ALASKA ENERGY AUTHORITY

Grant Application

U.S. Department of Transportation

Maritime Administration

Port Infrastructure Development Program

May 16, 2022

Contents

Appendices

Introductory Information

Field Name	Guidance
Name of applicant	Alaska Energy Authority (AEA)
Is the applicant applying as a lead applicant with any private entity partners or joint applicants?	Yes, AEA is applying as lead applicant with Chugach Electric Association, Inc. (Chugach) and Princess Cruise Lines, Ltd.
What is the project name?	Whittier-Chugach Cruise Terminal Electrification Project
Project description	The project will provide shore power to a cruise terminal in Whittier, Alaska. It will include upgrade of 5 miles of new power feed line, installation of transformers near the dock, and installation of equipment on dock to allow vessels to utilize shore power when in port. The project will also include installation of an electric vehicle charging station near the dock.
Is this a planning project?	No. This is not a planning project.
Is this a project at a coastal, Great Lakes, or inland river port?	The project is at a coastal port.
GIS Coordinates (in Latitude and Longitude format)	60°46'42.0"N 148°41'47.9"W
Is this project in an urban or rural area?	The project is in a rural area
Project Zip Code	99693
Is the project located in a Historically Disadvantaged Community or a Community Development Zone? (A CDZ is a Choice Neighborhood, Empowerment Zone, Opportunity Zone, or Promise Zone.)	No, the project is not located in a Historically Disadvantaged Community, a Choice Neighborhood, an Empowerment Zone, Promise Zone or Opportunity Zone.
Has the same project been previously submitted for PIDP funding?	The project has not been submitted previously for PIDP funding.
Is the applicant applying for other discretionary grant programs in 2022 for	The applicant is not applying for other discretionary grant programs for this or related scopes of work.

Field Name	Guidance
the same work or related scopes of work?	
Has the applicant previously received TIGER, BUILD, RAISE, FASTLANE, INFRA or PIDP funding?	The applicant previously received a BUILD grant in 2020.
PIDP Grant Amount Requested	$10,000,000
Total Future Eligible Project costs	$14,100,000
Total Project Cost	$14,100,000
Total Federal Funding	$10,000,000
Total Non-Federal Funding	$4,100,000
Will RRIF or TIFIA funds be used as part of the project financing?	No, RRIF or TIFIA funding will not be used for the project.

Project Narrative

Section I: Project Description

Overview

The Whittier-Chugach Cruise Terminal Electrification Project (WCCTEP) will upgrade the passenger cruise vessel dock in the City of Whittier, Alaska, to provide shore power directly to cruise ships. This will enable the ship to not depend solely on its own diesel sources aboard for power generation while in port. The project also involves installation of an electric vehicle charger for surface vehicles.

This project is eligible for the FY2022 PIDP grant offering as an emission mitigation measure that provides "for the use of shore power for vessels to which sections 3507 and 3508 of title 46 apply." It also is eligible for a Small Project at a Small Port set-aside, given the port does less than 8 million short tons of cargo and project applicant is requesting less than $11.25 million. Last, the project location is at a port in a noncontiguous state, making the project eligible for consideration of all funds to this program by the FY2022 omnibus appropriations law.

The lead applicant, Alaska Energy Authority (AEA), is a corporation of the State of Alaska and is an eligible applicant for PIDP grants. It has received a USDOT BUILD grant in 2020. Other project partners include Chugach Electric Association, Inc. (Chugach), a regional nonprofit power cooperative; and Princess Cruises, a private cruise vessel operator that leases the cruise dock site.

Project details

The shore power project is comprised of a single component with independent utility. It will be conducted by completion of two elements, each performed by different project partners, in different locations. The first element involves upland improvements to bring electric power to the dock. The second element is the development of infrastructure at the dock site itself. Both project elements must be completed to effectuate the desired project outcomes.

Upland improvements

The upland improvements will ensure a seamless and adequate power link from the nearest substation, in Portage, AK, some 14 miles away, to the cruise dock at Whittier.

