	4/21/2021			4/21/2021
Draft Results Presentation #1		6/16/2021	6/17/2021	
Draft Results Presentation #2		7/12/2021	7/13/2021	

Source: the 11th Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-12.

Q. Please summarize the feedback PSE received from stakeholders.

A. In general, PSE received very positive feedback about the thorough analysis the Company performed. PSE modified certain factors based on the feedback, including presentation format and adding methodology details and results.

F. Applications

Q. How will PSE use its EBA?

A. In addition to RCW 19.405.120 reporting requirements, results of the EBA were used in PSE's Clean Energy Implementation Plan ("CEIP"), a four- year roadmap

of clean electricity actions, programs and investments, which was filed with the Commission on December 17, 2021.[25] PSE has also already utilized the EBA in the Residential Electric Block Study (see discussed in Section IX of my testimony) and for the design of the proposed Bill Discount Rate (see discussed in Section VIII of my testimony) which will aim to assist income-qualified customers in the lowest income brackets which have higher proportions of energy-burdened customers, as estimated by PSE's Energy Burden Analysis. For details on PSE's proposed approaches for reducing energy burden via a combination of existing and new programs, and enhancement of the existing programs, see the Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T.

VIII. PSE'S NEWLY PROPOSED BILL DISCOUNT RATE AND PROPOSAL TO INCREASE LOW-INCOME ENERGY ASSISTANCE

A. Overview

Q. Why is PSE proposing the Bill Discount Rate?

A. Pursuant to RCW 80.28.068, each Washington utility must propose a low-income assistance program comprised of a discount rate for low-income customers.[26] Accordingly, PSE is proposing its Bill Discount Rate, which will be available to all eligible low-income customers.

[25] Docket UE-210795. Puget Sound Energy Clean Energy Implementation Plan ("CEIP"), Final (December 17, 2021). Chapter Three: Highly Impacted Communities and Vulnerable Populations, and Customer Benefit Indicators (CBI). Clean Energy Transformation Act ("CETA") category: Cost Reduction, Burden Reduction. Customer benefit indicator: Improved affordability of clean energy. Pages 80-81. <https://irp.cdn-website.com/dc0dca78/files/uploaded/FCEIP%20Chapter%203.pdf>

[26] RCW 80.28.068(1).

Q. Please summarize PSE's proposed Bill Discount Rate.

A. PSE is proposing a two-tier Bill Discount Rate for PSE's electric and gas low-income customers with income levels at or below 50 percent AMI:

1) a 45 percent discount rate for PSE customers within 0-30 percent AMI bracket, and

2) a 15 percent discount rate for PSE customers within 30-50 percent AMI bracket.

The discount rate will be applied to the net bill (all charges except any applicable taxes and voluntary programs). The discount credit amount will vary by customer, driven primarily by a customer's usage. The tiered design allows PSE to prioritize providing assistance to those customers who are most in need while balancing the program cost impacts to all PSE's customers.

Q. How will the Bill Discount Rate integrate into PSE's existing portfolio of low-income energy assistance programs?

A. The new Bill Discount Rate will complement and be additive, as well as add value, to PSE's existing portfolio of low-income energy assistance programs. Specifically, PSE's proposed Bill Discount Rate has been designed to work in tandem with the Company's existing PSE HELP grant-based bill assistance program.[27] One of the proposed elements of the two programs' synergy is that

[27] See Carol Wallace's testimony, Exh. CLW-1T, for more information about PSE's other low-income energy assistance programs, and how the Bill Discount Rate will work in tandem with PSE HELP.

PSE proposes to use any unspent PSE HELP funding from a previous program year towards the funding need for the Bill Discount Rate.

B. Design Approach and Stakeholder Outreach

Q. What approach did PSE employ to develop the Bill Discount Rate proposal?

A. In order to develop the Bill Discount Rate design proposal, PSE outlined an overall vision of the program, determined ways to integrate it with PSE's existing energy assistance programs, and identified five elements as primary considerations for program: 1) rate design, 2) funding, 3) operation, 4) eligibility, and 5) outreach.[28] As a part of this design process, and pursuant to RCW 80.28.068(1), PSE also engaged in multiple stakeholder outreach efforts.

Q. What stakeholder outreach did PSE conduct related to its Bill Discount Rate proposal?

A. From April through December 2021, PSE held 16 official outreach meetings with the following key stakeholders: Commission Staff, Public Counsel, Northwest Energy Coalition ("NWEC"), The Energy Project, and PSE's Low-Income Advisory Committee and Equity Advisory Group. Figure 5 below details when the stakeholders met and discussed the design of the proposed program. See Exh. BDJ-12 for materials from these meetings.

[28] My testimony will include detailed discussions of rate design and funding mechanism elements. Please see Carol Wallace's testimony, Exh. CLW-1T, for more details on the vision, integration with other energy assistance programs, and the other three program design elements: operation (administration), customer eligibility, and outreach.

Figure 4. Bill Discount Rate Development Stakeholder Outreach Meetings

	Commission Staff	Public Counsel	NWEC	The Energy Project	Equity Advisory Group	Low Income Advisory Committee
Bill Discount Rate						
Initial 1:1 meetings	7/1/2021	6/30/2021	6/28/2021	6/28/2021		
Collaborative #1					7/12/2021	7/13/2021
Collaborative #2					8/16/2021	8/12/2021
Collaborative #2 Repeat					8/27/2021	8/27/2021
Collaborative #3	9/10/2021				10/4/2021	9/14/2021
Collaborative #4				9/27/2021		10/5/2021
Updated Proposal Presentation					12/13/2021	11/9/2021

Source: the 11th Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-12.

Q. Please summarize the stakeholder feedback from these meetings.

A. Stakeholder feedback was incorporated at each step of the Bill Discount Rate program design proposal development process. Some of the specific feedback that was incorporated into the proposed Bill Discount Rate design include:

- prioritizing the low-income customers with greatest need, minimizing new cost impacts for customers, and providing a meaningful discount;
- making the program more easily accessible to customers, decreasing administrative barriers such as allowing for self-attestation of income, and expanding and improving outreach to address under-served customers and development of culturally- and linguistically-relevant materials,[29] and
- ensuring PSE and its partners are accountable by tracking participation rates and working to continuously improve.[30]

Q. What information did PSE utilize from the Energy Burden Analysis to inform the design of the Bill Discount Rate proposal?

A. The EBA was fundamental for the Bill Discount Rate design proposal because the EBA made it possible for PSE to estimate the customers who disproportionately share a more significant energy burden. When PSE designed a discount rate

[29] See Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T, for more information.
[30] *Id.*

program, it was important not only to estimate PSE's customers who would qualify as low-income, but also to get a better understanding of this customer segment's energy burdens and any shared characteristics in order to design a targeted program that would help PSE distribute benefits more equitably and fairly by meeting the needs of those most in need first, while considering impacts to all other customers.

