



PORT OF OAKLAND

Project Narrative *Powering the Future Project*

Port of Oakland Grant Application in Response to:
Notice of Funding Opportunity for Department of Transportation's Port Infrastructure
Development Program Under the Consolidated Appropriations Act, 2021



Port of Oakland
530 Water Street
Oakland, California 94607

July 30, 2021

EXECUTIVE SUMMARY

Powering the Future: The project comprises replacing an end-of-life electrical substation with a state-of-the art substation and circuit, on-site fuel cell, solar array with battery storage, and increased usage of locally sourced renewables to support expanded use of electric drayage trucks and yard tractors, as well as shore power.

Synopsis

In 2019, the Port of Oakland approved its bold initiative to create a zero-emissions Seaport. Implementation of the 2020 and Beyond Plan will be realized through implementation of specific equipment, energy system and operational strategies. Providing electrical infrastructure systems to support zero-emissions equipment and operations is essential to decarbonizing the Seaport and delivering related air quality, community health and jobs benefits.

The *Powering the Future* Project is a foundational infrastructure project in support of zero-emissions equipment and operations. It will create a multi-functional, modern 12 MW electrical substation integrating renewable power generation to support expansion of the electric heavy-duty truck fleet and yard tractors at the Port of Oakland. The project will also provide power for increased usage of electric power for vessels while at berth, including non-container vessels such as vessels in the federal defense fleet and harbor craft (i.e., tugs), and improve Port and community electrical grid resiliency. The project is an eligible project because it will occur within a coastal seaport and provides utilities necessary for safe operations.

The Port of Oakland is unique among major container ports because it is also a public utility. As such it has the authority to design and construct electrical infrastructure within its service area, rather than being dependent on major electric utilities to do. The Port is therefore able to optimally build out the electrical infrastructure within the Port area, and has a high level of control over the entire process. The Port's utility's is established and successful. It currently delivers electrical power with a carbon-free content 2 to 3 times greater than that of Pacific Gas & Electric Company, the major utility in Northern California, at a cost that is approximately 20% lower. The Port is therefore ideally positioned to implement the *Powering the Future* project.

The project meets and exceeds all PIPD grant criteria. It improves the efficiency of goods movement and strengthens the resiliency of the Port's electrical grid through the on-site fuel cell and solar array with storage. The project has a benefit-cost ration (BCR) of 2.62:1. Expected benefits over the 30-year project life are \$49.6 million. Expected net benefits over the 30-year project life are \$30.7 million. The project will reduce NOx by 1,052 metric tons, particulate matter (PM) by 24.6 metric tons and CO2 by 650,000 metric tons over the project life.

The Port of Oakland has the authority, financial and staff resources to fully execute the project and deliver tangible beneficial outcomes to its local community and Northern California. The successful PIPD grant will enhance the Port of Oakland's ability to provide the essential

maritime services upon which the nation and its residents depend for their economic well-being, quality of life and safety.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 Project Description	1
1.1 Introduction	1
1.2 Organization of the Narrative and Attachments	3
1.3 Overview of Port of Oakland	3
1.4 Project Description	4
1.5 Project Schedule and Budget.....	8
2.0 Project Location	8
3.0 Grant Funds, Sources, and Uses of Project Funds	11
4.0 Merit Criteria	11
4.1 Merit Criterion A: Achieving Safety, Efficiency, or Reliability Improvements	11
4.2 Merit Criterion B: Supporting Economic Vitality at the National and Regional Level	12
4.3 Merit Criterion C: Addressing Climate Change and Environmental Justice Impacts..	13
4.4 Merit Criterion D: Advancing Racial Equity and Reducing Barriers to Opportunity...	15
4.5 Merit Criterion E: Leveraging Federal Funding to Attract Non-Federal Sources of Infrastructure Investment	20
5.0 Project Readiness	20
5.1 Project Schedule	20
5.2 Project Risk.....	21
5.3 Technical Capacity.....	22
5.4 Environmental Approvals.....	23
5.5 Risk Mitigation	25
6.0 Domestic Preference	25
7.0 Determinations	25
7.1 Determination 1 - The Project Improves the Safety, Efficiency, or Reliability of the Movement of Goods through a Port or Intermodal Connection to the Port	25
7.2 Determination 2 - The Project is Cost Effective.....	26
7.3 Determination 3 - The Eligible Applicant has the Authority to Carry out the Project	26
7.4 Determination 4 - The Eligible Applicant has Sufficient Funding Available to Meet the Matching Requirements.....	27

7.5	Determination 5 - The Project Will be Completed without Unreasonable Delay	27
7.6	Determination 6 - The Project Cannot be Easily and Efficiently Completed without Federal Funding or Financial Assistance Available to the Project Sponsor	28

LIST OF ATTACHMENTS

ATTACHMENT 1: Benefit - Cost Analysis.....	
ATTACHMENT 2: Letters of Support	
ATTACHMENT 3: Policies, Plans, and Outreach Documentation Related to Advancing Racial Equity and Reducing Barriers to Opportunity.....	
ATTACHMENT 4: Remediation Process and Requirements.....	
ATTACHMENT 5: Extreme Heat Proclamations	
Note: Attachments are provided as separate files	

LIST OF TABLES

Table 1: Sources and Uses of Project Funds	11
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LIST OF FIGURES

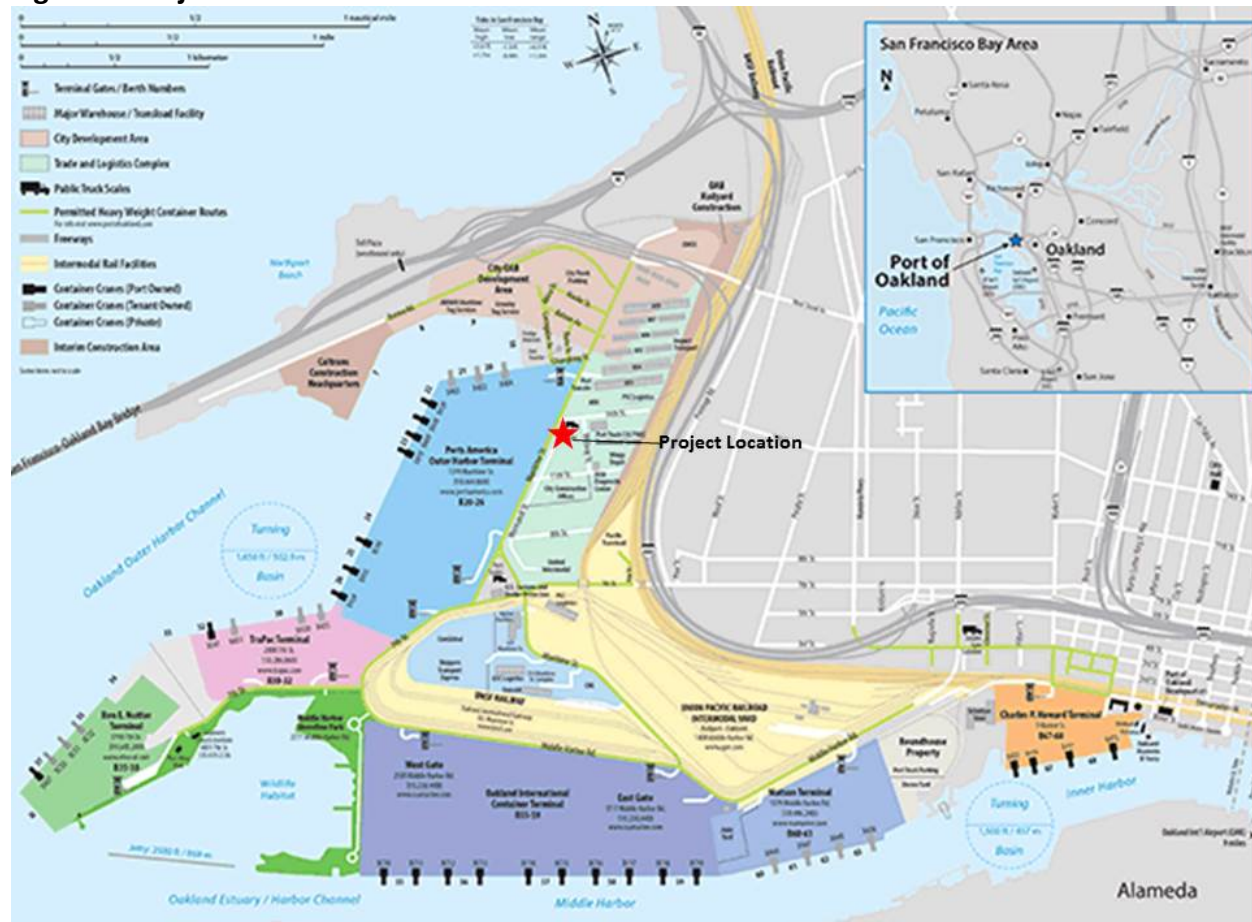
Figure 1: Project Location	1
Figure 2: Port Utility Service Areas	2
Figure 3: Project Schedule	9
Figure 4: Project Layout	10
Figure 5: Federally-Designated Opportunity Zone Locations	10

1.0 Project Description

1.1 Introduction

The Port of Oakland (Port) is an international gateway and economic engine for the San Francisco Bay Area, encompassing a vibrant seaport, a thriving airport, and an array of commercial buildings and waterfront parks. The Port is submitting this grant proposal to continue to progress toward a zero-emissions Seaport, enhance electrical grid resiliency, increase safety, and decrease the carbon content of the Port's electric power supply. The location of the project is within the Seaport and is shown in Figure 1.

