EXH. SLT-1T
DOCKETS UE-22___/UG-22___
2022 PSE GENERAL RATE CASE
WITNESS: SUZANNE L. TAMAYO

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF

SUZANNE L. TAMAYO

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 31, 2022

PUGET SOUND ENERGY

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Suzanne L. Tamayo, and my business address is Puget Sound Energy, Inc., P.O. Box 97034, Bellevue, Washington 98009-9734.

Q. By whom are you employed and in what capacity?

A. I am employed by Puget Sound Energy ("PSE") as Director, Information Technology ("IT") Shared Services.

Q. Have you prepared an exhibit describing your education, relevant employment experience, and other professional qualifications?

A. Yes, I have. It is Exh. SLT-2.

Q. What are your duties as Director of IT Shared Services for PSE?

A. A primary area of responsibility for my department is the planning, management, and delivery of PSE's IT five-year capital project plan. In support of this, I oversee PSE's IT Planning team, which has responsibility for planning and management of IT's capital plan, and also works with all PSE business units to help estimate IT projects. I also have responsibility for the IT Project Management Office ("PMO"), which is one of two primary delivery PMOs for

PSE, and is responsible for delivery of all PSE projects with technology deliverables. The other PSE PMO is part of the Operations department under Roque B. Bamba, Director of Project Delivery. In addition to project delivery, I oversee PSE's IT Service Management Office, which provides ownership, standardization, and improvement of PSE's core IT process, such as Incident Management and Problem Management, and the IT Finance Management team.

Besides my department, I share leadership of PSE's Project Practices Center of Excellence ("CoE") with Roque B. Bamba. The CoE provides program and project standards and methodology for both delivery PMOs, and all other areas within PSE that have project delivery responsibility. The CoE team also provides quality assurance checks on all in-flight strategic projects to keep project delivery on track with all standards being met.

Q. What topics are you covering in your testimony?

A. My testimony provides a description of the technology investments PSE seeks recovery for in this case, broken out by the following periods:

- Investments placed into service during the period of January 1, 2019 through June 30, 2021;
- Investments expected to be placed in service for the period of July 1, 2021 through December 31, 2022; and
- Annual investments projected to be placed in service January 1, 2023 through December 31, 2025.

I also provide details on any major IT programs or projects included in PSE's cost recovery request that are expected to cost more than $10 million.

My testimony also describes how most PSE IT investments are identified and approved, including both program and project related investments. PSE defines a "project" as a temporary endeavor undertaken to create a unique service or result. Projects are temporary and close upon completion of the work they were chartered to deliver. In contrast, PSE defines a "program" as the coordinated organization, direction, and implementation of a collection of related projects and complex activities, driven by strategic goals or importance, which when executed together, achieve outcomes and benefits not available from managing them individually.

My testimony further clarifies how technology solutions are designed for each program or project, the procurement process for new technology solutions, and how technology programs and projects are governed. Finally, this testimony also responds to the Commission's Final Order from PSE's last general rate case in Dockets UE-190529/UG-190530 et al. regarding PSE's reporting obligations associated with PSE's Get to Zero ("GTZ") program.

Q. Will your testimony cover all IT investments?

A. No. As explained in the Prefiled Direct Testimony of Margaret F. Hopkins, Exh. MFH-1T, PSE's IT investments are categorized into three major strategic work streams:

- Business Enablement
- Systems Modernization

- Strategic Initiatives

My testimony covers technology investments related to Business Enablement and Systems Modernization. Strategic Initiative-related testimony is covered in the Prefiled Direct Testimony of Joshua J. Jacobs, Exh. JJJ-1T (technology enablement efforts related to PSE's Clean Energy Implementation Plan ("CEIP"), the Prefiled Direct Testimony of Carol Wallace, Exh. CLW-1T (customer experience projects), and the Prefiled Direct Testimony of Catherine A. Koch, Exh. CAK-1T (grid modernization projects).

II. IT INVESTMENT OVERVIEW

Q. Please provide an overview of all IT Business Enablement and Systems Modernization spending for which PSE seeks recovery in this case.

A. PSE seeks recovery of $175.53 million for technology investments placed into service during the period of January 1, 2019 through June 30, 2021. PSE also seeks forward looking recovery for the following:

- $149.91 million for technology investments expected to be placed in service July 1, 2021 through December 31, 2022;
- $114.04 million for technology investments expected to be placed in service during the calendar year 2023;
- $77.85 million for technology investments expected to be placed in service during the calendar year 2024; and
- $98.18 million for technology investments expected to be placed in service during the calendar year 2025.

Exh. SLT-3, Exh. SLT-4 and Exh. SLT-5 provide detailed information supporting the above requests.

Q. Are there any external factors that may impact PSE IT's ability to deliver in accordance with the investment plan associated with the recovery request above?

A. Yes. There are many external factors that could influence delivery of the IT investment plan aligned with this rate case request, most of which are beyond PSE's control. The most likely factors to impact PSE's IT investment plans are:

- **Supply chain issues –** Because of COVID, many critical IT suppliers are experiencing shortages of key components required to manufacture and deliver their IT hardware and systems. This has a direct impact on when critical equipment or systems can be available for PSE projects and may impact project timelines and expected in-service dates.

- **Rising technology costs –** Several strategic vendors utilized by PSE IT, including Microsoft and Cisco, have already signaled significant price increases will be coming beginning in 2022. Vendors are communicating that this is primarily driven by the supply chain issues discussed above. The impact of any price increases will need to be assessed against planned projects to understand the impact to the overall investment plan.

- **Cyber and physical security and other compliance regulations –** PSE IT is already aware of potential requirements from the Transportation Security Administration ("TSA") that may require significant investment to address. These and any other new regulations will need to be incorporated into the investment plan, per required timelines, and may require rebalancing of the investment plan or the addition of unplanned funding.

- **New or emerging customer or business needs –** New technology projects may be required to support new or emerging customer or strategic business needs. Entry of new efforts into the plan may require portfolio rebalancing or the addition of unplanned funding.

Hopkins, Exh. MFH-1T, addresses these external factors from an overall IT vision perspective.

Q. What impact could these external factors have on the proposed investment plan?

A. The primary impacts expected will be related to changes in projected in-service dates and budgets. Impact will vary based on specific project needs, and the overall impact to annual investment plans. If changes do occur, IT will work within Corporate Finance's capital governance processes to identify solutions, which may include the addition of new capital budget, or the reallocation of capital across the remainder of the plan to achieve portfolio balancing. This may also result in the deferral of planned projects into future years in an effort to remain balanced with the original investment plan total expenditures while still addressing non-controllable impacts. However, I emphasize that no change in conditions would cause PSE to compromise planned or implemented system enhancements that are designed or required to protect critical energy infrastructure ("CEI") or customer and/or system data. CEI and data security protections are and will remain paramount priorities to the PSE.

Q. Please describe the types of programs or projects covered under your testimony.

A. As mentioned above, my testimony describes PSE's Business Enablement and Systems Modernization IT investments.

Q. Please describe what a Business Enablement program or project is.

A. This category includes programs and projects that are identified by PSE business areas to support corporate strategies, customer needs and other emerging business and compliance requirements. All Business Enablement efforts include costs associated with acquisition, development and installation of new systems, or the implementation of new business capabilities in existing systems.

Q. Please describe what a Systems Modernization program or project is.

A. This category represents capital efforts required to upgrade and maintain key and critical IT application and infrastructure platforms, and to ensure ongoing availability, stability, security, technical currency, and vendor support. By keeping applications and infrastructure equipment at supported levels, PSE can continue to receive critical system and security patches, take advantage of the latest technology features, and maintain license compliance as defined by support agreements. Programs or projects under this category directly support the corporate goal of 99.97 percent availability for systems that support critical business processes.

Although some larger projects may be funded separately, the majority of Systems Modernization work is funded annually under the IT Operational Program. The IT Operational Program is described in more detail later in my testimony.

Q. How are IT investments identified and approved for funding within the IT Capital Portfolio?

A. For all Business Enablement and some large Systems Modernization projects, a business case, known as a Corporate Spending Authorization ("CSA") document, is developed to support the need for each technology initiative. The CSA outlines the business problem, evaluates various solutions, and assesses the risk, cost, and benefits associated with each option. Total cost of ownership is considered at all decision points, with a bias toward cost effectiveness and optimization of prior technology investments. All CSAs are reviewed and approved by business sponsors before they are submitted through PSE's Finance Department Corporate Capital Governance Process, where CSAs are evaluated for consideration and prioritized for investment in the five-year plan. Additionally, any CSAs for technology programs or projects are reviewed and approved by PSE's CIO, Margaret F. Hopkins. Decisions made under the Capital Governance process inform the final IT Capital Portfolio budget for subsequent years.

Smaller work efforts under the Systems Modernization category are funded annually, under the IT Operational Program. Proposals are solicited from each IT department, and reviewed by the IT leadership team, who make annual funding decisions based on the business value and technology risk of each proposal. An annual CSA for the IT Operational Program in total is created and follows the same CSA approval process described above, including receiving review and approval from PSE's CIO.

