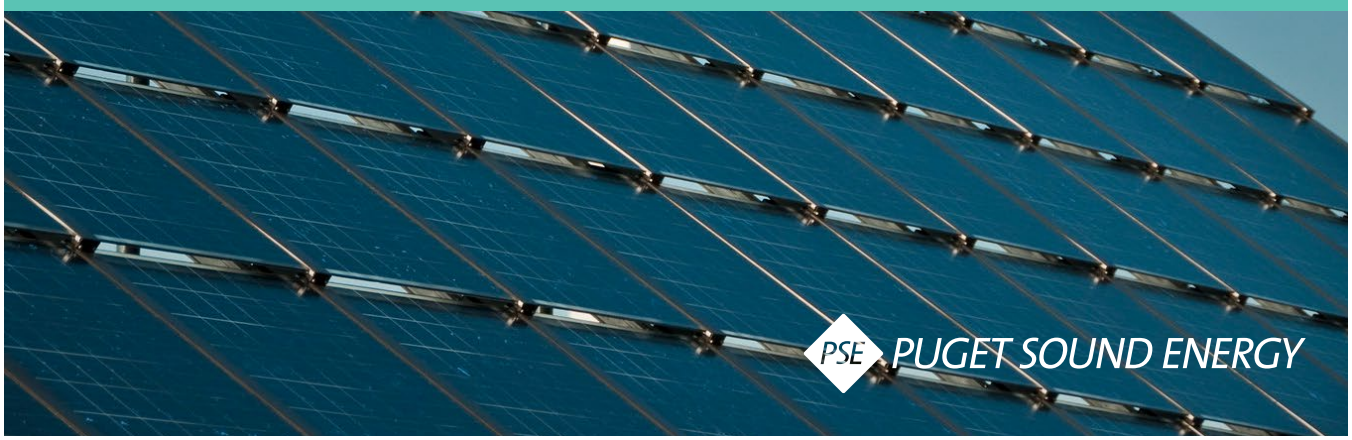
1 Executive Summary



Chapter One: Executive Summary

In this, our first Clean Energy Implementation Plan (CEIP), Puget Sound Energy (PSE) moves further and faster to a carbon-neutral future than ever before. PSE recognizes the urgent nature of our climate crisis and seeks to be part of the solution to build an equitable clean energy future. We will achieve carbon neutrality in our electric supply portfolio by 2030, consistent with state law, and reach 100 percent renewable or non-emitting electric supply by 2045, if not sooner.

This 2021 CEIP describes PSE's initial plan to implement the Clean Energy Transformation Act (CETA) for 2022–2025. It charts new directions in our electricity supply, includes new voices in the process, and seeks to achieve affordable, clean electricity, and an electric supply that benefits our customers and reduces burdens on our vulnerable customers. It also reflects stakeholder input and feedback that resulted in substantive changes between the draft and final plan.

This first CEIP is an important milestone in PSE's efforts to address climate change and reach our aspirational goal to be a beyond net-zero carbon company by 2045.

Targets to Achieve Our Clean Energy Goals

In this plan, we set an interim target to source 63 percent of our electric supply from renewable or non-emitting resources in 2025, up from 34 percent in 2020. This 2025 interim target is a crucial stepping-stone on the way to a carbon-neutral future. Over the longer term, we forecast supplying at least 80 percent of electricity sales from renewable and non-emitting sources along with other carbon reducing opportunities to reach carbon neutrality by 2030. This timeframe means we must keep a consistent pace of change from now to 2030.

As a part of achieving carbon neutrality by 2030, we also set specific targets for the 2022–2025 period for energy efficiency, demand response, renewable energy, and distributed energy resources (DER) in this CEIP. This process builds on our foundation in energy efficiency and adds new energy supply resources and technologies that reduce risks and offer new benefits and opportunities to our customers.