Figure 1. Project Location



In 2019, the Port of Oakland formalized its commitment to becoming a zero-emissions Seaport by adopting the *Seaport Air Quality 2020 and Beyond Plan: the Pathway to Zero Emissions*

(Board of Port Commissioners Resolution 19-41).¹The 2020 and Beyond Plan lays out the strategy and process for the Port of Oakland's transition from a fossil-fuel-based seaport to a zero-emissions seaport.

A cornerstone of the 2020 and Beyond Plan is the use of renewable electricity (electricity derived from renewable sources, such as wind, solar, geothermal and small-hydropower projects) to fuel battery-electric mobile equipment and to provide power to berthed vessels. The Port of Oakland is unique among major container ports in that it operates a public utility that supplies electrical power to much of the Seaport (see Figure 2). As a public utility the Port has the authority to directly build out its electrical infrastructure in support of electrical equipment and vehicles, aggressively procure power from renewable energy sources, and to optimize electrical grid improvements to achieve the goal of efficient zero emissions goods movement. The project is an integral part of this transition to a decarbonized seaport.

Figure 2. Port Utility Service Areas



Source: Port of Oakland 2019

The Port is committing extensive capital resources to developing the infrastructure necessary to support a zero-emissions seaport. In addition to committing to funding for replacement of

¹ See June 13, 2019 Meeting Minutes at <https://www.portofoakland.com/wp-content/uploads/Supplemental-September-12-2019-Board-Agenda.pdf>

Substation SS-R-14 and Circuit 2, two elements of the project (see Section 3), the Port has committed funding for reconstruction of two major substations in its Capital Improvement Program, as well as more than \$9 million for electrical charging infrastructure. Planned capital improvement projects related to the Port's transition to a zero-emissions seaport total \$56 million over the next 5 years.

As part of its commitment to achieving a renewable energy future, the Port is already procuring power with a much greater carbon-free content than the local utility company, Pacific Gas and Electric (PG&E). Integration of renewable energy generation into the Port's overall electricity mix would increase the carbon-free energy content of Port-supplied electrical power from approximately 70% to 90%.

1.2 Organization of the Narrative and Attachments

The organization of this document follows the recommended outline in the Notice of Funding Opportunity dated April 16, 2021. The five (5) attachments include the following required and optional supporting documentation:

Attachment 1: Benefit - Cost Analysis

Attachment 2: Letters of Support

Attachment 3: Policies, Plans, and Outreach Documentation Related to Advancing Racial Equity and Reducing Barriers to Opportunity

Attachment 4: Remediation Process and Requirements

Attachment 5: Extreme Heat Proclamations

Optional Form SF424-C (BUDGET INFORMATION - Construction Programs) is also provided as part of the submittal, as is the Project Information Form. Links to supporting documents are provided in the in footnotes throughout the text, as applicable.

1.3 Overview of Port of Oakland

The Port of Oakland's Seaport (Seaport) is Northern California's dominant commercial containerized cargo port, serving the fifth largest metropolitan area in the U.S. and the second largest exporting region in the U.S. The Seaport is a top 10 U.S. container port based on loaded and empty containers.² In 2020, the Port of Oakland handled about 2.46 million twenty-foot equivalent unit (TEU) containers. Approximately 48% of the loaded TEUs are export commodities. These export commodities include recycled paper, nuts, fruit, meat, grains, iron/steel products, and dairy products. The Seaport is also a major gateway for the export of agricultural products to markets in Asia, primarily China, Japan and Korea. The Seaport has approximately 1,300 acres of maritime-related facilities, of which approximately 780 acres is

² oc.com/port-news/us-ports/joc-rankings-largest-north-american-ports-gained-market-share-2020_20210618.html

dedicated to active marine terminal facilities. The Seaport has 18 deep-water berths and 33 dock-side container gantry cranes serving over 1,200 vessel calls annually.

The Seaport loads and discharges more than 99% of the containerized goods moving through Northern California. Oakland's cargo volume makes it the eighth busiest container port in the United States based on Calendar Year 2020 data from the American Association of Port Authorities. San Francisco Bay ranks among the three principal Pacific Coast gateways for U.S. containerized cargoes, along with Los Angeles and Long Beach in southern California and Seattle and Tacoma (Northwest Seaport Alliance) in the Pacific Northwest. California's three major container ports carry approximately 50% of the total container cargo volume in the United States.

The total economic value to the Seaport region is measured at \$60.3 billion, which consists of direct business revenue, re-spending, local consumption, and the related output. In 2017, the Seaport supported more than 500,000 jobs in the state of California (Martin Associates 2018), including 11,393 jobs directly created by Seaport activities, as well as more than 16,000 induced and indirect jobs resulting from \$546 million of local purchases made by directly dependent firms. In total, \$23.9 billion of personal income was supported by cargo operations at the Seaport. Local businesses receive \$2.2 billion of sales revenue from providing services to the ocean cargo activity at the Seaport, which generated \$281 million of state and local tax revenue. An additional \$2.4 billion of related taxes were also supported by Seaport activities.

1.4 Project Description

In 2019, the Port of Oakland approved its bold initiative to create a zero-emissions Seaport. Implementation of the 2020 and Beyond Plan will be realized through implementation of specific equipment, power and operational strategies. Most importantly, providing the electrical infrastructure systems to support zero-emissions equipment and operations is essential to decarbonizing the Seaport and delivering the related air quality and health benefits.

The *Powering the Future* Project is a foundational infrastructure project in support of zero-emissions equipment and operations. It will create a multi-functional, modern 12 MW substation integrating renewable power generation to support expansion of the electric heavy-duty truck fleet and electrically-powered yard tractors at the Port of Oakland. The project will also provide additional power to increase usage of electric power for vessels while at berth, including non-container vessels such as vessels in the federal defense fleet and harbor craft (i.e., tugs) , and improve Port and community electrical grid resiliency. The project is an eligible project because it will occur within a coastal seaport and provides utilities necessary for safe operations.

Project Components. The project consists of five elements:

- Replace Substation SS-R-14 with a new, modern 12 MW substation (to be named SS-R-10)
- Replace Circuit 2, linked to the substation with an upgraded circuit in the same location

- Construct a 2MW fuel cell as an additional clean electrical supply source and to provide power when there are power shut-downs or limitations, to increase reliability and stability of the Seaport power supply (increase resilience)
- Construct a 4MW solar array and battery storage system to increase the renewable power supply and to provide power during power shut-downs or limitations (increase resilience), and
- Establish a direct connection between East Bay Municipal Utilities District's (EBMUD's) biomass-fueled generator and the new substation to reduce transmission losses and increase resilience of the Port's grid during PGE's power outages.

To realize its ambitious goal of becoming a zero emissions Seaport, which would include the conversion of all cargo-handling equipment and Port-serving trucks to zero-emissions, the Port will require a total electrical capacity of approximately 100 megawatts (MW). Substation SS-R-14 is an important component of the Port's electrical infrastructure. Due to the existing safety concerns associated with the age and condition of the substation, PG&E has disconnected the substation from its grid, and the substation only receives power through an internal Port feed from another Port substation. Furthermore, SS-R-14 lacks the ability to "backflow" power through the substation to the rest of the Port grid.

The new substation (SS-R-10) will replace Substation SS-R-14, which was built by the U.S. Army in the 1950s, and is beyond the end of its useful life and can only be used at approximately 10% of its nominal capacity due to safety limitations. In addition to providing a functional capacity of 12 MW, the new substation will provide demand management and resiliency through integration of a 2 MW fuel cell, connectivity to EBMUD's near-by biomass-powered generator, and a 4 MW solar array and storage system within the Seaport area. The new substation will allow backflow power from the substation to other Port substations thereby improving the power supply to the entire Seaport area. During power emergencies, the substation could also provide power to the local grid if Port demand is low, enhancing local grid resilience in the face of climate-change-driven power failures due to events such as wildfires or extreme heat. The on-site generation and storage will enable the Port to maintain a basic level of operations, including security functions, during power outages.

The new substation SS-R-10 would be used to support a mix of mobile equipment throughout the Seaport. The Port estimates that the increased capacity from SS-R-10 will be able to support 66 chargers for electric trucks, 12 chargers for yard tractors, ship power for the one tug company berthed at the Port that is not currently on ship power (affecting a total of three tugs), on-going layberthing³ of one vessel, and period short-term layberthing of a second vessel. Electrically-powered vehicles are more efficient than diesel-powered vehicles; they have lower operating costs than diesel-powered vehicles. A recent study indicates that electrically-

³ Essentially storage of vessels at berth.

powered trucks have a 13% lower cost of ownership today than a comparable diesel truck, and that that difference is expected to increase to 50% by 2030, amounting to net present value savings of \$200,000 over the typical lifespan of 15 years per vehicle.^{4,5} Electrically-powered yard tractors have lower operating costs for the same reasons.

