



EXECUTIVE SUMMARY CHAPTER 1



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1. Introduction

Puget Sound Energy (PSE) is Washington State’s largest and oldest utility, serving 800,000 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, balanced with their expectations for uncompromised reliability, affordability, and safety. Our gas utility has a vital role to play in a clean energy future.

The existing pipeline system provides energy to our customers every day of the year — mainly, and possibly most importantly, it provides heat on the coldest days. Electric infrastructure, from wiring in homes, businesses, schools, and other facilities, to distribution systems, transmission systems, and electric generation, have all been sized around the existence of a robust gas system that delivers more energy on an annual basis in the Pacific Northwest than the electric system. We believe it is essential to decarbonize gas as much as practical while maintaining a safe and reliable system that will continue to meet the needs of our customers for decades to come.

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 electrification on the gas utility
- Understand the impacts of green hydrogen and renewable natural gas (RNG)

It is important to recognize that 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.

3. Drivers for Change

We developed this plan 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.



3.1. Regulatory Changes

This IRP includes updates in response 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 incorporated as much of the IRA as possible; 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.

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

3.2. 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.

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

3.3. Electrification Analysis

As part of the analysis for this IRP, we evaluated the impacts of electrification on the gas and electric portfolio. On a system level, we found that electrification would significantly increase energy costs. A portion of this change is due to reduced demand and costs to sustain the gas system and 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 gases¹ (SCGHG) saved by electrifying the 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 loads than society saves from the reduced emissions as represented by the social cost of

¹ 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.



greenhouse gases. The 2021 IRP was the first time we looked at electrification in the Gas IRP; this analysis was refined and updated for the 2023 IRP and will continue to be refined and updated in future IRP cycles.

3.4. 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 PSE's 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 took initial steps toward considering equity for the gas utility by including a spatial analysis of vulnerable populations in the conservation potential assessment consistent the low-income programs. Additionally, we initiated a conversation with interested parties, including our Equity Advisory Group (EAG), that will continue into the 2025 IRP cycle.

We expect to expand equity considerations in the 2025 Gas Utility IRP and beyond as we apply lessons learned from equity work across PSE and identify desired outcomes and goals.