One of the key takeaways from the EBA that informed the Bill Discount Rate design is that most customers have low energy burdens. To illustrate, 86 percent of customers in the energy burden study have energy burden below 6 percent. Therefore, by protecting vulnerable customers, PSE can transition to a clean energy future without significantly impacting customers' energy burden. The data revealed that although 31 percent of the customers classified as low-income are estimated to be energy-burdened, there is a difference within the low-income segment. Within the low-income segment, energy burden tends to concentrate at the lower end of the income spectrum. Therefore, PSE determined that it is better to use a tiered approach to designing the low-income discount rate.

Furthermore, the EBA showed that the majority of the energy burden, and hence the majority of the need, was in the two lowest income brackets (at or below 50 percent AMI):

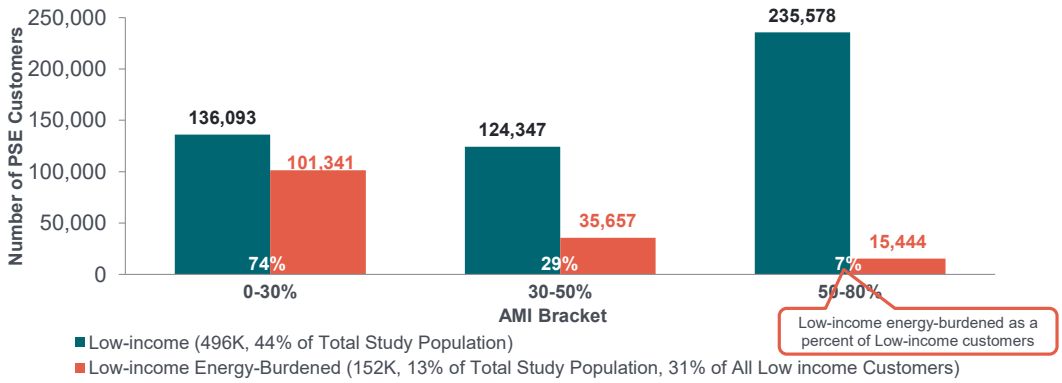
- Tier 1 (0-30 percent AMI): of all PSE's customers classified as low-income in the EBA, nearly three quarters of customers in lowest income bracket (0-30 percent AMI) are energy-burdened (Figure 6). The median energy burden for the first tier group is about 9.4 percent (see Figure 7);

- Tier 2 (30-50 percent AMI): of all PSE's customers classified as low-income in the EBA, just under a third are energy-burdened in the second tier (50 percent-80 percent AMI) (Figure 6). The median energy burden for the second tier group is about 4.5 percent (see Figure 7); and

- Tier 3 (50-80 percent AMI): In the third income group (50-80 percent AMI), about 7 percent are estimated to be energy-burdened (Figure 6). The median energy burden for the third tier group is about 3.0 percent (see Figure 7).

Figure 5

Number of PSE customers classified as low-income and energy-burdened for Bill Discount Rate's proposed two qualification level tiers



Source: PSE's 2020 Energy Burden Analysis report – the 10th Exhibit to the Prefiled Direct Testimony of Birud D. Jhaveri, Exh. BDJ-11.

Q. How did PSE use the EBA data to develop the Bill Discount Rate?

A. One of the criteria for the Bill Discount Rate design was ensuring prudent and effective usage of ratepayer funding for the program, which meant that assistance should be prioritized for those customers who are most in need. Because RCW 80.28.068 outlined that "a residential customer eligible for a low-income discount rate must receive the service on demand,"[31] providing a significant discount to customers in the upper income bracket could mean a significant increase to the program costs while not assisting those most in need. To illustrate, approximately

[31] RCW 80.28.068(5).

half of all low-income customers are in the highest income bracket, and very few of those customers are estimated to be energy-burdened. With no mechanism to prioritize the customers most in need, the resources would be drained by those customers in the higher income bracket. Therefore, to prioritize those low-income customers with greatest needs and to balance the potential rate impacts, PSE proposes to make the Bill Discount Rate discounts available only for customers up to 50 percent AMI, while all low-income customers would continue to be served by the PSE HELP energy assistance grant program and other existing low-income energy assistance programs.[32]

Q. How much will the Bill Discount Rate help PSE's low-income customers?

A. To gauge the effectiveness that the Bill Discount Rate and HELP program might have on reducing energy burden, PSE simulated customers' bill reductions using the 2020 EBA data. Figure 7 below shows that the median energy burden for the lowest income bracket (0-30 percent AMI) is estimated to decrease from 9.4 percent to 6.1 percent after the proposed Bill Discount Rate discounts, and to 4.1 percent after the proposed Bill Discount Rate discounts and PSE HELP assistance. For customers in the second lowest income bracket (30-50 percent AMI), the median energy burden is estimated to decrease from 4.5 percent to 4.0 percent after the proposed Bill Discount Rate discounts, and to 3.4 percent after the proposed Bill Discount Rate discounts and PSE HELP assistance. For example, the median monthly bill of a low-income and energy-burdened customer

[32] See Carol Wallace's testimony, Exh. CLW-1T, for more information.

in the lowest income bracket would decrease from $92.66 to $50.97 after the Bill Discount Rate and would decrease to $27.80 after the Bill Discount Rate and PSE HELP assistance.[33]

Figure 6

Median Energy Burden for PSE's Residential Customers in the Study, Before and After the Impact of the Proposed Bill Discount Rate and HELP

1	2	3	4	5
Program Eligibility	**Area Median Income (AMI) Tier**	**Median Energy Burden**	**Median Energy Burden after Bill Discount Rate**	**Median Energy Burden after Bill Rate Discount and HELP**
Bill Discount Rate and HELP	0-30%	9.4%	6.1%	4.1%
Bill Discount Rate and HELP	30-50%	4.5%	4.0%	3.4%
HELP	50-80%	3.0%	3.0%	2.7%
n/a	80-100%	2.2%	2.2%	2.2%
n/a	100+%	1.5%	1.5%	1.5%

Note: Column 4 shows impact of proposed Bill Discount Rate: 45% discount rate for Tier 1 (0-30% AMI) and 15% discount rate for Tier 2 (30-50% AMI). Column 5 shows impact of proposed combined discount from Bill Discount Rate and HELP: 70% discount rate for Tier 1, 35% discount rate for Tier 2, and 15% discount rate for Tier 3 (50-80% AMI).

