EXH. RBB-4r DOCKETS UE-240004/UG-240005 2024 PSE GENERAL RATE CASE WITNESS: ROQUE B. BAMBA

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

Docket UE-240004 Docket UG-240005

THIRD EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

ROQUE B. BAMBA

ON BEHALF OF PUGET SOUND ENERGY

REVISED APRIL 10, 2024

FEBRUARY 15, 2024



Date Created:	Friday, February 10, 2023
Discretionary/ Non-Discretionary:	Discretionary
Multi Year Rate Plan:	Specific
Equity Impact:	Yes
Strategic Alignment:	Operate the Business-Reliability
Estimated In-Service Date:	Thursday, December 31, 2026
Current State (Business Need):	Substation Capacity need: A distribution substation group capacity need of 14.6 MW was identified on Bainbridge Island within the 10 year planning horizon (2018-2027) to support general load growth of 4.6 MW and planned 10 MW load addition for the new ferry electrification charging load. The anticipated capacity need is expected to grow to 16.6 MW by 2030 due to general load growth increase by 2 MW. Per the PSE Solution criteria a solution must last 10 years. The Needs Assessment shows that additional substation capacity is needed by 2020. Due to lower than anticipated load growth, the additional substation capacity will not be needed until the 2025 to 2026 timeframe. Therefore, the need of 16.6 MW is the ultimate need for a viable solution to last until 2030 and beyond.



Desired State (Proposed Solution):	The proposed solution for addressing Bainbridge Island's distribution capacity will be achieved by: o Installing an approximately 3.3 MW/6.6 MWh battery storage system (planned for Murden Cove substation). Implementing an
	approximately 3.3 MW DER portfolio on Bainbridge Island, with customer side resources such as energy efficiency, renewable distributed generation, and potential of demand response.



	The installation of a 3.3MW/6.6 MWh energy storage battery and implementation of a 3.3MW DER program will defer the need to build a new substation and new feeders for 10 years or more. The hybrid alternative, which includes an energy storage battery as one of its components, is estimated to cost less than an all wires solution. The project will improve customer satisfaction.
What are the nticipated benefits):	includes an energy storage battery as one of its components, is estimated to cost less than an all wires solution. The project will improve customer satisfaction.



Dependencies:	Yes										
Dependencies comment:	None.										
Escalation Included:	No, escalation has not been included.										
Total Estimated Costs:	\$11,720,000										
Total Estimated Costs:	\$11,720,000										
Estimated Five Year Allocation:	Funds Type	ID		ine Item Description	on	Previous Years Actuals	Fiscal 2024 Requested	Fiscal 2025 Requested	Fiscal 2026 Requested	Fiscal 2027 Requested	Fiscal 2028 Requested
	Capital	W_R.10019.01.01.04	E Bainbridge Energ	gy Storage Battery		\$ 1,679,989	\$ 953,700	\$ 7,008,963	\$ 40,000	\$ 100,000	\$ -
Incremental O&M:	Both										
Qualitative Benefits:	The 3.3MW/6.6 MWh energ will be designed for 3 use car frequency response from nei	ses including: peak shaving; f	requency response								
Quantitative Benefits:	Quantitative Benefits	Benefit Type	Previous Years	Fiscal 2024	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Fiscal 2029	Remaining Costs	Life Total
	Annual frequency response		\$ -	\$ -	\$ -	\$ 330,000			\$ -	\$ -	\$ 660,000
	savings		, -	, -	, -	3 330,000	3 330,000	, -	, -	, -	3 000,000
Risk Summary:	Passing code amendments, o	btaining permits, communit	y resistance, negot	iating battery pricii	ng, and seasonal co	nstruction schedule	pose the greatest	risks to the project			



Corporate Spending Authorization (CSA)

Change Summary:

Planning Cycle	Change Summary	Last Update Date
2022 Baseline Cycle	This CSA has been migrated into the EPPM tool at go-live as part of the Phase 1 EPPM implementation effort. The projects in this CSA were previously approved for the 2023-2027 capital plan. Please refer to the original CSA document for additional information (if available.)	2/10/2023



Corporate Spending Authorization (CSA)

Approval History:

Approved By	Date Approved
Approved by Cost Center Owner: Pagano , Tony	4/3/2023
Approved by Director Sponsor: Roque Bamba	4/6/2023
Approved by Executive Sponsor: Koch , Dan	4/6/2023
CSA Status changed to Approved	4/6/2023
Approved by Cost Center Owner: Lim , Thina	12/5/2023
Approved by Director Sponsor: Lim , Thina	12/5/2023
Approved by Executive Sponsor: Lim , Thina	12/5/2023
CSA Status changed to Approved	12/5/2023
Approved by Cost Center Owner: Pagano , Tony	1/25/2024
Approved by Director Sponsor: Bamba , Roque	1/26/2024
Approved by Executive Sponsor: Vargo , Michelle	2/1/2024
CSA Status changed to Approved	2/1/2024