To accomplish this, three sub-elements must be performed: (1) portions of the feeder line outside of the Anton Anderson Memorial Tunnel must be upgraded; (2) voltage step-down equipment must be relocated to a location near the cruise dock; and (3) specific equipment must be installed to support electric vehicle charging station.

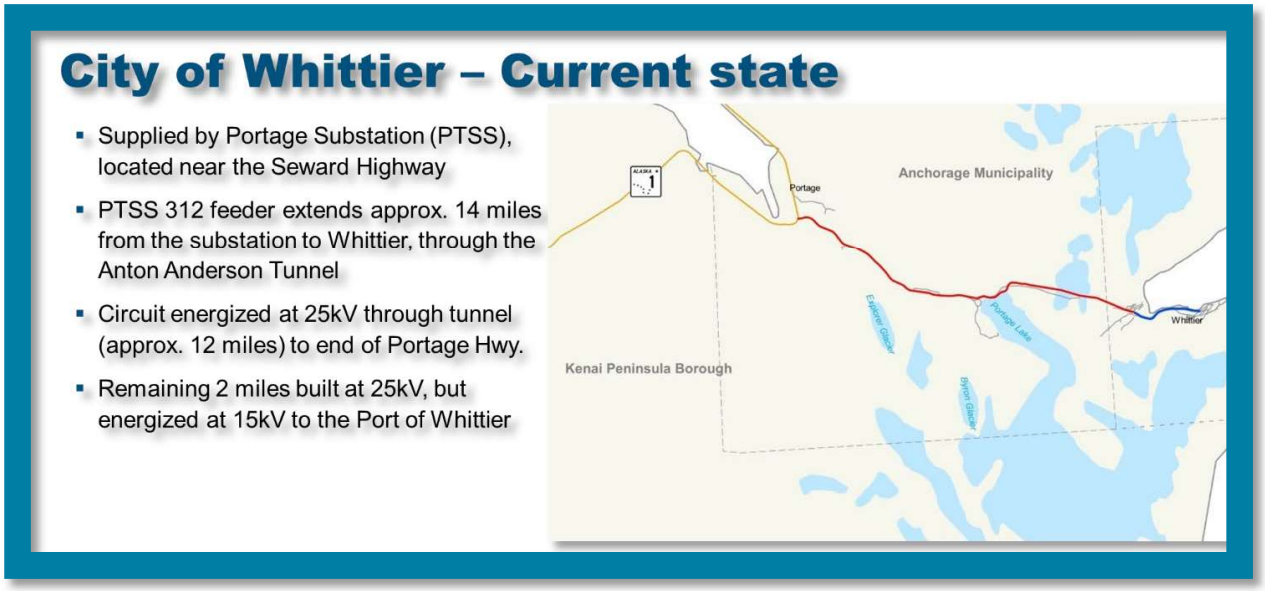

***Figure 1**. The feeder line between Portage and Whittier requires improvements to handle 35kV.*

Rebuild feeder: the feeder line consists of 91 structures of varying age and framing along the Portage River with multiple wetland and river crossings. This project shall reconductor the line using new or existing poles and framing insulated at 19.9Y/34.5kV (35kV). Chugach has identified the rough scope of these improvements, as referenced in Figure 1.

Relocate step-down location: to supply the required shore power load at 25kV, the existing step-down location (from 25kV to 15kV) will be relocated to a location near the cruise ship dock.

Install new transformer: The project shall also include the installation of a turnkey Level 3 Electric Vehicle Supply Equipment (EVSE) station and associated service equipment to be owned and operated by Princess. The EVSE shall be supplied by new padmount transformer connected to the existing medium voltage loop circuit via line extension.

Dock upgrades

The dock upgrades consist of three sub-elements, including a feeder utility equipment installation, shore power substation and conduit installation.

Feeder utility equipment installation: utility feeder equipment will be installed to accept dedicated 26 kV power from local utility infrastructure. This will include metering provisions and circuit isolation for supply to a turnkey cruise ship shore power system and EV charging stations.

