Project Title	Zero Emission Shipping Terminal (ZEST) Plan
Applicant Information	*Applicant Name/Organization:* Northwest Seaport Alliance (NWSA) *Address (Street, City, State, Zip):* One Sitcum Plaza, Tacoma, WA 98421-3000 *Contact Name, Title/Role, Phone Number, and Email Address:* Steve Nicholas, Senior Manager, Air Quality & Sustainable Practices, (253) 888-4713, snicholas@nwseaportalliance.com
Type of Eligible Applicant	Port Authority
Budget Summary	The total project budget is $3,150,000. This includes a CPP planning grant ask of $3,000,000 plus a $150,000 NWSA match in the form of in-kind staff support. The $3,000,000 in grant funding will support $276,150 in additional engineering staff support plus $2,273, 850 in contract support.
Project Locations	*Names of Ports:* Northwest Seaport Alliance *Name of Port Authority, if applicable:* *County, City, State:* Tacoma/Pierce County, WA
Project Period	*Project Start Date:* 1/1/2025 *Project End Date:* 12/31/2027
Short Project Description	The NWSA proposes to develop a Zero Emission Shipping Terminal (ZEST) Plan for its East Blair-1 Terminal – a busy breakbulk cargo facility that is expected to grow significantly in the next several years. Developed in partnership with Wallenius Wilhelmsen (WWL), our major commercial partner at EB-1 and a global leader in sustainable shipping, the ZEST Plan will include engineering design for a shore power installation at EB-1 as well as a plan for transitioning all 40 or so pieces of cargo-handling equipment at the terminal to ZE by 2050 or sooner. The ZEST Plan will serve as a model for other breakbulk cargo terminals at the NWSA and other ports in Washington state.
Other Potential Federal Funding Sources	Funding to expand the NWSA's ZE CHE Incentive Program is embedded in both the NWSA's CPP: ZE Technology Deployment grant and a CPRG application in which the NWSA is a core partner/sub-awardee. If successful, this funding would be available to support implementation of the ZEST Plan for EB-1. In addition, the NWSA will aggressively pursue other sources of state and federal funding to install the shore power and ZE infrastructure design that will be included in the EB-1 ZEST Plan.

Section 1 – Project Summary and Approach

a. Overall Project

Since adopting the updated Northwest Ports Clean Air Strategy (NWPCAS) in April of 2021, the Northwest Seaport Alliance (NWSA) has been working directly with our industry partners and other stakeholders to advance the Strategy's central goal: to phase out all emissions from all seaport-related activities by 2050 or sooner. The EPA Clean Ports Program is a transformational opportunity to intensify and accelerate progress toward a "tipping point" in our efforts to fully decarbonize the seaports of Seattle and Tacoma.

The NWSA is requesting **$3 million** through the CPP Climate and Air Quality Planning Competition to conduct a comprehensive Zero Emission Shipping Terminal (ZEST) Plan for our East Blair One (EB-1) Terminal – a fast-growing breakbulk cargo facility in our Tacoma Harbor. The Plan will be guided by a baseline emissions inventory for the terminal and a feasibility analysis of ZE technology solutions, culminating in a plan for transitioning the fleet of approximately 40 pieces of cargo handling equipment and light-duty fleet vehicles to zero emissions with the associated infrastructure development requirements. The plan also will include elements on related workforce development and climate resilience needs, and how those needs will be met. In addition, an engineering design for a shore power installation at EB-1 Terminal also will be completed.

The ZEST Plan for EB-1 will set the stage for significant emission reductions in overburdened, near-port communities, as shore power is installed, and the CHE fleet is converted to ZE technologies. It will deliver healthier air for near-port residents as well as the people who work on or near the EB-1 Terminal. And it will serve as a model for other breakbulk cargo facilities, at the NWSA and throughout the state and region.

The proposed project is a critical next step for the NWSA. Soon after adoption of the NWPCAS, the NWSA developed and adopted a Clean Air Implementation Plan that establishes five-year milestones for advancing the goal of ZE by 2050 or sooner. Priority programs include the NWSA Shore Power Program (the goal of which is to install shore power on all major cargo terminals by 2030) and the Clean CHE Program (the goal of which is to work with operating partners to transition the fleet of about 850 pieces of cargo-handling equipment operating in the NWSA gateway to ZE technologies). In addition, the NWSA initiated the South Harbor Electrification Roadmap (SHERM), a Tacoma harbor-wide energy planning effort that is nearing completion. Collaborating with our local utility (Tacoma Power), we assessed the grid's ability to serve new electrification loads and the infrastructure improvements needed to serve those loads. Comprehensive, terminal-specific zero-emission plans are an important next step to identify the specific actions and investments that the NWSA and its industry partners need to take to make the zero emissions vision a reality.

