

**EXH. CAK-3  
DOCKETS UE-22 \_\_\_/UG-22 \_\_\_  
2022 PSE GENERAL RATE CASE  
WITNESS: CATHERINE A. KOCH**

**BEFORE THE  
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND  
TRANSPORTATION COMMISSION,**

**Complainant,**

**v.**

**PUGET SOUND ENERGY,**

**Respondent.**

**Docket UE-22 \_\_\_  
Docket UG-22 \_\_\_**

**SECOND EXHIBIT (NONCONFIDENTIAL) TO THE  
PREFILED DIRECT TESTIMONY OF**

**CATHERINE A. KOCH**

**ON BEHALF OF PUGET SOUND ENERGY**

**JANUARY 31, 2022**

**PUGET SOUND ENERGY**

**SECOND EXHIBIT (NONCONFIDENTIAL) TO THE  
PREFILED DIRECT TESTIMONY OF  
CATHERINE A. KOCH**

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1 **PUGET SOUND ENERGY**

2 **SECOND EXHIBIT (NONCONFIDENTIAL) TO THE**  
3 **PREFILED DIRECT TESTIMONY OF**  
4 **CATHERINE A. KOCH**

5 **I. CUSTOMER AND PUBLIC SAFETY**

6 **A. Overview**

7 **Q. Please briefly describe Puget Sound Energy’s (“PSE”) customer and public**  
8 **safety investments presented in this case.**

9 A. Customer and public safety are PSE’s highest priority. It is the primary focus for  
10 all work performed on PSE’s electric and gas systems. It is also the primary driver  
11 of key activities including emergency repair and public improvement through  
12 engagement with jurisdictions regarding transportation projects that may impact  
13 PSE’s infrastructure. Investments in new or modified infrastructure are designed  
14 and constructed in accordance with PSE standards and applicable state and federal  
15 safety standards.

16 **Q. Please describe how these investments are managed through the activities of**  
17 **emergency repair and public improvement.**

18 A. Customer and public safety investments are broken down into the investment  
19 categories of emergency repair<sup>1</sup> and public improvement.<sup>2</sup> These investments are  
20 classified as “programmatic” investments, meaning that recurring individual

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<sup>1</sup> May be referred to as “Emergent” programs in other witness’s testimony.

<sup>2</sup> May be referred to as “PI” programs in other witness’s testimony.

1 projects support a common objective with a basis for future investments that are  
 2 extrapolated from historic trends or current investment plans. Table 1 provides the  
 3 overarching objective, program type, and used and useful category.

4 **Table 1. Used and Useful Categorization of Operations Program Types**

Objective	Program Type	Used and Useful <sup>3</sup> Category
Customer and public safety	Emergency Repair	Programmatic
	Public Improvement	Programmatic

7 **Q. Please provide PSE’s actual and planned customer and public safety capital**  
 8 **investments over the six rate periods presented in this case.**

9 A. Table 2 provides the actual plant in service amounts from January 1, 2019 through  
 10 the end of the test year of June 30, 2021. The remaining periods are estimated  
 11 based on historic trends and programmatic plans.

12 **Table 2. Summary of Total Customer and Public Safety Investments by Rate**  
 13 **Period**

Customer and public safety (\$ Millions)	Up through Current Test Year 1/1/2019 – 6/30/2021	Proforma 7/1/2021 – 12/31/2021	Gap Year 2022	Rate Plan Year 1 2023	Rate Plan Year 2 2024	Rate Plan Year 3 2025
Electric Capital investment	223.4	52.0	117.3	131.0	133.8	138.0
Gas Capital investment	105.1	21.1	42.6	49.1	50.1	50.4

14 Additionally, there is incremental Operations and Maintenance (“O&M”) related  
 15 to capital investment (“OMRC”) associated with the above rate periods of about  
 16 \$33 million.

<sup>3</sup> Docket U-190531, Policy Statement on Property That Becomes Used and Useful After the Rate Effective Date (Jan. 31, 2020).

