BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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

THIRTEENTH EXHIBIT (NONCONFIDENTIAL) TO THE
PREFILED DIRECT TESTIMONY OF

SUZANNE L. TAMAYO

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 31, 2022

Advanced Distribution Management System (ADMS) Program
Year 4 - 2021
Corporate Spending Authorization (CSA)

Date Submitted:	8/20/2021
Officer Sponsor:	Margaret Hopkins and Booga Gilbertson
Program Director Sponsor:	Brian Fellon and Ryan Murphy
Program Manager:	Paul Tobin

I. Program Overview

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Business Need:

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 smart grid solutions that rely on these intelligent devices and customers are increasingly demanding solutions in this realm. Without an integrated platform, full and effective management of the distribution grid is much less possible. Today, distribution grid management is limited and spread across multiple applications, the Energy Management System (EMS), the Outage Management System (OMS) and Yukon Feeder Automation (YFA), and rely on multiple network models that are not always congruent. Approximately 25% of the points in EMS are for distribution assets and while the EMS application is scalable, few distribution-specific capabilities exist in the EMS application. Because the EMS is not tailored to distribution management, implementing smart grid solutions for the distribution grid is hindered and in some cases, not possible. Finally, the Outage Management System (OMS) application recently underwent the final upgrade to be provided by the vendor; therefore, the OMS is facing an obsolescence with limited support starting in 2021.

Proposed Solution:

PSE is implementing the Advanced Distribution Management System (ADMS) solution incrementally, starting with establishing a common distribution model, aligning existing distribution Supervisory Control and Data Acquisition (SCADA) points and configuring the Schneider Electric's (SE) ADMS OMS Module to replace PSE's GE PowerOn OMS. As the new SE SCADA comes online, PSE will initiate a DMS pilot using the ADMS platform to clarify requirements for data and processes to implement DMS capabilities. The pilot will also serve to demonstrate advanced smart grid capabilities in targeted areas of our service territory. Following the Load Flow Readiness Pilot, the ADMS program will deliver Load Flow on a percentage of the network and VVO enabling functionality. Further projects will deploy DMS functionality to include real-time load flow, state estimation, operator training, switching optimization, voltage reduction through Volt/VAR optimization and Conservation Voltage Reduction, peak demand management, situational awareness, self-healing, and distributed energy resource integration.

Program Outcome/Results:

The ADMS program will be delivered in 3 phases: SCADA Project, OMS Project and an Advanced Application Project.

1) SCADA Project: All existing distribution SCADA assets and all distribution substation displays model are operating out of the ADMS system

2) OMS Project: Move all OMS functionality to the ADMS system and complete a load flow pilot.

3) Advanced Application Project: State Estimation and Load Flow converging on small set of circuits and VVO enabling functionality.

Primary ISP Alignment:	Processes & Tools	**ISP strategy descriptions**
ISP Strategy Description:	Financial - Five-Year Strategic Plan	
Portfolio Description:	Strategic	**Capital Allocation Definitions**

II. **New Product Overview**

Target Customer Segments	N/A
Target Market Analysis	N/A

Potential benefits	☐ Increased revenue	☒ Increased customer satisfaction or retention
	☒ Decreased costs	☐ Reduction in carbon
	N/A	

III. **Key Financial Information**

Expected Program Start Date:	02/2018
Expected Program Close Out Date:	12/2023

Overall Estimate Investment: High-Level Budget & On Going O&M

Last Updated: 7/30/2021

Overall Estimated Investment:	**($M)**
Capital (contingency included)	$33,208,644
Program O&M	$1,180,301
Total	**$34,388,945**
Ongoing O&M (Annually)	$935,240

Estimated Five-Year Allocation:

Last Updated: 7/30/2021 **(Initiation does not apply to New Products)**

ADMS Program: Capital (Including contingency)

