EXH. DJL-6 (Apdx. B)
DOCKETS UE-240004/UG-240005
2024 PSE GENERAL RATE CASE
WITNESS: DAVID J. LANDERS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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

APPENDIX B (NONCONFIDENTIAL) TO THE FIFTH EXHIBIT TO THE PREFILED DIRECT TESTIMONY OF

DAVID J. LANDERS

ON BEHALF OF PUGET SOUND ENERGY

FEBRUARY 15, 2024

PUGET SOUND ENERGY

Pipeline Mod: System Reliability

Corporate Spending Authorization (CSA)

Date Created:	Friday, February 10, 2023
Discretionary/ Non-Discretionary:	Discretionary
Multi Year Rate Plan:	Programmatic
Equity Impact:	Yes
Strategic Alignment:	Evolve the Business-Clean
Estimated In-Service Date:	Sunday, December 31, 2028
Current State (Business Need):	PSE currently has an obligation to serve all existing customers and those that request service and meet tariff requirements, with safe and reliable delivery of natural gas at all times (firm supply). In some areas, PSE's current intermediate and high-pressure pipeline systems cannot meet the existing demand without manual intervention that presents employee and customer risk. Growth in demand is currently in question with decarbonization initiatives. However, as growth continues to put strain on the existing pipeline system, mitigation must be evaluated. For PSE's system to operate effectively, no less than 90 lbs pressure must be delivered to the inlet of district regulators and the intermediate pressure system must deliver a minimum of 15 lbs to all service inlets to ensure the meter functions appropriately as well as customer appliances. Pressures below these thresholds result in under pressure situations that present safety risks relative to outages and unplanned re-pressurization. As a result, field personnel must be dispatched to locations to manual operate valves or inject compressed natural gas or liquified natural gas from mobile trucks at low pressure end points, traveling during extreme weather conditions and bypassing other safety controls associated with normal operations. PSE currently has 28 sites for cold weather actions (CWA) where the pipeline system cannot maintain reliable delivery under current energy peak demand. This number of sites is beyond the current field staffing levels. PSE has developed intentional isolation plans should CWA not operate. With the workforce experience level being less than 5 years, greater risk exists when operating these unique manual solutions under the extreme conditions required. One of the largest CWA is the operation of the Gig Harbor LNG facility to maintain service to customers on Vashon Island and Gig Harbor. There is an interim project to address the marine crossing risk of failure but does not address the over dependency on the Gig Harbor LNG facility which operated 70 days last winter and could not carry the full demand without the interim solution (which is another temporary LNG injection site). Additionally, as PSE moves to decarbonize the gas system and enable innovative technologies that bring renewable natural gas and hydrogen blending, the pipeline system will need to flow greater volume of gas than currently designed for as the BTU content will decrease (in order to deliver the same energy at lower BTU, more flow/volume is needed). The program will also address systems that have grown beyond the existing protection devices, that if operated will cause a outage for a larger number of customers that acceptable as defined by regulatory reporting requirements. Customer outages require that the system be shut in, all customers manually shutoff at the meter (no remote switch in gas AMI modules), system purged potentially, repressurized methodically, and then customer meters turned on as the field personnel arranges with each customer to relight customer appliances. William's pipeline upgrades are also captured in this CSA which are required investments to maintain contractual capacity relative to supply that without would result in lower delivery pressures to PSE's upstream gate stations essentially lowering the overall pressure and reliability of PSE's delivery system on a widespread scale.

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Desired State (Proposed Solution):

The are 8 high pressure and 20 intermediate pressure pipeline reinforcements necessary to address highly leverage CWAs which presents risk of outages should these actions not be successfully deployed on any given day. The solutions are primarily replacement of pipelines to allow for greater volume (not greater energy) or installing connecting pipelines to augment flow in order to maintain the required pressures for reliable delivery. This will allow for the removal values between systems that are operated manually as part of the CWA plan which will reduce the risk of overpressure. Solutions also consider incremental energy efficiency and demand response which has just recently become operational. Future solutions will evaluate targeted electrification where timelines allow appreciating there is currently no process or experience in requiring electrification of customers. The outer years of this CSA contemplate a long-term solution for the marine crossing to address the overuse of the Gig Harbor LNG site which is not specifically addressed by the 28 pipeline reinforcements. PSE will also replace X Over Pressure Shut Offs (OPSO's) for systems serving over 25 customers to eliminate the risk of large customer outages and maintain investment in William's upgrades as required contractually to maintain reliable delivery.

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Outcome/Results (What are the anticipated benefits):	The primary benefit is avoided outages for customers. On cold winter days, mobile trucks have not been able to reach the injection sites. With manual operation of values, PSE has had over pressuring incidents. Outages as well as over and under pressure events can be non-compliances as well and are reportable to UTC in real time. There is O&M savings associated with the CWA that are removed from the plan.

