EXH. JJJ-1Tr
DOCKETS UE-240004/UG-240005
2024 PSE GENERAL RATE CASE
WITNESS: JOSHUA J. JACOBS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-240004** **Docket UG-240005**

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF

JOSHUA J. JACOBS

ON BEHALF OF PUGET SOUND ENERGY

REVISED
MARCH 4, 2024

FEBRUARY 15, 2024

PUGET SOUND ENERGY

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF JOSHUA J. JACOBS

CONTENTS

PUGET SOUND ENERGY

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF JOSHUA J. JACOBS

LIST OF EXHIBITS

REVISED
MARCH 4, 2024

PUGET SOUND ENERGY

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF JOSHUA J. JACOBS

I. INTRODUCTION

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

A. My name is Joshua J. Jacobs, and my business address is 355 110th Avenue NE, Bellevue, Washington 98004. I am the Vice President Clean Energy Strategy for Puget Sound Energy ("PSE").

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

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

Q. What are your duties as Vice President Clean Energy Strategy and Planning for PSE?

A. I lead PSE's long-term resource planning efforts tied to our gas and electric integrated resource plans, PSE's planning process tied to our compliance with the Clean Energy Transformation Act ("CETA"), and the coordination and development of various PSE clean energy strategies. I am also responsible for PSE's long-term load forecasts, the Delivery System Planning process, PSE's

Open Access Transmission Tariff function, and long-range transmission strategy development.

Q. What topics are you covering in your testimony?

A. I will be covering current projections for PSE's gas and electric demand, the status of our resource planning efforts, PSE's clean energy journey, the need for regional transmission investments, efforts to decarbonize PSE's gas system and support for two environmental metrics tied to the upcoming rate plan.

II. PSE'S MOST RECENT ELECTRIC AND NATURAL GAS DEMAND FORECAST PROJECTIONS

Q. What is PSE's most recent energy demand forecast?

A. The F23 energy demand forecast is PSE's most recent forecast. This is the forecast used to support PSE's filing and was approved on May 26, 2023, by PSE's Energy and Risk Management Committee ("EMC").

Q. Please describe PSE's F23 outlook for electric energy demand in PSE's electric service area.

A. PSE forecasts increases in electric retail customer consumption. PSE expects electric usage to grow at an average annual rate of 0.9 percent per year in the next five years (2024-2028). Those figures are after taking into consideration conservation from the 2023 Electric Progress Report.[1]

REVISED
MARCH 4, 2024

[1] The 2023 Electric Progress Report is provided as Exh. JJJ-3.

Q. What is driving the predicted electric usage growth?

A. The electric energy demand forecast increases over time primarily due to new customer growth, electrification of the transportation sector, and increased installation of air conditioners. However, PSE expects growth to be partially mitigated by energy savings due to PSE's energy efficiency programs, stricter state and local building codes, and more customers adopting solar.

Q. Does the energy demand forecast include assumptions about climate change?

A. Yes, PSE includes temperature assumptions that reflect climate change. PSE assumes winter and summer temperatures will be warmer, which decreases heating usage and increases cooling usage. The decrease in heating demand is greater than the increase in cooling demand. Additional details of how climate change was incorporated are available in PSE's 2023 Electric Progress Report starting at page 6.3, Chapter 6. The Electric Progress Report is provided as Exhibit JJJ-3, and the F23 demand forecast is provided as Exhibit JJJ-4.

Q. Is PSE's forecast of natural gas energy demand growing over time like electric in the F23 energy demand forecast?

A. No; unlike electric consumption, natural gas consumption is forecasted to decline over time in the F23 demand forecast. PSE expects natural gas energy usage to decline at an average annual rate of 1.2 percent in the next five years (2024-2028).

REVISED
MARCH 4, 2024

Q. How is PSE's customer growth forecast affecting the natural gas usage forecast?

A. PSE forecasts that customer growth will slow significantly. PSE's F23 natural gas forecast assumes there will be no new residential customers starting in 2024 for several reasons, including the most recent Washington State Building code update, natural gas bans in the cities of Seattle and Shoreline, and PSE's margin allowance for gas line extensions is ramping down and will be zero starting in 2025.

Q. Besides customer growth, what are other reasons the forecast calls for a decline in natural gas consumption?

A. PSE's 2023 Natural Gas Integrated Resource Plan ("2023 Gas IRP") determined the amount of demand side resources which reduces energy demand. These impacts include estimated potential savings from PSE energy efficiency programs and other measures, such as changes to state and local building codes and federal appliance standards. Also, with climate change and warmer winters (on average), there will be less demand for heating.

Q. How do the electric and natural gas energy demand forecasts account for impacts of building electrification?

A. There are two aspects to building electrification: new buildings and existing buildings. As described above, PSE is forecasting very little growth in gas customer counts, though households and businesses in PSE's gas service area will

continue to increase. Thus, most new buildings are expected to be all electric. With respect to existing customers, PSE's forecasts do not explicitly include adjustments for customer shifting from gas to electric end-uses. However, to the extent such activity has been occurring, the trend would affect use per customer for both energy services. That is, as gas customers may be replacing furnaces with electric heat pumps, such conversions would put downward pressure on gas use on a per customer basis. Conversely, there would be upward pressure on electric use per customer.

Q. How is the energy demand forecast used in this filing?

A. The energy demand forecast is used to determine the projected power costs for 2025 and 2026, as seen in PSE witness Brennan Mueller's Prefiled Direct Testimony, Exh. BDM-1CT. It is also used to project what electric and gas billing determinants will be in 2025 and 2026. Chris Mickelson's Prefiled Direct Testimony, Exh. CTM-1T, uses the electric energy demand forecast, and John Taylor's Prefiled Direct Testimony, Exh. JDT-1T, uses the gas energy demand forecast. The energy demand forecast is produced as part of the business planning process, as described in the Prefiled Direct Testimony of Joshua A. Kensok, Exh. JAK-1CT.

