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Highly Impacted Communities and Vulnerable Populations, and Customer Benefit Indicators (CBI)



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# Chapter Three: Highly Impacted Communities and Vulnerable Populations, and Customer Benefit Indicators (CBI)

# **Equitable Distribution of Benefits**

The Clean Energy Transformation Act (CETA) creates an inclusive approach to clean energy. It also requires that all customers benefit from the transition to the 2030 carbon-neutral standard and the 2045 requirement of 100 percent non-emitting and renewable electric resources. Identifying, measuring, and applying customer benefit indicators is a new part of the electric resource planning and resource acquisition process beginning in 2021. By including customer benefits, CETA ensures that while PSE pursues the energy supply targets to be carbon-neutral by 2030 and carbon-free in 2045, we do so in a way that reduces burdens and benefits all customers, including highly impacted communities and vulnerable populations, which we refer to here collectively as "named communities." CETA's overall goal is to meet the targets at the lowest reasonable cost while maximizing customer benefits.

PSE began this journey in late 2020 when we developed an Economic, Health, and Environmental Benefits (EHEB) Assessment consistent with RCW 19.280.030(1)(k) of energy and non-energy benefits and reductions of burdens to vulnerable populations and highly impacted communities for the 2021 Integrated Resource Plan (IRP). We also assessed long- and short-term public health and environmental benefits, costs and risks, and energy security and risk. This assessment was informed mainly by the Department of Health's February 2021 Cumulative Impact Analysis and stakeholder feedback collected at the November 2020 IRP meeting. We provide more details in the IRP, Chapter Two, and Appendix K. The timing of the CETA rulemaking and the Cumulative Impact Analysis in late 2020, all challenged by the effects of the pandemic, resulted in a compressed timeframe for this work with less stakeholder engagement and dialogue than we originally anticipated PSE anticipates our next IRP assessment will benefit from more robust dialogue with stakeholders and advisory groups, including the Equity Advisory Group (EAG), and the evolution of our customer benefit indicators.

PSE's initial EHEB Assessment was still an important first step for PSE to meet these important new planning standards and ensure all customers benefit from the transition to clean electricity. To ensure the equitable distribution of energy and non-energy benefits for highly impacted communities and vulnerable populations, PSE envisions the process framework shown in Figure 3-1.

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<sup>&</sup>lt;sup>26</sup> For example, in 2019, the Washington Department of Health envisioned a sub-workgroup for stakeholders to review and provide input on the Cumulative Impact Analysis throughout its development in 2020. Due to the challenges of the ongoing COVID-19 public health crisis in 2020, and Department of Health's important role in that effort, these opportunities for stakeholder engagement during development of the Cumulative Impact Analysis did not occur.

Figure 3-1: Equity Assessment Framework

#### **Current state**

- What are the existing disparities?
- What are the needs from a clean energy and equity perspective?

#### Burdens

- What are the existing barriers or challenges?
- experiencing
  these disparities
  or burdens?
  Specifically in
  highly impacted
  communities
  and vulnerable

#### **Specific Actions**

- What steps can PSE take to address these disparities or needs?
- How can
   we design
   programming to
   alleviate these
   burdens?

#### **Benefits**

- What benefits do we forecast for customers, especially highly impacted communities and vulnerable populations?
- How will we measure and forecast these benefits?

#### Costs

 What will it cost customers and PSE to implement the specific actions?

PSE is working to identify disparities in current PSE programs and in our efforts to serve customers with clean energy resources. We are reviewing our programs to determine the rates of burdens and benefits between the PSE customer base and named communities, and we are researching best practices to address these discrepancies. A burden can be economical and environmental. The following categories were raised as burdens and barriers during conversations with our EAG, Low Income Advisory Committee (LIAC), and community-based organizations:

- Renting as a barrier to participation in programs
- Lack of awareness and education
- Program access and complexity
- Return on investment
- Cost of participation and economic barriers
- Trust and politics
- Other issues, such as siting infrastructure and disruption of rural areas.

In addition, through our "clean electricity values" survey we heard the four most common potential challenges residential customers, business customers, and community customers identified when considering clean electricity transformation were:

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- Costs and potential bill increases,
- Potential environmental impact of source material for clean energy technology,
- Dependability of variable clean electricity sources like wind and solar,
- Construction impacts for new electric infrastructure.

PSE takes a deeper dive into the factors and makeup of identifying highly impacted communities and vulnerable populations in the sections that follow. One of the first steps in this process is to analyze the burdens and disparities experienced by highly impacted communities and vulnerable populations. For example, a burden to participating in the energy efficiency rebate programs may be the resources required to purchase energy efficient appliances. Particularly for highly impacted communities, the upfront costs may be a barrier for low-income customers to participate. PSE is also examining the specific actions needed to address the disparities and reduce burdens. For example, PSE may look at different program elements that can assist highly impacted communities and vulnerable populations in participating in the energy efficiency rebate programs, such as incentives or subsidies for customers to purchase more efficient appliances. We identify some of these programs or specific actions in Chapter Four.

We next identified what benefits customers, especially those in highly impacted communities and vulnerable populations, would see because of these specific actions. PSE defines, measures, and tracks the benefits of these actions through the lens of customer benefit indicators. In the case of the energy efficiency (EE) rebate program, an example of these benefits includes increased participation and reduced bills. The EE rebate program would improve the affordability of clean energy. In the future, PSE will quantify customer benefits, especially those for highly impacted communities and vulnerable populations. PSE also looks at the costs of implementing these specific actions as part of this process. In the case of the rebate program again, PSE would review the costs of different program options to create an EE rebate program and deliver the benefits to customers. We will identify the gaps we need to fill with new programs to address the disparities.

To accomplish this work, PSE anticipates a glide path of multiple years because we must work closely with stakeholders, including advisory groups and internal PSE teams. PSE plans to establish touchpoints with stakeholders and the Washington Utilities and Transportation Commission (WUTC) as we continue the process. PSE will continue to explore several aspects of disparities, such as:

- What magnitude of need defines a disparity?
- How should we quantify this magnitude? Customer percentage?
- Who is missing from participation based on a program's intended audience?
- What are the root factors that create these disparities?



In this chapter of the CEIP, PSE lays out the initial components of our framework. We define highly impacted communities and vulnerable populations and identify baseline data for most customer benefit indicators. PSE proposes a work plan in Chapter Eight to develop and solidify outstanding questions.

# **Highly Impacted Communities and Vulnerable Populations**

CETA requires utility resource plans to ensure that all customers benefit from the transition to clean energy. CETA specifically identifies vulnerable populations and highly impacted communities as groups that should benefit from the equitable distribution of energy and non-energy benefits and the reduction of burdens. This year, PSE has invested considerable effort to understand and identify customers who may belong to these named communities through customer outreach and collaboration with the Equity Advisory Group (EAG) and demographic analysis of our service territory.

This section discusses how we characterize vulnerable populations and highly impacted communities in the 2021 CEIP. The work in this section builds on our initial investigations into defining vulnerable populations and highly impacted communities in the IRP process, which we document in the 2021 IRP Appendix K, Customer Benefits Assessment<sup>27</sup>. Since the publication of the 2021 IRP, PSE has engaged numerous times with the EAG, the Washington State Department of Health, the WUTC, customers, and other internal and external stakeholders. Those efforts provided valuable insight into identifying vulnerable populations and highly impacted communities. Therefore, the characterization of vulnerable populations, and to a lesser degree, highly impacted communities, has changed from the 2021 IRP to the 2021 CEIP, and PSE expects the characterization to evolve as more data, new perspectives, and industry best practices continue to emerge.

#### **Definitions**

Named populations include vulnerable populations and highly impacted communities, each with a specific definition derived from the CETA statute and subsequent rulemaking:

**HIGHLY IMPACTED COMMUNITIES:** A community designated by the Department of Health based on the cumulative impact analysis required by RCW 19.405.140 or a community located in census tracts that are fully or partially on "Indian country," as defined in 18 U.S.C. Sec. 1151.

**VULNERABLE POPULATIONS:** 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.

#### **Vulnerable Populations**

PSE held a series of meetings with our EAG to develop a more comprehensive understanding of vulnerable populations. The collaboration with the EAG informs and directs PSE's work to define,

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<sup>&</sup>lt;sup>27</sup> 2021 IRP <u>Appendix K</u>, Economic, Health and Environmental Benefits Assessment of Current Conditions: <u>https://pse-irp.participate.online/2021-irp/reports</u>

locate, and measure engagement and support for customers to ensure equitable implementation of the CEIP.

The CETA provides a list of primary attributes to define vulnerable populations divided into two classifications: sensitivity factors and socioeconomic factors. Sensitivity factors represent impacts to populations from adverse conditions and have some overlap with highly impacted community factors. Two examples cited in the legislation are low birth weight and increased hospitalization rates. Socioeconomic factors are attributed mainly to a lack of resources to meet basic needs such as access to food and health care, and high transportation costs. Table 3-1 shows a list of primary factors identified by PSE and their definitions. The EAG expanded the primary list and added factors derived from their collective experience and interactive sessions with PSE. The gray-shaded factors in the table reflect factors for which PSE is either still investigating data resources that will provide metrics to apply to our customer base; or, in the case of historical red line influence, determine how to apply the available information to the present distribution of vulnerable populations within our service area.

Table 3-1: Vulnerable Population Factors and Definitions<sup>28</sup>

Sensitive Populations (SP) Socioeconomic (SE)	Factors	Definition
SP	Disability	Percentage of households reporting a member with disability
SP	Cardiovascular Disease	Rate of death from cardiovascular disease
SP	Low Birth Weight Rates	Rate of low birth weight
SP	Higher Rates of Hospitalization	Rate of hospitalization
SP	Heat Islands	Urban heat island and surface temperature
SP	Arrearage/Disconnections	Percentage of customers in arrearage/disconnected per block group
SE	Access to Digital/Internet Resources	Percentage of low digital engagement customers
SE	Access to Food	Low income and low access food flag
SE	Access to Health Care	Percentage of population with a primary care provider
SE	Educational Attainment Level	Percentage of customers with less than or high school education

<sup>&</sup>lt;sup>28</sup> Factors shaded in blue are required from CETA and duplicate elements of the criteria used for Highly Impacted Communities.



Sensitive Populations (SP) Socioeconomic (SE)	Factors	Definition
SE	Estimated Energy Burden	Percentage of energy burdened customers
SE	Historical Red Line Influence	Past discriminatory housing lending practices
SP	Home Care	TBD
SE	Housing Burden	Percentage of population paying more than 30% of income for housing
SE	Linguistic Isolation	Percentage of households with limited English proficiency
SP	Mental Health/Illness	Self-reported poor mental health
SE	Poverty	Percentage of households in poverty
SE	Race (People of Color/BIPOC)	Percentage of households identifying as BIPOC
SE	Renter vs. Owner	Estimated percentage of customers renting
SE	Seniors with Fixed Income	Estimated percentage of customers over 65 at 80% or lower AMI
SE	Transportation Expense	Percentage of households with more than a 35-minute commute
SE	Unemployment	Percentage of households experiencing unemployment

PSE will integrate data from several different resources to identify vulnerable communities. We list most of the resources PSE intends to use in Table 3-2, except those we are still investigating. We report the data at varied scales, ranging from county to individual customer. Census block groups provide one helpful scale for PSE to consider vulnerable populations within our service area. Census block groups range between 600 to 3,000 people and serve as a good proxy for neighborhoods. Some data are available at the census tract level, while other data may be available at the customer level.

PSE will aggregate our individual customer data to this scale and characterize neighborhoods within our service area across the breadth of factors identified in collaboration with the EAG. Ideally, all data would be available at the neighborhood or individual scale. For those factors where data is not yet available at that scale, PSE will generalize from larger scales until we can locate or develop a better unit of measurement.