1 **B. Emergency Repair**

2 **Q. Please describe PSE’s emergency repair investments and core objectives and**  
3 **priorities.**

4 A. Emergency repairs, or “corrective maintenance,” includes the repair and/or  
5 replacement of failed or compromised infrastructure, such as replacing a pole that  
6 has been damaged or has been inspected and imminent failure could occur,  
7 repairing storm damage, repairing a meter set that has been damaged or repairing  
8 a leak that requires extensive pipe replacement. The core objectives of this work  
9 and investments are to respond quickly to resolve immediate and imminent safety  
10 concerns and return the infrastructure to sound function for the health of the  
11 system. Emergency repairs are the highest priority for PSE, including priority  
12 over discretionary work.

13 **Q. Please provide PSE’s actual and planned emergency repair capital**  
14 **investments over the six rate periods presented in this case.**

15 A. Table 3 provides the actual plant in service amounts from January 1, 2019 through  
16 the end of the test year of June 30, 2021. The remaining periods are estimated  
17 based on historic trends and programmatic plans.

1 **Table 3. Summary of Emergency Repair Investments by Rate Period**

Emergency repair	Up through Current Test Year 1/1/2019 – 6/30/2021	Proforma 7/1/2021 – 12/31/2021	Gap Year 2022	Rate Plan Year 1 2023	Rate Plan Year 2 2024	Rate Plan Year 3 2025
Electric Capital investment (\$ Millions)	156.5	38.5	66.7	68.7	66.3	68.1
Electric Outages addressed (#)	38,000	9,402	16,268	16,765	16,162	16,614
Gas Capital investment (\$ Millions)	44.6	9.7	23.5	25.7	26.9	28.1
Gas Leaks addressed (#)	2,792	608	1,472	1,607	1,684	1,758

2 Additionally, there is incremental OMRC associated with the above rate periods  
3 of about \$13 million.

4 **Q. Please describe the work completed and anticipated through the end of the**  
5 **rate plan.**

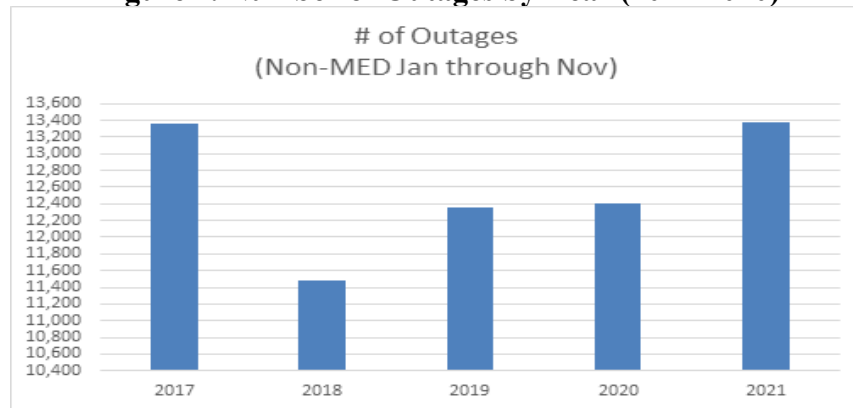
6 A. PSE repaired infrastructure in response to 38,000 outages since the last rate case  
7 and up through the end of the current test year period. PSE anticipates outages  
8 will continue in a range of 16,000 and 17,000 annually from July 1, 2021 through  
9 December 31, 2025.

10 PSE responded to 47,504 odor calls and repaired 2,792 hazardous leaks since the  
11 last rate case and up through the end of the current test year period. PSE  
12 anticipates leaks to continue in a range of 1,500 and 1,800 annually from July 1,  
13 2021 through December 31, 2025.

1 **Q. Please describe the basis for the forecasted emergency repair investments in**  
2 **more detail.**

3 A. Forecasted funding is generally based on historical failure trends and costs. For  
4 example, electric emergency repair funding continues to increase due to the  
5 increasing trend in electric outages as shown in Figure 1.

