EXH. MFH-7T
DOCKETS UE-190529/UG-190530
UE-190274/UG-190275
2019 PSE GENERAL RATE CASE
WITNESS: MARGARET F. HOPKINS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-190529** **Docket UG-190530 (*Consolidated*)**
In the Matter of the Petition of **PUGET SOUND ENERGY** **For an Order Authorizing Deferral Accounting and Ratemaking Treatment for Short-life IT/Technology Investment**	**Docket UE-190274** **Docket UG-190275 (*Consolidated*)**

PREFILED REBUTTAL TESTIMONY (NONCONFIDENTIAL) OF

MARGARET F. HOPKINS

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 15, 2020

PUGET SOUND ENERGY

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I. INTRODUCTION

Q. Are you the same Margaret F. Hopkins who submitted prefiled direct testimony on June 20, 2019, on behalf of Puget Sound Energy ("PSE" or the "Company") in this proceeding?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. My rebuttal testimony responds to the Response Testimony of Alliance of Western Energy Consumers ("AWEC") witness Bradley G. Mullins, Exh. BGM-1T, who recommends the costs associated with PSE's Data Center/Disaster Recovery ("DCDR") initiative be disallowed. Mr. Mullins is the only party to challenge the DCDR costs, based on an assertion that the flood and seismic risks at the Bothell data center were known in 2010 when it was originally constructed. Mr. Mullins' recommendation should be rejected because 1) he overemphasizes the flood and seismic issues while ignoring the primary reasons for the DCDR initiative, including that the existing data centers did not have adequate Disaster Recovery ("DR") protections and were unable to adapt to today's data center standards and the technological advancements required to ensure the reliable and secure operation of PSE's Information Technology ("IT") assets; 2) he misjudges the true asset life of a data center, and disregards the fact that PSE customers have

fully benefited from the Bothell and Bellevue data centers, which have reached or exceeded their useful lives.

I also respond to the testimony of Commission Staff witness Chris McGuire addressing short-lived IT investments. I commend him for his testimony recognizing the short-lived nature of IT investments, the need for PSE to invest in IT and technological transformation, and that regulatory lag "could force the utility to absorb a large portion of those assets' costs."[1] In support of this, I provide testimony demonstrating the additional IT investments that have been placed in service since June 30, 2019, and the additional IT investment that will be put in service by the start of the rate year. As PSE witnesses Susan E. Free and Daniel A. Doyle testify in their rebuttal testimonies, Exhs. SEF-17T and DAD-7T, respectively, the rate relief proposed by Commission Staff, as well as Public Counsel and AWEC, would not allow PSE to recover this significant additional investment that has been, and will be, placed in service by the start of the rate year.

[1] McGuire, Exh. CRM-1T at 26:1-9.

II. THE DECISION TO REPLACE THE EXISTING DATA CENTERS WAS PRUDENT

Q. How do you respond to Mr. Mullins' suggestion that PSE is replacing the data centers when flood and seismic risks were "known or knowable"[2] to PSE prior to the original siting of the data centers?

A. Mr. Mullins is oversimplifying and ignoring the primary reasons for the DCDR program. While seismic and flooding concerns were important considerations, the primary purpose of the DCDR program was to implement DR capabilities for PSE's IT assets and critical systems. Prior to the DCDR program, PSE invested in DR capabilities for its highest priority, highest risk technology assets, such as those that fall under NERC/CIP compliance (e.g. Energy Management Systems). This initial DR deployment allowed PSE to mitigate the highest priority risks while managing costs, with the understanding that at some point in the future, the remaining IT assets would require similar protections once funding became available. As PSE's technology footprint grew, systems became more integrated, and cyber security concerns escalated, making it increasingly important for PSE to further invest in DR capabilities to ensure the reliable and secure operations of the electric/gas systems and corporate business functions. The technology required to enable DR necessitated a full redesign of PSE's network, server, and systems architecture. Mr. Mullins never acknowledges these fundamental

[2] Mullins, Exh. BGM-1T at 38:11-17.

purposes of the DCDR program even though I discussed this in my prefiled direct testimony.[3]

Q. Could PSE have achieved adequate IT DR protections at the existing data centers?

A. No. As I explain in my prefiled direct testimony, implementing this new architecture to meet current technology and cyber security requirements in the existing data center facilities at Bellevue and Bothell was untenable. Data center standards have evolved substantially over the past 10-15 years and PSE needed to evolve with them. Accelerated data growth, heavier and denser equipment, increased power and cooling requirements, virtualization, and changing customer expectations have forced the "traditional" data center to modernize and give way to more flexible models that can match the rapid changes in technology. The requirements for cyber and physical security and environmental monitoring are much more stringent and sophisticated as compared to when PSE originally sited the data centers. The prior facilities simply could not accommodate these requirements, forcing the need to explore alternative facilities.

