EXHIBIT NO. ___(DEM-1T)
DOCKETS UE-17____/UG-17____
2017 PSE GENERAL RATE CASE
WITNESS: DAVID E. MILLS

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-17____** **Docket UG-17____**

PREFILED DIRECT TESTIMONY (NONCONFIDENTIAL) OF

DAVID E. MILLS

ON BEHALF OF PUGET SOUND ENERGY

REVISED
JANUARY 27, 2017

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PUGET SOUND ENERGY

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PUGET SOUND ENERGY

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I. INTRODUCTION

Q. Please state your name, business address, and position with Puget Sound Energy.

A. My name is David E. Mills. My business address is 10885 NE Fourth Street, P.O. Box 97034, Bellevue, WA 98009-9734. I am the Vice President, Energy Operations for Puget Sound Energy ("PSE").

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

A. Yes, I have. It is Exhibit No. ___(DEM-2).

Q. What are your duties as Vice President, Energy Operations at PSE?

A. As Vice President, Energy Operations, my responsibilities include oversight of PSE's Power and Gas Supply Operations, Load Serving Operations, Transmission Contracts, and Energy Operations Policy, Planning & Compliance groups. My responsibilities include management of PSE's short- and medium-term wholesale power and natural gas portfolios (up to three years) and involvement with long-term hedging requirements and integrated resource planning. My responsibilities also include developing strategies to address risks related to PSE's electric and gas portfolios as well as the continuous operation that monitors, operates, and

controls transmission switching, generation dispatch, control area load balancing, real-time transmission scheduling, and Energy Imbalance Market participation for PSE and its customers. Finally, I am also responsible for certain strategic customer initiatives related to customer experience and satisfaction.

II. OVERVIEW OF THE CHALLENGES FACING THE INDUSTRY AND PSE'S VISION

Q. Please provide a high level overview of PSE and its vision for the future.

A. PSE and its predecessor companies have served Western Washington for more than a century. In that time, customers' needs have continuously evolved, with today's customers having increasing expectations for the energy services and customer experience. PSE is committed to meeting those expectations and has built its vision of the future on that "voice of the customer." Currently, PSE hears its customers continue to demand safe, reliable and affordable energy service, but also lower emission energy sources and options for choice and control from their utility.

PSE is Washington's largest electric and natural gas utility, with approximately 1.1 million electric customers and approximately 800,000 natural gas customers. PSE employs approximately 3,000 Washington residents and covers a service territory that spans approximately 6,000 square miles in ten counties. PSE owns and maintains more than 20,000 miles of electric transmission and distribution lines and underground cables to deliver electricity to its customers. Additionally, PSE owns and maintains approximately 26,000 miles of natural gas lines that serve its natural gas customers.

PSE has been a leader in the development of renewable and low-carbon resources, and it is PSE's vision to serve customers' needs with an increasingly cleaner portfolio of energy resources. PSE remains one of the country's largest utility-owners of wind assets, and its power portfolio includes more than 800 MW of wind generation. Throughout its history, PSE has built, owned and operated FERC-licensed hydroelectric plants that have provided low-cost, reliable, carbon-free energy to Washington residents for more than a hundred years. PSE continues that legacy through recent upgrades to its Snoqualmie Falls and Baker River Hydroelectric Projects. Those recent upgrades increased the carbon-free power generated from those plants and ensured compliance with FERC license requirements.

In addition to building new, low-carbon energy sources, PSE is also phasing out older, carbon-intensive resources from its portfolio. As discussed in more detail in this filing, PSE is presenting a plan to retire Colstrip Units 1 & 2, which will significantly reduce carbon emissions in the region. In fact, PSE will reduce its carbon emissions from coal by 65% within the next decade.

PSE's bedrock continues to be offering its customers safe, dependable and reliable electric and natural gas service efficiently and at a reasonable price. PSE's vision going forward is to build upon that bedrock with greater offerings that give customers choices in their source of power, ability to monitor and conserve usage, and avenues for contacting PSE. PSE is offering greater options for customers who want to purchase renewable power in the future. PSE has long been a leader in energy efficiency and conservation programs and will continue to

work with stakeholders to develop incentives that encourage the efficient use of energy by customers. PSE will increase its capacity to anticipate customer needs and provide more options for customers to interact with their utility.

Finally, PSE recognizes that the energy industry is in transition and that utilities must adapt and evolve if they are to be able to remain financially stable while providing reliable energy service to customers and meeting their expectations in this changing environment. This case includes several proposals that will help PSE to remain financially sound while providing safe, dependable, and reliable service to its customers, and also providing customers choices in terms of their power sources, usage and interactions with PSE.

