Puget Sound Energy Compliance Filing

UE-210795, Order 08

August 4, 2023

This document serves as a compliance filing for the 60-day compliance conditions contained in Order 08 in Docket UE-210795 ("CEIP Order").

Condition 4

> CONDITION 4. PSE will increase its demand response target to include all cost-effective DR bids it received in response to its recent RFP. PSE will include expanded Direct Load Control offerings in this increased target.

The CEIP order indicates PSE should submit an updated DR target within 60 days of the CEIP order.

In this compliance filing, PSE updates its Demand Response target for 2025 from the 2021 Clean Energy Implementation Plan from 23.7 MW to **86 MW.**

This updated DR target reflects all reasonable bids for DR resources received in response to the DER RFP that are cost-effective[1]. This target includes Direct Load Control offerings. PSE will provide details on the analysis and customer benefits of these programs in the 2023 Biennial CEIP Update.

Condition 6

> CONDITION 6: Within 60 days of the entry of this Order, PSE must file with the Commission a narrative describing the methodology used to develop the renewable energy Specific Target and describing how its renewable energy Specific Target contributes to PSE achieving its Interim Target of serving 63 percent of retail load with renewable, non-emitting resources by 2025. PSE must express its renewable energy Specific Target as a percentage of retail load. PSE must provide sufficient supporting detail in order to be reasonably understood by a generalist, and the Company may not rely on mere "global" references to the underlying AURORA model.

In developing its interim target and corresponding renewable energy specific target, PSE iterated on various permutations in the modeling to maximize spending to the 2% incremental cost guidance while still setting forth ambitious targets that would demonstrate reasonable progress towards achieving the

[1] CEIP Order, Paragraph 87

80% clean energy standard by 2030. This is how PSE arrived at the 800 MW renewable energy specific target. This equates to 1,886,331 MWh of new utility scale renewable energy by 2025, which can be expressed as 10.5% of sales in 2025.

Consistent with Condition 29, PSE will not use the 2% incremental cost of compliance as a planning constraint for the 2025 CEIP.

In the 2021 CEIP, PSE describes the 2025 renewable energy subtarget for utility-scale resources as 800 MW. This target was developed through the AURORA modeling analysis used to create the CEIP preferred portfolio, which uses the capacity factors and shapes of the resources as inputs to the model.

The MWh for each resource is derived from the output of the AURORA model and was used to calculate the MWh contribution towards the interim target. The output of the AURORA model is shown in "Appendix A – CEIP Output Portfolio Output Summary". The MWh for each line item in Table 2-2 is shown in tab 'ChartData CETA Interim Targets'. Column F, Rows 11-18 show the MWh corresponding to forecasted energy in 2025 used to determine the total CETA-eligible energy used to calculate the Interim target.

For the capacity factors, Chapter 5 of the 2021 IRP shows the capacity factors for each resource. For wind, page 5-27 of Chapter 5 shows a capacity factor of 36.7% for Eastern Washington wind. For solar, page 5-28 of Chapter 5 shows a capacity factor of 24.2% for Eastern Washington wind.

Appendix A – CEIP Output Portfolio Output Summary spreadsheet, tab "_Resource Additions_Annual_" shows a breakdown of cumulative resource additions from the CEIP portfolio. In the year 2025, line 147 of the spreadsheet shows an addition of 800 MW of utility-scale renewable energy, including 500 MW of generic WA wind in cell F147, and 300 MW of generic Eastern WA solar in cell N147. PSE used this output as the renewable energy target.

When calculating the 2025 Interim Target of 63%, the forecasted energy from these generic resources was included in the calculation of the Interim Target. As noted in Figure 1, 63% of retail sales totals 11,381,593 MWh of renewable energy, and equates to 800 MW of renewable energy and 80 MW of new distributed solar energy.