Project	2018	2019	2020	2021	2022	2023	Total
SCADA	$7,867,823	$5,702,136	$5,842,686	$884,833	$0	$0	$20,297,478
OMS	$0	$0	$0	$5,565,242	$6,251,177	$594,747	$12,411,166
Advanced Applications	$0	$0	$0	$0	$250,000	$250,000	$500,000

Total Capital ADMS	$7,867,823	$5,702,136	$5,842,686	$6,450,075	$6,501,177	$844,747	$33,208,644

ADMS Program: Project O&M

Project	2018	2019	2020	2021	2022	2023	Total
SCADA	$0	$70,000	$158,957	$0	$0	$0	$228,957
OMS	$0	$0	$0	$245,553	$324,828	$380,963	$951,344
Advanced Applications	$0	$0	$0	$0	$0	$0	$0
Total Project O&M	$0	$70,000	$158,957	$245,553	$324,828	$380,963	$1,180,301

IV. Ongoing Benefits:

Last Updated: 7/30/2021

Summary of Program Benefits (see Benefits realization plan for details):	Customers are looking 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. The ADMS, when fully implemented, provides these benefits. PSE should invest in an ADMS as it is necessity to stay relevant in the changing electricity business. Non-cash benefits include public and employee safety though switching order management, as well as improved residential and business customer satisfaction through improved reliability, outage management, and the future ability to integrate distributed energy resources. The ADMS is a necessary precursor to PSE Grid Modernization and Enablement strategy.

Category:	2018-2019	2020	2021	2022	2023	2024	Total
Ongoing O&M	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ongoing O&M (requesting $'s)	$0	$0	$935,240	$1,009,428	$1,496,769	$1,201,847	$4,643,285
Benefits	$0	$0	$7,677,294	$9,138,994	$2,245,036	$2,542,765	$21,604,089
Revenue Stream Benefits	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Net impact (= Benefits – O&M)	$0	$0	$6,742,054	$8,129,566	$748,267	$1,340,918	$16,960,804
*Payback in Years	N/A	Years = Total Costs / Annual Cash Benefits					

 * Enter positive amount or Not Applicable
** Twenty year Total Gross Benefit 2018 – 2037: $77,988,445

V. Change Summary

Year:	July 2021
	The ADMS effort has been restructured into a program as of July 30, 2021. The previous approved governing CSA document is CSA_ADMS_20191106_Design. The changes below represent the program changes since that document was approved in November of 2019.
	Business director updated from Dan Koch to Ryan Murphy
Scope:	No changes since last phase gate.
Budget:	**Program Capital Budget** The overall capital budget remains at $33,208,644. However, due to the increased duration of the program, the capital budget for 2021 is reduced and the budgets for 2022 and 2023 are increased.

Program Capital Budget

	2018	2019	2020	2021	2022	2023	Total
Current Budget	$7,867,823	$5,702,136	$9,642,686	$9,120,057	$875,942	$0	$33,208,644
Change	$0	$0	$(3,800,000)	$(2,669,982)	$5,625,235	$844,747	$0
New Budget	$7,867,823	$5,702,136	$5,842,686	$6,450,075	$6,501,177	$844,747	$33,208,644

Program O&M Budget
Program O&M has increased by $343,866 from $836,435 to $1,180,301. This is mainly due to additional costs to the business of overtime incurred for backfill resources.

	2018	2019	2020	2021	2022	2023	Total
Current Budget	$0	$70,000	$325,038	$423,337	$18,060	$0	$836,435
Change	$0	$0	$(166,081)	$(177,784)	$306,768	$380,963	$343,866
New Budget	$0	$70,000	$158,957	$245,553	$324,828	$380,963	$1,180,301

Ongoing O&M Budget
The Ongoing O&M cost has increased by $351,851 from $4,291,433 to $4,643,284 as the total number of resources needed to support ADMS was increased based on our current understanding of the level of effort required to support the ADMS processes.