Table 3-2: Expanded Factors by Data Resource/Scale

Table 3-2: Expanded Factors by Data Resource/Scale				
Factors	Data Resource	Data Scale		
Disability	American Community Survey 2019	Census Block Group		
Cardiovascular Disease	Washington State Department of Health	Census Tract		
Low Birth Weight Rates	Washington State Department of Health	Census Tract		
Higher rates of Hospitalization	Washington State Department of Health	Census Block Group		
Heat Islands	Tree Equity Score Data Set 2018	Census Block Group		
Arrearage/Disconnections	PSE Customer Information System	Customer Level		
Access to Digital/Internet Resources	PSE Customer Information System	Customer Level		
Access to Food	USDA Food Access Research Atlas	Census Tract		
Access to Health Care	Washington State Department of Health	County		
Educational Attainment Level	Purchased Market Research Data	Customer Level		
Estimated Energy Burden	Multiple Resources/Customer Level	Customer Level		
Historical Red Line Influence	National Historic Geographic Information System, University of Michigan	Census Tract and Block Group		
Home Care	TBD			
Housing Burden	American Community Survey 2019	Census Block Group		
Linguistic Isolation	American Community Survey 2019	Census Block Group		
Mental Health/Illness	Tree Equity Resource Data Set 2018	Census Block Group		
Poverty	American Community Survey 2019	Census Block Group		
Race (People of Color/ Black, Indigenous, and People of Color))	American Community Survey 2019	Census Block Group		
Renter vs. Owner	Purchased Market Research Data	Customer Level		
Seniors with fixed income	Purchased Market Research Data	Customer Level		
Transportation Expense	American Community Survey 2019	Census Block Group		
Unemployment	American Community Survey 2019	Census Block Group		
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The data for vulnerable population factors are distributed at various numeric scales across PSE's service area block groups. As the Department of Health does with its highly impacted communities' metrics<sup>29</sup>, PSE rescaled the distributions of values across the metrics to a standard scale such as 1–5, where one represents the lowest frequency of the factor and five represents the highest frequency. This method makes the factors easier to interpret for a variety of users. Thus, for a given block group within PSE's electric service area, each factor will receive a score of 1–5. Some metrics such as access to food and historical red line influence may be qualitative. We flagged these metrics with 0 or 1, where 0 indicates an absence of the condition and one indicates the condition is present.

After we rescaled the factors from 1–5, we ran analyses to determine if there were discernable patterns in the data that would provide contrast in dimensions of vulnerability. PSE first ran a k-means cluster analysis algorithm varying the number of clusters between 1 and 100. Through these iterations, no pattern emerged, creating clean breaks between the groupings. Following the k-means analysis, PSE summed the overall score for each block group and divided the results into terciles labeled high, medium, and low. Please see Figure 3-2 for the mapping of these terciles. Next, PSE considered the mean score for each factor within each tercile and identified the range of the means across the three terciles. This analysis illuminated the most significant changes from low to high terciles, and they were associated with multiple vulnerability factors. Table 3-3 lists selected factors in descending order of mean range across tercile. Energy burden emerged among the highest factors and may be a helpful lead indicator to engage multiple dimensions of vulnerability in PSE's Service Area. Because PSE can estimate energy burden for residential customers, using this as a lead metric may help address some of the concerns of block group level metrics obscuring individual instances of vulnerability.

Table 3-3: Range of Mean Across Terciles

Factor	Range of Mean across Terciles
Death from Cardiovascular Disease	3.3
Educational Attainment	2.2
Low Birth Weight	2.1
Poverty	1.9
Energy Burden	1.9
Percentage of Renters	1.9
Mental Health	1.9

<sup>&</sup>lt;sup>29</sup> Washington State Department of Health - Washington Tracking Network, A source for Environmental Public Health data: <a href="https://fortress.wa.gov/doh/wtn/WTNIBL">https://fortress.wa.gov/doh/wtn/WTNIBL</a>

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Hispanic	1.8
Race Black	1.6
No Health Insurance	1.6
No Internet	1.5
Heat Island	1.4
Disability	1.4
Multiple Room Occupants	1.2
Unemployment	0.9
Renter Housing Burden	0.9
Low-income Senior	0.9
Higher Rate Hospitalization	0.8
In arrears	0.8
Larger Household Size	0.7
Limited English	0.6
Owner Housing Burden	0.6
Food Desert	0.2
Long Commute	-0.1
Race White	-1.2
Housing Owner Percent	-1.8

We also considered the proportion or count of vulnerable populations within PSE's service area compared to statewide populations, shown in Table 3-4.

Table 3-4: Vulnerable populations in PSE's Service Area vs. the State of Washington

Vulnerable Population	PSE Service Area Proportions	Washington Statewide Proportions
Cardiovascular Disease	20% of Census Tracts have 9 or 10	20%
Low Birth Weight	8% of Census Tracts have 9 or 10 (42 tracts)	7%
Housing Burden	Owner 25% Renter 41%	Owner 24% Renter 45%
Linguistic Isolation	3.5%	4%
Poverty	9%	11%
Transportation Expense (35 minute or more commute)	31%	28%
Unemployment	5%	5%
Disability	12%	13%
Higher rates of Hospitalization	39	35
Heat Islands	93.7	106.9
Home Care	N/A	N/A
Mental Health/Illness	12.2	12.7
Arrearage/Disconnections	Forthcoming	N/A
No access to Digital/Internet Resources	7%	9%
Access to Food	26%	29%
Access to Health Care No Health Insurance	6%	6%
Educational Attainment Level	28	31
Estimated Energy Burden	10.8% (by PSE metric) 2.3% average energy burden	15.1% per PacCorp WA Commerce Utility Energy Program Assistance Survey Tool reference 2% average energy burden
Historical Red Line Influence	nce N/A N/A	
Race (People of Color/Black, Indigenous, and People of Color)	26%	22%
Renter vs. Owner	Forthcoming	37
	•	

Seniors with fixed income	6.9% ACS (13% by 80% AMI)	7.5
Multiple Occupants per Room	5.3%	6.3%
Household Size	2.5	2.6

PSE will locate higher concentrations of vulnerable populations for those census block groups with a 4 or 5 for a given metric. In some cases, we may identify multiple factors at this level indicating a vulnerable geography. From the preliminary results noted in Table 3-3, it appears most census blocks within PSE's electric service area have lower levels of vulnerability. For these census block groups identified with a 1 or a 2, there may be other indicators available at the individual customer level, such as energy burden, that are an indicator to identify customers who may also be experiencing stressors from additional vulnerability factors.

Figure 3-2 is a map of vulnerable populations by census block groups within PSE's Electric Service Area. The map illuminates the areas where high, medium, and low levels of vulnerability are experienced by customers within PSE's service area. As discussed, this geographic representation gives PSE an indication of where we should focus efforts for outreach or program implementation.

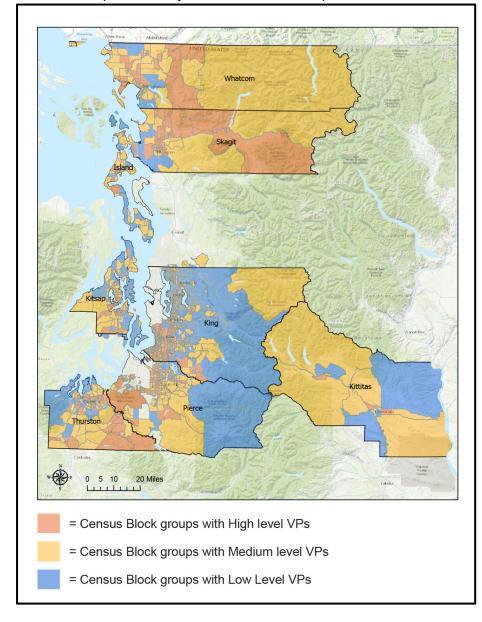


Figure 3-2: Vulnerable Populations by Census Block Groups within PSE Electric Service Area

# **Highly Impacted Communities**

Highly impacted communities are defined by the Washington Department of Health Cumulative Impact Analysis (CIA) and identified as census tracts with an overall score on the Environmental Health Disparities (EHD)<sup>30</sup> map of 9 or 10, or any census tract with tribal lands.<sup>31</sup> Of the 164 highly impacted communities census tracks within PSE service territory, 72 are on tribal lands, ~44 percent. The EHD map ranks communities based on the risks they face, from environmental burdens and vulnerabilities to the impacts of climate change. Figure 3-3 shows the criteria we used to determine these risks. We

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<sup>30</sup>https://fortress.wa.gov/doh/wtn/WTNIBL

<sup>&</sup>lt;sup>31</sup>https://www.doh.wa.gov/DataandStatisticalReports/WashingtonTrackingNetworkWTN/ClimateProjections/CleanEnergyTransformationAct

calculated the risks using the criteria shown, which creates a final composite score for each census tract. We identify census tracts with a score of 9 or 10 as highly impacted.

Figure 3-3: Environmental Health Disparities Map: Technical Report Prepared by Washington State Department of Health. Seattle; 2019.

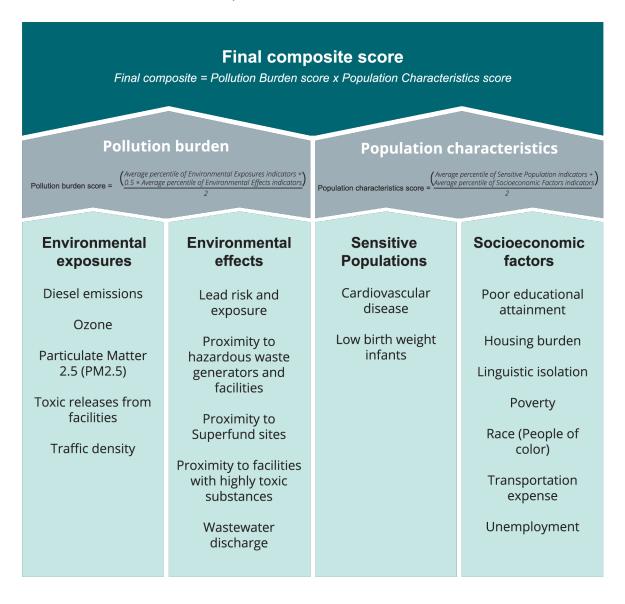


Figure credit: University of Washington Department of Environmental & Occupational Health Sciences. Washington.

We used the EHD map to locate highly impacted communities within PSE's service area. Figure 3-4 shows the highly impacted communities in PSE's electric service area. The CIA has identified 164 census tracts in PSE's service area as highly impacted communities. PSE notes that some census tracts identified as highly impacted communities identified by the CIA are adjacent to and not within PSE's electric service area. PSE has notified the Washington Department of Health of this inconsistency, and we await further refinement of the CIA by the Washington Department of Health.

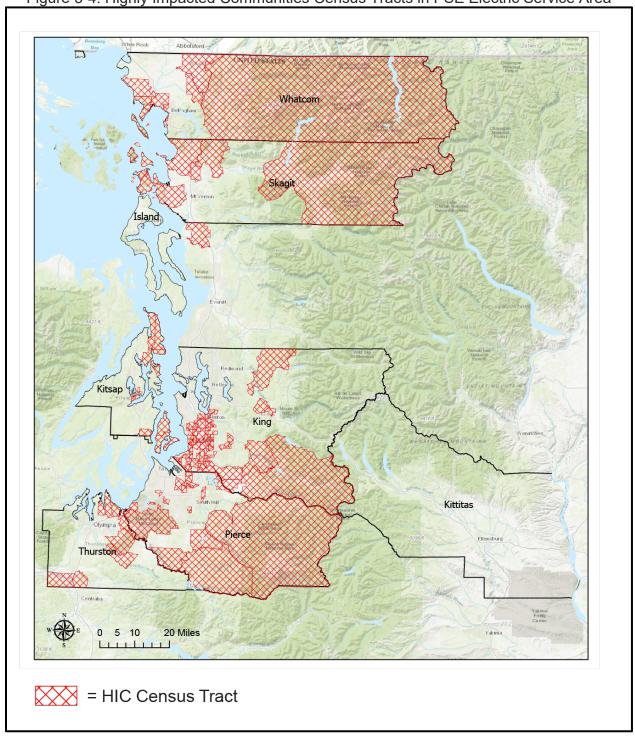


Figure 3-4: Highly Impacted Communities Census Tracts in PSE Electric Service Area

Highly impacted communities and vulnerable populations encompass various factors to define a specific community. Some PSE customers may overlap categories and fall into either group. Figure 3-5 shows the overlap between highly impacted communities and the vulnerable populations within PSE's service areas. Table 3-5 counts the approximate number of PSE customers who fall within each group described in this section. We will use these numbers to help us determine existing disparities and burdens experienced by PSE customers.