The Port needs to increase the resiliency of its electrical infrastructure. Power failures and/or limitations on power consumption will have an increasingly adverse effect on Port operations as more and more equipment is electrically-powered. The Port is located in an area with constrained electrical supplies. PG&E projects that by 2030 it will be unable to provide sufficient power supplies in this area on high-demand days. On-site generation would help reduce the Port's dependence on the local electrical grid, and risk of operational interruptions.

In the past year the Port has received 3 notifications from the State of California asking it to reduce its power consumption in the face of extreme heat events resulting in an electricity undersupply to meet load requirements (see Attachment 5). These notifications (extreme heat event proclamations) exempt cargo vessels from the requirement to use shore power while at berth. Additional generating capacity at the Port (i.e., the fuel cell and solar array and storage) would enable vessels to continue to plug in; alternatively, any power generated at the Port that is not required for Port operations could be transferred to the local PG&E grid.

Climate change is also affecting the reliability of power supplies to the Port. As part of its commitment to minimizing the carbon content of the electricity it supplies, the Port's utility recently entered into another 25-year power purchase agreement with the Western Area Power Authority (WAPA). WAPA generates most of its power from hydroelectric projects, and is facing the likelihood of having to shut off some of its generation capacity due to low reservoir water levels. These types of disruptive events will become more likely in the future as the effects of climate change intensify.

The project includes replacing and upgrading Circuit 2, which has deteriorated due to age. The new circuit will be able to support higher power demands, and will be extended to the boundary of the EBMUD treatment plant located adjacent to the Seaport. Upgrading and extending Circuit 2 will enable EBMUD to make a direct connection from its biomass-powered generator to the Port's power grid, reducing transmission losses and power loss risks due to wheeling the power through PG&E's grid, as is the current practice.

The Port anticipates that the fuel cell will initially use natural gas. Over time, the fuel cell could be converted to run on both natural gas and hydrogen, with a complete transition to hydrogen

⁴ <https://gspp.berkeley.edu/faculty-and-impact/news/recent-news/long-haul-electric-trucks-cheaper-to-own-than-diesel-trucks13-cheaper-today-and-50-by-2030>

⁵ <https://eta-publications.lbl.gov/publications/why-regional-and-long-haul-trucks-are>

as availability of renewable or green hydrogen increases⁶, and hydrogen supply infrastructure is developed. Fuel cells are a proven technology with a small footprint; the proposed fuel cell is expected to occupy an area of approximately 400 sq. ft.

The solar panels would be located on the roof of a new warehouse near the substation and within the Port area; the available roof area is sufficient to generate 4MW of power at peak production. Battery storage would consist of a variable load system and occupy approximately 850 sq. ft., and would be located at the substation.

Port Financial Capability and Need for Grant Funding. The Port has the financial capacity to replace SS-R-14 and Circuit 2, 2 of 5 of the elements proposed in this project. Federal funds would enable the Port to substantially enhance the substation through the addition of the three clean energy features by allowing for the construction of a 2MW fuel cell, a 4MW solar array and battery storage system, and the direct connection to the EBMUD biomass generator.

While there are many grant funding programs that support equipment purchases, there is a great need for grants that can support build-out of the underlying infrastructure. Receiving the grant funds would enable the Port to accelerate its transition to a zero-emissions seaport by upgrading its infrastructure. Already, certain private sector parties have approached the Port to express their interest in developing electric charging infrastructure and deployment of zero-emissions trucks at the Port. With multiple electric drayage tractors in local service and more on order, regional drayage operators have demonstrated their interest and commitment to a zero-emissions future. Without assurance of grid capacity and charging infrastructure, however, their commitment cannot yield the emissions reductions that environmental justice demands. Furthermore, technological development and deployment of zero emissions vehicles and equipment is accelerating.

The Port of Oakland is a world leader in shorepower and “cold ironing”. By using electrical power rather than running diesel auxiliary engines at berth, vessels calling Oakland can reduce the most serious source of Port-area emissions. The Port has prioritized shore power implementation for large cargo-carrying vessels. While some progress has also been made in cold-ironing for assist tugs, electrical system capacity constraints have held back expansion of shorepower to the full assist tug fleet. The project would enable the necessary expansion.

The Port of Oakland has a long-term agreement to provide lay berthing – essentially storage at berth – for selected Naval Reserve and Ready Reserve Fleet vessels. Those older vessels, however, rely on legacy diesel auxiliaries with higher emissions than newer vessels. To meet its obligation to the Federal government while minimizing the adverse impacts on the Oakland

⁶ Renewable hydrogen is made from renewable natural gas using the steam reforming of methane (SRM) process; green hydrogen is hydrogen created by electrolysis of water using renewable electricity.

community, the Port needs the capacity to provide shore power for these vessels, which would also be provided by this project.

The existing substation is a legacy of the Oakland Army Base, and was built in the 1950s when electric power needs were far less than at present. Moreover, the substation is beyond its safe, useful life, and can only be used at a small fraction of its capacity. Constructing the new substation now and implementing renewable energy will accelerate the development of a more efficient, resilient, healthy, and climate-friendly seaport.

1.5 Project Schedule and Budget

The project schedule is shown in Figure 3, and discussed in more detail in Section 5.1. The Port anticipates being ready for obligation of grant funds (i.e., to have obtained all necessary approvals and clearances) no later than June 2022. Construction of the new substation and all related facilities is expected to be completed by June 2024, or approximately 2 years after the award of grant funds. This compressed schedule is feasible because the Port is a public utility, and therefore does not require any approvals or permits from PG&E to construct new facilities. The only requirements with regard to PG&E pertain to interconnection of the new substation with the PG&E grid. As shown in the schedule, the necessary studies and agreement negotiations to enable interconnection will occur in parallel with design and construction, and are expected to be completed in September 2023, approximately one month before the completion of the new substation.

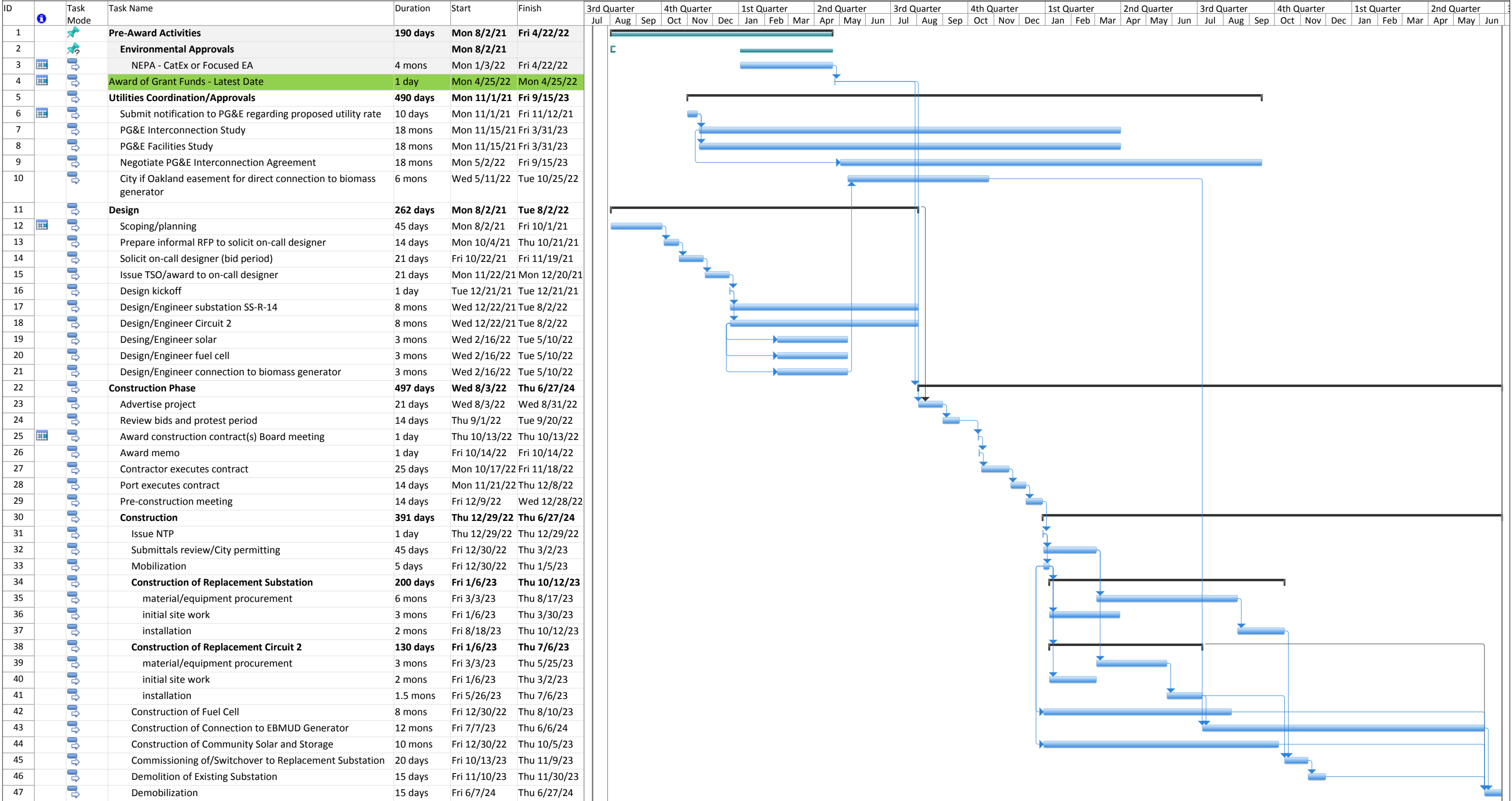
As detailed in Section 3, the total cost for the project is estimated to be \$19.9 million.