	2019	2020	2021	2022	2023	2024	Total
Current Budget	$149,242	$427,955	$1,583,611	$2,130,625	$0	$0	$4,291,433
Change	$(149,242)	$(427,955)	$(648,371)	$(1,121,197)	$1,496,769	$1,201,847	$351,851
New Budget	$0	$0	$935,240	$1,009,428	$1,496,769	$1,201,847	$4,643,284

Schedule:	The program duration increased by 24 months from 59 months to 83 months and the end date moved from 12/2021 to 12/2023 due to several factors. . - The impact of COVID reduced team effectiveness as the teams adjusted to working at home. - The amount of preplanning, testing and training needed to support this new technology was underestimated. The project team had to reevaluate the durations and dependencies of the process, design, testing and training phases of the project. Because of this evaluation, the project schedule was adjusted.
Benefits:	No change to benefits
Prepared By:	Paul Tobin

Phase:	**Design to Execution Phase Gate Update – November 2019**
Scope:	No changes since last phase gate

Budget:	Project Capital Budget
	The overall capital budget for the project has increased from $27,861,558 to $33,208,644. The increase is due to the following:
	
	- After completing the planning phase of the project, it was determined, that training for the new OMS system would be higher than originally estimated in the SCADA/DMS only solution.
	- Project duration extended for 1 year due to delay in critical software release from application vendor and PSE has also reduced the available funding in 2019 due to budget constraints.
	- The following changes increase the capital cost but reduced the Operational cost and therefore do not increase the overall project costs.
	   - Further evaluation of the data cleanup effort resulted in a reclassification of fieldwork from Operational Expense to a Capital Expense.
	   - Delay in project go live date resulted in a reclassification of 1 year of infrastructure server licenses from Operational Expense to a Capital Expense.
	   - A larger percentage of OCM resource was reclassified from Operational Expense to a Capital Expense.
	
	Project O&M has decreased from $2,661,116 to $836,435. This change was due to :
	- User training removed from Project O&M budget because it will be covered under individual cost centers
	- A larger percentage of OCM resource was reclassified as stated above.
	- Field audit expenses reclassified as Project Capital as stated above,
	
	Ongoing O&M
	Ongoing O&M has changed from $6,248,057 to $4,291,433. This change was due to the one-year project delays pushing the Ongoing O&M costs outside the 2018 -2022 forecast window.
	
	2019 Budget
	Below is a summary of the PCR #4 adjusting the 2019 budget. This change does not impact the overall project budget as dollars will be pulled in from future years to cover this change. The budget for 2019 was increased by $702,136 from $5,000,000 to $5,702,136. This additional cost covers:
	- PM transitions from an FTE to a contractor for 3 months then to an FTE
	- Unaccrued 2018 costs: 2018 costs that hit the 2019 budget
	- Resource hours increased for QA and Training
	- Added contingency of $47,000 to adjust level to 10% of ETC, excluding fixed price contracts

Schedule:	The project schedule will change due to two factors. The vendor has delayed the release of a required ADMS application software update by six months. PSE has also reduced the available funding in 2019 due to budget constraints. As a result of these two factors and accounting for storm season, the key project deliverables will be adjusted as follows: - Moving the go-live date for SCADA from July 2019 to June 2020 - Moving the go-live date for OMS from July 2020 to June 2021 - Moving the go-live date for DMS from February 2021 to January 2022

Benefits:	Customers are looking 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. The ADMS, when fully implemented, provides these benefits. PSE should invest in an ADMS as necessity to stay relevant in the changing electricity business. Non-cash benefits include public and employee safety though switching order management, as well as improved residential and business customer satisfaction through improved reliability, outage management, and the future ability to integrate distributed energy resources. The ADMS is a necessary precursor to an integrated DERMS platform.