The EB-1 Terminal is an impactful place to apply this concept. Because the NWSA manages this facility (rather than leasing it to a private marine terminal operator), we have more direct control over strategies and investments. As a hard-to-decarbonize breakbulk cargo facility that is one of the fastest-growing terminals in the NWSA gateway, the ZEST Plan at EB-1 offers a unique opportunity for impact. And our main commercial customer at this facility – Wallenius Wilhelmsen (WWL) -- is keen to partner with us on this effort. WWL, a market leader in Roll-on Roll-off (Ro/Ro) shipping, transports more than 150,000 new automobiles and other breakbulk cargo through the NWSA gateway (mostly at the EB-1 Terminal) on an annual basis and leases the Taylor Way Auto Facility, a major new vehicle processing center in Tacoma. WWL has an aggressive company-wide decarbonization strategy to dramatically reduce emissions by 2030 and be net-zero by 2040, a decade ahead of the International Maritime Organization goal of net-zero by 2050. WWL views decarbonization as an end-to-end supply chain responsibility and is heavily invested in reducing emissions not just from the ships they transit, but also from their vessels while at berth by plugging into shore power and from the equipment that loads and unloads their vessels.

The NWSA and WWL are already collaborating, with other partners including the US Department of State, to develop what could be the world's first auto carrier Green Shipping Corridor[1] between Tacoma and Ulsan, Republic of Korea. Once established, the Green Shipping Corridor will support green methanol-powered and shore power capable ships deployed by WWL. The WWL vessels are currently on order and expected to be deployed at the end of 2027, so we are working hard to assess the Green Shipping Corridor feasibility, understand the fueling and infrastructure needs of the WWL vessels that will be prioritizing this route, and make the necessary investments at EB-1 Terminal.

The ZEST Plan for EB-1 will include an inventory of current emissions (air pollutant and greenhouse gases) at EB-1 from vessel at-berth activity, CHE, and light-duty fleet operations – expanding on the recently completed 2021 Puget Sound Air Emissions Inventory – and will perform scenario analysis to align ZE technology deployments with the NWSA's goals to achieve net zero scope 1 and 2 GHG emissions by 2040 and phase out all emissions by 2050 or sooner. This scenario analysis will inform a ZE transition implementation that will establish a timeline for investments in ZE equipment and associated infrastructure. Requested funding will cover consulting and staff costs associated with the various analyses and engineering assessments that will be required to assemble the EB-1 ZE Master Plan.
The detailed scope of the ZEST Plan will include the following:

- Inventory current vessel activity, equipment use, and infrastructure.
- Establish a facility specific baseline emissions inventory.
- Assess the cost and feasibility of ZE strategies based on assumed electrical demand.
- Identify infrastructure needs and develop preliminary engineering design to support shore power installation and ZE CHE charging infrastructure.
- Engineering design of key infrastructure projects needed to enable deployment of ZE technologies.
- Assess permit requirements and applicable codes for infrastructure improvements.
- Review budget planning and asset management processes.
- Consider resiliency measures and innovative energy technologies.
- Evaluate workforce training policies and safety procedures.

A fully ZE EB-1 terminal will require significant investments from the NWSA and our industry partners. To reduce the risk of such investments, it is important to establish a baseline understanding of the terminal specific emissions, fleet and infrastructure conditions, and pathways to ZE technology implementation. Holistic planning can significantly reduce the costs of construction for infrastructure over time by futureproofing - ensuring that development projects complement and build upon each other over time and do not result in stranded capital. In addition, proactive planning will enable us to assess innovative technologies that can support the transition to ZE, such as energy storage, load management, and microgrids.

b. Partnerships and Collaboration

The NWSA – a Federal Marine Commission-approved port development authority – is the marine cargo operating partnership of the Ports of Tacoma and Seattle that manages the cargo shipping lines of

[1] United States – Republic of Korea Joint Statement on Green Shipping Corridors Collaboration - U.S. Embassy & Consulate in the Republic of Korea (usembassy.gov)

business and associated facilities on behalf of those two ports. The NWSA is also the marine terminal operator at EB-1, creating a distinct opportunity for NWSA to fully invest in transitioning EB-1 to be a ZE terminal. The NWSA will be the prime awardee and main point of contact and accountability with the EPA. The NWSA will directly manage the EB-1 masterplan and will contract with a consultant for engineering support through a competitive procurement process. The NWSA utilizes staff from the Port of Tacoma's engineering team to manage construction and engineering design projects that occur in the Tacoma harbor, based on our master policy. Therefore, Port of Tacoma staff will support management of the project, bringing their deep knowledge of the EB-1 facility.