Energy Efficiency Specific Target: 536,717 MWh for 2022-2023, 536,717 MWh for 2024–2025

PSE's energy efficiency programs have been the foundation of our cost-effective energy resources for more than three decades, and this will continue. Over the next four years, we must continue to stretch further and think creatively to hit higher and more challenging targets. PSE will also identify and incorporate a broader vision of energy efficiency benefits to customers, from comfort to health. Finally, as with all our customer-facing programs, we will strive to ensure they are accessible, affordable, accountable, and benefit all customers. As required under Washington Administrative Code (WAC) 480-100-640(11), we will update our forecast of available, achievable, and cost-effective energy efficiency in 2023 as part of the biennial conservation plan requirements and use this information to update the 2024–2025 energy efficiency specific target.

Demand Response Specific Target: 23.7 MW

In this CEIP, PSE sets a specific target for demand response programs for the first time. In this CEIP period, we will create new programs that allow us to partner with customers on flexible ways to shift or reduce their electricity use during peak times. As we move to a cleaner portfolio in a region that will become short on generating capacity, we must aggressively pursue demand response programs to reduce peak energy needs in winter and summer.

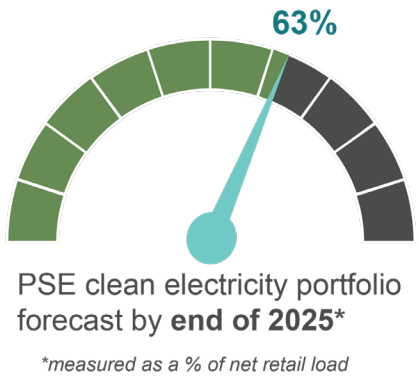
Although we have some experience with residential and commercial pilot programs, we need to build the knowledge, systems, and processes to maximize the benefits of demand response on a larger scale. In this plan, we set the target based on our modeled mix of potential programs. When we complete the program acquisition request for proposal (RFP) process and develop program designs in 2022, we will learn much more about our service territory's true market potential, which will allow us to provide more details on our approach to achieving our demand response target in our 2023 biennial CEIP update.

Renewable Energy: 63 Percent of Retail Sales in 2025

From our first hydroelectric generating facility in 1898, PSE has long received some of our electric supply from renewable energy. Over time, we added new renewable electric supply resources like Wildhorse, Hopkins Ridge, Lower Snake River wind, and other hydroelectric facilities.

As we look to 2025, we must move faster in this space than ever before. We will bring recently acquired renewable energy contracts into our electric portfolio and seek to add 1,917,068 MWh of CETA-eligible utility-scale and distributed resources in 2025. We also set aspirational sub-targets of 80 MW distributed solar and 25 MW of distributed battery storage programs. These distributed energy resources provide different customer benefits than traditional utility-scale generating facilities, such as local peak reduction and resiliency, and provide a future foundation for a flexible electric supply portfolio. PSE's distributed energy resources are a key part of our strategy to achieve an electric resource plan that is equitably distributed.

Figure 1-1: Interim and Specific Targets



Energy Efficiency

- 1,073,434 MWh from 2022–2025

Demand Response

- 23.7 MW in active demand response programs

Renewable Energy

- 63% of retail sales in 2025, totaling approximately 11,381,593 MWh of renewable energy, including:
- 800 MW of new utility-scale renewables
- 80 MW of new distributed solar resources

For this first CEIP, PSE seeks approval from the Washington Utilities and Transportation Commission (WUTC) for the following targets, actions, and projected associated costs:

1) **Interim Target:** 63 percent of retail sales by 2025, totaling approximately 11,381,593 MWh

2) **Energy Efficiency Target:** 1,073,434 MWh for 2022–2025, subject to update in 2023 to reflect the 2024–2025 Biennial Conservation Plan

3) **Renewable Energy Target:**

    a. 800 MW of new utility-scale renewables

    b. 80 MW of new distributed solar resources

4) **Demand Response Target:** 23.7 MW by 2025

5) **Specific Actions:** Conduct an All-Source Request for Proposal (RFP) and a Targeted DER RFP in 2022–2023 to secure resources to meet PSE's specific and interim targets expressed above plus 50 MW of utility-scale storage and 25 MW of distributed storage by the end of the CEIP period.