Q. Once a program or project is approved within the portfolio, how is the technology solution determined?

A. PSE makes every effort to minimize cost by leveraging existing technology assets and maximizing their use. If an existing IT asset meets the majority of business and/or technical requirements, PSE will build upon the existing platform to the extent possible. By leveraging existing assets and vendor relationships, costs are optimized through volume discounts and lower integration costs, and implementation costs are kept in line through the use of in-house skill sets familiar with the technology to deliver solutions more quickly. When an existing system does not meet business requirements, multiple options are evaluated with a preference toward cloud or "purchased" products to keep development and maintenance costs lower, align with industry best practices, increase speed of implementation, and avoid development of highly customized systems that are difficult and costly to maintain.

Q. How do you design system implementation to minimize cost and risk?

A. Once selected, each system is designed to meet the stated business requirements, leverage out-of-the box capabilities to minimize customizations and to avoid over-reaching or gold plating with extraneous functionality. This helps to keep support and maintenance costs down and lowers the cost of future upgrades. Cyber security, data privacy, high availability, and disaster recovery capabilities are paramount, and designed into all systems in accordance with standards put forth by PSE's IT Architecture Team. PSE's IT Security also reviews all proposed

solutions to ensure compliance and security obligations, such as the North American Electric Reliability Corporation Critical Infrastructure Protection ("NERC CIP") standards, which are included in each design. Systems are also designed for reuse, adaptability, growth, ease of operation and speed, and data governance and data management best practices are similarly embedded into designs to protect and maintain the accuracy of customer, asset, and employee data. This rigor is applied across all technology platforms to achieve maximum value from prior investments and to minimize the overall growth of ongoing IT expenses.

Q. What is PSE's process for procuring new technology and how does PSE get the best price?

A. All purchases follow PSE's standard contracting and procurement processes to obtain the best value for PSE and its customers. PSE's Procurement Team utilizes a competitive bid process so needed technology is competitively priced, is relevant to the utility industry, and best serves customers. The competitive bid process allows PSE to enable scale economies in pricing and ongoing maintenance, thereby providing a lower total cost of ownership on behalf of PSE's customers.

All technology purchases require the oversight of an IT Manager. The manager is involved in the evaluation and analysis of the criteria used during the bid process, the selection of the technology, and final approval. The formal spend authorization process is automated through PSE's procurement system and uses

built-in requirements to escalate to the IT Director or Chief Information Officer level for additional approval when total spend exceeds pre-defined corporate limits.

Additionally, in partnership with PSE Procurement, the IT Department engages third party negotiation services thru ClearEdge and Gartner's Computer Financial Consultants. These engagements provide that PSE has updated information on market pricing and can guide PSE Procurement analysts related to negotiation strategies and leverage points PSE can utilize to obtain best price.

Q. How are programs and projects governed to make sure they deliver within approved scope, schedule, and budget?

A. Effort size dictates how governance is structured. At a minimum, an IT Manager is aligned with each project as the project sponsor and is responsible for managing the scope, schedule, and budget for each effort. Business Enablement efforts will also have a business sponsor assigned. Programs and medium to large projects will have Project Managers assigned, and governance will include sponsor meetings and a formal steering committee. Some very large programs and projects, such as the GTZ program, will also have an Executive Sponsor assigned and will convene an Executive Steering Committee. Regardless of the size, the governance structure is responsible for program or project oversight, key decision making, risk mitigations, and approval of any changes to scope, budget or schedule.

PSE IT has also deployed centralized portfolio management oversight for all IT capital efforts. Monthly status reports are captured for all programs and projects, and any efforts reporting issues or risks are reviewed by the IT leadership team during monthly portfolio review meetings, with specific focus on improving program or project health. All programs and projects submit a monthly budget forecast which enables regular review of expected spend. Any program or project requiring a scope, schedule, or budget update is required to complete a formal change request that, after approval by their Steering Committee, is reviewed by IT leadership and formally decided upon at the monthly portfolio meetings. Decisions are captured and logged at the portfolio level from this meeting, and all programs and projects additionally keep their own risk, issue, and decision logs for detailed tracking.

Q. Are there any IT programs or projects with an expected spend of at least $10 million over the course of the multi-year rate plan for which PSE is seeking recovery in this case?

A. Yes. There are several programs and projects that meet this criteria, including:

- GTZ program
- IT Operational program
- Cyber and Corporate Security program
- Advanced Distribution Management System ("ADMS") program
- Enhanced Substation Communications project
- Transport Network Modernization project

- Data Enablement program
- Data Center Hardware Refresh project
- Third Party Risk program
- SAP S/4 HANA Migration project
- Radio Replatform project

Details on each are outlined below.

III. INVESTMENTS PLACED INTO SERVICE DURING THE PERIOD OF JANUARY 1, 2019 THROUGH JUNE 30, 2021

A. Overview of IT Investments Placed Into Service During the Period of January 1, 2019 Through June 30, 2021

Q. Please provide an overview of all IT spending for which PSE seeks recovery related to the period January 1, 2019 through June 30, 2021.

A. PSE seeks recovery of approximately $175.53 million in recovery for IT investments placed into service during this period. This includes $104.90 million of spend related to Business Enablement efforts, including the GTZ program, and $70.63 million in Systems Modernization investments. A detailed list of all IT spending during this period for which PSE seeks recovery is provided in Exh. SLT-3, while details supporting major programs and projects related to this request are available in testimony below. Please note that GTZ investments for which PSE seeks recovery represent the time period of January 1, 2020 through June 30, 2021, as the previous deferral mechanism approved as part of PSE's last rate case covered GTZ spend through December 31, 2019.

B. Major Programs and Projects Placed Into Service During the Period of January 1, 2019 Through June 30, 2021

1. GTZ Program

Q. Please describe the GTZ program.

A. GTZ is a corporate initiative focused on improving the customer experience and includes multiple interdepartmental projects throughout PSE that tie together to ultimately make doing business with PSE easier for customers. GTZ utilizes digital channels to eliminate common customer problems that drive customers to call PSE, including anticipatorily addressing technologies that are near end of life, are at risk of no longer being supported by PSE's vendors, or no longer meet the cyber security requirements established by PSE.

GTZ also implements improvements to billing and payment capabilities for customers and introduces new field workforce automation within many of PSE's operational teams to further integrate systems to improve transparency to PSE's customers and to enable new self-service capabilities for scheduling field work or booking appointments.

Finally, the initiative focuses on improving PSE's approach to governing customer and asset data and leveraging that data to gain further insights into how to better serve customers using enhanced data analytics tools and methods. Ultimately, the goal of the initiative is to provide customers with better overall service through improvements to technology and business processes.

GTZ program implementation began in 2016 and completed in 2021.

Q. How is GTZ benefiting customers?

A. Full details on the benefits provided by GTZ are available in Exh. SLT-6. GTZ program deliverables also played an instrumental role in supporting customers during COVID. Please see the Prefiled Direct Testimony of Carol Wallace, Exh. CLW-1T, for more information.

Q. Did PSE seek recovery for GTZ expenditures in the 2019 general rate case?

A. Yes, PSE sought recovery for its GTZ investments through December 31, 2019.

Q. Did the Commission grant PSE's request?

A. Yes. The Commission determined that PSE's GTZ investments made through December 31, 2019 were incurred prudently and should be included in rates. The Commission also allowed PSE to amortize deferred GTZ expense and rate base amounts for the GTZ assets placed in service between July 2018 and June 2019 over three years. As explained by the Commission:

> Here, PSE has shown that, thus far, the GTZ assets placed in service are benefiting customers in a variety of ways through improved customer service experiences. Accordingly, we are satisfied that the costs incurred to date have been prudent, but remind the parties that prudency will be revisited each time PSE seeks to include in rates a portion of the GTZ project.[1]

[1] *WUTC v. Puget Sound Energy*, Dockets UE-190529/UG-190530 et al., Final Order ¶ 132 (July 8, 2020).

Q. Did the Commission provide any additional direction regarding recovery of future GTZ investments?

A. Yes, the Commission required PSE to file with its next general rate case a report on GTZ that:

- Itemizes and describes each component of the GTZ program placed in service to date;
- Documents, by itemized component, the GTZ program's costs and customer benefits;
- Reports on the GTZ program's overall performance and metrics; and
- Describes the GTZ components not yet deployed, with estimated in-service dates for each.[2]

Q. Has PSE prepared such a report?

A. Yes, please see Exh. SLT-6.

Q. Is PSE seeking recovery for any costs related to the GTZ program in this proceeding?

A. Yes. The total amount requested for the GTZ program across all years included in the rate case is $70.92 million. This includes $45.52 million associated with the period of January 1, 2020 through June 30, 2021. Please refer to Exh. SLT-3 for additional details on this spend.

[2] *Id*. ¶ 131.

Q. What components of the GTZ program does the amount above fund?

A. Two projects account for the largest GTZ spend in 2020. The first is the Integrated Work Management ("IWM") project for Gas Operations. This project was created to manage fieldwork on behalf of customers and PSE's core physical assets through the work lifecycle. It seeks to improve lifecycle processes and introduce new services with supporting technologies to assist PSE employees in making and meeting customer commitments. This project was the first implementation of IWM and was launched with the Gas Operations teams, which includes Gas First Response. This rollout included all of the foundational aspects of IWM, including the following:

1. **Improvements to cost management of field work**: Changes to modules in PSE's enterprise resource planning system, Systems Applications and Products ("SAP"), to enable full lifecycle financial tracking of work order/operation pairs for work.

