

**EXH. MFH-3
DOCKETS UE-18___/UG-18___
2018 PSE EXPEDITED RATE FILING
WITNESS: MARGARET F. HOPKINS**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

In the Matter of:

PUGET SOUND ENERGY

Expedited Rate Filing

**Docket UE-18___
Docket UG-18___**

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

MARGARET F. HOPKINS

ON BEHALF OF PUGET SOUND ENERGY

NOVEMBER 7, 2018

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Project Description	Project Cost	IT Category	Explanation
Annual End User Growth 2016	389,718	New systems	Annual infrastructure program for the purchase of new end user devices (laptops, PC, tablets, etc) to support PSE employee growth
Annual MS Enterprise Agreement Growth	238,318	New systems	Annual software licensing purchase associated with true up of Microsoft enterprise licensing agreement
Annual MS Enterprise Agrmn't Grwth 2016	366,103	New systems	Annual software licensing purchase associated with true up of Microsoft enterprise licensing agreement
Annual PSE Growth	188,044	New systems	Annual infrastructure program for the purchase of new end user devices (laptops, PC, tablets, etc) to support PSE employee growth
Application Monitoring 2016	969,686	New systems	Installation, configuration, and implementation of a new application monitoring tool for application monitoring, availability, and performance.
Backup DC Design n Construct n Commissn	30,777,033	New systems	Data Center program. This program will replace current PSE data centers with highly redundant and resilient facilities and infrastructure that meets availability requirements for day to day operations and the business continuity/disaster recovery requirements for critical business processes and systems.
BPCC Account Bal Clarity and Consistcy	21,686	New systems	"Get to Zero" (GTZ) is PSE's customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.

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BPCC Bill Code Enhancements Phase 1	2,381,535	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>
BPCC Bill Due Reminder n Fiserv Balance	539,393	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>
BPCC Billing Performance Improvement	3,676,202	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>

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BPCC Credit n Collection Quick Wins	135,365	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>
CAMI Network Installations Gen Plant	14,768,840	New systems	<p>The Advanced Meter Infrastructure program (AMI) will update PSE’s entire electric and natural gas system on every home and business in our territory. This is a six-year effort, scheduled to complete in 2023 and will involve swapping out the 1.1 million electric meters and 800,000 gas modules, along with the supporting infrastructure across all 10 counties we serve.</p>
CAMI Network Purchase	4,753,919	New systems	<p>The Advanced Meter Infrastructure program (AMI) will update PSE’s entire electric and natural gas system on every home and business in our territory. This is a six-year effort, scheduled to complete in 2023 and will involve swapping out the 1.1 million electric meters and 800,000 gas modules, along with the supporting infrastructure across all 10 counties we serve.</p>
CAMI System Integration	23,594,318	New systems	<p>The Advanced Meter Infrastructure program (AMI) will update PSE’s entire electric and natural gas system on every home and business in our territory. This is a six-year effort, scheduled to complete in 2023 and will involve swapping out the 1.1 million electric meters and 800,000 gas modules, along with the supporting infrastructure across all 10 counties we serve.</p>
CI Auto Categorization Customer Calls	103,611	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>

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CI Cross Channel Design Exp	1,017,629	New systems	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
CI IVR Improvements	657,982	New systems	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
CI Start n Stop n Transfer	14,127	New systems	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
Cloud Infrastructure Build	915,208	New systems	Infrastructure computing technology implementation associated with core build of cloud infrastructure required to support new system implementations via AWS.

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Data Analyt Data Analytics Platform	1,167,645	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>
Data Center Facilities Build Completion	449,518	New systems	<p>Data Center program. This program will replace current PSE data centers with highly redundant and resilient facilities and infrastructure that meets availability requirements for day to day operations and the business continuity/disaster recovery requirements for critical business processes and systems.</p>
Data Mgmt Data Governance n Quality	154,504	New systems	<p>“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.</p>
Disaster Recovery Solutions	1,419,300	New systems	<p>Infrastructure computing technology implementation required to meet recovery requirements for critical infrastructure. Work required to support Data Center Program</p>
E AMI Electric Meter Deployment	1,189,006	New systems	<p>The Advanced Meter Infrastructure program (AMI) will update PSE’s entire electric and natural gas system on every home and business in our territory. This is a six-year effort, scheduled to complete in 2023 and will involve swapping out the 1.1 million electric meters and 800,000 gas modules, along with the supporting infrastructure across all 10 counties we serve.</p>
EIM	16,990,239	New systems	<p>This project will establish PSE’s participation in an Energy Imbalance Market (EIM). An EIM is an intra-hour energy market that has shown to provide reliability and economic benefits to Balancing Authority Areas that are members of an EIM</p>

