EXH. BDJ-3r DOCKETS UE-240004/UG-240005 2024 PSE GENERAL RATE CASE WITNESS: BIRUD D. JHAVERI

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

Docket UE-240004 Docket UG-240005

PUGET SOUND ENERGY,

Respondent.

SECOND EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

BIRUD D. JHAVERI

ON BEHALF OF PUGET SOUND ENERGY

REVISED MARCH 4, 2024

FEBRUARY 15, 2024

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2022 Energy Burden Analysis ("EBA") results



For 2022 Calendar Year

Puget Sound Energy (PSE) 2024 General Rate Case (GRC) (Dockets UE-240004/UG-240005) Exhibit BDJ-3 to Prefiled Direct Testimony of Birud D. Jhaveri BDJ-1T

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- Summary of Methodology
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 - Methodology additional slides

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PSE conducted the EBA pursuant RCW 19.405.120

- PSE conducted its first energy burden analysis in 2020 to comply with <u>RCW</u> <u>19.405.120</u> (2019 Clean Energy Transformation Act (CETA) Section 120, Energy assistance for low-income households) which requires that:
 - 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"*);
 - 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").
 - Commerce is required to compile and aggregate these data and to publish biennial reports.



4 | PSE 2022 EBA

About PSE's Energy Burden Analysis (EBA)

- Allows PSE to estimate the number of PSE's low-income (LI) customers, their respective energy burdens, and energy assistance need (EAN).
- Has served to analyze and better understand some of the shared characteristics of low-income, the higher energy-burdened customers, as well as highly impacted communities, vulnerable customers, and electric deepest need.
- Has allowed 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.
- Has become an integral part of key reporting requirements by PSE (see next slide).



PSE's energy burden analysis results are now an integral for many critical reporting requirements

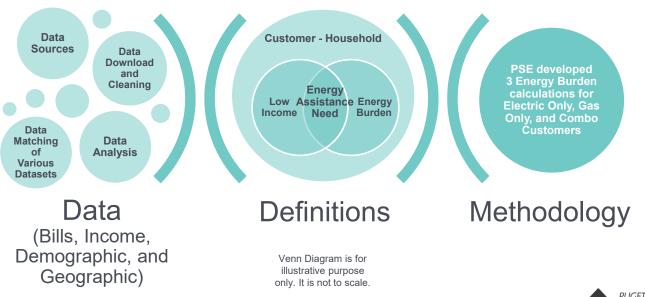
- Clean Energy Transformation Act (CETA):
 - RCW 19.405.120 biannual Commerce reports
 - Clean Energy Implementation Plans (CEIP) benefits metrics and CEIP annual progress reports
 - CEIP implementation: 30% to named communities
- PSE's General Rate Cases (GRC):
 - 2022 GRC 2023-2024 Multi-Year Rate Plan (MYRP):
 - Residential Electric Block Study.
 - Bill Discount Rate development.
 - 2020 Energy Burden Analysis Report.
 - 2022 GRC (2023-2024 MYRP) Compliance:
 - Annual MYRP reports: affordability and energy burden data
- CEM (Customer Energy Management) for 2024-2025 Biennial conservation plan (BCP)
- RCW 80.28.068 PSE's new Bill Discount Rates (BDR)



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Energy Burden Analysis Overview



8 | PSE Energy Burden Analysis Methodology (2019-2022 EBA)



Key Definitions

• RCW 19.405.020 CETA (2019) Definitions:

- Section (15) **"Energy assistance"** means a program undertaken by a utility to reduce the household energy burden of its customers.
- Section (17) **"Energy burden"** means the share of annual household income used to pay annual home energy bills.
- Section (25) "Low-income" means household incomes as defined by the department or commission, provided that the definition may not exceed the higher of eighty percent of area median household income or two hundred percent of the federal poverty level, adjusted for household size.

• Commerce Guidelines for CETA, RCW 19.405.120:

- Commerce set the threshold for determining **energy assistance need** at 6% energy burden.
- An affordable energy burden should be at or below six percent of household income.

WAC 480-100-605 Clean Energy Transformation Standards Definitions:

• **"Energy assistance need"** as "the amount of assistance necessary to achieve an energy burden equal to six percent for utility customers."



9 | PSE Energy Burden Analysis Methodology (2019-2022 EBA)

What is Energy Burden and Why do we Care?



Energy bill includes electric, gas, and other heating fuel sources.