6) **Incremental Cost:** To meet targets consistent with the goals of CETA, PSE estimates we will need to spend, on average, a two-percent average annual rate increase specifically to implement the above-stated targets consistent with CETA.

In future CEIPs, when we can better align the timing of resource acquisition processes with the schedule for filing and seeking approval of a CEIP, PSE anticipates including more specific actions and details regarding the resources and costs associated with meeting these targets.

Table 1-1: Specific Targets from 2022–2025, Incremental

	2022	2023	2024	2025
Energy Efficiency (MWh)	268,358.5	268,358.5	268,358.5	268,358.5
Demand Response (MW)	-	5	6	12.7
Renewable Energy [Utility-scale] (MWh)	-	-	1,052,863	833,468
Distributed Energy Resources (MW)	7	23	25	25

For a complete discussion of the interim and specific targets, please read Chapter Two, Interim Targets, Specific Targets, CEIP Methodology.

Customer Benefits Shape Our Plan

To achieve our energy goals, PSE must also ensure the transition to clean energy is equitable. CETA adjusted the traditional energy resource planning model to look beyond the lowest cost and reliability metrics to include customer benefits that inform our program and investment decisions. Although PSE considered overarching customer benefits in past energy resource planning and acquisition processes, they did not reflect direct customer input nor include measured results. This journey began with the 2021 Integrated Resource Plan (IRP), which proposed a balanced portfolio of resources no longer rooted under a strict “least cost” paradigm because PSE applied draft customer benefit indicators to the resource portfolio selection process for the first time.

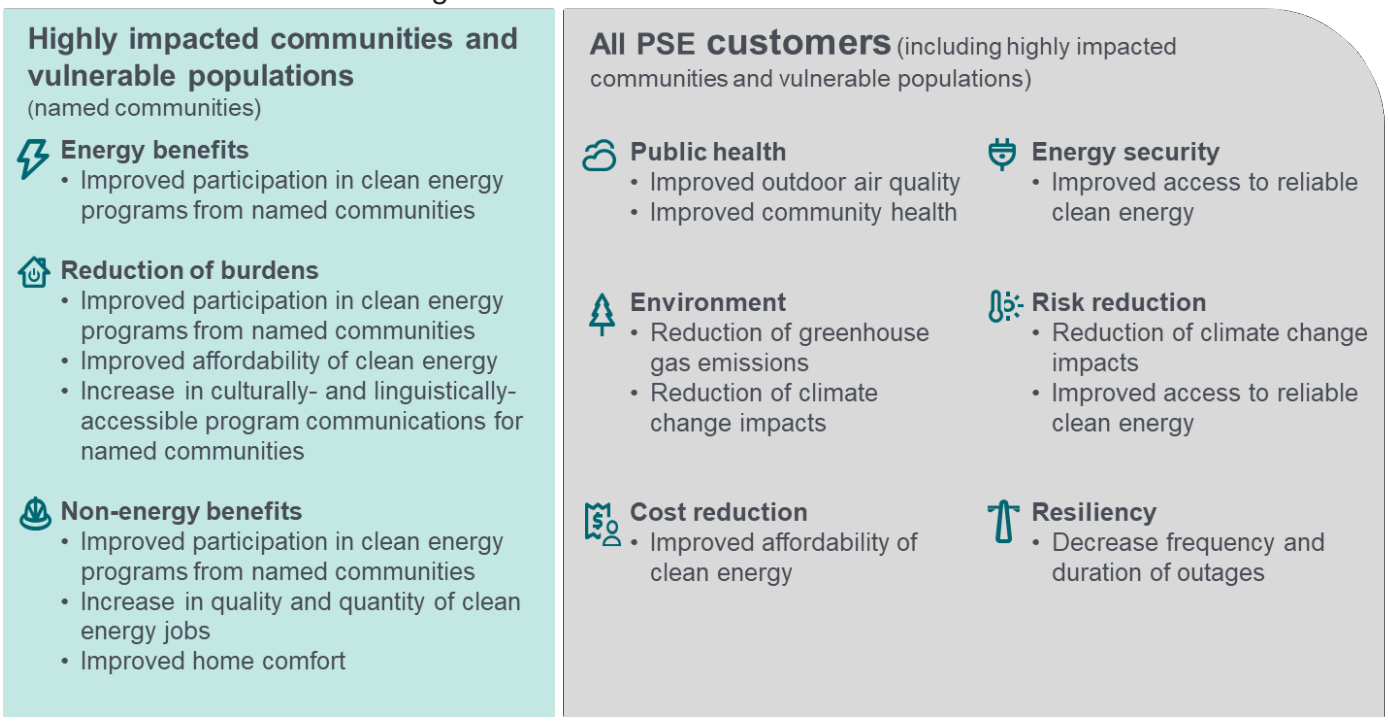
In this first CEIP, PSE engaged customers, advisory groups, and stakeholders to further develop customer benefit indicators. Benefits customers envision from the transition to clean electricity include opportunities to improve our communities through outcomes like cleaner air, better public health, new jobs, or different ways for customers to get their electricity.

