EXH. RBB-9
DOCKETS UE-22___/UG-22___
2022 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-22____** **Docket UG-22____**

EIGHTH EXHIBIT (NONCONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

ROQUE B. BAMBA

ON BEHALF OF PUGET SOUND ENERGY

JANUARY 31, 2022

PUGET SOUND ENERGY
The Energy To Do Great Things

LYNDEN SUBSTATION EXPANSION
Annual Budget Record
Corporate Spending Authorization (CSA)

Date Submitted:	6/7/2021
Officer Sponsor:	Dan Koch
Project Director:	Roque Bamba
Responsible Cost Center:	4022

I. Project Overview

Business Need:	Puget Sound Energy's Strategic System Planning team performed an electric system needs assessment at Lynden Substation in north Whatcom County. The needs assessment found that the aging infrastructure in the substation is resulting in reliability and operational risks that need to be addressed. The Bank #2 transformer and regulator are showing signs of failure and is at risk of failing prior to the originally planned replacement date of 2026. Because of the unique layout and physical constraints of the substation site, unlike standard substation layouts, a failure of the transformer or regulator would require an extended period of time to replace the units. Additionally, one of the three transmission lines terminating at Lynden substation does not have a circuit breaker at the Lynden end. Without a circuit breaker on this line, a line fault requires the circuit breakers on the other two lines at the substation to trip, clearing the Lynden 115 kV bus. This causes reliability impacts to all 6,300 Lynden Substation customers and risks momentary or sustained outages to another 15,700 customers in northern Whatcom County. A fault on this line also triggers a generation Remedial Action Scheme (RAS) at Sumas Generation Plant, which results in removing 160 MW of generation from PSE's system. Not having a circuit breaker present at Lynden Substation doubles the outage exposure to Sumas Generation Plant. The needs assessment also highlighted the operational issues for the station because of the limited working space clearance, aging infrastructure, inadequate protective and SCADA devices, and control house equipment spread among multiple structures. Finally, there isn't sufficient space to install a planned future fourth feeder breaker for Bank #2. Additional feeder capacity is anticipated as early as 2028, or when new load exceeds 3 MW.
Proposed Solution:	The proposed solution to meet Lynden Substation's needs is to expand and rebuild the substation, adding a 115 kV circuit breaker for the 3rd line, replacing the Bank #2 transformer, and replacing both open air feeder structures with metalclad switchgear.
Project Outcome/Results:	The Lynden Substation Expansion project will address the aging infrastructure, transmission reliability and substation operability needs and concerns, and prepare for future distribution capacity needs.
	☒ N/A ☐ Low Impact ☐ Medium Impact ☐ Significant Impact

OCM, Process & Training Impact:	N/A		
Primary ISP Alignment:	Processes & Tools	ISP strategy descriptions	
ISP Strategy Description:	Process & Tools - System reliability and integrity		
Portfolio Description:	Risk Mitigation	Capital Allocation Definitions	
Project Complexity:	☐ Straightforward and well understood	☒ Complex and well understood	☐ Complex and not well articulated

II. Key Schedule and Financial Information

Expected Start Date If Funded:	12/2020
Expected In-Service Date:	06/2023

High-Level Schedule *3 years*

Duration				
Planning	**Design/Permitting**	**Execution**	**Total Project**	**Anticipated Closeout date**
2-3 months	**12-18 months**	**6-9 months**	**30-36 months**	**2023**

Initial Estimated Funding by Phase as of 04/17/2020**:**

Initiation	Planning	Design	Execution	Closeout	Total
8%	**10%**	**30%**	**51%**	**1%**	**$9,600,000**

Initial Grand Total Estimate (contingency included): Contingency Standard	**Capital: $8-17 million** (initial planning estimate from solutions report)	**OMRC/Project O&M: $0**

Estimated Five Year Allocation:

Category:	Lifetime Actuals	2021	2022	2023	2024	Total
Capital (contingency included)	**$1,050,000**	**$400,000**	**$2,150,000**	**$5,850,000**	**$150,000**	**$9,600,000**
OMRC / Project O&M						

III. Ongoing Benefits:

Summary Benefits (see Benefits realization plan for details):	Outage reduction for 6300 customers fed by Lynden Substation, and outage reduction for additional customers in Northern Whatcom County and Sumas Generation due to reducing operation of the Sumas RAS. Also avoiding the likelihood of the Bank #2 transformer failing before there is space in the substation for the replacement equipment.

Category:	2020	2021	2022	2023	2024	Total
Ongoing O&M (to be funded by business)	NA	NA	NA	NA	NA	NA
Ongoing O&M (requesting $'s)	NA	NA	NA	NA	NA	NA

Ongoing Capital (Capital Tail)	NA	NA	NA	NA	NA	NA
Benefits	NA	NA	NA	NA	NA	NA
Net impact (= Benefits – O&M)	NA	NA	NA	NA	NA	NA
* Payback in Years	NA					

* Enter positive amount or Not Applicable

IV. Risk Management Summary

Summary of high level risks sentence:	• Problems with permitting the adjacent property PSE acquired for the substation expansion is expected to be low • Long lead items, currently enough time to meet schedule to procure materials, risk expected to be low • Community opposition to substation expansion, currently in residential neighborhood, risk expected to be low • Impact to schedule & material procurement due to trickle effect of Covid-19, risk expected to be medium

V. Phase Gate Change Summary

*Use this section for changes from: **Planning to Design**, **Design to Execution** or **Execution to Closeout** phases. To have a history of the changes at each phase gate change, **copy/paste the table below above the previous table.***

Phase:	Initiating to Planning
Scope:	The proposed solution has been chosen out of multiple options which is to expand and rebuild Lynden Substation. Core upgrades include: • Install a 115 kV circuit breaker on the third transmission line (BPA BHM-LYN) • Replace existing Bank #1 fuses with a circuit switcher • Replace Bank #1 feeder structure with a metalclad switchgear • Replace Bank #2 • Replace Bank #2 feeder structure with a metalclad switchgear • Install a new control house, consolidating the control functions • A new dead-end pole located outside the west fence to connect the newly relocated 115 kV circuit breaker to the existing transmission line that exits the substation along the alley north of the substation • Realignment of transmission poles south of the substation to connect the new 115 kV circuit breaker • Move location of existing gate to southwest corner • Install drainage
Budget:	$9,600,000
Schedule:	This project is going into the Planning phase as the Needs Assessment and Solutions Report have been completed which results in closing out the Initiation Phase.
Benefits:	Increase reliability and capacity of Lynden Substation.

Prepared by:	Hector Gonzalez

VI. CSA Approvals

Project Phase	**Initiation to Planning**			
Approved By	**Title**	**Role**	**Date**	**Signature**
Tony Pagano	Manager Project Management	Manager	June 21, 2021	DocuSigned by: Tony Pagano C7D3BC09443B4AC...
Roque Bamba	Director Project Delivery	*Director Sponsor	June 23, 2021	DocuSigned by: Roque Bamba BC203E4E58BB426...

*Director Sponsor attests that all considered documentation has been approved.