Shore power substation: the cruise ship shore power system will be installed in an enclosed, climate controlled, structure. It will include 26 kV primary switchgear that feeds a 20 mVA oil-

filled substation transformer and automatic load tap changer, dual voltage 11/6.6 kV secondary shore power distribution equipment, and 2-stage power factor correction capacitor. Additional systems included in the substation will be DC station power batteries for substation control power, high impedance grounding resistors, patented shore power automation control system, and disconnect /grounding switches for safe handling of cables and circuit isolation.

Conduit install: 11/6.6 kV dual voltage secondary feeders will be installed in a conduit system from the substation to two (2) cruise ship shore power service locations positioned on the fixed floating pier. Each service location will incorporate a plug assembly (sawtooth) to be used with a mobile cable positioning device.

Current design status

Each of the project elements is at a preliminary design stage. Joint applicants have developed information to determine feasibility and estimate costs. Means and methods of project delivery have not been selected and optimized yet.

Project partner descriptions

The project will be managed by partners skilled in infrastructure project delivery. These include Alaska Energy Authority, a state corporation and WCTSPP joint applicants Chugach Electric Association, Inc., a nonprofit energy cooperative, which owns the power infrastructure; and cruise vessel operator Princess Cruises, which leases the dock and utilizes it for cruise operations. The project partners have formed a documented partnership to conduct this project, as detailed in the Memorandum of Understanding provided in Appendix A. Other stakeholders will benefit from the project, as detailed in Section IV.

Section II: Project Location

WCCTEP is located in City of Whittier, AK, and at points between Whittier and the Portage substation up to the entrance to the Anton Anderson Memorial Tunnel approximately five miles away from the cruise ship terminal. Whittier is located at the head of Passage Canal, which is on the western edge of Prince William Sound.

Whittier is a fairly unique community in Alaska: it is accessible by road, rail, and ferry. Whittier lies 58 miles from Anchorage, Alaska's largest population center. The roadway route includes passage through the Anton Anderson Memorial Tunnel – the longest highway tunnel in North America. The rail route on the Alaska Railroad from Whittier utilizes the same tunnel. Finally, the City is a deep water coastal port stop on the Alaska Marine Highway.

