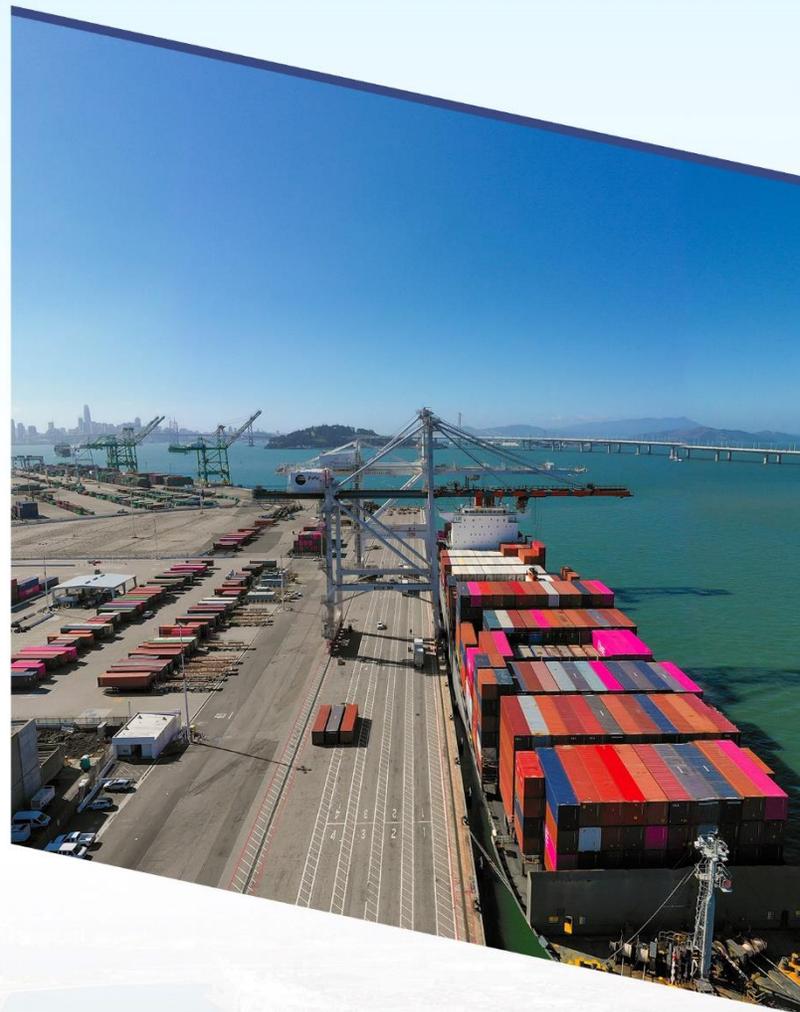


TRANSFORMING POWER: ADVANCING ZERO EMISSION CARGO HANDLING EQUIPMENT WITH INFRASTRUCTURE AT THE PORT OF OAKLAND

CLIMATE POLLUTION REDUCTION GRANTS PROGRAM:
IMPLEMENTATION GRANTS GENERAL COMPETITION



SUBMITTED TO
ENVIRONMENTAL PROTECTION AGENCY

SUBMITTED BY
PORT OF OAKLAND
530 WATER STREET
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APRIL 1, 2024

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1 Overall Project Summary and Approach

The Port of Oakland (Port) is pleased to submit this funding application for *Transforming Power: Advancing Zero Emission Cargo Handling Equipment with Infrastructure at the Port of Oakland* (Project) to advance its strategic vision of fully decarbonizing Port activities. The Port is supported by an ambitious statewide vision of eliminating greenhouse gas emissions and works proactively with its tenants to reduce point-source and mobile-source emissions. As described in this application, the requested funding will be used to add needed electrical capacity for transitioning cargo handling equipment (CHE) from diesel to electric power, conferring numerous benefits and making significant progress on the Port’s decarbonization plans.

The Port serves as a critical global gateway for the vast and diverse San Francisco Bay Area and Northern California Megaregion, supporting more than 500,000 jobs in the state of California (including the economy of the rural Central Valley farming sector¹) and is the second largest exporting region in the U.S. Approximately 45% of loaded cargo units moving through the port are export commodities.

The Port is a sustainability leader in the goods movement industry, partnering with regulatory agencies, neighboring cities, tenants, and private sector partners to improve the environment, social responsibility, and the economy. The Port’s plan for emissions reductions, *Seaport Air Quality 2020 and Beyond Plan - The Pathway to Zero Emissions* (2020 and Beyond Plan)², was built upon the foundation established by the *Maritime Air Quality Improvement Program* (MAQIP)³, and develops long-term plans for air quality, including the State’s greenhouse gas (GHG) emissions reductions targets, with extensive community and partner engagement.

Oakland Seaport Economic Profile (2021)



Key Project Elements

- Project Feasibility/Assessment
- Design
- Community Engagement
- Electrical Capacity Upgrades to 8 Substations to Support Zero-Emissions at the Port

This proposed Project builds on prior Federal investments. The Port was previously awarded funds under the 2022 Trade Corridor Enhancement Program (TCEP) to add one megawatt (MW) of solar power generation, battery energy storage systems (BESS) with a capacity of 6.5 MW, 145 heavy duty/Class 8 electrical vehicle chargers (expanding the ZEV charging capacity at the seaport to over 1,000 pieces of equipment), enhancements to electric grid optimization, and substation upgrades at six locations. The Port was also previously awarded funds via the 2021 Port

Infrastructure Development Program (PIDP) and is currently adding one modern 12 MW substation to support the expansion of its heavy duty truck fleet and ZE yard tractors.

Unlike other organizations working toward decarbonization, an enormous advantage is that **the Port is its own utility**. At the Seaport alone, the Port currently maintains over 100 substations. Serving as the utility simplifies the substation upgrade process because they are owned and operated by the Port, and

¹ <https://www.portofoakland.com/files/PDF/Executive-Summary-Port-of-Oakland2021EISreport.pdf>

² <https://www.portofoakland.com/files/PDF/2020%20and%20Beyond%20Plan%20Vol%20I.pdf>

³ <https://www.portofoakland.com/files/PDF/environment/maqip090515.pdf>

gives greater control to the Port in pursuing carbon-free forms of energy. As described in this proposal, the Project will benefit not only from the strong commitment and clarity of vision for a decarbonized Port, but also systems in place to pursue that vision.

1.1 Description of GHG Reduction Measure

1.1.1 PCAP GHG Reduction Measure

Plans to decarbonize Port activities will require converting from diesel-powered equipment to battery-electric technology, substantially increasing the electricity demands from the Port's tenants. This Project will install critical infrastructure improvements to the Port's electrical distribution grid, including **upgraded substations, circuits, and other gear** to accommodate anticipated increases in power usage.

This Project will support the goals of the CPRG program. It supports an **ambitious plan** to fully decarbonize Port CHE by 2035, significantly reducing carbon emissions (see Section 3). It will result in significant community benefits through **improved air quality** (see Section 3) and **quality job opportunities** (see Sections 4.1.3 and 5). It **complements previous State and Federal investments**, such as the TCEP and PIDP funding awards (see Section 1.2). And it can be used as a **case study that could be scaled up** to other jurisdictions around the nation (see Section 1.3).

This Project supports multiple GHG reduction measures in the *State of California's CPRG Priority Climate Action Plan*⁴ (PCAP), especially PCAP Transportation Measure 4, "Bolster Investments in the State's Sustainable Port and Freight Infrastructure," which calls for projects that deploy electric equipment and vehicles, renewable energy, and other emissions-reducing technology. Measure 4 is unachievable without the investments described in this application.

The Project also supports the implementation of Transportation Measure 2, "Install Truck Charging to Support Zero-Emissions Goods Movement at California Ports and Warehouse Districts" and Transportation Measure 3, "Advance the Deployment of Clean Off-Road Equipment, which includes the deployment of zero-emission (ZE) CHE."