Q. Are any other versions of the demand forecast used in this filing?

A. Yes. The 2023 Electric Progress Report,[2] which determines the need for energy and capacity resources, is based on an earlier version of the demand forecast. Since the 2023 Electric Progress Report,[3] PSE has developed an updated demand forecast (F23).[4]

Q. How does the 2023 Electric Progress report[5] demand forecast differ from the more recent F23 demand forecast?

A. Electric energy usage and electric peak usage are higher in the F23 forecast compared to the 2023 Electric Progress Report.[6] The major driver for this is an increase in forecasted electric vehicle demand. Forecasted electric vehicle usage increased because new laws were passed that will increase electric vehicle adoption, including the federal Infrastructure Investment and Jobs Act, the Inflation Reduction Act, the Washington State Advanced Clean Trucks Rule, and the Washington State Internal Combustion Engine Ban.

III. ELECTRIC RESOURCE CLEAN ENERGY PLANNING

A. PSE's Electric Resource Needs

Q. How do utilities identify their electric resource needs?

[2] Exh. JJJ-3.
[3] Exh. JJJ-3.
[4] Exh. JJJ-4.
[5] Exh. JJJ-3.
[6] Exh. JJJ-3 and Exh. JJJ-4.

REVISED
MARCH 4, 2024

A. Electric utilities develop integrated resources plans ("IRPs") to compare the utility's projected load requirements relative to its existing resources to determine the incremental resource needs to serve those future loads under a variety of circumstances and subject to various constraints. Under Commission rules, electric utilities are required to file an electric IRP every four years and an update, or progress report, two years later. PSE filed its most recent 2021 IRP on January 4, 2021, in Docket UE-200304. PSE filed its associated 2023 Electric Progress Report in the same docket on March 31, 2023.[7]

Q. Please summarize the general purpose of PSE's 2023 Electric Progress Report.[8]

A. Like its IRP, the 2023 Electric Progress Report[9] is a planning exercise that evaluates how PSE will meet future customer electric supply needs. As with the IRP, the associated analysis considers policies, costs, changing economic conditions, and the existing energy system to develop a plan to meet the needs of our customers at the lowest reasonable cost over the next 20+ years.

Q. Please describe the key objectives of the Electric Progress Report.[10]

A. The overarching objective of the 2023 Electric Progress Report is to provide an updated view of PSE projected electric loads and the lowest reasonable cost resources to meet customer demand while maintaining compliance with state

[7] Exh. JJJ-3.
[8] Exh. JJJ-3.
[9] Exh. JJJ-3.
[10] Exh. JJJ-3.

REVISED MARCH 4, 2024

laws.[11] More specifically the 2023 Electric Progress Report focuses on the following key objectives, which lay the foundation for the PSE resource plan:

- Achieve the renewable energy targets under CETA – meet at least 80 percent of PSE's demand with renewable and non-emitting energy and achieve carbon neutrality by 2030, and meet 100 percent of PSE's demand with renewable and non-emitting resources by 2045;
- Build a reliable, diversified power portfolio of non-emitting resources;
- Provide an equitable clean energy transition for all PSE customers;
- Safeguard resource adequacy while delivering a clean energy transition, and
- Ensure resource planning aligns with PSE's Clean Energy Implementation Plan to meet interim targets and CETA obligations.[12]

Q. Does the Electric Progress Report[13] make resource or program implementation decisions?

A. No, it does not. The 2023 Electric Progress Report is a long-term view of what resources appear to be cost-effective while maximizing benefits and minimizing burdens, based on the best information about the future available today.[14] The forecasts and resource additions in the 2023 Electric Progress Report[15] will change in future IRPs as technology advances, customer use patterns change, clean fuel options evolve, resource costs change, the wholesale energy market evolves, and new policies are established.

The Electric IRP and Progress Report are used to establish resource needs, inform the development of PSE's Clean Energy Implementation Plan, and set up the

[11] Exh. JJJ-3 at 44.
[12] Exh. JJJ-3 at 44.
[13] Exh. JJJ-3.
[14] Exh. JJJ-3 at 23.
[15] Exh. JJJ-3.

REVISED MARCH 4, 2024

process for future Request for Proposals ("RFP") and acquisition of new resources to meet customer needs. Meeting the needs of our customers is the cornerstone of PSE's energy supply portfolio as we plan to deliver the most cost-effective resource plan that maintains reliability while reducing carbon emissions responsibly and consistent with state law.

Q. Does PSE have a need for energy and capacity resources?

A. Yes. PSE's 2023 Electric Progress Report identified significant needs for renewable and non-emitting energy and peak capacity to achieve resource adequacy targets, both of which are required under CETA.[16] Different demand-side and supply-side resources have differing levels of energy and capacity contributions. These differences are reflected in the resource analysis in both the IRP and acquisition processes.

PSE identifies three types of resource needs: 1) peak capacity, 2) energy, and 3) CETA renewable and non-emitting resource needs.

Q. What is the peak capacity need?

A. The peak hour capacity need is determined with a resource adequacy analysis that evaluated PSE's resources compared to the projected peak need over the planning horizon. The peak capacity from the 2023 Electric Progress Report is the amount of effective capacity needed to maintain the resource adequacy target – the need after applying the effective load carrying capacity ("ELCC") of different

[16] Exh. JJJ-3 at 200-01.

resources.[17] Table 1 below is a breakdown of the resource need by year through 2030. Table 1 shows that the difference between the (a) load forecast (the demand forecast plus the required planning margin) and (b) the total peak capacity credit of existing resources, equals (c) the total need by year. The 2023 Electric Progress Report assumes PSE will acquire the capacity in both column (d) market reliance and column (e) net need aftermarket reliance through a combination of short, mid, and long-term acquisitions.[18]

The modeling indicates PSE could begin to experience a peak capacity shortfall of 174 MW starting in 2024, assuming it adds 1,069 MW of short or intermediate-term purchases. The peak capacity need after conservation is 2,406 MW in winter 2030 and 2,531 MW in summer 2030. This assumes no reliance on short or intermediate-term market purchases. A full discussion of the resource adequacy analysis with planning margin and resource ELCCs is included in the 2023 Electric Progress Report, Exh. JJJ-3.