Customers with EB > 6% are energy-burdened

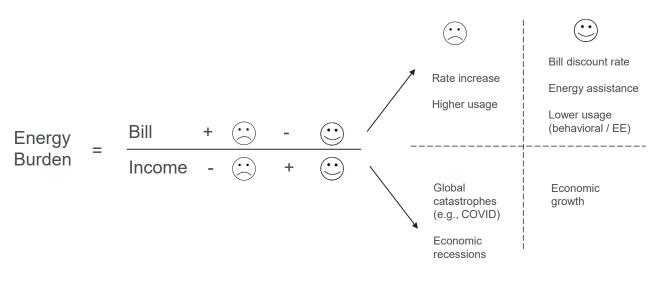


CETA (RCW 19.405.120): demonstrate progress through cumulative assessment of previous funding levels for energy assistance compared to the funding levels needed to meet 60% of the current EAN, or increasing energy assistance by 15% over the amount provided in 2018, whichever is greater by 2030; and 90% of the current EAN by 2050.



PSE Energy Burden Analysis Methodology (2019-2022 EBA) 10

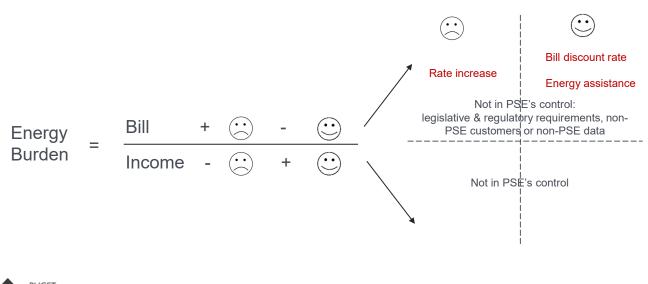
Elements of Energy Burden Change





PSE Energy Burden Analysis Methodology (2019-2022 EBA) 11

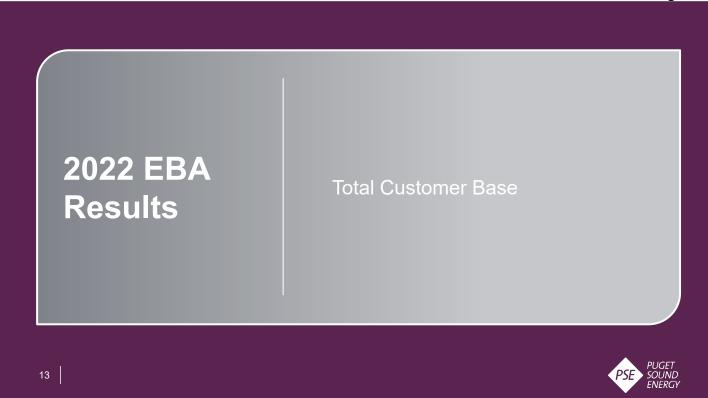
Elements of Energy Burden Change: Simplified



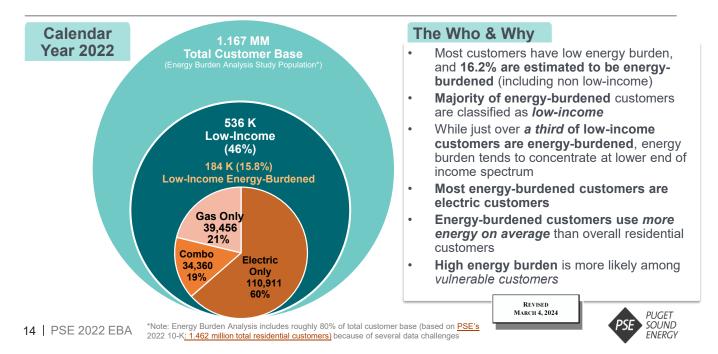


PSE Energy Burden Analysis Methodology (2019-2022 EBA) 12

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PSE's 2022 Energy Burden Analysis: key results and takeaways



PSE's 2022 Energy Burden Analysis: Summary of Results

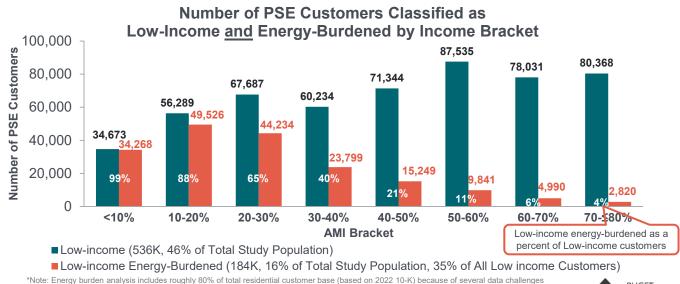
- Households classified as low-income per WA CETA's new definition:
 - About 536K (46%) of PSE's residential customers in the EBA study population* were estimated to earn 80% Area Median Income ("AMI") or below – i.e., classified as low-income.
 - By utility service type: 51% of Electric Only, 25% of Gas Only, and 24% of Combined Electric and Gas ("Combo") customers.
- Energy-burdened households:
 - About 185K of PSE's residential customers in the EBA* are estimated to be energy-burdened and low-income.
 - That's about 16% of total EBA study population, or 35% of customers classified as low-income.
- Low-income and energy-burdened customers by utility service type:
 - Out of all customers estimated to be energy-burdened and low-income, 60% are PSE's Electric Only customers; 21% are PSE's Gas Only customers; and 19% are PSE's Combined Electric and Gas customers.