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Enterprise Document Management	2,653,779	New systems	Implementation of OpenText Enterprise Document and Records Management Application
Eprocurement Solution	5,777,640	New systems	New application implementation of SAP Ariba SaaS (Software as a service) eProcurement functionality within Puget Sound Energy.
GIS Conflation	492,171	New systems	New application purchase and implementation of GIS conflation tool to correct the GIS map.
HA and DR Disaster Recovery Solutions	771,035	New systems	Purchase of application licenses for Open Text Archive Server (OTAS) and associated SQL licenses to support implementation of disaster recovery solution
Inventory Management System	7,190,276	New systems	Infrastructure computing technology required to support new application implementation of AIDC technology and processes commonly referred to as barcoding that fully integrates with SAP to modernize warehouse operations allowing for real time transaccation and visibility to inventory
IWM AMR to OMS	3,568,848	New systems	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
IWM GIS CAD Design Manager	3,264,071	New systems	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
Map Viewer Platform	4,203,952	New systems	Phase III application implementation of PSE’s new Map Viewer Platform in support of the new GIS tool.

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Navigator Software	100,505	New systems	Application implementation of Plexos software to analyze sub-hourly flexibility of generation resources as well as provide other advanced analytics tools to Marketing, Front Office, and IRP teams at PSE.
OMS TOA Upgrade	380,136	New systems	Application purchase of Implementation of OMS-TOA application to automate outage, switching, logging and event analysis tasks in the Load Office.
PCI Post Analytics P and L Analyzer	1,928,129	New systems	New application purchase and implementation of Plexos software to support PSE Energy Imbalance Market program and IRP modeling
Phase Two Egrc Build Out	2,304,913	New systems	Application implementation of new Archer tool for use by security and compliance programs and audit groups throughout PSE.
Privileged Identity Management	497,212	New systems	Implementation of security privileged identity management (PIM) to control how privileged users and accounts access systems and data across the IT environment.
SAP GRC 10.1	727,288	New systems	Implement SAP's Governance Risk and Compliance (GRC) security application, specifically the Access Controls and Emergency Access Management. Access Controls - replacing Virsa Compliance Calibrator, will ensure there is a forced separation of duties and will automate some IT SOX controls and provide compliance reporting. Additionally Emergency Access Management(EAM) will be implemented replacing the Virsa FireFighter which will also automate emergency access, provide deeper insight in to the use and will automate IT SOX controls regarding emergency access use.
Snoqualmie Technology Center	1,325,042	New systems	Infrastructure communications technology to support new Snoqualmie Technology Center office. See testimony or work papers of Doug Loreen.
Transmission Outage Management	1,367,652	New systems	Application purchase of Implementation of OMS-TOA application to automate outage, switching, logging and event analysis tasks in the Load Office.
ISR-Legal and Compliance 2016	224,890	Systems Modernization	Legal ISRs encapsulates several smaller software development projects that will provide new functionality for business users in the Leage and Compliance area. Each sub-project will represent internal development work, and will include enhancements to systems used by these business areas.