0 5 10 20 20 Miles = HIC Census Tract = Census Block groups with High level VPs = Census Block groups with Medium level VPs = Census Block groups with Low Level VPs

Figure 3-5: Combined Vulnerable Populations and Highly Impacted Communities in PSE Electric Service Area

Table 3-5: Number and Percentage of PSE Customers in Highly Impacted Communities and Vulnerable Populations

Customer count (PSE's electric customers)	Customers in highly impacted communities	Customers in vulnerable populations Low	Customers in vulnerable populations in Medium	Customers in vulnerable populations High
1,147,383	310,991 (27%)	333,869 (29%)	387,228 (34%)	426,286 (37%)

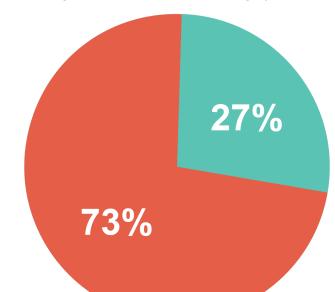
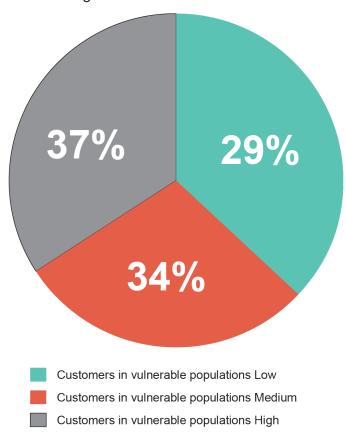


Figure 3-6: Percentage of PSE Customers in Highly Impacted Communities



Highly Impacted Communities

Non-Highly Impacted Communities



# How the Clean Energy Transformation Will Improve Lives in Vulnerable Populations and Highly Impacted Communities

This CEIP will use the highly impacted communities' designation and vulnerable populations' factors to ensure the equitable distribution of benefits by:

- Identifying the existing disparities in benefits and burdens between customers,
- Tracking and measuring progress in addressing these disparities over time,
- Considering highly impacted communities and vulnerable populations as part of the resource acquisition process,
- Including them as a criterion when developing and implementing customer programs, and
- Providing guidance on targeted customer education and awareness.

# **Equitable Clean Energy Future**

With CETA's intent to ensure the equitable distribution of benefits, identifying named communities upfront allows PSE to track and report on our progress toward a more equitable future. First, we will use these designations to understand the disparities within PSE customer groups. A snapshot of existing customer disparities was reflected in the 2021 IRP, <u>Appendix K</u><sup>32</sup>, to show the difference between various attributes and identify areas where highly impacted communities and vulnerable populations experience a disproportionate burden or benefit in PSE's territory.

PSE will continue to evaluate and analyze this data over time and use the information to create and implement new or existing customer programs. Before filing our 2023 biennial CEIP update, PSE will identify and use metrics to evaluate the benefits accruing to and burdens on vulnerable populations and highly impacted communities through this clean energy transition.

In collaboration with the EAG and stakeholders, PSE will define the metrics to track and provide results to the EAG and other advisory groups for continued dialogue on progress within these named communities. One example of this tracking is analyzing the participation rates of PSE customers within a designated highly impacted community. PSE could track the number of participants over time and compare that participation rate to the broader PSE territory. This information would help identify any gaps in program participation and guide PSE to target the program in a particular area. For additional information, see Chapter Seven, Tracking and Reporting; <a href="Appendix H">Appendix H</a>, Customer Benefit Indicator Metrics; and future IRP — Economic, Health, and Environmental Benefits Assessments.

These named community designations also assist PSE in creating and implementing customer programs.

<sup>&</sup>lt;sup>32</sup> 2021 IRP <u>Appendix K</u>, Economic, Health and Environmental Benefits Assessment of Current Conditions: <u>https://pseirp.participate.online/2021-irp/reports</u>



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- Awareness of vulnerable population factors can help shape and design customer programs, based on the factors identified. PSE will create programs that provide opportunities for vulnerable populations. PSE will work with stakeholders to identify some of the burdens of participation for vulnerable populations and begin to create a program that reduces barriers and provides increased benefits to customers.
- Identifying highly impacted communities helps PSE determine the location of potential customer
  programs. Because these are geographic factors, PSE may target specific areas of highly
  impacted communities for program implementation. This highly impacted community mapping
  will allow PSE to work directly with customers in the identified area to begin designing and
  implementing programs. For additional information, please see Chapter Four, Specific Actions.

#### Communication

PSE heard with a resounding voice from Equity Advisory Group, Low Income Advisory Committee, community-based organizations representing named communities, and the Spanish multilingual session about the lack of awareness in highly impacted communities and vulnerable populations of PSE programs and how to participate in them. To address this barrier, PSE needs to increase and target our marketing, outreach education, and awareness efforts in highly impacted communities and vulnerable populations. Adopting a data-driven approach to target our efforts and identify audiences will be important steps in addressing this barrier. To begin our targeted communication effort, designating specific communities helps identify how messages should be created and delivered. By knowing the factors for vulnerable populations, PSE can adjust and update our communication efforts, especially for vulnerable populations who may not be aware of the programs we offer.

Knowing who participates in PSE's existing programs is one way to identify where the gaps exist. Mapping participation rates between vulnerable populations and the general customer population will illuminate the disparities and thus raise the question, "What are the barriers?" Much like program implementation, designating highly impacted communities can target specific areas for increased outreach and education.

The geographic nature of highly impacted communities gives PSE a visual of where specific highly impacted communities reside, and where to concentrate resources. For example, PSE may use the factor of linguistic isolation to revamp our communication strategy to cater to customers who may not speak English. PSE could work with community-based organizations to develop material for customers in the language they speak at home and develop workshops and open houses in non-English languages. This multilingual initiative will take more resources to deliver and time to measure results because it is intensive and will require unique skills and new ways of engaging.

#### **Customer Benefit Indicators**

The 2021 Clean Energy Implementation Plan (CEIP) includes customer benefit indicators, which are the benefits customers want to see as PSE makes this clean energy transition. These indicators are a



crucial part of resource and program evaluation and the selection of future investments. These indicators were developed through the public participation process and reflect the themes PSE heard from customers and stakeholders. PSE explains the following for each indicator:

- The metrics used to measure these benefits.
- A baseline of the current state of these benefits, if available,
- Who receives these benefits,
- How we applied these indicators in this CEIP, and
- How we may use these indicators in the future.

We show these indicators in Table 3-6 and the corresponding CETA category and metric.

#### Establish Baseline for Each Customer Benefit Indicator Metric

The purpose of setting a baseline is to provide a snapshot of how each indicator stands as it relates to PSE's existing programs or resources. We first looked internally to uncover what information was available to us today. Then we looked at any gaps in data to decide what additional data we would need. Finally, we determined a path to receiving the correct data to measure and display these benefits.

To track and measure the impact of programs on customer benefits, PSE will define specific metrics for each customer benefit indicator. Table 3-6 and <u>Appendix H</u> define these metrics. The table illustrates each customer benefit indicator, the associated metrics, and whether PSE could develop baseline data using data sources readily available. We will explain the data sources in more detail later in this chapter. PSE continues to work to refine our data tracking and sources to provide the most accurate tracking possible.

Table 3-6: Customer Benefit Indicators and Metrics

CETA Category	Indicator	Metric	Baseline data (2020)	Expected Burdens Reduced
Energy Benefits Non-energy Benefits Burden Reduction	Improved participation in clean energy programs from highly impacted communities and vulnerable populations	Increase number and percentage of participation in energy efficiency, demand response, and distributed resource programs or services by PSE customers within highly impacted communities and vulnerable populations	Yes, PSE internal data in which PSE measures the number of programs related to all customers, and PSE customers within named communities. Please see Appendix H.	Lack of awareness and education  Cost of participation and economic barriers  Costs and potential bill increases

CETA Category	Indicator	Metric	Baseline data (2020)	Expected Burdens Reduced
		Increase percentage of electricity generated by distributed renewable energy projects		
Non-energy Benefits	Increase in quality and quantity of clean energy jobs	Increase quantity of jobs based on:  Number of jobs created by PSE programs for residents of highly impacted and vulnerable populations Number of local workers in jobs for programs Number of part-time and full-time jobs by project  Increase quality of jobs based on: Range of wages paid to workers Additional benefits offered Demographics of workers	Unavailable currently. This information will be available in the future as PSE contracts with vendors and collects this information.	Access to high quality jobs in clean energy
Non-energy Benefits	Improved home comfort	Increased dollar in net present value (NPV) in NEI benefits for EE programs.	Yes, internal PSE data that is calculated as non-energy impacts within the BCP process; please see Appendix H	Lack of awareness and education  Cost of participation and economic barriers
Reduction of burdens	Increase in culturally- and linguistically-	Increase outreach material available in non-English languages	Yes, we will have internal PSE data that quantifies the number	Lack of awareness and education

CETA Category	Indicator	Metric	Baseline data (2020)	Expected Burdens Reduced
	accessible program communications for named communities		of non-English language materials used by PSE in 2022	
Cost Reduction Burden Reduction	Improved affordability of clean energy	Reduce median electric bill as a percentage of income for residential customers  Reduce median electric bill as a percentage of income for residential customers who are also energy-burdened	Yes, PSE internal data in which PSE measures the affordability of clean energy related to all customers, and PSE customers within named communities. PSE may also use the Department of Energy's Lead tool can be found here: https://www.energy.gov/eere/slsc/maps/lead-tool. Please see Appendix H.	Cost of participation and economic barriers
Environment	Reduced greenhouse gas emissions	Reduce PSE-owned electric operations metric tons of annual CO <sub>2e</sub> emissions  Reduce PSE contracted electric supply metric tons of annual CO <sub>2e</sub> emissions	Yes, PSE shares publicly available data on its CO <sub>2e</sub> emissions at <a href="https://www.pse.com/pages/greenhouse-gas-policy">https://www.pse.com/pages/greenhouse-gas-policy</a>	Adverse climate impacts of CO <sub>2e</sub> emissions
Environment Risk Reduction	Reduction of climate change impacts	Increase in avoided emissions times the social cost of carbon	Yes, publicly available data on the social cost of carbon as defined by the WUTC is available at https://www.utc.wa.gov/regulated-industries/utilities/energy/conservation-and-renewable-energy-overview/clean-energy-transformation-act/social-cost-	Adverse climate impacts of CO <sub>2e</sub> emissions

CETA Category	Indicator	Metric	Baseline data (2020)	Expected Burdens Reduced
			carbon, and data on PSE's emissions is available at https://www.pse.com/ pages/greenhouse- gas-policy	
Public Health	Improved outdoor air quality	Reduce regulated pollutant emissions (SO2, NOx, PM2.5)	Yes, internal PSE data on emissions.	Adverse health impacts from air pollution
Public Health	Improved community health	Reduce the occurrence of health factors like hospital admittance, and work loss days	Yes, based on Washington Department of Health hospital discharge rates, available here: Hospital Discharge Data (CHARS): Washington State Department of Health	Adverse health impacts from air pollution
Resilience	Decrease frequency and duration of outages	Decrease number of outages, total hours of outages, and total backup load served during outages using System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI)  Reduction in peak demand through demand response programs	Yes, internal data on named communities and publicly available data regarding PSE's current SAIDI and SAIFI metrics are available at: https://www.utc.wa.gov/regulated-industries/utilities/energy/infrastructure-and-energy-planning/annual-reliability-reports-electric-companies Internal PSE data provided the analysis on named communities.	Dependability of variable clean electricity sources like wind and solar
Risk Reduction Energy Security	Improved access to reliable, clean energy	Increase number of customers who have access to emergency power	Yes, PSE internal data in which PSE measures the number of customers with storage related to all customers and PSE customers within	Lack of awareness and education  Cost of participation and economic barriers

CETA Category	Indicator	Metric	Baseline data (2020)	Expected Burdens Reduced
			named communities. Please note PSE shows a count of zero as there is no current PSE program specific to net metering and battery storage.	Dependability of variable clean electricity sources like wind and solar

PSE intends to use these metrics to define the baseline data and forecast future impacts. PSE will use these metrics to describe the current snapshot for each metric related to existing PSE programs for the baseline. To forecast benefits in the future and address disparities, PSE will use the same data to project and measure the impact of future resource decisions on customers, especially highly impacted communities and vulnerable populations. Table 3-7 shows an example of this effort.