Date Created:	Friday, February 10, 2023
Discretionary/ Non-Discretionary:	Discretionary
Multi Year Rate Plan:	Specific
Equity Impact:	Yes
	Evolve the Business-Operating Model
Estimated In-Service Date:	Sunday, October 31, 2027
	The balloting bland (Berlin) given when becausemen report numerative forestables with a discovered from the control of the provided of the control of the co



Desired State (Desire 15 1	
Desired State (Proposed Solution):	The proposed solution is to build a new 3.4 mile transmission line between MurdenCove Substation and Winslow Substation. The route for the new line was selected after a two year public engagement process. The selected route will follow existing public roads and be co-located with existing distribution lines along its entire length. Winslow and Murden Cove Substations will need upgrades to terminate the new line including among other improvements—new control houses, new circuit breakers, new dead-end towers, new disconnect switches, new protection relays, and expanded storm water systems. To support high speed transfer tripping, Port Madison
	Substation will need a new control house, a new circuit breaker, and new protection relays. New fiber lines will also need to be installed along sections of the new and existing transmission lines.



The project will reduce SAIDI and SAFI numbers on Bainbridge Island. The project will improve operational flexibility and allow for routine maintenance and emergency repair of sections of transmat at are the service to customers or taking substations off line: There will be a reduction in long-term O&M costsdue to the reduced need for emergency repairs. The project will improve customer satisfaction cipated benefits):	



Dependencies:	Yes										
Dependencies comment:	None.										
Escalation Included:	No, escalation has not been included.										
Total Estimated Costs:	\$27,800,000										
Estimated Five Year Allocation:	Funds Type	ID	Li	ine Item Description	n	Previous Years Actuals	Fiscal 2024 Requested	Fiscal 2025 Requested	Fiscal 2026 Requested	Fiscal 2027 Requested	Fiscal 2028 Requested
	0&M	77991	OMRC			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Capital	W_R.10019.01.01.02	Bainbridge Trans V	VIN-MUR Loop		\$ -	\$ 1,038,000	\$ 7,437,480	\$ 8,657,000	\$ 1,706,000	\$ 100,000
Incremental O&M:	Both										
Qualitative Benefits:	Improve reliability by reduci	ngSustam Avaraga Interrunti	on Duration Index (CAIDI) and Systom	Avorago Interruntio	n Eroquoney Indov	(SAIEI): increase cu	ctomor satisifaction	n: improvo oporati	onal flovibility for ro	utino
Quantative benefits:	maintenance and emergence										
Quantitative Benefits:											
Quantitative benefits.	Quantitative Benefits	Benefit Type	Previous Years	Fiscal 2023	Fiscal 2024	Fiscal 2025	Fiscal 2026	Fiscal 2027	Fiscal 2028	Remaining Costs	Life Total
Risk Summary:	Passing code amendments, of	obtaining permits, communit	y resistance, acquir	ing easements,and	the condemnation	process pose the g	reatest risks to the	project.			



Corporate Spending Authorization (CSA)

Change Summary:

Planning Cycle	Change Summary	Last Update Date
2022 Baseline Cycle	This CSA has been migrated into the EPPM tool at go-live as part of the Phase 1 EPPM implementation effort. The projects in this CSA were previously approved for the 2023-2027 capital plan. Please refer to the original CSA document for additional information (if available.)	2/10/2023
2023 Cycle 1	The Planning to Design CSA was approved on 11/4/2022.	3/29/2023

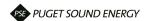


Corporate Spending Authorization (CSA)

Approval History:

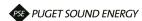
Approved By	Date Approved
Approved by Cost Center Owner: Pagano , Tony	4/4/2023
Approved by Director Sponsor: Roque Bamba	4/6/2023
Approved by Executive Sponsor: Koch , Dan	4/6/2023
CSA Status changed to Approved	4/6/2023
Approved by Cost Center Owner: Lim , Thina	12/4/2023
Approved by Director Sponsor: Lim , Thina	12/5/2023
Approved by Executive Sponsor: Lim , Thina	12/5/2023
CSA Status changed to Approved	12/5/2023
Approved by Cost Center Owner: Pagano , Tony	1/25/2024
Approved by Director Sponsor: Bamba , Roque	1/26/2024
Approved by Executive Sponsor: Vargo , Michelle	2/1/2024
CSA Status changed to Approved	2/1/2024