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Dependencies: No

Dependencies comment: None.

Escalation Included: No, escalation has not been included.

Total Estimated Costs: $52,000,000

Estimated Five Year Allocation:

Funds Type	ID	Line Item Description	Previous Years Actuals	Fiscal 2024 Requested	Fiscal 2025 Requested	Fiscal 2026 Requested	Fiscal 2027 Requested	Fiscal 2028 Requested
Capital	W_PLACEHOLDER_60: Marine Crossing	W_PLACEHOLDER_60: Marine Crossing	$ -	$ -	$ -	$ -	$ -	$ -
O&M	81808	W_PLACEHOLDER_60: Marine Crossing	$ -	$ -	$ -	$ -	$ -	$ -
Capital	W_R.10015.06.01.05	G System Capacity Upgrade Dist	$ 4,896,000.00	$ 8,100,000.00	$ 8,500,000.00	$ 8,500,000.00	$ 5,000,000.00	$ 4,000,000.00
Capital	W_R.10015.06.01.04	G System Capacity Upgrade Bulk Dist	$ 1,463,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 3,000,000.00	$ 1,100,000.00
Capital	W_R.10015.06.01.01	G Cold Weather Action Reinforcement	$ -	$ 30,000.00	$ 30,000.00	$ 30,600.00	$ 30,600.00	$ -
Capital	W_R.10011.01.01.07	G Williams Pipeline Equipment Upgrades	$ -	$ 600,000.00	$ 600,000.00	$ 600,000.00	$ 600,000.00	$ 600,000.00

Incremental O&M: No

Qualitative Benefits: Along with avoided customer outages this program addresses employee safety and O&M savings associated with the CWA.

Quantitative Benefits:

Quantitative Benefits	Benefit Type	Previous Years	Fiscal 2024	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Fiscal 2029	Remaining Costs	Life Total
Reliability - avoided outages and other	Other	$ 11,408,324	$ 18,306,547	$ 18,306,547	$ 18,306,547	$ 6,898,223	$ -	$ -	$ -	$ 73,226,188

Risk Summary: Project Risk is primarily permitting and the perceived concerns regarding pipeline construction in a decarbonizing environment. This work does not further the current energy supply just mitigates the physical constraints of the system.

Benefit Risk is minimized as the benefit is realized with project completion removing the CWA from the plan.

System Risk is present and grows with the dependency on a CWA plan that is understaffed and underexperienced.

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Change Summary:

Planning Cycle	Change Summary	Last Update Date
2022 Baseline Cycle	This CSA has been migrated into the EPPM tool at go-live as part of the Phase 1 EPPM implementation effort. The projects in this CSA were previously approved for the 2023-2027 capital plan. Please refer to the original CSA document for additional information (if available.)	2/10/2023
2023 Cycle 1	Updated based on the last IP and HP business plans.	4/1/2023

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Approval History:

Approved By	Date Approved
Approved by Cost Center Owner: Weatherby , Niecie	4/5/2023
Approved by Director Sponsor: Landers , David	4/7/2023
Approved by Executive Sponsor: Jacobs , Josh	4/8/2023
CSA Status changed to Approved	4/8/2023
Approved by Cost Center Owner: Shrum , Bailey	12/4/2023
Approved by Director Sponsor: Shrum , Bailey	12/4/2023
Approved by Executive Sponsor: Shrum , Bailey	12/4/2023
CSA Status changed to Approved	12/4/2023
Approved by Cost Center Owner: Weatherby , Niecie	1/29/2024
Approved by Director Sponsor: Landers , David	1/29/2024
Approved by Cost Center Owner: Weatherby , Niecie	1/31/2024
Approved by Director Sponsor: Landers , David	1/31/2024
Approved by Executive Sponsor: Jacobs , Josh	2/2/2024
CSA Status changed to Approved	45324.01309

PIPELINE SYSTEM RELIABILITY PROGRAM

ENERGY TYPE: GAS

1. SHORT DESCRIPTION

The Pipeline System Reliability program investments supports gas system reliability needs that have been evaluated using the IDOT benefits and achieve positive benefit-cost ratios. This program includes reinforcing the system to meet customer demand on a peak hour design day and ensuring safe and reliable system operating pressures.

