



# EXECUTIVE SUMMARY

## CHAPTER ONE



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# 1. Introduction

Puget Sound Energy (PSE) is Washington State's largest and oldest utility, serving more than 870,000 residential, commercial, and industrial natural gas customers in six counties through more than 26,000 miles of PSE-owned gas mains and service lines. We share our customers' concern for the environment and expectations for uncompromised reliability, affordability, and safety.

The existing pipeline system provides energy to our customers every day of the year to heat their homes and drive their businesses. Electric infrastructure, from wiring in homes, businesses, schools, and other facilities, to distribution systems, transmission systems, and electric generation, have all been sized around a robust gas system that delivers more energy annually in the Pacific Northwest than the electric system. We believe it is essential to decarbonize gas as much as practical while maintaining safety and reliability throughout all our systems to continue to meet the needs of our customers in the coming decades.

This resource plan begins to consider the impacts of the Climate Commitment Act and the associated effects on greenhouse gas emissions. Our analysis shows policy makers may need to deploy complementary policies and tools in the coming years to better position us to achieve our aspirational Beyond Net Zero Carbon goals. We will continue engaging with interested parties on policies that support our commitment to decarbonization.

## 2. Resource Planning Foundations

The 2023 Gas Utility Integrated Resource Plan (2023 Gas Utility IRP) is a planning exercise that evaluates how a range of potential future outcomes could affect our ability to meet our customers' natural gas supply needs. The analysis considers policies, costs, economic conditions, and the physical energy system. This 2023 Gas Utility IRP proposes the starting point for deciding what future resources we may or may not procure.

Throughout the resource planning process for this plan, we focused on the following key objectives, which lay the foundation for this and all future resource plans:

- Ensure adequate gas supply to meet customer demand
- Meet Climate Commitment Act (CCA) requirements
- Understand the impacts of building electrification on PSE's gas and electric utilities
- Understand the impacts of green hydrogen and renewable natural gas (RNG)

This plan does not make resource or program implementation decisions. This IRP is a long-term view of what appears to be cost-effective based on the best information we have today about the future. We repeat the gas IRP analysis every two years to adjust for new forecasts and account for technology, clean fuel, resource cost, and regulatory changes.



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➔ See [Chapter Three: Legislative and Policy Change](#) for more information regarding CCA and other regulatory changes.

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## 3. Change Drivers

We developed this report during a time of extraordinary change as policymakers, the utility industry, and the public confront the challenge of climate change and work toward decarbonizing the gas sector. These regulatory changes and valuable feedback from interested parties influenced the 2023 Gas Utility IRP.

### 3.1. Regulatory Changes

This IRP includes updates that respond to new legislation and regulations enacted since PSE's 2021 Gas Utility IRP. These new laws include the CCA, the City of Seattle's limits on natural gas in large commercial and residential buildings, Washington State building code efficiency improvements as of May 2022, and portions of the Inflation Reduction Act (IRA). We studied the impact of the CCA on the gas portfolio in two ways: as a price cap and as an emissions cap. We also studied electrification scenarios to reduce emissions and meet the requirements of the CCA.

The Washington State Legislature passed the CCA in 2021, and significant portions went into effect on January 1, 2023. The CCA is a cap-and-invest program that places a declining limit on the quantity of greenhouse gas emissions generated within Washington State. The CCA established a marketplace to trade allowances of permitted emissions, and the resulting market created an opportunity cost for emitting greenhouse gases. The CCA has two pathways to reduce PSE gas customers' emissions. First, the CCA makes a direct price impact that drives decarbonization. We put a direct price on greenhouse gases (GHG) and the social cost of GHG (SCGHG) in this IRP, resulting in more conservation, RNG, and green hydrogen that will drive down emissions. The second impact of the CCA is new revenue from consigned allowances. In the consignment process, PSE's customers will pay for allowances, but the Department of Ecology (Ecology) will return a large portion of the revenue to PSE, an amount that diminishes over time. We must first use the consigned allowance revenue to eliminate bill impacts on low-income customers.

The Washington Utilities and Transportation Commission (Commission) has jurisdiction over how much of the remaining consigned allowance revenue we refund customers, on a non-volumetric basis or used for specified decarbonization activities. Because the CCA is relatively new legislation, the Commission has not provided guidance yet for how gas utilities, including PSE, should allocate consigned allowance revenue between those categories. This IRP does not examine how PSE will use the consigned allowance revenue. Because of the consignment process, there may be a situation in which PSE must purchase allowances from the auction, which will impact customer bills except for low-income customers. This direct price impact from the CCA allowances was included in the gas analysis and increased the marginal cost of gas which drove the cost effectiveness of conservation, RNG, and green hydrogen.

In August of 2022, the federal government enacted cost-cutting legislation, the Inflation Reduction Act (IRA), which significantly focused on clean energy, including conservation, renewable energy, green hydrogen, and electrification.



We incorporated as much of the IRA as possible<sup>1</sup>; however, because the law was enacted late in our planning process, we could not consider all the nuances of the bill. We will continue to study the impacts of the IRA for the 2025 IRP.

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→ Please find detail on these changes in [Chapter Three: Legislative and Policy Change](#).