The new modular data centers that PSE selected and built in Snoqualmie and Cle Elum were the most cost effective and prudent option to meet the DCDR requirements. Modular data centers are more energy efficient than the traditional data center and are specifically designed to optimize space (to avoid over

[3] Hopkins, Exh. MFH-1T at 12:11-22, 19:17-28:4.

building) and enhance efficiency through features such as sealed floors, walls and doors, and overhead or under-floor cooling. These data centers can more easily scale to accommodate the rapid changes in technology (avoiding costly rebuilds) largely due to the modularity of major components which are interchangeable, upgradeable, and scalable.

Q. How do you respond to Mr. Mullins' suggestion that "the costs associated with the Bothell and Bellevue data centers, $79.3 million, be disallowed"?[4]

A. First, to be clear, the $79.3 million is not for the "Bothell and Bellevue data centers" as Mr. Mullins incorrectly states, but rather is for the acquisition and construction of two new data centers in Snoqualmie and Cle Elum ($33.2 million), the redesign of PSE's network, server, telecommunications, and cyber security architecture required for disaster recovery ($31.2 million), and the configuration testing, and migration of IT systems to the new facilities ($14.9 million). Second, customers are not unnecessarily paying for multiple "rounds" of data centers as Mr. Mullins suggests. The existing data centers had met or exceeded their useful lives and as described above, could not be modified to meet current DR, technology and cyber-security standards. Data centers do not have indefinite life spans. In fact, the extreme acceleration of technology in recent years (as noted earlier in my rebuttal testimony) has had a direct impact on the asset life of the traditional data center (like Bothell and Bellevue), which ranges

[4] Mullins, Exh. BGM-1T at 41:12-14.

from seven to ten years.[5] PSE's Bellevue data center, built in 2005, operated well beyond its useful and expected life. Likewise, the Bothell data center, built in 2010, was nine years old at the time it was decommissioned, and its depreciable life (ten years) was in line with industry average. Independent of the operational risks associated with these facilities, neither could be modified nor enhanced to reliably support PSE critical systems into the future, and it was no longer an option to extend their lives without placing PSE's technology assets at increased risk.

Therefore, customers have received the full value of their investment in the Bellevue and Bothell data centers, while also benefiting from reduced costs by utilizing and modifying existing facilities at the time they were sited and keeping Bellevue operational for five years beyond its useful life.

Q. What is your response to Mr. Mullins' concerns regarding the flood risk at the Bothell data center?[6]

A. Mr. Mullins makes an incorrect assumption that the flood risk at Bothell was the primary driver for relocating PSE's data centers. As I explain above, the flood (and seismic) risks were among many considerations that drove the need for new data center facilities but were not the primary reason. The existing data centers had run the course of their expected lives, they could not be modified nor updated to meet evolving data center standards, and they could not accommodate the

[5] *See, e.g.*, Exh. MFH-8, Forbes: Next-Generation Data Centers.
[6] Mullins, Exh. BGM-1T at 38:18-40:9.

newly designed architecture required for DR as I explain above and in my prefiled direct testimony. Irrespective of the flood and seismic concern, it would not have been in the best interest of customers to continue operating PSE's critical IT systems at these locations knowing the facilities could not reliably ensure their secure and continual operation in the event of any type of disaster.

Regardless, PSE's original siting of the Bothell and Bellevue data centers was appropriate at the time based on the Company's existing technology needs and requirements. To reduce costs to customers, PSE utilized and modified existing facilities. At Bothell, PSE took reasonable precautions to protect against a flooding risk, including in 2009, GeoEngineers undertook levee raising and maintenance for the North Creek levee system to address the flood risks and in 2012, PSE developed a flood mitigation and response plan to further protect against flood exposure. During the nearly decade-long use of the Bothell facility, and PSE's even longer tenure at the Bellevue data center, the facilities served PSE and its customers well and for the reasons described above, it is now prudent for PSE to transition to facilities that can safely, securely, and reliability meet PSE's IT needs now and into the future. Accordingly, the Commission should not accept Mr. Mullins' proposed disallowance.

III. ONGOING ACTUAL AND PROJECTED INFORMATION TECHNOLOGY EXPENDITURES FROM JULY 1, 2019 THROUGH JUNE 1, 2020

Q. How do you respond to the testimony of Commission Staff witness Chris McGuire regarding PSE's IT spending?

A. I appreciate Mr. McGuire's recognition of the unique problems that arise with short-lived IT investments and the increasing need for utilities such as PSE to make these investments. I agree with Mr. McGuire that a utility's decision to forgo investment in IT and technological transformation could be imprudent. I further agree with his assessment that regulatory lag could force a utility such as PSE to absorb a large portion of those asset's costs and that the traditional ratemaking paradigm needs to be adjusted to address this problem.[7]

Q. Does Commission Staff propose a solution to address this problem?

A. Commission Staff proposes end of period rate base and pro forma adjustments through June 30, 2019, with a modified materiality threshold to accommodate short-lived plants. Commission Staff also proposes recovery of deferred depreciation expense for prior period investment in PSE's Get-to-Zero ("GTZ") projects and similar recovery for prior period Advanced Metering Infrastructure investments, including depreciation and return on net plant.[8]

[7] McGuire, Exh. CRM-1T at 26:1-9, 27:1-3.
[8] *Id.* at 27:7-18.