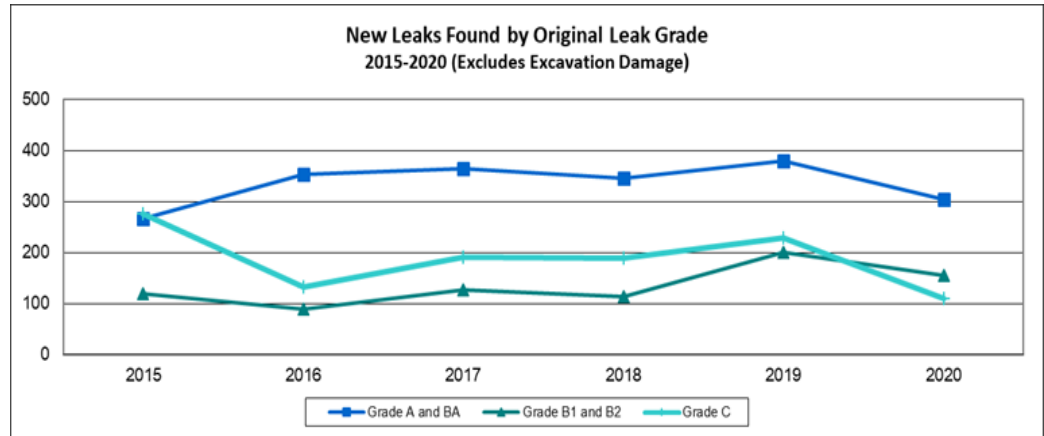
6 **Figure 1. Number of Outages by Year (2017-2020)**



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8 In the case of gas emergency repair funding, while PSE has made tremendous  
9 progress in reducing the number of recorded leaks over the last 15 years, new gas  
10 leaks, as shown in Figure 2, continue at a slight upward trend requiring a  
11 continued increase in investment associated with emergency response to these  
12 leaks.

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**Figure 2. Number of Leaks by Grade and Year (2015-2020)**



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In general, PSE forecasted investment funding from 2019 actuals, added funding to account for units of property changes associated with conductors, and then adjusted by traditional escalators including inflation, labor, materials, and contracts. PSE’s experience in 2020 and thus far in 2021 regarding the number of outages and subsequent costs exceed the 2019 baseline. However, grid modernization investments are expected to have an offsetting affect to this trend as the degrading reliability trend flattens and starts to improve in the outer years of the rate plan. These emergency repair investments are not ranked against the evaluation criteria in the iDOT<sup>4</sup> planning model.

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<sup>4</sup> As discussed in Exh. CAK-1T, in section II.C.4, PSE uses a tool called the Investment Decision Optimization Tool (“iDOT”) to evaluate portfolio benefits, including both quantitative and qualitative benefits but only for discretionary planned investments.



1 **Q. Please describe cost controls employed to efficiently deploy capital**  
2 **investments.**

3 A. Because of the immediate needed actions to respond to emergencies, these  
4 investments are generally like-kind repairs and replacements in accordance with  
5 established procedures for repairs and completion defined in fourteen gas design,  
6 construction, and operating field procedures and standards and twenty-one electric  
7 design and construction work practices. I discuss the management of this work  
8 further in my Prefiled Direct Testimony, Exh. CAK-1T, section II.D regarding  
9 unplanned investments. PSE's established service provider pricing and PSE's  
10 oversight provide cost control with this immediate work. The investment level  
11 may vary based on the number of events and the degree of damage that must be  
12 repaired or replaced.

13 **Q. Please describe the benefits of emergency repair investments.**

14 A. Because these investments are primarily reactive when an event occurs, such as  
15 an outage or leak, the traditional idea of benefits does not apply. In fact, the  
16 events that create the response contribute negatively to performance metrics such  
17 as electric reliability, SAIDI and SAIFI, or gas methane emissions. The grid  
18 modernization and pipeline modernization programmatic investments address the  
19 causes of the emergency repair investments for longer term improvements.

20 **Q. Please describe the performance metrics that these investments impact.**

21 A. These investments generally impact the following corporate performance metrics  
22 by how quickly a repair can be made and power restored:

- 1 • Failure to restore electric service within 24 hours of an outage during non-
- 2 major storms;
- 3 • Failure to restore electric service within 120 hours of an outage;
- 4 • SAIDI / SAIFI;
- 5 • Average gas field response time;
- 6 • Average electric field response time; and
- 7 • Complaints to the UTC per 1,000 customers.

8 **Q. Are there O&M cost reductions that are expected to result from these**  
9 **program investments?**

10 A. No. Replacing equipment in response to this unplanned need does not reduce  
11 O&M expense as the new equipment will need to be maintained as well.