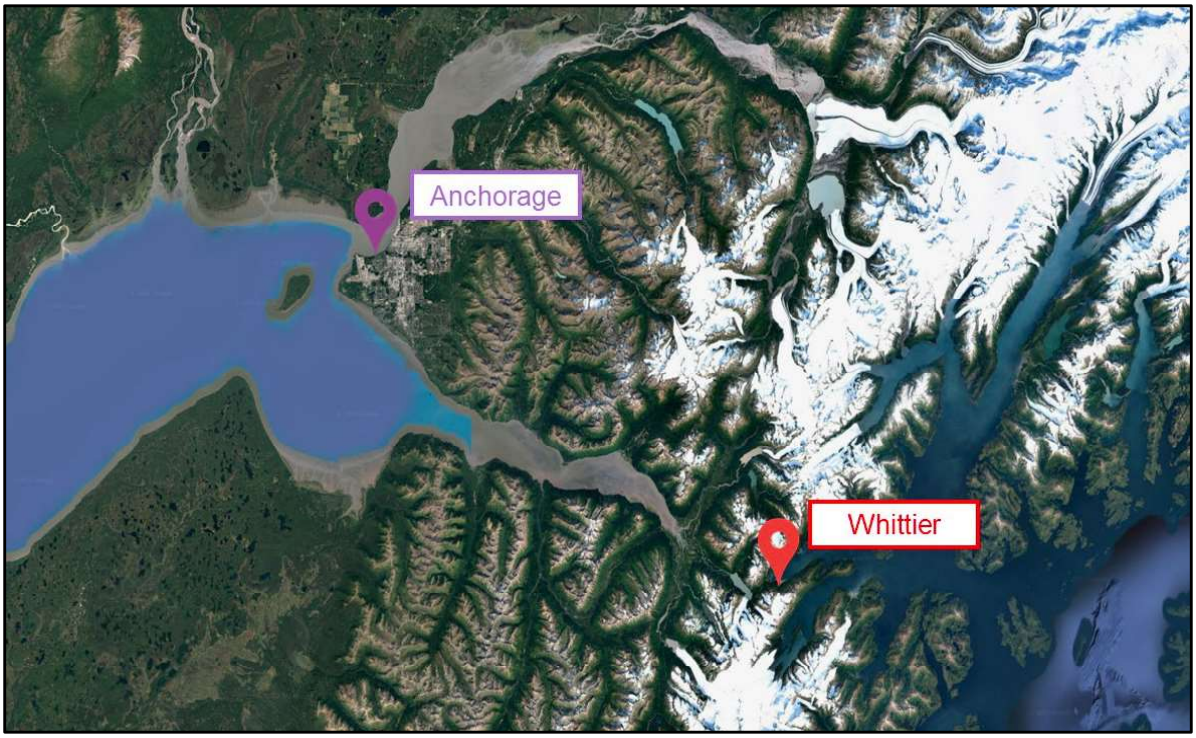

***Figure 2**. Showing Whittier relative to Anchorage. Whittier is 58 miles from Anchorage.*

***Figure 3**. Showing Whittier location vis-à-vis the State of Alaska.*

Whittier, Alaska, is in a rural area. Data from the 2020 Census indicates a total population of 272,[1] nearly all of whom live the same building—Begich Towers. The City's cruise dock has been a boon for commerce, as the City's population doubles during the summer cruise season.

***Figure 4**. The Whittier Cruise Dock is located adjacent to a small boat harbor and the Alaska Railroad line.*

***Figure 5**. Summer cruise season brings many tourists and additional economic activity to Whittier.*

[1] *Source*: https://data.census.gov/cedsci/profile?g=1600000US0284510

The WCTSPP is not located on a Historically Disadvantaged Community, nor any federally designated Community Development Zone. However, USDOT has designated Census Tract 3 as a resilience disadvantaged community.

Section III: Grant Funds, Sources and Uses of Project Funds

A. Budget

Cost category	Budget	PIDP funds	Non-federal match funds
Dock electrical improvements	$8,900,000	$6,900,000	$3,000,000
Project inspection fees ($134,000)			
Site work ($55,636)			
Construction ($2,869,960)			
Equipment ($3,289,181)			
Miscellaneous ($5,500)			
Contingencies ($2,279,320)			
Upland improvements	$4,700,000	$3,600,000	$1,100,000
Project inspection fees ($375,000)			
Site work ($90,000)			
Demolition and removal ($450,000)			
Construction ($1,970,000)			
Equipment ($790,000)			
Program management (5%)	$500,000	$500,000	0
TOTAL	**$14,100,000**	**$10,000,000 (71%)**	**$4,100,000 (29%)**

The budget is based on the following assumptions:

- Dock improvement design requirements will not require extensive changes to proven designs for shore power systems at other ports
- Contingency of 34% for dock electrical improvements scope of work

B. Sources and use of funds

All non-federal matching funds are committed to the project. See MOU provided in Appendix A for details.

Funding sources	Status	Amount	Cost percentage
Non-federal funds: • Chugach Electric funds: line extension credit	Committed	$1,100,000	29%
• Princess Cruises funds	Committed	$3,000,000	
MARAD PIDP funding	Upon grant award, pursuant to this application, submitted on May 16, 2022	$10,000,000	71%
	TOTAL	**$14,100,000**	**100%**

Section IV: Merit Criteria

A. Achieving safety, efficiency or reliability improvements

1. Loading and unloading of goods at a port

The project is not expected to directly impact the loading and unloading of goods at a port. However, investments into the shore power infrastructure at the dock could enable cargo vessels to utilize the dock during the winter season when no cruise operations are being conducted at the port. In addition, WCCTEP will facilitate the use by logistics companies of electric vehicles by creating the first EV charging station at the port and in the City of Whittier. Anchorage, some 60 miles away, is reported to have more than a dozen charging stations, and Alyeska, some 25 miles away has one as well. This buildout of a Level 3 commercial-grade fast charging station- capable of supporting electric trucks – can help support greater adoption of EVs in Alaska, including for freight transportation.