Table 1: Total Effective winter capacity need by year (MW)

(MW)	Peak Load Forecast (Demand Forecast + Planning Margin) (a)	Effective Peak Capacity of Existing Resources (b)	Total Need (c) = (a) - (b)	Market Reliance (d)	Net need after Market Reliance (e) = (c) - (d)
2024	5,845	4,602	1,243	1,069	174

[17] Exh. JJJ-3 at 197.
[18] Exh. JJJ-3 at 151-54.

REVISED
MARCH 4, 2024

2025	5,869	4,548	1,321	855	465
2026	5,909	3,931	1,978	642	1,336
2027	5,965	3,690	2,275	428	1,848
2028	6,000	3,690	2,310	214	2,096
2029	6,030	3,690	2,340	0	2,340
2030	6,096	3,690	2,406	0	2,406

Q. What is the energy need?

A. The energy need is the requirement to meet customer demands in every hour of the year. PSE must supply the energy necessary to meet physical loads and examine how to do this most economically through existing resources, new resources, and purchasing and selling electricity on the energy market. Table 2 below is a breakdown of the energy need by year. Column (a) is the total system load at the generator less conservation, column (b) is the total existing resources with dispatch from the 2023 Electric Progress Report[19] preferred portfolio, and column (c) is the net energy need for short term market purchases or long-term acquisition to meet customer demand

Table 2: Energy Need (Million MWhs)

(Million MWh)	System Load Net of Conservation (a)	Existing Resources estimated dispatch from 2023 Report (b)	Energy Need (c) = (a) - (b)
2024	22.3	19.7	2.5
2025	22.3	18.8	3.5
2026	22.4	15.3	7.2

[19] Exh. JJJ-3.

2027	22.4	15.4	7.0
2028	22.5	15.0	7.5
2029	22.4	15.0	7.5
2030	22.5	13.6	8.8

Q. What is the non-emitting energy need?

A. In addition to reliably meeting the physical needs of PSE's customers, CETA requires that utilities meet at least 80 percent of electric sales (delivered load) in Washington State with non-emitting or renewable resources by 2030 and 100 percent by 2045. In the 2023 Electric Progress Report, the total renewable and non-emitting energy target to achieve 80 percent in 2030 is over 15 million MWh of total energy after conservation and load reducing resources.[20] The difference between existing resources and the target is 6.3 million MWh of additional renewable and non-emitting resources needed by 2030. Table 3 below is a breakdown of the renewable and non-emitting energy target by year from the 2023 Electric Progress Report. A full discussion of the CETA renewable and non-emitting energy target is included in the 2023 Electric Progress Report, Exh. JJJ-3.

REVISED
MARCH 4, 2024

[20] Exh. JJJ-3 at 51-52.

Table 3: Renewable and Non-Emitting Energy Target (Million MWhs)

(MWHs)	Interim Target (a)	Electric Retail Sales after load reducing resources (Million MWh) (b)(b)	Interim Target (Million MWhs) (c) = (a) x (b)	Existing Resources (million MWhs) (d)	Total CETA Need (million MWhs) (e) = (d)– (c)
2024	59%[1]	19.5	11.7	10.2	1.5
2025	63%[1]	19.6	12.5	9.8	2.7
2026	66%[2]	19.3	12.8	9.8	3.0
2027	70%[2]	19.3	13.5	9.3	4.1
2028	73%[2]	19.4	14.2	9.2	5.0
2029	77%[2]	19.4	14.8	9.2	5.6
2030	80%	19.4	15.5	9.2	6.3

Notes: 1. 2021 CEIP target.
2. Estimated using a linear ramp from 2025 to 2030

Q. How does the 2023 Electric Progress Report anticipate PSE will meet its resource needs and CETA obligations?

A. The 2023 Electric Progress Report resource plan prioritizes delivering cost-effective, reliable conservation and demand response along with distributed and centralized renewable and non-emitting resources at the lowest reasonable cost.[21] In order to achieve the resource needs and meet the CETA target by 2030 the plan calls for over 6,700 MW of total nameplate capacity of new supply-side and demand-side resources by 2030.[22] Specifically, this plan:

REVISED
MARCH 4, 2024

[21] Exh. JJJ-3 at 45.
[22] Exh. JJJ-3 at Table 1.1.

- Adds diverse commercially available resources to meet CETA energy and peak capacity needs
- Adds utility-scale and distributed resources to achieve the renewable or non-emitting energy targets
- Continues to acquire conservation resources
- Continues to develop and refine methods to embed equity into resource decisions
- Pursues demand response programs that can effectively help lower peak demand
- Reduces reliance on short-term market purchases in response to the changing western energy market

The 2023 Electric Progress Report is only a plan based on assumptions known at the time.[23] For a discussion of what resource PSE is adding to meet its need, please see the Prefiled Direct Testimony of Craig Pospisil, Exh. CJP-1T, for the latest resource additions and the Prefiled Direct Testimony of Philip A. Haines, Exh. PAH-1CT, for a discussion of PSE's recent bridging/short/intermediate-term additions.

Q. Why are the nameplate additions of new resources higher than the effective peak capacity need?

A. Electric resources, particularly variable resources such as solar and wind, rarely perform at nameplate capacity during peak need. Therefore, ensuring adequacy relies on evaluating a resource's peak capacity contribution, which is the nameplate capacity combined with the ELCC. After adjusting for the peak capacity contribution of each resource, PSE needs more resources to meet the peak need than the nameplate capacity suggests.