The 500 MW wind represents utility scale **and** Green Direct projects. In the AURORA model, utility scale wind is added in 100 MW increments. Therefore, based on a generic 100 MW resource, with a 36.7% capacity factor, this resource will generate 314,247 MWh annually[2]. In the CEIP, PSE forecasted four (4) 100 MW wind resources, which totals 1,256,988 MWh. This matches the value in line 2 of Figure 2. The fifth 100 MW wind project is a Green Direct project and therefore is decremented in the CETA retail electric load calculation and not counted as part of the renewable energy target

The 300 MW utility-scale solar represents utility scale solar projects. In the AURORA model, utility-scale solar is added in 100 MW increments as well. Therefore, based on a generic 100 MW resource, with a

[2] This number reflects what is in the AURORA calculation, which is less than the actual calculation due to line losses. 0.367 * 8760 [hours/year] * 100 MW = 321,492 MWh/year

24.2% capacity factor, this resource will generate 209,781 MWh annually[3]. In the CEIP, PSE forecasted three (3) 100 MW solar resources, which totals approximately 629,343 MWh. This matches the value in line 3 of Figure 2.

The existing wind, solar, biomass and hydro resources all follow similar calculations to determine the MWh contribution towards the renewable energy specific target.

Figure 1: Calculation of forecasted Renewable energy MWh

Resource	Nameplate capacity	Capacity factor	MWh forecasted for 2025 Interim Target
Wind	400 MW	36.7%	1,256,988 MWh
Solar	300 MW	24.2%	629,343 MWh

Per this condition, PSE is converting its renewable energy specific target in the 2021 CEIP from 800 MW to 10.5% of retail load. This percentage represents the addition of new utility scale resources only. Figure 2 below is an adaptation of Table 2-2 and shows the calculation for this renewable energy specific target. When added to existing resources, this gets PSE to its 63% interim target for 2025.

Figure 2: Calculation of Renewable energy specific target

Line	***CETA Summary***	***2025***	***Percent of retail load***
1	**CETA Retail Electric Load**	**17,997,487 MWh**	
2	New Wind	1,256,988 MWh	6.98%
3	New Utility-scale solar	629,343 MWh	3.50%
4	New DER/Non-Wires Solar	8,148 MWh	0.05%
5	DER Solar – CETA Eligible	22,589 MWh	0.13%
6	Existing Wind/Solar/Biomass (includes signed contracts)	4,054,720 MWh	22.53%
7	Existing Hydro	5,409,805 MWh	30.06%
8	**CETA-eligible Energy**	**11,381,593 MWh**	
9	Interim Target	63%	
10	Renewable Energy Specific Target (based on new and existing utility-scale resources) as a percent of retail load		63.24%
11	**NEW utility scale renewable energy as a percent of retail load**		**10.48%**

[3] This number reflects what is in the AURORA calculation, which is less than the actual calculation due to line losses. 0.242 * 8760 [hours/year] * 100 MW = 211,992 MWh/year

Condition 7

CONDITION 7: Within 60 days of the date of entry of this Order, PSE must obtain a license for Staff to use the AURORA and PLEXOS models.

PSE has completed the purchase of three individual licenses for both AURORA and PLEXOS, for WUTC Staff use. The contract was executed on July 28, 2023.

Conditions 9, 10 and 11

CONDITION 9: Vulnerable Populations. PSE will include in its list of Vulnerable Populations:

• Any census block group that has the highest score for any one of the categories of commonly grouped vulnerability factors:

• Sensitive populations (disability, cardiovascular disease, low birth weights, higher rates of hospitalization, home care);

• Energy security/insecurity (arrearage/disconnections, estimated energy burden, housing burden);

• Other socioeconomic factors (access to digital/internet resources, access to food, access to health care, educational attainment level, historical redline influence, linguistic isolation, race, transportation expense, unemployment, poverty, deep poverty, renter status, seniors with fixed income, housing quality);

• Any census block group that PSE identified as "high needs" or "underserved" in the most recent Biennial Conservation Plan;

• Any census block group with an average home energy burden of 6% or more for income for households with annual income less than 200% of the federal poverty level;

• Any census block group in a census tract that is a Qualified Census Tract as defined by HUD for purposes of the Low-Income Housing Tax Credit program; and

• Any census block group in a census tract that is a "community in economic distress" as defined by the U.S. Department of Treasury for purposes of the New Markets Tax Credit program.