NWSA has strong relationships with our business partners who move cargo through EB-1. We continue to work closely with WWL and are increasingly engaged with the stevedores operating at EB-1, which includes Ports America. WWL is heavily invested in moving breakbulk and auto cargo through our gateway, moving over 150,000 new vehicles through Tacoma on an annual basis and has a long-term lease for the Taylor Way auto processing facility. Additionally, WWL is a key partner on the US-ROK Ro/Ro Green Shipping Corridor project through which we have a joint vision to transition vessel and cargo-handling activities at EB-1 to zero emissions.

The NWSA has been coordinating closely with utilities to plan for electrification of port facilities and related operations for several years. In the Tacoma harbor we have partnered with Tacoma Power on an ongoing electrification planning study called the South Harbor Electrification Roadmap (SHERM) that assess the electrical demands and high-level infrastructure needs associated with electrifying our port facilities. Through this effort, we are assessing the grid upgrades needed to electrify our facilities and have established strong partnership that will be critical for ensuring electrical capacity is available where and when it is needed to support our transition to zero emissions.

c. Coordination with Complementary Initiatives

The proposed project advances the goals of the NWSA's own Northwest Ports Clean Air Strategy and a range of related federal, state, and local initiatives. For example, the project addresses priorities identified in both the regional and state Priority Climate Action Plans developed under the EPA Climate Pollution Reduction Grant Program. In addition, the project builds on investments by the State Department[2] and Department of Energy[3] in the Green Shipping Corridor framework, a global effort to address greenhouse gas emissions from ships. The Green Shipping Corridor between Tacoma and Ulsan, Republic of Korea (ROK) is in the feasibility phase, facilitated by the Maersk McKinney Moller Center for Zero Carbon Shipping. Both the US State Department and DOE have been directly involved in initiating the US-ROK Green Corridor and plan to continue to be engaged as it progresses.

The project also builds on significant EPA DERA investments made in our gateway in recent years. The first deployment of ZE CHE in the Tacoma-Seattle gateway was at the NWSA's South Intermodal Yard, funded by a DERA award in 2020[4], and we are building on this momentum for transformational change at EB-1. Similarly, the NWSA's ambitious shore power program was built on foundational investments from the EPA DERA program. Three terminals are already shore power equipped and another three

[2] Green Shipping Corridors Framework - United States Department of State
[3] U.S. Announcements and updates under the Green Shipping Challenge at COP28 – Green Shipping Challenge
[4] https://www.nwseaportalliance.com/newsroom/first-all-electric-cargo-equipment-implemented-tacomas-south-intermodal-yard

terminals are proposing funding for shore power installations under the EPA Clean Ports Technology Deployment Grant opportunity. The shore power planning proposed in this application would allow us to move beyond our goal of installing shore power at our largest international container terminals by 2030 and enable shore power capable vessels calling one of our busiest Ro/Ro terminals to plug-in. Based on WWL's plans to install shore power capabilities on new build vessels and the expansion of the at-berth regulation in California to include Ro/Ro and auto carriers, we believe now is the time to start planning for installation of shore power at EB-1.

Regarding state climate initiatives, The EB-1 ZE Master Plan supports implementation of the State of Washington Climate Commitment Act (CCA) and the Healthy Environment for All Act. The CCA is a transformative law that aims to dramatically reduce emissions from the State's largest emitters while prioritizing the health of communities that are disproportionately affected by pollution.

Our proposed project also aligns well with climate action plans adopted by the cities of Seattle and Tacoma, Pierce and King counties, the Puget Sound Regional Council, and the Puget Sound Clean Air Agency.

Section 2 – Environmental Results—Outcomes, Outputs and Performance Measures

a. Expected Project Outputs and Outcomes

A summary of key outputs and outcomes from the ZEST Plan are provided in the table below.