2. Movement of goods into, out or, around or within a port

WCCTEP will impact the movement of goods into, out or, around or within the port in several ways.

Helps improve freight efficiency for operators in Whittier

Since cruise operations at Whitter are seasonal, other port stakeholders may take advantage of the new electric infrastructure and benefit from it. For example, Lynden Transportation, one of the largest Alaska transportation operations serving Alaska has indicated the following in a WCCTEP letter of support, provided in Appendix B:

> *The electrification of the Whittier dock would allow Lynden to maximize efficiency with use of both electric dock equipment and electric transport vehicles to improve their multi-modal cargo operations at Whittier. As the electrification of transportation becomes more commonplace, having the capability to plug in could make the transition much more efficient.*
>
> *Jim Jansen, Chairman, Lynden, Inc.*

The Alaska Railroad will also benefit from the new electric power infrastructure provided by the project. These benefits include the dock in infrastructure as well as the strengthened power feeder lines to the Anton Anderson Memorial Tunnel. The upgrades to the tunnel may improve reliability of power to the tunnel itself, thereby reducing the risk of an incident involving the tunnels safety appliances including lighting and ventilation. As the longest tunnel in North America, and the primary route between Whittier and Anchorage, the tunnel's lighting and ventilation are critical for safe passage. A letter of support from Alaska Railroad is provided in Appendix B. The following is noted in the letter:

> *Dock electrification and an associated increase in power supply would be a boon for Whittier, unlocking opportunities for the railroad and our partners to access more efficient, environmentally friendly means of moving people and goods. Moreover, we understand the project could potentially improve power reliability in the Whittier Tunnel, which is the only land access to Whittier. Whether accommodating electric vehicle use, enhancing passenger and freight operations, or fortifying community access, the Alaska Railroad supports additional infrastructure and power capabilities to the area.*
>
> *Bill O'Leary, President and CEO, Alaska Railroad*

Helps facilitate EV adoption

The project will facilitate the use by logistics companies of electric vehicles by creating the first electric vehicle charging station at the port and in the City of Whittier. Anchorage, some 60 miles away, is reported to have more than a dozen charging stations, and Alyeska, some 25 miles away has one as well. This buildout of a Level 3 commercial-grade fast charging station- capable of supporting electric trucks – can help support greater adoption of EVs in Alaska, including for freight transportation.

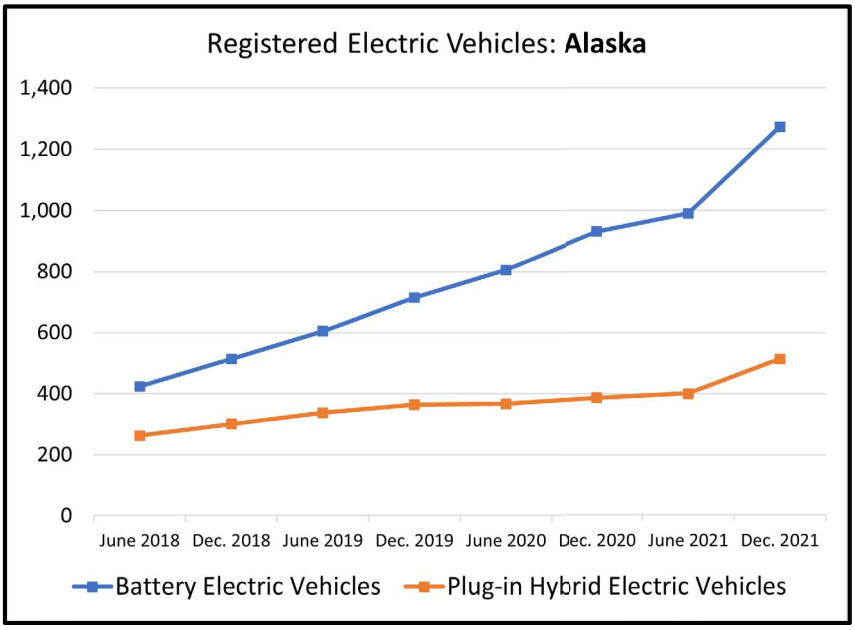

***Figure 6**. The adoption of electric vehicles, including battery electric and hybrid-electric vehicles, continues to increase in Alaska.*[2]