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## 3.2. Public Feedback

Public participation in our Gas IRP process helped shape our work to develop the gas preferred portfolio and resource plan. Members of the public gave us valuable input on ways to improve public participation and the feedback processes. We implemented real-time improvements during this cycle and are assessing the process for the next IRP. The following sections outline how feedback from interested parties influenced this IRP and may influence future IRP cycles.

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→ [Appendix A: Public Participation](#) contains additional detailed information about public feedback in this IRP cycle.

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### 3.2.1. Climate Change Impacts

This plan incorporates climate change in the energy and peak demand forecast for the first time. We heard from interested parties that it is critical to include climate change because it affects future demand and needs, and we agree. Before this IRP, we used temperatures from the previous 30 years to model the expected normal temperature for the future. This approach was a common utility practice but did not recognize predicted climate change. Climate scientists recently developed climate model projections for the region and made them available to PSE to calculate a normal temperature assumption that reflects climate change. Incorporating climate change impacts into temperature assumptions in the plan will improve our model predictions. We will incorporate future refinements of climate change methodology in our IRP analysis as we learn more and study the topic.

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→ Please refer to [Chapter Five: Demand Forecast](#) for details regarding how we incorporated climate change into our demand forecast.

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### 3.2.2. Electrification Analysis

As part of the analysis for this IRP, we evaluated the impacts of electrification on the gas and electric portfolio. We found that electrification would significantly increase energy costs on a system level. In addition to the cost of electrification equipment, a portion of this change is due to reduced demand, costs to sustain the gas system and

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<sup>1</sup> The 2023 Gas IRP preferred portfolio includes the IRA production tax credits (PTC) for green hydrogen.



concurrently growing capacity on the electric system with additional infrastructure. The cost to increase resources and infrastructure on the electric system is greater than the social cost of greenhouse gases<sup>2</sup> saved by electrifying the gas loads. Converting gas appliances to electric can be expensive, and no policies currently address who will pay such expenses. From a societal perspective, therefore, it may cost more to electrify gas loads than society saves from the reduced emissions, as represented by the social cost of greenhouse gases. The 2021 IRP was the first time we examined electrification in the Gas IRP; we refined and updated this analysis for the 2023 Gas Utility IRP and will continue to refine and update it in future IRP cycles.

### 3.2.3. Embedding Equity

When considering equity in resource planning, it is important to note that no specific guidance exists today to inform how we should embed equity into our 2023 Gas Utility IRP. We recognize, however, that although resource planning is not a decision-making process, it presents opportunities to view critical elements of our work through an equity lens and to make progress toward our equity goals.

For this IRP, we adjusted the cost-effectiveness threshold for low-income conservation programs, an adjustment we made in past IRPs. We took additional steps to consider equity for the gas utility by including spatial analysis of vulnerable populations in the conservation potential assessment, consistent with the low-income programs. We also initiated a conversation with interested parties, including our Equity Advisory Group (EAG), which will continue into the 2025 IRP cycle.

We expect to expand equity considerations in the 2025 Gas Utility IRP and beyond by applying lessons learned from equity work across PSE and identifying desired outcomes and goals.

### 3.2.4. Zero-growth Scenario

We considered feedback from interested parties in response to the draft 2023 Gas Utility IRP and made the zero-growth scenario the preferred portfolio for the final 2023 Gas Utility IRP. Zero-growth demand results in a slight decrease in forecasted GHG emissions and increased pipeline contracts that we do not need to renew.

### 3.2.5. Accessibility and Plain Language

While creating the 2023 Gas IRP, we took measures to improve the accessibility of our written IRP documents, public meetings, and website content. In this and future IRPs, we are committed to removing participation barriers and attracting more members of the public into the resource planning process. We are continuously evaluating our content and working to improve readability and accessibility for all while encouraging interested members of the public to get involved in our planning processes.

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<sup>2</sup> The social cost of greenhouse gasses (SCGHG) is the societal cost of emitting carbon. If a reduction of carbon costs more than the SCGHG, then as a society we are paying more to reduce carbon than the damage caused by emissions.



## 4. Resource Plan

The resource plan results from robust IRP analyses developed with input from interested parties. It meets the requirements of the Washington Administrative Code (WAC) and is informed by deterministic and stochastic portfolio analysis.

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→ See [Chapter Two: Resource Plan](#) for the complete discussion of the resource plan.