Q. Please summarize the environment in which PSE operates and the challenges faced.

A. PSE is filing its rate case in a time of increasing uncertainty but also great opportunity. While utilities around the country are still called upon to provide their services in the safest, most dependable and most efficient way possible, they are increasingly being asked to do so in the face of mounting financial and competitive pressure. Utilities are also challenged to provide reliable utility service in a way that protects the environment and gives customers more choices as to the source of the energy and how they interact with their utilities. In light of these changes, PSE and its regulators must be willing to embrace new, flexible, and dynamic approaches that will meet customers' changing needs and choices while also allowing PSE to operate as a financially healthy utility that can reliably provide energy service to its customers and the region.

Q. What steps has PSE taken to provide reliable utility service that protects the environment and gives customers more choices?

A. Customers have a growing interest in the environmental impact of their energy consumption. The preeminent environmental issue being discussed today is how to address factors that contribute to global climate change, particularly the emissions of carbon dioxide (CO_2). As owners of some of the largest stationary sources of CO_2, utilities are a key stakeholder in that discussion. Although there is uncertainty as to how the recent election will affect the U.S. Environmental Protection Administration's ("EPA") Clean Power Plan, one thing is certain—PSE, its customers, and the state of Washington, recognize the need to address climate change, and CO_2 emissions in particular. PSE understands this concern and is offering solutions to increase sources of clean energy and reduce sources of carbon-intensive energy.

For example, PSE recently began offering a voluntary tariffed service that allows larger customers the option to purchase renewable energy from resources PSE owns or contracts for, and also to purchase renewable energy credits ("RECs") generated from electric production. This supplements PSE's very successful green power program that allows customers to support locally-sourced Green-e certified energy sources. This program is structured around the purchase of RECs that supplement the revenues received by the green resource owners through their traditional power sales agreements.

Another step PSE has taken to address environmental concerns is a commitment to decommission Colstrip Units 1 & 2, of which PSE is a 50 percent owner.

Colstrip Units 1 & 2 have been generating reliable, base load, coal-fired electricity for nearly half a century. However, they are the source of a significant amount of CO_2 emissions, and the units are reaching the end of their useful lives. Therefore, PSE plans to retire the boilers for Colstrip Units 1 & 2 by July 1, 2022, which will result in a significant decrease in carbon emissions. The decommissioning and remediation plan for these units, and the proposed funding for this work, is set forth in the Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), Prefiled Direct Testimony of Daniel A. Doyle, Exhibit No. ___(DAD-1T), and the the Prefiled Direct Testimony of Katherine J. Barnard, Exhibit No. ___(KJB-1T).

PSE has taken steps to transition a portion of the State's transportation sector away from petroleum-based fuels. For example, PSE implemented tariff offerings that promote the use of compressed natural gas and electricity in the residential and small commercial transportation sector. PSE has recently received Commission approval to pursue the development of a liquefied natural gas ("LNG") facility at the Port of Tacoma that will serve the dual purpose of meeting PSE customers' peak gas resource needs while also promoting LNG as a transportation fuel, primarily for the maritime sector. The use of LNG for shipping on Puget Sound (versus diesel) will benefit both local air quality as well as have a positive effect on greenhouse gas emissions.

PSE is exploring electric vehicle service. The Commission approved a PSE Pilot Program (Schedule 195) in Docket UE-140626 that allows PSE to offer a

customer rebate of $500 to customers that install a level-2 charger. Thus far, over 1,200 customers have enrolled in the program.

In addition to addressing emissions and air quality issues, PSE took a significant step forward towards aligning its financial incentives with those of its customers when the Commission approved its electric and gas decoupling mechanisms. The Commission recognized that in approving these mechanisms it was removing the "throughput incentive" created by tying the recovery of PSE's fixed delivery system costs to the amount of energy it sold. However, this incentive remained for the recovery of PSE's fixed production costs.

As part of the current rate case, PSE is proposing to address this last remaining throughput incentive by moving the recovery of PSE's fixed production costs into its electric decoupling mechanisms. Doing so, PSE will no longer be dependent on energy sales to recover its fixed production costs and thereby further align its financial incentives with its customers' interests in acquiring conservation resources.

Q. Please elaborate on the customer choice challenges that PSE and the utility industry face.

A. Customer expectations continue their swift rise, both in terms of choices desired and services expected. This is true of all industries, whether they serve business-to-consumer or business-to-business markets, and utilities are no exception. PSE customers today desire choice, including choices in the source of their energy. Green tariff options are becoming increasingly common, as are opportunities for

customers to obtain some or all of their power from someone other than their local utility. Many customers already exercise their ability to participate in utility net metering programs, where some or all of their energy requirements are provided on-site.