12 **C. Public Improvement**

13 **Q. Please describe PSE's public improvement investments and core objectives**  
14 **and priorities.**

15 A. Public improvement investments are in response to requests by municipalities to  
16 relocate facilities as specified in jurisdictional franchise agreements to provide  
17 that PSE's infrastructure is safe from construction and future operational damage.  
18 The core objectives of this work and investments are to respond timely to resolve  
19 conflicts with transportation improvement plans, minimize relocation impacts,  
20 and so that during jurisdictional construction projects, damage to PSE  
21 infrastructure is avoided. Similar to emergency repair investments, public  
22 improvement investments take priority over discretionary work.

1 **Q. Please provide PSE’s actual and planned public improvement capital**  
2 **investments over the six rate periods presented in this case.**

3 A. Table 4 provides the actual plant in service amounts from January 1, 2019 through  
4 the end of the test year of June 30, 2021. The remaining periods are estimated  
5 based on historic trends and are adjusted for known jurisdictional plans.

6 **Table 4. Summary of Public Improvement Investments by Rate Period**

Public improvement	Up through Current Test Year 1/1/2019 – 6/30/2021	Proforma 7/1/2021 – 12/31/2021	Gap Year 2022	Rate Plan Year 1 2023	Rate Plan Year 2 2024	Rate Plan Year 3 2025
Electric Capital investment (\$ Millions)	66.8	13.5	50.6	62.3	67.4	69.8
Electric Relocations addressed (#)	575	116	435	536	580	601
Gas Capital investment (\$ Millions)	60.4	11.4	19.1	23.5	23.1	22.2
Gas Relocations addressed (#)	427	81	135	166	164	157

7 Additionally, there is incremental OMRC associated with the above rate periods  
8 of about \$20 million.

9 **Q. Please describe the work completed and anticipated through the end of the**  
10 **rate plan.**

11 A. PSE completed 575 electric relocation projects and 427 gas relocation projects  
12 since the last rate case and up through the end of the current test year period. PSE  
13 anticipates 575 to 760 transportation relocation projects annually including  
14 relocation for 66 to 100 fish culverts, 20 Sound Transit projects, and an  
15 anticipated increase in transportation projects that will result from the

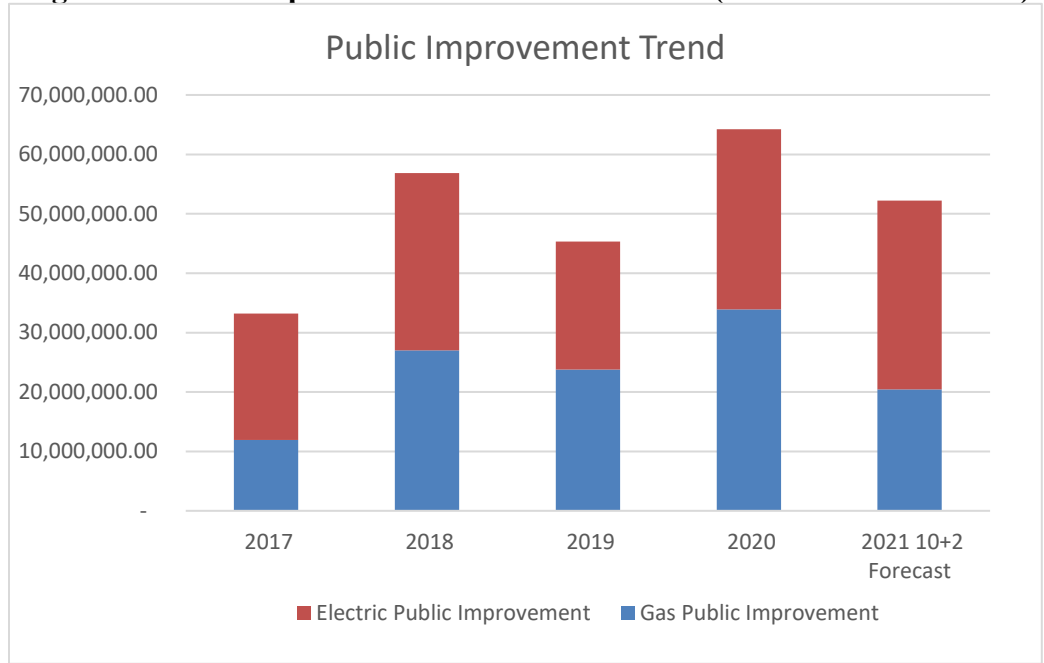
1 Infrastructure Investment and Jobs Act from July 1, 2021 through December 31,  
2 2025. As the project scope, cost, and schedule are driven by the jurisdiction, the  
3 actual costs may vary from the forecasted investment plan. Additionally, projects  
4 can be delayed or accelerated based on the jurisdiction's annual budget or funding  
5 level.