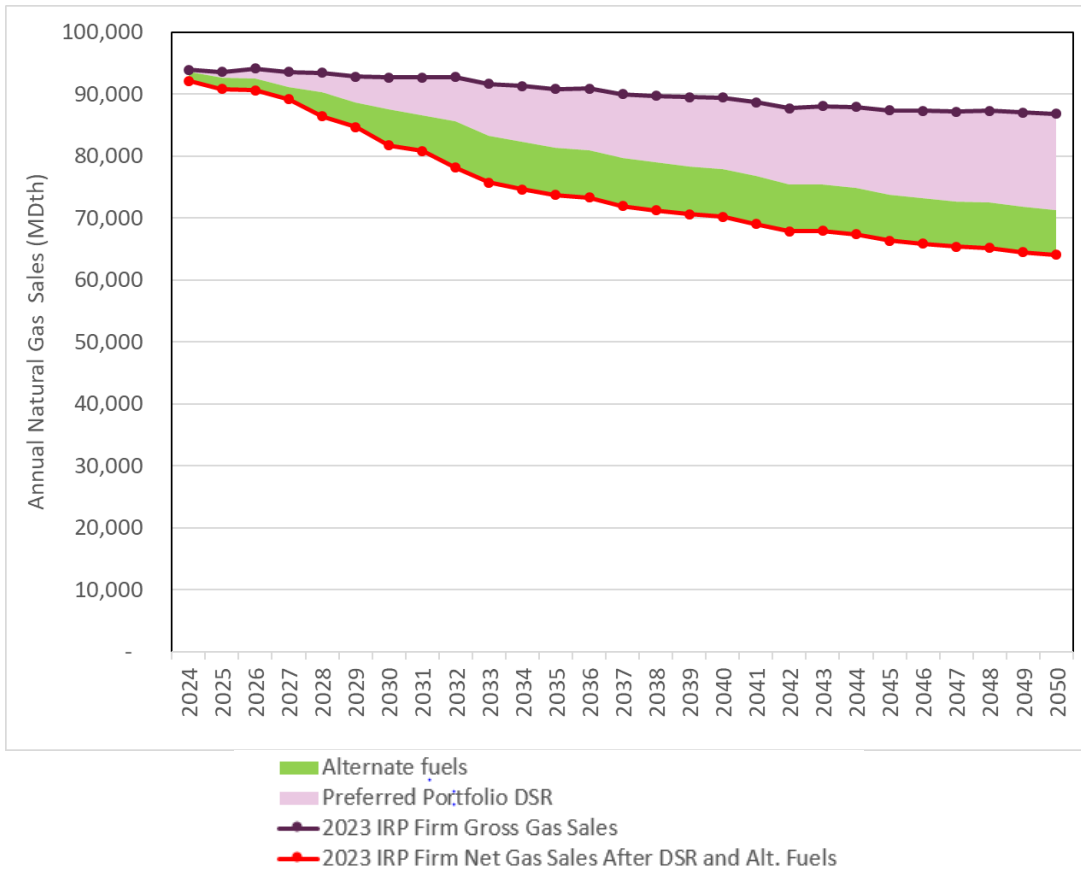
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### 4.1. Gas Resource Need

This IRP shows that between now and 2050, the models expect demand for natural gas to decline after the impact of cost-effective conservation. Figure 1.1 shows the zero-growth load forecast net of demand-side resources (DSR) and how much of that annual need we expect to meet with alternative fuels in the preferred portfolio. We based this analysis on Ecology's current sourcing footprint within the Pacific Northwest. The decline in natural gas needed due to these resources also lowers the net additional allowances needed under the CCA.



Figure 1.1: Natural Gas Sales Net DSR and Alternate Fuels — Resource Plan



## 4.2. Gas Resource Additions Forecast

The preferred plan includes changes to gas sales resources, as illustrated in Table 1.1. We discuss these changes in [Chapter Two: Resource Plan](#). In the gas analysis, we must meet peak use during the winter heating seasons, which drives most resource decisions. Our winter heating season is from November to February; as a result, a single gas year spans parts of two years. For example, 2024 represents the gas system year from November 2024 through October 2025.





Table 1.1: Resource Additions by Type and Time (Capacity in MDth/day)

Resource (MDth/d)	2024	2030	2040	2050
Energy Efficiency	7	61	127	172
Swarr Propane Plant	0	30	30	30
Plymouth LNG	15	15	15	15
Pipeline Renewals	(59)	(142)	(195)	(195)
RNG PNW Regional	0	0	0	0
RNG On-system	0	1	2	2
Green H2 — Gas Blending	0	9	14	14
<b>Net Supply Resources</b>	<b>(44)</b>	<b>(87)</b>	<b>(134)</b>	<b>(134)</b>

➔ For details regarding how we developed the resource plan, refer to [Chapter Two: Resource Plan](#).

## 5. Gas Short-term Action Plan

The following are the short-term actions we must take to meet the preferred portfolio:

- Acquire cost-effective conservation.
- Acquire cost-effective RNG and green hydrogen as commercially available.
- Assess the commercial viability of contracting for Plymouth LNG supply from Northwest Pipeline's existing facility in Southeastern Washington as a substitute for year-round pipeline capacity.
- Continue engagement to develop and deliver on a plan to incorporate equity considerations into the 2025 Gas Utility IRP meaningfully.
- Determine the least-valuable contracts to inform a pipeline de-contracting strategy.
- Examine the implications and viability of upgrading Renton's Swarr propane air-injection system to determine if this will be a commercially viable alternative.
- Follow rulemaking process of the Inflation Reduction Act
- Implement the general rate case settlement that includes a decarbonization study, a targeted electrification pilot, and a targeted electrification strategy.
- Stay engaged in the CCA rulemaking and regulation to understand the use of consigned revenues

➔ For more details on the resource plan, please refer to [Chapter Two: Resource Plan](#).