C. Rate Design

Q. How does PSE propose to apply the Bill Discount Rate to its eligible customers?

A. PSE proposes to create new residential rate schedules for the customers on the Bill Discount Rate: qualification level Tier 1 (0-30 percent AMI, 45 percent discount rate) and qualification level Tier 2 (30-50 percent AMI, 15 percent discount rate). The new customer schedules for electric would be 7D1 (Tier 1) and 7D2 (Tier 2), and the new customer schedules for gas would be 23D1 (Tier 1) and 23D2 (Tier 2). Eligible customers will be assigned to these new schedules once the Bill Discount Rate commences. Creating these new customer rate

[33] *Id.*

schedules will not only provide the means for distributing the discounts, but it will allow PSE to evaluate the effectiveness of the Bill Discount Rate and apply any program changes in the future as needed.[34] Besides receiving a bill discount, a customer on a Bill Discount Rate schedule would be treated the same as all other residential customers on Schedule 7 (Electric) and Schedule 23 (Gas), and all charges that apply to Schedule 7 (Electric) and Schedule 23 (Gas) will apply to Schedules 7D1/7D2 and 23D1/23D2, respectively. Please see Exh. BDJ-19, for the new proposed Bill Discount Rate tariff schedules: electric 7D1 and 7D2 and gas 23D1 and 23D2.

Q. Which rates would be subject to the proposed Bill Discount Rate?

A. PSE proposes that for eligible low-income residential customers, all charges except any applicable taxes and voluntary programs be discounted using the proposed Bill Discount Rate.

PSE proposes to exclude voluntary programs because they are optional, and these programs increasingly make special accommodations for low-income participation. Therefore, offering a discount in addition to those offered within the voluntary programs could be unintentionally duplicative. For example, PSE's Community Solar voluntary program currently has a custom rate design for income-qualified customers.[35]

[34] See the Prefiled Direct Testimony of Carol L. Wallace, Exh. CLW-1T, for more information.
[35] See Docket UE-200998.

Q. How will the proposed Bill Discount Rate work with PSE's proposed Time Varying Rate pilot?

A. Time Varying Rates ("TVR") are discussed in more detail in Section X, below, and in the Prefiled Direct Testimony of Ahmad Faruqui, Exh. AF-1T, but the Bill Discount Rate would work for the TVR rates in the same way as it is designed to work for regular residential rates. For low-income discount rate eligible customers on TVR related schedules, all charges except voluntary programs and any applicable taxes will be discounted according to the pertinent discount rates.

D. Cost Recovery

Q. What is the proposed program cost recovery mechanism and timing for the Bill Discount Rate?

A. PSE proposes that the Bill Discount Rate costs be recovered from all electric and gas PSE customers through an annual rider mechanism – titled Schedule 129D electric and gas filings. PSE proposes to use the same class allocation methodologies as in Schedule 129 filings.

For the first filing, PSE proposes that the launch date for the Bill Discount Rate would be October 1, 2023,[36] and an expected filing date of August 15, 2023 for Schedule 129D for rates effective from October 1, 2023 through December 31,

[36] *See* Wallace, Exh. CLW-1T, for more information.

2024. The first year's filing would include Bill Discount Rate cost estimates for October 1, 2023 – December 31, 2024.

All subsequent annual filings would be filed by November 15 of each year, for rates effective from January 1 through December 31.

The Bill Discount Rate cost estimates would include cost estimates for the proposed rate effective period and true-up of costs for the current rate effective period.[37] In addition, PSE proposes to use any unspent PSE HELP funding from a previous program year towards the funding need for the Bill Discount Rate. As such, PSE would subtract from Schedule 129D revenue requirement any Schedule 129 (Low Income Program) program's previous program year unspent funds. For instance, by November 15, 2024, PSE would file the proposed Schedule 129D rates reflecting estimated Bill Discount Rate costs for the period January 1, 2025 to December 31, 2025, minus Schedule 129 unspent funds from 2024 program year (October 1, 2023 - September 31, 2024), plus or minus a true-up amount based on the Bill Discount Rate actual discounts provided, plus the program's administrative costs, and actual Schedule 129D revenues for the period from October 1, 2023 - December 31, 2024. For more information, please see Exh. BDJ-19 for the tariff pages of the proposed Bill Discount Rate Rider (new Schedule 129D). In this filing, PSE is seeking approval of the proposed Bill

[37] Total program costs would include benefits to eligible customers under this program plus the program's administrative costs (such as Community Partner Agencies' administrative fees and the Company's program costs).

Discount Rate Rider as described in applicable tariff schedules (electric and gas Schedules 129D, electric 7D1 and 7D2, and gas 23D1 and 23D2 tariffs).

Q. What is the estimated cost of the Bill Discount Rate?

A. The estimated benefits to eligible customers under the Bill Discount Rate for the first program year is $14.5 million; $12.5 million electric and $2.0 million gas. This estimate was developed using latest effective rates (gas rates effective November 1, 2021 and electric rates effective January 1, 2022) and program participant count and load from PSE HELP's October 1, 2020 – September 30, 2021 program year, with an assumed growth rate of 10 percent. The program's administrative costs are currently unknown and are assumed at $0. As stated above, PSE proposes to use any unspent PSE HELP funding from a previous program year towards the funding need for the Bill Discount Rate. Because PSE HELP unspent funds from the previous year are unknown at this time, PSE assumed $0 for the PSE HELP previous program year's unspent funds for the sample Schedule 129D revenue requirement. See Exh. BDJ-13.

Q. Is PSE proposing a deferred accounting treatment for Schedule 129D?

A. Yes. PSE requests that it be allowed to account for this program in the same manner as its Schedule 129 program. Program discounts, transferred unused-HELP funding, and Schedule 129D revenues will be recognized on the balance sheet, while on the income statement the amount of monthly revenues recognized will be offset by a commensurate level of amortization. This accounting

treatment, which is also similar to the accounting for PSE's Energy Efficiency Programs recovered under Schedule 120, properly reflects the pass-through nature of the proposed Bill Discount Rate program.

E. Additional Low-Income Assistance for PSE Customers

Q. Please summarize PSE's proposal to increase low-income energy assistance funding.

Pursuant to RCW 80.28.425(2) and to help mitigate the effect of the proposed residential rate increases on its most vulnerable customers, PSE proposes increasing the level of PSE HELP bill-assistance funding to electric and gas customers by twice the proposed increase to residential customer base rates in each year of the multiyear rate plan.

Q. Please explain PSE's decision to increase funding for low-income assistance.

A. As part of its multiyear rate plan, PSE is proposing to increase funding for electric and gas customer assistance under PSE's permanent low-income assistance program PSE HELP (Schedule 129) to help mitigate the effect of the proposed residential rate increases on its most vulnerable customers.