The customer benefit indicators in this CEIP guide PSE on the type and potential mix of distributed energy programs to pursue, customer program designs, and in evaluating and selecting utility-scale and distributed resources. By the end of the CEIP period, PSE anticipates we will achieve our customer benefit goals and reach a future state that is more equitable by delivering on the types of actions illustrated in this plan.

Customer benefits are iterative and will evolve. PSE is still developing baseline data for several customer benefit indicators for this CEIP so we can measure change over time. We will estimate and

measure the impacts of those benefits and communicate with customers to ensure we are focusing on the correct indicators throughout the first implementation cycle, 2022 through 2025.

Figure 1-2: Customer Benefit Indicators



As we make this clean energy transition, we must consider the burdens our customers face, in addition to the benefits. We must determine how those benefits are distributed across all customers and ensure we reduce burdens for those who bear a disproportionate share of them.

This plan aims to make this transition more equitable by:

- Identifying highly impacted communities and vulnerable populations (Chapter Four, Specific Actions),
- Proactively engaging with customers in communities and partnering with community-based organizations (Chapter Six, Public Participation),
- Creating a channel for feedback and dialogue through program design and implementation, and
- Measuring and reporting progress.

For more discussion about customer benefits, please see Chapter Three, Highly Impacted Communities and Vulnerable Populations, and Customer Benefit Indicators.

Acting Now

Achieving these targets requires action from PSE, our customers, and our suppliers. PSE must invest in energy efficiency, demand response, and utility-scale and distributed energy resources, along with the underlying systems, technology, and electricity grid to support this move.

PSE has already made significant progress in acquiring renewable energy over the past several years. We've taken steps to procure and increase our electric portfolio with CETA eligible resources since 2020. Figure 1-3 gives an overview of the diverse mix of resources, including wind, solar and hydro, either currently contributing to PSE's portfolio, or contracted to contribute in the coming years.

Figure 1-3: New CETA-eligible Resources 2020–2023

	2020	2021	2022	2023
Resource specific (existing or contracted)	• 40 MW Selis Ksanka Qlipse hydroelectric	• 27 MW SPI Biomass	• 100 MW BPA Capacity product hydroelectric • 200 MW Golden Hills Wind • 77 MW Chelan PUD hydroelectric • 33 MW Colville/Douglas PUD hydroelectric	• 350 MW Clearwater Wind

Customers are a vital part of our carbon-neutral future — they must adopt energy efficiency and participate in demand response programs and distributed energy resources for these programs to be successful.

This customer involvement requires a new level of engagement and focus on equity to ensure all customers can participate in and benefit from the clean energy transition.