As part of the Port's *2020 and Beyond Plan*, the Port is proposing to partner with its tenants to advance conversion of tenant CHE to ZE. Tenants submitted implementation plans for converting CHE pursuant to the Port's Administrative Code Title 9. Based on the submitted implementation plans, the Port will coordinate with its tenants to convert diesel equipment to zero or near-zero emissions. These plans included ZE options for the following equipment types:

- Rubber Tire Gantries
- Top Handlers
- Tractors
- Forklifts
- Side Handlers
- Yard Trucks

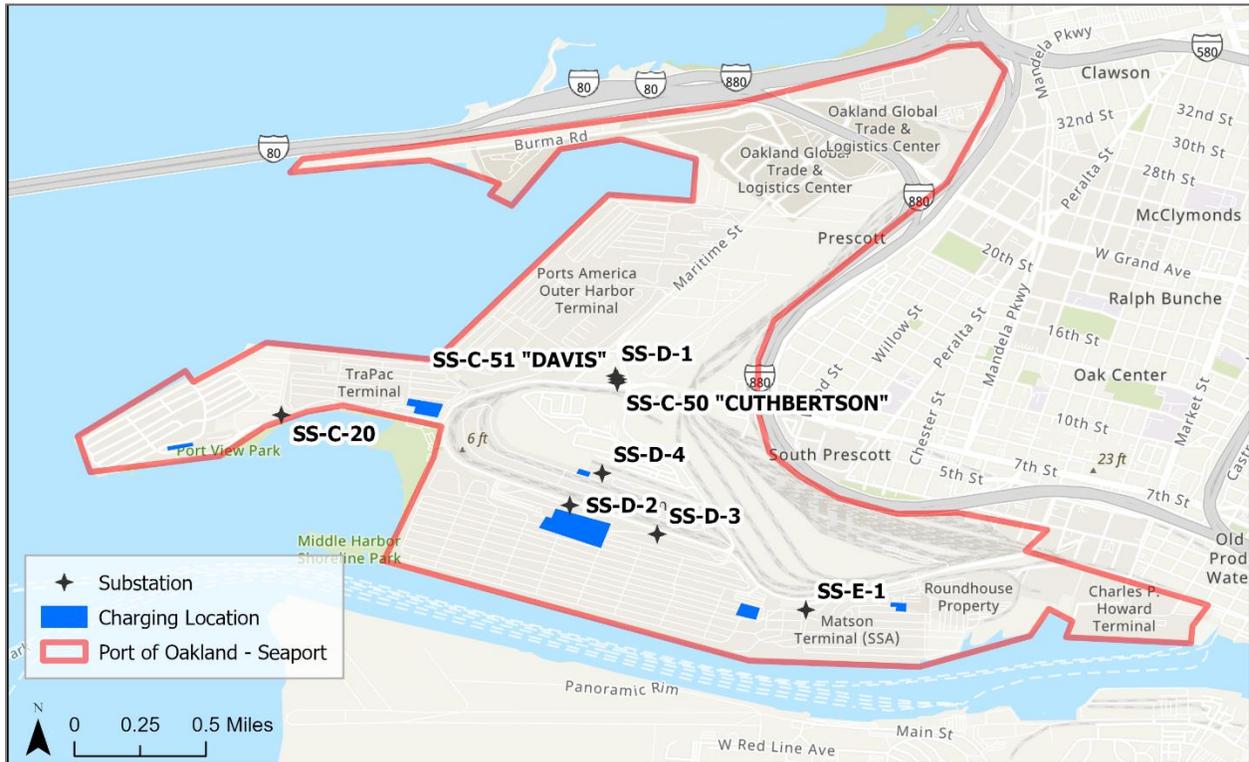
The Port must make significant investment to the electrical grid to support charging of this battery-electric equipment and charging infrastructure. This Project is a response to this identified underfunded need for additional electrical infrastructure. The eight substations shown in Figure 1 on the next page will be upgraded to accommodate additional electricity usage as existing CHE is converted to ZE CHE.

Upgrades include:

- Modernize onsite and local grid connections.

⁴ <https://www.epa.gov/system/files/documents/2024-03/california-cprg-priority-climate-action-plan.pdf>

Figure 1 Port Substations and Charging Locations



- Support terminal and railyard ZE CHE charging locations.
- Support additional shore power connections to vessels berthed at the Port.
- Support heavy-duty truck charging for Port off-dock warehousing tenants.
- Significantly increase the Port’s capacity to support grid-connected refrigerated containers.
- Support future connections to additional power generation and battery storage.

While the main focus of this Project is to support ZE CHE and trucks, investments to the electric distribution grid will also support increased usage of electric power for non-containerized ocean going vessels while at berth, such as those in the Federal defense fleet and harbor craft (i.e., tugs), and improve Port and community electrical grid resiliency.

1.1.2 Project Tasks and Milestones

The Project tasks and associated deliverables are listed below.

Task 1.0 – Project Administration

The objective of this task is to provide overall effective project management to ensure the Project remains on time, on budget, and meets the Port’s needs and the goals of this Project. This will involve coordination and management of tasks, biweekly and as-needed coordination between the Port and Project team, and development of a Project Management Plan (PMP) which will include:

- Description of Project team organization, responsibilities, and contact information.
- Finalized project scope and schedule, including roles and responsibilities for the Port and Project team.

- A schedule and protocols for project management meetings, invoices, and deliverables.
- An articulation of project goals and assessment of project risks.
- Quality Assurance/Quality Control (QA/QC) protocols.
- Grant reporting requirements and responsibilities.

Deliverables/Milestones: Project Initiation, Project Management Plan (8 weeks after grant award), Project Kickoff Meeting, Regular Project Status Meetings (ongoing), Project Close-Out.

Task 2.0 – Stakeholder Engagement

This Project is a **community-driven effort** directly responding to articulated priority needs, and the stakeholder engagement conducted as a part of this Project will complement the robust, ongoing community and stakeholder engagement the Port has previously, and will continue to, conduct around its planning efforts. Engagement specific to this Project will be conducted with the Community Electrification Committee to gather input and offer feedback on this Project on a monthly basis. The Community Electrification Committee is a diverse stakeholder body that was convened by the Port’s Executive Director, Danny Wan, and the West Oakland Environmental Indicators Project (WOEIP) co-founder, Brian Beveridge, as part of the West Oakland Community Action Plan⁵ and consists of environmental advocacy groups, regulators, academics, and a local public agency committed to clean power (together called the “West Oakland Sustainable Port Collaborative”). More information on the Community Electrification Committee, additional background on outreach, and background information about the community-based origin of this Project is provided in Section 4.2.

The Port will also utilize a Consultant and/or community based organizations (CBOs) such as WOEIP to conduct community engagement activities during the Project. Activities will include:

- Develop a plan for stakeholder and community engagement and outreach (Outreach Plan) for decarbonization at the Port. This will be informed by educating stakeholders and community members on decarbonization and zero-emissions at meetings, community consultations, and community-led listening sessions.
- Conduct activities described in the Outreach Plan, such as outreach at Community Electrification Committee meetings or other regularly scheduled community meetings on the Project, listening and feedback sessions, and ad hoc meetings. It is also anticipated that updates will be provided during regularly scheduled West Oakland neighborhood council meetings to discuss work elements and potential impacts, both positive and negative. Meals, stipends for transportation, on-site childcare services, and other accommodations will be provided to make the outreach activities more accessible for participants, as appropriate.
- Prepare social media materials for the Port to post and updates to the Port website, as appropriate.

More details on Community Engagement both prior to and during this Project can be found in Section 4.2.

Deliverables/Milestones: Community Engagement Outreach Plan Group, Meeting Materials, Presentations at Group Meetings, Meeting Minutes, Project Social Media Update Posts (as appropriate)

⁵ [https://www.oaklandca.gov/topics/west-oakland-community-action-plan-ab-617#:~:text=The%20West%20Oakland%20Community%20Action%20Plan%20\(WOCAP\)%20is%20a%20partne%20rship,reduce%20pollution%20in%20the%20community](https://www.oaklandca.gov/topics/west-oakland-community-action-plan-ab-617#:~:text=The%20West%20Oakland%20Community%20Action%20Plan%20(WOCAP)%20is%20a%20partne%20rship,reduce%20pollution%20in%20the%20community)

Task 3.0 – Project Feasibility/Assessment

Project Feasibility/Assessment will be performed by a Consultant with Port staff direction and support. The objective of this task is to confirm Project needs and goals, further define and refine plans to mitigate risk, prepare a work plan, determine contract execution strategy, and review technology. This task will be conducted from Q4 2024 through Q2 2025.

Specific work for this task includes the following:

- Performing an inventory and assessment of existing equipment.
- Gathering current electrical load data.
- Estimating projected load limits.
- Capture field conditions.
- Determine placement locations for equipment.
- Determine points of connection and terminations.
- Initiate estimated power needs from PG&E.
- Perform a System Impact Study (SIS) and Final Impact Study (FIP).

Deliverables/Milestones: Inventory and Assessment Report, Electrical Load Forecast, Map of Equipment Location, Table Connection and Termination Points, and List of Remaining Assumptions.