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Annual Comm Room Refresh 2016	297,440	Systems Modernization	Annual infrastructure computing technology required to refresh obsolete IT equipment and at over 500 Comm Room sites that IT Facilities Infrastructure supports.
Annual Data Center Refresh & Growth 2016	186,108	Systems Modernization	Annual infrastructure computing technology required to refresh obsolete IT equipment at PC Data Centers
Annual Data Center Refresh and Growth	4,905,103	Systems Modernization	Annual infrastructure computing technology required to refresh obsolete IT equipment at PC Data Centers
Annual End User Break/Fix(Refresh) 2016	226,106	Systems Modernization	Annual infrastructure program for the refresh/replacement of End User devices (laptops, PC, Tablets, etc.)
Annual End User PC Refresh 2016	2,699,054	Systems Modernization	Annual infrastructure program for the refresh/replacement of End User devices (laptops, PC, Tablets, etc.)
Annual Fiber Refresh	370,366	Systems Modernization	Annual infrastructure communications work associated with PSE's private fiber network. Includes new Fiber builds, pole transfers, upgrades, and fiber relocates that come up throughout year to ensure high availability of Fiber Optic.
Annual Fiber Small Projects 2016	315,350	Systems Modernization	Infrastructure Fiber network installation of 9 miles of overhead fiber from Blumaer Substation to Spurgeon Creek Substation for future transfer trip circuits.
Annual Microwave Radio Refresh	475,748	Systems Modernization	Infrastructure communications upgrade of existing microwave radio path from WhiskeyDick to Rattlesnake East.
Annual Network Growth 2016	251,820	Systems Modernization	Annual infrastructure hardware growth for network infrastructure. This is needed to support Corporate wide network bandwidth needs and reliability
Annual Network Refresh	542,955	Systems Modernization	Annual infrastructure hardware growth for network infrastructure. This is needed to support Corporate wide network bandwidth needs and reliability
Annual Network Refresh 2016	413,140	Systems Modernization	Annual infrastructure hardware growth for network infrastructure. This is needed to support Corporate wide network bandwidth needs and reliability
Annual Radio Capacity and Growth 2016	356,654	Systems	New Infrastructure Mobile radio installations in fleet vehicles
Annual RF Refresh	236,863	Systems Modernization	Annual infrastructure radio technology refresh and growth. Includes uUpdate Radio console GUI, install back room hardware and console controllers to support PSE Radio systems.
Annual SCADA Growth 2016	534,469	Systems	Infrastructure telecommunication purchase and implementation
Annual Scada Refresh	197,868	Systems Modernization	Infrastructure communications technology installation related to SCADA communication upgrade

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Annual Server Virtualization Growth	200,943	Systems Modernization	Annual infrastructure computing technology refresh related to virtual server environment and replacement of end-of-life hardware or purchase of new hardware required to support environment growth
Annual Storage/Bckup Grwth & Refrsh 2016	465,565	Systems Modernization	Annual infrastructure storage technology refresh and growth required to refresh end-of-life hardware or support environment growth
Annual Strge Bckup Growth and Refresh	619,097	Systems Modernization	Annual infrastructure storage technology refresh and growth required to refresh end-of-life hardware or support environment growth
Annual Telecom Equipment Growth 2016	71,931	Systems Modernization	Annual infrastructure telecommunications equipment and growth related to replacement of end-of-life equipment or addition of new equipment to support environment growth
Annual Telecom Netwrk Refrsh n Grwth 2016	660,527	Systems Modernization	Annual infrastructure telecommunications equipment and growth related to replacement of end-of-life equipment or addition of new equipment to support environment growth
Annual Test Equipment Refresh	31,144	Systems Modernization	Annual refresh of infrastructure telecommunications test equipment that is end-of-life
Annual Test Equipment Refresh 2016	18,491	Systems Modernization	Annual refresh of infrastructure telecommunications test equipment that is end-of-life
Annual Voice Equipment Refresh	119,568	Systems Modernization	Annual infrastructure hardware growth for voice infrastructure. This is needed to support Corporate wide needs and reliability
Annual Voice Equipment Refresh 2016	140,251	Systems Modernization	Annual infrastructure hardware growth for voice infrastructure. This is needed to support Corporate wide needs and reliability
Annual VOIP Deployment and Refresh 2016	712,501	Systems Modernization	Infrastructure multi-year program to upgrade old antiquated phone system to voice over IP technology at multiple PSE locations. The equipment addressed was network switches, network routes, channel banks, voice routers, VoIP phones, etc at Hopkins Ridge Facility
Annual Windows Server Refresh	13,706	Systems Modernization	Annual infrastructure computing technology refresh related to physical server environment and replacement of end-of-life hardware or purchase of new hardware required to support environment growth
Annual Windows Server Refresh 2016	459,196	Systems Modernization	Annual infrastructure computing technology refresh related to virtual server environment and replacement of end-of-life hardware or purchase of new hardware required to support environment growth