Customer service challenges are no less daunting. With the rapid evolution of digital customer engagement, exemplified by companies like Amazon, Apple and Google, other industries are under increasing pressure to follow suit. Utilities are not immune, with consumers increasingly interested in interacting with their utility through multiple communications channels, including online and via smartphone applications. Many utility customers want data available to them, including their daily or hourly energy usage, payment history and service options, and expect this data to be available via their choice of platform, including mobile devices. They also increasingly expect the same payment options that are available to them from other businesses, particularly the ability to pay by credit card.

Q. What steps has PSE taken to address these customer choice challenges?

A. PSE has taken steps to adapt to the changing, modern digital environment. For example, the Commission recently approved an accounting petition filed by PSE that allows consumers to pay their utility bills with credit cards without incurring a fee. Additionally, PSE is in the beginning stages of replacing its aging automated meter reading system with advanced metering infrastructure that will enable future abilities for customers' to monitor and control their energy usage.

PSE is also engaged in a long-term initiative that will facilitate customers' ability to do most, if not all, of their business with PSE through computers or smart phones and other devices, rather than talking with an agent in the call center. PSE calls this the "Get to Zero" or "GTZ" initiative because the goal is to anticipate customer needs and provide customers with their preferred pathways to address these needs, rather than requiring customers to call in and speak to a customer service representative. PSE will focus on addressing the operational and service issues that spur customers to pick-up the phone. This program will look to further improve customer experience by providing more self-service options that customers are requesting, developing new ways to proactively communicate with customers and creating seamless, integrated operations to tie all of PSE's business processes together. Simply put, PSE will operate so efficiently and in a consistently excellent fashion that customers will no longer have a need or desire to call. The "Get to Zero" initiative is discussed in more detail below.

Q. Please elaborate on the reliability challenges that PSE and the industry faces.

A. While the industry focuses on disruptive technologies, renewable energy, and customer choice, our customers' core requirements remain the same. All customers expect to receive safe, dependable and efficient energy service.

As consumers increasingly rely on electronic devices for work and recreation, the reliability of these services becomes even more important. Challenges to utility reliability have been highlighted recently by the significant disruptions to utility service created by the increasingly frequent occurrences of "extreme" weather events, such as 2012's Superstorm Sandy. Such events have led to an increased

focus on "system hardening" by utilities. While the Northwest has been fortunate enough to be spared these more catastrophic events, here too "extreme" weather appears to becoming the norm. For instance, PSE suffered unusual wind-related service interruptions in a freak August 2015 windstorm, which resulted in more than 400,000 PSE electric customers losing service. While not as unusual, PSE also experienced a series of November storms in 2015 that, at their peak, cut electric service to 220,000 PSE customers.

Finally, with the upward pressure on utility rates created by the dual effects of dampening load growth and the continued need for infrastructure replacement, whether planned or to repair storm damage, the need for efficient utility service has intensified.

Q. Please elaborate on the cost pressures that PSE and the utility industry face.

A. Attrition, which is simply the presence of costs growing faster than revenues, has been a problem for the utility industry for some time. In decades past, it was principally driven by the need for significant infrastructure investment combined with inflationary pressures. These pressures had traditionally been mitigated by growing energy sales, which produced a certain amount of offsetting revenue.

More recently, with growing interest by customers in efficient energy use, growth in energy sales has largely stalled and so too has the associated growth in revenues. Simply maintaining the existing level of service with stagnant revenue growth has been a more common source of attrition in the current era.

In response, and in addition to simply accelerating the pace of rate case activity, utilities have proposed a variety of means by which to address the underlying causes of attrition, many of which have been adopted by regulators. More progressive examples include cost tracking mechanisms that accelerate the recovery of prudently incurred investments, the more widespread adoption of decoupling mechanisms, formula rates and the increased use of multi-year "rate plans."

Q. Have some of these progressive forms of ratemaking been available to PSE?

A. Yes. The multi-year rate plan, expedited rate filing, and decoupling mechanisms approved by the Commission in 2013 have allowed PSE to avoid filing rate cases, while operating efficiently and coming closer to earning its return on equity than PSE had otherwise done for several years. However, as discussed in the Prefiled Direct Testimony of Katherine J. Barnard, Exhibit No. ___(KJB-1T), PSE would not have been able to earn its authorized rate of return without the annual rate increases included in the rate plan.