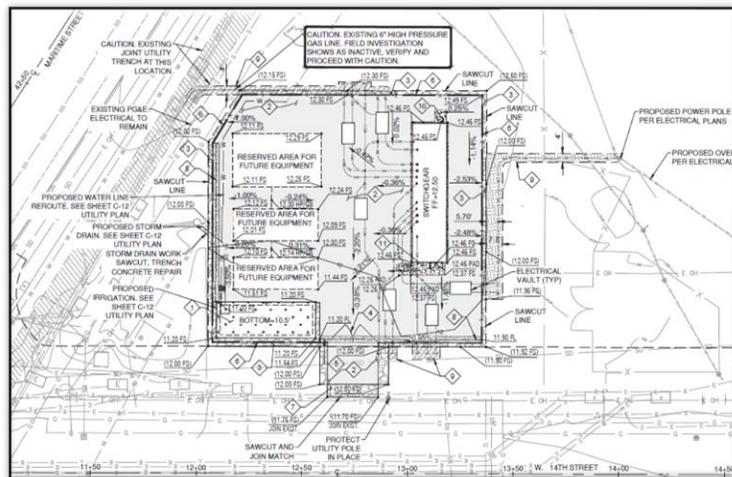
Task 4.0 – Project Design, Bidding, and Award/Procurement

Port staff will supervise the development of Project design plans, which will be used to develop the bid package and inform procurement.

Procurement strategy for this Project is essential for successful implementation. The Port will use the transition plans submitted by tenants in response to requirements in the Port’s environmental ordinance to estimate current and future electrical load and develop bid documents to those specifications. The Port will prioritize the development and release of these bid documents over the course of the Project to offset existing long lead times in electrical materials and equipment procurement. This task will be conducted from Q3 2025 through Q4 2026. Specific design work will include the following:

- Properly size substations and related components (vaults, switchgear, breakers, relays, transformers, conductors, conduits, etc.) for the intended and future use.
- Validate electrical load profiles to prevent overload.

Figure 2 Sample Substation Design



- Design switchgear with appropriate safety/trip functions to protect upstream and downstream circuits.
- Confirm field conditions, perform utility potholing (drilling small test holes to accurately locate underground utilities).
- Determine geotechnical properties and equipment pad sizes.
- Prepare layout sheets for equipment placement and integration to existing equipment.
- Prepare trench profile sheets for any trenching work/conduit installation.
- Prepare equipment foundation pad details.
- Prepare testing and commissioning criteria for acceptance.

Deliverables/Milestones: 100% Design Drawings, Bid Documents, Bid Document Release, Project Award.

Task 5.0 – Material Procurement, Installation/Construction

The purpose of this task is to install infrastructure improvements to the Port’s electrical distribution grid. Grid equipment to be upgraded includes substations, circuits, and other gear to accommodate anticipated increases in power usage. The materials will be procured and installed by the contractor that is awarded the project. This task will be conducted from Q1 2027 through Q3 2028. Specific procurement and installation tasks will be conducted by the contractor in the following order:

- Complete building and electrical permitting and insurance certifications.
- Procure long-lead electrical components (transformers, substations, utility vaults, conductors, conduits, switches, breakers, relays, termination items).
- Construction (site investigation; mobilization; demolition; site preparation; trenching/piping installation; foundation pad installation; electrical equipment delivery, sorting, and installation; paving and striping, testing/commissioning and start up, transfer warranties for electrical, demobilization components).

Deliverables/Milestones: Material Procurement, Permitting, Electrical Infrastructure Construction, Electrical Infrastructure Testing/Commissioning.

Task 6.0 – Reporting

The purpose of this task is to develop semi-annual reports and a detailed final report. The semi-annual reports will include Project progress such as the completion of milestones over the previous six months, expenditures to-date, and projected Project activities for the coming six months. Semi-annual reporting will also capture community outreach and the ongoing mitigation of environmental risks.

One year after being awarded, per EPA guidelines, the Port will quantify and report on the changes in co-pollutants emissions as well as the benefits of the Project’s progress on low-income and disadvantaged communities in the Port’s Local Impact Area (Figure 6). The Port will estimate emissions reductions based on reported conversions of CHE to ZE.

A final report will contain an overview of the Project’s purpose, approach, activities performed, results, and conclusions. The details will include changes in GHGs directly related to the Project, outputs/outcomes achieved, the total cost of implementing the Project, lessons learned, and other relevant Project information. The Port will lead the preparation of an outline, draft, and final report.

Deliverables/Milestones: Semi-annual Reports; Final Report.

1.1.3 Potential Risks and Mitigation Strategies

The Port has extensive experience working with the Federal government and other entities to deliver projects. The overall potential risk to the delivery of this Project is low. Specific risks and mitigation strategies are outlined in the table below.

Table 1 Potential Project Risks and Mitigation

Potential Risk	Probability	Mitigation Strategy
Budget / Funding Risk	Low	These are mature facilities with long histories of maintenance and financial commitments. The Port has extensive experience building out the infrastructure and associated costs. The Port serves as its own utility, and has extensive experience managing electrical system maintenance and improvement projects.
Material Procurement / Supply Chain Delay	Medium	The Port is aware of the long lead times needed to procure some of the materials and equipment necessary for this Project. The schedule for this Project has been written with awareness of this reality and has built in realistic time windows to procure necessary materials for the Project.
Environmental Concerns	Medium	As an industrial area, there is a moderate risk of unforeseen environmental issues. However, this is a common issue in virtually all Port construction projects, and so Port staff are experienced in remediation measures. Port staff will characterize any soil generated from the Project and manage and haul off-site per local, state, and federal regulations.
Stakeholder Barriers	Low	The Port has conducted extensive public engagement to incorporate neighboring West Oakland community needs into the Project and continues to work with local community members, businesses, and a multitude of stakeholders via public information meetings, consultations, social media outreach, community meetings, and other forms of stakeholder engagement. The Port will continue to work with all stakeholders, minimizing risk to this Project.
Power Availability	High	Although the Port is its own utility, it receives power through Pacific Gas & Electric (PG&E) transmission lines. The capacity enhancements may trigger additional power or agreement modifications from PG&E. The Port will engage PG&E early to start System Impact Study (SIS) and Final Impact Study (FIP) to determine upstream impacts.

Since overall risk to the completion of the Project is low, the chance of significant delays or cost overruns are also low.

1.1.4 Roles and Responsibilities

The Port is the sole organization on this grant application and assumes all responsibilities for the Project delivery, reporting, and other associated tasks.

1.2 Demonstration of Funding Need

To execute this measure under the California PCAP, the Port requires significant funding beyond what is currently programmed or reasonably available using pre-existing sources. The infrastructure changes required to implement PCAP Transportation Measures 2, 3, and 4 (referenced in Section 1.1.1) are costly to implement and the Port requires additional funding to complete these upgrades. In its recently adopted 2024 fiscal year budget, the Port has allocated \$245.2 million over the next five years to upgrade its electrical infrastructure and zero-emissions operation goals, but that funding is insufficient to build out the electrical capacity outlined in this proposal. Additionally, the Port is currently administering over \$200 million in both Federal and state grant funding for zero-emissions and electrification projects at the Port. However, many funding sources do not include foundational capacity upgrades as eligible projects, but rather focus on other aspects of decarbonization, such as procurement of equipment.

The TCEP and PIDP projects referenced above have brought the Port closer to the goal of converting all CHE to ZE equipment, but more infrastructure improvements are needed. The Port applied for funding through the 2023 Port Infrastructure Development Program to make further progress towards this goal, but was not awarded funding. As a result, the Port is continuing its search for funding to continue progress on these GHG reduction measures. The Port is continuously exploring funding opportunities and has identified that this funding is necessary to not only complete this Project, but also to further decarbonization of the Port.

The funds to complete this Project will come solely from the EPA CPRG grant program, if awarded.

1.3 Transformative Impact

While much progress has been made at the largest ports in the nation regarding emissions, there is still significant work left to be completed. For example, the top three ports in the US (Los Angeles, New York/New Jersey, and Long Beach) have seen stagnation in progress on reducing GHG emissions since 2010.⁶ This Project provides an opportunity to expand the body of experience for water ports in the country in decarbonization efforts and scale up the outcomes from this Project to other seaports.

One important case study aspect of this Project is that the Port of Oakland operates its own electrical utility. As such, it is uniquely positioned to implement this Project and demonstrate an innovative best practice other Ports can adopt to make progress on GHG reductions. Because the Port is its own utility, it has a unique vantage point as both the provider of electricity and as a user of the power. It also engages with tenants in fully transitioning the Port to zero-emissions operations. This provides a singular opportunity to give a stem-to-stern view of the process – both up-stream and down-stream – of decarbonizing a seaport's operations, which can be applied to other ports around the nation.

The Port's energy is generated approximately two-thirds⁷ from renewable sources, and it is committed to growing that share further in the future. This Project will **unlock tremendous opportunity** to provide green energy not just for CHE (though that is the immediate focus of the Port), but also to ocean going vessels, refrigerated containers, and other electricity needs. When combined with the required tenant plans for decarbonization, this Project provides a **valuable case study** for other seaports searching for models on reducing GHG emissions.