2.0 Project Location

The project is located at the Port of Oakland in the San Francisco Bay Area (see Figure 1). The project layout is shown in Figure 4. The Port of Oakland is the electrical utility for much of the seaport (see Figure 2). The Port is a coastal seaport, and therefore the project is classified as a coastal seaport project. A portion of the Port, including the location of the project, is located in a federally-designated opportunity zone (see Figure 5). The remaining Port areas are undesignated and there are very few residences within these undesignated census tracts. The project location and layout are shown in Figure 4. The geospatial reference data (GIS coordinates) for the component locations is shown below.

1. Substation, fuel cell, and solar storage street address (note that substations do not have street addresses): 14th Street and Harbor Way, Oakland, CA 94607
Latitude and Longitude: 37.813394N, -122.308503W
2. Solar Array latitude and longitude: 37.813394N, -122.308503W;
3. End point of Circuit 2 latitude and longitude: 37.824117N, -122.296125W
4. Endpoint of new connection to EBMUD biomass generator latitude and longitude: 37.824989N, -122.295061W

Figure 3. Project Schedule



Project: PIDP schedule_draft_07262021
Date: Thu 7/29/21

Task Split

Milestone

Summary

Project Summary

External Tasks

External Milestone

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

Deadline

Progress

Manual Progress

Figure 4. Project Layout



Figure 5. Federally-Designated Opportunity Zone Locations



<https://cimsprodprep.cdfifund.gov/CIMS4/apps/pn-nmtc/index.aspx#?center=-122.335205,37.819104&level=14&tool=layers&visible=OPPORTUNITYZONE>

3.0 Grant Funds, Sources, and Uses of Project Funds

Table 1 shows the cost of the project, as well as a breakdown of funding sources. A detailed breakdown of the budget is provided in optional form SF-424C and Benefit-Cost Analysis Calculations Excel Workbook (see Attachment 1), which are provided with this application. No other Federal funds are available for this project, and all non-Federal funds would be provided by the Port of Oakland. There are no conditions on the Port funds, and the funds can be made available from the Port's reserves as soon as Federal grant funds are obligated.

Table 1. Sources and Uses of Project Funds

Item	Total Cost	Eligible Cost (Y/N)?	Port Contribution		Federal Contribution	
			\$	%	\$	%
Lands and easements	\$370,000	Y	\$152,000.00	41%	\$218,000	59%
Design, incl. Contingency	\$1,675,000	N ¹	\$1,675,000	100%	None	59%
Construction and Equipment	\$16,910,000	Y	\$6,953,000.00	41%	\$9,957,000	59%
Construction Contingency	\$900,000	Y	\$370,000.00	41%	\$530,000	59%
TOTAL	\$19,855,000		\$9,150,000	46%	\$10,705,000	54%

¹May be contracted prior to grant award.

4.0 Merit Criteria

4.1 Merit Criterion A: Achieving Safety, Efficiency, or Reliability Improvements

The project improves the efficiency of goods movement by increasing the ability of the Port to support charging of battery-electric trucks and yard tractors, as well as increasing the availability of shore power. The modernized substation would support 66 truck chargers and 12 yard tractor chargers (each charger can support more than one vehicle), as well as layberthing of one vessel and shorepower for three tugs. Electric vehicles are much more energy efficient than diesel-powered equipment, and the efficiency of electric vehicles increases over time as the renewables content of their electricity supply increases (their net carbon footprint decreases). The electricity supplied by the Port's utility already has an unusually high renewables content (approximately 70%). The project would further increase the renewables content supplied by the Port's utility to approximately 90%, increasing the efficiency of goods movement.

As discussed in Section 1.4, the project also improves the resilience of the Port's electrical supply and electrical grid. The on-site generation integrated into the project is capable of running the most essential functions of the Seaport if there is a complete power loss. During

those times when the Port is asked to reduce power use, on-site generation will reduce the demand the Port places on the local PG&E electrical grid. During those times when the on-site system produces more power than is needed by the Port (e.g., during weekends, during slower business periods, or when the EVs are all fully charged), the excess power can be fed back into the local PG&E grid. By providing excess power to PG&E grid, the Port's on-site generation could help keep essential life-safety functions operational in the community (such as cooling centers during extreme heat events). The substation itself will be made more resilient by having the fuel cell and solar array located in close proximity, which enables their operation to be optimized.

Keeping the Port operational during power emergencies will enable it to continue to perform essential functions, including during critical national events such as the COVID pandemic. During the pandemic the Port provided emergency response and provisioning of essential supplies.

The project will increase safety by providing improved security for the substation, as recommended by Senate Bill 699. Further safety benefits result from replacing a very old substation in poor condition with a modern substation meeting modern safety standards.

4.2 Merit Criterion B: Supporting Economic Vitality at the National and Regional Level

Benefits and Costs. As shown in Attachment 1, the project has a BCR of 2.62: 1. Expected net benefits over a 30-year project life from start of construction to 2052 are \$30.7 million; total estimated quantified benefits are \$49.6 million. Benefits accrue from the transition to zero-emissions drayage trucks and yard tractors, expanded ship power utilization by tugs moored at the Port and interim layberthing activities. USEPA has also established the value of health benefits from production of solar energy.⁷ The calculated value of the health benefits associated with the 4MW solar element of the project is \$0.6 million. In addition, on-site generation would enable the Port to keep more vessels on ship power during an extreme heat event, when they would otherwise use on-board auxiliary engines to reduce electrical power demand.

Non-Quantified Benefits. Non-quantified benefits include increased reliability of the Port's electrical grid in the face of climate change, and the ability to backflow power to the community (to PG&E for distribution) when not needed at the Port. Increased reliability is beneficial and necessary because when portions of the seaport lose power, ships must switch to engine power while at berth (increasing emissions), and cranes may be positioned in such a way as to prevent departure or berthing of vessels. On-site renewable power generation will reduce or eliminate these issues.

⁷ <https://www.epa.gov/sites/default/files/2019-07/documents/bpk-report-final-508.pdf>

Climate change is having major impacts on electrical supply and demand in California. Public Safety Power Shut-Offs and blackouts have become more common as high temperatures stress the existing grid. Demand for power peaks when high temperatures most limit transmission capacity. Low rainfall as a result of climate change has now created shortages in renewable hydropower. By building the fuel cell and solar array with storage, the Port is assisting in reducing the burden on the grid so that the WAPA can continue to supply power to local residents, many of whom are low-income. Providing power to the community during high temperature events could be a life-saving measure.

4.3 Merit Criterion C: Addressing Climate Change and Environmental Justice Impacts

The project provides both climate change and environmental justice benefits by enabling the Port and its tenants to reduce emissions of criteria air pollutants and greenhouse gases. Planning for the project, as reflected in the Seaport Air Quality 2020 and Beyond Plan, addressed health effects of diesel particulate matter (DPM) as well as climate change (GHG emissions).

Climate Change. As documented by the emissions reductions estimates developed as part of the BCA, the project provides extensive climate change benefits associated with reduced greenhouse gas (GHG) and criteria pollutants. Over the 28-year period following construction, the project is estimated to provide the following emissions reductions associated with increased electrification of Port operations.

NOx (total metric tons)	PM 2.5 (total metric tons)	CO2 (total metric tons)
1,052	24.6	650,000

This estimate does not account for the emissions reductions associated with the proposed 6MW of renewable energy generation.

As discussed in Section 5.3, the project is included in the City of Oakland's equitable Climate Action Plan (ECAP), the Port's 2020 and Beyond Plan, and the West Oakland Community Action Plan.

Environmental Justice. The project directly supports two major priorities of the local community: increased electrification of Port operations, and reduced diesel particulate matter (DPM) emissions from Port operations. The local community has also expressed its desire to see generation of power from renewable resources in the Port area. The local communities' concerns and priorities are documented in the comments on the Draft 2020 and Beyond Plan,

and the Revised Draft 2020 and Beyond Plan.⁸The project is part of a larger planning effort addressing these two priorities undertaken by the Port in collaboration with the local community. By including renewable energy generation in the project design, the Port is reducing the electrical demand on the local grid. The local grid is load-constrained; reducing the load reduces the likelihood of power losses to the community during heat and wildfire emergencies. Furthermore, the project is also designed to allow excess power generated by the renewable elements to flow back to the local grid when not needed by the Port, providing further support during potential power losses that are increasing due to climate change and disproportionately harm low-income communities and communities of color.⁹

The West Oakland community, adjacent to the Port of Oakland, is considered an environmental justice community due to its high proportion of minority residents and high percentage of low-income residents. The census tract closest to the project area, 6001401700, is 28% African American, 24.4% Hispanic, 8.7% Asian and 34% white. Of the 1230 housing units in this census tract, 575 (47%) are classified as low-income units. The California EnviroScreen 4.0 model, which is similar to the US EPA's EJSCREEN model, rates this census tract as being in the 86th percentile of environmental and population burden, which is considered highly burdened.

