**EXH. CAK-4r**
**DOCKETS UE-22___/UG-22___**
**2022 PSE GENERAL RATE CASE**
**WITNESS: CATHERINE A. KOCH**

**BEFORE THE**
**WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

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|---|---|
| **WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,**<br><br>**Complainant,**<br><br>**v.**<br><br>**PUGET SOUND ENERGY,**<br><br>**Respondent.** | **Docket UE-22____**<br>**Docket UG-22____** |

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

**CATHERINE A. KOCH**

**ON BEHALF OF PUGET SOUND ENERGY**

**REVISED**
**JULY 6, 2022**

**JANUARY 31, 2022**

**PUGET SOUND ENERGY**

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

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## I. CUSTOMER GROWTH AND SERVICE NEEDS

### A. Overview

**Q. Please briefly describe Puget Sound Energy's ("PSE") customer growth and new service investments presented in this case.**

A. PSE responds to typically 15,000 to 17,000 incoming requests annually from customers, builders, and contractors for new service connections to homes and businesses, including the extension of gas mains and electric lines as needed. A key activity that drives investments is also the need to address load in an area that is increasing through the collective addition of new or modified services such that the mains and feeders reach their capacity limit and must be upgraded to provide adequate service, pressure, and voltage, to all customers.

**Q. Please describe how these investments are managed through the activities of customer requests and capacity.**

A. Customer growth and service need investments are broken down into investment categories of customer requests[1] and capacity. These investments are classified as "programmatic" investments, meaning that recurring individual projects support a

[1] May be referred to as "Customer Construction" in other witness's testimony.

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

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

| Objective | Program Type | Used and Useful[2] Category |
|---|---|---|
| Customer Growth and Service Needs | Customer Requests | Programmatic |
| | Capacity | Programmatic |

**Q. Please provide PSE's actual and planned customer growth and new service capital investments over the six rate periods presented in this case.**

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

**Table 2. Summary of Total Customer Growth and Service Needs Investments by Rate Period**

| Customer growth and service needs ($ 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 | 250.1 | 31.8 | 54.9 | 74.9 | 77.7 | 78.6 |
| Gas Capital investment | 330.6 | 56.3 | 103.0 | 79.9 | 71.3 | 62.3 |

[2] *In the Matter of the Commission Inquiry into the Valuation of Public Service Company Property that Becomes Used and Useful after Rate Effective Date*, Docket U-190531, Policy Statement on Property that Becomes Used and Useful After Rate Effective Date (Jan. 31, 2020).

Additionally, there is incremental Operations and Maintenance ("O&M") related to capital investment ("OMRC") associated with the above rate periods of about $8 million.

## B. Customer Requests

**Q. Please describe PSE's customer requests investments and core objectives and priorities.**

A. In response to customers requesting new or modified loads, PSE installs new or upgraded service lines to the requested home or building locations. In some cases, the electrical circuit lines or gas mains are extended or upgraded to accommodate the request or additional load. Also included, in accordance with tariffs, are contributions by customers where they are required to pay for all or a portion of the costs, or contributions in aid of construction ("CIAC") dollars. Customer request investments are based on incoming requests by customers and take priority over discretionary work.

**Q. Please provide PSE's actual and planned customer requests capital investments over the six rate periods presented in this case.**

A. Table 3 provides the actual plant in service amounts from January 1, 2019 through the end of the test year of June 30, 2021. The remaining periods are estimated based on historical trends and forecasted customer growth. Investments are net of any CIAC dollars, which may be required as a condition of service as described in the PSE's tariffs.

**Table 3. Summary of Customer Requests Investments by Rate Period**

| Customer requests | 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) | 243.2 | 27.5 | 41.7 | 57.7 | 62.0 | 68.6 |
| Electric Customer requests addressed (#) | ~~15,183~~ 55,851 | ~~1,716~~ 11,436 | ~~12,707~~ 23,029 | ~~17,582~~ 23,478 | ~~18,906~~ 23,491 | ~~20,901~~ 23,044 |
| | | | | | | |
| Gas Capital investment ($ Millions) | 330.5 | 56.3 | 103.0 | 79.9 | 71.3 | 62.3 |
| Gas Customer requests addressed (#) | ~~50,521~~ 46,118 | ~~8,601~~ 8,991 | ~~15,740~~ 18,432 | ~~12,205~~ 18,475 | ~~10,898~~ 18,150 | ~~9,517~~ 17,734 |