⁶ <https://www.eesi.org/papers/view/issue-brief-climate-change-mitigation-and-adaptation-at-u.s-ports-2022>

⁷ <https://www.portofoakland.com/press-releases/port-of-oakland-utility-green-power-portfolio-grows/>

The Project will expand on and leverage the Port’s previous electrification efforts, such as the Zero And Near-Zero-Emission Freight Facility (ZANZEFF) program grant battery electric truck demonstration, Sustainable Terminals Accelerating Regional Transformation (START) project demonstration, CARB partnership demonstrations, Port-funded existing electric charging stations and infrastructure upgrades, and the recent Port Infrastructure Development Program (PIDP) *Powering the Future Project*, which received federal funding in support of zero-emissions infrastructure from the United States Maritime Administration (MARAD).

2 Impact of GHG Reduction Measures

2.1 Magnitude of GHG Reductions from 2025 through 2030

The primary public benefit from providing the additional electrical infrastructure required to support the conversion of CHE to ZE is reduced emissions from internal combustion engine equipment that will be converted to electric power, including yard tractors, top pick handlers, rubber tire gantries, forklifts, etc.

For example, yard tractors are used to move containers and chassis within the marine container terminals. Most of the terminal yard tractors operate on average about 1,600 hours annually in short-trip, idling, and stop-start service. Per the *Port of Oakland 2020 Seaport Air Emissions Inventory*, yard tractors emit over 20,000 tons of CO₂-equivalent GHG emissions every year. In terms of criteria air pollutants (CAPs), per the 2020 inventory, yard tractors emit 16 tons of reactive organic gases, 59 tons of oxides of nitrogen (NO_x), and 1.1 tons of fine particulates (PM_{2.5}) annually. Rubber-tired gantry cranes emit similar levels of CO₂e and even more NO_x and PM. The emissions inventory detail for Port of Oakland CHE is shown in the Technical Appendix.

2.2 Magnitude of GHG Reductions from 2025 through 2050

GHG emission reductions were estimated using a “top-down” approach based on total emissions by equipment type as reported in the Port’s 2020 inventory, combined with estimates of electrification rates by type of equipment. The emission reduction estimates account for added emissions from the electricity generation required to power the equipment. However, these are relatively small as electric equipment is more efficient than internal combustion engine (ICE) equipment and the Port obtains a large (and increasing) share of its electricity from renewable energy. It is assumed that the electrical grid upgrades are fully constructed and on-line as of 2029, with partial phase-in starting in 2028, and therefore the benefits of emissions reductions begin to accrue in 2028. GHG emission reductions for 2025 – 2030 and 2025 – 2050 are shown in Table 2. These reductions are expected to be lasting since the upgraded electrical infrastructure will support charging of electrical CHE far into the future.

Table 2 Port of Oakland 2020 Emissions (metric tons CO₂e)

	2025 – 2030	2025 - 2050
Displaced fossil fuel emissions	49,600	832,200
Electricity generation emissions	4,100	21,500
Net emissions reduced	45,500	810,700

2.3 Cost Effectiveness of GHG Reductions

With a requested funding amount of \$75.7 million, the projected GHG reduction will be achieved at an estimated cost of \$1,700 per metric ton considering the 2025-2030 period. Since the electrical

infrastructure upgrades are not expected to be fully operable until 2029 due to design and construction lead times, this cost-effectiveness only accounts for two years of Project benefits. Tenants will also only have a fraction of their CHE electrified in these early years. **If cost-effectiveness were measured over the comparable period from 2030 to 2035, the cost would be much lower, at \$400 per ton of GHG emissions reduced; or \$190 per ton for the 2035 to 2040 period.**

2.4 Documentation of GHG Reduction Assumptions

Details on the methods and assumptions for the emissions benefits and cost-effectiveness analysis are provided in the Technical Appendix.

3 Environmental Results – Outputs, Outcomes, and Performance Measures

3.1 Expected Outputs and Outcomes

Table 3 Expected Project Outputs and Outcomes

Activities	Outputs	Outcomes
Upgrading electrical substations to allow for more capacity for zero emissions infrastructure, equipment, vessels, and vehicles	Converting existing CHE to ZE CHE	GHG emissions reductions of 832,000 metric tons Reductions of 111 tons of NO _x and 1.49 tons of PM _{2.5} in year 2030 within the Port area and neighboring disadvantaged communities, providing health benefits for both Port workers and local residents
	Increased electrical grid capacity	A more resilient Port, better equipped to handle general disruptions and unpredictability
	Community engagement	The Port will participate in at least 12 community engagement meetings per year ¹
	Quality jobs	The Port will track and monitor high-quality jobs resulting from the Project, in conformance with MAPLA (described in Sections 4.1.3 and 5)

¹ While the Port plans to participate in numerous convenings, it commits to 12 community engagements per year.

Also, as described in Section 6, the Port will promote local hiring and training, promote quality job creation, and ensure strong labor standards on its projects. GHG and CAP reductions are further detailed in Section 2.

3.2 Performance Measures and Plan

The Port’s most recent emissions inventory⁸, conducted in 2020, will serve as the baseline for GHG reductions. Following a year after completion of the construction for this Project, the Port will conduct an annual emissions inventory for the previous calendar year. The annual emissions inventory will be conducted by June 30th of each year and will be compared to the GHG and CAP reductions identified in Section 2. The Performance Annual Report will summarize the emissions inventory, describe the reductions, and any additional measures agreed upon with EPA.

In addition, Port staff will monitor and track the other outcomes listed in Table 3. These results will also be included in the Performance Annual Report. Performance reports will be submitted as required by the EPA (semi-annually and annually) and will be made available to the public.

3.3 Authorities, Implementation Timeline, and Milestones

The Port is a department of the City of Oakland and the lead applicant with **the authority for all of the activities outlined in this proposal**, such as meeting grant administrative requirements, permitting and CEQA support, overseeing data collection, and grant reporting. The Port is both the landlord and utility provider for this Project, and the Port’s tenants are already obligated to begin implementing ZE CHE under existing agreements. This Project capitalizes on the Port’s engineering experience on successfully constructing large-scale electrification projects, as well as EV charging infrastructure projects. In its role as utility provider, the Port has already started replacing and upgrading its electrical infrastructure to prepare for future growth and additional power demands for charging infrastructure, as well as support future on-site power generation and battery storage.

The Port is unique among major container ports because it is also a publicly owned utility. As such, the Port has the authority to purchase, distribute, and resell power under applicable State and Federal laws (rather than being dependent on decisions made by major electric utilities) and can optimize the distribution of such energy. Therefore, the Port can build out the electrical infrastructure to most effectively pursue zero-emissions goals and could provide excess sustainable energy to support surrounding communities. The Port's utilities are established and successful, delivering electrical power consisting of 67 percent renewable and an additional 13 percent carbon-free power content label in 2020, while keeping electric utility rates approximately 20 percent lower than surrounding investor-owned utilities (which benefits Port tenants).

An implementation timeline for the Project is shown in Figure 3, assuming an October 1, 2024 start date per the NOFO. **Deliverables/milestone information can be found in Section 1.1.2.**

Figure 3 Project Timeline

Task	Month	2024				2025				2026				2027				2028		
		Q4	Q1	Q2	Q3															
1.0 Project Administration																				
2.0 Stakeholder Engagement																				
3.0 Project Feasibility																				
4.0 Project Design, Bidding, & Procurement																				
5.0 Materials Procurement & Construction																				
6.0 Reporting																				

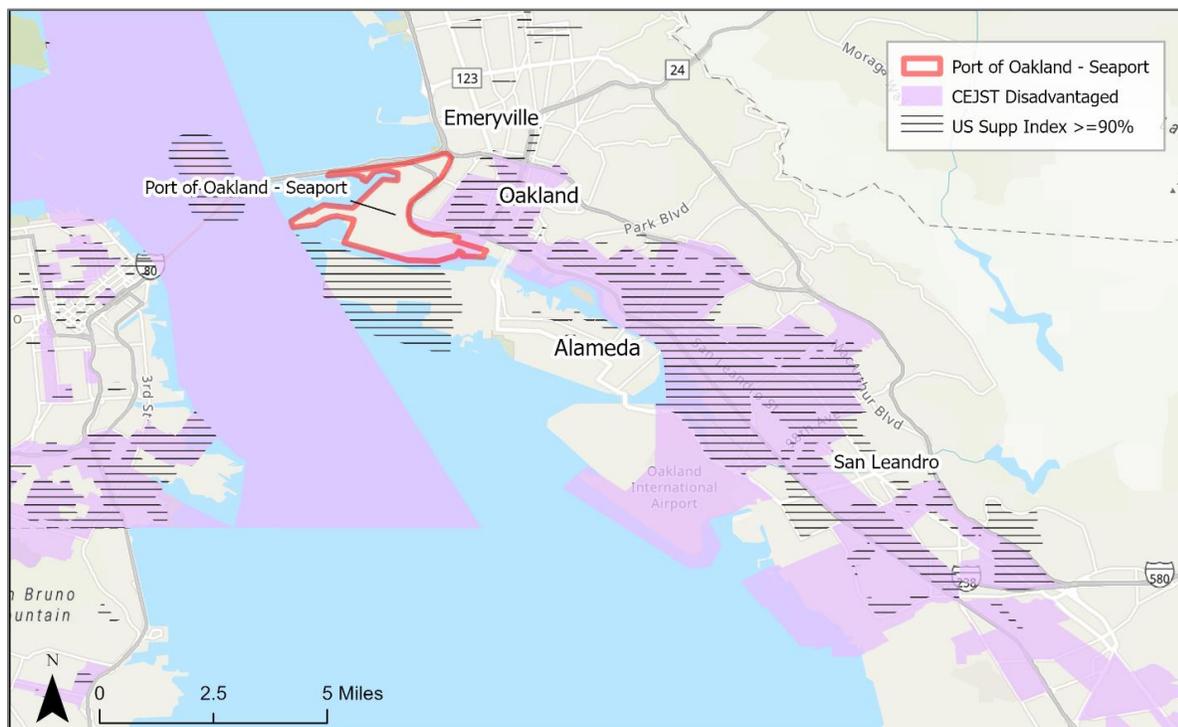
⁸ <https://www.portofoakland.com/files/PDF/Port%20Oakland%202020%20Emissions%20Inventory%20Final%20Report.pdf>