Exh. RBB-4r 13 of 17



Winslow Tap 115kV Transmission Line Rebuild

CSA ID:	SUBMISSION INFORMATION [CSA0177]										
Date Created:	February 10, 2023										
Discretionary/ Non-Discretionary:	Discretionary										
Multi Year Rate Plan:	Specific										
Strategic Alignment:	Operate the Business-Reliability										
	ENERGY EQUITY										
Is this project expected to positively impact priority populations?	Yes										
Estimated In-Service Date:	KEY SCHEDULE AND FINANCIAL INFORMATION October 15, 2025										
	00.020. 10, 2020										
Estimated Five Year Allocation:	CS	A ID	CSA Title			Fiscal 2024 Allocated	Fiscal 2025 Allocated	Fiscal 2026 Allocated	Fiscal 2027 Allocated	Fiscal 2028 Allocated	Fiscal 2029 Allocated
	CSA0177		Winslow Tap 115kV Transmission Line Rebuild		\$ 2,052,237	\$ 4,144,819	\$ -	\$ -	\$ -	\$ -	
Is there New Ongoing O&M?	No										
Are there changes to Existing	No No										
Ongoing O&M? Escalation Included:	No, escalation has not been included.										
Escalation Description:	None										
·											
				ONGOI	NG BENEFITS						
Qualitative Benefits (select all that apply):		Future cost avoi	dance								
(ooloot all that apply).	Customer DEI (Diversity, Equity, Inclusion)										
	Regulatory X Reliability Improvement Risk Reduction										
	Safety										
Qualitative Benefits Details:			mproved access, allow							&M cost savings re	sulting from a
	reduction in the n	eed for emergency	repair of damage. Al	igning PSE acc	ess requirements	with community tra	ails will improve PS	E relations on Ba	inbridge.		
		1							ı		
Quantitative Benefits:	Quantitative Benefits										
Dependencies:	No			RISK MANAG	SEMENT SUMMA	<u>RY</u>					
Dependencies Details:	None										
Risk Summary:	Community Resistance, Permitting, and Condemnation pose the greatest risk to the Bainbridge Island Reliability Projects.										



Winslow Tap 115kV Transmission Line Rebuild

	PROJECT OVERVIEW
Business Need:	Transmission Reliability Need: A reliability improvement need was identified to improve the performance of the Winslow Tap transmission line that feeds Winslow substation. Nearly 70 percent of the transmission related customer minutes of service interruption on Bainbridge Island were from outages to the Winslow Tap transmission line largely due to vegetation. The extreme duration of these outages is most often due to the poor access on the cross county section of the line. Key observations regarding Winslow Tap transmission outages over the 5 year period between 2013 and 2017: - Outages are long (ranging from 1 to 13 hours per year) - Outages are frequent (ranging from 1 to 5 outages per year) - This transmission system generally performs poorly in storms compared to other transmission systems. Reasons for poor reliability of the Winslow Tap: - Heavy vegetation along Winslow Tap - Difficult terrain and poor access along the line - Limited distribution substation capacity for backup of Winslow substation Transmission Aging Infrastructure Need: An Infrastructure replacement need was identified for the Winslow Tap transmission line support structures that are nearing end of useful life and could potentially fail leading to unplanned outages and emergency repairs. Aging infrastructure risks include failure prone wishbone style cross arms and a 60 year old conductor.

PSE PUGET SOUND ENERGY

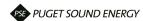
Winslow Tap 115kV Transmission Line Rebuild

Proposed Solution:	The project scope addresses the aging infrastructure need for the Winslow Tap transmission line by rebuilding the 4.5 mile line and improving the corridor access and vegetation management for maintainability and operability of the line. The scope includes installation of new poles and Tern conductor and the strategic acquisition of new property rights that will enable efficient access and
	International properties to the line. The scope includes instantation of the system close and the state of th
	Program. As such, 17 poles were replaced in the fall of 2020 which were all designed to meet the future rebuild specifications. The remaining 8 were replaced summer 2021. This work was funded by
	the pole replacement program and resulted in a \$2.35M reduction in the Winslow Tap rebuild project budget.

PSE PUGET SOUND ENERGY

Winslow Tap 115kV Transmission Line Rebuild

Outcome/Results:	Upgrades in traditional transmission infrastructure to replace aging equipment and improve reliability. The project will reduce SAIDI and SAIFI numbers for Bainbridge Island customers. There will be an avoidance of O&M resulting from a reduction in the need for emergency repair and improved access.



Winslow Tap 115kV Transmission Line Rebuild

Corporate Spending Authorization (CSA)

APPROVAL AND CHANGE HISTORY

Change Summary:

Planning Cycle	Change Summary	Last Update Date
2022 Baseline Cycle	This CSA has been migrated into the EPPM tool at go-live as part of the Phase 1 EPPM implementation effort. The projects in this CSA were previously approved for the 2023-2027 capital plan. Please refer to the original CSA document for additional information (if available.)	2/10/2023

Approval History:

Approved By	Date Approved
Approved by Cost Center Owner: Pagano , Tony	4/3/2023
Approved by Director Sponsor: Roque Bamba	4/4/2023
Approved by Executive Sponsor: Koch , Dan	4/6/2023
CSA Status changed to Approved	4/6/2023
Approved by Cost Center Owner: Lim , Thina	12/5/2023
Approved by Director Sponsor: Lim , Thina	12/5/2023
Approved by Executive Sponsor: Lim , Thina	12/5/2023
CSA Status changed to Approved	12/5/2023
Approved by Cost Center Owner: Pagano , Tony	1/25/2024
Approved by Director Sponsor: Bamba , Roque	1/26/2024
Approved by Executive Sponsor: Vargo , Michelle	2/1/2024
CSA Status changed to Approved	2/1/2024