Table 3-7: Sample of Metric with Baseline Data and Future Forecast

Indicator	Metric	Baseline data (2020)	Forecasted data
Improved participation from named	Number of participants for energy efficiency	Energy Efficiency: 2,000 participants from all customers	Energy Efficiency: 3,000 participants
communities	and DER programs from highly impacted	5% from highly impacted	20% from highly impacted communities
	communities and vulnerable	communities	20% from vulnerable populations
	populations	3% from vulnerable populations	<b>DER Rooftop Solar program</b> : 800 participants
		<b>DER program</b> : none exists	7% from highly impacted communities
			7% from vulnerable populations

Table 3-7 illustrates a sample indicator, related metric, the current baseline data, and a future forecast. In this example, to assess improved participation in energy efficiency and DER programs from highly impacted communities and vulnerable populations, PSE first looks at the existing participation by PSE customers in energy efficiency programs, 2,000. In the future, PSE will forecast the number of participants for each program and include the percentage of participants from highly impacted communities and vulnerable populations. We will use that future forecast in the 2023 biennial CEIP

update and beyond. In this example, we determined the forecast based on the size of the program. We would consider existing participation and the potential for vulnerable populations to participate.

This breakdown shows the comparison between all PSE residential customers and customers identified as highly impacted or vulnerable populations and illustrates the distribution of benefits. By showing the participation related to the overall customer mix, we gain insight into the mix of participants and where highly impacted communities and vulnerable populations may not receive benefits. Each indicator addresses how the equitable distribution of benefits will be reflected.

To define which customers fall into the vulnerable population category, PSE evaluated several metrics discussed in <u>Appendix H</u>. These customers were then grouped into three categories: low, medium, and highly vulnerable population, depending on the intensity of the factors that led to their vulnerable population status. We gave every PSE electric service area block group a low, medium, or high classification.

The next section discusses the baseline data for each customer benefit indicator and any applicable value. Some metrics and data sources are new and require PSE to develop new ways to track and measure them. As we begin to collect data for these new metrics, we may learn the metric will not achieve our desired outcome. Although the process may change, we describe the steps it will take to gather this information and how we will use these metrics to forecast impact. We will update these forecasts in the 2023 biennial CEIP update and improve on them in future CEIP cycles.

# CETA category: Energy benefits, Non-energy benefits, and Burden Reduction

Customer Benefit Indicator: Improved participation in clean energy programs from highly impacted communities and vulnerable populations

This indicator looks at the participation of PSE residential customers, customers in highly impacted communities, and customers considered vulnerable populations in PSE's existing programs. This indicator intends to measure improved participation by:

- Tracking the inclusion of residential customers in the projects and programs PSE launches in this clean energy transition.
- Tracking the number of distributed and community renewable programs for all PSE customers and those in named communities.
- Tracking the impact of electricity generated by distributed renewable energy projects for all PSE customers and those in named communities.

PSE recognizes the burdens our customers currently face to access distributed resources, especially customers in highly impacted communities and vulnerable populations. These burdens to participation could be lack of awareness, the complexity of programs, or lack of resources to participate. This indicator illuminates the energy benefits customers receive based on the opportunities available and the increase of enrollees in these clean resource programs. Measuring and tracking participation gives PSE an understanding of who participates in which programs. This monitoring will also allow PSE to measure the equitable distribution of benefits. Table 3-8 shows the percentage of participants in energy efficiency and distributed resources programs from all PSE customers, highly impacted communities, and vulnerable populations. We show the breakdown of participation based on 2020 program enrollment in energy efficiency and distributed resources to establish the baseline data.

Table 3-8: Improved Participation, Baseline Data for 2020

Metric	Energy Efficiency <sup>33</sup>	Demand Response	Distributed Resources
Percentage of participation in energy efficiency, demand response and distributed resource programs or services by PSE customers within highly impacted communities and vulnerable populations	All programs	Future use	Hydro, Wind, Solar, and Solar and Batteries <sup>34</sup>
All PSE customers		Future use	10,792
Percentage of participation by Highly Impacted Communities	24%	Future use	1.1%
Percentage of participation by low vulnerable populations	41%	Future use	1.6%
Percentage of participation by medium vulnerable populations	29%	Future use	1.2%
Percentage of participation by high vulnerable populations	30%	Future use	0.6%

Table 3-9: Percentage of Electricity Generated by Distributed Renewable Energy Projects for Distributed Resources

Metric (nameplate capacity)	Distributed Resources <sup>35</sup>
Percentage of electricity generated by distributed renewable energy projects	
All PSE customers	Future use
Percentage of participation by Highly Impacted Communities	Future use

<sup>&</sup>lt;sup>33</sup> To calculate this column, PSE took the Total Measure Count for that population and divided it by Total Savings kWh. Within EE, different measures have great variance. For example, the value to a customer between EE lighting and EE heat pumps would be very different.

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<sup>&</sup>lt;sup>34</sup> Customers with BTM batteries and no solar are not required to report that information to PSE.

<sup>&</sup>lt;sup>35</sup> Green Power Grants are awarded to organizations supporting highly impacted communities and vulnerable populations. Since 2018 PSE has awarded grants to 20 organizations serving our low-income and BIPOC communities. The amount awarded during that time totals \$2,436,795 and the installed capacity is 1,138 MW. Green Direct is a commercial program; the participants are governmental and commercial customers. This includes 41 customers that have fully subscribed two projects totaling 287 MW.

Metric (nameplate capacity)	Distributed Resources35
Percentage of participation by Low Vulnerable Populations	Future use
Percentage of participation by Medium Vulnerable Populations	Future use
Percentage of participation by High Vulnerable Populations	Future use

Reporting on this metric will depend on the technology available at the time. For example, PSE will forecast the number of customers for a specific distributed solar program and include a percentage of participating customers within highly impacted communities or vulnerable populations. This information will be based on program design and size.

To collect data on future demand response programs, PSE will establish systems to track and monitor participation for all residential customers, including highly impacted communities and vulnerable populations. In the future, PSE will forecast the number of customers who can participate in each program, with a breakdown for highly impacted communities and vulnerable populations.

# **CETA Category: Non-energy Benefits**

### Customer Benefit Indicator: Increase in quality and quantity of clean energy jobs

This indicator looks at the quantity and quality of jobs created through PSE programs for all PSE residential customers, customers in highly impacted communities and customers considered vulnerable populations. The intent of this indicator is to capture the jobs created from PSE's efforts to increase the amount of clean resources in our electric resource portfolio.

An existing burden or barrier for highly impacted communities or vulnerable populations may be unemployment, the lack of quality jobs for residents that are safe and reliable, and a lack of disposable income for improving their lives. Increasing the number of clean energy jobs and the quality of these jobs provides an opportunity for highly impacted communities and vulnerable populations to access quality jobs and a pathway to participate in the economic benefits of a clean energy future. Specifically focusing on highly impacted communities and vulnerable populations gives insight to the quantity of clean energy jobs for these customers and shows how these benefits are distributed to residents in the PSE service area. PSE does not currently have access to information related to jobs connected to upcoming PSE programs to develop baseline data, but we plan to gather it in the future. PSE also does not have the jobs created data in the previous year for existing programs. Table 3-10 gives an overview of the general categories of metrics PSE anticipates collecting for each resource pertaining to the quantity of clean energy jobs.

To track the quantity of clean energy jobs, PSE anticipates tracking metrics in three main areas:

(1) The number of jobs created in named communities.

- (2) The number of local workers in jobs for projects (this could include some preference for workers residing in the area where the project is being constructed).
- (3) The number of part-time and full-time jobs by project (this could include tracking temporary, seasonal, and/or permanent jobs).

Table 3-10: Increase in Quantity of Clean Energy Jobs, Baseline Data for 2020

Metric (Nameplate capacity)	Energy Efficiency	Demand Response	Utility Scale Resources	Distributed Resources
Quantity of clean energy jobs created by PSE programs based on:				
Number of jobs created for residents of highly impacted communities and vulnerable populations	Future use	Future use	Future use	Future use
Number of Local workers in jobs for programs	Future use	Future use	Future use	Future use
Number of part-time and full-time jobs by project	Future use	Future use	Future use	Future use

Table 3-11 provides an overview of the general categories of metrics PSE anticipates collecting for each resource pertaining to the quality of clean energy jobs.

To track the quality of clean energy jobs, PSE anticipates tracking metrics in three main areas:

- (1) The demographic of workers; (this could include metrics tracking employment diversity programs or contracts with women, minority, or veteran-owned businesses)
- (2) The range of wages paid to workers; (this could include metrics tracking of documented pay of prevailing wage rates determined by local collective bargaining as determined by the Washington State Department of Labor and Industries)
- (3) Additional benefits offered; (this could include metrics tracking apprentice utilization, use of project labor and/or community workforce agreements, or other employment benefits).

We will develop more specific metrics related to the quantity and quality of clean energy jobs for the 2023 biennial CEIP update and associated data will be provided, as available.

Table 3-11: Increase in Quality of Clean Energy Jobs, Baseline Data for 2020

Metric	Energy Efficiency	Demand Response	Utility Scale Resources	Distributed Resources
Quality of clean energy jobs created by PSE programs based on:				
Demographics of workers	Future use	Future use	Future use	Future use
Range of wages	Future use	Future use	Future use	Future use
Additional benefits offered	Future use	Future use	Future use	Future use

In the future, PSE will forecast the quantity of clean energy jobs projected for each program and the amount attributed to highly impacted communities and vulnerable populations. Although there are multiple studies on the impact of clean jobs on employment, we will need to develop metrics that are PSE-specific first, and then begin collecting this information from our vendors going forward. PSE will also propose specific metrics for each project related to the quality of clean energy jobs consistent with the general categories of metrics as defined. We will coordinate with the programs' developers and contractors to collect this information. PSE will request this type of information in our contracts with vendors. PSE also received feedback on job training related to clean energy jobs and will continue to evaluate possible job training metrics to use in the future.

# **CETA Category: Non-energy Benefits**

#### **Customer Benefit Indicator: Improved home comfort**

This indicator looks at the benefits to PSE customers in highly impacted communities and customers considered vulnerable populations in PSE's existing Energy Efficiency programs. The benefit for this metric represents the estimated lifetime value of the non-energy impacts associated with measures deployed by EE programs, calculated in Net Present Value for each of the following:<sup>36</sup>

- Air quality
- Lighting quality
- Thermal comfort
- Health and safety
- Noise



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<sup>&</sup>lt;sup>36</sup> This represents the monetized lifetime value.

The intent of this indicator is to reflect home comfort in terms of benefit to the customer over and above energy savings. We developed this metric through the energy efficiency BCP process, please see <a href="Appendix H">Appendix H</a> for additional information. The metric encompasses the five elements listed above, summed for each energy efficiency program. Some PSE customers, especially those who are in highly impacted communities and vulnerable populations, may experience poor air quality in their homes, which impacts their health, and the inability to maintain a comfortable temperature in their homes. These burdens may be mitigated by an increase in energy efficiency programs that incorporate cost savings related to home comfort.