3. Operational improvements, including projects to improve port resilience

Whittier is federally designated as a resilience disadvantaged community, per USDOT mapping tools.[3] This is for good reason. On March 28, 1964, Whittier suffered over $10 million[4] worth of damage in what became known as the Good Friday earthquake. According to the USGS,[5] this earthquake remains the largest U.S. earthquake and second largest in the world, measuring 9.2 on the moment magnitude scale, and having caused tsunamis along the West Coast of the U.S. The tsunami that hit Whittier reached a height of 13 m (43 feet) and killed 13 people.

By diversifying power sources for vessels and equipment, and increasing the power delivery capabilities to the community, WCCTEP helps to create a more resilient infrastructure, less dependent on a single source of energy. This will create a more resilient port, less dependent on traditional energy sources. In addition, as described in more detail in Section 4(C), by enhancing the feeder line from the Portage substation, the project will help seed the potential development of additional electrification projects.

4. Environmental and emissions mitigation measures

As a shore power project, WCCETP directly impacts the reduction of greenhouse gas emissions and criteria pollutants from the port. From an operational perspective, the benefits of electrifying the Whittier dock may be higher than other cruise port locations, because most vessel calls at Whittier average around 20 hours, which is longer than other ports in Alaska.

[2] *Source*: https://www.chugachelectric.com/energy-solutions/electric-vehicles
[3] *Source*: https://usdot.maps.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a
[4] This is equivalent to $93 million in today's dollars.
[5] *Source*: https://www.usgs.gov/programs/earthquake-hazards/science/20-largest-earthquakes-world

Project partner Princess performed an analysis of the impact of shore power systems on their vessel emissions, found in Appendix C. This analysis includes models for 2022 and 2023, for which they have data on expected port calls, vessel types and emissions impacts. The analysis showed an expected reduction of nearly 60% for CO2 emissions due to WCCETP, equivalent to nearly 3,500 metric tons of CO2 annually. Additionally, the study identified potential reductions of 77-80 metric tons per year of NOx, SOx, CO, and Particulate Matter (PM)). The assumptions and models used to calculate these savings are provided.

Lastly, the study noted other benefits of the WCCETP, including: the elimination of visible emissions, except on engine startup when departing; reduction in noise from ship's engines: reduced engine hours, which increase potential maintenance intervals; and improved maintenance flexibility due to long port times with engines offline.

B. Supporting economic vitality at the regional or national level

1. Large projects

Regarding eligibility for funding under the FY2022 Appropriations Act, this section is not applicable to the WCCTEP, as the project is located in a noncontiguous State.

2. Small projects at small ports

WCCTEP qualifies as a small project at a small port. The project will increase the resilience of the region to recover from major incidents. Two notable historic events include:

- The 1964 Good Friday Earthquake, described in Section A(3)
- The 1989 *Exxon Valdez* oil spill

The *Exxon Valdez* spill was one of the largest environmental disasters in U.S. history.[6] It resulted in more than 11 million gallons of crude oil being spilled into ecologically sensitive Prince William Sound, affecting more than 1,300 miles of shoreline, with immense impacts for fish and wildlife and their habitats, as well as for local industries and communities.

Today, Whittier's economy largely depends on travel and tourism linked to attractions like Prince William Sound. Another disaster like the Exxon Valdez could set back the local economy, and that of other port cities on Prince William Sound. By providing the infrastructure for electric shore power to large vessels, WCCTEP can be considered a step toward accommodating future vessel power and propulsion technologies that do not require fossil fuels and may rely on shore power for recharging.