Q. Does PSE believe Staff's solution will solve the problem it faces?

A. No. PSE witnesses Susan E. Free, Exh. SEF-17T and Daniel A. Doyle, Exh. DAD-7T, provide more detailed testimony addressing the shortcoming of Commission Staff's proposal, and the need for PSE's attrition adjustment. In support of PSE's position, my testimony further demonstrates the IT investments PSE has made since June 30, 2019, the end of Commission Staff's pro forma period, and the additional investment that PSE will make and that will be put in service by the start of the rate year. None of this additional plant in service would be included in rates under proposals by Commission Staff, nor would it be included in rates under proposals made by Public Counsel and AWEC.

Q. Have you quantified the additional IT investments that PSE has put in service after June 30, 2019 and would be excluded from recovery under the proposals of Commission Staff, Public Counsel and AWEC?

A. Yes. As described in my prefiled direct testimony, PSE has invested in projects relating to IT after June 30, 2019. From July 1 through November 30, 2019, PSE has invested approximately $30.2 million in IT expenditures that have already been implemented and placed in service.

Q. Please describe the expenditures.

A. The expenditures PSE has incurred after June 30, 2019, and placed in service as of November 30, 2019, are largely a continuation of expenditures incurred by PSE during the test year and pro forma periods in this case and can be broken down into four categories:

1. Customer Experience: This category represents $17.5 million of technology investment that directly support PSE's efforts to adapt and meet changing customer expectations in the digital environment. As all spend for this category is directly related to the GTZ initiative, this information is detailed in the Prefiled Rebuttal Testimony of Joshua J. Jacobs, Exh. JJJ-11T.

2. Grid Modernization and Reliability: This category represents IT investment in grid modernization and reliability efforts. Supporting spend details are provided in the Prefiled Rebuttal Testimony of Catherine A. Koch, Exh. CAK-6T.

3. Corporate, Compliance and Risk: PSE has invested an additional $4.7 million in corporate systems that create a secure, productive and stable operating environment. The initiatives in this program mitigate risk and drive improvements to enterprise systems to support financial stability, employee productivity, cyber security and business enablement. The largest expenditures associated with this category includes $2.6 million of investment related to enhancements of corporate procurement systems and $1.2 million in investment to implement a load forecasting system and framework for use by our energy trading department.

4. Systems Modernization and Optimization: This category represents technology investments of approximately $7.4 million. As described in my prefiled direct testimony, the Systems Modernization and Optimization

program is an ongoing program to maintain key critical technology platforms to ensure their security, availability and recoverability. Capital expenditures associated with this category can be segregated as follows:

- Technology Refresh and Growth projects: $4 million of the investment associated with the System Modernization and Growth category is related to annual technology refresh and growth projects. These programs are funded via an annual (calendar year) program and, as described above, are necessary to maintain service level requirements, receive support from vendors to patch security vulnerabilities and to continue operational compliance with NERC/CIP obligations. Investments in this category also support efforts needed to scale core infrastructure in alignment with natural business growth and new business requirements and capabilities. The largest expenditure related to this area is $2.1 million which is related to replacement of obsolete Supervisory Control and Data Acquisition ("SCADA") devices that are necessary for communications between our substations and the Energy Management System. PSE's analog SCADA system is over 25 years old, and this replacement is required to eliminate failures in aging equipment by replacing it with IP SCADA, a modernized, stable and secure communications platform.

- Critical System Upgrades and Enhancements: $3.4 million of the investment associated with Systems Modernization and

Optimization category is related to critical system upgrades and enhancements which are prioritized based on business need and vendor requirements to maintain support. The largest investment in this sub-category is $1 million and is related to upgrades required in our SAP HR system to support critical benefit and tax updates.

Q. Are the IT investments that PSE has placed in service since June 30, 2019 necessary and reasonable?

A. Yes. As discussed in my prefiled direct testimony, each of the investments described above was required to ensure PSE acquires and maintains the requisite technological systems and processes so that PSE operates reliably, efficiently and securely. Unlike traditional transmission and distribution investments that typically have much longer depreciable life spans, technology investments have much shorter depreciable life spans and require more frequent updating, upgrading and replacement due to the rapidly evolving nature of technology and digitalization of utility services. As such, PSE must continue to invest appropriately to keep its technology current, to mitigate risks associated with cyber security threats and to ensure the reliable and safe operation of our gas and electric systems.

Q. Can you identify the additional technology investments that PSE plans to put into service by the start of the rate year that would be excluded from the rate proposals of Public Counsel, Commission Staff and AWEC?

A. Although several application upgrades and enhancements are expected to complete during the time period referenced as part of the annual Systems Modernization and Optimization program, the largest efforts expected to be put into service during this timeframe are related to the GTZ program and grid reliability. These efforts are described in the rebuttal testimony provided by Mr. Jacobs and Ms. Koch, Exh. JJJ-11T and Exh. CAK-6T, respectively. Additionally, the HR TOPS project, as described in my prefiled testimony, will also be completed during this time frame.

These technology investments are reasonable and necessary to ensure that PSE systems operate reliably, efficiently and securely.

IV. CONCLUSION

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.