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Applications	1,484,527	Systems Modernization	Infrastructure Upgrade/Refresh of aging VMAX 20K and 40K storage platforms in Bothell Data Center. Platform designed to enable file, backup, and other rich services.
Automation PSE Com	240,045	Systems Modernization	Infrastructure computing technology required to support automation of pse.com automated build processes
Baldi To White River MW Upgrade	91,963	Systems	Infrastructure microwave path upgrade
Bellevue Tower MAS	251,799	Systems	Infrastructure migration of SCADA master site
Bellingham Acquisition and Retirement	178,721	Systems Modernization	Infrastructure computing technology to support Bellingham Service Center. See testimony or work papers of Doug Loreen.
Bellingham Service Center	1,126,308	Systems Modernization	Infrastructure computing technology to support Bellingham Service Center. See testimony or work papers of Doug Loreen.
BKR Aquatic Riparian Habitat	308,894	Systems Modernization	Infrastructure technology to support requirement of hydro FERC license.
BKR Flow Implementation Capital	380,791	Systems Modernization	Infrastructure technology to support requirement of hydro FERC license.
BPCC No Fee Bank Card	447,092	Systems Modernization	This project was identified as a result UTC's approval of the no fee bank card processing proposal on 3/26/2016 and is part of the GTZ program. This project has three major business capabilities included for this payment channel; 1) Provide customer single sign on and present the real-time account balance through this payment channel 2) implement a no bank card fee for residential and small commercial customers who use a credit/debit card to make their monthly payment and 3) identify and assess a fee for large commercial customers who use credit/debit card to make their monthly payment.
BPM Techn Rationalization	364,369	Systems Modernization	Application rationalization. Decommission of aging and unsupported Lombardi BPM application thru migration of services into existing ServiceNow application.
CAMR Operations	165,909	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
CAP_Misc Equipment (engr printers)	141,599	Systems Modernization	Infrastructure communication technology work required to support T&D projects. Please see exhibits or work papers of Cathy Koch.
Channel Bank Growth and Refresh	1,138,890	Systems Modernization	Infrastructure channel bank technology replacement of end-of-life equipment, or purchase of new equipment required to support environment growth

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Charm Replacement	386,070	Systems Modernization	SAP application implemenatino of Transport Expresso to replace Charm for SAP change management.
CI Crm Csr Guided Expernce with 3 Click	56,046	Systems Modernization	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
CI Social Media	666,134	Systems Modernization	“Get to Zero” (GTZ) is PSE’s customer-focused, digital transformation initiative. This five year program (2016-2020) is transforming the customer service experience with expanded and consistent digital self-service options, removing obstacles for customers, providing proactive communications and quickly anticipating and solving problems before they occur. There is also a strong emphasis on automation and process improvements in the customer-touching areas of Data Analytics, Data Management, and Work planning, scheduling and dispatch.
Cisco Upgrade	197,932	Systems Modernization	Infrastructure network technology refresh associate with voice system
Data Analytics	1,412,031	Systems Modernization	Implementation of SAP Data Analytics tools to improve processing and tool capabilities for SAP Analytics
DC Access Center Refresh	1,424,519	Systems Modernization	Infrastructure technology refresh of hardware to replace those aging components in the existing Call Center/IVR environment.
Disaster Recovery Solutions Ops	1,944,859	Systems Modernization	Infrastructure computing technology implementation required to support pse.com high availability application updates
DNS Platform	111,420	Systems Modernization	Security application upgrade to migrate publicly-facing DNS services from Bluecat to F5 GTM services
E Bluemaer Yelm 115Kv Reconductor Sub	723,262	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Distribution Automation Dist	2,601,876	Systems Modernization	Infrastructure computing technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.