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

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

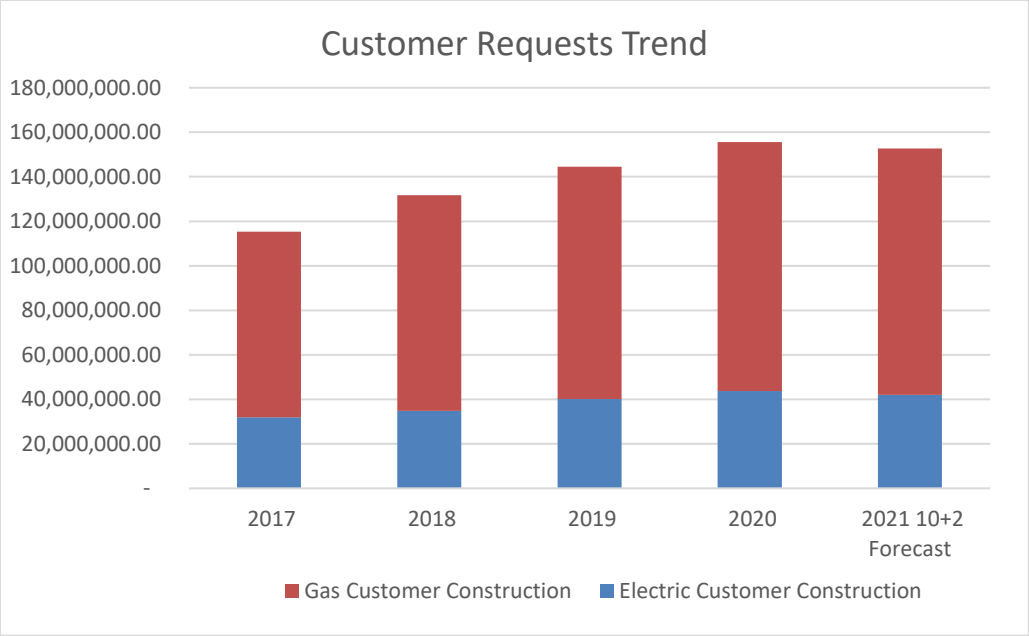
A. PSE added ~~37,173~~38,557 electric customers and ~~21,340~~22,385 gas customers since the last rate case and up through the end of the current test year period. PSE anticipates adding an additional ~~71,812~~104,478 electric customer~~s~~ requests and ~~56,961~~81,782 gas customer~~s~~ requests from July 1, 2021 through December 31, 2025.

**Q. Please describe the basis for the forecasted customer requests investments in more detail.**

A. Forecasted funding is generally based on applying the corporate load forecast to the current years cost of serving customer requests (based on 2020 actuals) and is then adjusted for anticipated changes such as tariff revisions and inflated by the

traditional escalators such as inflation, labor, materials, and contracts. Forecasts include the margin allowance under both electric and gas tariffs that are applied as a credit against the cost of the project. Figure 3 provides the customer requests trend since 2017. While customer load trends have been impacted by COVID-19, customer requests have continued to increase although forecasts for 2021 indicate some economic and behavior impacts on customer decisions regarding utility service.

**Figure 3. Customer Request Actual Investments (2017-Forecasted 2021)**




The annual funding level is re-forecasted each year with the new corporate load forecast which varies as a result of econometric analysis, codes, standards, and other dynamic impacts to these short cycle investments. Since these customer

requests are not discretionary, they are not ranked against the evaluation criteria in the iDOT[3] planning model.

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

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 who manages 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. Additional cost controls exist through fixed unitized pricing from established construction contracts.

**Q. Please describe customer benefits of customer request investments.**

A. Individual customers benefit from the availability of electric and gas service through a regulated service provider. All system customers benefit from economies of scale that customer growth provides. For example, the vast majority of delivery service costs (both electric and gas) are fixed in nature. System growth costs are spread across all customers so as customer growth increases, the cost per customer decreases.

[3] As discussed in my Prefiled Direct Testimony, Exh. CAK-1T, 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.

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

A. These investments generally impact the following corporate performance metrics based on performing the work with customer satisfaction in mind:

- Percent of service appointments kept; and
- Complaints to the UTC per 1,000 customers.