Benefit	Department Name	2018	2019	2020	2021	2022	5 Year Total 2018-2022	20 Year Total 2018-2037 (Nominal)
VVO[1]	Energy Efficiency (reports energy savings)							$7,135,085
Avoided OMS Replacement	IT Applications				$7,500,000	$7,500,000	$15,000,000	$15,000,000
Avoided EMS Licenses and Maintenance, YFA Licenses and Maintenance, Increase in EMS Upgrade Complexity, FTEs to Support YFA[2]	IT Applications				$236,392	$246,064	$482,456	$9,452,153
Avoided FTE (IT, NEMS, Ops Engineer, Ops SME)	IT and System Operations				$1,392,930	$1,738,630	$3,131,560	$39,228,277
Reliability Improvement (Customer Benefit)	N/A (customer benefit)							$2,190,004
Switching Error Reduction	System Operations				$4,340	$4,470	$8,810	$94,443
SunNet TOA Annual Licensing	IT Applications				$16,883	$34,778	$51,661	$717,903
GE PowerOn OMS is replaced before full vendor support is dropped in 2022	System Operations							Qualitative

[1] Future Cost Avoidance – avoided cost of energy and capacity
[2] Future Cost Avoidance – all of the costs in the business case are incremental to today's costs

Prepared by:	Paul Tobin

Phase:	**Planning to Design Phase Gate Update – September 2018**
Scope:	Project will implement a new OMS rather than integrating to legacy OMS as the initiation proposal suggested. Project will address data to ensure readiness for DMS implementation. Project will implement SCADA environment and perform a pilot for load-flow readiness. Project will provide functionality to implement VVO and FLISR, and prepare a foundation for a future DERMS solution.
Budget:	Budget requirements have changed since initiation proposal. Below is a summary of significant changes to assumptions: Initiation: Vendors would be selected and on-site by Jan 2018; now expected ~July 2018. Initiation: PSE's legacy OMS would be integrated to ADMS; now expecting to implement new OMS. Initiation: No estimate for data clean-up; now included. Initiation: No estimate for database administration and database licensing; now included. Initiation: End user training ($422K OMRC) was omitted per direction from CSA process owner because it would be absorbed by receiving cost center; now included. Initiation: One high-level estimate for Implementation & Test based on similar utility head-count. Initiation estimate did not have discrete estimates for Architecture, OCM, Process development, Project Management so no side-by-side comparison is available. Similar utility project scope did not implement new OMS and had legacy DMS; now parametric estimating. Initiation: No System Integrator--majority (~80%) of labor was estimated using PSE employee labor rate; now SI is assumed at higher labor rate. Below is a summary of the PCR #1 changes compared to the April 2018 CSA submission: The 2018 budget approved in the April 2018 CSA and the April 2017 initiation CSA are adequate for addressing the obligations forecast for 2018. However, the approved CSA budget was never allocated to the project. Instead, a smaller budget was provided due to budget constraints for the overall PSE portfolio. Since April 2018, PSE has awarded the design phase contracts and has negotiated pricing reflected in the updated forecast. Also, the PSE teams have updated/refined their estimates. The updated forecasts in Section III identify the budget request for 2018 and because this value is smaller than what was previously approved, the excess approved for 2018 has been moved to 2019, keeping the overall project forecast constant. Due to the requirement to have a signed CSA for PCR #1, only changes related to the 2018 budget true-up are reflected in this document. A planning phase gate CSA will be circulated that updates total project costs for 2019-2021.
Schedule:	In the original plan, the project would start implementation in January 2018 and the DMS capabilities were projected for August 2019. The project implementation is now planned to start in Q3 2018 and will implement SCADA and OMS first to establish a common network model that the DMS can build upon. A DMS pilot has been added in Q3 2019-Q2 2020 allowing PSE to demonstrate advanced distribution management to support smart grid strategy. The first production release of the DMS will go live in Q3 2020.
Benefits:	No changes since last phase gate.
Prepared by:	Laura Feinstein