CONDITION 10. Vulnerable Population Designation Methodology. PSE will modify its designation methodology for Vulnerable Populations for the 2025 CEIP as follows and will, starting in 2023, begin gathering any additional data necessary to apply this new designation methodology:

• Evaluate vulnerability factors to assess whether some factors are measuring the same underlying attribute, and consolidate factors where this is the case;

• Include as vulnerability factors deep poverty, housing quality, and death and illness from extreme heat;

• Consider the synergistic impacts of vulnerability factors that render people with multiple vulnerabilities significantly worse off than people with just one, considering compounding impacts.

CONDITION 11. PSE must demonstrate its compliance with the modified conditions above in this section by submitting a compliance filing to the Commission within 60 days of the entry of this Order.

In this section, we describe PSE's efforts to modify its methodology for determining Vulnerable Population statuses, in accordance with Conditions 9 and 10. We begin by addressing the items in Condition 9. We show the effect each item has on the resulting distribution of Census Block Groups with a vulnerability status of Low, Medium, and High, compared to the original distribution.

Elements of Condition 9 in the CEIP Order: *PSE will include in its list of Vulnerable Populations:*

1. *Any census block group that has the highest score for any one of the categories of commonly grouped vulnerability factors:*
    A. ***Sensitive populations*** *(disability, cardiovascular disease, low birth weights, higher rates of hospitalization, home care);*
    B. ***Energy security/insecurity*** *(arrearage/disconnections, estimated energy burden, housing burden);*
    C. ***Other socioeconomic factors*** *(access to digital/internet resources, access to food, access to health care, educational attainment level, historical redline influence, linguistic isolation, race, transportation expense, unemployment, poverty, deep poverty, renter status, seniors with fixed income, housing quality);*
2. *Any census block group that PSE identified as "**high needs**" or "**underserved**" in the most recent Biennial Conservation Plan;*
3. *Any census block group with an **average home energy burden of 6%** or more for income **for households with annual income less than 200% of the federal poverty level**;*
4. *Any census block group in a census tract that is a **Qualified Census Tract** as defined by HUD for purposes of the Low-Income Housing Tax Credit program; and*
5. *Any census block group in a census tract that is a "**community in economic distress**" as defined by the U.S. Department of Treasury for purposes of the New Markets Tax Credit program. Summary of Counts of Block Groups per Condition Requirement*

PSE's existing methodology for quantifying Vulnerable Populations classifies every Census Block Group in our service area as either Low, Medium, or High vulnerability. We therefore interpret Condition 9 to indicate that Census Block Groups that meet any of the items 1-5 above should be re-classified as High vulnerability. Below, we show the effect of re-classifying Census Block Group vulnerability labels based on items 1-5.

Table 1: Impact of each condition item to the number of census block groups with each vulnerability classification. Note that the values presented are not cumulative from Items 1, 2, etc. - but indicate the effect of incorporating each item alone on the redistribution of low, medium, and high vulnerability census block groups.

VP Classification	As Filed with CEIP	Condition 9 Item 1	Condition 9 Item 2		Condition 9 Item 3	Condition 9 Item 4	Condition 9 Item 5
			High needs	Under served			
High	549	1517	732	726	1602	557	616
Medium	523	19	433	375	7	518	476
Low	544	80	451	515	7	541	524

Combining all items 1-5 from Condition 9 results in **all 1,616** census block groups being reclassified as High vulnerability. That is, it classifies PSE's entire electric service area as High vulnerability.