Such a proposal is anticipated in RCW 80.28.068(2), which states:

> The commission may approve, disapprove, or approve with modifications any proposal to recover from ratepayers up to five percent of the total revenue requirement approved by the commission for each year of a multiyear rate plan for tariffs that reduce the energy burden of low-income residential customers including, but not limited to: (a) Bill assistance programs; or (b) one or more special rates. For any multiyear rate plan

> approved under this section resulting in a rate increase, the commission must approve an increase in the amount of low-income bill assistance to take effect in each year of the rate plan where there is a rate increase. **At a minimum, the amount of such low-income assistance increase must be equal to double the percentage increase, if any, in the residential base rates approved for each year of the rate plan.** The commission may approve a larger increase to low-income bill assistance based on an appropriate record.[38]

Q. What is PSE's proposal to increase low-income energy assistance funding?

PSE proposes to increase low-income assistance funding by twice the proposed increase to residential customer base rates in each year of the multiyear rate plan. PSE is including in the definition of "base rates" the following:

- for electric, the percent change in overall base rate revenues that would take effect under base rates, Schedules 95, 141C, 141N, and 141R (thus ensuring that any changes resulting from cost shifting from these riders/trackers into or from base rates are not double counted). Based on the amounts in this multiyear rate plan proposal, this would equate to 31.60 percent in 2023, 5.37 percent in 2024, and 2.46 percent in 2025; and

- for gas, the percent change in overall base rate revenues that would take effect under base rates, Schedules 141N, 141R, and 149 (thus ensuring that any changes resulting from cost shifting from these riders/trackers into or from base rates are not double counted). Based on the amounts in this multiyear rate plan proposal, this would equate to 24.30 percent in 2023, 4.40 percent in 2024, and 3.49 percent in 2025.

As seen in BDJ-18, at the level of proposed rate increases in this case, this results in an increase in residential bill assistance of:

- $9.04 million ($8.27 million electric and $0.77 million gas) for the low-income program year beginning October 1, 2023;

- $1.54 million ($1.40 million electric and $0.14 million gas) for the low-income program year beginning October 1, 2024; and

[38] RCW 80.28.425(2) (emphasis added).

- $0.75 million ($0.64 million electric and $0.11 million gas) for the low-income program year beginning October 1, 2025.

Q. When will the additional low-income funding increase take effect?

A. The proposed additional increases in funding for low-income electric and gas customer assistance will be reflected in PSE's Schedule 129 filing, which will take place in August 2023, 2024, and 2025, to be effective October 1, 2023, 2024, and 2025, respectively.

IX. RESIDENTIAL ELECTRIC BLOCK STUDY

Q. What is the purpose of conducting the Residential Electric Block Study?

A. In PSE's 2019 general rate case the Commission directed PSE, in consultation with the Low-Income Advisory Committee, to study the feasibility of expanding the first block energy rate from 600 kWh to 800 kWh and to report its findings in the Company's next general rate case.[39] In order to comply with the Commission's directive, PSE conducted a detailed analysis and presents the methodology and findings in Exh. BDJ-14.

Q. How was the Residential Electric Block Study performed?

A. PSE performed its analysis to understand the aggregate revenue and customer impacts of expanding the first residential energy block from 600 kWh to 800 kWh. Increasing the first block threshold from 600 kWh to 800 kWh leads to a reduction in the energy charge rate that is applied to usage between the old and

[39] Docket UE-190529, Final Order 08 (July 8, 2020), at paragraph 545.

new threshold levels, thereby resulting in a decrease in base revenue. PSE's Residential Electric Block Study calculated the expected revenue loss from the block change and evaluated three different methodologies to recoup this revenue loss necessary to maintain revenue neutrality. Additionally, this study assessed impacts on different types of customers: non-low-income, low-income, and low-income energy-burdened customers.

Q. How were the impacts to revenue and customers calculated?

A. Currently, PSE's Schedule 7 residential electric customers have two energy charge blocks, with the first block rate being lower than the second block rate. In order to calculate the impacts of the proposal to increase the first energy block threshold, the study assessed only the energy charge rate, which varies between the blocks. PSE ignored all other rates that remain equal across energy blocks. The following Table 6 shows the energy charge rates for the two residential blocks that were in effect at the time of conducting the study and the rates that would be effective under the proposal to increase the first block from 600 kWh to 800 kWh.[40]

[40] The Residential Electric Block Study used rates effective as of October 15, 2020 to calculate impacts.

Table 6. Energy Charges

Energy Block	Energy Block kWh	Current Rule: Energy Charge	Proposed Rule: Energy Charge
Block 1	0- 600 kwh	$0.093071	$0.093071
Block 2	600 – 800 kwh	$0.113277 →	$0.093071
Block 2	>800 kwh	$0.113277	$0.113277

The study used the above rates and calendar year 2019 monthly billed usage data to calculate the aggregate revenue impact. The customer impacts were calculated using third-party income data, PSE's energy burden calculations and PSE HELP recipients' data. The list below shows the various calculations conducted to assess the full impact of expanding the first residential block.

- Revenue Impact: To calculate the revenue impact, each customer's monthly dollar impacts were aggregated for the study year and then compared under the proposed scenario.
- Shortfall Allocation: Three shortfall recovery methods were assessed to recuperate any revenue shortfall. The shortfall allocation method studied include:
    - Shortfall Allocation Method 1 ("SFA1"): All shortfall is allocated to the newly defined residential first block (0-800 kWh);
    - Shortfall Allocation Method 2 ("SFA2"): All shortfall is allocated to the newly defined residential second block (>800 kWh); and
    - Shortfall Allocation Method 3 ("SFA3"): The shortfall is equally allocated between the newly defined first block (0-800 kWh) and second block (>800 kWh).
- Customer Impact: In order to calculate the customer impact, each customer's monthly energy charges were compared under existing rates effective October 15, 2020 and the proposed allocation rate, both in dollar terms and in percentages. The monthly impacts were than averaged over the 2019 study year to derive the average monthly impact for each customer.

Q. What are the revenue impacts of the proposed change?

A. The analysis shows that expanding the first energy block will decrease monthly energy charges for all residential customers using over 600 kWh. This change will impact approximately 74 percent of all customers with an average impact on monthly energy charges of $(2.40) or (2.15) percent. The aggregated revenue impact from the decrease in monthly energy charges results in an annual base revenue deficiency of $24.1 million for the Company.

Q. Please explain the results of the various methods studied to recoup the revenue shortfall.

A. The measures identified above to recover the revenue shortfall of approximately $24.1 million will eliminate some or all of the revenue reductions resulting from changes in the energy block re-allocation. These measures will impact some customers favorably and some adversely. SFA1 affects all customers, however the average impact is marginal. Applying SFA1, 44 percent of customers experience decrease in monthly energy charges of $(0.94) on average but no more than $(1.44). The increase in monthly energy charges for 56 percent of customers are $0.80 on average, and no more than $1.95.

