

**EXH. RBB-4
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

FEBRUARY 15, 2024



Bainbridge Island Energy Storage Battery
Corporate Spending Authorization (CSA)

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):	<p>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.</p>



Bainbridge Island Energy Storage Battery

Corporate Spending Authorization (CSA)

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.



Bainbridge Island Energy Storage Battery

Corporate Spending Authorization (CSA)

Outcome/Results
(What are the
anticipated benefits):

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.



Bainbridge Island Energy Storage Battery
Corporate Spending Authorization (CSA)

Dependencies: Yes

Dependencies comment: None.

Escalation Included: No, escalation has not been included.

Total Estimated Costs: \$11,720,000

Estimated Five Year Allocation:

Funds Type	ID	Line Item Description	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 Energy 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 energy storage battery along with a 3.3MW DER program will help meet Bainbridge Island's distribution group capacity need and defer the need to build a new substation for 10 years or more. The battery will be designed for 3 use cases including: peak shaving; frequency response; and voltage regulation. Frequency response will save PSE up to \$330K annually as a result of eliminating the need for purchasing equivalent frequency response from neighboring utilities in PSE's Balancing Authority.

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 savings	-	\$ -	\$ -	\$ -	\$ 330,000	\$ 330,000	\$ -	\$ -	\$ -	\$ 660,000

Risk Summary: Passing code amendments, obtaining permits, community resistance, negotiating battery pricing, and seasonal construction schedule pose the greatest risks to the project.



Bainbridge Island Energy Storage Battery
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



Bainbridge Island Energy Storage Battery
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



Bainbridge Tlines Trans
Corporate Spending Authorization (CSA)

Date Created:	Friday, February 10, 2023
Discretionary/ Non-Discretionary:	Discretionary
Multi Year Rate Plan:	Specific
Equity Impact:	Yes
Strategic Alignment:	Evolve the Business-Operating Model
Estimated In-Service Date:	Sunday, October 31, 2027
Current State (Business Need):	<p>The Bainbridge Island Electric System Needs Assessment report summarized transmission system reliability and operational issues that arise from having two radial transmission lines serving the southern two thirds of Bainbridge Island. One radial line extends from Port Madison Substation to Winslow Substation and the other extends from Port Madison Substation to Murden Cove Substation. Data from 2013 to 2017 analyzed in the needs assessment and subsequent analyses of data from 2018 to 2020 indicate that a transmission line between Winslow and Murden Cove Substations, looping the system, would have reduced customer minute interruptions (CMI) by 40% over the 8 year period from 2013 to 2020. In addition, with a looped system each substation on Bainbridge Island would be served by two transmission lines. This will improve transmission operating flexibility and allow for sections of transmission line to be taken out of service for routine maintenance or emergency repair without interrupting service to customers or taking substations off line maintenance or emergency repair without interrupting service to customers or taking substations off line.</p>



Bainbridge Tlines Trans
Corporate Spending Authorization (CSA)

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.



Bainbridge Tlines Trans
Corporate Spending Authorization (CSA)

Outcome/Results
(What are the
anticipated benefits):

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 transmission line without interrupting service to customers or taking substations off line. There will be a reduction in long-term O&M costs due to the reduced need for emergency repairs. The project will improve customer satisfaction.



Bainbridge Tlines Trans
Corporate Spending Authorization (CSA)

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	Line Item Description	Previous Years Actuals	Fiscal 2024 Requested	Fiscal 2025 Requested	Fiscal 2026 Requested	Fiscal 2027 Requested	Fiscal 2028 Requested
O&M	77991	OMRC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Capital	W_R.10019.01.01.02	Bainbridge Trans WIN-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 reducing System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI); increase customer satisfaction; improve operational flexibility for routine maintenance and emergency repairs; reduce costs for unplanned maintenance and emergency repairs; reduce community risks related to outages; reduce work related incidents or accidents due to emergency repairs.

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, obtaining permits, community resistance, acquiring easements, and the condemnation process pose the greatest risks to the project.



Bainbridge Tlines Trans
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



Bainbridge Tlines Trans
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