2. **Improvements to work management of field work**: Changes to the plant maintenance module in SAP to enable better planning and tracking of a work order/operation for fieldwork.

3. **Improvements to workforce scheduling of field work**: Implementation of scheduling and dispatch processes and technology for field work. This includes the scheduling, dispatch, and optimization of work order/operation work to crews or individuals; resource loaded schedules with specific dates and times; the ability to match job requirements to available crew skills; and use of priorities to ensure most important work takes precedence.

4. **Workforce Mobility**: Implementation of electronic mobile capabilities for PSE field employees to receive, provide status updates, and report on work activities. This also includes the ability to perform timesheet functionality.

For more information on the IWM release to Gas Operations, please see Exh. SLT-8, which includes the project CSA.

Q. What was the second GTZ project?

A. The second project accounting for the majority of 2020 GTZ investment was the Payment Platform project. This project facilitated the migration from PSE's prior payment processing vendor, Fiserv, to a new vendor. As part of this, a portal for PSE employees to process and research payments was also implemented. The new vendor selected, Paymentus, offers enhanced customer experience for web, mobile application, and Interactive Voice Response by having a single consistent payment user experience. Their system also provides e-wallet and automatic payments with credit card features for registered users. For more information on the Payment Platform project, please review Exh. SLT-9, which includes the project CSA.

Further information on specific GTZ projects including in-service and spend can be found in Exh. SLT-6.

Q. Did PSE keep management informed during the course of the GTZ effort?

A. Yes. All efforts under the GTZ program followed the IT PMO Governance structure and process requirements, as described above. Both Business and IT Sponsors were assigned to all program efforts, and Steering Committee meetings were convened for all medium to large projects. An Executive Sponsor, Margaret

F. Hopkins, CIO, and an Executive Steering Committee, were also aligned to the overall GTZ program to provide management guidance.

Q. Has PSE made any adjustments to the GTZ program costs since the last rate case?

A. No. With the last rate case, PSE had estimated program completion at $287 million, and the GTZ program completed in 2021 with approximately $286 million in spend.

2. IT Operational Program

Q. Please describe PSE's IT Operational program.

A. PSE's IT Operational program is an ongoing program that ensures key and critical infrastructure and applications supported by IT are kept technically current and maintained under vendor support. Work under the IT Operational program is funded annually, with proposals submitted from across IT. The IT leadership team reviews and makes funding decisions based on business value and risk of each proposal. By keeping PSE's IT systems at supported versions, this ensures that PSE's IT will continue to receive critical patches from vendors, be able to take advantage of the latest features, and keeps IT assets at acceptable license levels as defined by vendor support agreements. This helps enable IT to deliver more reliable service to the business and PSE's customers. Work under this program primarily supports the following areas of IT:

- **IT Applications** – Operational work to ensure the 374 applications in production are kept technically current and are properly maintained in compliance with our vendor support agreements. This program provides funding for critical applications such as the Energy Management System, Gas Control System, Outage Management System, SAP systems (Finance, Human Resources, Call Center, Billing, and Asset Management), Metering, PSE.com, and other critical business systems.

- **IT Infrastructure** – Consists of the computing and telecommunications hardware and software upon which critical business systems and capabilities are built. This is largely the IT equipment housed in PSE data centers, including 273 physical servers hosting over 3,400 virtual server and storage hardware, and the network equipment and connectivity infrastructure (fiber, radio, and microwave) that enable telecommunications throughout PSE's service territory.

Q. Has work on the IT Operational program started?

A. Yes. As described in testimony above, the IT Operational program is an ongoing operational program, with specific work identified and prioritized by IT leadership for funding in the following year. All work is typically placed in service in the year for which it is funded.

Q. Is PSE seeking to recover costs related to the IT Operational program in this proceeding?

A. Yes. The total amount requested is $200.67 million, which includes $51.72 million requested for the period of January 1, 2019 through June 30, 2021. Additional details on IT Operational program spend included during this period can be found in Exh. SLT-3.

Q. Because work on the IT Operational program has already started, please describe components of the program, including timeline for delivery.

A. As mentioned above, work under the IT Operational program is funded annually. Proposals are submitted from across IT, and the IT leadership team reviews these to prioritize work for funding in the next year. Efforts funded support all areas of IT, and include the following types of projects:

- **Technology Refresh** – These projects undertake upgrades to existing technology to keep it current and to protect PSE's IT investments. These upgrades are necessary to maintain service level requirements, security patches from vendors, continued operations, and compliance with NERC CIP obligations. An example of a Technology Refresh included in the IT Operations program annually is the PC Refresh project which seeks to replace end-user devices, such as laptops, according to useful asset life and before device failure occurs.

- **Technology Growth projects** – These projects support efforts needed to scale core infrastructure or business applications in alignment with natural business growth and new business requirements and capabilities. This growth could come in the form of software licenses, storage and data growth, server expansion, and telecommunications bandwidth increases.

- **Upgrades or enhancements** – These projects include upgrades and enhancements to existing applications based on business requests for additional functionality, software licensing and maintenance agreement requirements, and new security or compliance considerations.

- **Capitalized Licenses and Maintenance** – This portfolio of spend includes the annual capitalized costs associated with software licensing, maintenance and support agreements with our vendors. Enterprise-wide software costs that can be capitalized are also covered under this category. As an example, this category includes capital costs associated with the annual Microsoft Enterprise Agreement, which allows current Windows operating systems to be available for use by all employees.

Q. What are the expected benefits of the IT Operational program?

A. Efforts funded under the IT Operational program are required to maximize the value and asset life of PSE's prior technology investments. Completion of the IT Operational program work keeps PSE's IT systems secure, stable, and reliable, and ensures that PSE IT will continue to receive critical patches from vendors, be able to take advantage of the latest features, and keeps IT assets at acceptable license levels as defined by vendor support agreements.

Q. How is the program team keeping PSE management informed during the course of the program?

A. Larger efforts under the IT Operational program are run as formal projects, have a primary IT Sponsor assigned and follow the IT PMO governance structure requirements, as described above. Monthly status reports and budget forecasts are submitted, and any projects reporting risks, issues or potential changes to project budget or schedule are discussed in monthly IT Portfolio meetings.

Smaller efforts are assigned to a primary IT Sponsor, who is responsible for managing the work to completion, completing monthly budget forecasting and alerting their aligned IT Director on status issues. IT Directors are then asked to share any issues or risks during monthly IT Portfolio meetings.

Q. Have there been, or are you expecting, any material changes affecting program scope, schedule or budget?

A. No. The IT Operational program is planned and funded as an annual effort, with all associated work placed into service during the year which it was funded. An IT Planning team, under the IT Shared Services department, is responsible for completing annual program plans, identifying work for future years, and working with the IT leadership team when any changes are required to specific efforts during a calendar year. This may include deferring efforts in progress to help offset additional budget required for a more critical effort or allowing new projects to start if additional funding becomes available as efforts complete under projected spend. All potential program changes are discussed at the monthly IT Portfolio meeting, with any changes approved enacted upon after the meeting, and logged as a portfolio decision.

3. Cyber and Corporate Security Program

Q. Please describe PSE's Cyber and Corporate Security program.

A. Similar to the IT Operational program, PSE's Cyber and Corporate Security program is an ongoing program of work that ensures annual funding in support of cyber and corporate security project needs. Eileen Figone, Chief Information Security Officer and Director, Security, Risk & Compliance, serves as the primary sponsor for this program. Teams under her department are responsible for developing the roadmaps that support this work and include support for the following areas:

Cyber Security

Cyber security protects cyber assets, such as computers and data, from unauthorized access. PSE's cyber security program is based on the National Institute of Standards and Technology ("NIST") Cybersecurity Framework ("CSF") framework v1.1. Utilizing this framework provides PSE with an accepted reference point for the review of PSE's ability to protect its information assets and the current state of cybersecurity based on the NIST CSF domains and functions. These standards are followed by leading companies in the energy and defense industries, and PSE has standardized assessments biennially against those standards set by external security firms.

The primary objectives for projects under this investment category are to improve PSE's cyber security posture, better prepare and protect PSE against future cyber threats, and maintain compliance with federal requirements. Without this focus, PSE would not have been able to successfully protect against the millions of vulnerabilities that have been introduced to the IT landscape over the last several years. As an example, during the period of January 1, 2019 through June 30, 2021 alone, 468 patches covering over 30,430 vulnerabilities were released by Microsoft for the systems PSE operates.

Corporate Security

Corporate Security describes security measures that are designed to deny unauthorized access to facilities, equipment and resources and to protect

personnel and property from damage or harm. As such, the primary objective of work funded under this category is to protect PSE's physical assets and personnel.

The use of technology in protecting physical security assets is growing. Traditional corporate security functions, such as monitoring, alarms, cameras, lighting, and even facility access now depend on integrated technology platforms. To address the complexities and dependencies associated with the convergence of corporate and cyber security, PSE combined its Corporate Security team with the IT Security team during 2021. As a result, Corporate Security investments will be included in this, and all future, IT rate recovery requests.