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E Eastside 230Kv Subs Talbot Hill	531,235	Systems Modernization	Infrastructure computing technology work required to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Glacier Energy Storage Project Sub	353,245	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Lakeside 115 Kv Subs Bus Rebuild Ph1	467,400	Systems Modernization	Infrastructure computing technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Lakeside 115 Kv Subs Bus Rebuild Ph2	156,191	Systems Modernization	Infrastructure computing technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Lakeside 115 Kv Subs Control House	471	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Maxwellton Substation Sub	8,292	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Pierce Co 230Kv Alderton Tline	76,001	Systems Modernization	Infrastructure computing technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Pierce Co 230Kv Substations Sub	603,507	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Scada Dist	165,115	Systems Modernization	Infrastructure communication technology work to support conversation from radio to fiber communication
E Scada Trans	283,339	Systems Modernization	Infrastructure communication technology work to support conversation from radio to fiber communication
E Spurgeon Creek Subs Feeders	341,373	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Spurgeon Creek Subs Sub	625,790	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Stillwtr Cottage Brk115Kv Rebuild Tline	457,177	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Subs Replacement Oil Filled Brkrs Dist	230,284	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
E Trans Automation Placeholder	597,859	Systems Modernization	Infrastructure computing technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
Email Security Gateway Refresh	314,820	Systems Modernization	Security application installation, configuration, and implementation of ProofPoint Email security for Outlook.
EMS Upgrade	348,805	Systems Modernization	Application upgrade of energy management system, includes implementation of GE (Alstom) Grid's e-terrasource as an Energy Management System (EMS) modeling solution.
Enhanced Substation	947,278	Systems Modernization	Infrastructure work related to conversation of Analog SCADA to IP Scada

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Enhanced Substation Communications	4,845,807	Systems Modernization	Infrastructure work related to conversation of Analog SCADA to IP Scada
Fiber Network Upgrade	645,489	Systems	Infrastructure fiber network upgrades
FTIP BPC Phase I	17,838,232	Systems Modernization	The Financial Transparency and Improvement Program (FTIP) modernized and implemented a redesign of PSE's financial systems, processes, tools, and financial structure.
FTIP ECC Phase I	20,176,974	Systems Modernization	The Financial Transparency and Improvement Program (FTIP) modernized and implemented a redesign of PSE's financial systems, processes, tools, and financial structure.
FTIP Phase II	28,714,885	Systems Modernization	The Financial Transparency and Improvement Program (FTIP) modernized and implemented a redesign of PSE's financial systems, processes, tools, and financial structure.
FTIP-PHASE 1	5,051,970	Systems Modernization	The Financial Transparency and Improvement Program (FTIP) modernized and implemented a redesign of PSE's financial systems, processes, tools, and financial structure.
G Electronic Correctors Dist	867,018	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
G Gauges Sems Dist	283,818	Systems Modernization	Infrastructure communications technology to support T&D projects. Please see exhibits or work papers of Cathy Koch.
Gas Circuit Reliability Enhancement	450,847	Systems Modernization	Replacement of Infrastructure telecommunication bridged gas scada circuits with new point to point circuits.
Gas Control	5,113,046	Systems Modernization	Application upgrade of existing gas SCADA and PI systems to ensure ongoing reliability, stability, and also to support business requested enhancements.
Gas Scada Reliability	18,884	Systems Modernization	Infrastructure communications technology implementation related to improving ESO and RTU communications
Goldendale Microwave	338,084	Systems Modernization	Infrastructure installation of microwave network to Goldendale generation station via new leased tower at satus pass.
HA and DR	887,593	Systems Modernization	Infrastructure computing technology installatino required to support growth related to our data analytics (BW) system
Hana for ECC and CRM	4,816,348	Systems Modernization	Upgrade of SAP application environment to support migration of ECC and CRM environments to SAP HANA including Unicode concersion for ECC.
IAM Enhancements	749,238	Systems Modernization	Security enhancements to the Identity Access Management application to support role based Identity Management models.