4. Resource Plan

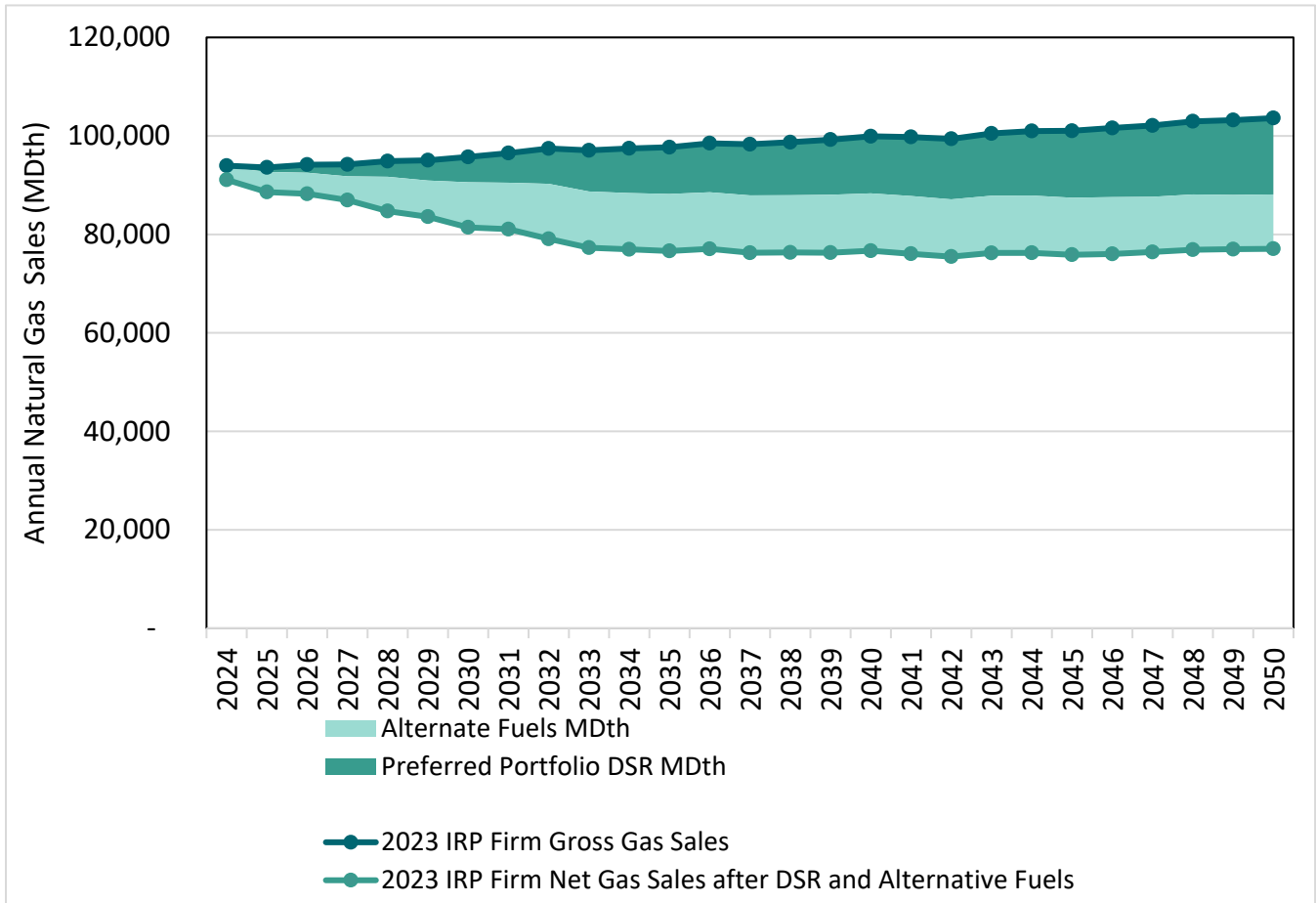
The resource plan results from robust IRP analyses developed with input from interested parties. It meets the requirements of the Washington Administrative Code (WAC) and is informed by deterministic and stochastic portfolio analysis.

4.1. Gas Sales Resource Need

This IRP shows that demand for natural gas declines after the impact of cost-effective conservation. Figure 1.1 shows the load forecast net demand-side resources (DSR) and how much of that annual need is met by alternative fuels based on the Department of Ecology's current footprint for renewable natural gas (RNG).



Figure 1.1: Load Forecast Net DSR and Alternate Fuels – Resource Plan



4.2. Gas Sales Resource Additions Forecast

The proposed resource plan includes changes to gas sales resources as illustrated in Figure 1.2 and Table 1.1, and a discussion of our reasoning for these changes. We must meet peak use during the winter heating seasons in the gas analysis. 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.