SFA2 only impacts those customers that have usage over 600 kWh; however, the increase in rates for the shortfall allocation will impact only those customers whose consumption is above 800 kWh. Using this allocation method, 55 percent of customers will experience monthly decrease in energy charges of $(1.20) on

average, and a maximum monthly impact of $(4.04). Approximately, 18 percent will experience an average increase in monthly energy charges of $3.60 to as high as $1,800. SFA2 will not affect about 26 percent of customer since their average monthly usage is below 800 kWh.

Like SFA1, SFA3 impacts all customers, with 54 percent experiencing increase in energy charges. The average impacts are nominal – an increase of just over $0.75. However, higher-use customers will experience increases in average monthly energy charges between $2.59 and up to $899. Monthly bill savings for customers will average $(0.87) with a maximum bill savings of $(2.74).

Q. How are the various customer types impacted by the proposed change?

A. The analysis shows that all shortfall allocations have mixed results and certain customers are likely to be adversely impacted with potentially high bill increases. The allocation methods generally have similar impact on low-income and non-low-income customers but the effect on low-income energy-burdened customers is more pronounced in terms of the percentage of customers adversely impacted.

Q. Why are low-income energy-burdened customers impacted differently?

A. It is estimated that the total study population of the Residential Electric Block Study has an average use of 790 kWh per month and a median use of 658 kWh, which indicates fifty percent of all customers use 658 kWh on average or less. However, as we disaggregate the data and categorize customers based on income levels as well as energy burden, the difference in energy usage becomes evident.

While low-income customers appear to have usage levels below non-low-income customers, low-income energy-burdened customers' monthly use suggest certain low-income customers have much higher usage levels than an average-low-income customer. In fact, 50 percent of low-income energy-burdened customers consume more than 1,000 kWh per month on average, 25 percent of them use more than 1,426 kWh per month on average, and 9 percent use more than 2,000 kWh on average; that is more than triple the average use of the population median of 658 kWh.

This indicates that there are two distinct categories of low-income customers – low-use low-income customers and high-use low-income customers. If low-income energy-burdened customers are removed from the low-income population, the average use of the low-income population would fall below the population average use, indicating the low-use low-income customers consume less than the study population on average. This category of low-income customers is distinctly different than the low-income customers who typically have higher use and therefore higher energy burden.

Q. Who are low-income energy-burdened customers?

A. As indicated earlier in Section VII of my testimony, which presented the results of PSE's Energy Burden Analysis, the definition of a "low-income energy-burdened" customer in both Residential Electric Block and Energy Burden studies is a customer with income not exceeding 80 percent of AMI or 200 percent FPL, adjusted for household size, and who spends at least 6 percent or more of their

annual income on energy costs (electricity, natural gas, and other heating fuels such as propane, heating oil, wood, and other).

Q. What are the conclusions of the Residential Electric Block Study?

A. As expected, the Residential Electric Block Study shows that expanding the first energy charge block will lead to a loss in revenues for the Company. When this change in the first block is combined with maintaining revenue neutrality through a shortfall allocation, the impacts vary across customers and different shortfall allocation methods. While some will benefit, the savings to these customers' average monthly energy charges is nominal. The increase in average monthly energy charges is also nominal for most customers. However, for those customers whose monthly average usage is higher than the average populations', the increase in energy charges may be significant. Finally, the impacts are similar for low-use low-income and non-low-income customers; but for low-income energy-burdened customers, the impacts are more pronounced when the shortfall is allocated to the second block.

Q. Based on this assessment, does PSE recommend expanding its first energy charge block for Schedule 7 electric customers?

A. No. PSE does not recommend expanding the first energy charge block. Expanding the first energy block to 800 kWh has unintended consequences. While some customers will benefit, the decrease to these customers' average bill will be nominal. For those customers who will experience a bill increase, the impacts

may be considerable. Since 63 percent of low-income energy-burdened customers use more than 800 kWh on average per month, some of these customers will experience substantial bill increases if some or all of the shortfall is allocated to the second block. If the intention is to assist low-income customers through this change, the opposite will occur to the most vulnerable low-income customers because they will be harmed even further.

Q. Was the Residential Electric Block Study analysis presented to the Low-Income Advisory Committee and other stakeholders?

A. Yes. PSE presented the study findings to the Low-Income Advisory Committee, Commission Staff, Public Counsel, NW Energy Coalition, and the Energy Project.

Q. Did PSE receive any feedback from the stakeholders?

A. In general, stakeholders appreciated the outreach, assessment, and discussion. PSE shared that it was still assessing the impacts of increasing the first energy block threshold, but it appeared to be clear that low-income energy-burdened customers, as a group, would be adversely impacted over other customer types. No decision was reached in stakeholder meetings regarding the proposal to increase the first energy block threshold.

X. PROPOSED TIME VARYING RATE PILOT

Q. Why is PSE introducing a Time Varying Rate ("TVR") Pilot as a part of its general rate case?

A. The proposed TVR pilot serves as the first step in PSE's multiyear effort to modernize electric rate designs. Through this effort, PSE aims to accommodate technological changes (including smart thermostats and distributed energy resources such as rooftop solar PV, energy storage, and electric vehicles), increase customer choice, and meet evolving regulatory and legislative expectations that prioritize decarbonization and affordability. PSE anticipates leveraging TVRs to help the Company manage peak system load and reduce future costs to serve. As acknowledged in the 2021 Integrated Resource Plan, the importance of a flexible grid will grow with higher levels of electrification and renewables integration within PSE's service territory. Further, there is a limited body of evidence on customer response as well as bill and revenue impacts when winter-peaking utilities deploy TVRs at scale.

In PSE's 2019 general rate case, Commission Staff recommended that PSE create Time-of-Use ("TOU") and Critical Peak Pricing ("CPP") pilots.[41] The subsequent general rate case Final Order also made clear that the Commission is eager for customers to realize benefits from the Company's investment in Advanced Metering Infrastructure.[42] PSE is in the process of implementing Advanced

[41] Ball, Exh. JLB-1T at 37:1-37:7; UE-190529.
[42] Docket UE-190529, Final Order 08 at ¶ 157.

Metering Infrastructure, with an expected system-wide completion in 2023, and the proposed TVR pilot is one of the many initiatives that the Company is pursuing to maximize customer benefits through the Advanced Metering Infrastructure investment. Similarly, the Commission found that a pilot–when developed through a collaborative process—would be a "natural nexus to regulatory reform" and the implementation of CETA has made pilots such as the one proposed here more necessary.[43] I elaborate on these points further below.

Q. How did you conclude that Time-Varying Rates are the appropriate solution to address the diverse needs you have identified?