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ISR Customer Solutions n Corp Affairs	426,788	Systems Modernization	Customer Solutions and Corporate Affairs ISRs encapsulates several smaller software development projects that provide new application functionality for business users in the Customer Solutions and Corporate Affairs areas.
ISR Energy Operations	181,195	Systems Modernization	Operations ISRs encapsulates several smaller software development projects that will provide new functionality for business users in the Operations area. Sub-projects represent internal development work and include enhancements to systems used by these business areas.
ISR Finance	339,110	Systems Modernization	Finance ISRs encapsulates several smaller software development projects that will provide new functionality for business users in the Finance area. Sub-projects represent internal development work and include enhancements to systems used by these business areas.
ISR HR and Admin Services	263,983	Systems Modernization	HR / Administrative Services ISR/business requested enhancements encapsulates several smaller software development projects that provide new functionality for business users in the HR / Administrative Services area. Each sub-project represents internal development work, and will include enhancements to systems used by these business areas.
ISR IT	239,176	Systems Modernization	Information Technology ISRs encapsulates several smaller software development projects that will provide new functionality for business users in the IT area. Each sub-project will represent internal development work, and will include enhancements to systems used by these business areas.
ISR Operations	647,994	Systems Modernization	Operations ISRs encapsulates several smaller software development projects that will provide new functionality for business users in the Operations area. Sub-projects represent internal development work and include enhancements to systems used by these business areas.
ISR-Customer Solutions & Corp Affairs 2016	249,430	Systems Modernization	Customer Solutions and Corporate Affairs ISRs encapsulates several smaller software development projects that provide new application functionality for business users in the Customer Solutions and Corporate Affairs areas.

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ISR-HR and Admin Services 2016	326,093	Systems Modernization	HR / Administrative Services ISR/business requested enhancements encapsulates several smaller software development projects that provide new functionality for business users in the HR / Administrative Services area. Each sub-project represents internal development work, and will include enhancements to systems used by these business areas.
ISR-Operations 2016	661,721	Systems Modernization	Operations ISRs encapsulates several smaller software development projects that will provide new functionality for business users in the Operations area. Sub-projects represent internal development work and include enhancements to systems used by these business areas.
Jabber	446,100	Systems Modernization	Implementation of PSE's Jabber Instant Messaging, Collaboration and Conferencing Solution
MTF DCS Alarm n Event Mgt System Upgrade	126,914	Systems Modernization	Infrastructure upgrade of DCS alarm and event management system
NERC	297,437	Systems Modernization	Annual Infrastructure computing refresh for purchase and install of end-of-life firewall equipment
Network Refresh n Growth	285,111	Systems Modernization	Annual Infrastructure hardware growth for network infrastructure. This is needed to support Corporate wide network bandwidth needs and reliability
OATI Webtrader Upgrade	143,712	Systems Modernization	Application of upgrade of Web Trader electric trade capture and scheduling system used by PSE's trade floor.
OMS Upgrade	975,274	Systems Modernization	Application upgrade to latest ICCP software license for OMS PowerOn ICCP and upgrade work (software and server upgrade).
Openlink	104,349	Systems Modernization	Critical application replacement of existing Gas Management System (GMS) with OpenLink Endur platform. Required as current system was no longer supported by vendor and system stability was compromised.
Overhead Map Solution	6,468,288	Systems Modernization	Critical application replacement of existing Gas Management System (GMS) with OpenLink Endur platform. Required as current system was no longer supported by vendor and system stability was compromised.
PC and TB Refresh	2,824,911	Systems Modernization	Annual Infrastructure program for the refresh/replacement of End User devices (laptops, PC, Tablets, etc.)