Finally, Census data[7] indicate the population of Whittier may be more vulnerable to negative impacts of a major incident. For example:

[6] *Source*: https://darrp.noaa.gov/oil-spills/exxon-valdez
[7] Source: https://data.census.gov/cedsci/profile?g=1600000US0284510

Poverty level	Whittier's poverty level is higher than the Alaska State average by 1.5% (11.8% vs. 10.3%)
Employment rate	The employment rate is 10% lower in Whittier than the statewide average (49.8% vs. 59.6%)
Disability rate	Disability rates in population are 6% higher in Whittier than statewide (18.4% vs. 12.3%)
Healthcare coverage	Whitter's population without healthcare coverage is 27.1% vs. 12.6% statewide

By reducing the potential for disasters, the shore power project will make incremental, but important symbolic steps toward a more resilient future for Whittier.

C. Addressing climate change and environmental justice impacts

WCCTEP is foremost an electrification project designed to reduce greenhouse gas and other criteria pollutant emissions. It will do this by providing shore power infrastructure to vessels as well as an electric vehicle charging station for use by surface vehicles. The greenhouse gas and criteria pollutant emissions reductions are discussed in Section A(4), above.

The secondary impacts are further reaching and help contribute toward the Department's climate goals. These impacts include:

- Supporting the shift toward electric vehicle and vessel technologies
- Creating opportunities for additional electrification projects
- Increasing the use of renewable energy for shore power

Supporting the shift toward electric vehicle and vessel technologies

The project contributes toward the long-term shift to cleaner energy, by creating the infrastructure to support vessels with shore power while in port. Maritime industry leaders acknowledge that a long-term trend is toward battery-powered vessels. These will rely on shore power while in port, and charge ship's power storage units. By creating the infrastructure to support current uses of this shore power, WCCTEP is helping to prepare U.S. port infrastructure for future large-scale industry shifts.

Creating opportunities for additional electrification projects

By upgrading the feeder line from the Portage substation to the port location, there is additional potential to support more electrification projects. These may include other port equipment or vehicles.

Increasing the use of renewable energy for shore power

While the current power generation for the region consists of 20% renewable energy sources, this figure is expected to grow as the region's power needs increase. By shifting power demand from ship's engines to the region's grid via shore power, the vessels operators will help induce demand to support more energy generation projects, including renewable energy projects.

D. Advancing equity and opportunity for all

WCCTEP will advance equity in at least two ways: (1) AEA routinely encourages participation of disadvantaged business enterprises (DBEs) in their contracts and conducts outreach to DBEs via state email list when soliciting opportunities; and (2) the project supports sustainability and growth for Princess' diversity, equity and inclusion initiatives. Princess Cruises' parent, Carnival Corporation & PLC, has received recognition as America's Top Employer for Diversity from Forbes media for multiple years. The company continuously strives to ensure that its workforce reflects global diversity. Currently, the company's shoreside workforce is comprised of 59% women.

E. Leveraging federal funding to attract non-federal sources of infrastructure investment

The project leverages funding from two different local match sources:

- Electric utility
- Private vessel operator leasing the dock

This effective partnership among public and private entities will create $3.8 million in leveraged investment. This level of investment exceeds the grant program minimum requirements of 20% by providing 28% of the project funding from leveraged sources. In addition, with the infrastructure in place, vessel operators will be incentivized to ensure their vessels have been modified to accept the shore power WCCTEP will provide at Whittier, should they choose to be able to call on the port.

Section V: Project Readiness

A. Technical capacity

The project partners are all well experienced organizations that have delivered similar projects in the past. AEA is a highly experienced organization when it comes to administering federal and USDOT grants. Below is a snapshot of more than $30 million in grants that the organization has administered since 2018. This list does not include awards from the Denali Commission, the federal cognizant agency for AEA.