VI. Program CSA Approvals

Program Year	Year 4 - 2021			
Approved By	**Title**	**Role**	**Date**	**Signature**
Ryan Murphy	Director, Electric Operations	Sponsor, Steering Committee	09/10/2021	📄 PDF Approval Ryan Murphy ADMS Prog
Cathy Koch	Director, Planning	Steering Committee	09/08/2021	📄 PDF Approval Cathy Koch ADMS Program
Brian Fellon	Director, IT Applications	Steering Committee	09/09/2021	📄 PDF Approval Brian Fellon ADMS Progra
Booga Gilbertson/ Dan Koch	VP, Sr VP & Chief Operations Officer	Sponsoring Officer	09/27/2021	📄 PDF Approval Booga Gilbertson ADMS Pr 📄 PDF Approval Dan Koch ADMS Program CSA
Margaret Hopkins	Chief Information Sr VP & Chief Information Officer	Sponsoring Officer	09/17/2021	📄 PDF Approval Margaret Hopkins ADMS Prog

Design to Execution Phase:

I. Prepared By	Title	Role	Date	Signature
Paul Tobin	Project Manager	CSA Author	11/15/2019	Adobe Acrobat Document

Approved By	Title	Role	Date	Signature
Dan Koch	Director, Electric Operations	Sponsor, Steering Committee	11/11/2019	Adobe Acrobat Document
Cathy Koch	Director, Planning	Steering Committee	11/12/2019	Adobe Acrobat Document
Brian Fellon	Director, IT Applications	Steering Committee	11/14/2019	Adobe Acrobat Document
Booga Gilbertson	VP, Operations	Sponsoring Officer	12/03/19	Adobe Acrobat Document
Margaret Hopkins	Chief Information Officer	Sponsoring Officer	12/02/2019	Adobe Acrobat Document

Acknowledgements	Title	Role	Date	Signature
Kalyana Kakani	Manager, Energy Applications	Benefit Owner*	11/13/19	Adobe Acrobat Document
Jens Nedrud	Manager, System Planning	Benefit Owner*	11/13/19	Adobe Acrobat Document
Robert Stolarski	Director of Customer Energy Management	Benefit Owner*	11/25/19	Adobe Acrobat Document
Adam Harrison	Manager, Distribution Management Systems	Delivery Manager	11/15/19	Adobe Acrobat Document

Planning to Design Phase Gate:

II. Prepared By	Title	Role	Date	Signature
Laura Feinstein	Project Manager	CSA Author	9/5/2018	*Laura Feinstein*

Approved By	Title	Role	Date	Signature
Dan Koch	Director, Electric Operations	Sponsor, Steering Committee	9/19/2018	CSA for PCR #1 Signoff required_Dan.
Cathy Koch	Director, Planning	Steering Committee	9/20/2018	CSA for PCR #1 Signoff required_Cathy
Booga Gilbertson	VP, Operations	Sponsoring Officer	9/20/2018	CSA for PCR #1 Signoff required_Boog
Brian Fellon	Director, IT Applications	Steering Committee	9/19/2018	CSA for PCR #1 Signoff required_Brian

Acknowledgements	Title	Role	Date	Signature
Rich Larson	Manager, Energy Applications	Benefit Owner*		CSA for PCR #1 Acknowledge_Rich.pdf
Jens Nedrud	Manager, System Planning	Benefit Owner*	9/20/2018	CSA for PCR #1 Acknowledge_Nedrud.
Kalyana Kakani	Manager, BTS	BTS	9/20/2018	CSA for PCR #1 Acknowledge_Kalyana

Appendix:

Current Year Project list, State Date & In Service Date

Last Updated: 7/30/2021

Project (s)	Year 4 - 2021	
	Anticipated Start Date	Anticipated In Service Date
SCADA Project	02/2018	02/2021
OMS Project	02/2020	11/2023
Advanced Applications Project	TBD	TBD