*Note: Energy Burden Analysis amounts to roughly 80% of PSE's total residential population based on 2022 10-K.





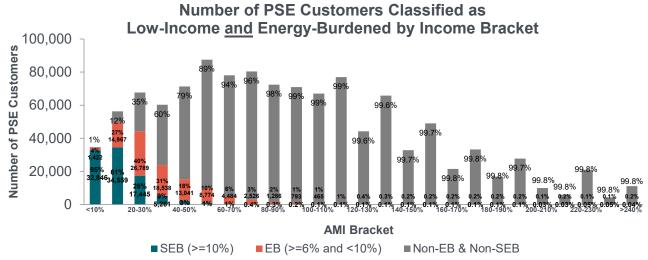
Energy burden concentrates at lower end of the income spectrum



16 Source: PSE's 2022 Energy Burden Study (EBA)



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

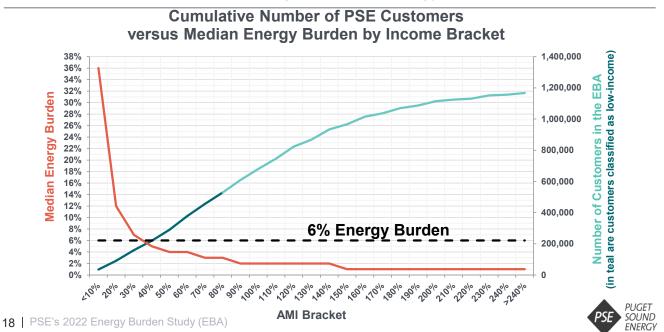


*Note: Energy burden analysis includes roughly 80% of total residential customer base (based on 2022 10-K) because of several data challenges **SEB: Severely Energy Burdened; EB: Energy-Burdened

17 | Source: PSE's 2022 Energy Burden Study (EBA)



Median energy burden decreases significantly with increasing AMI, and for customers in the 0-40% AMI range, *median* energy burden is above 6%



Median energy burden of estimated low-income and energy-burdened customers is 10%

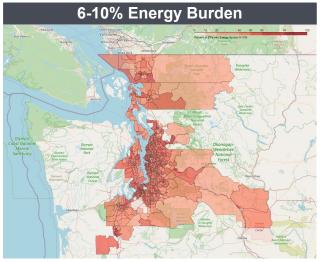
Customer segment	Median energy burden
All customers in 2022 EBA	2.4%
Estimated Upper-income (income >115% AMI)	1.5%
Estimated Moderate-income (income >80% and ≤115% AMI)	2.1%
Estimated Low-income (income ≤80% AMI)	4.4%
Estimated Low-income & Non-HEB (EB≤6%)	3.3%
Estimated Low-income & Energy-burdened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



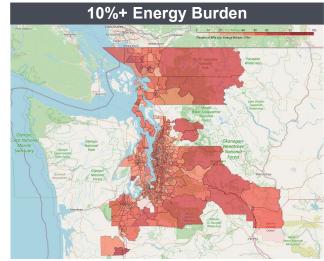
PSE's 2022 Energy Burden Study (EBA) | 19

A geographical view of Energy Burden across PSE service territory highlights areas with more energy-burdened customers on average

• Interactive maps illustrate census tracts with higher portions of PSE customers in the ranges of:



Data shown here: EB from > 6% to equals to 10% EB 20 | PSE's 2022 Energy Burden Study (EBA)



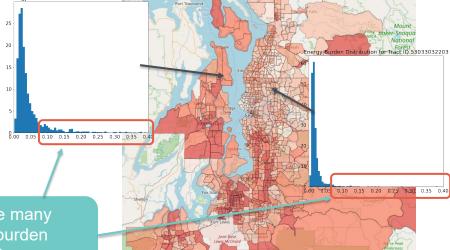
Data shown here: EB > 10%



There are energy-burdened customers within each area

Energy Burden Distribution for Tract ID 5303509010

- Within each census tract, energy burden tends to reflect rightskewed 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