A. Ahmad Faruqui of The Brattle Group, in his testimony, Exh. AF-1T, discusses the key features of TVR that make these rates an appropriate tool to assist in addressing the outlined catalysts for change. I reiterate it is PSE's view that the traditional flat rate pricing approach should evolve with new pricing options that match the specific needs and wants of different customer segments. TVR is a foundational enhancement that will complement a suite of other rate designs, products, and services that the Company will eventually offer.[44]

Q. Have rate design offerings similar to what the Company is proposing for the TVR Pilot been offered in Washington?

A. Yes. PSE and other utilities have offered such rates. While the nuances of the TVR pilots and full-scale deployments—and the circumstances in which they

[43] *Id.* at ¶ 579;
[44] Exh. BDJ-15.

were offered—vary depending on specific system and customer needs, TVRs such as TOU have been offered to various customer segments in many jurisdictions across the globe. PSE previously offered a TOU rate in 2001-2002 that was ultimately discontinued due to, among other reasons, immaterial price differentials between peak and off-peak prices, presenting customers with next to nothing in saving opportunities.

Q. Has PSE considered the designs of contemporaneous or historical TVR pilots?

A. Yes, insights from TVR pilots conducted by utilities across the country informed the TVR Pilot design. Ultimately, PSE made final design decisions based on PSE system and customers' needs and preferences while considering feedback from key stakeholders. In addition, PSE has taken the lessons learned from its previous TOU Pilot and made sure the proposed TVR pilot offers customers meaningful bill saving opportunities. This was accomplished by way of an internal assessment of what PSE wished to learn from the pilot, as well as what the Company's IT systems and infrastructure would be able to support.

Q. Please describe the "internal assessment" process to explain the rationale for PSE's current TVR proposal, as well as its outcome?

A. In 2020 PSE initiated a process of defining its goals and objectives ("Phase One") for the creation of a set of rate designs that could vary by time or price dimension. The project team brought on Guidehouse as a consultant to help educate and

facilitate the project team, internal stakeholders, and subject matter experts. Through a series of interviews and workshops with these groups, PSE was able to better understand the Company's present and planned IT, metering, and billing system capabilities. PSE was then able to match that understanding with the strategic needs of the Company regarding customer experience, regulatory compliance, and system loads. The summary analysis was documented in a report[45] that informed the strategic and regulatory assessment to further develop a TVR pilot.

Q. Did Phase One identify any pricing constructs that would be precluded from consideration for the Pilot?

A. Yes. As PSE performed the assessment, it became clear that rate designs that included the complexity of unpredictable time and price dimensions (such as Variable Peak Pricing or Real Time Pricing) would be incompatible with PSE's current and planned IT systems. Accommodating customer communication for real-time rates with unpredictable price and time dimensions and accurately compiling and billing the customer's resultant usage would require significant IT investments. Further, the transition away from inclining block rates ("IBR") to rates with predictable, yet dynamic, time and price dimensions must enhance the customer experience and ease the journey into new pricing constructs.

[45] *See* Exh. BDJ-15.

Q. What would a successful outcome look like, and what goals for a TVR pilot did PSE determine at the conclusion of Phase One?

A. A scientifically sound pilot will allow the Company to evaluate the impacts of more sophisticated and cost-aligned rate designs on a limited population. The results will inform a subsequent full-scale offering and allow PSE to understand system load impacts, customer response, and bill change, as well as any potential revenue implications.

PSE intends to explore, with respect to PSE's system profile, how time-varying rates might achieve the following benefits:

- Minimize system costs by influencing customer usage patterns;
- Increase customer choice by offering more rate options;
- Enhance equity and accessibility by providing bill saving opportunities; and
- Expand renewables integration.

Q. Please describe how PSE approached designing the TVR pilot.

A. With goals and capabilities identified, PSE conducted research on critical dimensions of other time varying pilots across North America, focusing on winter-peaking utilities. PSE concluded that the creation of a pilot would broadly consist of designing time-varying rates and selecting pilot design elements. Finally, it was necessary to outline what an evaluation, measurement, and verification ("EM&V") plan should include for appropriate measurement.

Critical to all facets of the pilot design is soliciting and incorporating extensive stakeholder feedback. After initial stakeholder calibration meetings, PSE engaged

The Brattle Group to assist with navigating the entire design process and to assist with facilitation of stakeholder engagement. Dr. Ahmad Faruqui, Dr. Sanem Sergici, and Dr. Long Lam serve as the subject matter experts, and in their advisory roles offer guidance to PSE throughout the pilot design process.

Q. Why did you select The Brattle Group as your consultant to develop the TVR Pilot?

A. The Brattle Group was selected through a competitive bid process because of their deep bench of experience developing TVRs and pilot programs across the globe and experience with winter-peaking utilities.

Q. What was the range of work requested of The Brattle Group in assisting PSE with the design of the pricing pilot?

A. PSE requested from The Brattle Group an empirically sound pilot design and evaluation methodology that would yield statistically reliable results and inform scalability for a potential full deployment. The work scope included the following general dimensions:

- Rate Design(s);
- Pilot Design;
- Customer Recruitment and Education Proposal;
- Pilot Evaluation and Assessment Proposal; and
- Stakeholder Engagement.

The Brattle Group was able to guide PSE and stakeholders in best practices and lessons learned to afford us of a robust and scalable time varying rate framework.

Q. Please explain how PSE engaged with external stakeholders throughout the pilot design phase.

A. PSE initiated the process by reaching out to key stakeholders to understand what level of interest they had in collaborating with PSE on the design of a TVR pilot, and what their baseline perspectives and expectations were with respect to TVR concepts. These engagements also facilitated an understanding of what other stakeholders should be included in a broader stakeholder process.

Q. What parties participated in these initial engagements?

A. These initial calibration meetings included Commission Staff, Public Counsel, and NWEC on a number of occasions. The parties all acknowledged the importance of a series of collaborative workshops that would occur throughout 2021 to educate and inform the detailed development of the TVR pilot.

Q. How were the stakeholder collaboratives structured and conducted?

A. PSE hosted three collaborative workshops with the assistance of The Brattle Group. In the first stakeholder collaborative, PSE provided an overview of the pilot, including its goals and the process. Dr. Faruqui and Dr. Sergici also briefed stakeholders on TVR pilot best practices and design considerations that would be utilized throughout the development of the pilot.

The second collaborative afforded the stakeholders an opportunity to review and offer feedback on customer focus group results, proposed TVR Pilot treatments, and draft rate designs. Finally, the third collaborative workshop allowed the

stakeholders to review a more refined draft of the rate designs, proposed pilot design parameters (e.g., treatment group recruitment, control group selection, sample sizes), and the dimensions of the EM&V plan.

Q. What was the outcome of the stakeholder collaboration, and how was stakeholder feedback incorporated in the pilot's design?