Figure 1-4: Summary of Specific Actions 2022–2025

	2022	2023	2024	2025
Resource specific (projected)	• Energy Efficiency Programs	• Energy Efficiency Programs	• Energy Efficiency Programs	• Energy Efficiency Programs
	• Complete Targeted DER RFP	• Start Demand Response Programs	• Expand Demand Response programs	• Expand Demand Response programs
	• Complete All-Source RFP and Targeted DER RFP • 7 MW of DER solar in service	• 23 MW of DER solar in service • 5 MW of distributed battery storage in service	• 200 MW of wind in service • 200 MW of solar in service • 25 MW of utility-scale storage • 25 MW of DER solar in service • 7 MW of distributed battery storage in service	• 300 MW of wind in service • 100 MW of solar in service • 25 MW of utility-scale storage • 25 MW of DER solar in service • 13 MW of distributed battery storage in service
Other Investments	• Begin tariff filings for DER programs • Customer-centered program design • Baseline data collection for CBIs • Enabling technologies planning	• Tariff filings for DER programs • Build and deploy new DER and DR programs • Initial customer programs and education launch • Begin installing enabling technologies • Progress reporting and CEIP Update	• Utility-scale renewables and DERs in service • Progress reporting • Ongoing programs and education • Ongoing installation of enabling technologies	• Utility-scale renewables and DERs in service • Ongoing programs and education • Ongoing installation of enabling technologies • File 2026–2029 CEIP

For detailed descriptions and a full list of actions, please see Chapter Four, Specific Actions.

The progress of CEIP implementation and the success of many of the programs and resources at the local distribution level depend on a strong, modern grid. PSE has been preparing for and advancing a modern grid for several years, consistent with WUTC policies. Most of PSE's planned grid modernization investments are not included in this CEIP because they are not deemed incremental costs due to CETA. However, it is important to note that without these investments, our ability to implement this plan and our progress on the path to clean energy would be hindered significantly. Without these previously planned and foundational grid modernization efforts, the incremental cost of implementing CETA likely would be much higher and could present more operational challenges. Investments that have been accelerated or are unique to progressing capabilities such as microgrids are discussed further in chapter Four and reflected in Appendix E according to their allocation to the incremental cost.

PSE also will continue to focus on foundational tools such as advanced meter infrastructure (AMI), to enable our progress to clean energy. Additional investments will include those in transmission capacity that comply with the North American Electric Reliability Corporation (NERC) reliability standards, which will be required to deliver the increased load and provide the flexibility and reliability that will be needed with the proliferation of DERs and electric vehicles.

Engaging Customers

The development of this CEIP marked the first time PSE intentionally sought participation from new, diverse voices in energy planning considerations. PSE formed a new Equity Advisory Group (EAG) to bring voices of those who have not traditionally participated and engaged with our other advisory groups. The EAG played a central role in identifying customer benefit indicators, which influenced this CEIP and will be used to plan and evaluate resources in the future. The input from the EAG specifically helped expand consideration of vulnerable populations within PSE's service territory and informed valuable development of baseline information and guiding principles that PSE will use to include customers in program design. Feedback from the EAG will also help us ensure equitable distribution of the benefits of clean energy as we implement the CEIP.

In addition, feedback from customers, advisory groups, and other community members have helped further shape this CEIP.

For a complete description of public participation in developing this plan and for 2022 through mid–2023, please see Chapter Six, Public Participation, and Appendix C-1, Public Participation Plan Current and Future. For a complete description of vulnerable populations, please see Chapter Three, Highly Impacted Communities and Vulnerable Populations, and Customer Benefit Indicators. For a summary of public comments and how PSE addressed them, please see Appendix C-2.

Maintaining Reliability and Affordability

As we transition from an electric system that has historically operated with predictable, utility-controlled generation sources to one increasingly dominated by intermittent wind and solar resources and more distributed, customer-controlled resources, reliability remains paramount. PSE must continue to meet our customers' energy needs at all hours of every day, especially during the winter cold snaps and summer heatwaves.

The resources in this plan make partial contributions to those peaks but do not cover the entire peaks in use. To maintain reliability, PSE must continue to use our existing fleet of resources and reduce reliance on short-term market transactions to meet peak needs.

What's changed between the Draft and the Final

As part of PSE's public participation process, we hosted a public comment period from October 18–November 12, 2021, to gather feedback on the draft CEIP. PSE received more than 350 comments. Between October 18 and early December 2021, PSE reviewed and reflected on feedback from stakeholders to revise the CEIP.