6 **Q. Please describe the basis for the forecasted public improvement investments**  
7 **in more detail.**

8 A. Forecasted funding is generally based the current year's public improvement  
9 investments (based on 2020 actuals) inflated by traditional escalators such as  
10 inflation, labor, materials, and contracts, and adjusted to include known projects  
11 received from the jurisdictions. This work is not ranked in iDOT due to the  
12 franchise obligations that must be complied with. Forecasts include the  
13 reimbursements from jurisdictions per franchise agreements. Figure 3 provides  
14 the public improvement trend since 2017. Historical trends have been less useful  
15 since COVID-19 and the subsequent economic and behavior impacts on  
16 jurisdictional decisions regarding transportation plans.

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**Figure 3. Public Improvement Actual Investments (2017-Forecasted 2021)**



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The annual funding level is re-forecasted each year as a result of the significant variability due to external decisions. These public improvement investments are not ranked against the evaluation criteria in the iDOT planning model.

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**Q. Please describe cost controls employed to efficiently deploy capital investments.**

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A. The cost controls deployed by PSE for investments follows the general approach discussed in the Prefiled Direct Testimony of Roque B. Bamba, Exh. RBB-1T. A project manager is assigned to manage the project from inception through closeout, driving the schedule, managing budgets, and coordinating construction and design activities and milestones with both internal and external team members. PSE’s established service provider pricing and PSE project oversight, including billing review and approval, drives cost control. The investment level

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1 may vary based on the number of transportation projects and scope of work  
2 necessary such as small relocations or major rerouting of infrastructure such as for  
3 Sound Transit. While PSE is informed by local transportation improvement plans,  
4 some of them five to ten years out, factors such as the economy and national or  
5 state transportation infrastructure grants often shift project schedules which can  
6 contribute to investment level changes from forecasted levels. In most cases,  
7 existing infrastructure is relocated by replacing with like-kind equipment and  
8 materials, preserving the existing functionality of the system.

9 **Q. Please describe benefits of the public improvement investments.**

10 A. Because these investments are primarily reactive to jurisdictional projects and  
11 obligations, such as relocating a pole or gas main before or in coordination with a  
12 local transportation project, the traditional idea of benefits does not apply. In fact,  
13 the events that create the response may contribute negatively to performance  
14 metrics such as electric reliability, SAIDI and SAIFI, if an outage must be taken  
15 for the jurisdiction to do the work. The grid modernization and pipeline safety  
16 programmatic investments may factor in, when known, to jurisdictional plans and  
17 trends, for example, by proactively moving poles for clear zone requirements or  
18 moving infrastructure out of the public right of way to easements.

19 **Q. Please describe the performance metrics that these investments impact.**

20 A. These investments generally impact the SAIDI and SAIFI corporate performance  
21 metrics by avoiding an outage caused by jurisdictional construction damage or,

1 more negatively, by a scheduled outage and the length of time it takes to complete  
2 the work and restore power.

3 **Q. Are there O&M cost reductions that are expected to result from these**  
4 **program investments?**

5 A. No. PSE has a standard practice to review public improvement project locations  
6 and, where possible, to consolidate design, management, and coordination efforts  
7 when there is an overlap with planned programmatic or specific investments. This  
8 coordination may help to drive down poor condition asset populations that must  
9 be addressed, avoiding a potential future outage by replacing the poor condition  
10 assets through the relocation work. However, this may happen only one to two  
11 times per year thus the potential for meaningful impact is very small overall. This  
12 work may increase O&M expense, where given enough lead time and depending  
13 on the complexity of the public improvement plan, PSE can negotiate and pay for  
14 a redesign of the jurisdictional project to avoid relocation, which is an O&M  
15 expense in lieu of the capital relocation investment.

## 16 II. CONCLUSION

17 **Q. Does this conclude your testimony?**

18 A. Yes, it does.