Q. Has work on the Cyber and Corporate Security program started?

A. Yes. As described above, the Cyber and Corporate Security program is an ongoing program, with specific work identified by PSE's Security teams, and prioritized by PSE for funding in the following year. The majority of work is expected to be placed in service in the year for which it is funded.

Q. Is PSE seeking any cost recovery related to the Cyber and Corporate Security program in this proceeding?

A. Yes. The total amount requested for the Cyber and Corporate Security program across all years included in the rate case is $47.48 million. This includes $7.43 million associated with the period of January 1, 2019 thru June 30, 2021. Please refer to Exh. SLT-3 for additional details on this spend.

Q. Because work on the Cyber and Corporate Security program has already started, please describe components of the program, including timeline for delivery.

A. As mentioned above, work under the Cyber and Corporate Security program is funded annually. Specific work is identified by PSE's Security teams for incorporation into their roadmaps and prioritized for funding by Ms. Figone. Best practice and current security state awareness, third party assessment feedback and PSE architectural direction are all considered when evaluating solutions and determining future-year projects to be undertaken/funded by the program, which includes the following types of projects:

Risk Mitigation

Work under this category focuses on mitigation of security risks and ensures exposures and vulnerabilities are mitigated in alignment with the rapidly changing security landscape. Some examples of specific projects completed include:

- Implementation of a new Security Incident and Event Monitoring technology to allow for better management of alerts and corresponding actions as well as provide more flexibility for managing threat intelligence feeds; and
- Implementation of Microsoft's cloud access security broker to securely manage interactions and create visibility between PSE's cloud environments, internal networks and the Internet.

Systems Modernization

Projects funded under this category are required to upgrade or replace ineffective and inadequate security systems due to outdated and obsolete technology. Funded

efforts here ensure all existing cyber security technologies and systems are maintained according to vendor support agreements, and are highly available, scalable and resilient, and that any new cyber needs are met through enhancement to existing systems or introduction on new technology. Examples of projects completed during this period include:

- Completion of corporate security upgrades at five substations. This includes installation of new security hardware and software in support of access control to gates and doors, intrusion detection on fences and entry points and new networked security cameras.
- Replacement of PSE's legacy anti-virus system with a more robust anti-virus/endpoint detection and response solution.

Compliance

Projects planned under this category are required to comply with the NERC CIP standards compliance framework, which includes a set of requirements designed to secure the assets needed to operate North America's bulk electric system. Efforts funded under this category includes both cyber and corporate security projects.

An example of a specific initiative included in this rate case request is the Corporate Security Western Electricity Coordinating Council ("WECC") CIP-014-2 Mitigation Plan, which represents $20.4 million in investment for the Cyber and Corporate Security program through 2024. Results from a 2019 WECC audit indicated PSE does not have sufficient physical security countermeasures deployed at its CIP-014-2 sites to be able to effectively mitigate those adversarial attacks that are most likely to occur, resulting in PSE's non-compliance with

NERC CIP-014-2 R5.1, which provides: "Resiliency or security measures designed collectively to deter, detect, delay, assess, communicate, and respond to potential physical threats and vulnerabilities identified during the evaluation conducted in Requirement R4."

The Cyber and Corporate Security program was created to avoid future non-compliance with WECC measures. Included in program scope is the replacement of existing obsolete, non-functional security equipment and software with new physical security countermeasures to correct security deficiencies in areas that are not currently in compliance with NERC CIP-014-2 R5.1. Work began in 2021 and will complete in 2024, and will address the following capabilities needed to support the proposed solution and address NERC CIP deficiencies:

- Installation of a new Physical Security Incident Management System. The new system will support improved alarm automation, alarm assessment, integrations and incident management. This project was placed in service in December 2021.
- Integration with existing and implementation of new systems for monitoring alarms, radar sensors, cameras, gunshot detection, fence detection, physical access, public address system, system monitoring, communications for emergency and operational procedures, mapping alarm locations and monitoring weather events. This work will be managed annually, with all efforts complete in 2024.
- Implementation of phone and network connectivity for the four CIP-014-2 sites where needed.

Q. What are the expected benefits of the Cyber and Corporate Security program?

A. Protecting PSE's personnel and investments in infrastructure, facilities, and technology is the primary driver for the Cyber and Corporate Security program. Ensuring these assets are adequately protected against current and future threats and can withstand and recover rapidly from any deliberate attacks against PSE assets is a necessity to ensure the continued service reliability PSE's customers require. Additional benefits include:

- Ability to proactively respond to the ever-changing multitude of risks introduced as technology continues to be foundational for all areas of critical business operation. As technology evolves, security threats increase in both number and sophistication, warranting a proactive approach to mitigate this risk.
- Reduction of risk to PSE facilities and personnel. As mentioned above, technology and traditional physical security measures are converging, introducing new and complex threats that must be addressed.
- Reduction of financial risk. The cost to respond to a security breach can have significant impact on a company's financials. Preventative focus and investment allow PSE to help mitigate the risk of these costs being passed on to customers.
- Reduction of customer risk. Investments and efforts undertaken help protect customer's confidential and sensitive data; and
- Assured regulatory compliance.

Q. How is the program team keeping PSE management informed during the program?

A. All efforts under the Cyber and Corporate Security Program are run as formal projects, with Ms. Figone assigned as the primary IT Sponsor, and follow the IT PMO governance structure requirements, as described above. Monthly status reports and budget forecasts are submitted, and any projects reporting yellow or red status (projects with potential health issues) are discussed specifically in monthly IT Portfolio meetings.

Q. Have there been, or is PSE expecting, any material changes affecting program scope, schedule or budget?

A. Yes. There are a few areas where there have been material changes or PSE expects to see material changes. First, the Corporate Security WECC CIP-014-2 Mitigation Plan was initially expected to complete in 2023 with an overall budget of $17.9 million. Following more detailed planning, however, PSE extended the program completion date to 2024 and adjusted the overall budget to $20.4 million. The primary drivers for the budget increase are (1) expanded modifications required at each substation to support the necessary security upgrades, and (2) the increased cost of materials related to COVID supply chain issues. Delays in receipt of materials, COVID challenges, and the increased scope of work required at each substation have resulted in the program completion date extension. For additional detail on this project see Exh. SLT-10.

Second, the current plan does not include work to meet TSA security directive requirements, as PSE is still in the process of determining what specific work will be needed to meet those requirements. However, PSE will need to undertake significant work to address these requirements, and therefore PSE does expect to see additional investment incorporated into future budget plans.

4. ADMS Program

Q. Please describe PSE's ADMS program.

A. With the growing penetration of intelligent electronic devices on PSE's distribution grid, the need to both monitor and control these assets is emerging as a top business priority. PSE is pursuing grid modernization solutions that rely on these intelligent devices and customers are increasingly demanding solutions in this realm. In support of this, the ADMS program will provide an integrated software platform that provides tools to monitor and control the distribution network in real time.

Additional information on PSE's Grid Modernization efforts can be found in Koch, Exh. CAK-1T.

Q. Has work on the ADMS program started?

A. Yes. Program work began in 2018 and is expected to complete in 2023.

Q. Is PSE seeking any cost recovery related to the ADMS program in this proceeding?

A. Yes. The total amount requested in the full rate case for the ADMS program is $33.20 million, which includes $19.98 million for the period of January 1, 2019 through June 30, 2021. Additional details on ADMS program spend during this period can be found in Exh. SLT-3.

Q. Because work on the ADMS program has already started, please describe key project deliverables, including timeline for delivery.

A. The ADMS solution will be launched incrementally in three projects. The Distribution Supervisory Control and Data Acquisition ("SCADA") project completed in 2021 and delivered foundational capabilities for Schneider Electric's ADMS system and ensured all existing distribution SCADA assets and all distribution substation displays model are operating out of the new ADMS system. The second project will replace PSE's current PowerOn Outage Management System ("OMS") with Schneider's OMS Module and launch a load flow pilot. The final project will deploy advanced ADMS system functionality including real-time load flow, state estimation, operator training, switching optimization, voltage reduction through Volt/VAR optimization and Conservation Voltage Reduction ("CVR"), peak demand management, situational awareness, self-healing, and distributed energy resource integration. All program work is scheduled to complete in 2023.

Please refer to Exh. SLT-14 for additional details on the ADMS program.

Q. What are the expected benefits of the ADMS program?

A. In general, delivery of an integrated platform to monitor and control the distribution network in real-time supports customer requirements for higher reliability, improved power quality, renewable energy sources, security of data, and resiliency to natural disasters and other threats that disrupt the flow of power and their lifestyles. Additional details on ADMS related benefits can be found in Koch, Exh. CAK-5.

Q. How is the program team keeping PSE management informed during the course of the program?

A. The governance structure used for the ADMS program aligns with standard PSE IT governance structure requirements for technology programs and projects. Primary IT and business sponsors are assigned to the program and a Steering Committee comprised of leaders from across PSE and IT meet regularly to monitor the program. Additionally, monthly program status reports are created and reviewed in monthly IT Portfolio review meetings with IT leadership.