Additionally, the gas cost recovery mechanism authorized by the Commission a few years ago has allowed PSE to dedicate capital to replacement of higher risk pipe, and to replace this pipe on a more accelerated basis than otherwise would have been possible. The gas cost recovery mechanism improves safety and reliability while also allowing for more certain and timely recovery of costs for gas infrastructure replacement.

Q. Is there still a need for these alternative forms of ratemaking?

A. Yes. There is still a need for the Commission to be creative and use alternative forms of ratemaking in order to address attrition and maintain strong utilities that can reliably meet the energy needs of their customers.

In this case, PSE is requesting that the Commission authorize PSE to file an expedited rate filing that will allow adjustment of rates between general rate cases. This is discussed in more detail in the Prefiled Direct Testimony of Katherine J. Barnard, Exhibit No. ___(KJB-1T).

PSE also requests that the Commission authorize an electric cost recovery mechanism, similar to the mechanism the Commission has authorized for natural gas pipeline replacement. This mechanism will allow PSE to focus on its electric circuits that have proved to be the least reliable over the past several years. Additionally, through this mechanism, PSE will accelerate the replacement of underground cables across its service territory that were installed more than 30 years ago and have been prone to failure. This is discussed in more detail in the Prefiled Direct Testimony of Booga K. Gilbertson, Exhibit No. ___(BKG-1T), and the Prefiled Direct Testimony of Cathy A. Koch, Exhibit No. ___(CAK-1CT).

Q. What steps has PSE taken to improve its operational efficiency?

A. There are several steps PSE has taken to improve its efficiency. Among the most prominent examples were the successful launch of PSE's "Big S" project, which included a new customer information system, as well as a geographical information system and outage management system completed in 2013. The

"Big S" project provided a significant risk mitigation to replace an aging, obsolete system.

In terms of production efficiency, in October 2016, PSE began participating in the Energy Imbalance Market ("EIM") operated by the California Independent System Operator ("CAISO"). The CAISO EIM is an automatic, sub-hourly means to economically match customer demand (load) and supply (dispatch of resources). The market is operated by an independent market operator—CAISO—which optimizes and leverages generation resources within the CAISO EIM footprint, dispatching the most economic resources to serve intra-hour changes in supply or demand. According to preliminary estimates, PSE could save its electric customers up to $10 million to $20 million per year through its participation in the CAISO EIM. The CAISO EIM is discussed in more detail below.

III. PSE INITIATIVES TO ADDRESS THE CHALLENGES FACING THE INDUSTRY

Q. Are there particular initiatives of PSE that exemplify the challenges facing the industry and PSE's efforts to address those challenges?

A. Yes. There are three PSE initiatives that exemplify the challenges facing the industry and PSE's efforts to address those challenges.

First, the decision to retire the boilers of Colstrip Units 1 & 2 correlates with PSE's broader vision to lower the emission's intensity of its energy portfolio and reduce dependence on older coal plants that are reaching the ends of their useful lives. This retirement decision both (i) fulfilled previous commitments of PSE to

provide the Commission with a plan in this general rate case to address the future of Colstrip Units 1 & 2 and (ii) reduces future risk exposure for customers in several areas.

Second, PSE's decision to join the CAISO EIM could save electric customers up to $10 to $20 million per year. PSE began participating in the CAISO EIM on October 1, 2016, and was able to begin operations through a process that included stakeholder input and had a reasonable cost.

Finally, the "Get to Zero" initiative will facilitate customers' ability to do most, if not all, of their business with PSE through computers or smart phones and other devices, rather than through the call center. The following testimony will highlight the operational and service areas that PSE plans to address so that customers no longer feel the need to pick up the phone and call PSE's Customer Care Center.

A. PSE Has Decided to Retire Colstrip Units 1 & 2 No Later Than July 1, 2022

Q. How does the decision to retire Colstrip Units 1 & 2 fit with PSE's vision and goals?

A. The decision to retire Colstrip Units 1 & 2 was complex. The Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), provides detail about the many complexities and factors considered by PSE in making its decision. However, the decision to retire Colstrip Units 1 & 2—and its plan to pay for decommissioning and remediation—are in line with PSE's broader goals and

customer expectations to deliver lower emissions energy, keep rates predictable and mitigate future risks.

Q. How will the retirement of Colstrip Units 1 & 2 align with customer expectations to lower emissions?

A. PSE has a long-term goal to become a carbon neutral utility, and coal is the most carbon-intensive resource within the generation portfolio. Therefore, retiring the 307 megawatts (MW) of coal-based energy that PSE receives from Colstrip Units 1 & 2 will lower the overall emissions profile in PSE's generation portfolio. While an all-source Request for Proposal ("RFP") will determine the next resource or resources that PSE uses to replace the lost energy and capacity from Colstrip Units 1 & 2, it is reasonable to assume that any new resource will have a lower emissions profile than coal.