4 Low-Income and Disadvantaged Communities

4.1 Community Benefits

Implementation of the Project is anticipated to provide significant benefits to low-income and disadvantaged communities (LIDACs). As defined in the NOFO, a LIDAC is any census tract or block group that meets the criteria for a disadvantaged area in the Climate and Economic Justice Screening Tool (CEJST) or EJScreen tools.

Figure 4 Project Area Location Within Equity Areas



Sources: CEJST, EJ Screen

The Council on Environmental Quality (CEQ) CEJST identifies a location as disadvantaged when it meets more than one burden threshold along with a socioeconomic threshold. Many of the tracts in the adjacent West Oakland community have been identified as disadvantaged based on income (people in households making less than or equal to twice the Federal poverty level), along with projected flood risk, proximity to PM_{2.5}, areas of historic underinvestment (i.e., areas that have historically had high barriers to accessing home loans), proximity to hazardous waste facilities, traffic proximity and volume, underground storage tanks and releases, linguistic isolation, and unemployment.

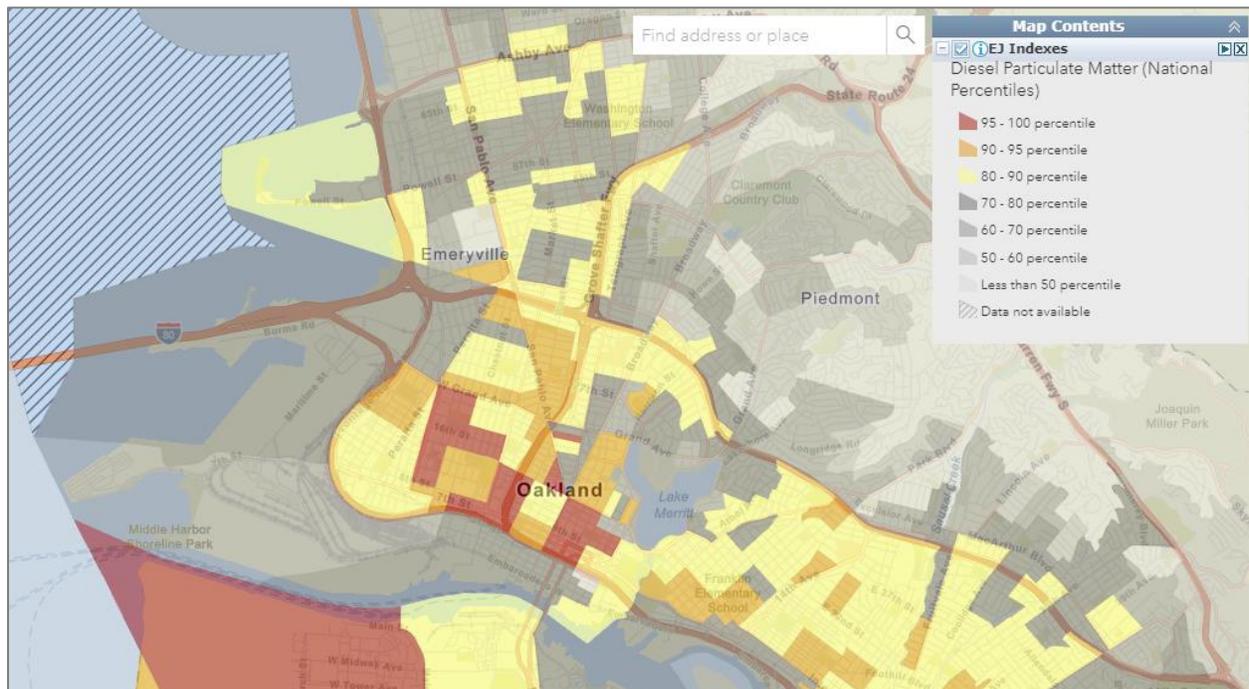
The Project is also located near numerous Census Tracts defined by CEJST as historically disadvantaged and Census Block Groups defined by the EJScreen Supplemental Indexes as disadvantaged, as shown in Figure 4. As described in Section 4.1.1, air quality will be significantly improved by providing the infrastructure needed to move away from diesel CHE equipment. Section 4.1.2 describes some of the benefits related to reducing the effects of climate change by moving toward decarbonization of the Port.

4.1.1 Air Quality Improvement

The LIDACs around the Seaport already face a high level of air pollution and poor air quality, which can contribute to nonfatal heart attacks and higher asthma rates among other health issues. A core benefit of this Project for nearby LIDACs is the reduction of CAPs and HAPs emitted by CHE. If implemented, this Project will reduce CAPs by 111 tons of NO_x and 1.49 tons of PM_{2.5} in year 2030 within the Port area and neighboring disadvantaged communities, improving air quality for LIDAC residents and workers.

Information from EJScreen shows that the area directly adjacent to the seaport is negatively impacted by poor air quality. This Project directly addresses these negative impacts felt by this area. For instance, as shown in Figure 5, the area adjacent to the Port is especially affected by diesel particulate matter.

Figure 5 Diesel Particulate Matter



Source: EJScreen

4.1.2 GHG Emissions Reductions

The area is also generally vulnerable to the impacts of climate change. This Project is estimated to result in 832,000 metric tons of GHG reductions between 2025 and 2050. Meaningful actions such as this, when aggregated across national and global efforts, can contribute to slowing the overall impacts of climate change. This Project will contribute to the reduction in GHG emissions which will in turn lessen the impacts of global climate change, a benefit to LIDAC communities adjacent to this Project as well as vulnerable communities globally. For example, many parts of Oakland – including the Port itself – are within the 95th percentile of flood risk according to EJScreen.

4.1.3 Workforce Benefits

The construction and electrical industries are high-skilled industries that can provide good-paying jobs for community members, including members of LIDACs adjacent to the Seaport. While this section focuses on opportunities for local hiring, see Section 5 for full information on the Seaport's strategies for ensuring that those employment opportunities are for high-quality jobs.

The Port has been **at the forefront in pioneering job creation and local access to good paying jobs** with an intentional focus on removing barriers to employment since 2000, when the Port adopted the region’s first Maritime and Aviation Project Labor Agreement (MAPLA) with the Building and Construction Trades in Alameda County. Contractors are required to pay \$0.30 per work hour into a Social Justice Trust Fund (SJTF) that is used to support local workforce development programs. Since 2000, over \$839,000 has been awarded to community-based training programs that serve underrepresented job seekers in the Port’s Local Impact Area (Figure 6).

Figure 6 Port of Oakland - Local Impact Area



The Port recently strengthened language in MAPLA where the building trades unions commit to increase recruitment from the Port’s Local Impact Area (LIA) into the “list trades” and included goals for disadvantaged workers (Table 4).

Table 4 MAPLA Outcomes 2020 - 2023

Local Impact Area	Local Hire Goal	Achieved Goal
LIA Residents	50%	28.93%
LIA/LBA ¹ Residents	50%	59.16%
LIA Apprentices	50%	53.98%
Disadvantaged Workers	25%	44.83%
New Hire Apprentices	10	11

¹ Local Business Area (LBA) is comprised of Alameda and Contra Costa Counties

The list trades (composed of sheet metal workers, electricians, plumbers/pipefitters, glaziers, and elevator constructors) provide access to some of the highest paying jobs in construction. Between 2017 and 2020, over 300 Port LIA residents joined the list trades. MAPLA compliance and tracking is central to ensuring accountability and commitment to serving LIA residents.