The Port has been working with the West Oakland community to address health risks, air quality and other environmental impacts from Port operations for decades. The Port has invested substantial financial and staff resources on air quality, transportation, clean water, soil clean-up and open space and parks to improve environmental conditions and quality of life for West Oakland residents. In March 2008, the Port Board of Commissioners adopted the Port Maritime Air Quality Policy Statement. The Port Maritime Air Quality Statement set a goal of reducing the excess community cancer health risk related to exposure to diesel particulate matter (DPM) emissions associated with the Port's maritime operations by 85% from 2005 to 2020, through all practicable and feasible means. It also committed the Port to implement early action emissions reduction measures to reduce the duration of the public's exposure to emissions that may cause health risks, through all practicable and feasible means. Through extensive collaboration with the local community, the Port subsequently prepared the Maritime Air Quality Improvement Plan (MAQIP), which was released in 2009.

The Port reinitiated the community consultation and air quality planning process in 2018 to update the MAQIP; the updated plan is the Seaport Air Quality 2020 and Beyond Plan, which

⁸ Comments and responses to comments on the Draft Plan are available in Vol II of the Revised Draft Plan at https://www.portofoakland.com/files/PDF/Response%20to%20Comments%20on%20Draft%20Plan%2012-14-18_Vol%20II%20of%20II.PDF. The comment letters are also posted on the Port's Maritime Air Quality website at <https://www.portofoakland.com/community/environmental-stewardship/maritime-air-quality-improvement-plan/>. Comments and responses to comments on the Revised Draft Plan are available at [https://www.portofoakland.com/files/PDF/2020%20and%20Beyond%20Plan%20Vol%20II%20\(1\).pdf](https://www.portofoakland.com/files/PDF/2020%20and%20Beyond%20Plan%20Vol%20II%20(1).pdf)

⁹<https://www.edf.org/sites/default/files/documents/African%20American%20Communities%20and%20Climate%20Change.pdf>

establishes the planning and policy framework as well as the implementation plan to transition to a zero-emissions seaport. The project is a component of the 2020 and Beyond Plan's Near-Term Action Plan, as described in Section 5.3. 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 that the Port take a leadership role in developing the infrastructure necessary to enable the transition to zero-emissions vehicles and equipment. The Port has also collaborated with the community and the City of Oakland to prepare two truck management plans that address the direct impacts of truck travel and parking in the community.^{10,11}

In 2018, the West Oakland community was selected as one of the first communities to develop a Community Air Protection Program (CAPP or Program) under California Assembly Bill (AB) 617. The Program's focus is to reduce exposure in communities most impacted by air pollution. The Program enables selected communities to work together to develop and implement new strategies to measure air pollution and reduce health impacts. The Port has been a participant in the West Oakland air quality planning process since its inception. The West Oakland Community Action Plan (WOCAP)¹² was completed in 2019. The Port continues to participate in implementation of the WOCAP. The project partially implements Strategies 19 (removing barriers to adoption of zero emissions trucks, including charging equipment) and 37 (supporting the transition to zero emissions drayage truck operations and investing in needed upgrades to the Port's electrical infrastructure) of the WOCAP.

In addition to its direct engagement with stakeholders in the community, the Port of Oakland implements best practices to ensure its activities are fully compliant with Title VI of the Civil Rights Act of 1964 and other equal access laws. The Port of Oakland'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

¹⁰ The Comprehensive Truck Management Plan is available at https://www.portofoakland.com/files/PDF/maritime/ctmp/CTMP_final_090616.pdf. The plan and other information related to truck management at the Port of Oakland is available on the Port's Comprehensive Truck Management Program website at <https://www.portofoakland.com/port/seaport/comprehensive-truck-management-program/?lang=zh>.

¹¹ The West Oakland Truck Management Plan, a joint effort of the Port of Oakland and City of Oakland, is available at <https://www.portofoakland.com/files/PDF/TMP%20layout%205.17.19-Web.pdf>

¹² <https://www.baaqmd.gov/~media/files/ab617-community-health/west-oakland/100219-files/final-plan-vol-1-100219-pdf.pdf?la=en>

- Coordination of planning processes, especially where multiple levels of oversight exist, public processes to 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 reasonable accommodations

4.4 Merit Criterion D: Advancing Racial Equity and Reducing Barriers to Opportunity

The Port of Oakland is structured to ensure all individuals benefit from Port and federal funds. Port initiatives and staff specifically monitor and address:

- Compliance with state and federal wage rate requirements
- Employment and equal opportunity complaints
- Bid preferences to encourage inclusion of small and local businesses
- Job creation (especially for economically distressed areas)
- Local hours and apprenticeship goals
- Environmental health, safety and justice concerns (especially as they affect traditionally marginalized communities)
- **Port's Living Wage Policy:** The Port living wage is an hourly wage level adopted by some local governments that set wages at a higher level than the local, federal and/or state minimum wage.
- **Port's MAPLA (Maritime and Aviation Project Labor Agreement):** MAPLA is an agreement between the Port of Oakland and the Alameda Building and Construction Trades Council that promotes project stability, construction efficiency and local hiring opportunities on all Port projects over \$150,000 that are a part of the Port's Capital Improvement Program (CIP). Contractors are required to pay \$0.30 per work hour into a Social Justice Trust Fund that is used to support local workforce development programming.
- **Port's Operations Jobs Policy tenets:** (Fair Chance hiring, local hiring preferences/focus on disadvantaged workers and temporary worker protections). In 2017, the Port of Oakland Commissioners passed an Operations Jobs Policy for the Seaport Logistics Complex with Centerpoint Logistics, Inc. Key aspects of this jobs agreement include living wages and benefits for workers, priority consideration for unemployed individuals, armed forces veterans, single parents, ex-offenders, and foster care adults; and a ban on asking applicants about prior criminal offenses.
- **Local, small, and disadvantaged business utilization policies:** The Port has bid preferences and goals for including local, small and disadvantaged businesses on Port projects.

The Port of Oakland consistently reviews its policies and strategies to ensure all communities continue to have access to opportunities provided by Port and federally-funded projects.

In 2018, the Port hired a Workforce Development manager to support workforce policies and initiatives that expand economic opportunities for local impact area (LIA) residents. The LIA (consisting of the Cities of Oakland, Alameda, San Leandro, and Emeryville) encompasses areas most likely to experience benefits and adverse effects of Port operations. The Port's Workforce Development Manager is also tasked with strengthening education and training partnerships, and aligning workforce policies and initiatives with the opportunities created by a transition to a zero-emissions Port. The Port adopted a Workforce Development Plan as part of its 2020 and Beyond Plan. The Workforce Development Plan includes a framework that allows for growth, change, and innovation to support the pathway to a zero-emissions Port while playing a central role in the convening of partners, including state, local, and educational institutions.

The Port has a long history of implementing programs, policies, and initiatives that promote access to Port and Port-related careers, with a focus on reaching workers from communities defined as disadvantaged as a central part of the Port's mission. The Port of Oakland has been at the forefront in pioneering job creation and access to good paying jobs with an intentional focus on mitigating barriers towards employment since 2000, when the Port of Oakland adopted the region's first MAPLA with the Building and Construction Trades in Alameda County (BTC). Over the next two decades, the Port of Oakland continued to strengthen workforce initiatives and policies to increase economic opportunities for disadvantaged workers with a clear focus on diversity, equity and inclusion.