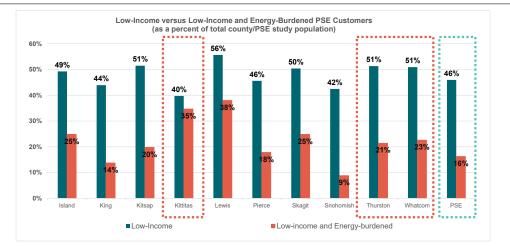


Source for map and histograms: PSE 2020 EBA



21 | PSE Energy Burden Analysis Methodology (2019-2022 EBA)

Comparisons by county also show the importance of identifying customers classified as low-income and their energy burdens

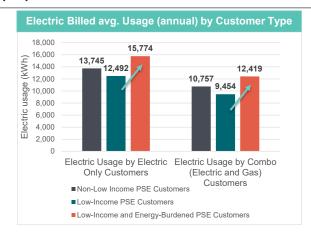


- Thurston, Whatcom, and Kitsap Counties have second highest percent of customers (51%) classified as low-income, and 20-23% were estimated to be energy-burdened.
- Kittitas County has a lower percentage of customers classified as low-income (40%) but majority of those customers are estimated as low-income and energy-burdened (35%).

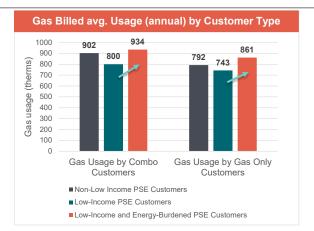




Energy-burdened customers use more energy than overall EBA study population



- On average, Electric Only customers' usage is higher than Combo customers' electric usage.
- Classified low-income energy-burdened customers' electric usage is higher than for overall low-income customers in the EBA by about 30% on average
- 23 | Source: PSE's 2022 Energy Burden Study (EBA)



 Classified low-income energy-burdened customers' gas usage is higher than for overall low-income customers in the Energy Burden Analysis by about 16% on average



Annual energy assistance need (EAN) – PSE portion

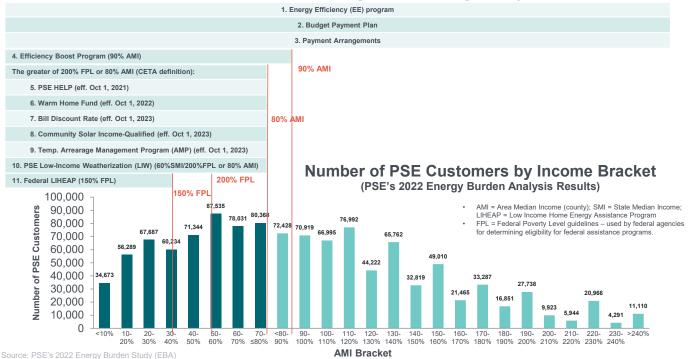
- PSE-bill portion of EAN is about 74% of total estimated EAN
- About 80% of PSE's EAN is for severely energy-burdened customers (EB>10%)

PSE-bill portion of EAN (\$ million)	Estimated EAN for Low- Income HEB Customers*	Estimated EAN for Low- Income SEB Customers
Low-Income	\$155.5 million	\$124.0 million
Electric Only	\$98.4 million	\$80.3 million
Gas Only	\$18.6 million	\$14.2 million
Combo	\$38.5 million	\$29.5 million

*Note: HEB data is inclusive of SEB data.



PSE's Current Low Income Programs: Eligibility



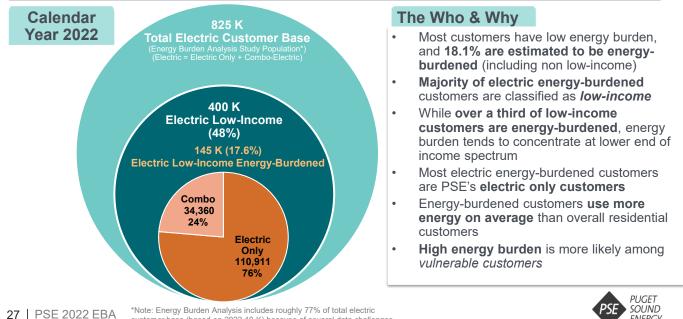
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2022 EBA Summary

Electric utility (electric only and combined-electric customers)



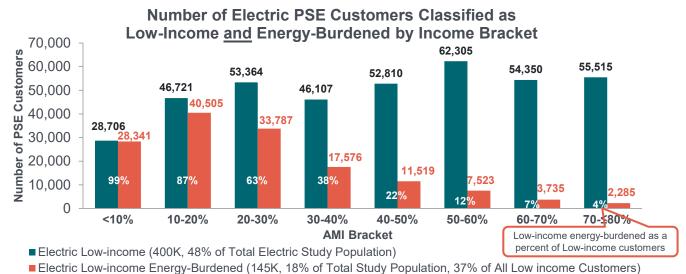
Electric: PSE's 2022 EBA key results and takeaways