In 2018, the Port hired a Workforce Development Manager to support workforce policies and initiatives that expand economic opportunities for LIA residents. The Port’s Workforce Development Manager is responsible for the Port’s relationships with local workforce community-based organizations, organized labor partners, and job providers and seekers.

This project will benefit from the workforce development foundational efforts built on the years-long partnership between the Port and the West Oakland Job Resource Center (WOJRC), a leading non-profit intermediary workforce organization located in Oakland, California, and adjacent to the Port of Oakland. In 2012, the WOJRC was established by the adoption of one of the country’s most robust community benefits agreement, the City of Oakland’s Jobs Policy. In 2017, the Port of Oakland adopted a similar Operations Jobs Policy, placing the WOJRC as Oakland’s primary first-source hiring entity for the Construction and Transportation, Distribution, and Logistics (TDL) industries. WOJRC is dedicated to helping people with employment barriers gain access to family-sustaining, union-represented jobs, and will be a critical partner for this proposed project.

WOJRC has a long history and much experience leading project partnerships that involve multiple partner organizations and agencies. WOJRC is the lead organization in the Regional TDL Workforce Equity System partnership, a collaboration that also includes the Northern California Teamsters Apprenticeship Trust, Napa Valley College, WOEIP, and Swords to Plowshares, a regional veterans services and job training organization.

WOJRC, in partnership with The Machinists Institute (MI) and a wide array of employers, municipal agencies, and non-profit training providers (Table 5), is in the process of expanding its current pre-apprentice TDL training program to include a ZE curriculum and hands-on training (“Green TDL”).

Table 5 Workforce and Training Partnerships

Employers	Labor Unions	Training & Education
<ul style="list-style-type: none"> • Port of Oakland • City of Oakland 	The Machinists Institute	<ul style="list-style-type: none"> • West Oakland Job Resource Center Youth Employment Partnership • Swords to Plowshares
<ul style="list-style-type: none"> • Port of San Francisco • San Francisco Bay Ferry 	Northern California Teamsters Apprenticeship Training and Education Trust Fund	<ul style="list-style-type: none"> • Oakland Unified School District • College of Alameda • Napa Valley College
<ul style="list-style-type: none"> • Blue and Gold Fleet 	Seafarers International Union	<ul style="list-style-type: none"> • Cal Maritime
<ul style="list-style-type: none"> • Good Eggs • Sea Logix • SSA Marine 	Teamster International Brotherhood, Joint Council 7	<ul style="list-style-type: none"> • West Oakland Environmental Indicators Project

The incorporation of ZE to the TDL sector training is a natural progression in alignment with new and anticipated ZE technologies in the TDL industry. **This project will be a natural pairing with the growing Green TDL training opportunities in ZE technology and resiliency improvements.**

The Green TDL training program will increase its capacity to serve disenfranchised communities and introduce new and emerging ZE technologies to prepare new workers in the operations and maintenance of ZE equipment. It will provide upskilling to incumbent workers as they transition to the operations and maintenance of ZE equipment. Green TDL training program curricula will be updated in partnership with industry and training partners to include an introduction to the operations and maintenance of ZE equipment with a particular focus on CHE for the Port and Port-related industries.

Green TDL builds on existing pre-apprenticeship program offerings. WOJRC’s pre-apprenticeship TDL training program is a California State-registered program through the Department of Apprenticeship Standards and feeds directly into the Northern California Teamsters Apprenticeship Training and Education Trust Fund where graduates from WOJRC’s pre-apprenticeship TDL training program are prepared for TDL industry careers in transportation, warehousing, and logistics, and other port-related industries. Graduates from the pre-apprenticeship program receive benefits listed in Table 6.

Once fully implemented, expanded Green TDL training program will serve as a pre-apprenticeship bridge that will connect workers to the MI Apprenticeship Training Program for continued training in maintenance facility activities directly supported by the overarching electrification vision that is part and

parcel to this proposed Project: Heavy Duty Equipment Mechanic, Industrial Machinery Technician, Machinist, Trailer, Container, Van Repair Mechanic, and Fabrication Welder.

Table 6 WOJRC Pre-Apprenticeship TDL Program Benefits

WOJRC Pre-apprenticeship TDL Model	Expanded WOJRC Green TDL Model
Training Curriculum	ZE Training Curriculum
Communication and Customer Service Skills	Communication and Customer Service Skills
OSHA 10 Safety	OSHA 10 Safety
Forklift Certification	ZE Forklift Certification
	ZEV Intro to CHE (Operations & Maintenance)
Introduction to Warehousing	Introduction to Warehousing
Class A Permit Preparation	Class A Permit Preparation
	ZEV Related Careers Introduction
Financial Support Services	Financial Support Services
DMV Record	DMV Record
OSHA 10 Certificate	OSHA 10 Certificate
Department of Transportation (DOT) Physical	Department of Transportation (DOT) Physical
Class A & B Permit Test	Class A & B Permit Test
Initiation Union Dues	Initiation Union Dues
Employer Services	Employer Services
TDL Upskilling and Certifications for Incumbent Workers	TDL Upskilling and Certifications for Incumbent Workers
Customize training to meet employer immediate hiring needs	Customize training to meet employer immediate hiring needs

4.1.4 LIDAC Census Tracts Impacted by Project

A list of LIDAC census tracts impacted by this Project is included as an attachment to this application.

4.2 Community Engagement

As noted in Section 1.1.2, the Port, in close partnership with West Oakland Environmental Indicators Project (WOEIP) and other community partners, will develop an Outreach Plan to guide its community engagement. **This plan will build on community partnerships developed over many years**, and the Port submits this as a community-driven project directly responding to articulated community needs. The Port will continue to work with local community members, businesses, and a multitude of stakeholders via public information meetings, consultations, social media outreach, Task Force meetings, and other forms of stakeholder engagement. In the period between December 2023 and March 2024 alone, the Port participated in 13 neighborhood community meetings with community-based organizations on “Our Road to Zero Emissions” (see callout text box on the next page).

West Oakland, adjacent to the Port, is considered an environmental justice community and is designated by the California Air Resources Board (CARB) under Assembly Bill 617⁹ as a community bearing a disproportionate air quality burden, and the Port’s *Seaport Air Quality 2020 and Beyond Plan’s Public Engagement Plan (2019)*¹⁰ found that approximately 76 percent of the West Oakland population

⁹ <https://ww2.arb.ca.gov/capp-communities>

¹⁰ <https://www.portofoakland.com/files/PDF/2020%20and%20Beyond%20Plan%20Vol%20I.pdf>

consists of people of color and 27 percent live below federal poverty levels. Collaboration with West Oakland residents and stakeholders is the foundation of this funding request given the direct impacts Port activities have on this community.

Throughout the development of the *2020 and Beyond Plan*, the community has been clear in its desire to see a complete changeover to zero emissions trucks and cargo-handling equipment for Port-related activities and has requested the Port take a leadership role in supporting Port tenants as necessary to enable the transition to zero emissions and reduce diesel particulate matter emissions from Port operations. **This Project is a direct result of community engagement.**

Robust community engagement is one of the core tenets of the Port's work. The Port's plans for emissions reductions (*2020 and Beyond Plan* and *MAQIP*) were developed with community input via the plan's Co-Chairs and Task Force. This forum facilitated collaboration between the Port, multiple agencies, the community, and industry stakeholders. The community stakeholder engagement process and outcomes are summarized in the *2020 and Beyond Plan*, Appendix G.

The outreach described in this section is aligned with these planning documents. The *2020 and Beyond Plan* addresses long-term planning for air quality, including the State's GHG emissions reductions targets, with extensive community and partner engagement. Outreach for this project will be bundled with more general zero-emissions transition engagement and will focus on educating the community on the Port's decarbonization plans, providing tools to members of the public for providing feedback, and reporting back on how that feedback was used to refine goals and guide implementation of those plans. The Port also plans to propose more extensive community-driven engagement activities under the EPA Clean Ports grant program.

The Port has a strong history of effectively engaging with the community while managing complex and sensitive projects bridging both community and industry interests. In early 2023, the Port met with staff from multiple community-based organizations regarding pursuit of Federal grants in partnership with their tenants to advance electrification efforts. Organizations included Earthjustice, a nonprofit public interest environmental law organization, and WOEIP, which is a resident-led, community-based environmental justice organization dedicated to achieving healthy homes, healthy jobs, and healthy neighborhoods for all who live, work, learn, and play in West Oakland.