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

A. No. These investments serve customers, which marginally increases O&M expense associated with increased maintenance for additional infrastructure and customers.

## C. Capacity

**Q. Please describe PSE's capacity investments and core objectives and priorities.**

A. Capacity investments address the need to build more or larger pipes or wires to carry more gas or electric current based on load growth forecasts while remaining within required performance standards (i.e., maintain voltage levels or gas pressure) for customer appliances to work correctly. The core objective of the capacity investments is to prevent utility or customer equipment from being damaged or fail due to low voltage or gas pressure. Capacity investments address broad system load increases proactively and in a planned manner. Prioritization of capacity investments avoids delays related to necessary but unplanned system

upgrades needed to fulfill new customer service requests. Capacity investments are planned several years in advance of need. This planned work is supported by the Targeted Capacity Upgrades Business Plan, provided in Appendix A. PSE's Operations business plans provide detail of the background of the issue, statement of need, plan detail and scope, benefits, cost estimate, alternatives, and funding risk.

**Q. Please provide PSE's actual and planned capacity capital investments over the six rate periods presented in this case.**

A. Table 4 provides the actual electric plant in service amounts from January 1, 2019 through the end of the test year of June 30, 2021. The remaining programmatic electric system capacity investments are based on plans developed from modeling load growth forecasts and trended system needs. PSE's pipeline investments are currently only addressing load that cannot be served today without manual real time field adjustments. These investments address reliability concerns and are discussed in Exh. CAK-6.

**Table 4. Summary of Electric Capacity Investments by Rate Period**

| Electric capacity | 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 |
|---|---|---|---|---|---|---|
| Capital investment ($ Millions) | 6.9 | 4.3 | 13.3 | 17.1 | 15.6 | 10.0 |
| Assets addressed (#) | 8 | 5 | 8 | 15 | 23 | 15 |

Additionally, there is incremental OMRC associated the above rate periods of about $0.88 million.

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

A. PSE completed eight electric projects since PSE's last general rate case and up through the end of the current test year period, upgrading eleven miles of circuits. PSE anticipates completing an additional 66 electric projects to increase capacity from July 1, 2021 through December 31, 2025.

**Q. Please describe the basis for the forecasted capacity investments in more detail.**

A. Forecasted funding is developed through the robust Delivery System Planning process and evaluating system performance with increasing loads, as discussed in my Prefiled Direct Testimony, Exh. CAK-1T. Solution costs are estimated using tools provided by PSE's Project Management Office, based on historical average costs. Forecasted funding is a combination of known planned projects supplemented by the historic programmatic trend of these types of investments. Between 2018 and 2020, the number of circuits that exceeded 85 percent utilization increased by 28, a 70 percent increase, resulting in PSE upgrading 21 distribution circuits, about 75 percent of the circuits studied, to relieve capacity constraints. PSE forecasts about seven percent of the distribution circuits will need to be addressed over the next five years based on this trend and increasing

electric demand. The individual projects of this plan will be developed and estimated closer to the system need date.

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

A. The cost controls deployed by PSE for these investments follows the general program management approach discussed by Bamba, Exh. RBB-1T.

**Q. Please describe the benefits of the capacity investments.**

A. PSE's primary benefit of the capacity investments and defined plan is the ability to serve load. If capacity concerns are left unaddressed, the increased energy load will overload equipment resulting in energy quality concerns or even dropped load due to equipment failure. Table 5 provides a summary of the avoided unserved energy (load at risk of being served) that will be addressed by these investments.

**Table 5. Summary of Capacity Investments Benefits by Rate Period**

| Type of benefit | 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 |
|---|---|---|---|---|---|---|
| Unserved Energy (MWh) | 729,080 | 380,737 | 933,307 | 880,479 | 880,479 | 880,479 |

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

A. These investments generally impact the SAIDI and SAIFI corporate performance metrics by avoiding outages caused by low voltage. SAIDI and SAIFI metrics

would be impacted if PSE ignored capacity constraint. PSE would need to deploy load drop schemes to prevent customer and utility equipment damage.

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

A. No. As discussed above, these investments are made to afford new customers access to the electric electricity and avoid outages not accounted for in current O&M expense plans.

## II. CONCLUSION

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

A. Yes, it does.