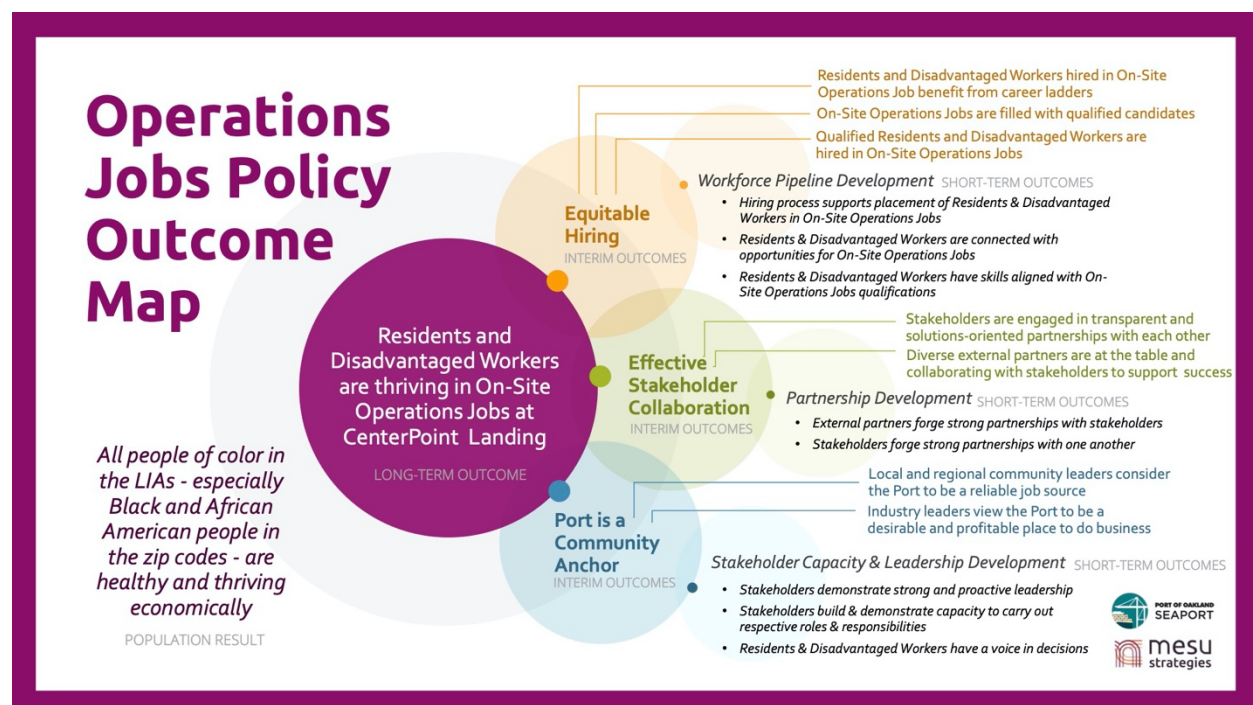
In the aftermath of Prop 209 Affirmative Action, the Port of Oakland negotiated the first regional public agency project labor agreement (PLA) that included hiring goals for the local impact (LIA) areas (consisting of the Cities of Oakland, Alameda, San Leandro, and Emeryville); local impact areas are those most likely to experience the adverse effects of Port operations, such as traffic and noise. The MAPLA goals are a target to be achieved, and are designed to help reassessment and improvement of local hiring strategies. The Social Justice Committee meets monthly to monitor contractor performance and provide recommendations to assist contractors with achieving their MAPLA requirements. MAPLA also requires construction contractors to contribute into a trust that funds community-based organizations that provide training for construction sector jobs to low-income residents in the Port's LIA.

In 2016, the Port of Oakland issued a 5-year extension of MAPLA that included enhanced commitments that doubled the hourly contractor contributions from \$0.15 to \$0.30 cents; over \$590,000 has been awarded to community-based training programs that serve under-represented job seekers in the Port's LIA. The Port also strengthened language in MAPLA where the building trades unions commit to increase recruitment from the Port's LIA into the "list trades" and included goals for Disadvantaged Workers. The list trades provide access to some of the highest paying jobs in construction. During the period between 2017 to 2020 over 300 Port LIA residents joined the list trades (comprised of sheet metal workers, electricians, plumbers/pipefitters, glaziers, and elevator constructors). MAPLA compliance and tracking is central to ensuring accountability and commitment to serving our LIA residents. Below is a

snapshot of the 2016 to 2020 achieved goals. (Note: Construction industry impacted by 2020 pandemic.)

	2016 MAPLA July 2016 - June 2020		
Total hours worked	983,450		Goal
LIA residents	285,716	29.05%	50%
LIA apprentices	98,556	10.02%	20%
DW app (new goal)	32,381	21.25%	25%
NHA app (new goal)	27,274		N/A

In 2017, the Port adopted the Operations Jobs Policy (Jobs Policy) that included a Cooperation Agreement focused on equity, access, and good paying jobs on the CenterPoint Landing Project, a warehousing development. The project is near completion and pending a new tenant/employer by the fall of 2021. The language in the Jobs Policy specifically focuses on local hire preferences, “ban-the-box” prohibiting employers from asking about prior criminal offenses, special consideration for disadvantaged residents, living wages and benefits for workers, limits on the use of temporary agencies, support to local community-based workforce partners to conduct outreach, recruitment, job training/placement, and the creation of the Jobs and Stakeholder Working Group (SWG) to support implementation of the agreement.



The SWG is driven by a vision in which all people of color in Oakland and the East Bay are healthy and thriving economically. This vision is rooted in an understanding of longstanding and

racialized social and economic inequities in the region. The SWG recognizes that to get there, the Port and its partners must achieve important outcomes around leadership, equitable hiring and institutional change. These key factors are important supports to the specific details outlined in the policy.

The SWG includes diverse and engaged local and regional community leaders, including representatives of the Port, its tenants, labor groups, and representatives of local neighborhoods. The SWG serves as an advisory body to the Port of Oakland. It provides technical expertise, analysis and recommendations to ensure that Port workforce decisions help transform low-income LIA neighborhoods into stable, healthy, thriving communities of opportunity.

The Port's Workforce Development manager also coordinates several workforce initiatives including: an inter-agency project labor agreement (PLA) research project in partnership with the San Francisco Foundation called "Improving Effectiveness of PLAs". The primary focus of this research project is to identify strategies for diversifying the construction workforce through PLAs. Phase I of the research was concluded in early 2021 and through a collaborative stakeholder process performed a scan of PLAs and Community Benefits Agreements nationally; interviewed current and former trade workers representative of Black/Indigenous/Brown People of Color (BIPOC) to better understand their lived experiences in the construction industry; conducted a labor demand and supply analysis of the local building trades, apprenticeship and pre-apprenticeship programs; assessed public agencies certified payroll data; reviewed construction demand forecasts; and generated findings supported by the recommendation below.

Recommendations

No.	Recommendation
1	Set Data-Driven Workforce Goals
2	Establish Clear Responsibilities for Achieving Workforce Goals
3	Collect Data to Track Progress on Workforce Goals
4	Enforce to Ensure Progress on Workforce Goals
5	Support the Retention and Advancement of Diverse Workers
6	Coordinate Ongoing Support for Diverse Workers
7	Collaborate on a Regional Level to Create a Diverse workforce

Phase 2 of the research project will center on the development of an action and sustainability plan that will prioritize the most effective and efficient implementation of the recommendations. This work is conducted in collaboration with the Port's MAPLA Joint

Administrative and Social Justice Committee, an oversight body comprised of labor, management, union, and community representatives.

4.5 Merit Criterion E: Leveraging Federal Funding to Attract Non-Federal Sources of Infrastructure Investment

As shown in Table 1, the proposed cost share is 41% non-Federal, 59% Federal. The Port's cost-share is equivalent to constructing the modern substation without the renewable energy elements, and constructing Circuit 2 (\$9.15 million). The Federal cost-share would pay for the renewable energy elements (\$10.70 million), which are not within the Port's financial capacity at this time and would therefore have to be constructed at a later date if Federal funding is unavailable.

Federal and State grants are commonly available to support the purchase of zero-emissions equipment, and to a lesser degree, support the construction of charging infrastructure. The Port has not identified other applicable grant programs that support the construction of utilities required to safely support the equipment and charging infrastructure.

5.0 Project Readiness

The Port has extensive experience working with federal agencies to deliver projects. The funds can easily be obligated and expended within the timeframes desired by DOT, and potential project risks are low.

5.1 Project Schedule

The project schedule is shown in Figure 3. The Port anticipates that all necessary approvals will be completed by June 2022. Design will occur concurrently with obtaining approvals, i.e., prior to obligation of funds. The construction phase is expected to begin in mid CY2023.

Approvals and Design. Design is expected to commence in October 2021 and to be conducted concurrently with the two necessary utility reviews by PG&E - the interconnection and facilities studies. These studies are required to allow interconnection of the clean energy generation elements of the project with PG&E's grid. These studies are routine reviews conducted pursuant to requirements imposed by the Federal Energy Regulatory Commission and are usually completed by PG&E within 12 to 18 months of notification. Because PG&E and the State of California are committed to increasing the state's clean energy supply, the clean energy features of the project may lead PG&E to prioritize the studies it will need to prepare an interconnection agreement with the Port.

NEPA review will be the primary schedule driver for obligation of funds. As described below (see Section 5.4), due to the nature and location of the project, the only environmental permit that is required is a construction general stormwater permit that will be obtained by the contractor during mobilization. California Environmental Quality Act Review has been completed. The Port anticipates that NEPA review by MARAD would consist of a Categorical Exclusion (see Section 5.4), which can be completed quickly.

Pre-Construction Phase. The Port would advertise the project once grant funds have been obligated, and expects to complete the contracting and award process within 4 months. Notice to proceed would follow approximately 3 weeks later, after necessary preconstruction submittals have been received. The preconstruction submittals would include an equipment procurement plan to ensure that necessary substation components are available on a timely basis. Contractors would be required to initiate acquisition of all long-lead time items immediately upon the Port's review of the equipment procurement plan. During this time, the contractor would also obtain the construction stormwater permit and other construction-related ministerial permits (e.g., required City of Oakland building permits).

Construction Phase. Following receipt of City construction permits (expected to require 2 months), mobilization would require approximately one week, and would be followed by initial site work for the substation and Circuit 2. Site work will partially overlap with material procurement. Construction of the fuel cell and solar array and battery storage would also begin immediately following mobilization. Once all required equipment is in place, the substation would be constructed and commissioned. Demolition of the existing substation would occur immediately after the new substation is operable. Construction of the connection to the EBMUD biomass generator would follow the completion of Circuit 2.