Also noted previously, a major forum for collaboration on this project is the Community Electrification Committee, a partnership between the West Oakland Sustainable Port Collaborative and the Port. The Community Electrification Committee focuses on initiatives that support the zero-emissions goal including electrification, renewable energy projects, and infrastructure development. The Community Electrification Committee began monthly, in-person meetings in January 2023 with representatives from numerous groups. The Community Electrification Committee also focuses on grant funding opportunities that support zero emissions at the Port. The Community Electrification Committee

Neighborhood Community Meetings 12/23 – 3/24

- West Oakland Community Collaborative (WOCC)
- West Oakland Neighbors (WON)
- Oak Center Neighborhood Association (OCNA)
- Prescott Neighborhood Council
- Acorn & Oak Community Neighborhood Council
- Hoover Foster Resident Area Council (RAC) and Friends of Hoover Library
- Owners and Operators/31
- 31Y/31Z Neighborhood Council District & Sobrante Park Resident Action Council
- Communities for a Better Environment, East Oakland/AB617 East Oakland Co-Leads

stakeholders (see callout text box) help guide the Port's funding requests, and the status of grant applications and awards are listed on the Port's website. **This Committee in particular informed the development of this application.**

In addition to its direct engagement with stakeholders in the community, the Port implements best practices to ensure its activities are fully compliant with the **Title VI of the Civil Rights Act of 1964 and other equal access laws.** The Port's outreach strategies include, but are not limited to:

- Reasonable public access to technical and policy information
- Adequate public notice of public involvement activities and time for public review and comment at key decision points
- Concerted efforts to involve the public, especially those traditionally underserved by existing programs or plans including, but not limited to, low-income and minority households
- Coordination of 1) Planning processes, especially where multiple levels of oversight exist, and 2) Public input processes, both of which enhance public consideration of the issues, plans, and programs, and reduce redundancies and cost
- Ensure opportunity for full participation of Limited English Proficiency (LEP) speakers through provision of language interpretation services
- Ensure opportunity of full participation of persons with disabilities by providing accessible accommodations

See Task 2.0 under Section 1.1.2 for the community engagement activities planned for this Project. Letters from the community are included at the following link <https://www.portofoakland.com/CPRG/>.

5 Job Quality

As noted in Section 4.1.3, MAPLA is a **core, structural commitment from the Port on local hiring.** This section describes how those job opportunities are for well-paid, stable positions.

As noted above, MAPLA requires Port contractors to pay into a workforce training fund. A major funding recipient is the WOJRC, a community-based partner which leads job training and pre-apprenticeship programs. WOJRC training programs described in Section 4.1.3 includes Maritime Transit and Transportation specializations and prepares workers for entry-level maritime regional transit jobs, entry-level merchant mariner jobs, TDL-related manufacturing pathways, warehousing, truck driving, and building and construction trade pathways. WOJRC proposes placements into industries with wages shown in Table 7.

Community Electrification Committee

The Community Electrification Committee is a community-driven body which identified the need to electrify CHE and will guide implementation of this project. It consists of numerous community-based organizations, including:

- West Oakland Environmental Indicators Project
- EarthJustice
- Pacific Environment
- UC Berkeley Goldman School of Public Policy
- Ava Community Energy
- Bay Area Air Quality Management District
- Union of Concerned Scientists
- USEPA Region 9
- Port Senior Management

Table 7 WOJRC Placements by Industry and Wages

Industry/Career	Salary
Commercial Truck Drivers	\$60k – \$100k
Maritime Regional Transit	\$23 per hour
Merchant Mariner	\$3k – \$5k per month
TDL Manufacturing	\$20 – \$30 per hour
Ship Repair Retro/Sheet Metal Workers	\$81,440 per year
Ship Fitters	\$54,490 per year
Machinist Utility Worker	\$30 per hour
Machinist Apprentice	\$80k per year
Machinist Journey Level; Heavy Duty Equipment Mechanic; Industrial Machinery Technician; Machinist; Trainer, container, Van Repair Mechanic; Fabrication Welder	\$100k per year
Building and Construction Trades Apprenticeship; Carpentry; Electricians; Glaziers; Heating Ventilation and Air Conditioning; Iron & Steel Workers; Laborers; Operating Engineers; Plumbers & Pipe Fitting; Roofers; Sheet Metal Workers; Teamsters	Department of Industrial Relations (DIR) General Prevailing Wage https://www.dir.ca.gov/

As noted in Section 4.1.3, the Port works closely with WOJRC to expand apprenticeship opportunities aligned with ZE opportunities and has planned expansions through the Green TDL program. This supports the Port’s goals to hire new workers from the LIA, providing a strong local economic benefit to the jobs generated by the Port and projects such as this. As noted in Section 3, local hiring for this project will be tracked in conformance with MAPLA requirements. To date, MAPLA has shown strong results in hiring residents in the LIA and LBA into stable, good-paying positions at the Port (Table 4).

6 Programmatic Capability and Past Performance

6.1 Past Performance

The Port of Oakland has successfully managed, on an ongoing basis, several state, Federal, and local grants, including a 2021 awarded MARAD PIDP grant with similar components to this Project. Over the past decade, the Port has successfully received and deployed over \$500 million in funding. The Port tracks and manages the requirements of grant funding and works with respective project managers to ensure the accurate and timely deliverability of each grant program. The Port is in regular compliance with all state and Federal audits of grant funding. Recent Port grants are shown in Table 8.

Table 8 Recent Air Quality Project Awards

Project Title	Assistance Agreement Number	Funding agency and Assistance Listing Number	Project Description	Funding Agency Contact Name, Email, Phone
Powering the Future Project	MARAD FY 2021 PIDP Grant No. 693JF72245026	US Department of Transportation, Maritime Administration, Port Infrastructure Development Program, MA-PID-21-001	Resilient electrical infrastructure for the zero emissions seaport including substation replacement, solar, battery storage and related upgrades	US DOT-Maritime Administration, Bryan Herdliska, bryan.herdlika@dot.gov , (202) 366-7678
EnergIIZE Jump Start Lane Grant: Port of Oakland	EVJUMP-W3-44839013	State of California Energy Commission	Purchase and Installation of Five 180kw Bus Chargers	InfrastructureIncentives@tetratech.com , 1 (877) 367-4493
OAK Electric Shuttle Bus Purchase	Airport Improvement Program (AIP) Zero Emissions Vehicle (ZEV) Program 3-06-0170-094-2022	Federal Department of Transportation – Federal Aviation Administration - 20.106 – Airport Improvement Program	Grant agreement for \$12,324,140 to purchase of Two 4-foot Electric Shuttle Buses.	Lemuel del Castillo, Lead Civil Engineer, San Francisco Airports District Office, AWP-SFO-ADO, lemuel.del.castillo@faa.gov , 925-546-6440
OAK Taxiway Whiskey Rehabilitation, Phase 1 (Multi-Phase Approach), Design and Construction	Airport Improvement Program (AIP) Project No. 3-06-0170-096-2023	Federal Department of Transportation – Federal Aviation Administration - 20.106 – Airport Improvement Program	Grant agreement for \$19,235,428 to rehabilitate Taxiway W, Phase 1 – Design / Construction	Lemuel del Castillo, Lead Civil Engineer, San Francisco Airports District Office, AWP-SFO-ADO, lemuel.del.castillo@faa.gov , 925-546-6440
Sustainable Terminals Accelerating Regional Transformation (START) Project Phase 1	Zero and Near-Zero Emission Freight Facilities (ZANZEFF)-MOU with POLB	California Air Resources Board FY17-18 Funding Plan	Port of Oakland contributed \$2 million in grant match funding by constructing a new substation and electric chargers for ZE trucks, and CHE. Partner: Port of Long Beach	Port of Long Beach, Leela Rao, leela.rao@polb.com , 562-283-7122

6.2 Reporting Requirements

The Port has a cross-divisional team of finance, audit and project management experts that are highly experienced in grant compliance. The Port has received and administered over \$500 million in federal assistance over the past ten years. The Port has a long history of meeting reporting requirements in a timely and acceptable manner, reporting progress on expected outcomes, and communicating any minor issues that have arisen. Below are details on the reporting requirements for the five grants listed above in Table 8.

Sustainable Terminals Accelerating Regional Transformation (START) Project Phase 1

All reports for the ZANZEFF grant were submitted on time and met requirements. The final report with detailed project expenditures was submitted to CARB for final reporting.

Powering the Future Project

For FY21 PIDP, the Port is awaiting final agreement execution, but the project has been underway for several years. The Port has been issued two pre-award authorizations to begin tracking project match costs. One component (Upgraded Circuit 2) is nearing completion, and the Port is preparing to release the construction of the replacement substation for public bid. The Port has submitted reports as required to MARAD upon reaching defined engineering milestones (e.g., Engineering Feasibility Analyses, Final Engineering Design, project expenditures, etc.).