Anticipated outputs and outcomes

Activities	Outputs	Outcomes
Zero Emission Shipping Terminal (ZEST) Plan	Inventory of current terminal equipment and infrastructure	Understand the current operating conditions, equipment duty cycles, and existing terminal infrastructure.
	Emissions inventory of current operations and future emission scenario forecasting	- Identify emission reduction measures needed to meet the NWSA and partners' emission reduction targets. - Identify the biggest opportunities for emission reductions to prioritize investments in ZE technology.
	Detailed ZE EB-1 Terminal masterplan	- Develop fleet replacement plan for transitioning to ZE equipment and vehicles. - Develop infrastructure development roadmap to support the fleet replacement plan. - Identify resiliency measures, workforce training requirements and safety considerations.
	Engineering design of the electrical system(s) needed for shore power and charging of ZE equipment and vehicles.	- Provide high fidelity understanding of scope, schedule and budget that can be incorporated into capital plans. - Advance projects to "shovel ready" status, enabling them to be implemented as soon as funding is secured.

b. Performance Measures and Plan

The NWSA has a long history of successfully managing grant-funded emission reduction planning, deployment projects, and programs and has a team of highly qualified staff of project managers, grant managers, and financial management specialists that will ensure successful implementation of this grant. Rose Arsers, Project Manager II with the NWSA Air Quality and Sustainable Practices team, who will serve as the overall project manager, will:

- Meet quarterly with the NWSA's EB-1 Terminal operating manager, WWL, and other key industry partners to coordinate implementation, address and resolve challenges as they arise, and track progress towards outputs and outcomes.
- Meet monthly with staff from the Port of Tacoma's engineering team, who will manage engineering design tasks required for the project.
- Identify schedule or budget issues and work to enact corrective action and notify EPA as needed.
- Coordinate grant drawdown for eligible expenses.
- Ensure that all required reporting is completed.

Emission reductions associated with implementing ZE equipment or shore power will be captured in future emissions inventories, as described in the project sustainability section. In addition, through its tariff, the NWSA requires that all shore power capable vessels calling at terminals with shore power available must connect. Since the NWSA directly manages EB-1, electrical usage data will be readily available to track shore power use and calculate associated emission reductions.

c. Timeline and Milestones

The timeline and milestones for the ZEST Plan are presented below. After the final grant award is received, we will begin procurement of a consultant to perform the ZE Masterplan. We expect the procurement process to take approximately 6 months. Developing the ZE Masterplan is estimated to be a 30-month process, based on the timelines to complete our prior emissions inventories and engineering designs of shore power and electric vehicle and equipment charging infrastructure. The shovel-ready ZE infrastructure design elements will be informed by the ZE Masterplan work. It is anticipated that the engineering and design elements will be completed concurrently with the final elements of the ZEST Plan.

Timelines for Major Project Elements							
	2025		2026		2027		2028
Project	Q1-2	Q3-4	Q1-2	Q3-4	Q1-2	Q3-4	Q1
EB-1 ZE Masterplan							
Shore Power Design							
ZE CHE Infrastructure Design							
Project Administration							

Planning completed | Master-planning work | Bidding/procurement

	Preliminary Design		Shovel-ready design		Ongoing program admin. and reporting

Section 3 – Programmatic Capability and Past Performance (8 possible points, from Section V.A. of the NOFO)

a. Past Performance and Reporting Requirements

Programmatic Capability and Past Performance: NWSA Grants				
Project title	Assistance agreement number	Federal funding agency and assistance listing number	Brief description of the agreement	How we successfully managed the work
Terminal 5 Modernization Project: Investing in the region's future	Grant No. 693JF72344021	USDOT MARAD 20.823	$17,035,900 to fund improvements to Terminal 5 at the Port of Seattle.	The agreement was executed in the fall of 2023 and the project is active. Reports have been submitted on time.
Electric Terminal Tractors at the NWSA South Intermodal Yard	No. DE-01J83201-0	EPA CFDA No. 66.039	$782,482 to fund the remanufacture of six privately owned terminal tractors from diesel to battery electric.	The project was completed on time and on budget and all reporting was completed. The terminal tractors are currently in operation.
Domestic Terminals Truck Replacement Program	No. DE-01J98601	EPA CFDA No. 66.039	$719,957 to scrap and replace 36 pre-2007 diesel drayage trucks serving NWSA domestic terminals with 2015 or newer trucks.	This program has been highly successful, with all slots fully enrolled and truck drivers currently scrapping their trucks. The waitlist is full in case any of these enrolled truck owners drop out. The EPA granted a no-cost extension to this program.

b. Staff Expertise

The Air Quality & Sustainable Practices (AQSP) Team, which serves both the NWSA and the Port of Tacoma, will lead and coordinate implementation of ZEST Plan for EB-1. The AQSP Team has more than 60 years of combined experience designing, developing, and implementing innovative clean air and climate solutions, including many port-based initiatives and federally funded projects and programs.