A. Throughout the initial five calibration meetings and three collaboratives, stakeholders provided robust participation and feedback. During and after each of the collaborative workshops, stakeholders were asked to provide extensive comments and feedback via surveys or direct comments, all of which were carefully considered. See Exh. BDJ-16 for a stakeholder survey from Collaborative No. 1, and see Exh. BDJ-17 for a stakeholder survey from Collaborative No. 2. Based on comments and feedback, various elements of pilot design were refined to ensure that as many of stakeholders' diverse perspectives as were practical were incorporated.

Q. What rate structures is PSE proposing as part of the TVR Pilot?

A. PSE is proposing the following rate designs:

- Two Period TOU – inclusive of on-peak and off-peak periods;
- Two Period TOU + Peak Time Rebate (PTR) – inclusive of on-peak and off-peak periods with a PTR on a number of event days; and
- Three Period TOU – inclusive of on-peak, off-peak and super off-peak periods.

Q. Why is critical peak pricing ("CPP") not included in this pilot?

A. PSE conducted an extensive review on the viability of testing CPP rates in the pilot both during Phase One and again with The Brattle Group. PSE's examination, inclusive of focus groups, stakeholder surveys, and national research on CPP trends, strongly suggested customers do not prefer CPP rates because they involve much higher prices on a select number of days. However, PTR offers rebates for load reductions below their baseline, and most customers prefer PTR rates. Stakeholders also favored PTR over CPP. See, for example, page 12 of Exh. BDJ-16.

Q. Which customers will the pilot be offered to?

A. The pilot is designed to be available to: Schedule 7– residential customers, inclusive of low-income customers who may benefit from the proposed Bill Discount Rate program,[46] and Schedule 24 – general service customers.

Q. Why was the residential customer class selected as one of the first customer group to pilot TVR?

A. The residential class of customers represents the majority contribution to peak at around 65 percent[47], and as a class tends to exhibit a low load factor.[48] Thus, the potential benefits derived from understanding the impacts of differentiating price signals by time of day could hold significant system savings by shifting load and

[46] See Section VIII (Bill Discount Rate) of my testimony.
[47] *See* Exh. CD-1T at Table 2.
[48] *See* Exh. CD-3 at 24.

shaving peak demand. Residential customers were also a primary customer group for which Commission Staff had previously indicated[49] they were in favor of piloting such rates for. PSE also views TVR as a means of extending rate choices for residential customers and to help them manage their energy bills if they choose to respond to the price signals.

Q. Will residential customers that qualify as low-income be able to participate in this pilot?

A. Yes, low-income customers will be represented in distinct treatment groups. Low-income customers will benefit from the Bill Discount Rate respective to their household income levels and other support in accordance with the low-income assistance programs being developed as part of this general rate case.[50]

Q. Will customers who participate in this pilot be offered bill protection mechanisms, especially that of low-income customers?

A. Bill protection, as a feature of the pilot, will not be offered to customers who opt into the pilot. However, low-income customers will be protected via the Bill Discount Rate discussed in Section VIII of my testimony. For more discussion on bill protection, please see Exh. AF-1T.

[49] UE-190529, Exh. JLB-1T at 39:1-3.
[50] *See* Wallace, Exh. CLW-1T, for more information.

Q. Why were Schedule 24 customers chosen instead of all commercial and industrial customers?

A. Schedule 24, which is applicable to smaller general service customers, is the second largest class by number of customer accounts and is nearly 13 percent of sales.[51] It also has a class contribution to peak of around 10 percent, making it one of the largest.[52] Given these characteristics, and that they are currently billed in a simpler manner compared to the medium and large general service classes, there is opportunity to evaluate behavioral response to more cost reflective rates, which incentivizes these customers to reduce or shift their peak loads.

Q. Has electric vehicles ("EV") charging been considered for study in the Pilot?

A. Yes. The 3-Period TOU residential treatment will specifically focus on EV owners' ability to respond to time of day pricing for the whole house, but with distinct pricing features more appropriate to EV charging such as super off-peak period coinciding with the midnight hours.

Q. Was an EV-only charging rate considered for the pilot as opposed to a whole house rate?

A. Yes; however, there were technological, logistical, and cost barriers that advantaged scalability of the whole house approach PSE proposes. At this time,

[51] *See* Exh. CD-1T at Table 1.
[52] *See* Exh. CD-1T at Table 2.

offering EV-only rates is not feasible. PSE witness Will T. Einstein further discusses this in his testimony, Exh. WTE-1T.

Q. Will customers with technologies other than EV be able to participate on the Residential Service Time-of-Use with Super Off-Peak rate?

A. Yes. The Residential Service Time-of-Use with Super Off-Peak rate will be open on a voluntary first-come first-serve basis to customers availed of battery storage or other technologies capable of reducing peak usage and/or load shifting. However, these participants will be excluded from the pilot sample population for evaluation purposes because PSE is proposing the pilot to study the efficacy of this rate design for EV users only.

Q. Please summarize the various pilot treatments and design dimensions.

A. The following Table 7 summarizes the proposed pilot treatments with key design attributes. For additional information, see Exh. AF-1T.

Table 7. Summaries

Rate Design(s)	Time-of-Use (TOU)	Time-of-Use + PTR	Time-of-Use w/ Super-Off-Peak
Customers	Residential (Sch. 7)	Residential (Sch. 7); Small C&I (Sch. 24)	Residential (Sch. 7)
Pricing Tiers	2	2 (fixed) + 1 (event-based)	3
Winter Ratios	5.2:1	2.3:1 (Res.); 2.4:1 (C&I)	7.5:1
Non-Winter Ratios	2.8:1	2.2:1 (Res.); 2.3:1 (C&I)	3.6:1
Event Day Ratios	n/a	8.4:1 (Res.); 8.9:1 (C&I)	n/a
Seasons	2	2	2
Intraday Price Changes (Winter)	5	5	5
Intraday Price Changes (non-Winter)	3	3	5
Weekend/Holiday	Off-Peak	Off-Peak	Off-Peak, Super Off-Peak
Max Callable Events		20 (15 winter & 5 non-winter)	
Enrollment	Opt-in	Opt-in	Opt-in

Q. How many customers is PSE proposing to target for recruitment across the various treatment groups and how did you arrive at these figures?

A. The treatment sample sizes included in PSE's proposal is based on the recommendations from The Brattle Group to obtain statistically significant results with a minimum number of participants. Below is a summary of the various treatment groups and sizes. For additional information, please see Exh. AF-1T.