This metric measures the estimated lifetime value of the non-energy impacts associated with measures deployed by EE programs, calculated in Net Present Value, by providing an increase in benefits for customers including reduced noise, improved lighting quality, and improved indoor air quality. By tracking this metric for all customers and comparing to highly impacted and vulnerable populations, PSE can illustrate the distribution of these home comfort benefits across all customers. For the baseline data, PSE shows the breakdown of energy savings for customers, based on 2020 program enrollment for energy efficiency in Table 3-12.

Table 3-12: Improved Home Comfort, Baseline Data for 2020

Metric	Electric Service Area (\$)	HICs (\$)	VPs Low (\$)	VPs Medium (\$)	VPs High (\$)
NPV for All NEIs by Number of Measures installed	1,383,776.36	453,101.17	273,761.69	335,302.49	597,212.16
Avoided illness from pollution – Societal – C&I	850.58	259.08	250.01	206.60	390.91
Thermal Comfort – Participant – C&I	32.23	11.29	3.08	13.29	15.87
Avoided illness from pollution – Societal – Residential	1,368.54	266.10	188.84	252.80	332.37
Health and safety – Participant – Residential	696,906.62	275,339.52	128,930.61	201,448.97	359,805.07
Lighting Quality and Lifetime – Participant – Residential	7,013.82	531.19	842.44	712.33	577.27
Noise – Participant – Residential	231,099.14	69,007.88	44,175.15	40,414.99	87,894.87
Thermal Comfort – Participant – Residential	446,505.43	107,686.11	99,371.57	92,253.51	148,195.80

In the future, PSE will forecast the amount of benefit for customers participating in energy efficiency programs. This information will be based on non-energy impacts (NEIs) and the Biennial Conservation Plan. Because the nature of this metric is tied to energy efficiency programming, this metric will not be tracked for other PSE programs.

# **CETA category: Reduction of burdens**

# Customer Benefit Indicator: Increase in culturally- and linguistically-accessible program communications for named communities

The purpose of this indicator is to track and monitor the number of resources PSE creates and distributes in non-English languages and culturally-specific audiences. For some PSE customers, a barrier to participation or awareness of programs is language and cultural relevance. By expanding materials and webpages developed in more languages, PSE can reach more customers, especially those who have historically been underrepresented in clean electricity participation. The benefit customers should see is increased awareness and knowledge of programs, which could lead to participation in clean energy resources that may make their homes more efficient or reduce their bills. Where available, PSE will measure the number of "impressions" for communication materials. This may be the number of materials distributed to customers, or analytics of digital materials such as webpages, emails, and social media tools.

For the baseline data, PSE is currently performing an audit of its program informational and promotional materials and availability of non-English languages for its energy efficiency programs, expected to be completed by February 28, 2022. PSE plans to collect information based on existing energy efficiency programs to compare the number and type of materials in non-English versus English languages, and update in Table 3-13.

Table 3-13: Increase Accessible Program Communications, Baseline Data for 2020

Metric	Energy Efficiency	Demand Response	Distributed Resources
Outreach material available in non- English languages	Available by Feb. 28, 2022	Future use	Future use
Outreach material available in English language	Available by Feb. 28, 2022	Future use	Future use
Outreach material impressions in non- English languages	Available by Feb. 28, 2022	Future use	Future use
Outreach material impressions in English language	Available by Feb. 28, 2022	Future use	Future use

In the future, PSE will further develop the approach for culturally- and linguistically- accessible materials that align with program audience and improved customer-focused journey for PSE's named

communities, such as customer interest in programs and material needs. PSE will initially focus on a few programs to pilot, so lessons may be applied more broadly. Long-term, PSE anticipates forecasting the number of languages that could be translated for the various programs and provide an estimate of the reach based on PSE's named communities. PSE will specifically identify the languages that would be used.

# **CETA Category: Cost Reduction, Burden Reduction**

# Customer Benefit Indicator: Improved affordability of clean energy

The purpose of this metric is to track and monitor how much of a customer's income is attributed to the electricity portion of their energy bills. This metric will utilize the data from PSE's 2020 Energy Burden Analysis and will be analyzed for the following populations: PSE residential customers in the study, <sup>37</sup> residential customers in highly impacted communities, and residential customers considered vulnerable populations.

For the baseline data, Table 3-14 shows the median electric bill as a percentage of customers' income for all residential customers in the energy burden study versus residential customers that are identified as energy-burdened<sup>38</sup> in the study. In addition, the table shows these metrics for residential customers who reside in highly impacted communities and for residential customers considered vulnerable populations.

Table 3-14: Reduced Cost Impacts, Baseline Data for 2020

Metric	All of PSE's Electric residential customers	Highly impacted communities	Vulnerable populations Low	Vulnerable populations Medium	Vulnerable populations High
Median electric bill as a percentage of income for residential customers	1.4%	1.7%	1.0%	1.3%	1.8%



<sup>&</sup>lt;sup>37</sup> The PSE electric residential customers here are from the study population of PSE's 2020 Energy Burden Analysis, which includes about 80 percent of all PSE's residential customers (based on 2020 10K).

<sup>&</sup>lt;sup>38</sup> As defined by Commerce, the definition of an "energy-burdened" customer in PSE's Energy Burden Analysis is a customer whose energy burden is at or greater than 6 percent. Per CETA, "energy burden" means the share of annual household income used to pay annual home energy bills (electricity, natural gas, propane, heating oil, wood, etc.). Source: Washington Department of Commerce. Guidelines for RCW 19.405.120. Version 03.09.2020.

<sup>&</sup>lt;sup>39</sup> See footnote 38.

Metric	All of PSE's Electric residential customers	Highly impacted communities	Vulnerable populations Low	Vulnerable populations Medium	Vulnerable populations High
Median electric bill as a percentage of income for residential customers who are also energy- burdened <sup>40</sup>	7.0%	7.4%	6.2%	6.7%	7.6%

This metric may show how customers' electric bills, particularly those in highly impacted communities and vulnerable populations, go down as PSE moves forward with specific actions that may reduce the percent of income spent towards electric bills. However, PSE acknowledges that there are multiple exogenous factors that impact this metric outside of a customer's electric bill. For example, an economic downturn or another pandemic may have a wide impact on customer incomes. PSE will continue to refine this metric and may note any broad economic factors that impact this metric in future fillings.

#### **CETA Category: Environment**

# Customer Benefit Indicator: Reduced greenhouse gas emissions

This indicator looks at the metric tons of carbon dioxide (CO<sub>2 e</sub>) released by resources used to serve PSE's electric load. This indicator captures the amount of emissions by PSE's resources and the avoided emissions based on new clean energy resources. The metric measures how PSE contributes to reducing climate change impacts by measuring the utility's reduction in greenhouse gas emissions. The benefit in tracking this data is to show how PSE is reducing emissions over the time indicated, thus showing a reduction in greenhouse gas emissions. For the baseline data, Table 3-15 shows the amount of CO<sub>2</sub>e from 2020 by resources within PSE's fleet and resources contracted to serve load. The CO<sub>2</sub>e output is based on the fuel source claims reported under Chapter 19.29A RCW and the greenhouse gas content methodologies under WAC 173-444-040.

<sup>&</sup>lt;sup>40</sup> See footnote 39.

Table 3-15: Reduced Greenhouse Gas Emissions. Baseline Data for 2020

Metric	Energy Efficiency	Demand Response	Utility-scale Resources (Per WAC 173-444)	Distributed Resources
PSE-owned electric operations metric tons of annual CO <sub>2e</sub> emissions	Future use	Future use	4,793,992	Future use
PSE contracted electric supply metric tons of annual CO <sub>2e</sub> emissions (Total – Firm and Nonfirm Contract Purchases)	N/A	N/A	3,466,560	N/A

PSE currently collects this data therefore we do not need additional data sources. In the future, PSE will forecast CO<sub>2</sub>e emissions based on our anticipated resource mix and portfolio. For new programs, PSE will forecast avoided metric tons of CO<sub>2</sub>e for each program to include in future CEIPs. PSE will use the projected energy output and associated metric tons of CO<sub>2</sub>e avoided by bringing on energy from these new, clean resources. We will base this information on the AURORA modeling output for metric tons of annual CO<sub>2</sub>e emissions and the most accurate and precise emission modeling tool for all other pollutants, and possibly use the EPA's AVERT tool.

#### **CETA Category: Environment, Risk Reduction**

#### **Customer Benefit Indicator: Reduction of climate change impacts**

This indicator examines the social cost of carbon related to avoided emissions. We can understand the social cost of carbon as a quantification of the marginal cost of the impacts caused by emitting one extra ton of greenhouse gas.<sup>41</sup> This metric takes the published social cost of carbon and multiplies it by the avoided emissions for PSE's EE, DR, and DER programs. Table 3-16 shows the baseline data on the impact to social cost of carbon based on avoided emissions from 2020.

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<sup>&</sup>lt;sup>41</sup> For additional information on the social cost of carbon, please see <a href="https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument\_SocialCostofCarbonMethaneNitrousOxide.pdf">https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument\_SocialCostofCarbonMethaneNitrousOxide.pdf</a>

Table 3-16: Reduction of Climate Change Impacts, Baseline Data for 2020

Metric	Energy	Demand	Utility Scale	Distributed
	Efficiency	Response	Resources	Resources
Social cost of carbon times avoided emissions	Future use	Future use	\$76 per metric ton times 8,260,552 total CO <sub>2e</sub> metric tons in 2020 = \$627,801,952	Future use

In the future, PSE will forecast the amount of avoided emissions based on each EE, DR, DER program or resource, and multiply by the social cost of carbon for the corresponding year. We will base this information on past emissions data published on the PSE website, AURORA forecasting modeling output and the WUTC published social cost of carbon.

**CETA category: Public Health** 

**Customer Benefit Indicator: Improved outdoor air quality** 

This indicator looks at the emissions from NOx, SO2, and PM2.5 by PSE resources or contracts. PSE customers may experience outdoor air pollution from a variety of sources including emissions from transportation, industrial, and energy impacts. These emissions affect the outdoor air quality. These pollutants raise the risk of asthma, lung disease and other health challenges for PSE customers. By reducing PSE's portion of these pollutants, PSE customers, especially those in highly impacted communities and vulnerable populations, may see an increase in cleaner air and benefit from a healthier environment assuming other contributing sources of pollution remain relatively constant and do not increase. For the baseline data, Table 3-17 shows the amount of NOx, SO2, and PM2.5 from 2020 by owned and non-owned resources.

Table 3-17: Improved outdoor air quality, Baseline data for 2020

Metric	PM2.5 (2020)	SO2 (2020)	NOx (2020)
PSE's regulated pollutant emissions in short tons (SO2, NOx, PM2.5)	387.7	3,180.3	3,746.2

In the future, PSE will forecast the amount of NOx, SO2, and PM2.5 emissions based on its anticipated resource mix and portfolio. For new programs, PSE will forecast avoided metric tons of PM2.5, SO2, and NOx using site specific emission factors and the EPA's AVERT tool for each program in future CEIPs. PSE will use the projected energy output and associated metric tons of PM2.5, SO2, and NOx avoided by bringing on energy from these new, clean resources. We will also base this information on forecasted AURORA modeling output.

# **CETA Category: Public Health**

# **Customer Benefit Indicator: Improved community health**

This indicator looks at health factors like hospital admittance and work-loss days based on emissions near PSE residential customers, customers in highly impacted communities and customers considered vulnerable populations. As previously discussed, PSE customers in highly impacted communities and vulnerable populations generally experience a disproportionate amount of pollution burden. This burden may lead to increased public health issues that may have an impact on days away from work or school. This metric will help PSE better understand how customers' baseline health is affected as CETA is implemented.

For the baseline data, PSE uses hospital discharge rates as a proxy for hospital admissions.<sup>42</sup> PSE presents this baseline in Table 3-18 and is working to gather additional data points and refine the metric. For example, we are investigating additional metrics, such as community health measured over time and seniors' ability to stay in their homes.