*Note: Energy Burden Analysis includes roughly 77% of total electric customer base (based on 2022 10-K) because of several data challenges



Electric: As income increases, the proportion of electric energy-burdened customers decreases

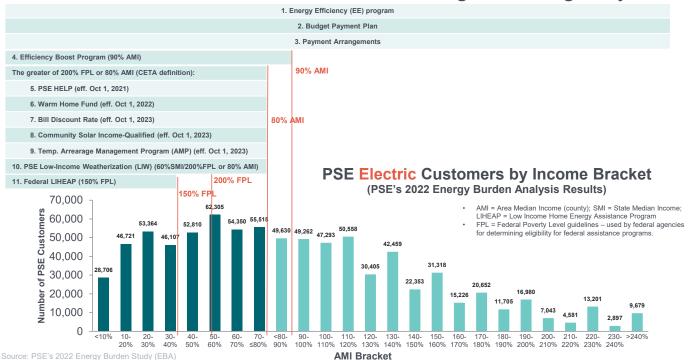


*Note: Energy burden analysis includes roughly 77% of total electric residential customer base (based on 2022 10-K) because of several data challenges





Electric: PSE's Current Low Income Programs: Eligibility



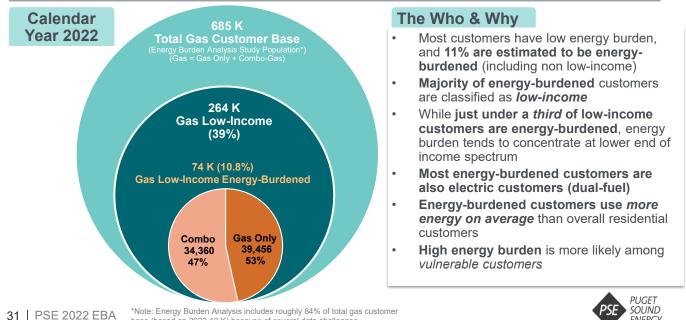
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2022 EBA Summary

Natural Gas utility (gas only and combined – gas customers)



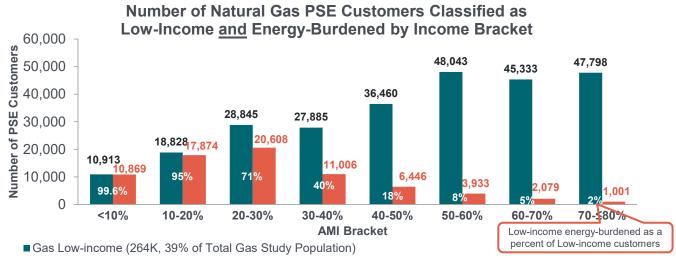
Gas: PSE's 2022 EBA key results and takeaways



*Note: Energy Burden Analysis includes roughly 84% of total gas customer base (based on 2022 10-K) because of several data challenges



Gas: As income increases, the proportion of natural gas energy-burdened customers decreases

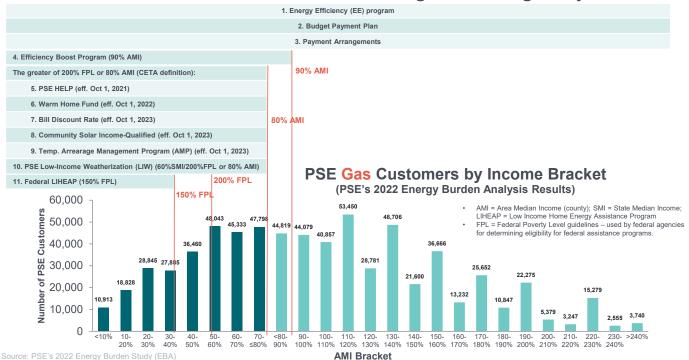


Gas Low-income Energy-Burdened (74K, 11% of Total Gas Study Population, 28% of All Low income Customers)

*Note: Energy burden analysis includes roughly 84% of total gas residential customer base (based on 2022 10-K) because of several data challenges 32 | PSE 2022 EBA



Gas: PSE's Current Low Income Programs: Eligibility



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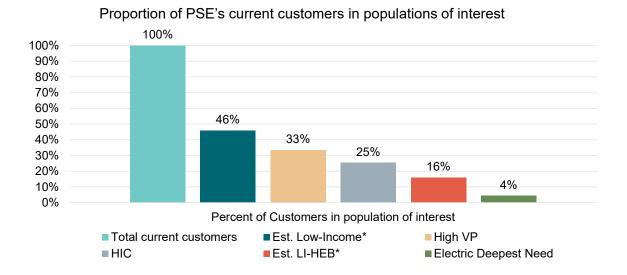
Populations of Interest:

Low-income (LI)	2022 EBA: HHs with annual income ≤80% AMI, HH adjusted	
 CETA: Area Median Income (AMI) ≤80% 	o or ≤200% Federal Poverty Level (FPL), whichever is highest, adjusted for HH size	
Low-income and		
Energy-Burden (LI-HEB)	2022 EBA: LI-HEB: EB > 6% and LI-SEB: EB > 10%	
 Energy Burden (EB): Annual home energy expenses as a % of annual HH income [CETA] High energy burden (HEB): HHs with energy burden above 6% [CETA / Commerce] Severe energy burden (SEB): HHs with energy burden above 10% [APPRISE / DOE] 		
Highly Impacted Community (HIC)	CETA: A community designated by the Department of Health based on the cumulative impact analysis required by RCW 19.504.140 or a community located in census tracts that are fully or partially on "Indian country."	
High Vulnerability Population (High VP)	High VP: Census block groups with High level VPs. PSE identified Vulnerable Populations in conjunction with its Clean Energy Implementation Plan a methodology described in PSE's CEIP and using feedback from PSE's Equity Advisory Group.	
CETA: HIC - Communities that experience a disproportionate cumulative risk from environmental burdens due to: adverse socioeconomic factors, including unemployment, high housing and transportation costs relative to income, access to food and health care, linguistic isolation, and sensitivity factors, such as low birth weight and higher rates of hospitalization.		
	PSE with EAG LIAC and CRAG per Order 08 of 2021 CEIP: Electric customers with severe	

Electric Deepest Need (DN or eDN)

PSE with EAG, LIAC, and CRAG per Order 08 of 2021 CEIP: Electric customers with severe energy burdens ("SEB", energy burden at or above 10%), plus additions from: PSE used a spatial analysis technique to identify clusters of individual electric customers with SEB and included customers in the top 50th percentile of block groups with high counts of severely-energy-burdened customers.

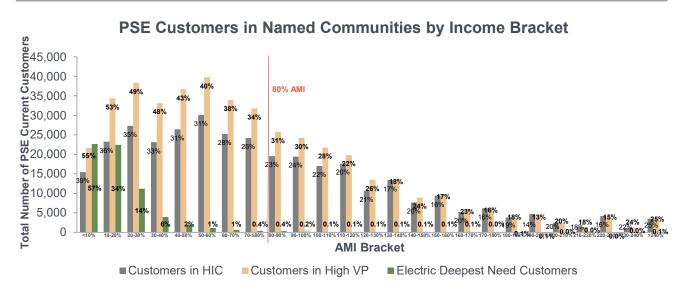
Percentage of PSE customers estimated in various populations of interest



36 | *LI and LI-HEB based on 2022 EBA results



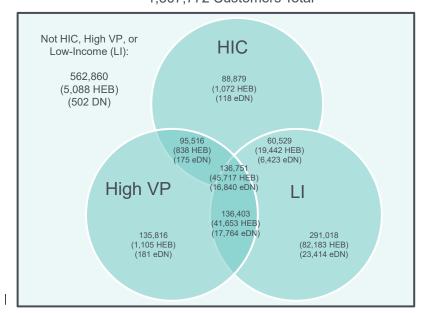
Customers in Named Communities by AMI bracket



37 *Named Communities: Electric Deepest Need (eDN), Highly Impacted Communities (HIC), and High Vulnerability Populations (High VP)



Identifying the overlap between Named Communities and low-income customers



1,507,772 Customers Total

While there is some overlap, these three groups identify somewhat distinct customer sets

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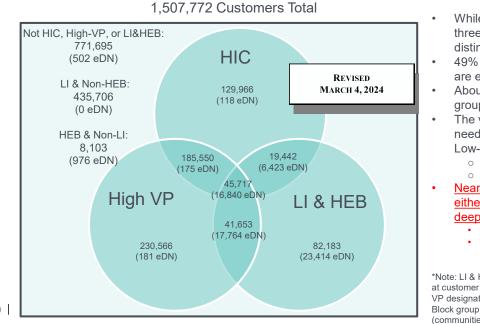
- 63% of active Residential customers are either HIC, High VP, or LI
- About 137K customers are in all three groups (HIC, High-VP, and LI)
- The vast majority of electric deepest need (eDN) customers, 99.2%, are also Low-Income

*Note: LI & HEB designations are at customer level, while HIC and VP designations are at Census Block group levels (communities/areas)



