

**EXH. DJL-6 (Apx. A)
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 A (NONCONFIDENTIAL) TO THE FIFTH EXHIBIT TO THE
PREFILED DIRECT TESTIMONY OF**

DAVID J. LANDERS

ON BEHALF OF PUGET SOUND ENERGY

FEBRUARY 15, 2024



Pipeline Mod: Digital Monitoring
Corporate Spending Authorization (CSA)

Date Created:	Friday, February 10, 2023
Discretionary/ Non-Discretionary:	Discretionary
Multi Year Rate Plan:	Programmatic
Equity Impact:	Yes
Strategic Alignment:	Operate the Business-Safety
Estimated In-Service Date:	Sunday, December 31, 2028
Current State (Business Need):	<p>PSE's historic operations (emergency response and day to day) is informed by manually gathering paper pressure chart records, field inspection, customer calls, and some real time measurements at key locations that is monitored by PSE's Gas Control Room. PSE's control room personnel can operate the system at a few points (2% of the real time data that is monitored). Manual chart collection takes 1-2 weeks to route through all review personnel. These charts identify safety concerns such as over or under pressures and operating anomalies. These safety concerns are also potential non-compliances with PHMSA and WAC operating requirements. Recently the Transportation Security Administration ("TSA") issued a directive, as a result of the Colonial Pipeline hack, that increased cyber security requirements and strongly recommending physical security enhancements for critical infrastructure. In reviewing these requirements, it was determined that legacy Remote Terminal Unit (RTU) equipment that the control room does use for real time information does not meet the federal requirements and that additional monitoring equipment is needed for Tier 1 facilities. With decreasing experience in PSE's field force, PSE must also evaluate increasing remote control and automation in order to address security, safety, and environmental safety concerns considering remote controlled valves, increased security and monitoring, leak detection devices, and remote controlled equipment for cold weather action bypass.</p>



Pipeline Mod: Digital Monitoring

Corporate Spending Authorization (CSA)

Desired State (Proposed Solution):

PSE's ability to monitor and control the system remotely will need to change in order to safely operate and maintain the low carbon delivery system of the future. Gas leakage is not long tolerable and the focus of multiple regulations. To progress with this focus, PSE must replace 188 paper charts with electronic devices, replace 140 RTUs with current technology, ensure monitoring provides for pressures, gas quality, leak detection, equipment status, and protection system integrity. Additionally, PSE must evaluate where transmission automated valves are needed and consider additional control for improve operations and future years funding request will include these investment needs.



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Outcome/Results
(What are the
anticipated benefits):

The primary benefit of this program is O&M avoided as a result of eliminating field collection time and ultimately more timely response to safety and non-compliances. Indirectly, as response time benefits from real time information, methane release will be avoided or be reduced.



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Dependencies: No

Dependencies comment: None.

Escalation Included: No, escalation has not been included.

Total Estimated Costs: \$17,000,000

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_R.10015.08.02.01	G TSA RTU/ERX Replacemnt/Retiremtn Progr	\$ -	\$ 1,300,000	\$ 1,300,000	\$ 1,300,000	\$ 1,300,000	\$ 1,300,000
Capital	W_R.10011.01.01.04	G Gauges Sems Dist	\$ -	\$ 198,390	\$ 204,340	\$ 210,470	\$ 266,407	\$ 300,000
Capital	W_R.10011.01.01.03	G Gas System Monitoring Equip Replc	\$ -	\$ 1,200,000.00	\$ 1,200,000.00	\$ 1,200,000.00	\$ 1,200,000.00	\$ 1,200,000.00

Incremental O&M: No

Qualitative Benefits: Qualitative benefits include compliance with TSA rules, avoiding future fines, faster response time to issues or emergencies identified, methane release reduction, and increased reliability by being able to isolate an event.

Quantitative Benefits:

Quantitative Benefits	Benefit Type	Previous Years	Fiscal 2024	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Fiscal 2029	Remaining Costs	Life Total
risk reduction - Health and Safety and Other cost avoidance	Other	\$ 2,651,588	\$ 2,651,588	\$ 2,651,588	\$ 2,651,588	\$ 2,651,588	\$ 2,651,588	\$ -	\$ 5,303,177	\$ 21,212,705

Risk Summary: Project risk is small as this is simple work with confined locations that minimize complex permitting.
Benefit risk is minimal as it is realized when projects are completed. O&M is not necessarily saved overall, due to other field work and required field force needed to respond (given PSE's response time is 4th quartile).
System risk remains high if no action is taken due to the continued lack of real time information. Additionally, PSE will be non-compliant with TSA directives.



Pipeline Mod: Digital Monitoring
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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 last business plan	3/31/2023



Pipeline Mod: Digital Monitoring
Corporate Spending Authorization (CSA)

Approval History:

Approved By	Date Approved
Approved by Cost Center Owner: Weatherby , Niece	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 , Niece	1/29/2024
Approved by Director Sponsor: Landers , David	1/29/2024
Approved by Executive Sponsor: Jacobs , Josh	2/2/2024
CSA Status changed to Approved	2/2/2024

DIGITAL MONITORING

ENERGY TYPE: GAS

1. SHORT DESCRIPTION

The Digital Monitoring plan supports pipeline modernization by providing faster identification of issues, real time monitoring and response, and the replacement of antiquated monitoring equipment. The plan will continue to evaluate greater use of new technologies, such as remotely controlled equipment and electronic monitoring, to provide real-time response and control where needed.