Table 3-18: Improved Community Health, Baseline Data for 2020

Metric	All PSE Customers	Highly Impacted Communities As a percent of Total Hospital Discharges	Total Hospital Discharges in VPs Low	Total Hospital Discharges in VPs Medium	Total Hospital Discharges in VPs High
As a percent of Total Hospital Discharges	100%	31%	29%	32%	39%

In the future, PSE will forecast the impact to community health and the amount attributed to highly impacted communities and vulnerable populations. We may use the EPA's COBRA tool. 43 PSE will forecast the reduction in impact to community health, based on avoided emissions for new clean resources. We have not yet determined the source for this information. PSE is in the process of evaluating other metrics related to community health.



<sup>&</sup>lt;sup>42</sup> Hospital discharges rates may be inflated. These metrics are reported by zip code rather than census block group, PSE used GIS software to select a value from each zip code for the census block groups that overlapped the zip code. In cases in which a census block group intercepted several zip codes, PSE biased the selection toward the high value to capture the highest level of sensitivity; however, this should be relatively uniform bias across the service area.

<sup>&</sup>lt;sup>43</sup> The EPA's COBRA tool can be found here: <a href="https://www.epa.gov/cobra">https://www.epa.gov/cobra</a>

# **CETA Category: Resilience**

#### Customer Benefit Indicator: Decrease frequency and duration of outages

This indicator looks at the number of outages and their impact on PSE customers, customers in highly impacted communities and customers considered vulnerable populations in PSE's existing programs. For the metric PSE tracks both the System Average Interruption Duration (SAIDI) and System Average Interruption Frequency Index (SAIFI) metrics as part of the service quality index (SQI #3 and #4)<sup>44</sup> to highlight the number of outages on PSE's system as a whole and the duration of outages. Customers currently are burdened by the impacts of weather-related outages. An improvement in these metrics aligns with a more secure system and customer reliability would benefit from a more resilient grid. To understand the distribution of benefits, a grasp of how certain populations are affected by these outages is critical. Table 3-19 shows the baseline data, PSE's 2021 Service Quality Index report includes shows the breakdown of SAIDI and SAIFI in 2020 and the associated SAIDI and SAIFI for the named communities.

Table 3-19: Decrease Frequency and Duration of Outages, Baseline Data for 2020

Metric	2020 Average customer count	2020 SQI 3 — SAIDI (minutes)	2020 SQI 4 — SAIFI (interruptions)	
PSE — all customers	— all customers 1,180,611		1.24	
Highly Impacted Communities	454,434	144.74	0.98	
Vulnerable Populations	382,824	112.99	0.82	

As part of PSE's DR programs, PSE plans to measure reduction in peak demand due to the DR initiatives. A reduction in peak demand means a decrease in frequency and duration of outages because there is less stress on the grid. A reduction in peak demand also reduces the energy and capacity need on the system. PSE will track this information at three levels: all customers, highly impacted communities, and vulnerable populations. PSE will work with vendors to ensure that this information is available to PSE from the DR technology used to implement the program.

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<sup>&</sup>lt;sup>44</sup> As of 2020, PSE has the following benchmarks: SAIFI: <1.30 outages, SAIDI: <155 minutes

<sup>&</sup>lt;sup>45</sup> "SAIDI" is the average duration (or length) of sustained interruptions per customer for the year. "SAIFI" is the average number of sustained interruptions (or outages) per customer for the year.

Table 3-20: Peak Demand Through Demand Response Programs

Metric	Demand Response
Peak demand through demand response programs	
All customers	Future use
Reduction for Highly Impacted Communities	Future use
Reduction for Vulnerable populations (Low)	Future use
Reduction for Vulnerable populations (Medium)	Future use
Reduction for Vulnerable populations (High)	Future use

In the future, PSE will define, and measure metrics related to circuit performance across our service territory and specifically in highly impacted and vulnerable communities.

**CETA Category: Risk reduction, Energy security** 

Customer Benefit Indicator: Improved access to reliable clean energy

This indicator looks at the number of customers with access to backup power and its impact on PSE residential customers, customers in highly impacted communities and customers considered vulnerable populations in PSE's service territory. During outages, customers sometimes do not have a backup energy option to go about their daily lives. This metric will illustrate the increase in options and opportunities for customers to gain access to secondary sources of energy. To illustrate the distribution of these benefits, PSE will show the percentage of customers within highly impacted communities and vulnerable populations as compared to all PSE customers. For the baseline data, PSE shows the breakdown of backup power sources based on 2020 data; please note that PSE shows a count of zero as there is no current PSE program specific to net metering and battery storage, although customers may decide to install net metering and battery storage systems on their own.

Table 3-21: Improved Access to Reliable Clean Energy, Baseline Data for 2020

Metric	Distributed Resources	All customers	Access for Highly Impacted Communities	Access for Vulnerable populations Low	Access for Vulnerable populations Medium	Access for Vulnerable populations High
Number of customers who have access to emergency power	Net metering and battery storage <sup>46</sup>	O <sup>47</sup>	0	0	0	0

In the future, PSE will forecast the number of customers who may benefit from facilities with backup power in their community based on the program proposed. This will also show the amount attributed to highly impacted communities and vulnerable populations. PSE will collect the information via vendors and program enrollment.

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<sup>&</sup>lt;sup>46</sup> PSE only has data on batteries installed with interconnected DER systems. PSE does not have data on batteries for backup power for their home without solar or another technology approved to back-feed to the PSE grid.

<sup>&</sup>lt;sup>47</sup> This number is zero because although individual PSE customers have individually chosen to install batteries, this is not a specific PSE program currently.

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#### **Applying Customer Benefit Indicators in the 2021 CEIP**

The 2021 Integrated Resource Plan (IRP) used an initial set of customer benefit indicators developed with only limited feedback from the IRP stakeholder group. <sup>48</sup> Updates to the customer benefit indicators in this CEIP benefit from the public participation processes and input as required by CETA to create this Clean Energy Implementation Plan. These updated customer benefit indicators derived from public participation processes will also inform future IRPs and 10-year Clean Energy Action Plans (CEAP).

Now that we have defined the customer benefit indicators and their metrics, we will illustrate how they will be used in the resource decisions PSE outlines in this CEIP. This section covers each specific target and illustrates how these customer benefit indicators will be applied to determine which programs and specific actions may be pursued through PSE's resource acquisition processes. PSE is using the CBIs as part of the RFP process to guide our decision-making.

In the previous section, we showed some of the metrics for these indicators. In the future, PSE can use these metrics to forecast the benefits customers, including highly impacted communities and vulnerable populations, would see in the application of these indicators. For this 2021 CEIP and in future electric resource planning and resource acquisition decisions, PSE will use the customer benefit indicators to determine the specific targets using the following mechanisms:

# **Applying Customer Benefit Indicators to Energy Efficiency**

The calculations used to establish the cost-effectiveness of different energy efficiency programs include non-energy impacts, which are benefits not included as energy or cost benefits but can be estimated as financial impacts and included in the cost-effectiveness calculation. Non-energy impacts (NEIs) are the value to the participant — the utility — of benefits that PSE did not include in our avoided energy or capacity costs. PSE is considering an expanded list of non-energy impacts for future conservation goals. Many of these also align with the customer benefit indicators used across the actions in the CEIP. As more NEIs are measured and used in the cost-effectiveness calculation, PSE will add them to the cost-effectiveness evaluations of different programs.

Benefits from energy efficiency measures naturally overlap with many of PSE's customer benefit indicators (CBIs) found in this CEIP. When customers use less energy, fewer carbon-emitting fossil fuels are mined and burned. Air sealing and insulation, used to reduce heating and cooling needs, also improves home comfort by blocking noise and drafts. Efficient upgrades to homes, offices, and infrastructure create clean energy jobs for the workforce. And of course, the less energy a customer uses, the less they pay in utility charges. Many of these benefits are already quantified and accounted for in PSE's resource planning, such as adding the social costs of greenhouse gas emissions to avoided cost calculations.

<sup>&</sup>lt;sup>48</sup> Timing of WUTC rules and Draft IRP: The WUTC rules for the CEIP were finalized in December of 2020 during the ongoing 2021 IRP process. The 2021 IRP was filed in April 2021. Because of the short period between these two products, stakeholder engagement on customer benefit indicators was limited.



In the 2022–23 Biennial Conservation Plan (BCP), PSE is taking steps to further quantify and include the monetary benefits of energy efficiency by adding to the list of NEIs. Before this, PSE typically used a narrow range of NEIs, including water and sewer savings, air pollution avoided using supplemental fuels, and NEIs developed by the Regional Technical Forum. We used this narrow list as part of the determination of the conservation goal. In 2020, PSE and other Washington State investor-owned utilities commissioned the creation of a database of NEIs from across the nation and a methodology that transferred a benefit from one utility jurisdiction to another; this enabled the expanded use of NEIs in different categories of benefits.

The results from expanding the use of NEIs will begin to show up in our 2024–2025 BCP. Categories of NEIs that PSE adopted from this database include operations and maintenance savings, health and safety impacts, indoor and outdoor air quality, financial impacts from payment assistance or arrearages, health care costs, and fire risk reduction. PSE adopted new NEIs in the 2022–23 BCP. PSE also plans to continue to investigate more NEIs during the 2022–23 implementation period that may add further value during the cycle. Table 3-22 shows a list of CBIs PSE proposes for this CEIP, along with a list of new NEI categories PSE will use to account for the value of energy efficiency projects in future BCPs.

Table 3-22: Mapping NEIs to CBIs

CEIP Customer Benefit Indicators	New NEIs Adopted in 2022–23 BCP
Improved outdoor air quality	Avoided illness from air pollution
Improved community health	Health and Safety
Affordability of clean energy	Quantified HVAC and insulation costs for income-eligible customers  O&M Savings
Improved home comfort	Thermal comfort/lighting quality
Increased resiliency	Fires/Insurance damage reduction
Greenhouse gas reduction Increase in clean energy jobs Decrease in outages Increased accessibility Reduction of climate change impacts	These CBIs are not explicitly addressed in new NEIs but are accounted for in avoided costs of capacity and the social cost of GHG or reflect areas of future work.

Many of these expanded NEIs fall within the customer benefit categories outlined in CETA and within the customer benefit indicators PSE identified in this 2021 CEIP. We cannot quantify all these new NEIs at this point. As a result, PSE will continue to evaluate and adopt the new NEIs in the coming years. PSE will provide a separate report to describe the monetary value as we integrate them into our cost-effectiveness calculations in future BCPs and annual reports. PSE will continue to develop

quantified NEIs and incorporate them into the cost-effectiveness calculations and align them with customer benefit indicators.

PSE acknowledges a need for specific demonstration of how our energy efficiency programs impact low income and named communities. We are committed to exploring ways to demonstrate how energy efficiency programs affect low income and named communities in the next BCP planning cycle. We need new data collection technologies and reporting mechanisms to dissect energy efficiency programs to this level of specificity. As mentioned in PSE's 2022–2023 BCP, program staff will continue to assess program delivery against a matrix of metrics and practice adaptive management to ensure equitable delivery or programs. PSE will utilize internal and external research to develop culturally relevant outreach to bring integrated energy efficiency opportunities to highly impacted communities and vulnerable populations. Specifically, there will be a particular focus on "transcreation" of collateral and contractor training to better reach limited English proficiency customers in the residential energy management sector.

#### **Apply Customer Benefit Indicators to Demand Response**

PSE will issue a Targeted Distributed Energy Resources (DER) Request for Proposals (RFP) in early 2022 to meet the target for demand response. This Targeted DER RFP will include a section for bidders to describe and illustrate how their bid best meets the customer benefit indicator categories, like the 2021 All-Source RFP, as described in Chapter Four, Specific Actions. We will evaluate the responses based on the bids received and will consider them to create a short list and pursue contracts. The process for evaluating Demand Response bids will mimic the same process for DERs as illustrated.

#### **Apply Customer Benefit Indicators to Renewable Energy**

#### Utility-scale resources through the 2021 All-Source RFP

On June 30, 2021, PSE issued an All-Source RFP seeking any resource that could meet the CETA or capacity need. The All-Source RFP requires all responses include a customer benefit plan that explains how the proposal will affect each of the customer benefit indicator categories: distribution of energy and non-energy benefits in highly impacted communities and vulnerable populations, reduction of burdens to highly impacted communities and vulnerable populations, long- and short-term public health and environmental impacts, reduction of costs and risks, and energy security and resiliency.