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Identifying the overlap between Named Communities and low-Income & energy-burdened customers



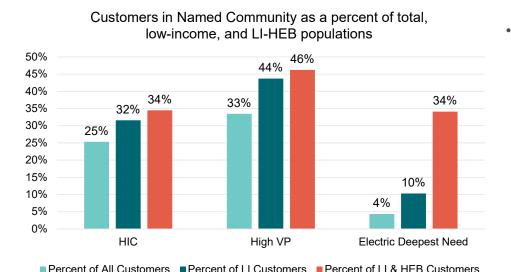
- While there is some overlap, these three groups identify somewhat distinct customer sets
- 49% of active Residential customers are either HIC, High-VP, or LI & HEB
- About 46K customers are in all three groups (HIC, High VP, and LI-HEB)
- The vast majority of electric deepest need (eDN) customers, 98.5%, are Low-Income and Energy-Burdened
 - Total eDN = 65,417 customers
 - eDN+LI&HEB = 64,441 (98.5%)
- Nearly 70% of LI-HEB customers are either HIC, High VP, or electric deepest need.
 - Total LI-HEB = 188,995
 - <u>Total LI-HEB that are also either HIC,</u> <u>High VP, or eDN = 130,226 (69%)</u>

*Note: LI & HEB designations are at customer level, while HIC and VP designations are at Census Block group levels (communities/areas)



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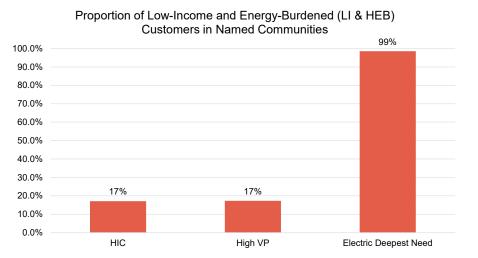
Low-income & energy-burdened customers are more likely to be in Named Communities



LI & HEB customers are more likely to be in HIC or in High VP, and significantly more likely to be electric deepest need, than PSE's all current customers overall

> PUGET SOUND ENERGY

Customers in populations of interest are more likely to be low-income and energy-burdened

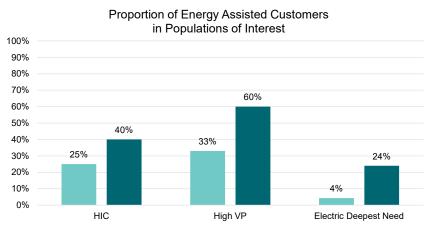


- For HIC and High VP subgroups, 17.1% and 17.3% are LI-HEB, respectively
- For electric deepest need customers, 98.5% are LI-HEB



41 | *LI-HEB = Low Income (AMI > 80%) and High Energy Burdened (EB > 6%)

Overview of energy assistance recipients by populations of interest demonstrates strong representation of Named Communities



All Customers Customers who received Energy Assistance

- From 2020-2023, 100,325 unique residential customers received energy assistance.
- Of these customers:
 - 40% are in Highly Impacted Communities (versus 25% overall customer base)
 - 60% are in High Vulnerability Population (versus 33% overall customer base)
 - 24% are electric Deepest Need (versus 4% overall customer base)
 - 52% are Energy-Burdened (versus 16% found in 2022 EBA)



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Defining Energy Burden

- A household's energy burden is the **percentage of income spent on home energy bills**.
- Commerce set the threshold for determining energy assistance need at 6% energy burden.
- Customers with energy burden of **above 6%** are defined as energy-burdened.
 - Commerce set the threshold for determining energy assistance need at six percent energy burden.
 This definition comes from a widely accepted principle that total shelter costs should not exceed 30 percent of income and that utility costs should not exceed 20 percent of those shelter costs, leading to the conclusion that an affordable energy burden should be at or below six percent of household income (20% x 30% = 6%).

Energy Burden Equation:

Annual (Electricity Bill + Gas Bill + Other Heating Fuels Bill)

Annual Income

44 | PSE Energy Burden Analysis Methodology (2019-2022 EBA)



PSE Energy Burden formula permutations:

- PSE's Combined Electric and Gas customers:
 <u>PSE Electricity Bill + PSE Gas Bill + Other Heating Fuels Bill</u>
 <u>Income</u>
- PSE's Electric Only customers:
 Yearly
 <u>PSE Electricity Bill + Other Gas Bill + Other Heating Fuels Bill</u>
 Income
- PSE's Gas Only customers:

Yearly Other Electricity Bill + PSE Gas Bill + Other Heating Fuels Bill Income

45 | PSE Energy Burden Analysis Methodology (2019-2022 EBA)



Working Definitions in the Energy Burden Studies:

Energy Burden (EB) HEB: EB > 6% and SEB: EB > 10%

• Energy Burden (EB): Annual home energy expenses as a % of annual HH income [CETA]

- High energy burden (HEB): HHs with energy burden above 6% [CETA / Commerce]
- Severe energy burden (SEB): HHs with energy burden above 10% [APPRISE / DOE]

Household (HH)

Residential PSE customer, identified by business partner ID

- Business partners (BP) with single and up to 10 customer accounts (CA)
- Customers with available income and other data

Low-income (LI)

HHs with annual income ≤80% AMI, HH adjusted

• CETA: Area Median Income (AMI) ≤80% or ≤200% Federal Poverty Level (FPL), whichever is highest, adjusted for HH size

Energy Assistance Need (EAN) The dollar amount in assistance necessary to reduce energy burden to equals 6% for one year. [CETA / Commerce]



Data sources

Income data

- o 2022 Third Party data vendor and Ground Truth Estimates from PSE Survey Data
- o 2018 DOE/NREL LEAD Tool Data

Billed amounts

- o 2022 PSE billing data
- o 2018 DOE/NREL LEAD Tool data

Geographic Information

- o 2010 U.S. Census Jurisdictions: Census block groups aggregated to tracts
- 2023 PSE Premise locations aggregated to block groups

Named Community Information

- 2022 Washington State Department of Health Environmental Health Disparities Map data;
- 2023 PSE Vulnerable Populations analysis per PSE 2021 CEIP Order 08;
- 2023 PSE Deepest Need analysis per PSE 2021 CEIP Order 08.



47 | PSE Energy Burden Analysis Methodology (2022 EBA)

The new definition of low-income: the higher of 80% Area Median Income or 200% Federal Poverty Level

2022-2023 PSE HELP Monthly Income Guidelines											
Household Size	King County	Snohomish County	Kitsap County	Pierce County	Thurston County I	sland County	Whatcom County	/ Kittitas County	Skagit County	Lew is County	- For
1 Person	5,563	5,563	4,804	4,738	4,708	4,163	4,233	3 3,967	4,021	3,683	
2 Persons	6,354	6,354	5,488	5,417	5,383	4,758	4,838	3 4,533	4,596	4,208	households
3	.,	7,150	6,175	6,092	6,054	5,354			5,171	4,733	with less than
4	7,942	7,942	6,858	6,767	6,725	5,946			5,742	5,258	5 members,
5	0,010	8,579	7,408	7,308	7,267	6,425		6,121	6,204	5,679	,
6	9,213	9,213	7,958	7,850	7,804	6,900	7,017	7 6,575	6,663	6,198	80% AMI is
7	9,850	9,850	8,508	8,392	8,342	7,375	7,500	7,029	7,121	6,985	greater than
8	10,483	10,483	9,054	8,933	8,879	7,850	7,983	3 7,772	7,772	7,772	200% FPL,
9	11,121	11,121	9,604	9,475	9,417	8,558	8,558	8,558	8,558	8,558	,
10	11,754	11,754	10,154	10,017	9,954	9,345	9,345	5 9,345	9,345	9,345	across all
11	12,392	12,392	10,700	10,558	10,492	10,132			10,132	10,132	counties in
12	13,025	13,025	11,250	11,100	11,029	10,918		3 10,918	10,918	10,918	PSE's service
13	13,663	13,663	11,800	11,705	11,705	11,705			11,705	11,705	
14		14,296	12,492	12,492		12,492			12,492	12,492	territory.
15		14,933	13,278	13,278	13,278	13,278			13,278	13,278	
16		15,567	14,065	14,065	14,065	14,065			14,065	14,065	
17	16,204	16,204	14,852	14,852	14,852	14,852	14,852	2 14,852	14,852	14,852	
18	16,838	16,838	15,638	15,638	15,638	15,638	15,638	3 15,638	15,638	15,638	
19		17,475	16,425	16,425	16,425	16,425			16,425	16,425	
20	18,108	18,108	17,212	17,212	17,212	17,212	17,212	2 17,212	17,212	17,212	
21	18,746	18,746	17,998	17,998	17,998	17,998	17,998	3 17,998	17,998	17,998	
22	19,379	19,379	18,785	18,785	18,785	18,785		5 18,785	18,785	18,785	
23	20,017	20,017	19,572	19,572	19,572	19,572	19,572	2 19,572	19,572	19,572	
24	20,650	20,650	20,358	20,358	20,358	20,358	20,358	3 20,358	20,358	20,358	
25	21,288	21,288	21,145	21,145	21,145	21,145	21,145	5 21,145	21,145	21,145	

80% AMI is the higher threshold

200% FPL is the higher threshold



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