Table 8. Sample Sizes

Treatment	Minimum Statically Significant Sample Size
Residential Service Time-of-Use	1,000 customers
Residential Service Time-of-Use Bill Discount Rate(s)	1,000 customers
Residential Service Time-of-Use with Peak Time Rebate	1,500 customers
Residential Service Time-of-Use with Peak Time Rebate Bill Discount Rate(s)	1,500 customers
General Service Time-of-Use with Peak Time Rebate	2,000 customers
Residential Service Time-of-Use with Super Off-Peak	500
TOTAL	7,500

Q. How will customers be enrolled in this pilot?

A. Randomly selected eligible customers will be solicited for the pilot and enrolled on an opt-in basis. The opt-in enrollment mechanism was selected based on feedback from customer focus groups and a majority of the stakeholders. For more information, see Exh. AF-1T.

Q. If a customer originally consents to participate but later decides to leave the pilot before it is complete, will they be penalized financially?

A. Customers will have the ability to exit the pilot at will, without a penalty fee, but would be ineligible to rejoin. Once their request has been processed, they would revert to their respective default rate schedule.

Q. Will the pilot offer information to customers to understand the impacts of the proposed rate design on their usage?

A. The Company appreciates customers' need for tools and information to help them understand the implications of participating in the pilot. PSE has identified various solutions ranging in sophistication, discussed in Exh. WTE-1T.

Q. Has the Company considered customers who may not have access to digital tools?

A. Yes; the Company has identified the need for equitable access to information. This is also addressed in Exh. WTE-1T.

Q. When are you proposing implementation and subsequent deployment of the pilot?

A. PSE anticipates it will take between nine to twelve months to prepare and field the pilot. The implementation phase will consist of enhancements and testing for IT systems such as billing and web tools. Other customer facing marketing and educational materials will need to be developed to allow for recruitment. PSE's goal is for customers to begin taking service on the pilot rates as near the beginning of the fourth quarter of 2023 as possible.

Q. What is the proposed duration of the TVR pilot?

A. PSE is proposing a two-year pilot with a goal being able to analyze two heating (winter) seasons in its evaluation. The EM&V will be carried out after the first year and at the end of the two-year pilot, at a minimum.

Q. How will PSE recruit customers for the different treatment groups?

A. PSE will randomly select Advanced Metering Infrastructure metered customers in each respective treatment group to be recruited in waves until, at a minimum, PSE achieves statistically acceptable sample sizes. Customer outreach will generally include providing an understanding of their opportunity to participate in the pilot and educational material that would support the rationale for opting-in. Further details regarding recruitment are discussed in Exh. AF-1T and Exh. WTE-1T.

Q. Has the Company considered the needs regarding a marketing and education plan as a part of recruitment?

A. Yes, the recruitment marketing and education plans are discussed in the testimony of Company witness William Einstein Exh. WTE-1T.

Q. Does the Company understand what an appropriate EM&V plan should consist of?

A. The Company has utilized The Brattle Group's deep bench of experience to inform appropriate measurements and data dimensions that will afford a robust EM&V process. PSE currently plans for four distinct EM&V activities: 1) load

impact evaluation after the first year of the pilot; 2) load impact evaluation after the second year of the pilot; 3) process evaluation after the second year of the pilot, and 4) customer feedback before, during, and at the conclusion of the pilot. The EM&V process is discussed in detail Exh. AF-1T.

Q. What is the proposed reporting process and timeline for the resultant efficacy and impacts of the pilot?

A. The Company proposes that two reports should document the pilot's results: one interim report after the first year of the pilot and a final report after the second year, once the EM&V results are analyzed. PSE expects that the EM&V process and subsequent report will be finalized three to four months after the pilot's conclusion.

Q. Has PSE, in its analysis and planning, compiled a budget for the pilot?

A. Yes, William Einstein explains the pilot budget in his testimony, Exh. WTE-1T.

Q. Does PSE intend to include potential revenue deficiency caused by the TVR rate schedules in its Decoupling Mechanism?

A. No. PSE is not proposing to incorporate potential revenue erosion from the TVR pilot rates in the decoupling mechanism at this time due to the scale and experimental nature of the pilot. Instead, PSE proposes capping the number of participants allowed on the TVR schedules underpinning the pilot. The proposed caps are listed in the table below.

Table 9. Schedule Cap Allowances

Treatment	**Reserved for Pilot Treatments**	**Schedule Cap** (inclusive of pilot)
Residential Service Time-of-Use	1,000 customers	2,000 customers
Residential Service Time-of-Use Bill Discount Rate(s)	1,000 customers	2,000 customers
Residential Service Time-of-Use with Peak Time Rebate	1,500 customers	3,000 customers
Residential Service Time-of-Use with Peak Time Rebate Bill Discount Rate(s)	1,500 customers	3,000 customers
General Service Time-of-Use with Peak Time Rebate	2,000 customers	4,000 customers
Residential Service Time-of-Use 3-Tier with Super Off-Peak	500 customers	750 customers
TOTAL	7,500 customers	14,750 customers

XI. COMPLIANCE FILING

Q. Please summarize all of the rates that PSE intends to update in its compliance filing for this case.

A. The compliance filing in this case will include updates to all PSE base electric rate schedules, as well as a host of adjusting price schedules. These adjusting price schedules that will be included in the compliance filing are as following:

- Electric Schedule 95 (Power Cost Adjustment Clause);
- Electric Schedule 139 (Voluntary Long-Term Renewable Energy Purchase Rider);
- Electric Schedule 141C (Colstrip Adjustment);
- Electric Schedule 141N (Rates Not Subject to Refund);
- Electric Schedule 141R (Rates Subject to Refund); and

- Electric Schedule 142 (Revenue Decoupling Adjustment Mechanism).

Q. Have the proposed tariff sheets for these adjusting price schedules been included in this filing?

A. The proposed changes to the electric tariff sheets for the adjusting price schedules are included in Exh. BDJ-19.

Q. Have all of these tariff sheets been formally filed as part of this case?

A. No. Schedule 139 and the electric and gas decoupling adjusting price section of Schedule 142 have not been filed as part of this case. Schedule 139 currently has supplemental credits related to the Schedule 95 imbalance for Green Direct Phase 1 customers and may require an update in the future. Schedule 142 is on an annual filing schedule, for rates effective May 1 of each year.

Q. Are there any other tariff schedules that will be impacted by the outcome of this general rate case?

A. Yes. There are several tariff sheets that rely on the results of the most current rate case. These include the following:

- Electric Schedule 62 (Substation and Related Equipment Capacity);
- Electric Schedule 85 (Line Extensions and Service Lines), and
- Electric Schedule 87 (Income Tax Rider).

Q. When will these tariff revisions be filed with the Commission?

A. PSE intends to file these tariff revisions within 30 days of the effective date of new base rates resulting from this general rate case.

XII. CONCLUSION

Q. Does that conclude your prefiled direct testimony?

A. Yes, it does.