Steve Nicholas, Senior Manager for Air Quality and Sustainable Practices, will supervise the EB-1 ZE Master Plan project manage and provide strategic guidance and support. Steve has more than 25 years of experience in the climate/clean air/sustainability field, leading high-performing teams and designing,

developing, and implementing, and managing complex programs and projects – including several large, complex, federally funded initiatives.

Rose Arsers, Program Manager II on the AQSP Team, will serve as project manager, overseeing implementation, progress tracking, and reporting. Rose manages the NWSA's ZE CHE Incentive Program (set to launch by the end of 2024) and has 20 years of experience in the port and maritime industry. She will coordinate closely with **Bob Meyer** (NWSA Director of Port Operations) and **Andre Elmaleh** (NWSA Senior Manager for Business Development for Non-Container Cargo).

Graham VanderSchelden, Project Manager II on the AQSP Team, will lead the shore power design component of the project, coordinating closely with the Port of Tacoma Engineering Team. The Engineering Team has successfully installed one shore power system to date, with another under construction. Graham coordinates the NWSA Shore Power Program and brings deep experience leading port electrification initiatives, including a DERA-funded project that brought six electric yard trucks to a railyard in the Tacoma seaport.

Andrew Prior, Senior Manager for Global Safety, Quality, & Sustainability at Wallenius Wilhelmsen, will serve as WWL's primary representative on the project team. Andrew oversees safety, reliability, and sustainability programs at more than 80 port-based vehicle logistics facilities around the world.

Section 4 -Environmental Justice and Disadvantaged Communities Reducing pollution that contributes to environmental health disparities, especially diesel particulate matter (DPM) in disadvantaged near-port communities in Seattle and Tacoma is a foundational priority of the Northwest Ports Clean Air Strategy (NWPCAS). Since our first emissions inventory in 2005, seaport related DPM emissions have been reduced more than 80%, significantly reducing air toxics related health impacts in near-port communities. These reductions have played a critical role in keeping the region in attainment of ozone and PM2.5 standards in the region.

a. Disadvantaged Communities: Nonattainment Areas

Pierce County is a Maintenance Area for 24-hour $PM_{2.5}$ and the 2020-2022 design value was 32 µg/m^3, just 3 µg/m^3 below the standard of 35. Continued work to reduce particulate emissions is imperative to ensure continued attainment given projected growth in the region. Furthermore, if the EPA were to lower the 24-hour $PM_{2.5}$ standard in future years, the region would likely be pushed back into nonattainment without significant efforts to reduce emissions. The proposed planning project will support future emission reduction projects critical to maintaining attainment status with the NAAQS in Pierce County.

b. Disadvantaged Communities: Areas with Air Toxics Concerns

Air toxics are a significant issue of concern in the Puget Sound region and diesel particulate matter is known to be the largest driver of regional air toxics related health risk. According to the Puget Sound Clean Air Agency's 2021-2022 Air Toxics monitoring study[5], while air toxics related cancer risks have been decreasing in the region, they are still significant and diesel particulate matter accounts for more than 80% of the total air toxics related cancer risk. Furthermore, Black, Indigenous, and other people of color

[5] 2023TacomaSeattleAirToxicsReport (pscleanair.org)

and lower income households have higher cancer risks as a result of living near major freight corridors. This means that investments in reducing diesel particulate matter emissions from port related sources are likely to reduce environmental health disparities.

The EPA also identifies Pierce County as an area of air toxics concern. Pierce County is listed on the EPA's 2024 Clean Ports Program Disadvantaged Communities list, which also identifies it as an area of high ambient diesel particulate matter concentrations. Pierce County also contains a maintenance area for 24-hour $PM_{2.5}$. EJ-Screen analysis identified census block groups that contain or are near port facilities that rank in the 90th percentile or higher relative to the state for the diesel particulate matter EJ Index, near the port areas in Tacoma.

c. Community Engagement Prior to Application and During Project

The proposed project emerges from the 2020 update of the Northwest Ports Clean Air Strategy (NWPCAS) and the associated implementation plan that the NWSA developed to establish and achieve near-term milestones. Both the NWPCAS and the NWSA's Clean Air Implementation Plan were guided by a three-year stakeholder engagement process featuring work group meetings; webinars; online surveys; one-on-one consultations with drayage drivers and companies, marine terminal operators, other supply chain partners, local government agencies, tribes, labor unions, near-port residents and community-based organizations, and nonprofit organizations. During this process near-port residents expressed interest in more information, transparency, access to port decision-making, and support for community-led priorities and projects.