2. BACKGROUND

PSE is expected to provide a firm level of service to customers on an extreme cold weather day by maintaining a reliable gas system[1] (PSE GOS 2575.1300). PSE planners identify system needs through the Delivery System Planning process and through system performance criteria. Gas delivery system performance criteria is defined as:

- The temperature at which the system is expected to perform (52DD Peak Hour) and is also outlined in the IRP
- The minimum pressure that must be maintained in the system
- Maintain system minimum operating pressures during low flow periods
- Maintain proper isolation between Maximum Allowable Operating Pressure (MAOP) systems

Peak load growth, changes in regulation, and system requirements (including future fuel blends used within the distribution system) impact PSE's ability to reliably and cost effectively serve customers. When the system approaches peak demand, temporary cold weather actions (CWAs) are deployed to reinforce the system if permanent infrastructure is not in place. However, the number of CWAs that can be deployed are limited by number of trained personnel and available CWA equipment, and the action itself carries a higher reliability risk associated with operating the system manually.

As projects are planned, the most cost-effective solution is identified to support the need. If a pipeline solution is required, this plan ensures a project is developed that will adequately support fuel delivery safely to customers' meters and satisfy pipeline performance criteria.

Typical projects include both pipeline (mains and regulator stations) and non-pipeline (targeted energy efficiency, pressure, uprates, and CNG/LNG) installation solutions. Projects that fall within scope of this plan have a lower cost and implement mature technology to provide a solution. Complex and higher cost projects will follow the initiation process.

[1] WUTC: WAC 480-90-148, federal regulations: CFR 192.739, and industry recommendations from AGA establish the guidelines used to serve the customer.

3. STATEMENT OF NEED

PSE's Delivery System Planning analysis has identified multiple projects needed to reinforce the pipeline system and ensure the customers' needs are met. Many of these areas are currently supported by CWA plans. While these are an effective immediate fix, PSE is limited by the number of CWAs that can be deployed due to training, staffing, and the large service area needed to be covered on the coldest of days. Once all CWAs are exhausted, the next action is to intentionally isolate and shut in portions of the gas system as system pressures decline below acceptable levels with approaching peak demand. System reinforcements help avoid these situations and ensure PSE provides reliable service to customers. The estimated need date for projects is when the date at which firm customer demand will exceeds system capacity and/or design requirements.

3.1. NEED DRIVERS

Reliability – Pipeline system reinforcements provide a firm level of service on an extreme cold weather day in the least cost method. Gas Operating Standards[2] require when load studies predict insufficient pressure or capacity to serve firm customers, appropriate corrective action shall be proposed to achieve adequate operating pressures and capacities. In the future, this system may need to be reinforced to allow the transportation of lower carbon and energy dense fuels, such as renewable natural gas and hydrogen, to customers.

3.2. EQUITY

PSE evaluates equity in the planning process with consideration of the four core tenets of energy justice: Recognition Justice, Procedural Justice, Distributional Justice, and Restorative Justice in various steps of the process.

As specific studies are performed and projects proposed to further a business plan, planners review system, customers, and now equity data to recognize the specific customer burdens, whether there are highly impacted or vulnerable customers that are or will be affected by addressing the specific business need. Planners must prioritize where to focus study each year, thus the full understanding of the historic and ongoing inequities for the business plan is extrapolated at this time, mature over time with greater tools and data.

PSE is building process and tools to enable procedural inclusion in defining the need and solutions through engagement with specific communities and community based organizations, increasing understanding of local needs and consequences to inform specific study development as well as options to address need. Maturity in where and how this occurs will increase over the next several years. Business plans will be updated as informed this collective engagement to reflect broader equity benefits and burdens as engagement increases over time.

As specific projects are proposed, PSE investment decision optimization tool captures equity benefits. An optimized portfolio of projects across many business plans ensures the

[2] PSE GOS 2575.1300 Section 5.3

distribution of benefits and burdens are spread across all segments of the community and aim to ensure that marginalized and vulnerable communities do not receive an inordinate share of burdens or are denied access to benefits. As an initial step, PSE leverages Customer Benefit Indicators ("CBI") and information established as part of the 2021 Clean Energy Implementation Plan ("CEIP") to identify an equity framework to evaluate system projects. The CBI approach was developed through an iterative process that was coordinated with the Equity Advisory Group. These CBI span the core tenets of energy justice and provide a framework to evaluate the comparative equity benefit of each solution alternative considered. Refer to Table 1 for a brief description of the CBIs that address equity and the applicable benefits for the Intermediate Pressure System Reliability program. PSE will continue to adjust and refine equity consideration in projects when necessary as the process continues to mature.

Projects will be evaluated on each CBI category and a total equity benefit score will be provided.