Q. Have there been any material changes affecting project scope, schedule or budget?

A. Yes. The program was initially scheduled to complete in 2021 and is now projected to complete in 2023. Also, the original approved budget was $27.86

million and the current estimate to complete is $33.20 million. The primary drivers for schedule and budget changes include:

- **Complexity** – The complexity of implementing an ADMS systems was underestimated, especially in the areas of planning, testing and training;
- **Vendor product availability** – A one year shift in the schedule can directly be attributed to a vendor release delay related to a critical software component; and
- **COVID** – The transition to remote working as a result of the COVID pandemic directly impacted the ability of the program team to complete critical work, especially work that required field and in-person tasks.

5. Enhanced Substation Communications Project

Q. Please describe PSE's Enhanced Substation Communications project.

A. PSE's ability to safely and reliability manage the grid is at risk due to reliance on obsolete and no longer supported or manufactured communications technology and hardware associated with the SCADA system. As such, the Enhanced Substation Communications project will modernize the existing analog communication technology to use Distributed Network Protocol ("DNP"), which was specifically developed for communication between control and data acquisition systems. Obsolete routers, switches, firewalls and Remote Terminal Units at substations related to the SCADA system will also be replaced as part of the project, as replacement is required to support the new communication protocol.

Q. Has work on the Enhanced Substation Communications project started?

A. Yes. PSE began modernizing the SCADA systems at substations several years ago as other work was occurring at substations and as part of the IT Operational program described above. However, once it became clear that the speed of replacement was insufficient as replacement hardware was no longer available on the market, a formal project was approved and funded for start in 2020. The project is expected to complete work at all substations by the end of 2023.

Q. Is PSE seeking any cost recovery related to the Enhanced Substation Communications project in this proceeding?

A. Yes. The total amount requested for the Enhanced Substation Communications project across all years included in this rate case is $11.04 million. This includes $3.92 million associated with the period of January 1, 2019 thru June 30, 2021. Please refer to Exh. SLT-3 for additional details on this spend.

Q. Because work on the Enhanced Substation Communications project has already started, please describe key project deliverables, including timeline for delivery.

A. As mentioned above, this project will upgrade all SCADA systems at PSE substations to utilize DNP communications and replace obsolete hardware with new equipment. Although SCADA modernization work has been underway for several years, work associated with this project began in 2020 and will complete

in 2023. 145 substations will be upgraded because of this project, with 78 of those complete by the end of 2021.

Q. What are the expected benefits of the Enhanced Substation Communications project?

A. Work associated with the Enhanced Substations Communications projects will provide the following benefits:

- **Technical currency** – Migrating PSE's SCADA systems to utilize DNP for communications will bring this technology up to current industry standards. As an example, a peer utility, Snohomish County PUD, has already completed similar work at all of their substations.
- **Availability of local talent to support SCADA systems** – Analog communication technology is no longer part of technical school curriculums, and as a result, many available experienced trained technicians do not have skills to support analog systems. This project will implement a solution that aligns with skills in the local workforce.
- **Smart Grid** – The implementation of modernized communication systems for SCADA is a key dependency for required integration with ADMS, as referenced in Koch, Exh. CAK-1T.
- **Improved Reliability** – The implemented solution will improve the reliability of SCADA communications and grid management, resulting in improved reliability for PSE's customers.

Q. How is the project team keeping PSE management informed during the course of the project?

A. The Enhanced Substations Communications project is following all IT PMO Governance structure requirements, as described above. A primary IT Sponsor is assigned to the project and regular Steering Committee meetings are convened to

provide project oversight, key decision making, risk mitigation, and approval of costs and changes. Additionally, monthly status reports and budget forecasts are submitted and reported on at monthly IT Portfolio meetings.

Q. Have there been any material changes affecting project scope, schedule, or budget?

A. Yes. While project scope and schedule are currently projected to remain as initially planned, the overall budget for project work has been reduced from the initial estimate of $9.3 million to $8.7 million because estimates for remaining work have been refined to leverage historical cost per substation implementation.

6. Transport Network Modernization Project

Q. Please describe PSE's Transport Network Modernization project.

A. PSE's telecom transport network exists throughout PSE's service territory and provides communication links for the majority of PSE's site-to-site data traffic. The current networking equipment in use has been designated as end-of-life by the manufacturer and PSE is currently experiencing diminishing vendor support, including:

- The vendor no longer provides technical support assistance and will no longer help repair damaged equipment, resulting in costly third party hardware repairs; and
- Necessary hardware and equipment are no longer manufactured, so break fix issue resolution is dependent upon the purchase of aftermarket refurbished hardware.

The current network utilizes Time Division Multiplexing ("TDM") technology. This project will replace PSE's current TDM network with a carrier grade Multiprotocol Label Switching ("MPLS") platform. The MPLS network will have improved network monitoring and analytics compared to the TDM network, and will provide better visibility to network and mission critical circuits (i.e., relay protection, Remedial Action Schemes, and SCADA) allowing for quicker repair and recovery time.

Use of MPLS has become a utility standard, with many peer utilities, including Avista Corporation, Portland General Electric, Chelan County PUD, Grays Harbor PUD, Tacoma Power and Idaho Power, already utilizing MPLS for telecom transport.

Q. Has work on the Transport Network Modernization project started?

A. Yes. Conversion of PSE's telecom network from TDM to MPLS actually began in 2014 as part of annual operational work. However, as maintaining TDM sites became increasingly difficult over time due to limited equipment and support availability, PSE IT determined a move to MPLS for all sites needed to occur more quickly. As a result, this project was approved and funded in 2020 so that all MPLS upgrades could complete by the end of 2025. For additional project information see Exh. SLT-11.

Q. Is PSE seeking any cost recovery related to the Transport Network Modernization project in this proceeding?

A. Yes. The total amount requested for the Transport Network Modernization project across all years included in this case is $11.55 million. This includes $0.35 million associated with the period of January 1, 2019 thru June 30, 2021. Please refer to Exh. SLT-3 for additional details on this spend.

Q. Because work on the Transport Network Modernization project has already started, please describe key project deliverables, including timeline for delivery.

A. As mentioned above, all telecom network transports will be converted to MPLS by the end of 2025. As part of the migration, the project will also include the following:

- Implementation of tools for system monitoring and statistic reporting which will enable PSE to respond to customer service interruptions with increased efficiency; and
- Implementation of system management software to simplify key operator tasks and complexity required to provision end-to-end service connections, resulting in increased system operator efficiency and gas and electric customer system reliability through enhanced automated intelligence.

Q. What are the expected benefits of the Transport Network Modernization project?

A. Customer experience will be enhanced because PSE is investing in greater system reliability and information integrity for its critical communication assets, thereby

providing more reliable service. An MPLS network also enables PSE's transport network to scale and adapt to evolving future smart gird capabilities. And finally, moving to a new MPLS network will allow PSE to avoid increasing costs associated with third party support and the procurement of refurbished equipment that would be required to maintain PSE's current TDM network.

Q. How is the project team keeping PSE management informed during the course of the project?

A. The Transport Network Modernization project is following all IT PMO Governance structure requirements, as described above. A primary IT Sponsor is assigned to the project and regular Steering Committee meetings are convened to provide project oversight, key decision making, risk mitigation, and approval of costs and changes. Additionally, monthly status reports and budget forecasts are submitted and reported on at monthly IT Portfolio meetings.

Q. Have there been any material changes affecting project scope, schedule or budget?

A. No. The project is currently on schedule to complete in 2025 per plan and overall project budget remains in alignment with the estimated project budget, although there have been some shifts in spend across calendar years as additional planning work was completed.

7. Data Enablement Program

Q. Please describe PSE's Data Enablement program.

A. The Data Enablement program was initiated in 2020 as mitigation for PSE's corporate risk related to its inability to leverage data to drive strategic business decisions and enhanced customer offerings. A foundational premise for the Data Enablement program is the use of data science to extract actionable insights from the large and ever-increasing volumes of data collected and created across PSE.

Efforts under this program address the risk related to the complexities of accessing, governing, and analyzing data given a rapidly growing and evolving technological landscape. The aim is to enable PSE and its stakeholders to access data to make informed and innovative decisions that benefit the customers, employees, and the company.

The three goals of the program are to 1) improve PSE's ability to manage, govern, and trust its data to increase its usability; 2) make data and data analytics tools available and accessible to the enterprise to deliver improved insights for decision making and innovation; and 3) establish a data-driven culture that treats data as an asset. The program has two main tracks: one which focuses on establishing the technology, processes, and resources needed to support the goals of the program, and another focused on the delivery of business analytics "use case" solutions (i.e., utilizing data and analytics capabilities to address specific business needs across PSE).

For additional details on this program, please refer to Exh. SLT-13.

Q. Has work on the Data Enablement Program started?

A. Yes. The Data Enablement program began in 2020 and is projected to complete in 2026.

Q. Is PSE seeking any rate recovery related to the Data Enablement program in this proceeding?

A. Yes. PSE seeks recovery for a total of $23.21 million with this rate request. This includes $1.12 million for the period of January 1, 2019 thru June 30, 2021. Please refer to Exh. SLT-3 for additional details on this spend.

Q. Because work on the Data Enablement program has already started, please describe components of the program, including timeline for delivery.

A. The Data Enablement program will deliver the foundational capabilities required to support cross-PSE data needs, including development of an enterprise data catalog, building data governance interfaces, data quality application and data connectors, and other applications or systems required to support achievement of corporate use cases. Foundational work is expected to complete by the end of 2022.