For development projects, proposals must describe the respondent's labor plan. We will give preference to projects constructed with high labor standards, including family-level wages, benefits and opportunities for local workers and businesses. PSE encourages all bidders able to meet the requirements of this All-Source RFP to participate, including bidders representing minority-, women-, disabled- and veteran-owned businesses. PSE encourages bidders interested in partnering with PSE to support supplier diversity through inclusive, competitive procurement processes.

PSE prefers projects that utilize a Project Labor Agreement or Community Workforce Agreement for major construction activities associated with the construction of the project. Respondents shall make commercially reasonable efforts to ensure that such Project Labor Agreement or Community Workforce Agreement is eligible to be certified by the Washington Department of Labor and Industries under the standards of the Washington State Clean Energy Transformation Act (RCW 19.405). RFP responses shall also include any written diversity commitments, plans, or policies.<sup>49</sup>

In Phase 1 of the All-Source RFP evaluation, which started with the bid deadline on September 1, 2021, and continues into Q1 2022, responses will include a qualitative assessment based on the number of customer benefit indicator categories each proposal addresses.<sup>50</sup> Figure 3-8 shows the rubric that will be used to score each bid based on the information provided by developers in their customer benefit plan.

Figure 3-8: All-Source RFP Evaluation Criteria and Scoring Rubric

CETA Customer Benefit Plan	35%	х	_/5
No CETA Customer Benefit plan provided			0
Plan submitted - Minimally addresses all areas			1
Strongly addresses two (2) of the five CBI areas and minimally addresses the remaining three (3) CBI areas			2
Strongly addresses three (3) of the five CBI areas and minimally addresses the remaining two (2) CBI areas			3
Strongly addresses four (4) of the five CBI areas and minimally addresses the remaining one (1) CBI area			4
Strongly addresses all five (5) CBI areas (Environmental, Economic, Health, Energy and Non-Energy			5
Benefits, and Energy Security and Resiliency)			

PSE will evaluate each bid by looking at the customer benefit indicator categories. For example, PSE will read a bidder's customer benefits plan and understand how and to what degree a project impacts public health. This could be through a reduction of greenhouse gases. Another example is through economics and understanding the impacts to local tax revenues or job creation. PSE will go through the plan, denoting how and to what degree bidders address the customer benefit indicator categories and how the proposals may affect highly impacted communities and vulnerable populations. A score from 0–5 will be applied based on this evaluation and represents 35 percent of the qualitative portion of the evaluation. In consultation with PSE's independent evaluator, the scores will be evaluated before moving on to Phase 2.

Respondents will have the opportunity to update their customer benefits plans in January 2022 to address the customer benefit indicators in the CEIP more specifically.<sup>51</sup> Giving respondents until January 2022 allows respondents to update their customer benefits plans to more specifically address

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<sup>&</sup>lt;sup>49</sup> PSE All-Source RFP, Exhibit B: <a href="https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/ExB">https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/ExB</a> Form 2021-06-30.xlsx?sc lang=en&hash=9AB758ECDABA77F4EA3A197CE14355D7

<sup>&</sup>lt;sup>50</sup> PSE All-Source RFP, Exhibit A: <a href="https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/ExA2021-AllSource-RFP63021.pdf">https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/ExA2021-AllSource-RFP63021.pdf</a>?sc lang=en&hash=2D3F973F402D04A51B7501F269675356

<sup>&</sup>lt;sup>51</sup> PSE All-Source RFP, Section 3

the updates, we made to our customer benefit indicators in the CEIP in response to stakeholder feedback.

In Phase 2 of the All-Source RFP evaluation, PSE will perform a more in-depth qualitative assessment of the customer benefit indicators as an additional due diligence step.

#### Distributed energy resources through the 2021 CEIP and Targeted DER RFP:

In this first CEIP, PSE uses the customer benefit indicators to evaluate and select the distributed energy resource programs and concepts that maximize benefits to customers. PSE developed a scorecard to understand how each program provides benefits to customers. Ideally, PSE would directly forecast the benefits of each program and use the magnitude of the benefits to score and determine which DER concepts to pursue.

For the 2021 CEIP, PSE does not have the data sources established to reflect the magnitude of benefit customers would see from each program. PSE will continue to develop data sources to forecast the customer benefits of each DER program, especially for highly impacted communities and vulnerable populations. Because this data was not available, PSE performed an evaluation that was qualitative and based on the degree of influence. The degree of influence is the level of impact a DER program or concept might have on a benefit. PSE used three levels to reflect the degree of influence, ranging from negative impact to no impact (typically given a 0 score), minimal impact (typically reflected in a score of 1), or a positive impact on each customer benefit indicator (typically reflected in a score of 2). Each indicator has different impacts; therefore, they are scored differently. For some indicators the lowest score represents no impact, like improved access to reliable clean energy, while for others, like greenhouse gas emissions, there could be some negative impacts. We wanted to account for those negative impacts and adapt the scoring to match the range of benefits for each customer benefit indicator, including the risk of a negative consequence.

Appendix D-3 shows how specific concepts were scored across all the indicators. For each concept, we gave a score of 0, 1, or 2 corresponding to the degree of influence by each indicator. We calculated the total score for each concept and ranked the concepts according to the score. The results showed similar impacts based on the resource type. Each column shows the score for a program based on the forecasted benefits in each customer benefit indicator. For example, when looking at the third-party customer-sited distributed battery PPA, the score for reduced greenhouse gas emissions is a 2, which means that the program will have a positive impact and reduce annual metric tons of CO<sub>2e</sub>. By comparison, the C&I Battery Install Incentive only scores a 1 for this benefit, because it has a minimal impact and not likely to reduce annual metric tons of CO<sub>2e</sub>. The score of 0 for reduction in greenhouse gas emissions means a program has a negative impact and may produce more annual metric tons. The basis for how each concept was scored is described in Appendix D-3. The table shows each customer benefit indicator, the scoring and associated degree of influence, and the reasoning for why different resource types received a score of 0, 1 or 2. A similar scoring process will be used in the Targeted DER RFP evaluation process. As PSE continues to develop metrics and associated data sources, the scoring systems may evolve to better capture the magnitude of the benefit for each concept. To

determine the customer benefit indicators for this 2021 CEIP, PSE circulated this table to all the advisory groups, including the EAG, for feedback on whether the list represented the benefits customers wanted to see in this transition. We also asked them if there were any gaps in the list. PSE also received proposed customer benefit indicators from a joint advocate group, some of which we have incorporated in the CEIP. We recognize that the customer benefit indicators will continue to evolve.

PSE initially prioritized the customer benefit indicators based on feedback from stakeholders. However, some stakeholders expressed concern about emphasizing specific indicators and how that may diminish the importance of the non-prioritized indicators. Stakeholders also suggested PSE should prioritize an indicator in each category, as opposed to across all indicators as that would prioritize CETA-defined categories against each other.

After considering varied and differing feedback from stakeholders on how we should conduct the weighting of customer benefit indicators and our concerns that using weightings at this time might result in unintended consequences, PSE decided to use unweighted customer benefit indicators in this CEIP. PSE will continue to solicit feedback on how to best prioritize customer benefit indicators as our understanding and application of customer benefit indicators evolves and matures. Additional details of how we considered weighting can be found in <u>Appendix D-3</u>.

The CEIP specific actions related to distributed energy programs and concepts guide PSE on the types of programs to request in the Targeted DER RFP. PSE will issue a Targeted DER RFP in early 2022 to meet the target for distributed energy resources. This Targeted DER RFP will include a section for bidders to describe and illustrate how their bid best meets the customer benefit indicator categories, like the 2021 All-Source RFP. We will consider and evaluate the responses from bidders to create the shortlist and pursue contracts. In this case, we use customer benefit indicators in both the CEIP modeling and the resource acquisition process.

Although this exercise was done to go beyond the generic assumptions from the 2021 IRP and get more granular and specific about the DER programs PSE could pursue, the Targeted DER RFP will serve as the vehicle by which programs and concepts are selected and ultimately acquired. Like the All-Source RFP, PSE will assess in the evaluation process the degree of impact to programs based on the customer benefit indicators. PSE will use the customer benefit indicators to score the potential benefits to customers, including highly impacted communities and vulnerable populations, to create a shortlist of resources. A glimpse into the scoring rubric from the draft Targeted DER RFP is found on Figure 3-9<sup>52</sup>. The rubric mirrors the CETA categories but more specifically ties in the actual customer benefit indicators from the CEIP. We will update in the final Targeted DER RFP before we issue it to align with the final CEIP. When evaluating DER programs, PSE will specifically address the degree to which the program provides benefits. Compared to the All-Source RFP rubric discussed earlier in this chapter, the

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<sup>&</sup>lt;sup>52</sup> PSE Targeted DER RFP: <a href="https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/pdf/ExA\_2022-DER-RFP\_Evaluation-Criteria-and-Scoring.pdf?sc\_lang=en&hash=8D58DC817C85F506322581B215A09A8C">https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/pdf/ExA\_2022-DER-RFP\_Evaluation-Criteria-and-Scoring.pdf?sc\_lang=en&hash=8D58DC817C85F506322581B215A09A8C</a>

Targeted DER RFP evaluation is more targeted on local benefits and resources and, focuses on named communities.

Figure 3-9: Targeted DER RFP Evaluation Criteria and Scoring Rubric

CETA Equity Plan Customer Benefits from Transition to Clean Energy Plan	25%	x 0	_/ 22
Does the project reduce air pollution by decreasing carbon emissions and deploying renewable resources?			
May produce more annual metric tons of C02			0
Not likely to reduce annual metric tons of C02			1
Reduces annual metric tons of C02			2
Does the program mitigate the impacts of climate change (e.g., Wildfires, droughts) through reduced peak			
demand?			0
Increases impacts of climate change			1
Does not mitigate			2
Does the program improve outdoor air quality and help abate health issues (e.g., asthma, heart disease)?			
May produce more annual metric tons NOx, SOx, and PMP2.5			0
Not likely to reduce more annual metric tons NOx, SOx, and PMP2.5			1
Reduces annual metric tons of NOx, SOx, and PMP2.5			2
Does the program help abate health and safety issues, including indoor air quality (e.g., asthma, heart disease, and heat-related illnesses) and health factors like mortality, hospital admittance, work loss days?  % increase  No discemable % increase/decrease			0 1
% decrease			2
Does the program decrease the percentage of customers' income dedicated to energy costs?			
Non-measurable % decrease			0
Measurable % decrease, but only for targeted or participating customers			1
Measurable % decrease for all customers			2
Does the program decrease the percentage of customers' income dedicated to energy costs for highly impacted communities and vulnerable populations?			
Measurable risk of % increase			0
Non-measurable % increase/decrease			1
Measurable % decrease			2

### **Stakeholder Input on Customer Benefit Indicators**

This section explains the process PSE staff conducted to collect and synthesize input from each audience to develop the customer benefit indicators. See Chapter Six, Public Participation for more information about the public participation we undertook to create the 2021 CEIP.

The 2021 CEIP includes customer benefit indicators informed by the broad participation required under CETA. As indicated in the Public Participation Plan, <u>Appendix C</u>, PSE collected input from the following audiences to develop the draft CBIs:

- Community-based organizations that serve vulnerable populations among PSE customers
- PSE residential customers
- PSE business customers
- PSE's inaugural Equity Advisory Group (EAG)
- PSE's other advisory groups, including IRP stakeholders, Low Income Advisory Committee (LIAC), and Conservation Resource Advisory Group (CRAG)

Project staff collected input from different audiences using similar questions in different formats suitable for each audience. Table 3-23 shows this data.