REVISED
MARCH 4, 2024

[23] Exh. JJJ-3 at 85-121.

For example, 1,000 MW of installed nameplate capacity of solar will only contribute 20 MW at winter peak. After adjusting for the peak capacity contribution, over 6,700 MW of installed nameplate capacity adjusts to over 2,700 MW of winter peak contribution including conservation. A full discussion of the resource adequacy analysis and peak contribution is included in the 2023 Electric Progress Report, Exh. JJJ-3.

B. PSE'S Clean Energy Implementation Plan

Q. Please describe the status of PSE's Clean Energy Implementation Plan.

A. PSE filed its first Clean Energy Implementation Plan ("2021 CEIP") on December 17, 2021, in Docket UE-210795. In the spring of 2022, the Commission set the 2021 CEIP for adjudication. That process concluded with the Commission issuing Final Order 08 on June 6, 2023, approving PSE's 2021 CEIP with conditions ("Final Order 08"). PSE's specific and interim targets were approved without modification, except for the demand response target, which the Commission ordered PSE to increase. PSE updated its demand response target on August 4, 2023, increasing the target from 23.7 MW to 86 MW.[24]

Pursuant to WAC 480-100-640(11), PSE filed its Biennial CEIP Update ("Biennial Update") on November 1, 2023, and a corrected Biennial Update on November 20, 2023, in Docket UE-210795. In that filing, PSE proposes

[24] Clean Energy Implementation Plan pursuant to Conditions 4, 6, 7, 9, 10, 11 and 28 of Final Order 08. (Aug. 4, 2023).

modifications to its demand response target and interim target for the implementation period of 2022 to 2025.

Q. What modifications is PSE seeking to its demand response target in its Biennial Update?

A. Consistent with Condition 4 in Final Order 08, PSE is seeking to increase its demand response ("DR") target based on cost-effective DR RFP resources. PSE also includes four new DR programs, including Direct Load Control offerings in the Flex Smart program and the Flex Reward demand response program. See the Prefiled Direct Testimony of Gilbert Archuleta, Exh. GA-1T, for more information regarding these DR programs.

Q. What challenges has PSE experienced since the 2021 CEIP that inform PSE's modifications to its interim target in the Biennial Update?

A. As PSE navigates the clean energy transition, there are several areas that the company is monitoring that have an impact on PSE's plans. First, PSE's demand forecast for 2024 and 2025 (and beyond) has grown significantly compared to what PSE forecasted for those years when it developed the 2021 CEIP.[25] As the Clean Energy Transformation Act ("CETA") requires the interim target to be expressed as a percentage of load, and compliance appears to be judged based on actual load delivered to customers, PSE must secure significantly more clean

[25] The 2021 CEIP used the retail electric demand forecast from the 2021 IRP as a base assumption.

energy than initially forecasted in order to meet its interim target of 63 percent by 2025 as projected in the 2021 CEIP.

Next, PSE observes that renewable resource generation variability from year to year can have a meaningful impact on actual, realized renewable production, affecting PSE's ability to meet targets.

Also affecting PSE's plan is the timing of when new resources will be able to come online through PSE's various procurement activities. Plans may be created using generic resources and timelines for commercial operating dates, but actual resources may be impacted by the reality of siting, permitting, supply chain or other delays that can create longer lead-time resources than generically planned. See the Prefiled Direct Testimony of Craig Pospisil, Exh. CJP-1T for more information regarding these issues.

Finally, PSE has observed significant tightening in the short-term market, making it more difficult for PSE to secure clean resources on a short-term basis to fill any projected shortfall in a given year. See the Prefiled Direct Testimonies of Ron Roberts, Exh. RJR-1T, and Phil Haines, Exh. PAH-1CT, for more information regarding short-term resources.

Q. What modifications is PSE seeking to its interim target in the Biennial Update?

A. PSE proposes in its 2023 Biennial Update to express the interim target as a four-year average of 54.5 percent, rather than a series of annual interim targets

laddering up to 63 percent in 2025.[26] This approach allows for some variability and flexibility within the four-year implementation period. Given the challenges I describe above, PSE has updated its projection to have a 60 percent clean portfolio by the end of 2025. But overall, PSE projects to maintain the same four-year average as originally anticipated.

Q. What is needed to meet the interim target in 2025?

A. PSE identifies 1,200 GWh in anticipated short-term clean energy opportunities that PSE will need to pursue in 2025 as part of its 2023 Biennial Update in order to meet PSE's updated 2025 annual clean energy goal of 60 percent, as noted in Table 2.8 of the 2023 Biennial Update. However, PSE's actual need for short-term resources in 2025 is dynamic throughout the four-year CEIP implementation period based on actual performance of existing resources, actual retail sales, and any approved modifications to PSE's interim target.

PSE regularly monitors its CETA energy position and adjusts its short and intermediate-term acquisition strategy to reflect actual results. PSE continues to pursue new utility-scale clean energy investments such as Beaver Creek, which is discussed in more detail in Colin Crowley's testimony, Exh-CPC-1HCT. PSE also continues to secure additional DER resources to meet its clean energy goals, described in the Prefiled Direct Testimony of Aaron August, Exh-AAA-1T.

[26] Corrected 2023 Clean Energy Implementation Plan Biennial Update, Table 2.5: Comparison of annual goals based on forecasted load and generation, page 2.2, filed November 20, 2023.

Q. How does the Biennial Update address CETA's equity mandate?

A. The Biennial Update builds upon the work of the 2021 CEIP by outlining goals and actions that further an equitable clean energy transition. PSE uses the energy equity framework that was established by the Commission in its Final Order 09 of Docket UG-210755, Cascade Natural Gas Corporation's 2021 general rate case. The equity framework focuses on four tenets: (1) recognition justice, (2) procedural justice, (3) distributional justice, and (4) restorative justice. PSE's Biennial Update adopts the definition of energy equity proposed by the University of Michigan, School for Environment and Sustainability's Energy Equity Project.[27] Troy Hutson describes PSE's equity work in detail as part of his testimony, Exh-TAH-1T.