Additionally, the program will annually deliver on prioritized business use cases for PSE and develop dashboards to support data transparency and usability. Although program use cases will span all areas of PSE, these examples are

specifically the result of a roadmap created to identify high priority business cases using data from PSE's Advanced Metering Infrastructure ("AMI") network:

- **Meter Analytics Record** – This use case delivered the ability to use AMI data in PSE's Platform of Insights ("POI"), which hosts PSE customer and asset data. The POI has reporting, analytics, and data science toolsets which provide it the ability to act as a central access point for critical data extracts.

- **Customer Usage Data use case** – This work provides customers the ability to access more granular and timely usage data from their meter to help them better understand and manage their energy consumption. In the Commission's Final Order in PSE's 2019 general rate case, the Commission provided guidance for PSE to review a Utility Dive article which, based on the ACEEE report, "Leveraging Advanced Metering Infrastructure To Save Energy," examined whether utilities are leveraging AMI by utilizing data in six areas: time of use rates, near real-time energy use feedback for customers, behavior-based programs, data disaggregation, grid-interactive efficient buildings, and CVR or volt/VAR optimization.[3] The Customer Usage Data use case aligns with the "near real-time energy use feedback to customers" category in the ACEEE report.

- **Model Validation/Voltage Anomaly use case** – This work delivered a dashboard tool that leverages AMI data and data science to flag and cluster meters and circuits that have voltage anomalies at every hour using 15-minute interval data. This allows PSE's Planning team to proactively identify problem circuits that are overloaded (lower voltage than nominal) or under-loaded (higher voltage than nominal).

- **Asset Health use case** – Currently, PSE has limited visibility into the operational health of its service transformers and therefore Asset Management team's approach to addressing transformer issues is highly reactive. A service transformer can fail at any time for multiple reasons causing outages for customers and requiring crews to do unplanned work. With the deployment and capabilities of AMI, the team is hoping to leverage real time data, existing equipment information, and risk parameters that will help them

[3] *WUTC v. Puget Sound Energy*, Dockets UE-190529/UG-190530 et al., Final Order ¶ 132 (July 8, 2020).

replace or repair at-risk transformers before they fail, preventing unplanned outages for customers and costly unplanned work.

Examples of other dashboards delivered to date as part of implemented use cases include analytics related to outage, internal audit, billing performance and customer outreach, and Accounts Receivable aging, predictive analytics for operations, and transformer asset health reporting.

For additional project information, see Exh. SLT-12.

Q. What are the expected benefits of the Data Enablement program?

A. The Data Enablement program will provide a powerful platform for enabling analysis, innovation, operational streamlining, and access to data needed to respond to customer expectations and make strategic business decisions. Specific benefits include:

- Improved ability to manage and govern enterprise data across PSE;
- Improved customer engagement, including earlier identification of customer self-service barriers and enhanced ability to proactively resolve customer problems;
- Increased internal self-service for business data needs; and
- Reduced reliance and spend on third party analytics applications as this program helps standardize the use of Power BI across PSE. Power BI is a collection of software services, applications and connectors that work together to combine data from multiple sources into coherent and visual data presentations, and has been deemed the corporate standard for data visualization at PSE.

Q. How is the program team keeping PSE management informed during the roll out of the Data Enablement program?

A. The governance structure used for the program aligns with standard PSE IT governance structure requirements for technology programs and projects. Primary IT and business sponsors are assigned to the Program and a Steering Committee comprised of leaders from across PSE and IT meet regularly to monitor the program. The Steering Committee is also instrumental in prioritizing which business data use cases the program will complete each year. Additionally, monthly program status reports are created and reviewed in monthly IT Portfolio review meetings with IT leadership.

Q. Have there been any material changes affecting program scope, schedule or budget?

A. Yes. Initially the program was scheduled to complete in 2022, but work has since been spread out to complete in 2026. As estimates for future use cases have been further defined, the timeline has shifted to accommodate annual funding constraints as well as the availability of critical program resources required to complete the work. Also, the initial approved budget was $18.86 million over the course of the program, but the current estimate has risen to $24.5 million. Approximately $7 million in planned business enablement spend has been incorporated into the DEEP program due to use case and scope convergence.

IV. IT INVESTMENTS EXPECTED TO BE PLACED IN SERVICE JULY 1, 2021 THROUGH DECEMBER 31, 2022

A. Overview of IT Investments Placed Into Service During the Period of July 1, 2021 Through December 31, 2022

Q. Please provide an overview of all IT spending for which PSE seeks recovery related to the period of July 1, 2021 through December 31, 2022.

A. PSE seeks recovery of approximately $149.91 million in recovery for IT investments placed into service during this period. This includes $63.97 million of spend related to Business Enablement efforts, including the completion of the GTZ program, and $85.94 million in Systems Modernization investments. Information about specific efforts associated with this request is available in Exh. SLT-4, while details supporting major projects related to this request are described below.

B. Major Programs and Projects Placed Into Service During the Period of July 1, 2021 Through December 31, 2022

1. Data Center Hardware Refresh Project

Q. Please describe PSE's Data Center Hardware Refresh project.

A. PSE completed construction of two new data centers and the build of all new IT infrastructure systems in 2017. All applications located in PSE data centers were then migrated to utilize the new data centers in 2018. The new data centers improve PSE's disaster recovery capabilities and the overall resiliency of critical PSE IT systems. At the time of construction, these data centers were outfitted with new hardware to meet PSE production environment data processing needs

and support both real-time failover for individual systems as well as comprehensive disaster recovery should a catastrophic event occurs. Most of the hardware and processing equipment within these data centers has an asset life of three to five years and requires replacement in accordance with asset life to mitigate outage risk and to remain compliant with vendor support agreements. The Data Center Hardware Refresh project began in 2021, is expected to complete in 2023, and will replace all data center equipment in accordance with their specified asset lives. The type of equipment to be replaced includes servers, storage, networking, firewalls, and technology backup and recovery platforms. The work associated with replacement will include review of technology relevancy to ensure the correct replacement strategy, installation of the new equipment, and decommission of retired equipment.

Q. Has work on the Data Center Refresh project started?

A. Yes. As per above, work to refresh obsolete hardware and data processing equipment in PSE's two data center began in 2021 and will continue into 2023 to allow for refresh of all technology as it reaches end of life.

Q. Is PSE seeking any cost recovery related to the Data Center Refresh project in this proceeding?

A. Yes. PSE seeks recovery for a total of $19.72 million for all years covered in this rate request related to the Data Center Refresh. This includes $12.58 million for

the period July 1, 2021 thru December 31, 2022. Please refer to Exh. SLT-3 for additional details on this spend.

Q. Because work on the Data Center Hardware Refresh project has already started, please describe key project deliverables, including timeline for delivery.

A. As mentioned above, this project began in 2021 and will complete in 2023. All hardware and processing equipment in PSE's two data centers are scheduled for replacement, with replacement prioritized based on end of asset life and risk to critical business systems availability. The work associated with replacement will also include review of technology relevancy to ensure the correct replacement strategy is determined. Additional details on this project is available in Exh. SLT-13.

Q. What are the expected benefits of the Data Center Hardware Refresh project?

A. Work related to the Data Center Hardware Refresh project is required to maintain ongoing critical business system availability, stability, security, technical currency, and vendor support. PSE's data centers were built to help mitigate disaster recovery risk and ensure the safe and continuous operation of systems required to support critical PSE business processes, including electric and gas services. Replacing the hardware and data processing equipment in accordance with asset life requirements will minimize risk of outage and support continued

disaster recovery risk mitigation. In addition, replacing end-of-life hardware and data processing equipment will keep this equipment at vendor supported levels, allowing PSE to continue to receive critical system and security patches, take advantage of the latest technology features, and maintain license compliance as defined by support agreements. This project is also key to supporting PSE's corporate goal of 99.97 percent availability for systems that support critical business processes.

Q. How is the project team keeping PSE management informed during the course of the project?

A. The governance structure for the Data Center Refresh project is aligned with the IT PMO Governance structure requirements, as described above. A primary IT project sponsor is assigned to provide oversight, and a cross-IT Steering Committee meeting is held monthly to monitor the project. Monthly status reports are created and reviewed in monthly IT Portfolio Review meetings with IT leadership.

Q. Have there been any material changes affecting project scope, schedule, or budget?

A. No. The only change was the movement of planned work across years due to adjustments in project schedule, including as a result of COVID-related supply chain delays. As an example, some work planned in 2021 will now complete in 2022, and some planned work for 2022 will now be completed in 2023.

An ongoing risk related to this project is the impact COVID has had on vendor supply chains and pricing for both purchased equipment and ongoing support costs. Within IT, several major vendors, including Microsoft and Cisco, have already indicated their prices will be rising in 2022 because of COVID impacts. Although the cost impact is not yet known, there is strong potential that funding needed to complete this project will require additional budget. Additionally, delays in ability to receive equipment may lead to further shifting of in-service amounts across years.

2. Major Programs and Projects That Began in Prior Period.

Q. Please describe the other major programs and projects that began prior to July 1, 2021 and will have in-service spend during the period of July 1, 2021 through December 31, 2022?