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Power Spring Installation	153,541	Systems Modernization	Infrastructure computing technology required to support critical application upgrade of Power Spring application which support meter data management for gas systems
Powersimm Upgrade	279,717	Systems Modernization	PowerSimm Suite application (Upgrade toPS 4.1.0.X, Upgrade to CD 2.6.2.4) and Oracle DB 10 g upgrade.
PSE at Work IT	1,184,116	Systems Modernization	Infrastructure computing technology implementation associated with expansion of virtual desktop infrastructure to support PSE's employee mobility and includes work anytime, anywhere, from any device
PSE.com	1,145,271	Systems Modernization	PSE.com application enhancements to ensure high availability of critical customer online services
Radio Upgrade	128,358	Systems Modernization	IT infrastructure microwave radio replacement of Stampede Comm to outlook east route
RTU Upgrade	258,825	Systems Modernization	Infrastructure telecommunications alarm system implementation of FIAL
SAP BW BOBJ BWA Upgrades	140,985	Systems Modernization	Infrastructure computing technology installation and upgrades to support technology refresh for SAP BOBJ environment.
SAP CIS ECC Upgrade	1,301,909	Systems Modernization	Infrastructure SAP hardware to support migration to HANA.
SAP ECC and CRM Hana Migration	5,606,290	Systems Modernization	Upgrade of SAP application environment to support migration of ECC and CRM environments to SAP HANA including Unicode concersion for ECC.
SAP HR Support Packs	93,979	Systems Modernization	SAP application install of annual SAP HCM and Payroll Support Packs, which are mandatory legal updates. These updates ensure PSE HR and legal system align with Federal government requirements. This work is done annually and the amount of work depends on the number of updates.
SAP HR Upgrade & Annual Legal Packs 2016	601,517	Systems Modernization	SAP application install of annual SAP HCM and Payroll Support Packs, which are mandatory legal updates. These updates ensure PSE HR and legal system align with Federal government requirements. This work is done annually and the amount of work depends on the number of updates.
SAP Portal Upgrade	319,603	Systems Modernization	Upgrade the current enterprise SAP portal from 7.4 SP06 to the latest Support pack stack to support upcoming implementations. In particular, this support pack introduced a new single entry point for all end users
Scada Growth Point Licensing	27,529	Systems Modernization	Infrastructure growth related to expansion of SCADA points to accommodate electric systems growth

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SCCM Migration 2016	1,461	Systems Modernization	Infrastructure computing technology required to support SCCM system upgrade
Security Operations Center	470,876	Systems Modernization	Security equipment for the new ESO(East Side Operation) Operation Center
Security System License Growth	34,606	Systems Modernization	Purchase of security infrastructure infrastructure licenses associated with environment growth
Service Now Enhancement Program 2016	3,315,700	Systems Modernization	Application upgrade of the ServiceNow platform and implementation of the Asset Management and Project Portfolio Management (PPM) modules.
ServiceNow Enhancement Program	1,022,482	Systems Modernization	Implementation of multiple application enhancements to the ServiceNow platform including SDLC module implementation and other service management capabilities.
SIEM	561,040	Systems	Security SIEM Implementation
South King Acquisition and Retirement	603,377	Systems Modernization	Infrastructure computing technology to support South King location. See testimony or work papers of Doug Loreen.
South King Complex	659,328	Systems Modernization	Infrastructure telecommunications technology to support South King location. See testimony or work papers of Doug Loreen.
Tax Jurisdiction Data Improvements	293,261	Systems Modernization	Purchase of applications licenses to support growth of Tax Jurisdiction software and application enhancements required to support management of city and utility tax reporting
Telecom Equipment R and G	53,491	Systems Modernization	Annual infrastructure telecommunications equipment and growth related to replacement of end-of-live equipment or addition of new equipment to support environment growth
Transport Refresh	111,752	Systems Modernization	Installation of infrastructure communication equipment to upgrade converter chassis
WLD Battery Project	135,220	Systems Modernization	Infrastructure Technology to support Wild Horse Battery Project.
Workplace Mobility Proof Of Concept	3,726,835	Systems Modernization	Infrastructure technology build in Bellevue locations, including servers, workstations, tablets, laptops, peripheral equipment and network installation in support of upgrades to multiple conference room and sit stand desk builds on HR floor for Employee testing.
Zetron Data Base	560,040	Systems Modernization	Infrastructure enhancements to Rockport Radio Base station radio coverage including radio transmitters, an antenna system and network switch.
ZONE REFRESH	186,264	Systems Modernization	Securing infrastructure growth. Purchase of security RSA token technology associated with environment growth

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TOTAL projects > 100K	\$	310,314,859	
New Systems	\$	143,431,578	
System Modernization	\$	166,883,281	
Grand Total	\$	<u>310,314,859</u>	