Based on stakeholder feedback, major changes between the draft and final CEIPs are listed below:

- Interim target: accelerated the clean electricity transition
- More details on highly impacted communities and vulnerable populations
- Refined CBIs, metrics, and baseline data
- Specific actions updated to match PSE's Biennial Conservation Plan (BCP) and include customer benefit details
- Incremental cost details explained
- Public participation details added and future audiences broadened
- Future work and commitments to continue to make progress in equity assessment, guiding principles, and evolving customer benefit indicator (CBI) scoring for the next CEIP

See Appendix C-2 for a summary of comments received and how PSE addressed them.

PSE will continue studying and evolve reliability efforts as we implement this first CEIP, especially as regional resources change to eliminate coal and regional market structures adjust.

We do not know all the impacts or costs of these transitions at this time, but we will update future CEIPs as we learn more. Building a carbon-neutral direction for PSE's portfolio comes at a cost. The forecast cost of the actions in this plan are $450 million more than PSE would have incurred without pursuing these plans. This amount equals an additional ≈ $6/month per residential customer in 2025 and barely exceeds the mark of a two-percent average annual rate increase.

For more details on cost, please see Chapter Five, Cost.

Alternative Compliance and Early Action Coal Credit

PSE is not using any alternative compliance mechanisms in this CEIP and does not propose an early action coal credit.

Chapter Highlights

Chapter Two: Interim and Specific Targets, CEIP Methodology

- By the end of 2025, 63 percent of PSE's electric sales will be served by clean, CETA-eligible energy, like large-scale wind, solar, and distributed solar. This interim target puts PSE on the path to meeting CETA's 2030 and 2045 goals, and it reflects stakeholder feedback on our draft CEIP to increase the renewable ramp up rate.

- Energy efficiency saves 1,073,434 MWh through 2025 and we achieve 23.7 MW of demand response, lowering the overall CETA energy need. When customers use less energy, fewer carbon-emitting fossil fuels are mined and burned.
- This first CEIP is consistent with PSE's 2021 Integrated Resource Plan (IRP) and Clean Energy Action Plan (CEAP). It includes updates from the 2021 IRP for new clean energy supply contracts, updated resource costs, and updates the customer benefit indicators to reflect those developed with customer input during the CEIP process.
- For distributed energy resources, PSE developed a new portfolio approach to identify a preferred program concept mix for a future RFP. The approach included applying customer benefit indicators, described more broadly in Chapter Three, Highly Impacted Communities and Vulnerable Populations and Customer Benefit Indicators.

Chapter Three: Highly Impacted Communities and Vulnerable Populations, and Customer Benefit Indicators

- PSE identified highly impacted communities based on the Environmental Health Disparities map produced by the Washington Department of Health.
- PSE and our EAG developed vulnerable population factors to identify primary attributes that define vulnerable populations, which include sensitivity and socioeconomic factors.
- The CEIP uses the highly impacted communities designation and vulnerable populations factors to identify disparities, track, and measure progress over time, and include as a lens to develop and implement customer programs.
- PSE developed 11 customer benefit indicators based on feedback from customers, advisory groups, and others for this first CEIP. We expect to make additional refinements during implementation. These CBIs include outcomes our customer’s desire, like reduced greenhouse gas emissions, cleaner air, better public health, new jobs, or different ways for customers to get their electricity. In response to stakeholder feedback, PSE adjusted the CBI on clean energy jobs and added new metrics. We also added a new CBI on culturally- and linguistically-accessible program communication.
- PSE applied the customer-informed CBIs to evaluate and select the DER concept mix to include in our Targeted DER RFP. PSE will include CBIs as part of the evaluation process for demand response and large-scale renewables in the RFPs. Moving forward, PSE will apply these CBIs at the beginning of the resource planning cycle, beginning with the 2023 IRP electric progress report.
- The CBIs in this CEIP and the non-energy impacts (NEI) for energy efficiency in the Biennial Conservation Plan (BCP) overlap. The BCP used NEIs to help determine the conservation goal for 2022–2023.