A. The following major projects will have expected continued investment during this period as a continuation of the work described above:

- **GTZ program –** The IWM rollout to Electric Operations, including the Electric First Response project under the GTZ program, completed at the end of 2021, with spend of $25.40 million. For more information on the IWM release to Electric Operations project, please review Exh. SLT-7, which includes the project CSA.
- **IT Operational program –** An estimated $47.99 million of projects will be placed into service during this period.
- **Cyber and Corporate Security program –** An estimated $17.07 million will be placed into service during this period, including $5.5 million of spend related to WECC corporate security audit mitigations.

- **Enhanced Substation Communications project –** This project is expected to place $4.87 million of investment in service during this period.

- **Transport Network Modernization project –** This project is expected to place $3.41 million of investment in service during this period.

- **Data Enablement program –** This project is expected to place $12.09 million of investment in service during this period.

V. IT INVESTMENTS EXPECTED TO BE PLACED IN SERVICE JANUARY 1, 2023 THROUGH DECEMBER 31, 2025

A. Overview of IT Investments Placed Into Service During the Period of January 1, 2023 Through December 31, 2025

Q. Please provide an overview of all IT spending for which PSE seeks recovery related to the period of January 1, 2023 through December 31, 2025.

A. PSE seeks recovery of approximately $290.08 million in recovery for new IT investments placed into service during this period. This includes $114.04 million of spend expected to be placed in service during 2023, $77.85 million of spend expected to be placed in service during 2024, and $98.18 million of spend expected to be placed in service during 2025. Information about specific efforts associated with this request is available in Exh. SLT-5, while details supporting major projects related to this request are available in testimony below.

B. Major Programs and Projects Placed Into Service During the Period of January 1, 2023 Through December 31, 2025

1. Third Party Risk Program

Q. Please describe PSE's Third Party Risk program.

A. PSE's Third Party Risk Program focuses on identifying and reducing risks relating to the use of third parties (sometimes referred to as vendors, suppliers, partners, contractors, or service providers). Third party risk events can have a major adverse impact on safety, system integrity and reputation. As incidents relating to third parties rise, organizations are becoming more concerned about disruption to customer services, regulation breach, organization reputation, and financial impacts. This is further exacerbated by the COVID pandemic, which has increased supply chain and third-party risk for almost every business. In addition, many data breaches or cyber security events can be traced back to third parties. Utilities like PSE are especially vulnerable because they rely on a multitude of suppliers that provide technology, materials, data, and professional services to accomplish the work required to deliver core gas, electric and generation services. To protect PSE's core business processes, the Third Party Risk program will implement new processes, procedures, tools, technology, and system enhancements reduce and mitigate this risk. Primary objectives of the program include providing greater visibility and monitoring of PSE's third-party risk, ensuring quality and standards compliance, and minimizing exposure to supply chain disruption.

Q. Has work on the Third Party Risk program started?

A. No. Planning efforts will begin in 2022, with capital efforts related to the Third Party Risk Program scheduled to start in 2023 and be complete in 2025. Internal efforts related to evaluation and oversight of third party risk are underway within PSE, including the 2021 creation of PSE's Third Party Governance, Performance and Risk Management team, which will focus on establishing the supplier performance and risk management governance processes and tools.

Q. Is PSE seeking any cost recovery related to the Third Party Risk program in this proceeding?

A. Yes. As mentioned above, the Third Party Risk program is currently scheduled to begin in 2023 and complete in 2025. The total recovery cost request is $10.50 million, which is expected to be placed in-service in 2025.

Q. Given that the Third Party Risk program has not yet started, please describe how specific projects will be identified.

A. In 2018, PSE's Enterprise Risk team performed a third-party risk assessment and documented several improvement areas, including data governance, system integrity, reputational/brand risk management, compliance management, business continuity/supply chain disruption, dependence on suppliers and limited diversification, manual or non-optimized security practices, and monitoring supplier's individual access to systems pertaining to sensitive data. Upon receiving the Enterprise Risk report, the PSE Corporate Procurement team began

working on mitigations. In early 2021, an updated Enterprise Risk analysis was completed which evaluated opportunities to mitigate risk in the areas of financial, operations, reputation, compliance impact, safety, and likelihood of supply chain disruption. As a result, as noted above, in 2021, a Third Party Governance, Performance and Risk Management team was created to reduce and mitigate PSE's third party risk.

Q. What will the Third Party Governance, Performance and Risk Management team do?

A. The Third Party Governance, Performance and Risk Management team will provide business sponsorship for the Third Party Risk program, and will work closely with IT to identify and implement appropriate technology solutions. High-level program planning has completed, and detailed planning will begin 2022. Many areas of opportunity are already known, including:

- Addressing key risk areas identified in the Enterprise Risk analysis.
- Ensuring PSE's ability to meet expected compliance and other potentially forthcoming regulations. One specific compliance requirement expected is the ability to identify country of origin for manufacturer and suppliers. Currently, PSE has limited manual processes in place for capturing this information, with focus on only a specific list of equipment with regards to People's Republic of China affiliation. As full requirements are not yet known for compliance requirements, work will be identified as details become available and then planned into the program.
- Automating manual management of third-party spreadsheet questionnaires and processes, including NERC CIP compliance and cyber security requirements put forward by IT Security.

- Implementing proactive third-party risk monitoring. There is a need to improve the supplier monitoring processes and create proactive risk alerts where appropriate.

Q. Please describe currently planned system efforts.

A. As mentioned above, the Third Party Governance, Performance and Risk Management team has worked with IT to identify proposed solutions. These inform the overall scope of the Third Party Risk program which will focus on two categories of work across multiple work streams:

1. **Contingent Workforce and Contractor Workforce**: Work planned here will address the contract worker areas noted in Enterprise Risk assessment. While detailed planning is still in progress through 2022, work already identified includes:

    a. Implementing SAP Fieldglass or a similar product to automate manual processes from contract creation through contractor off-boarding, including automation of all questionnaire processes as described in above testimony;

    b. Integration of SAP Fieldglass or a similar product with core SAP, Human Resources and Identity systems already in use at PSE;

    c. Utilizing Fieldglass or a similar product to track various contract elements, including length of time contractors are with PSE, logical and physical access granted, and completion of required training and compliance activities; and

    d. Implement improved Staff Augmentation Reporting to increase visibility and reduce risk.

2. **Third Party Governance, Performance and Risk Managemen**t: Focus here will include master data management, consolidated reporting and risk alerts required to support performance and risk scorecards, and Executive Order requirements. Work currently identified includes:

    a. Implementing master data management technology to ensure data standardization across existing internal and external systems, including core SAP systems, Ariba procurement solution, BitSight for cyber security

third party assessment, Rapid Ratings for financial third-party assessment, and others to be identified and prioritized;

b. Digitizing existing processes so that data can be automatically analyzed for risk and presented on Supplier Review scorecards;

c. Automating performance and risk scorecards for all third parties used at PSE;

d. Optimizing warehouse inventory tracking to support Executive Orders 13920 and 14017; and

e. Work needed to implement expected forthcoming compliance requirements will be identified as requirements are released.

Q. What are the expected benefits associated with the Third Party Risk program?

A. The primary benefit associated with the Third Party Risk program is the reduction of corporate third party risk. Additional benefits expected include:

- Increased visibility related to PSE's use of third parties;
- Reduced co-employment risk due to long-term dependence on and improved visibility to staff-augmentation data;
- The ability to report on contractor training and compliance requirements;
- Reduced manual gaps and improved on/off boarding automation that further reduces compliance risk and improves access processes;
- Streamlined procurement processes that reduce manual effort and create a single data source to be utilized for risk and performance data;
- Consolidated and automated performance and risk scorecard reporting to be used for consistent Supplier Risk Reviews; and
- Compliance with expected regulatory, Department of Energy and cybersecurity requirements.

2. SAP S/4 HANA Migration Project

Q. Please describe PSE's SAP S/4 HANA Migration project

A. The SAP S/4 HANA Migration project is a large Systems Modernization effort to upgrade all SAP system components due to system obsolescence. SAP is an Enterprise Resource Planning ("ERP") software that PSE uses as a centralized system to access and share common data for core business functions, such as financials, human resources, customer relationship, inventory management and many others. SAP is the most-used ERP software on the market and contains hundreds of fully integrated modules that cover nearly every aspect of business management. PSE's current SAP system utilizes version 6.0 of SAP Central Component, referred to as "SAP ECC 6.0." SAP ECC 6.0 will be end-of-life with no vendor support beginning in 2027, and the SAP S/4 HANA Migration project will work to upgrade PSE's SAP system to SAP Business Suite 4 SAP HANA, which is commonly known as "SAP S/4 HANA" and is the latest ERP solution offered by SAP.

Q. Has work on the SAP S/4 HANA Migration project started?

A. No. Work is expected to begin in 2024 and complete in 2026. Specific components of PSE's SAP system will be upgraded each year and placed into service accordingly.

Q. Is PSE seeking any cost recovery related to the SAP S/4 HANA Migration project in this proceeding?

A. Yes. The estimated cost for the SAP S/4 HANA Migration is $30 million, with $10 million of expected spend to be placed in service during 2024 and $10 million of expected spend expected to be placed in service during 2025. The remaining $10 million of spend is expected to be placed in service in 2026, which is outside the scope of this case. The estimated annual spend placed in service each year assumes that individual components of the overall SAP systems can be placed into service as they are upgraded, and will be solidified as the project team completes detailed planning.