Table 1: Equity Applicable Benefits

Customer Benefit Indicator	Description	Program Applicable Benefit
Customer Energy Savings	Solutions that lead customers to use less energy, which leads to less energy that must be purchased and potentially a reduction in planned system upgrades.	No
Greenhouse Gas Emissions	Solutions that lead to a reduction of greenhouse gas emissions, either directly or indirectly	No
Enables Cleaner Energy	Solutions that either directly integrate DER on the system or enable the grid to more readily accommodate future DER.	No
Air Quality	Solutions that either directly eliminate the source of a common pollutant or reduce the risk that could cause a common pollutant to increase, such as enabling Electric Vehicle or DER adoption	No
Resilience	Solutions that address major event outages or harden critical facilities to prevent catastrophic events from creating long duration outages.	Yes
Cost Reduction	Solutions that identify least cost alternatives and therefore reduce costs for all customers	No
Clean Energy Jobs	Solutions that increase clean energy jobs by furthering clean energy technology application, as described in the CEIP	No
Home Comfort	Solutions that deploy residential energy efficiency in either a targeted solution area or by leveraging load reduction from system wide energy efficiency installations	No

The program attempts to annually address Pipeline System Reliability and is programmatically optimized based on total benefit value to cost. Specific program projects are identified based total benefit to cost with named communities receiving additional scored benefit based on vulnerable population designation and highly impact community characteristics, ensuring investments are distributed appropriately to named communities.

Business plans in isolation do not address restorative justice, but continued planning process improvements which include considerations of data, tools, and documentation as well as operational practices will help to restore equity over time.

4. PROGRAM DETAIL

4.1. PLAN SIZE/POPULATION

The long range system studies have identified 10-17 pipeline system reinforcement projects and a MAOP valve retirement program needed to support the system in the next 5 years costing approximately $65.9 million. The system is re-evaluated annually, and the projects are prioritized by need. PSE will often identify a need up to 10 years out but is currently timing installation of projects when the need is immediate.

The number of reinforcements needed may change depending on actual peak load and requirements to support future fuel blends used within the distribution system.

4.2. SUMMARY OF PLAN BENEFITS

- **Reliability** – The Pipeline System Reliability plan ensures PSE is able to meet the obligation to provide gas service to firm customers.
- **Interested Parties Relationships** – The program improves our public perception from interested parties such as WUTC, cities, and customers through efforts to meet federal regulations and maintain system reliability and safety.

4.3. PRIMARY IDOT CATEGORIES

PSE employs an Investment Decision Optimization Tool (iDOT) to evaluate benefits of projects and optimize annual portfolios for construction. The top primary iDOT Categories this plan addresses are:

- Health and Safety
- Outages
- Cost Avoidance

Table 2 –Summary of Plan Benefits, Population and iDOT B/C Score

2025-2026	Total Projects	Total Budget	Reinforcement Miles	Customer Outage Reduction	iDot B/C Score
Total	8	$29.7 million	5.3	5,550	5.6

4.4. ESTIMATED COSTS

Estimated costs are $65.9 million total in the next 5 years based on 10-17 identified pipeline system reinforcement projects and the MAOP valve retirement program.

* Program cost estimates are Planning Level estimates in current year dollars for five year totals.

5. ALTERNATIVES

5.1. SOLUTION ALTERNATIVES

Proactive Remediation: Projects are developed and completed to ensure reliability of supply and meet increasing load growth as it occurs, potentially relying on CWA in the near-term to maintain system while capital investments are completed to serve the increased load.

Reactive Remediation: CWA is increasingly depended upon for continuing reliable service to firm customers as system load grows or fuel heat content decreases. As a result, operating costs increase due to the need for additional qualified personnel and equipment to implement CWA more frequently and in more locations simultaneously. The Risk for loss of service to customers increases if challenges (e.g. inclement weather, CNG/LNG supply, equipment failure) are encountered in implementing CWA.

5.2. FUNDING ALTERNATIVES

No Action: PSE could face customer outages on the coldest days of the year. If not implemented, the risks remain at elevated levels, operations and maintenance costs will increase, and the system will not efficiently support the PSE 2030 strategy.

Increased Funding: With increased funding, PSE would be able to complete the backlog of work that has accumulated over the past few years. This will significantly reduce the reliability risk on cold weather days.

Decreased Funding: All CWA resources are currently allocated. Decreased funding will raise the risk of more outages and without investment in system reinforcement CWA will occur on an increasing basis and at warmer temperatures.

6. PLAN DOCUMENT HISTORY

The current version of the project summary supersedes all previous versions.

Date of Project Summary Revision	Reason(s) for Update	Summary of Significant Change(s)	Modified By
12/6/23	Initial Plan Documentation – Merge of two previous plans	Merged HP & IP System Reliability business cases into single Pipeline System Reliability business case. Added Equity and removed ISP section. Minor word and format changes, cost and quantity updates.	Jason Dinwiddie

7. SUPPORTING DOCUMENTATION

Document Name
2023 LONG RANGE PLAN
2023-2024 COLD WEATHER ACTION PLAN