The two strongest drivers among the requirements are:

- Item 1: Re-classifying as High any census block group with an individual classification of 5 (80th percentile and above) among stated vulnerability factors
- Item 3: Re-classifying as High any census block group with an average home energy burden of 6% or more [for income] for households with annual income less than 200% of the federal poverty level

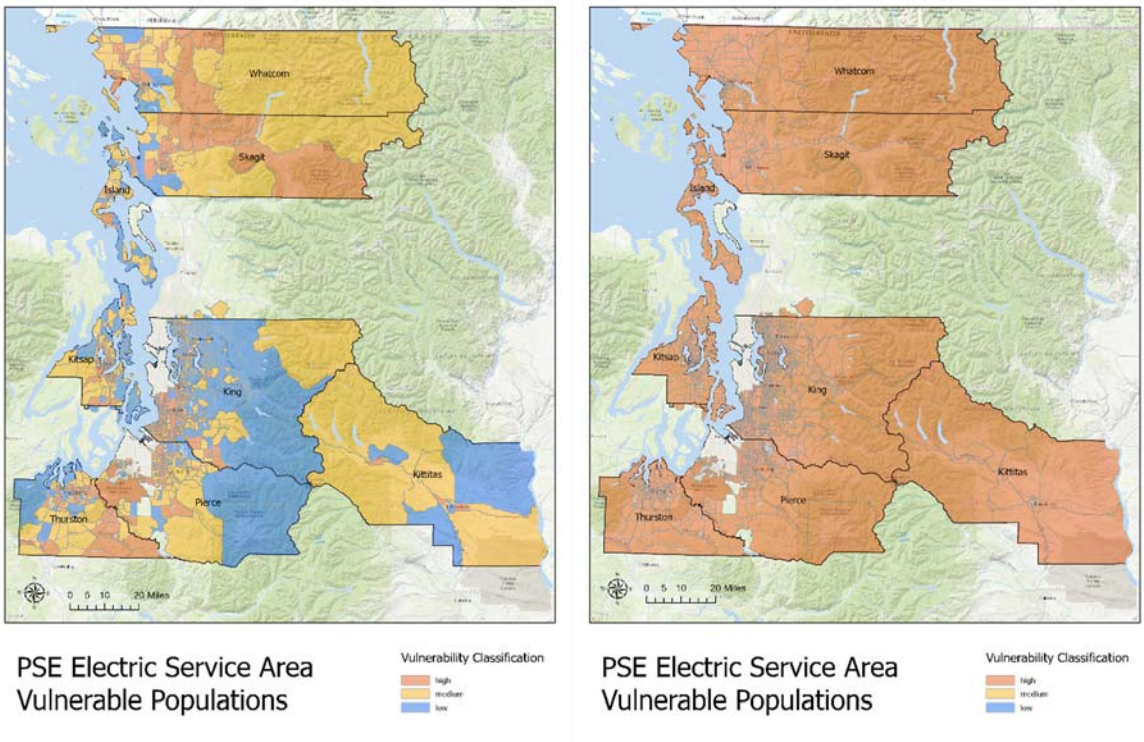


Figure 1: Geographic impact of the application of all Items (1-5) of Condition 9. Left – distribution of Low, Medium, and High vulnerability census block groups in PSE's electric service area, as shown in PSE's CEIP. Right – distribution of Low, Medium, and High vulnerability census block groups in PSE's electric service area after re-classifying block group according to Condition 9. All census block groups (i.e., all electric customers) are considered High vulnerability after applying Condition 9.

In addressing item 1, PSE selected the factors from the three elements listed in the Final Order including: Percent Disability, Deaths from Cardiovascular Disease, Low Birth Weight, Rates for Hospital Discharges, Energy Burden Count, Energy Burden Percent, Arrears Count, Arrears Percent, Disconnection Count, Disconnection Percent, Owner Housing Burden, Renter Housing Burden, Percentage of Households receiving Public Assistance, Federal Poverty Rate Percent, Unemployed Percent, No Internet Access, No Insurance Percent, Limited English Speaking Percent, BIPOC percent of population, Renter Count, Renter Percent, Senior at or below 80% AMI Count, Senior at or below 80% AMI Percent, Percentage of Households with Commutes of 35 minutes or more, USDA Food Atlas measures of Low Income and Low Access to Food.