Q. What are examples of the work that PSE has done as part of its Biennial Update to address the energy equity framework?

A. PSE's Biennial Update includes references to the four tenets of energy justice and the work done within the tenets. PSE acknowledges that making progress on equity related efforts as outlined in its Biennial Update is paramount to restorative justice. To this end, PSE adopts a synthesized or integrated approach to incorporating energy equity that is built on three of the core tenets of energy justice — recognition, procedural, and distributional justice.

REVISED MARCH 4, 2024

[27] https://energyequityproject.com/wp-content/uploads/2022/08/220174_EEP_Report_8302022.pdf.

Q. Please describe PSE's efforts to advance recognition and procedural justice.

A. As part of its efforts towards recognition justice, PSE includes updates to its methodology to identify vulnerable populations to streamline factors of vulnerability. In support of procedural justice, PSE has been deliberate about creating an inclusive and accessible process for the authentic engagement and representation of customers in our named communities in the development and implementation of clean energy programs. In keeping with the principles of procedural justice, PSE sought the input and guidance of the Equity Advisory Group, Low-Income Advisory Committee, Conservation Resource Advisory Group, and other interested parties.

For instance, in response to Condition 20 in Final Order 08 of Docket UE-210795 (PSE's 2021 CEIP), regarding the designation of deepest need, PSE brought together the three advisory groups mentioned above to meet jointly with members who represent the interests of customers and communities, many of which are highly impacted communities and vulnerable populations and may be in the deepest need, to participate in an open conversation on how to define deepest need. Through this effort of meaningful engagement and collaborative efforts with the advisory groups and interested parties, PSE developed a methodology for identifying and defining customers with the deepest need. This work is intended to focus on customers and communities with severe energy burden plus a collection of other compounding factors. With this approach, PSE will be able to

develop and design products and services that meet their needs and safeguard their priority to benefit from the clean energy system.

Other efforts to advance procedural justice include targeted customer education and awareness for PSE's customers in named communities, especially for those that have been historically marginalized, and extensive DER engagement in named communities that resulted in the creation of new DER programs. In addition, a disparities analysis report was completed on customer participation for a subset of energy efficiency programs to analyze and evaluate any difference in participation amongst customer groups and to understand any barriers or underlying factors that could hinder participation or exclude customers from directly benefiting from PSE's clean energy programs.

By understanding the barriers and burdens customers may face, PSE will also be able to develop new programs specifically for customers in highly impacted communities and vulnerable populations or those experiencing barriers to participation. For instance, income eligible community solar is crucial to enhancing equitable participation in the clean energy transition by making solar energy (renewable energy) accessible to target customers who can't afford to install solar panels on their homes.

Q. Please describe PSE's efforts to advance distributional justice.

A. To further distributional equity efforts as part of its Biennial Update, PSE discusses its commitment to meet a 30 percent minimum designation for named

communities in the 2022-2025 implementation period, and a 2.5 percent minimum designation for customers within the deepest need. In other words, at least 30 percent of the energy benefits of energy efficiency, DER solar, DR, and DER storage programs will benefit named communities, and at least 2.5 percent of the energy will benefit customers within the deepest need.

PSE's CEIP docket includes a comprehensive customer benefit indicator ("CBI") metric report card of all CBIs and metrics, including CBIs added by conditions in Final Order 08, to demonstrate the status of PSE's distributional equity efforts. In the 2023 Biennial Update, PSE provides an update on the data for each metric from 2021 and 2022 to track and monitor progress in who and how benefits are distributed.[28] Some of this work is directly related to conditions from Final Order 08, and is discussed further in Troy Hutson's testimony, Exh-TAH-1T.

Q. What costs from the 2021 CEIP is PSE seeking to recover in this case?

A. PSE is only seeking to recover CEIP costs for 2025. CEIP related implementation costs for 2023 and 2024 are being recovered through Schedule 141CEI – Clean Energy Implementation Tracker ("CEI Tracker") pursuant to the settlement agreement approved in consolidated Dockets UE-220066, UG-220067 and UG-210918. The tariff for the CEI Tracker was filed in Docket UE-230591 on July 17, 2023, heard by the Commission at its Open Meeting on August 24, 2023, and went into effect on September 1, 2023.

[28] 2023 Biennial Update, Docket UE-210795, Appendix H: Customer Benefit Indicator Metrics (Nov. 1, 2023).

Q. Please describe the types of CEIP costs PSE is currently recovering through the CEI Tracker.

A. The CEI Tracker includes distributed energy resource costs, public participation plan costs, cost of tracking and monitoring CEIP progress, operation and maintenance ("O&M") costs, and capital expense for any projects that enable CEIP implementation.

Q. What types of CEIP costs is PSE seeking to recover for 2025 in this case?

A. PSE is seeking to recover the same categories of costs that are currently being recovered through the CEI Tracker for the last year of the 2021 CEIP implementation period (2025) as part of the base rate proposal in this case. These include distributed energy resource costs, public participation plan costs, cost of tracking and monitoring CEIP progress, O&M costs, and capital expense for projects that enable CEIP implementation, except for utility-scale resources. PSE proposes that certain utility-scale investments to implement the CEIP be recovered through the Clean Generation Resources Rate Adjustment Mechanism being proposed in this case, Schedule 141CGR.[29] PSE is seeking to recover the cost of certain resources for clean energy to meet its CEIP targets, as supported by the testimonies of Craig Pospisil, Exh. CJP-1T, Zac Yanez, Exh. ZCY-1CT, Phil Haines, Exh. PAH-1CT, and Colin Crowley, Exh. CPC-1HCT.