Q. How does PSE plan to address the sometimes competing desires of customers for lower emissions energy, predictable rates, and low risks?

A. PSE shares customers' goals for lower emissions, predictable rates and minimized future risks. The decision to retire Colstrip Units 1 & 2 and the plan to pay for remediation and decommissioning was made with all three goals in mind. The Prefiled Direct Testimony of Daniel A. Doyle, Exhibit No. ___(DAD-1T), and the Prefiled Direct Testimony of Katherine J. Barnard, Exhibit No. ___(KJB-1T), describe PSE's innovative proposals to pay for decommissioning and remediation costs for Colstrip Units 1 & 2 in a manner that minimizes rate shock and helps to keep rates predictable for customers.

Colstrip Units 1 & 2 face myriad future risks beyond just decommissioning and remediation. The Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), describes the growing number of known and unknown risks such as partnership status, contracts, regulation, and operations that make it clear retirement of the Colstrip Units 1 & 2 was in the best interest of PSE's customers.

Q. Please describe the commitments that PSE made to the Commission regarding Colstrip Units 1 & 2 in the joint petition to delay the filing of this general rate case.

A. In the joint petition approved by the Commission to extend the date by which PSE must file a general rate case, PSE committed[1] to provide a comprehensive plan for addressing the future of Colstrip Units 1 & 2 in its next general rate case which would include the following:

1. *A depreciation schedule for all four units that align with PSE's most current analysis of the plants' useful life.* Please see the Prefiled Direct Testimony of John J. Spanos, Exhibit No. ___(JJS-1T), and the supporting exhibits thereto, for a depreciation schedule for all four units that align with PSE's most current analysis of the plants' useful life.

2. *Known Major Maintenance obligations and their projected costs for Colstrip Units 1 & 2.* Please see the Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), for an analysis of major maintenance obligations and their projected costs for Colstrip Units 1 & 2.

[1] Joint Petition to Modify Dockets UE-121697 and UG-121705 (consolidated); Dockets UE-130137 and UG-1310138 (consolidated); p. 4

3. *A narrow window of dates for the planned retirement of Colstrip Units 1 & 2.* Please see the Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), for a discussion of (i) the decision of PSE to retire Colstrip Units 1 & 2 no later than July 1, 2022, and (ii) factors that could prompt an earlier retirement of Colstrip Units 1 & 2 such as partner agreements, operational and economic factors, or potential policy or regulatory changes.

4. *Detailed information regarding the planned decommissioning and remediation activities for Colstrip Units 1 & 2, including costs associated therewith.* Please see the Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), for a discussion of the known and planned decommissioning and remediation activities for Colstrip Units 1 & 2, including costs associated therewith.

5. *A basic framework for how power replacement decisions will be made if the planned retirement of Colstrip Units 1 & 2 is out of sync with the development of the 2017 Integrated Resource Plan ("IRP").* PSE does not expect the retirement of Colstrip Units 1 & 2 to be out of sync with the 2017 IRP. Please see the Prefiled Direct Testimony of Ronald J. Roberts, Exhibit No. ___(RJR-1CT), for a brief discussion of the process for selecting replacement power in the future, which is consistent with existing laws and regulations regarding resource planning and acquisition.

In short, PSE has satisfied its commitment to this Commission for a comprehensive plan for addressing the future Colstrip Units 1 & 2. Additionally, PSE has exceeded its commitment by including further discussion on financing mechanisms for Colstrip Units 1 & 2 decommissioning and remediation activities that may help minimize rate shock to customers and address potential fairness issues that may arise from paying to decommission and remediate Colstrip Units 1 & 2.

B. PSE Has Entered Into the CAISO EIM, Which PSE Projects Will Produce Substantial Annual Benefits to PSE Customers

Q. Briefly describe the CAISO EIM.

A. The CAISO EIM is a new and expanding market in the Western Electric Coordinating Council ("WECC") territory that is operated by CAISO as an extension of its existing market footprint. The CAISO EIM is a voluntary, sub-hourly market that allows for participating utilities to balance supply and demand every fifteen and five minutes with a coordinated and automated generation dispatch. Utilities participating in this real-time market share resources more cost effectively across a larger geographic footprint, which significantly lowers the cost of delivering power to customers. CAISO is a non-profit market operator that operates the CAISO EIM in eight western states. Current participants include Arizona Public Service, Nevada Energy, PacifiCorp, and PSE. Portland General Electric (2017), Idaho Power (2018), and Seattle City Light (2019) have signed agreements with CAISO to join the CAISO EIM. Please see the Prefiled Direct Testimony of Paul K. Wetherbee, Exhibit No. ___(PKW-1CT), for a discussion of how the EIM interacts with existing energy markets.