EnergIIZE Jump Start Lane Grant: Port of Oakland

This grant was conditionally awarded on December 9, 2022. The Port is in the construction phase and will enter reporting phase during the Fall of 2024, once commissioning is complete. The Port maintains in good standing with the funding agency, the California Energy Commission. The Port will be providing 36 months of data collection on deployed equipment and will respond to EnergIIZE staff surveys, reported quarterly, starting from the date of final commissioning.

OAK Electric Shuttle Bus Purchase

This grant was conditionally awarded on September 6, 2022. Port is up to date on all reporting requirements and maintains in good standing with the funding agency, the Federal Aviation Administration.

- Submitting Form 51—140, Performance Report on a quarterly basis
- Submitting SF-425, Federal Finance Report on an annual basis
- Submitting SF-271, Outlay Report and Request for Reimbursement for Construction Program, as applicable on an annual basis
- Submitting SF-270, Request for Advance or Reimbursement, as applicable on an annual basis

OAK Taxiway Whiskey Rehabilitation, Phase 1 (Multi-Phase Approach), Design and Construction

This grant was awarded on September 13, 2023. Port is up to date on all reporting requirements and maintains in good standing with the funding agency, the Federal Aviation Administration.

- Submitting Form 51—140, Performance Report on a quarterly basis
- Submitting SF-425, Federal Finance Report on an annual basis

- Submitting SF-271, Outlay Report and Request for Reimbursement for Construction Program, as applicable on an annual basis
- Submitting SF-270, Request for Advance or Reimbursement, as applicable on an annual basis

Sustainable Terminals Accelerating Regional Transformation (START) Project Phase 1

All reports for the ZANZEFF grant were submitted on time and met requirements. The final report with detailed project expenditures was submitted to CARB for final reporting.

6.3 Staff Expertise

The Port staff members identified in this application have extensive experience receiving Federal grant funding, complying with grant requirements, and delivering projects on-schedule, on-budget, and within the scope outlined in the grant proposal. Port staff have successfully implemented numerous projects that support this climate action and are well-prepared to oversee the successful implementation of the Project. A cross-divisional team of staff from Environmental Programs and Planning, Engineering, and other departments and divisions are part of the project team implementing climate action projects. Below are the key staff members that will work on this Project:

Colleen Liang is the Director of Environmental Programs and Planning who has over twenty years of experience conducting environmental compliance and planning. She currently manages staff who oversee the Port's zero emissions program including the transition from diesel to electric vehicles and equipment, and microgrids for on-site generation and resiliency. Her team also manages grant reporting requirements, conducts stakeholder and community engagement, and conducts emissions analyses pursuant to permitting and regulatory compliance.

Tim Leong is the proposed Project Manager and the Senior Maritime Projects Administrator with the Port of Oakland. He has over twenty years of experience at the Port and is currently supporting, analyzing, and implementing Port grant funding efforts for maritime-related projects, multiple of which involve zero emissions projects and related infrastructure improvements to improve resiliency. Tim represents Port Maritime interests working with external stakeholders and the community on developing charging infrastructure to meet future Port zero emissions technology goals.

Tracy Fidell is Senior Maritime Projects Administrator with the Port of Oakland. She has over twenty years of experience conducting port planning, as well as air quality management. She also supports implementation of zero emissions operations in the Maritime area that includes the transition from diesel to electric vehicles and equipment, and microgrids for on-site generation and resiliency for maritime-related projects. She also manages grant reporting requirements and conducts stakeholder and community engagement.

Thanh Vuong is Port Principal Engineer for the Maritime & Commercial Real Estate Project Design & Delivery Department at the Port. He manages the Port's Annual Berth Maintenance Dredging Program and implements the Port's Capital Improvement Program for Maritime and Commercial Real Estate projects. His areas of expertise include advanced planning, structural connections, construction management, project management, Public Works project delivery, and electrical systems. Thanh has over 20 years of experience in planning and delivering public agency projects and has delivered grant and non-grant funded projects for Caltrans and the City of Fairfield, in addition to the Port.

Amy Tharpe is the Port Director of Social Responsibility Division (SRD), responsible for partnering with the community and businesses to promote positive social and economic changes. Her team ensures that the Port's business activities deliver maximum local community and economic benefit through partnerships with local residents, community-based organizations and businesses, academia, elected

and appointed officials, Port clients and labor representatives. She manages the Port's local hire program and led the renegotiation of the Port's acclaimed project labor agreement which has increased the hiring of local, disadvantaged workers. She also developed and managed the Port's stakeholder engagement for the *2020 and Beyond Plan*.

7 Budget

7.1 Budget Detail

As shown in Table 9, the Project has an estimated cost of \$75,700,000, 100 percent of which is being requested under the PCAP, Measure 4 – Bolster Investments in the State's Sustainable Port and Freight Infrastructure. No other Federal funds have been awarded to the Project. Detailed budget information including the expenditure of awarded funds and reasonableness of costs can be found in the attachment *Budget_Port of Oakland.pdf*.

7.2 Expenditure of Awarded Funds

The Port has extensive experience with delivering grant projects. The Project Team has the personnel, knowledge, skills, and expertise necessary to implement this Project on schedule and within budget to ensure the Project's benefits are realized. The funds can easily be obligated and expended within the five year period of the grant program. The Port's procedures set forth responsibilities for Port staff and establish general procedures so that the Port may remain in compliance with the ethical, professional, and legal standards associated with grant related activity. See *Budget_Port of Oakland.pdf* for details.

7.3 Reasonableness of Costs

All of the budget activities under this Project apply to Measure 4, Bolster Investments in the State's Sustainable Port and Freight Infrastructure. All of the activities in the budget are needed to realize the emissions reductions from the Project. See *Budget_Port of Oakland.pdf*.

Table 9 Project Budget by Category

Category	Line Item & Itemized Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Total EPA Funding
PERSONNEL							
	Port Electrical/Mechanical Engineer @ \$564,000 fully loaded rate/year, .4 FTE	\$158,700	\$202,800	\$259,800	\$278,800	\$0	\$900,100
	Port Electrical/Mechanical Engineer @ \$564,000 fully loaded rate/year, .4 FTE	\$158,700	\$202,800	\$259,800	\$278,800	\$0	\$900,100
	Port Supervisor Electrical/Mechanical Engineer @ \$564,000 fully loaded rate/year, .2 FTE	\$76,000	\$88,000	\$135,100	\$150,800		\$449,900
	Port Civil Engineer @ \$564,000 fully loaded rate/year, .4 FTE	\$158,700	\$202,800	\$259,800	\$278,800		\$900,100
	Port Supervisor Civil Engineer @ \$564,000 fully loaded rate/year, .2 FTE	\$76,000	\$88,000	\$135,100	\$150,800		\$449,900
	Port Environmental Programs and Planning @ \$564,000 fully loaded rate/year, .11 FTE	\$62,500	\$62,500	\$62,500	\$62,500		\$250,000
	TOTAL PERSONNEL	\$690,600	\$846,900	\$1,112,100	\$1,200,500	\$0	\$3,850,100
FRINGE BENEFITS							
	<i>NA – Incorporated into fully loaded rate under Personnel</i>	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL FRINGE	\$0	\$0	\$0	\$0	\$0	\$0
TRAVEL							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL TRAVEL	\$0	\$0	\$0	\$0	\$0	\$0
EQUIPMENT							
	None	\$0	\$0	\$0	\$0	\$0	\$0

TRANSFORMING POWER: ADVANCING ZERO EMISSION CARGO HANDLING
EQUIPMENT WITH INFRASTRUCTURE AT THE PORT OF OAKLAND

Category	Line Item & Itemized Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Total EPA Funding
	TOTAL EQUIPMENT	\$0	\$0	\$0	\$0	\$0	\$0
SUPPLIES							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL SUPPLIES	\$0	\$0	\$0	\$0	\$0	\$0
CONTRACTUAL							
	Feasibility Study Contractor	\$150,000	\$0	\$0	\$0	\$0	\$150,000
	Design Contract	\$166,700	\$666,800	\$166,700	\$0	\$0	\$1,000,200
	Environmental Contractor	\$20,000	\$0	\$40,000	\$40,000	\$0	\$100,000
	Construction Contract(s)	\$0	\$0	\$30,171,300	\$40,228,400	\$0	\$70,399,700
	Community Engagement Contract	\$68,900	\$50,000	\$41,900	\$39,200	\$0	\$200,000
	TOTAL CONTRACTUAL	\$405,600	\$716,800	\$30,419,900	\$40,307,600	\$0	\$71,849,900
OTHER							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL OTHER	\$0	\$0	\$0	\$0	\$0	\$0
INDIRECT COSTS							
	None	\$0	\$0	\$0	\$0	\$0	\$0
	Total Indirect Costs	\$0	\$0	\$0	\$0	\$0	\$0
	TOTAL FUNDING FOR PROJECT	\$1,096,200	\$1,563,700	\$31,532,000	\$41,508,100	\$0	\$75,700,000