[29] See the Prefiled Direct Testimony of Susan E. Free, Exh. SEF-1T, for more discussion of this new tracker.

Q. Did you seek deferral of costs in 2023 associated with the CEIP?

A. Yes. PSE filed a deferred accounting petition in Docket UE-230131 on February 28, 2023. The Commission granted the accounting petition in Order 01 on August 24, 2023. Please see the Prefiled Direct Testimony of Susan E. Free, Exh. SEF-1T for discussion of this deferred accounting treatment.

Q. What types of CEIP costs did PSE include in the deferral?

A. PSE deferred costs incurred in 2023 associated with implementing its 2021 CEIP, which include distributed energy resource costs, public participation plan costs, cost of tracking and monitoring CEIP progress, and O&M and capital expense for projects that enable CEIP implementation, except for utility-scale resources. The capital expense costs deferred in 2023 relate to licensing costs, professional services, and internal custom development for the Virtual Power Plant ("VPP"). This phase of the VPP project closed. The VPP project provides aggregated enrollment, eligibility, customer life cycle management, dispatch and reporting for distributed energy resources. While some of these costs will not be included as part of the projected incremental cost of compliance under CETA, they are still appropriate costs for which to request cost recovery in this proceeding.[30] These costs are outlined in Table 4 below.

Table 4: Summary of CEIP O&M and Capital Deferred Costs Incurred In 2023 (in millions)

	Operating Expense and Capital ($ millions)	Deferred costs in 2023
O&M	DER Resources	0.9

[30] See Condition 30 of Final Order 08, Docket UE-210795.

	Grid Modernization	0.0048
	DER Enablers	0.1
	Customer Outreach	1.0
	Administration	0.8
Capital	VPP	1.6
	Total Deferred costs	4.4

Q. When will the costs for the next CEIP (2026-2029) be developed?

A. Costs for the next CEIP will be developed in early-to-mid 2025 as part of the IRP and CEIP development processes, with the benefit of involvement and input from the public, interested parties, and advisory groups, and consistent with direction provided by the Commission in Final Order 08. The 2025 IRP process formally kicked off on September 20, 2023, with a public webinar on PSE's work plan and structure for public engagement. PSE has several months of analytical work ahead of it, with input from advisory groups and interested parties, before it can develop a preferred portfolio and associated costs that would inform the scope and overall cost of the proposed 2025 CEIP.

Q. What information can PSE provide in this case about anticipated CEIP related costs for 2026?

A. Given the schedule to develop the 2025 CEIP, PSE can only provide limited information on anticipated CEIP related costs for 2026. The CEIP related costs for 2026 included in this case reflect the anticipated CEIP O&M costs for 2025 plus a three percent increase. There may be additional costs necessary in 2026 for

PSE to achieve the targets and actions proposed in the 2025 CEIP. PSE will be evaluating options for the recovery of those additional costs as it develops the 2025 CEIP.

Q. What are PSE's anticipated operating expenses for the CEIP through 2026?

A. PSE's projected CEIP O&M expenses are outlined in Table 5 below, as well as O&M expenses to support projects that enable CEIP implementation. These types of costs are currently being recovered through Schedule 141CEI for 2023 and 2024. Expected CEIP O&M expenses for 2025 and 2026 are included in this case as part of base rates and broken out by category in Table 5. As stated in the Prefiled Direct Testimony of Susan E. Free, Exh. SEF-1T, PSE will seek a true-up of Schedule 141CEI costs for 2023 and 2024 in its next rate case.

Table 5: Summary of CEIP O&M Expenses by Revenue Period[31]

Operating Expense ($ millions)	Rate Plan Year 1 2025	Rate Plan Year 2 2026[32]	Total
DER Resources	11.4	11.7	23.1
Grid Modernization	0.1	0.1	0.2
DER Enablers	2.6	2.7	5.3
Customer Outreach	11.2	11.6	22.8
Administration	2.7	2.8	5.5
Utility-Scale Resource Acquisition	2.0	2.0	4.0

[31] The costs in Table 5 under "Utility-Scale Resource Acquisition" reflect anticipated labor costs to support acquisition of utility-scale resources to implement the CEIP, but do not include anticipated utility-scale resource costs to implement the CEIP.

[32] There may be additional costs for 2026 not reflected in this table in order to meet the targets and actions proposed in the 2025 CEIP.

Reserves	5.7	4.9	10.6
Total O&M	35.7	35.8	71.4

C. PSE's Need for Long Haul Transmission

Q. How does PSE transmit remote generation resources from outside the local PSE system to its load centers?

A. PSE owns and operates remote generation resources in Southern Washington, Central/Eastern Washington, and Montana. PSE also purchases the output of generation resources from across the Pacific Northwest, California, and British Columbia. Most of these resources are wheeled through the BPA transmission system for delivery to the local PSE system. Generation resources located in Central/Eastern Washington and Montana rely on the West of Cascades North ("WOCN") Path, also referred to as Mid-Columbia or "Mid-C" transmission, to deliver this power across the Cascade Mountains. In addition to WOCN, PSE utilizes the Colstrip Transmission System and Eastern Intertie to deliver resources from Montana to "Mid-C", the Northern Intertie to enable transactions with British Columbia, and the California-Oregon Intertie to enable transactions with resources in California, among other BPA transmission paths.

Q. What additional long-haul transmission has PSE identified as necessary to meet the renewable resource targets mandated under CETA?