**Input Format** Audience Quantity Residential customers 921 Residential customer survey submissions **Business customers** Business customer survey submissions 194 7 Vulnerable populations **CBO** meetings 9 **Equity Advisory Group EAG** meetings Integrated Resource Plan Stakeholders 5 IRP meetings 3 Low Income Advisory Committee LIAC meetings Conservation Resource Advisory Group **CRAG** meetings 3

Table 3-23: Overview of Outreach for Customer Benefit Indicators

The goal of public participation in CBI development is to understand the challenges that utility customers face regularly and the benefits that could address those challenges. The resulting CBIs represent a synthesis of stakeholder input and opportunities to address challenges via electric system planning and implementation.

PSE staff noted the following themes across different stakeholder audiences and used this input to develop customer benefit indicators.

- Environment: Reduce greenhouse gas emissions and the effects of climate change.
- Public health: Increase air quality and improve community wellness.
- **Affordability:** Decrease the amount of income spent on electricity and empower low-income populations to participate in clean electricity programs.
- **Economic:** Increase the number of local clean energy jobs and make them accessible to vulnerable populations.

- Accessibility: Empower customers to participate in clean electricity programs regardless of income level or homeownership status.
- Clean electricity participation: Make the benefits of solar energy available to named communities.
- **Resiliency:** Ensure a resilient clean electricity system.
- **Comfort and satisfaction:** Build a clean electricity system that customers know they can depend on and reflects their environmental stewardship.

#### **Advisory Group Process: Meetings**

#### **Collect input**

Project staff met with PSE's four advisory groups in May and June 2021. We asked each advisory group to suggest potential benefits they would like to see in the clean energy transition based on their experience and subject matter expertise. We also asked them to indicate the priority of the potential benefit. The EAG and IRP provided a low, medium, high, and highest priority scale for their benefits. The CRAG and LIAC simply indicated if a benefit were a priority or not.

#### Code and summarize input

Project staff reviewed the suggested benefits and organized them into different codes to compare similar ideas from other advisory groups and get a sense of the frequency of common themes.

#### **Develop and apply CBIs**

Project staff developed CBIs to monitor progress toward achieving the benefits described by the input. We applied one CBI to each suggested benefit.

# Prioritize CBIs among advisory group sources

Project staff counted the number of times a CBI was a priority in each advisory group. We considered CBIs that were high priorities and common among multiple advisory groups higher on the priority list. The comprehensive look at the input received from advisory groups on customer benefit indicators is in Table 3-24.

Table 3-24: Advisory Groups — Input for CBIs

Proposed Customer Benefit Indicator	Advisory Group Source
Non-energy — Decreased income spent on electricity	EAG LIAC CRAG
Reduction of cost — Reduced energy bills	IRP CRAG

Proposed Customer Benefit Indicator	Advisory Group Source
Public Health — Improved air quality	EAG LIAC IRP CRAG
Public Health — Improved community wellness	EAG CRAG
Security and resiliency — Decreased time and duration of outages	EAG IRP CRAG
Economic — Increased clean energy jobs	EAG LIAC
Economic — Lower unemployment	EAG IRP
Non-energy — Improved sense of self-sufficiency	EAG
Non-energy — Increased sense of pride and shared values	EAG IRP
Accessibility — Improved awareness and education	IRP CRAG
Environment — Reduced greenhouse gas emissions	LIAC IRP
Accessibility — Renters	IRP
Accessibility — Vulnerable Populations	IRP
Environment — Decreased wildfires	IRP CRAG
Environment — Improved siting	IRP
Public Health — Decreased rates of asthma	IRP
Public Health — Improved water quality	IRP
Non-energy — Improved home comfort	CRAG

# **Residential Customer Process: Online Survey**

#### **Collect input**

Project staff distributed an online community survey to PSE customers in May 2021. See Chapter Six, Public Participation, for more information about survey distribution methods and respondent demographics.

The survey asked respondents to do the following:

- Indicate the importance of eight benefit categories.
- Suggest benefits customers would like to see in the clean energy transition for each category.

We also asked customers to provide demographic information. For details on distribution and response rates, see Chapter Six, Public Participation.

#### Code and summarize input

Project staff reviewed the suggested benefits and organized them into different codes to compare similar ideas from other survey respondents and get a sense of the frequency of common themes.

#### **Develop and apply CBIs**

Project staff developed CBIs that could be used to monitor progress toward achieving the benefits described by the input themes. We applied one CBI to each suggested benefit theme.

#### Prioritize benefit categories based on input from vulnerable populations and all customers

Project staff analyzed the responses that indicated the importance of the eight benefit categories. We compared the responses from demographics in the working definition for vulnerable populations to all survey responses.

The responses from vulnerable population groups were predominantly aligned with the responses from all customers. All demographic segments held the same categories in their top-three most important, but they were in a different order in some cases. The remaining five categories were all aligned in the same order

Project staff determined that the total results of the survey represented a good synthesis of the priorities of all analyzed segments.

#### **Prioritize CBIs**

Project staff counted the frequency of each comment code applied to the benefits suggested in survey responses. We considered the codes in the highest third of frequencies a higher priority.

Since each code was associated with a benefit category, project staff ordered the codes according to the category's priority determined in the previous step and then ordered them by code frequency. This process gave staff an idea of the most common ideas in each category in the context of the category's relative importance. The team then identified the CBIs associated with the higher priority benefits for each category, as shown in Table 3-25.

Table 3-25: Residential Customers — Input for CBIs

Proposed Customer Benefit Indicator
Environment — Reduced greenhouse gas emissions
Environment — Decreased fossil fuel extraction
Public Health — Improved air quality
Public Health — Decreased rates of asthma
Public Health — Improved community wellness
Non–energy — Decreased income spent on electricity
Accessibility — Improved participation from named communities
Reduction of cost — Reduced barrier to participation
Economic — Increased clean energy jobs
Non–energy — Decreased income spent on electricity
Non–energy — Improved sense of self-sufficiency
Reduction of cost — Reduced barrier to participation
Security and Resiliency — Decreased time and duration of outages
Non-energy — Increased sense of pride and shared values

#### **Business Customer Process: Online Survey**

#### **Collect input**

Project staff distributed a survey in May 2021 to PSE small and medium business customers and major accounts customers. See Chapter Six, Public Participation, for more information about survey distribution methods and respondent demographics.

The survey asked respondents to do the following:

- Indicate the importance of eight benefit categories.
- Suggest benefits business customers would like to see result from the clean energy transition for each category.

We also asked customers to provide information about their business. For details on distribution and response rates, review Chapter Six on public participation.

#### Code and summarize input

Project staff reviewed the suggested benefits and organized them into different codes to compare similar ideas from different survey respondents and get a sense of the frequency of common themes.

#### **Develop and apply CBIs**

Project staff developed CBIs that could be used to monitor progress toward achieving the benefits described by the input themes. We applied one CBI to each suggested benefit theme.

# Prioritize benefit categories based on input from small and medium business customers and major accounts customers

Project staff analyzed the responses that indicated the importance of the eight benefit categories. The project team compared the responses of small and medium businesses to major accounts customers.

The responses from small and medium businesses were more focused on affordability and economic benefits than major accounts customers, but both held affordability and environment in their top three categories.

Project staff determined the total results of the survey represented a good synthesis of the priorities of both small and medium businesses and major accounts customers.

#### **Prioritize CBIs**

Project staff counted the frequency of each comment code applied to the benefits suggested in survey responses. We considered the codes in the highest third of frequencies higher priority.

Since each code was associated with a benefit category, project staff ordered the codes according to the category's priority determined in the previous step and then ordered them by code frequency. This process gave staff an idea of the most common ideas in each category in the context of the category's relative importance. Staff then identified the CBIs associated with the higher priority benefits for each category, and the results are shown in Table 3-26.

Table 3-26: Business Customers — Input for CBIs

Proposed Customer Benefit Indicator
Reduction of cost — Reduced energy bills
Environment — Reduced greenhouse gas emissions
Environment — Decreased fossil fuel extraction
Economic — Increased clean energy jobs
Economic — Lower unemployment
Public Health — Improved community wellness
Public Health — Improved air quality
Security and resiliency — Increased resiliency
Security and resiliency — Decreased time and duration of outages
Accessibility — Improved participation from named communities
Non-energy — Decreased income spent on electricity
Reduction of cost — Reduced barrier to participation
Non-energy — Improved sense of self–sufficiency
Non-energy — Increased sense of pride and shared values

# **Community-based Organization Process: Go-to-you Meetings**

#### **Collect input**

Project staff attended standing meetings with seven community-based organizations (CBO) between May and July 2021.<sup>53</sup> We list the locations of and communities served by the organizations in Table 3-27.

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<sup>&</sup>lt;sup>53</sup> PSE acknowledges that this does not represent all perspectives, but consistent with CETA, it was an attempt to engage groups that do not normally participate in the typical electric resource planning process.

Table 3-27: Community-Based Organizations

CBO Name	County	Population Served
The Rainbow Center	Pierce	LGBTQIA+
Provail	King	People with disabilities
NAACP Bremerton	Kitsap	Black/African American
Boys and Girls Club Skagit County	Skagit	Youth
WWU's Institute for Energy Studies	Whatcom	Students, low-income
Opportunity Council of Island County	Island County	Low-income, seniors
Island Senior Resources	Island County	Low-income, seniors

The project team asked meeting participants to suggest potential benefits they would like to see in the clean energy transition based on their experience. Due to time constraints, these participants did not indicate a priority for their benefits.

# Code and summarize input

Project staff reviewed the suggested benefits and organized them into different codes so they could compare similar ideas from different advisory groups and get a sense of the frequency of common themes.

#### **Develop and apply CBIs**

Project staff developed CBIs that could be used to monitor progress toward achieving the benefits described by the input. We applied one CBI to each suggested benefit and the results are shown in Table 3-28.

Table 3-28: Community Based Organization — Input for CBIs

Proposed Customer Benefit Indicator
Non-energy — Decreased income spent on electricity
Economic — Increased clean energy jobs
Non-energy — Improved sense of self–sufficiency
Environment — Decreased fossil fuel extraction
Public Health — Improved community wellness
Security and resiliency — Increased resiliency
Economic — Reduced Energy burden
Non-energy — Improved home comfort
Accessibility — Improved awareness and education
General — Addressed by collective CBIs
Public Health — Improved air quality
Reduction of cost — Reduced energy bills
Accessibility — Improved participation from named communities
Accountability — Customers and investors
Economic — Lower unemployment
Environment — Addressed by collective CBIs
Environment — Improved siting and mitigation
Non-energy — Increased sense of pride and shared values
Security and resiliency — Decreased time and duration of outages

# Align CBIs Among Sources

Project staff divided the CBI input identified from the advisory groups, the residential survey, and the business survey into top-third, middle-third, and bottom-third based on the previously described prioritization process. Project staff highlighted CBIs that occurred more than once among the top-third areas. They then compared this to the list of CBIs developed from meetings with CBOs. Table 3-29 shows the results of this comparison.

Table 3-29: Customer Benefit Indicator by Source

Customer Benefit Indicator	Sources
Non-energy — Decrease in income spent on electricity	Advisory Groups General Survey CBOs
Reduction of cost — Reduce energy bills	Advisory Groups Business Survey CBOs
Public Health — Improved air quality	Advisory Groups General Survey CBOs
Public Health — Improved community wellness	Advisory Groups General Survey CBOs
Economic — Increase in clean energy jobs	Advisory Groups Business Survey CBOs
Environment — Reduced greenhouse gas emissions	General Survey Business Survey
Environment — Decrease in fossil fuel extraction	General Survey Business Survey CBOs
Security and resiliency — Decrease in time and duration of outages	Advisory Groups
Public Health — Decreased rates of asthma	General Survey
Economic — Lower unemployment	Business Survey
Non-energy — Improved sense of self-sufficiency	CBOs
Security and resiliency — Increased resiliency	CBOs

To determine the customer benefit indicators for this 2021 final CEIP, PSE circulated this table to all the advisory groups, including the EAG, for feedback on whether the list represented the benefits customers wanted to see in this transition and if there were any gaps in the list. PSE also received proposed customer benefit indicators from a joint advocate group, some of which have been incorporated for the final CEIP. PSE recognizes the customer benefit indicators will evolve.