When any of these factors was scored at the highest level of vulnerability for a block group (a score of 5 on the 1-5 scale), the block group was classified as High vulnerability.

In addressing item 2, related to "High Needs" and "Underserved" as referenced from the Biennial Conservation Plan, PSE took the following approach.

The terms "*high needs*" and "*underserved*" come from the Low Income Needs Assessment (LINA) PSE completed as part of Docket U-180680 *Macquarie Transfer Multiparty Stipulation Agreement*. The LINA

study quantified “high needs” on a scale with a range of 26-43. To define “high needs”, we took census block groups with the top 80% percentile and above score. The LINA study quantified “underserved” as a proportion (from 0 to 1) by census block group. To define “underserved”, we took census block groups with an underserved score of 0.80 or greater.

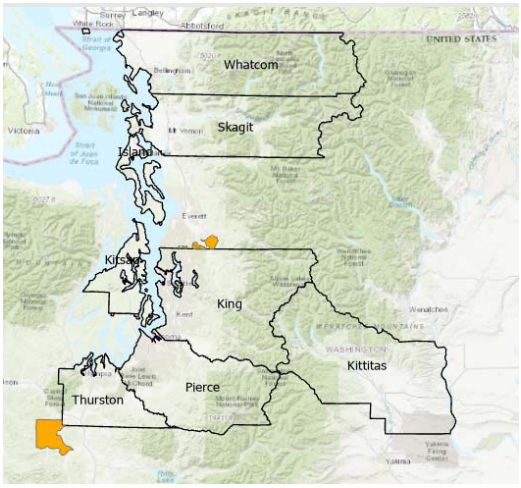
Using the LINA high needs criteria changes 90 medium vulnerability block groups to high and 93 low vulnerability block groups to high.

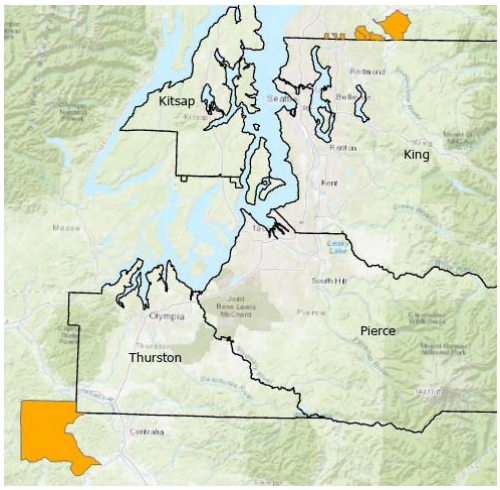
Using the LINA underserved criteria changes 148 medium vulnerability block groups to high and 29 low vulnerability block groups to high.

In addressing item 3 related to average energy burden, PSE identified the customers within each census block group at or below 200% Federal Poverty Level. From that subset of the customers within each census block group, PSE determined if the average energy burden of that subset was at or above 6%. If that was the case, the census block group was classified as high vulnerability.

In addressing item 4 regarding qualified census tracts (QCTs), PSE received a dataset from Northwest Energy Coalition (NWEC) and Front and Centered (FAC) identifying QCTs. The list included 8 census block groups as pictured below, which are primarily adjacent to PSE’s service area.

Of the block groups pictured, 5 intersect with PSE customers, for a total of 33 PSE customers.





The QCT criteria (item 4) changes 5 medium vulnerability and 3 low vulnerability census block groups to high.

In addressing item 5 related to new market tax credit census tracts, PSE identified 82 census block groups within the 28 census tracts identified as “distressed communities” by the New Market Tax Credit criteria. Applying this criterion to the vulnerable populations data changes 47 medium vulnerability and 20 low vulnerability census block groups to high vulnerability.