A. The 2023 Electric Progress Report identified renewable resources in Central and Eastern Washington, Montana, and Wyoming as key resources needed to enable

compliance with CETA.[33] There is currently limited availability of capacity to deliver Montana resources to Mid-C outside of the capacity PSE currently owns, and there is currently no direct path to deliver Wyoming resources into Washington. In addition, all the remote resources identified in the IRP would need to be delivered across the Cascade Mountains. The WOCN Path is fully subscribed, meaning all the available capacity on this path has been contractually allocated. PSE currently has 2,000 MW of long-term firm transmission service allocated on this path, a portion of which is used to deliver PSE's share of hydro resources along the Columbia River. The remainder of this capacity is used to flexibly manage PSE's remaining remote generation resources and could be utilized to deliver CETA compliant resources identified in the 2023 Electric Progress Report; however, it is not sufficient to deliver the full renewable portfolio.[34] Additional long-haul transmission will be needed from Montana to Mid-C, from Wyoming to Mid-C, and across the Cascade Mountains to PSE's local system.

Q. How are those transmission needs different from the transmission needs identified by local PSE Delivery System Planning?

A. Transmission needs within the local PSE system, identified through Delivery System Planning, are typically necessary to meet local area load growth, alleviate local area system constraints and improve reliability. These local investments are

[33] Exh. JJJ-3 at 40.
[34] *See* Exh. JJJ-3 at 253.

complementary to and support both PSE's own long haul transmission facilities and PSE's long-term transmission contracts with entities like BPA that move remote resources to the PSE system.

A two-step system planning activity might be the best way to describe the planning activity. First, PSE planners must identify how to cost effectively wheel remote resources from points of interconnection to points of delivery on the PSE system. Then PSE planners must identify impacts and needs of the local transmission system given local loads and the resources needed to serve it reliably. The delivery of remote renewable resources onto the local PSE system often times results in the need for local system upgrades to help distribute that power throughout PSE's service territory. The process of identifying and planning capital investments associated with local transmission system upgrades are detailed in the Prefiled Direct Testimony of David J. Landers, Exh-DJL-1T.

Q. What is PSE doing to solve its long-haul transmission need?

A. PSE is currently engaged in a robust planning effort to identify a range of possible solutions for meeting its long-haul transmission need. PSE is actively engaging with regional transmission service providers to identify ways to improve regional transmission planning, to identify opportunities for PSE to engage in transmission contracting more efficiently, and to understand costs and timelines for potential long haul transmission service agreements. Additionally, PSE is evaluating new transmission solutions in Washington State as a transmission service provider. PSE is completing engineering feasibility assessments to narrow down solutions

in consideration of capacity, costs, benefits, and impacts for transmission infrastructure that will be necessary to increase capacity across the WOCN Path.

Q. What is the schedule and timeline for PSE's proposed transmission solution to support resources necessary to comply with CETA?

A. PSE has identified a transmission capacity need in the early 2030 timeframe. To implement a solution in time to meet this need, development of a project will need to commence by 2025.

Q. What is a high-level cost projection for PSE's proposed transmission solution?

A. PSE has been considering several ways to increase transmission capacity from Montana and Wyoming and from Eastern to Western Washington, and the cost for this capacity will be many billions of dollars. Phasing in these improvements to maximize benefits and continuing to engage with other transmission providers to optimize the transmission system in the region will help manage costs while allowing PSE to meet our clean energy goals.

Q. When will PSE seek recovery of the investment for transmission infrastructure tied to this plan?

A. Transmission development is a long-term investment, and it takes many years to develop and implement the magnitude of transmission capacity needed to deliver

renewable energy over long distances. PSE will seek to recover costs related to necessary transmission investments through future rate proceedings.

Q. What cost recovery concerns does PSE have with respect to the investment in long-haul transmission facilities necessary for CETA?

A. PSE witness Dan Doyle describes the financial challenges of the significant capital investment PSE will need to make in order to comply with CETA in his Prefiled Direct Testimony, Exh-DAD-1CT. In that testimony, PSE is proposing to recover construction work in progress ("CWIP") associated with the Beaver Creek Wind Project, as opposed to accruing additional allowance of fund used during construction ("AFUDC"). As Dan Doyle explains, accruing AFUDC for large, multi-year capital expenditures has a negative impact on PSE's financial health, leading to higher costs to customers overall. This issue is exacerbated given the type and magnitude of the infrastructure investment needed to comply with CETA. As such, new tools such as CWIP recovery should be adopted to help fund construction costs prior to plant being put into service.

Transmission facilities that are necessary for CETA compliance will require a significant financial outlay and can take ten years or more to be operational. As PSE likely begins to design, build, and construct long-haul transmission facilities necessary to comply with CETA, CWIP recovery will be an important tool to help remove roadblocks for investment and enable the clean energy transition.

D. Actions Related to Gas System Decarbonization

Q. What progress is being made to decarbonize PSE's gas system, particularly through the procurement of renewable natural gas ("RNG")?

A. Renewable natural gas is a key component of PSE's decarbonization strategy because it allows PSE to realize immediate reductions in greenhouse gases. It is also one of the few tools directly within the control of PSE since it does not require customers to take action to reduce their own greenhouse gas emissions. In this way it is similar to the substitution of non-emitting resources on the electric side.

PSE actively engages with RNG project developers and aggregators to find the lowest cost sources of RNG. PSE develops contracts to deliver the gas to PSE's delivery system, seeks looks to procure the environmental attributes of the RNG. In July 2020, PSE began purchasing physical RNG from a large landfill in Washington and recently signed contracts for the acquisition of additional supplies that will commence deliveries in 2024. PSE estimates that these actions will enable PSE to provide 2,735,000 dekatherms ("Dth") of RNG to customers in 2024 through the Purchased Gas Adjustment ("PGA") portfolio and 82,000 Dth through PSE's Voluntary RNG program.

The incremental cost of RNG in the PGA portfolio is estimated to be under the mandated five percent of revenue requirement at 3.8 percent for 2024; however, PSE believes that legislative action to expand the ceiling may be warranted. This current restriction severely limits the ability of natural gas companies to rely on

RNG to decarbonize customer fuel supply, a limitation compounded by the fact that RNG sells at a premium price when compared to traditional natural gas.