Q. What was the impetus for PSE joining the CAISO EIM?

A. PSE is continually looking for ways to increase efficiencies, manage costs and create long-term benefits for customers. The CAISO EIM was growing and had proven effective for other utilities in the region at managing costs, generating customer benefits, and effectively reducing carbon emissions through more efficient generation dispatch and a reduction in renewable curtailment. Therefore,

PSE decided to study whether entering the CAISO EIM would do the same for its customers.

Q. What studies did PSE complete to assess the benefits of participation in the CAISO EIM?

A. Energy and Environmental Economics, Inc. ("E3") completed a benefits study of the EIM for PSE in 2014. Please see Exhibit No. ___(DEM-3) for a copy of the E3 study. For the 2020 study year (assuming commencement of market participation in 2016), the benefits of sub-hourly dispatch efficiency and flexibility reserves were estimated to be between $18.3 million and $20.1 million per year. In addition, E3 estimated an additional $9 million per year from cost-effective renewable resource integration. This projection of an additional $9 million per year would result from transitioning the Hopkins Ridge and Lower Snake River Wind Generating Stations from the Balancing Authority Area of Bonneville Power Administration ("BPA") to the Balancing Authority Area of PSE. PSE and BPA have initiated this transaction project, but PSE does not anticipate that it will be complete during the rate year.

PSE estimated (i) start-up costs to join the EIM of $14.2 million and (ii) ongoing costs of $3.5 million per year. The start-up costs, taken together with a 20-year series of ongoing costs and annual benefits, produced a net present value of $153.7 million to $174.4 million. The E3 study also noted potential reliability benefits tied to increased situational awareness and resource control.

Q. What other alternatives did PSE consider besides the CAISO EIM?

A. The Northwest Power Pool ("NWPP") was considering the formation of an EIM for the Pacific Northwest region. In 2014, PSE evaluated the NWPP EIM alternative with the information available at the time. The NWPP EIM was in early development, and there was uncertainty whether the NWPP members would fully support an EIM and elect to move forward with it at any level.

The earliest anticipated operation date for the NWPP EIM was late 2017 or early 2018. In contrast, the CAISO EIM began operations on November 1, 2014, with the participation of PacifiCorp and was an established market that produced real data for PSE to evaluate. In addition, PSE projected annual benefits from the NWPP EIM of between $2.1 million and $6.6 million that were lower than the projected benefits from the CAISO EIM of between $10 million and $20 million. (The start-up costs and the on-going costs were estimated to be identical for either EIM alternative.) Ultimately, the NWPP initiative stalled and was terminated.

Q. Did PSE engage outside stakeholders before entering the CAISO EIM?

A. Yes. PSE engaged with BPA and PacifiCorp to use existing BPA transmission rights to interconnect with PacifiCorp.

PSE engaged with BPA to coordinate the use of long term transmission rights in a way that did not impact other transmission customers. BPA conducted a full stakeholder process for PSE's proposed use of existing transmission rights for the CAISO EIM. BPA held PSE-related CAISO EIM stakeholder meetings on January 12, February 18, and March 30, 2016.

PSE also engaged with a number of stakeholders prior to filing revisions to PSE's Open Access Transmission Tariff ("OATT") with the Federal Energy Regulatory Commission ("FERC"). This stakeholder engagement consisted of public meetings, public input and PSE response, customer education and outreach from PSE and CAISO. PSE's stakeholder engagement, much of which is documented on PSE's Open Access Same Time Information Site ("OASIS") helped in the filing and approval process of PSE's OATT revisions at FERC.

Q. Did PSE meet the October 1, 2016 deadline to join the CAISO EIM?

A. Yes. PSE began full participation on October 1, 2016, per the CAISO EIM participation agreement. PSE met the milestones and project delivery dates per the agreement, including full completion of the readiness criteria as noted in CAISO's filing with FERC on August 24, 2016. PSE also received approval from the FERC to transact in the CAISO EIM at market-based rates.

Q. What are key indicators of PSE's performance in the CAISO EIM to date?

A. There are several indicators of PSE performance in the CAISO EIM that have been positive to date. Many of those indicators are produced for CAISO EIM participants (including PSE) by CAISO each month and filed at FERC. CAISO's first monthly report of PSE's participation in the CAISO EIM noted a smooth transition. At a high level, these metrics are the results of tests that CAISO performs continuously to ensure loads and resources for market participants are balanced and that the overall markets function properly from a physical and financial perspective.