Chapter Four: Specific Actions

- PSE specific actions are the programs and investments needed to help us reach the CETA clean energy standards and provide customer benefits. In response to stakeholder feedback, these benefits are more explicitly detailed for each specific action.
- PSE's energy efficiency effort envisions more than 13 different sets of programs for residential and business customers, and regional pilots and initiatives.
- Demand response actions include a Targeted Distributed Energy Resources (DER) Request for Proposal (RFP) to identify programs and implementing time-varying rates pilot programs.
- Renewable energy actions will largely stem from the results of the 2021 All-Source RFP, which will guide us in bringing more renewable and non-emitting energy to PSE's customers.
- For distributed energy resources, PSE will focus on distributed solar and battery storage that expand participation within our service area and in traditionally underserved populations. PSE will deploy our own resources for both, working with customers to partner on non-utility-owned assets, and launch targeted programs for income-eligible populations. Specific actions include selecting programs through the Targeted DER RFP.
- Other specific actions include DER enablers, grid modernization, and other activities to support our drive to carbon neutrality.

Chapter Five: Cost

- Transitioning to clean electricity will increase customers' bills during the CEIP period. PSE maintains that cost at just above an average of 2 percent per year, which amounts to an additional ~$6/month per residential customer in 2025.
- PSE's CEIP costs include calculation of the incremental costs associated with resource costs (e.g., energy efficiency, demand response, energy storage, large-scale renewables), and enabling tools and technologies that serve as a foundation for the transition — enabling systems, transmission rights, grid modernization, and customer education and engagement. We will also incur costs for CEIP monitoring and reporting.
- Although this path to a clean electricity future will increase the average customer bill over time, the CEIP includes opportunities for customers to reduce their energy bills through energy efficiency and new demand response and distributed energy resource programs.

Chapter Six: Public Participation

- PSE successfully convened and began engaging the new Equity Advisory Group, comprised of 13 members representing diverse organizations and geographies.

- Our public participation process broadened energy resource planning public participation efforts to customers, including targeted outreach to highly impacted communities and vulnerable populations, PSE's advisory groups, and other stakeholders.
- Public participation influenced the CEIP through the development of vulnerable populations' factors, customer benefit indicators, and programs and actions that reflect our customers' vision for an equitable clean energy future. In addition, customer, advisory group, and stakeholder feedback on the draft CEIP resulted in substantive feedback that shaped this final CEIP.

Chapter Seven: Tracking and Reporting

- PSE will track and report progress on specific actions and energy metrics. Utilizing this tracking process will help determine adjustments and updates in future CEIP processes and updates.
- As part of ensuring the equitable distribution of benefits and burdens, PSE will track and measure each customer benefit indicator as it relates to the programs and actions developed in the CEIP.
- PSE will develop an annual CEIP progress report to include progress on planned actions and public participation.
- PSE will also track and report on renewable energy credits, greenhouse gas emissions, and other compliance actions.

Chapter Eight: Future Work and PSE Commitments

- Although this first CEIP creates an initial roadmap for PSE, we must continue to make decisions at each step and update our path accordingly. The new energy resource planning process is iterative and allows for these changes.
- PSE's commitments for this iterative process include:
  - Implement a climate change temperature analysis and updating resource-specific effective load carrying capability (ELCCs) as part of the updated load forecast and resource adequacy analysis.
  - Incorporate the results of the 2021 All-Source RFP, 2021 Targeted DER RFP, and 2023 IRP electric progress report in the 2023 biennial CEIP update.
  - Engage highly impacted communities and vulnerable populations on program design elements beginning in Q4 of 2022.
- Identify the building blocks of an equity assessment, disparities within existing programs and customers, and root factors creating barriers for customers.

- Continue to work with stakeholders to identify and develop future customer benefit indicators and data sources for CBI metrics and baseline data in 2022.
- Work with the EAG to develop guiding principles for future use in the CEIP implementation period based on the pillars of accessibility, affordability, and accountability.