Q. Given that the SAP S/4 HANA Migration project has not yet started, please describe how specific project work will be identified.

A. The PSE SAP team is currently working with other utilities who are in progress with their S/4 HANA migrations to understand how they are sequencing work to help with development of the overall project approach. Additionally, the team has engaged with PSE's SAP vendor partner for guidance on project approach and is utilizing Accenture, PSE's strategic partner for development and support work, for a best practice perspective. Finally, the PSE SAP team is additionally working with key PSE business partners to understand their business processes and to determine areas of improvement or pain points that can be addressed during the S/4 migration, as the new platform offers several areas of new functionality.

Q. Please describe currently planned system efforts.

A. PSE's SAP ECC 6.0 system will be replaced with the SAP S/4 HANA system. As part of this process, many currently installed SAP modules will require upgrades, including the following:

- PSE currently utilizes SAP's Customer Relationship Module to support customer related processes end-to-end. This module will require an upgrade to the new version, C/4 HANA.
- Similarly, SAP's Business Warehouse ("BW") Module will require upgrade. This is a critical component of the Data Enablement program that PSE uses to create and modify data warehouses, perform data management tasks, generate reports, and develop analytics applications. This will be upgraded to BW/4 HANA.
- The SAP Financial module will also be upgraded. This model supports all financial processes across PSE and is critical to PSE operations. The upgrade will allow for additional functionality including streamlined financial processes, making possible real-time financial data analysis.

In addition, migration to SAP S/4 HANA would allow PSE to migrate its SAP environments to the Cloud; PSE will review this possibility and make a decision in the future. The alternative is to continue to run all SAP environments on hardware and equipment residing in PSE's Data Centers.

Q. What are the expected benefits of the SAP S/4 HANA Migration project?

A. Although the primary benefit is mitigation of risk related to running PSE's critical systems on obsolete and non-supported platforms, secondary benefits are widespread and associated with all upgraded modules. Key benefits include:

- **Ability to support strategic business needs** – SAP S/4 HANA is already in use globally and offers significant new functionality that PSE can take advantage of. Additionally, SAP is expected to continue investment into expanded functionality for SAP S/4 HANA in the future.

- **Improved customer experience** – Many customer services depend on SAP functionality and migrating to the latest platform ensures ongoing availability, stability, and resiliency of service.

- **Streamlined financial processes** – SAP S/4 HANA combines the disparate data structure associated with Financial Asset Accounting, Controlling, Profitability Analysis and Material Ledger into a single data structure referred to as the Universal Journal. This eliminates many aggregate and index tables, resulting in increased ability to access data needed for critical business support and resulting in significantly increased process efficiency, including shorter month-end and year-end closing.

3. Radio Replatform Project

Q. Please describe PSE's Radio Replatform project.

A. PSE maintains extensive radio systems for safety communications during daily operations and incident response. For day-to-day operations, electric and gas operations use the PSE radio system to openly communicate to field and office personnel. Campus locations, such as generation sites or gas storage locations, also use the radio system to communicate with plant personnel. In the case of gas storage locations, radios are the only safe and legal means to communicate at the plant because cell phones are prohibited by regulation.

Q. Why does PSE plan to invest in the Radio Replatform project?

A. PSE's current radio system was implemented across all PSE areas beginning in 2011 and completed in 2013. It was built as an analog radio system, which works

by wirelessly communicating over PSE's owned Radio Frequency spectrum to various communication tower sites throughout PSE's territory, much like a cell phone communicates with a cell tower. Analog radio was the industry best practice at the time of implementation. Today, many manufacturers are no longer supporting analog radio systems as they tend to have issues with interference, making conversations less intelligible, and they limit the amount of voice traffic that each tower can handle. This, coupled with the fact that replacement parts for PSE's existing system are becoming harder to purchase, has introduced significant safety concerns related to ongoing use at PSE.

The Radio Replatform project will transition PSE's obsolete radio system to utilize Digital Mobile Radio ("DMR"), which works by picking up a processed signal that turns sound into patterns of digits (numbers) rather than the radio waves which are used for analog transmissions. Digital radios provide a clear sound, less interference than traditional analog radios, allow for more voice traffic, and are currently the industry standard. DMR networks require the replacement of analog radio base stations (including towers sites, often mountain top, at 60 different locations throughout Washington), routers and switches supporting the current radio system and mobile radios (which are permanently installed in all PSE field vehicles), and all analog portable radios (hand held radios assigned to all field personnel that they carry on their person).

Q. Has work on the Radio Replatform project started?

A. No. The project will formally begin in 2025 and complete in 2026. However, in an effort to help mitigate safety risk, PSE has been installing mobile radios with dual (analog and digital) capabilities in PSE vehicles, and redundant controlling nodes have been replaced with dual technology equipment as work is completed for other projects or as part of break/fix scenarios.

Q. Is PSE seeking any cost recovery related to the Radio Replatform project in this proceeding?

A. Yes. The current estimate for full project completion is $20 million, with $10 million of spend expected to be placed in service in 2025. The remaining $10 million will be placed in service in 2026, which is outside the scope of this case. The estimated annual spend placed in service each year assumes that individual components of the overall radio systems can be placed into service as they are upgraded, and will be solidified as the project team completes detailed planning.

Q. Given that the Radio Replatform project has not yet started, please describe how specific project work will be identified.

A. The PSE IT Telecom team is responsible for developing the technology approach for the Radio Replatform project, in partnership with PSE IT Security, PSE Architecture, and the aligned business users of PSE's current radio system. While the final proposed solution is still being investigated, as mentioned in testimony above, some components are being replaced to support analog and digital as part

of other project or break/fix work. For the overall project, the PSE IT Telecom team is currently evaluating selected technology manufacturer product offerings, comparing peer utilities, and eliciting best practices from industry experts to inform project direction. Once the overall solution is determined, the project team will pre-engineer a design associated with the solution and request information and quotes from various vendors to meet the design and ensure best pricing. Upon selection of a technology and a vendor, PSE will then identify the work and scope that needs to be completed with more detailed designs approved by both IT Architecture and IT Security teams.

Q. Please describe currently planned system efforts.

A. As described above, this project seeks to replace PSE's current radio system with a modernized DMR system, which includes replacement of all radio base stations, routers and switches supporting the current radio system, and all mobile and portable radios.

Q. What are the expected benefits of the Radio Replatform project?

A. There are two primary benefits associated with the Radio Replatform project:

- **Safety –** Having a reliable and highly available radio system, in which messages can be clearly received and understood, is a foundational safety requirement for PSE. The modernization of PSE's current radio system to industry standard is needed to support this.

  Additionally, because PSE is also a gas operating company, any communication equipment brought into Class I, Division 1 locations (where combustible gas is likely to be present) must be

Intrinsically Safe certified for Class I, Division 1 (C1D1) operation. Due to changes made to align the North American and European Intrinsically Safe standards, the portable radios PSE purchased (in 2011-2013) were reclassified to a less stringent Class I, Division 2 certification. Existing stock is grandfathered to its certified classification, but PSE has limited ability to purchase new or replacement portable radio equipment. Moving to a DMR system will allow for greater availability of these radios in the market.

- **Systems Modernization –** This project will ensure PSE's radio system resides on technology that is industry standard and fully supported by vendor partners, and that replacement equipment is readily available within the market.

4. Major Programs and Projects That Began in Prior Periods

Q. Are there any major programs or projects that began in prior rate case periods and will continue into the period of January 1, 2023 through December 31, 2025?

A. Yes. As described in testimony above, the following major projects will have expected continued investment during this period:

- **IT Operational Program –** An estimated $100.95 million of projects will be placed into service during this period;
- **Cyber and Corporate Security Program –** An estimated $22.98 million will be placed into service during this period, including $12.0 million of spend related to WECC corporate security audit mitigations;
- **ADMS Program –** This project is expected to place $13.22 million in service in 2023, which is when the program is projected to complete;
- **Enhanced Substation Communications Project –** This project is expected to place $2.25 million of investment in service during this period, as the project completes work at all remaining substations by the end of 2023;

- **Transport Network Modernization Project –** This project is expected to place $7.78 million of investment in service during this period, with all project work completing in 2025; and

- **Data Center Hardware Refresh Project –** This project is expected to place $7.14 million of investment in service during this period, with all work completing in 2023.

See Exh. SLT-5 for specific information on projected in-service spend during this period.

Q. Are you expecting any material changes that could impact program or project scope, schedule or budget for efforts planned during the period of January 1, 2023 through December 31, 2025?

A. As described above, COVID has had unexpected impacts on vendor supply chains and pricing for products and ongoing support is expected to rise as a result. PSE is already aware of two major vendors, Microsoft and Cisco, who have indicated significant price increases beginning in 2022. The effect these impacts, as well as those from other vendors, will have on projected budgets and timelines for planned efforts is not yet clear, but PSE expects to see some impact as a result.

VI. CONCLUSION

Q. Does this conclude your prefiled direct testimony?

A. Yes, it does.