PSE passed over 97% of its balancing tests and 98% of its flex ramp sufficiency tests in the month of October 2016. PSE observed power balance constraint feasibilities in 0.03% of intervals in the fifteen-minute market and in 0.25% of the intervals in the real-time dispatch market. With the low frequencies of power balance constraint infeasibilities experienced in the month of October in the PSE Balancing Authority Area, transitional period pricing had little impact on CAISO EIM prices.

The CAISO noted in its October report that average prices in the PSE Load Aggregation Point were $22.89/MWh in the fifteen-minute market and $19.56/MWh in the real-time dispatch. These prices were stable in the month and tracked closely between markets. The prices also track well with an estimated proxy price, which is the Mid-C hub price from the Intercontinental Exchange ("ICE").

Q. Have the economic benefits of the CAISO EIM met PSE's expectations to date?

A. It is too soon to tell whether the economic benefits of the CAISO EIM have met PSE's expectations to date due to the short time that PSE has participated in the market. CAISO issues quarterly benefits reports for the CAISO EIM, and the quarterly benefit report for the fourth quarter of 2016 will contain the first summary of PSE's gross benefits. PSE expects that CAISO will release the quarterly benefit report for the fourth quarter of 2016 in late January 2017.

C. PSE Has Begun Implementation of the "Get to Zero" Initiative Designed to Anticipate Customer Needs and Provide Solutions to Address Those Needs

Q. Please describe PSE's "Get to Zero" initiative.

A. The "Get to Zero" initiative is a long-term initiative to further improve customer experience with PSE by providing more self-service options that customers are requesting, developing new ways to proactively communicate with customers and creating seamless, integrated operations to tie PSE's business processes together. PSE's broad goal for the technology and business processes advanced by the "Get to Zero" initiative is to anticipate customer needs and provide solutions to address those needs. These advancements and experiences will reduce customers need to call in and speak to a customer service representative and will build customer trust.

Q. Why has PSE initiated GTZ?

A. PSE initiated GTZ because we have been continuously listening to our customers. The Prefiled Direct Testimony of Greg J. Zeller, Exhibit No. ___(GJZ-1T) describes the survey work PSE has done to understand its customers' evolving expectations for self-serve options and preferences for web, mobile applications and social media as primary communication channels. PSE customers are accustomed to interacting with other businesses through smart devices, at all hours, and with minimal friction. They expect the same of PSE.

The goal of the "Get to Zero" initiative is to implement digital solutions that continue to enable self-service advancement in a way that reduces friction and

enhances the experience for customers looking to meet their needs with PSE. The aim is to make customer experience so good that customers will not have a need to pick up the phone and call PSE.

Meeting this goal requires PSE to simultaneously look inward and outward. Internally, PSE will integrate personnel, business processes, and existing technology in customer service, operations, supply chain, energy efficiency, and other PSE organizations in order to eliminate customer problems and handle any customer inquiry at a customer's first contact with PSE through the customer's preferred communication channel.

Q. What metrics will determine the successes of the "Get to Zero" initiative?

A. In the near-term, the metric for the "Get to Zero" initiative will be call volume to the Customer Care Center. In 2015, PSE received two million calls to its Customer Care Center, which represents two million issues that customers needed help resolving. PSE estimates that near-term "Get to Zero" initiative efforts focused on meaningful business process and technology tweaks will reduce call volume by as much as 300,000 calls by the end of 2017, with similar results in future years. Although difficult to measure, PSE expects that customer satisfaction will also improve because of "Get to Zero" initiative efforts.

IV. INTRODUCTION OF WITNESSES

Q. Please introduce the witnesses who will be testifying in this case and provide a brief summary of the topics they will address.

A. The following witnesses have submitted testimony on behalf of PSE:

Mr. Daniel A. Doyle, the Chief ~~Executive~~Financial Officer for PSE, discusses the results of decoupling, the earnings sharing mechanism, the expedited rate filing, and annual K-factor increases since they were instituted in July 2013. Mr. Doyle also addresses cost of equity, equity in the capital structure, certain cost management and efficiency efforts at PSE, and certain aspects of PSE's decommissioning and remediation proposals as they pertain to the shutdown of Colstrip Units 1 & 2.

Mr. Brandon J. Lohse, Corporate Treasurer for PSE, describes PSE's requested capital structure and overall rate of return.

Dr. Roger A. Morin, Emeritus Professor of Finance at the Robinson College of Business, Georgia State University, and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University, discusses why PSE's rate of return on common equity of 9.8% requested by PSE, which was authorized by the Commission in PSE's last rate case, remains fair and reasonable under current capital market conditions.