Q. What is PSE doing to prepare for other alternative fuels like green hydrogen?

A PSE is continuing to explore the possibility of green hydrogen blending into the PSE gas system between now and 2030. With support from the Federal government incentives under the Inflation Reduction Act and Infrastructure Investment and Jobs Act, green hydrogen production is more of a reality today than it has ever been. Between now and the end of the decade, PSE's Gas IRP estimates roughly 3,460 mDth/year could be on the PSE System as a cost effective method of decarbonizing the natural gas system.[35]

To that end, PSE is actively engaged in the development of green hydrogen in Washington State. Since the inception of the Pacific Northwest Hydrogen Association, PSE has been supporting investments for direct use of green hydrogen as an alternative fuel, and green hydrogen for power generation within our service territory as part of Washington State's successful submittal into the Department of Energy's Regional Clean Hydrogen Hub initiative. PSE's proposed green hydrogen project is described in greater detail by John Mannetti in his Prefiled Direct Testimony, Exh-JM-1CT.

[35] PSE's 2023 Gas Utility Integrated Resource Plan, Docket UG-220242, Ch. 2: Resource Plan, Table 2.3 (March 31, 2023).

Additionally, PSE's gas system planning team is continuing to explore system impacts to PSE pipeline infrastructure as a result of alternative fuels, like green hydrogen, blending into the system which can have immediate decarbonization benefits. PSE's alternative fuel readiness investments are described in David Landers' testimony Exh. DJL-1T.

Q. What progress has PSE made toward implementing the general rate case settlement that includes a decarbonization study, a targeted electrification pilot, and a targeted electrification strategy?

A. Throughout 2023 PSE has been working towards meeting the requirements established in Settlement Condition O in PSE's 2023 rate case, Dockets UE-220066 and UG-220067. Under the settlement PSE committed to three general bodies of work tied to targeted electrification on the PSE system with a primary focus of understanding barriers and opportunities to advance meaningful and effective heat pump adoption in PSE residential and small business customer classes. The three areas of focus include: (1) an updated electrification study using up-to-date heat pump technology projections; (2) a targeted electrification pilot program, and (3) the development of a Targeted Electrification Strategy to be filed with the Commission in early 2025.

PSE's updated study was filed on December 21, 2023. The Company has been engaging regularly with interested parties in the development and execution of the targeted electrification pilot program. That pilot program establishes a series of customer opportunities including home electrification assessments, heat pump

rebates, low-income heat pump installations, multi-family electrification, and small-to-medium business electrification incentives. John Mannetti discusses PSE's progress on the Settlement Condition O targeted electrification pilot efforts in his testimony, Exh-JM-1CT. Finally, the targeted electrification strategy will be developed and filed with the Commission by the end of 2024 and incorporated into PSE's 2025 Electric and Gas IRPs, per the Commission order.

Q. Describe how PSE is staying engaged in the Climate Commitment Act ("CCA") rulemaking and regulation process.

A. The CCA was passed by the Washington State Legislature in 2021 with the final program rules developed by the Department of Ecology and adopted as of October 30, 2022. PSE's 2023 Gas IRP, as described earlier in my testimony, was PSE's first Gas IRP to analyze the impacts of the CCA on PSE's long term resource portfolio. The outcome of that resource plan shows the cost effectiveness of compliance through the use of additional allowances from the market.[36] Additional guidance is warranted regarding the cost effectiveness constraint of decarbonization measures, which exceed the cost of additional market allowances and targets other than the free allowance line established by the Department of Ecology in the relation to the decarbonization investments the company may make.

[36] PSE's 2023 Gas Utility Integrated Resource Plan, Docket UG-220242, Ch. 1: Executive Summary (March 31, 2023).

IV. PSE'S PERFORMANCE METRICS

Q. Are you supporting any environmental performance metrics in this case?

A. Yes. I am supporting the metrics shown in Table 6 below. These metrics are the same as those approved in PSE's last general rate case, without modification.

Table 6: Environmental Performance Metrics

Metric	Metric Definition	Revision from 2022 GRC	Metric Calculation
Environmental			
Total greenhouse gas ("GHG") emissions from Electric energy delivery systems.	Total GHG emissions from the delivery of electric energy including electricity generating units, purchased and delivered energy, natural gas supplied and its associated systems, electric transmission and distribution, and fuel supply.		Calculation methodologies established in Chapter 173-441 WAC (Reporting of Emissions of Greenhouse Gases) and 40 CFR Part 98 (Mandatory Reporting Rule)
Total greenhouse gas ("GHG") emissions from gas energy delivery systems.	Total GHG emissions from the delivery of natural gas supplied and its associated transmission and distribution system		Calculation methodologies established in Chapter 173-441 WAC (Reporting of Emissions of Greenhouse Gases) and 40 CFR Part 98 (Mandatory Reporting Rule)
Carbon intensity: CO2e/MWh	Annual electric supply intensity as the amount of CO2e emitted (pounds or tons) per MWh of electricity produced.		Sum of CO2e emissions from energy delivery for power supply divided by the total energy supplied.

Q. Why has PSE chosen to retain these metrics for its next rate plan?

A. These metrics continue to provide value in the upcoming rate plan by demonstrating the environmental attributes of both the electric energy delivery system and gas energy delivery systems. Further, they are consistent with the CEIP and one of the customer benefit indicators developed for the CEIP.[37] These are important metrics to show the value of PSE's efforts in reducing greenhouse gas emissions, by establishing a means of transparency and accountability for how PSE is executing its CEIP commitments.

V. CONCLUSION

Q. Does that conclude your prefiled direct testimony?

A. Yes, it does.

[37] Reduced Greenhouse Gas Emissions Customer Benefit Indicator. See PSE's Biennial Update, Docket UE-210795, Chapter 6: Customer Benefit Indicators at Table 6.1 (Nov. 1, 2023).