To address these community priorities, the NWSA led the recent development of two additional mechanisms for enhancing community education and engagement specific to port-related clean air and climate solutions: the Clean Air Quarterly and www.nwcleanports.org. The Clean Air Quarterly, launched in April 2022, provides program updates; features profiles of community, government, and industry partners; and highlights upcoming engagement opportunities. The web portal, launching in September 2024, will offer a single comprehensive website for information on port-related clean air and climate solutions and related engagement opportunities. The recently initiated Clean Air Quarterly newsletter and "clean ports" web portal (nwcleanports.org) will be used to communicate with near-port communities about, and facilitate community engagement in, the ZEST Plan for EB-1.

While developing this proposal we consulted with near-port communities, NGOs, labor unions, Tribes, and state and local government partners, including the following: Communities for a Healthy Bay (the most active climate-focused community-based organization in the Tacoma area); Climate Solutions (the most active climate-focused NGO in the State of Washington); SeaTac Shipping Coalition; two local labor unions ILWU Local 19 and Local 23; the Puyallup Tribe of Indians; the state departments of Commerce, Transportation, and Ecology; the City of Tacoma; Pierce County; and the Puget Sound Clean Air Agency. All the organizations expressed strong support for projects such as the proposed ZEST Plan that accelerates the ports' progress toward decarbonization by 2050 or sooner.

d. Long-term Community Engagement

Meaningful community engagement already is standard practice for the NWSA and the Port of Tacoma (PoT), which have strong community engagement goals, processes, programs, and teams in place. For

example, the PoT communicates and engages with Tacoma-area residents and community-based organizations in many ways, such as: neighborhood council and chamber of commerce meetings; booths at farmers' markets and community festivals where information about port-related clean air and climate solutions is shared and input from garnered; and dozens of public port tours during which clean air and climate solutions are featured.

To build on this commitment, the NWSA proposed several additional community engagement activities in our CPP: ZE Technology Deployment grant application. If funded these mechanisms (listed below) will further support timely and effective community communication and engagement on the ZEST Plan for EB-1.

- Organize two community roundtables annually, specifically focused on Clean Ports and Northwest Ports Clean Air Strategy implementation and designed to share updates, garner input, celebrate successes, and work through challenges.
- Increase port participation in community meetings and events.
- Create a new fund to support community-led projects that advance the goals of Clean Ports and the Northwest Ports Clean Air Strategy. The fund will be managed by the NWSA in close partnership with the ports of Seattle and Tacoma.
- Explore development of a digital communications/community engagement tool, integrated with the clean air/climate web portal described above (nwcleanports.org), that would: facilitate on-going interaction on port-related clean air and climate solutions between port staff and external stakeholders; improve the sharing of information, ideas, priorities, and concerns; and actively promote events and other engagement opportunities.
- Explore creation of a Clean Air Community Liaison Program through which the ports would select, train, and support community members to: support port staff on community engagement and learning activities; promote educational events and engagement opportunities; recommend approaches and opportunities for relationship and partnership-building; and provide feedback to the ports on effectiveness and areas for improvement and innovation.

Section 5 – Project Sustainability

Emissions reduction planning and emission inventories are already standard practice at the NWSA. Since its founding in 2015, NWSA has collaborated with Ports of Tacoma and Seattle, as well as the Vancouver Frasier Port Authority (VFPA) on the Northwest Ports Clean Air Strategy (NWPCAS)[6], a shared framework for reducing air and climate pollution from our ports, which sets joint goals and strategies by which we will work towards those goals. First established in 2008, the NWPCAS is built on the Puget Sound Maritime Air Emissions Inventory (PSEI), the first of which was completed in 2005[7].

The PSEI is an accounting of air emissions from maritime-related sources operating in the greater Puget Sound region. It is a highly collaborative effort across regional ports, government agencies, and industry partners, to provide a strong technical foundation for future environmental programs, initiatives, and policy decisions. The collaborative nature of the PSEI across such a diverse group of stakeholders

[6] Northwest Ports Clean Air Strategy | Northwest Seaport - Port of Tacoma (nwseaportalliance.com)
[7] Puget Sound Maritime Air Forum – Committed to reducing air emissions associated with the maritime transportation of freight and passengers

enhances its accuracy and helps to create a sense of shared responsibility to help reduce emissions across port, industry, and government agencies.