5.2 Project Risk

Potential risks associated with the design and construction of the project are low. Budget risk is low because the Port has set aside budget for the substation and Circuit 2 in its capital improvement program,¹³ has adequate cash reserves to pay for those elements, is familiar with the subsurface conditions in the project area, and as a long-term public utility has experience building electrical infrastructure. Schedule risks are associated with potential delays in receiving the necessary approvals and/or being able to obtain needed equipment. Because the project would be constructed on Port land and is an electrical infrastructure project involving replacement of an existing substation, only limited approvals are required (see Section 5.4). Therefore, schedule risk due to delays in approvals is low; the Port can draw on its on-call consultants if MARAD requires assistance completing the NEPA review.

The primary project construction risk is associated with the ability to obtain needed equipment; however, multiple vendors are available to provide required equipment items. As shown in the project schedule (see Figure 3), design would be completed by May 2022. Following obligation of the funds, construction, including the contracting process, is expected to require 2 years, easily allowing for all obligated funds to be expended within 5 years of obligation, even should

¹³ The funds for replacement of SS-R-14 and Circuit 2 were approved as part of the Capital Improvement Budget authorized by Port Board of Commissioner's Resolution 21-39; the two project have specific, near-term line-item budgets on p.113 of the Budget Summary.

there be substantial delays in obtaining needed components. The two-year project construction period includes a 6-month equipment acquisition period for more complicated components.

The project would be constructed at the former Oakland Army Base, which is known to have areas of subsurface contamination. Trenching for utility lines could encounter contaminated soil. As detailed in Attachment 4, however, there is an established, approved process for addressing any subsurface contamination that may be present. This process is managed by the Port's Environmental Compliance Manager in the Port-owned areas of the Oakland Army Base. Any necessary remediation can readily be completed as part of construction, and will not result in any unanticipated delays.

The potential risk associated with operation of the project is a lack of demand for the incremental power supply until electric trucks and yard tractors are more broadly adopted. The Port intends to use the incremental power on an interim basis to provide ship power to layberthing vessels, and will establish an interconnection to the PG&E grid.

5.3 Technical Capacity

The Port of Oakland has successfully managed, on an ongoing basis, numerous state, federal, and local grants, including current federal Airport Improvement Program (AIP) grant dollars for critical upgrades and maintenance work on airport facilities. Over the past decade, in fact the Port of Oakland has successfully received and deployed over \$191 million in AIP funding from the Federal Aviation Administration. The Port also successfully managed two separate TIGER grants (awarded in 2009 and 2012, respectively) for the initiation of the Port's shore power program and later for the development of a rail facility that expanded the intermodal capability of the Port's cargo throughput. The Port of Oakland also has regularly and successfully managed projects through multiple funding rounds of the Port Security Grant Program, administered by the Federal Emergency Management Agency.

The Port routinely retains the services of specialized technical consultants to supplement its staff, and maintains on-call, task-order contracts for specialized tasks, including engineering design, energy efficiency, renewable energy implementation, and environmental planning (NEPA/CEQA and environmental permitting) that enable the Port to quickly obtain assistance with specific projects, as needed.

Feasibility and Constructability. The proposed project is highly feasible and constructible. As discussed previously, all work would occur on Port property, and only limited routine approvals, such as City of Oakland building permits, are required. In terms of constructability, there is a substantial pool of qualified contractors in the Port's LIA/LBA who are qualified to perform timely and expert work. As shown in the schedule in Figure 3, there is ample time to construct the project within the 5 year-period required by the grant.

Compliance with Federal Requirements. The Port has a full-time grants coordinator who tracks and manages the requirements of grant funding and works with respective Port project

managers to ensure the accurate and timely deliverability of each grant program. The Port of Oakland is in regular compliance with all state and federal audits of grant funding. The Port's engineering and environmental planning and permitting divisions ensure that each project meets all applicable safety, construction, and environmental requirements. Port inspectors monitor all construction projects to ensure the project's compliance with applicable requirements.

Project Relationship to On-going Planning Efforts. The project is an integral part of several planning efforts. The Port's 2020 and Beyond Plan, the City of Oakland's Equitable Climate Action Plan, and the West Oakland Community Action Plan (WOCAP) all call for increased electrification of Port-related trucks and cargo-handling facilities, and increased availability of ship power. The project directly addresses two implementing actions in the 2020 and Beyond Plan Near-Term Action Plan (Action #9 - *Replace Electrical Infrastructure That is Beyond its Serviceable Life*, and Action#10 - *Port Electrical Grid Reliability and Capacity Upgrades*), part of Strategy 37 in the WOCAP, and Port of Oakland Actions 1 (Reduce Emissions from Port Vehicles and Equipment) and 2 (Reduce Emissions from Electricity) in the ECAP. The 2020 and Beyond Plan also includes Action #2 - *90% Shore Power Use*, which focuses on continued efforts by the Port to work with ocean carriers and tenants to improve plug-in rates. Providing ship power for the one tug operator who currently does not have access to shore power would further this objective. As stated before, the Port Board of Commissioners adopted the 2020 and Beyond Plan as Port policy in June 2019.

5.4 Environmental Approvals

The project enjoys broad public support as evidenced by the letters of support included as Attachment 2. Supporters of the project range from the Bay Area Air Quality Management District to a wide spectrum of maritime and related commercial interests. The project is not dependent on or affected by any USACE investment or USACE planning activities.

NEPA and CEQA. The project is located in a commercial Port area, and there are no sensitive environmental resources at the project location or in the immediate vicinity of the project location. Consequently, the potential for environmental impacts from the relatively minor footprint of construction associated with the project is low. The project provides substantial environmental benefits.

CEQA. The 2002 Oakland Army Base Area (OAB) Area Redevelopment Plan Environmental Impact Report (2002 OAB EIR)¹⁴ evaluated the potential impacts of redevelopment of the 1,800-acre redevelopment area, including the former OAB and the Maritime sub-district. The EIR was certified by the lead agency, the City of Oakland, in July 2002. On September 17, 2002,

¹⁴ 2002 OAB EIR

<https://www.oaklandca.gov/resources/2002-oakland-army-base-redevelopment-plan-eir>

the Board of Port Commissioners, acting on behalf of the Port of Oakland as a responsible agency under CEQA, adopted findings and the mitigation program in the City's EIR (Resolution No. 02317). In 2012, the City of Oakland, in consultation with the Port, issued an Initial Study/Addendum¹⁵ to the Redevelopment EIR to evaluate proposed changes to the redevelopment plan. The resulting updated Standard Conditions of Approval/Mitigation Monitoring and Reporting Program (SCA/MMRP) was adopted by the Board of Port Commissioners on June 21, 2012 (Resolution No. 12-76). The OAB EIR, as inclusive of the addendum, includes implementation of utility improvements and relocations such as those included in this proposal. Construction and operational impacts would be the same as described in the 2002 OAB EIR inclusive of the addendum. This action does not trigger any of the conditions set forth in Section 15162 of the CEQA Guidelines, and no further CEQA review is required.

NEPA. NEPA review has not been completed. Due to the small physical footprint of the effort and low level of impacts, the Port expects the project to qualify for a Categorical Exclusion under NEPA (MARAD Categorical Exclusion (CatEx 4) described in MAO 660-1).¹⁶ CatEx 4 covers projects that involve "Reconstruction, modification, modernization, replacement, repair, and maintenance (including emergency replacement, repair, or maintenance) of equipment, facilities, or structures which do not change substantially the existing character of the equipment/facility/structure." The small footprint of the fuel cell and storage battery components of the project would not substantially change the existing character of the facility, nor would the proposed extensions of Circuit 2, or roof-top solar cells on a new warehouse within the Port area. Should MARAD determine that a more detailed NEPA review is required, a focused EA could be readily completed within 120 days.

Federal Permits and Approvals. The project does not require any federal permits. Power generated by the project would use the established Wholesale Distribution Tariff (WDT) as approved by the Federal Energy Regulatory Commission (FERC).

State Permits and Approvals. The project does not require any state permits. To connect to the existing PG&E grid, the project will need to notify PG&E so that PG&E can perform an interconnection study and a facility study. All necessary information required for notification is on hand and the Port anticipates notifying PG&E by November, 2021. The two studies typically require a total of 12 to 18 months. To connect to the PG&E grid the Port will also need to negotiate an interconnection agreement with PG&E. These activities will occur in parallel with design and construction. Because the Port is a public utility, it is able to complete any work on

¹⁵ 2012 Addendum

<https://cao-94612.s3.amazonaws.com/documents/Army-Base-Initial-Study-052912.pdf>

¹⁶ <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/environment-security-safety/office-environment/596/mao600-001-0.pdf>

its system and run its system without outside approvals. The studies and interconnection agreement are only required to tie into the PG&E grid, which would occur following completion of construction.