2. BACKGROUND

PSE's emergency response and inspection historically consisted of manual field operations. PSE's control room operations consist of 98% monitoring and only 2% controllable points on the pipeline system. PSE has been replacing paper charts with electronic charts over the last six years. These charts allow near real time access to information as compared to manual reads which collect data every 1-2 weeks. Acceleration of paper chart replacements is needed to increase monitoring and the potential for responding to abnormal activity before it becomes an emergency situation. (i.e. over pressure, losing pressing, failure of equipment).

Additionally, an increase in both physical and cyber security threats has resulted in the Transportation Security Administration (TSA) mandating increased cyber security requirements and strongly recommending physical security enhancements for critical infrastructure. PSE's legacy Remote Terminal Unit (RTU) will need to be replaced to meet federal requirements, and additional monitoring equipment will be needed for Tier 1 facilities.

3. STATEMENT OF NEED

PSE's ability to monitor and control the system remotely will need to evolve in order to safely operate and maintain the low carbon delivery system of the future. The objectives of this business plan include:

Security & Response

- TSA's guidelines and recommendations for critical sites. i.e. security cameras, perimeter status
- TSA's requirement to update legacy equipment that poses risk to IT security. i.e. replacing legacy RTUs

Real time monitoring

- PSE's system pressure monitoring requirements.
- Downstream gas quality

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- Leak detection
- Status of equipment / facilities (i.e. valve position or regulator settings)
- Cathodic Protection System

Remote Controlled and Automated Equipment

- TIMP requirements for automated valves.
- Controllable equipment for abnormal operations and CWA.

3.1. NEED DRIVERS

- **Transportation Security Administration (TSA) cybersecurity rules for pipeline companies**

As a result of the Colonial Pipeline Ransomware incident in 2021, a TSA directive requires pipeline companies to implement mitigation measures to protect against cyberattacks, to develop a cybersecurity contingency and recovery plan, and to conduct a cybersecurity architecture design review. During a review of PSE's systems and equipment, it was determined that legacy monitoring equipment would need to be replaced.

- **Reliability** – Controllable equipment, automated equipment and digital monitoring increases reliability by providing the ability to monitor system performance in real time and quickly respond to abnormal operating conditions.
- **Safety** – Remote/automated valves and real time leak detection enhance safety by enabling response to an incident in real time.

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, customer, 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 their study each year, thus historic and ongoing inequities for the business plan are extrapolated at this time and will 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 by this

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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 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 Digital Monitoring 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	No

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	reduction from system wide energy efficiency installations	
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The Digital Monitoring program 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, essentially ensure 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 plan includes paper charts and legacy RTUs with known populations. Other elements are being evaluated to include additional automated remote controlled valves, increased security and monitoring, leak detection devices, and remote control equipment for cold weather action bypass. As requirements are solidified the business plan will be updated.

- Estimated 138 paper charts to be replaced with electronic devices
- Estimated 138 legacy RTUs that need to be replaced per TSA’s requirement.

4.2. SUMMARY OF PLAN BENEFITS

- **Reliability and Safety** – Digital monitoring increases reliability by providing the ability to monitor the system in real time and quickly respond to incidents.
- **Interested Parties** – The primary interested party for digital monitoring is the TSA. TSA requires devices connected to critical infrastructure to meet today’s technology standards. Devices that do not meet these standards, such as PSE’s legacy RTUs, must be put on a replacement plan.

4.3. PRIMARY IDOT CATEGORIES

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

- Health and Safety
- Interested Parties
- Outages

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- Cost Avoidance

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

2025-2026	Estimated Projects	Total Budget	iDot B/C Score
Total	80-90	\$5.4 million	1.9

4.4. ESTIMATED COSTS

High level estimated costs are roughly \$22.7MM for the lifetime of the program with an estimated completion of 2030. This is based on existing resources to replace legacy RTUs and paper charts. As the program elements expand and mature, and more resources become available, costs will adjust accordingly to account for these changes.

5. ALTERNATIVES

5.1. SOLUTION ALTERNATIVES

Proactive Remediation: The alternative to meeting TSA’s requirement is to revert back to manual paper monitoring charts.

Reactive Remediation: The alternative not selected is to wait for the consequences handed down from TSA for not meeting their security requirements

5.2. FUNDING ALTERNATIVES

No Action: If no action is taken, the response time and identification of issues will remain at current levels as the rest of the industry continues to improve in these areas. In addition, PSE will not be able to meet TSA’s Security requirements.

Increased Funding: With increased funding, PSE would be able to recognize and be alerted to issues more quickly.

Decreased Funding: Delayed implementation schedule.

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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
9/20/2021	Documented existing program strategy.	Initial	Phil Puzon
12/17/2021	Annual Review	Minor word and format changes. Updated benefits	Phil Puzon
9/30/23	Annual Review	Added Equity and removed ISP section. Minor word changes, cost and quantity updates.	Jason Dinwiddie

7. SUPPORTING DOCUMENTATION

Document Name