The PSEI uses the most up to date methodologies, closely following the EPA's Port Emissions Inventory Guidance[8]. The baseline inventory was conducted in 2005 with updates performed approximately every five years (2011, 2016, and 2021) to track emission reductions over time and ensure that emission estimates remain current. Data is gathered for six major maritime-related source categories: oceangoing vessels, harbor vessels, cargo-handling equipment, on-road heavy-duty vehicles, terminal operator fleet vehicles, and rail operations. Emissions are calculated for all criterial pollutants (excluding lead), greenhouse gasses, and diesel particulate matter. The final report and results are published online, with accompanying presentations of the results to local community and stakeholder groups.

The NWPCAS was most recently updated in 2021, establishing a new shared vision to phase out emissions from seaport related activities by 2050 or sooner. In addition to the NWPCAS vision of phasing out emissions by 2050, the NWSA has adopted more aggressive goals for reducing GHG emissions from scope 1 and 2 activities. The NWSA, along with the Ports of Seattle and Tacoma, have established the goal of achieving net zero GHG emissions for scope 1 and 2 activities by 2040. The NWSA and Port of Tacoma have established these targets through separate resolutions[9,10] and the Port of Seattle has established these targets through their Century Agenda[11].

The NWSA has developed and adopted a detailed Implementation Plan for the NWPCAS[12], which lays out the critical actions and milestones that we will work towards for the next 5+ years to begin the transition to zero emissions. We are committed to revisiting and updating this plan every five years. The plan identifies significant funding gaps that need to be filled to enable key sustainability projects and programs and highlights the need for more detailed terminal-specific planning to be conducted in support of ZE deployments. Clean Ports funding will be a critical resource for more detailed planning for EB-1 and the overall development of the ZEST Plan.

We report on progress towards NWPCAS jointly on an annual basis. The 2022 Progress report is available online[13] and the 2023 report is in progress. We also highlight key accomplishments via our community targeted newsletter, the "Ports Clean Air Quarterly"[14] and will be launching a web portal this year which will include a semi real time progress dashboard.

Section 6 – Workforce Development

The NWSA has a longstanding commitment to supporting high-quality jobs and expanded access to training and employment, especially for people in low-income and disadvantaged near-port communities. The NWSA plays a central role in the economic vitality of the Puget Sound region and the State of Washington, supporting 58,000 jobs and about $6 billion in economic activity. We support high-quality union jobs; all labor on NWSA cargo terminals (including EB-1) is unionized, for example. These

[8] https://www.epa.gov/state-and-local-transportation/port-emissions-inventory-guidance
[9] https://portal.veconnect.us/AgendaViewer.aspx?p=nwseaportalliance&i=d082828e1e1732f5c2f7e7b2c9b356a3
[10] https://portal.veconnect.us/AgendaViewer.aspx?p=portoftacoma&i=d514615f431c7628727fcd07ab6ca793
[11] Century Agenda: Strategic Objectives | Port of Seattle (portseattle.org)
[12] Microsoft Word - 2021_12_NWSA_NWPCAS_Implementation_Plan_Stylized.docx
[13] https://www.portseattle.org/sites/default/files/2024-05/Final NWPCAS 2022 PR_2024-03-18_0.pdf
[14] Clean Air Quarterly Edition 7: 2023 in Review (govdelivery.com)

well-paying jobs include union mechanics earning an average of $113,000 annually and union dock workers earning an average of $172,400 annually.

The proposed project preserves and improves existing jobs and create new ones, while at the same time helping to sustain and enhance our seaports' long-term capacity to support high-quality jobs and economic opportunities for our region and state as the global maritime industry pursues decarbonization with increasing urgency. The project will deliver cleaner, healthier air to the people who work on and near EB-1 Terminal, loading and unloading ships while at-berth and operating cargo-handling equipment.

The NWSA and the ports of Tacoma and Seattle have strong, multifaceted workforce development strategies and programs in place. For example, the Port of Tacoma's Workforce Development Strategic Plan advances the job training and workforce development needs of the port, and its supply chain partners by facilitating connections between organizations, providing technical or financial assistance to organizations, and encouraging the development of new programs. Examples include a partnership with Workforce Central to expand career pathways through paid work experiences and internships for BIPOC and people farthest from opportunity; and a new collaboration with Tacoma Public Schools to develop a Port Maritime Center where administrative offices for the Port of Tacoma and a new Maritime Skills Center will be co-located. The Maritime Skills Center will provide career and technical education for high school students across south Puget Sound, with a focus on the technical trades, transportation, logistics, and sustainability.