Local Permits. Prior to the start of construction, the contractor will be required to prepare a stormwater pollution prevention plan and obtain a Construction General NPDES permit consistent with the level of risk posed by project construction. NPDES permits are routine activities and will readily be accomplished as part of the mobilization and pre-construction process. The City of Oakland will issue building and other construction-related permits for the project.

5.5 Risk Mitigation

As described in Section 5.2, the primary construction-phase risk is due to the possibility of an extended lead time for procuring certain project equipment (e.g., switch gear). During design, the Port will identify equipment items that may have a long procurement lead time. The Port will require the selected construction contractor to prepare an equipment procurement plan as part of its pre-construction submittals, to ensure that necessary substation components are available on a timely basis. To account for procurement uncertainty, the project schedule includes an extended equipment procurement period for substation components.

Because NEPA has not been completed, the Port would work with MARAD to develop the required documentation immediately upon notification of award. The Port would prepare the project description, and work with MARAD to either document the applicability of MARAD CatEx 4 or to develop a focused Environmental Assessment (EA). Because the required CEQA documentation has been completed, most of the information that needed to prepare an EA is readily available.

6.0 Domestic Preference

The project will meet the Buy American requirements for all equipment purchased for the project. All equipment will be 100% manufactured domestically, and will have a greater than 50% domestic content for individual components as required by the Buy American Act. The Port reached out to multiple vendors to ensure that more complex equipment, such as switchgear, meeting the Buy American requirement is available, and was able to determine that at least four different vendors are able to supply the equipment. The contacted vendors are also familiar with the Buy American requirements.

7.0 Determinations

7.1 Determination 1 - The Project Improves the Safety, Efficiency, or Reliability of the Movement of Goods through a Port or Intermodal Connection to the Port

The project will improve both the efficiency and the reliability of the movement of goods through the Port of Oakland. The project is located within the Port of Oakland's maritime area

(see Figures 1 and 4). The efficiency of the movement of goods will be facilitated through increased deployment of electrically-powered trucks and yard tractors as well as provision of ship power for layberthing and cold-ironing of tugs. Safety is increased by replacing an end-of-life substation and its associated Circuit 2 with a new, modern substation and upgraded circuit. Adding several forms of renewable energy supplies to provide a portion of the power for the substation increases the reliability of the electrical supply at the Port of Oakland. The project as proposed also provides the opportunity backflow power to other portions of the Port and the local PG&E grid, depending on specific circumstances and demand, thereby further increasing the reliability of goods movement (e.g., this substation could provide power to container cranes if the power supply to another substation is interrupted, or could help keep the lights on and air conditioners working in some areas of the community during PSPSs).

Efficiency will be improved because the project is required to further electrification of Port-related operations in the substation's service area and beyond. By adding capacity to power 66 electric truck chargers and 12 yard tractor chargers, the proposed substation would increase the ability to deploy battery-electric trucks and yard tractors. Electrically-powered vehicles are more efficient because they require less energy to accomplish the same level of goods movement, and also require less maintenance. A GeorgiaTech study concluded that "in urban settings with a lot of stop-and-start driving, electric trucks are roughly 50 percent more efficient to operate than diesel trucks overall."¹⁷ Trucks serving the Port area also have a stop-and-start driving pattern, with extended idle periods during which electric vehicles use only a minimal amount of power.

7.2 Determination 2 - The Project is Cost Effective

As shown in Section 4.2 and in Attachment 1, the project has a BCR of 2.62:1, and therefore is considered cost-effective.

7.3 Determination 3 - The Eligible Applicant has the Authority to Carry out the Project

The Port of Oakland is a department of the City of Oakland governed and managed by the Board of Port Commissioners ("Port Board") and its appointed staff. Under the Charter of the City of Oakland ("City Charter"),¹⁸ the Port Board has the "complete and exclusive power":

"To take charge of, control, and supervise the Port of Oakland, including all the water front properties, and lands adjacent thereto, or under water, structures thereon, and approaches thereto, storage facilities, and other utilities, and all rights and interests

¹⁷<https://ce.gatech.edu/node/6238#:~:text=In%20urban%20delivery%20routes%20with,emissions%20by%20roughly%2050%20percent.>

¹⁸ https://library.municode.com/ca/oakland/codes/code_of_ordinances?nodeId=THCHOA
THE CHARTER OF THE CITY OF OAKLAND | Code of Ordinances | Oakland, CA | Municode Library

belonging thereto, which are now or may hereafter be owned or possessed by the City, including all salt or marsh or tidelands and structures thereon granted to the City in trust by the State of California for the promotion and accommodation of commerce and navigation.”

As the above dictates, the Port Board has control over tidelands that were granted to the City by the State of California in trust and/or acquired with trust proceeds (“State Tidelands”). All such State Tidelands and other properties over which the Port Board has control and jurisdiction are referred to as the “Port Area” in the Charter. The Port Area includes the Oakland International Airport, the seaport, Jack London Square, and (with some exceptions) public lands along the Oakland waterfront. All of the property on which the project would occur is within the “Port Area.”

7.4 Determination 4 - The Eligible Applicant has Sufficient Funding Available to Meet the Matching Requirements

The Port of Oakland is a financially sound organization with a stable revenue base and a firm financial standing. The Port’s liquidity position, comprised of both unrestricted cash and Board reserves, remains strong and provides the Port the financial flexibility to adapt and respond to COVID and other future operational and financial challenges. Furthermore, Port operations are supported by a strong and diverse local economy. The Bay Area continues to be an important center of commerce, and the Port remains an important, key gateway for both domestic and international trade and a top travel destination.

The total project cost would be \$19,855,000 including contingency. The Port of Oakland 2021 CIP, adopted by Board Resolution 21-39, allocates funding for replacement of the substation and Circuit 2, a total of \$9,150,000. The Port can therefore easily provide the minimum 20% cost match of \$3,971,000.

Cost	Port Funds	Port Leverage %	Federal Funds	Federal Leverage %	Other Federal Funds	Non Federal (non-Port) Funds
\$19,855,000	\$9,150,000	41%	\$10,705,000	59%	None	None

7.5 Determination 5 - The Project Will be Completed without Unreasonable Delay

As shown in Figure 3 and discussed in Section 5.1, the Port is prepared to move ahead quickly with the project, and anticipates having met all obligations for award of funds no later than June 2022. Design would be completed by May 2022. The procurement process for construction would therefore begin immediately upon obligation of grant funds. Construction would be completed within 2 years of grant award. Deadlines for obligation and expenditure of grant funding/project completion can easily be met; there is a considerable float in the schedule with regard to both deadlines. There are few regulatory approvals that would be

required prior to construction. The anticipated construction period, including contracting and an extended equipment procurement period, is approximately 2 years, easily allowing for all obligated funds to be expended within 5 years of contract award.

7.6 Determination 6 - The Project Cannot be Easily and Efficiently Completed without Federal Funding or Financial Assistance Available to the Project Sponsor

The Port of Oakland has made an ambitious commitment through its Seaport 2020 and Beyond Air Quality Plan to implementing, wherever technically and economically feasible, programs and projects which will further carbon-neutral transportation initiatives that have a co-benefit of reducing diesel emissions that negatively impact surrounding communities. The purpose of this grant initiative is to advance and accelerate, in partnership with the federal government, the ability of the Port of Oakland to accommodate a range of electric-powered equipment used broadly throughout the Seaport, and for which the Port has seen and continues to forecast significant growth and power demand.

Effect on Project Scope and Schedule. The Port has included sufficient preliminary engineering, design, and pre-construction funding in its Board-approved multi-year Capital Improvement Program to initiate the planned core upgrades for this sector of the Port's electrical utility network, that is, the replacement of Substation SS-R-14 with a modern substation, and the replacement of Circuit 2. While these core project elements would be designed and constructed to accommodate the proposed renewable energy features, failure to receive federal funding through the PIDP program would delay the design and construction of the renewable energy features of the project, including additional solar generation capacity and energy storage capability. The prolonged construction schedule is due to lack of funding capacity for this program, when balanced against the many other ongoing maintenance and infrastructure needs throughout the Seaport. This would significantly delay many of the near-term benefits envisioned by this project, including increased energy resilience, transformative climate change impacts, and reduction of diesel emissions within the region.

Effect on Project Cost. It would be more cost-effective to complete all of the work as part of one construction project, rather than to construct the project in several phases as additional Port funding could be made available. The precise effect on project costs cannot be quantified, but would include increased design, inspection, supervision, and contract management costs.

ATTACHMENTS

Attachments are provided as separate files.

Attachment 1 - Benefit-Cost Analysis is comprised of the Narrative (*Port of Oakland BCA Narrative 7-30-2021*) and the Excel Workbook showing cost and benefit calculations (*Port of Oakland Consolidated BCA Workbook 07-30-2021*)

Attachment 2 - Letters of Support is the file entitled *Port of Oakland Project Narrative Attachment 2 - Letters of Support 07-30-2021*

Attachments 3 - 5 are contained in one file named *Port of Oakland Project Narrative Attachments 3 - 5 07-30-2021*

- Attachment 3: Policies, Plans, and Outreach Documentation Related to Advancing Racial Equity and Reducing Barriers to Opportunity
- Attachment 4: Remediation Process and Requirements
- Attachment 5: Extreme Heat Event Proclamations