Figure 1.2: Resource Plan Resource Builds – Peak Day Capacity

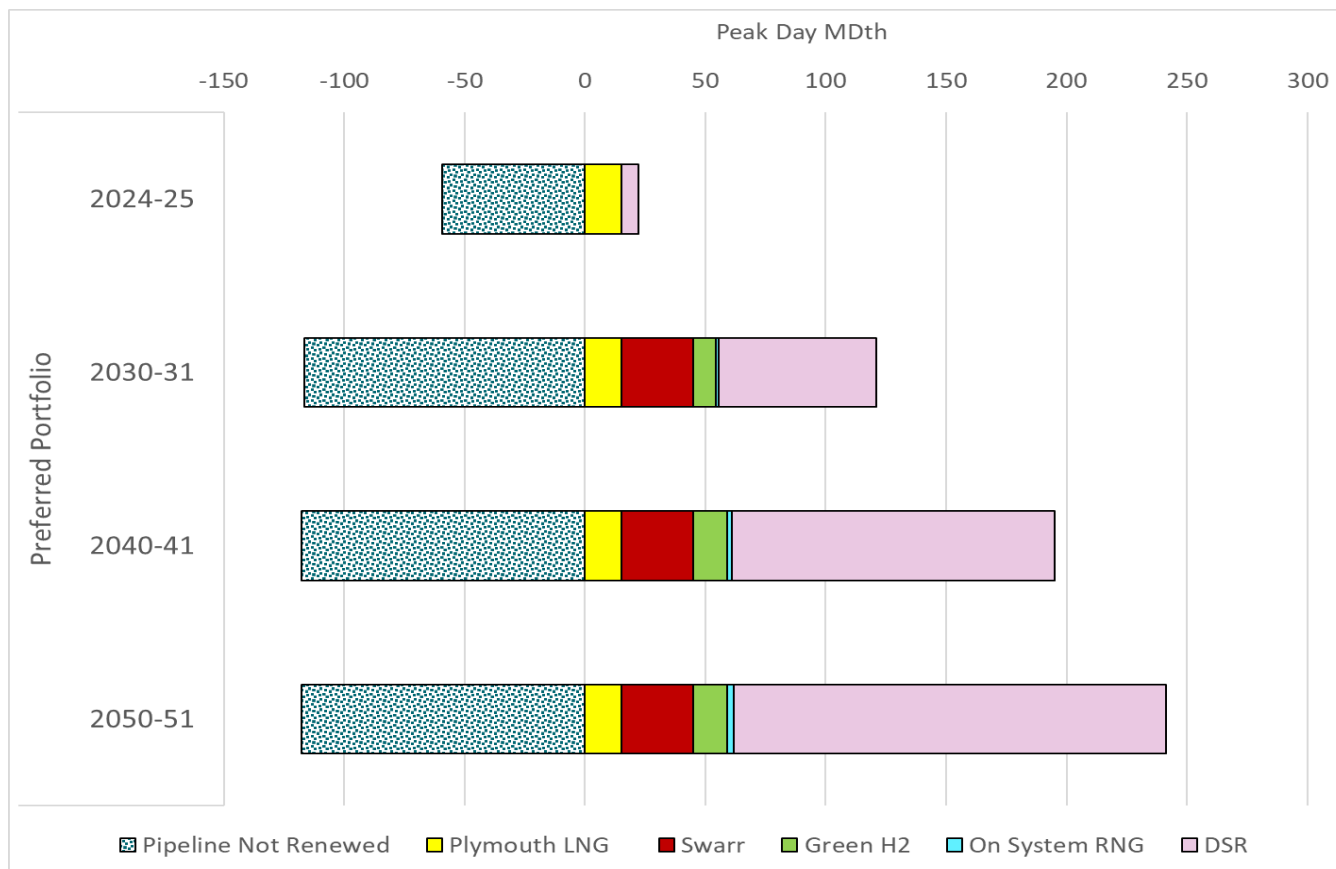


Table 1.1: Resource Additions by Type and Time (Capacity in MDth/day)

| Resource (MDth/d) | 2024 | 2030 | 2040 | 2050 |
|-----------------------------|-------------|-------------|-------------|-------------|
| Energy Efficiency | 7 | 65 | 134 | 180 |
| Swarr Propane Plant | 0 | 30 | 30 | 30 |
| Plymouth LNG | 15 | 15 | 15 | 15 |
| Pipeline Renewals | (59) | (120) | (122) | (122) |
| RNG PNW Regional | 3 | 9 | 11 | 10 |
| RNG On-system | 0 | 1 | 2 | 2 |
| Green H2 — Gas Blending | 0 | 9 | 14 | 14 |
| Net Supply Resources | (44) | (65) | (61) | (60) |



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

5. Gas Sales Short-term Action Plan

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

- 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.
- Acquire cost-effective conservation
- Determine which pipeline contracts are least valuable to inform a de-contracting strategy.
- Examine the implications and viability of upgrading the Swarr propane air-injection system in Renton to determine if this will be a commercially viable alternative.
- Continue engagement to develop and deliver on a plan to meaningfully incorporate equity considerations into the 2025 IRP.

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