Ms. Booga K. Gilbertson, Senior Vice President, Operations for PSE, provides an overview of PSE's approach to providing safe, dependable and efficient gas and electric services for its customers and addresses PSE's request for an Electric Reliability Plan and associated Cost Recovery Mechanism.

Ms. Catherine A. Koch, Director, Planning for PSE, provides additional detail with respect to PSE's request for an Electric Reliability Plan and associated Cost Recovery Mechanism.

Mr. Paul K. Wetherbee, Director, Energy Supply Merchant for PSE, addresses power costs for the rate year for this proceeding—January 1, 2018 through December 31, 2018, and provides an update on the status of the White River surplus properties.

Mr. Ronald J. Roberts, Director, Thermal Resources for PSE, discusses (i) how PSE's decision to transition from the use of Colstrip Units 1 & 2 in a measured and thoughtful way provides a clearer pathway for reduced risk to PSE's customers and reduction of carbon emissions without compromising reliability and (ii) provides an overview of the rate year production operations and maintenance expense for PSE's thermal, hydroelectric, and wind generation facilities, including major maintenance.

Mr. Michael Mullally, Manager, Business Initiatives for PSE, addresses (i) PSE's purchase of the Buckley Natural Gas Distribution System; (ii) PSE's Glacier Battery Storage System pilot project; and (iii) PSE's agreement to purchase power from the Wells Hydroelectric Project.

Mr. Greg J. Zeller, Director, Customer Care for PSE, provides an overview of PSE's Service Quality Index ("SQI") Program and PSE's recommendation to modify SQI No. 5 – Customer Access Center Answering Performance metric. PSE is proposing to include the Integrated Voice Response ("IVR") self-service

transactions in the calculation in order to better reflect today's customer service expectations.

Mr. Joel L. Molander, Director, Corporate Shared Services for PSE, addresses PSE's decision to acquire the South King Complex in Kent, Washington.

Mr. Thomas M. Hunt, Director, Compensation and Benefits for PSE, describes the elements of PSE's pay philosophy, which includes the compensation and benefit programs, and explains the steps that PSE has taken to compete in a challenging labor market while controlling wage and benefit costs.

Mr. John K. Rork, Manager, Environmental Programs & Sciences Department for PSE, describes the environmental remediation program undertaken by PSE as required by state and federal laws.

Mr. Roque Bamba, Manager, Major Projects, for PSE, provides an update on the redevelopment work at the Snoqualmie Hydroelectric Project and the cost of this work.

Ms. Suzanne M. Sasville, Supervisor, Energy Assistance Programs for PSE, provides an overview of PSE's Home Energy Lifeline Program (HELP) and presents PSE's proposal for low-income funding. She also proposes a pilot that will allow seniors and disabled individuals the option to certify their eligibility for the program every two years, instead of annually, which will increase efficiency in administering the program and reduce the burden on local agencies.

Ms. Katherine J. Barnard, Director, Revenue Requirements and Regulatory Compliance for PSE, addresses the results of operations and the associated base

rates revenue deficiency for electric operations. Additionally, Ms. Barnard addresses PSE's request for an expedited rate filing and ratemaking considerations related to PSE's requested Electric Cost Recovery Mechanism.

Ms. Susan E. Free, Manager, Revenue Requirement for PSE, addresses the results of operations and the associated base rates revenue deficiency for gas operations.

Dr. Chun K. Chang, Regulatory Consultant in Pricing and Cost of Service for PSE, presents PSE's electric and gas temperature adjustment methodologies and results used to develop the pro forma electric and gas sales for the ~~rate~~test year for this proceeding—October 1, 2015, through September 30, 2016.

Mr. John J. Spanos, Senior Vice President for Gannett Fleming Valuation and Rate Consultants, LLC, sponsors the depreciation study performed for PSE, which sets forth the calculated annual depreciation accrual rates by account as of September 30, 2016, for all electric, gas and common plant.

Mr. Jon A. Piliaris, Manager, Pricing and Cost of Service for PSE, presents, among other things, (i) PSE's pro forma revenue from electric and natural gas operations; (ii) PSE's cost of service study and PSE's proposed rate spread and rate design for electric and natural gas service; (iii) an evaluation of PSE's electric and gas decoupling mechanisms, along with proposed changes to these mechanisms; and (iv) the proposed cost allocation and rate design for PSE's Electric Cost Recovery Mechanism.

V. CONCLUSION

Q. Does this conclude your testimony.

A. Yes it does.