The proposed project will build on this work. The ZEST Plan for EB-1 that is the main deliverable of this project will feature a workforce development element, including an analysis of the work training and safety needs and other workforce impacts associated with transitioning EB-1 Terminal to 100% ZE, and a strategy for addressing those impacts. This element of the ZEST Plan will be coordinated and integrated with the broader Zero Emission Technology Deployment Workforce Development Action Plan for Ports that the NWSA proposed in its CPP: ZE Technology Deployment grant application.

Section 7 -Budget

The ZEST Plan will leverage the roughly $400,000 in investments to date from the NWSA for the development of the SHERM and requested grant funding to support ZE CHE deployments at EB-1. NWSA staff time is included in kind as a non-federal cost share. The overall budget for this project is presented below.

a. Budget Detail

Line Item & Itemized Cost	EPA Funding	Non-Federal Cost Share
Personnel		
(1) Engineering PM (1315 hours @ $113.82/hour)	$149,673	
(1) Environmental Project Manager (967 hours @ $56/hour)		$54,200
(1) Grant Administrator (322 hours @ $42/hour)		$13,550

(1) Contracts Administrator (271 hours @ $50/hour)		$13,550
TOTAL PERSONNEL	$149,673	$81,300
Fringe benefits		
(1) Engineering PM (1315 hours @ $96.18/hour)	$126,477	
(1) Environmental Project Manager (1785 hours @ $25.65/hour)		$45,800
(1) Grant Administrator (595 hours @ $19.24/hour)		$11,450
(1) Contracts Administrator (500 hours @$22.90/hour)		$11,450
TOTAL FRINGE BENEFITS	$126,477	$68,700
Contractual		
ZEST Plan Development and Engineering Design Contracts	$2,723,850	
TOTAL CONTRACTUAL	$2,723,850	
TOTAL FUNDING	$3,000,000	
TOTAL PROJECT COST	$3,150,000	

b. Expenditure of Awarded Funds

The NWSA has the requisite experience and understanding of federal grants management to ensure that the proposed projects and programs are delivered on time and within budget and comply with all requirements. In 2023, the Port of Tacoma hired a full-time Grants Administrator to support post-award management activities and ensure compliance for Port of Tacoma and NWSA grants. All expenditures, including all contracts and disbursements of participant support costs, will be monitored and managed by experienced Finance and Contracts staff at the NWSA and PoT.

The NWSA, which operates the EB-1 Terminal, will manage this project directly; Project Manager Rose Arsers will work closely with Director of Port Operations (Bob Meyer), Senior Manager of Business Development for Non-Container Cargo (Andre Elmaleh), the Port of Tacoma's Engineering Team (which will manage engineering design for the shore power system), and appropriate staff from Wallenius Wilhelmsen. Contract support for the project will be secured through a competitive procurement process post-award.

c. Reasonableness of Costs

The NWSA and our partner staff at Port of Tacoma have years of experience performing emissions inventories, ZE fleet planning, and engineering design of infrastructure to support ZE technologies, including shore power, ZE cargo handling equipment charging, and EV charging. The cost estimates for

the planning work included in this proposal are based on similar project experience. As shown in the budget table in section 7a, the estimated staffing costs to manage the grant and manage and support the technical work is less than 10% of the overall project budget. The cost of NWSA staff time to manage the ZEST Plan project components and reporting will be in kind.

We anticipate issuing a single contract to execute the planning work to a consultant or consulting team with the expertise to perform all of the necessary analyses. However, multiple contracts may be issued if a qualified single consultant or team is not available through our competitive procurement process. Expanding on the budget table, the table below provides a more detailed breakdown of the sub-tasks included in the contract(s) that will be required to complete the ZEST Plan for EB-1 and the design needed to bring infrastructure projects to shovel-ready status. The cost estimates for engineering design tasks were informed by the Port of Tacoma's engineering team's direct experience with other electrification projects, especially shore power design at Husky terminal, Washington United Terminal and the SHERM, and include cost escalation based on the projected start date of this project.

Summary of Contractual Costs

Task	Estimated Cost
Inventory of vessel activity and equipment use	$20,000
Baseline emissions inventory and emission reduction scenarios	$25,000
Fleet transition plan, including high-level identification of charging infrastructure and workforce development needs	$50,000
Preliminary engineering design for all infrastructure needed for ZE transition including cost estimates, analysis of resiliency measures and innovative energy technologies.	$550,000
Development of final ZEST Plan including infrastructure and fleet investment roadmap for EB-1	$50,000
Shovel-ready design of shore power and equipment/EV charging projects	$2,028,850
Total	**$2,723,850**

Section 8 -Attachments (As listed in Section IV.C. of the NOFO; this information does not count towards the project narrative 15-page limit)