Condition 9 Individual Factors in Development

Condition 9 provides three vulnerability factors as examples of sensitive populations or socioeconomic factors that PSE did not include in its initial assessment of Vulnerable Populations. Here, we describe efforts underway to include these factors in the 2025 CEIP.

Home Care – PSE presently does not have data that quantifies this factor. We will consult with the University of Washington Center for Health and Global Environment to acquire this data, in addition to best available data for other sensitive population indicators of vulnerability.

Deep Poverty – PSE has the necessary income data estimates to complete analysis at this new threshold. We will include deep poverty as a vulnerability factor in the existing vulnerability assessment methodology, and will also include it in the listed factors under Item 1 of Condition 9.

Housing Quality – PSE has downloaded the HUD Comprehensive Housing Affordability Strategy (CHAS) datasets. We will include housing quality as a vulnerability factor in the existing vulnerability assessment methodology, and will also include it in the listed factors under item 1 of Condition 9.

Next, we outline plans to incorporate items from Condition 10 into an updated assessment of Vulnerable Populations.

Elements of Condition 10 within Docket UE-210795

PSE will modify its designation methodology for Vulnerable Populations for the 2025 CEIP as follows and will, starting in 2023, begin gathering any additional data necessary to apply this new designation methodology:

- *Evaluate vulnerability factors to assess whether some factors are measuring the same underlying attribute, and consolidate factors where this is the case;*
- *Include as vulnerability factors deep poverty, housing quality, and death and illness from extreme heat;*
- *Consider the synergistic impacts of vulnerability factors that render people with multiple vulnerabilities significantly worse off than people with just one, considering compounding impacts.*

PSE has taken the following initial steps to modify our vulnerability assessment in accordance with the above condition items.

1. PSE modelled its vulnerability assessment on previous work by Cadmus in 2020 and by DNV, then known as DNV GL, in 2016. Both analyses used both counts and percentages of vulnerability factors by geography for targeting market engagement for Energy Assistance and Low-Income Weatherization Programs. For PSE's updated vulnerability assessment, removing the percentage factor in cases where we have included both count and percentage is one way to reduce multiple measures of the same factor. PSE could retain both measures outside of its vulnerability classification system to make available for program planning purposes.

2. PSE has begun preliminary collaboration with the University of Washington Center for Health and Global Environment (CHanGE). Through this partnership, we will integrate elements of the Climate Health and Risk Tool (CHaRT) developed in collaboration with the University of Washington's Climate Impacts Group, the Washington State Department of Health, the Office of the Washington State Climatologist, and Gonzaga University's Center for Climate, Society & the Environment. The center has domain expertise in measures of sensitive populations and public health data. An initial step for PSE is to append readily available data from the UW CHanGE to better characterize Health Vulnerability, Local Environment, and Adaptive Factors to its model.
3. In addition to improving vulnerability indicators for sensitive populations, PSE anticipates developing a better understanding of climate change hazards, including extreme heat and interactions with other factors such as health vulnerabilities, local environmental conditions, and adaptive capabilities.
4. The methodology used in the CHaRT tool offers an improvement for understanding interactions or "synergies" as articulated in Condition 10. PSE plans to utilize elements of the CHaRT methodology to capture synergistic effects between vulnerability factors.

In 2024, PSE will engage and discuss with its advisory groups and interested parties on the outcomes of this analysis, and work to better understand these updates, as part of its work to modify its designation methodology for Vulnerable Populations for the 2025 CEIP consistent with Condition 10.

Condition 28

> CONDITION 28. Within 60 days of this Order, PSE must retain a facilitator for the EAG. Among other tasks, the facilitator would document EAG members' feedback and PSE's responses to that feedback. PSE must select a neutral, third-party facilitator that is mutually acceptable to both the Company and to Public Counsel.

On June 26, 2023 in Docket UE-210795, PSE filed a declaration with the WUTC showing compliance of this Condition. See Exhibit A for the Cover Letter and Declaration in the filing.