AEA Qualification and Funding Sources				
Active Projects				
Award Year	**Agency**	**Award Amount**	**Project**	**Description**
2021	USDA High Energy Cost Award	$ 2,974,420	Napaskiak Rural Power System Upgrade	New power house module and small distribution upgrades. This project is currently estimated at $4.8 million
2021	EPA	$ 506,679	Diesel Engine Replacement	Replace Diesel Engines used for prime power in rural Alaskan communities. Match required under this program from AEA capital and VW Trust is $506,679
2020	US DOT	$ 21,000,000	Alaska Cargo and Cold Storage Project	Highly efficiency climate controlled cargo facility at the Ted Stevens Anchorage International Airport
2019/2020	EPA	$ 964,479	Diesel Engine Replacement	Replace Diesel Engines used for prime power in rural Alaskan communities. Match required under this program from AEA capital and VW Trust is $964,479
2018	Volkswagen Settlement	$ 8,125,000	Multiple	AEA has a public Benificiary Mitigation Plan that includes Electric Vehicle Charging Infrastructure, School Bus Replacement, Public Transit Bus Replacement, Replacement of Diesel Engines Used for Prime Power

***Figure 7**. AEA has recent experience administering grants from USDOT and other Departments.*

Chugach Electric's Engineering Department provides design and construction oversight to all scheduled capital infrastructure work on the 12.5, 25, and 35kV distribution as well as 69kV and above transmission systems located in the Anchorage Bowl, Kenai Peninsula, and the Beluga-Tyonek area. Chugach's Engineering Department typically manages a $70MM capital budget year over year actualizing 100,000 internal resource labor-hours. In 2021, The Chugach Electric Engineering Department worked on 361 individual capital projects, completing 138 of those through construction during that year.

Princess Cruises works closely with vendors who specialize in developing shore power solutions specifically for cruise ships. These larger vessels often have hoteling loads that are higher than many cargo ships. Princess is part of the Carnival Corporation, which has the largest market share of any cruise line in the world.

Cost data for this application was developed in 2Q 2022 by experts who regularly estimate costs for shore power projects (dock upgrades scope of work) or power projects (upland improvements scope of work). For the dock upgrade design, costs were based on a zero % completion design, however, costs were compared to similar projects of similar size/scope. For the upland improvements scope of work, costs were based on previous feasibility analysis performed by Chugach.

1. Project schedule

The schedule is developed to accommodate the seasonal use of the Whittier cruise dock. This strategy will target installation and commissioning during the 2024 sailing season. In addition,

materials with anticipated long delivery lead times will be ordered as soon as possible, when the grant award is announced.

WCCTEP Schedule

Date (Quarter)	Upland Improvements	Dock Upgrades
2Q 2022-3Q 2022	Develop EPC Contract, RFP, and Specifications for the upland improvements	Proceed with design work for dock system
4Q 2022-1Q 2023	• PIDP awards announced; decision to proceed with order of long lead-time materials or pause project • Complete competitive bidding process	• PIDP award announced; decision to proceed with order of long lead-time materials or pause project • Complete procurement decisions
2Q 2023-3Q 2023	Proceed with design/permitting work	Construct substation building, conduit
4Q 2023-3Q 2024	Construction: • Upgrade feeder line • Relocate stepdown terminus • Install EV charging station	Install equipment when arrives from factory
3Q 2024	System test and commissioning	

B. Environmental risk

1. Information about the NEPA status of the project

Currently, the project is still in the early planning phase. No NEPA course of action has begun.

On May 13, 2022, representatives from AEA, Chugach and Princess met with MARAD's NEPA Coordinator in the Office of Environmental Compliance. After discussion of the project scope, the participants spoke about the likely potential the project would qualify for a categorical exclusion as it primarily involves replacement of existing technology and no in-water work.

The participants discussed the factors which might elevate the level of scrutiny, including whether there is work in wetlands areas for the upland improvements. Call participants discussed that the while none of the work is planned to be in the river itself, the Chugach power lines do traverse the river at some points. As the discussion went further, it was noted that the project is still early in the planning process, and that the means and methods of conducting the project need to be developed. There will be several ways to execute the project, some less impactful than

others. For example, since nearly all of the work on the uplands portion of the project is above ground, much work could be done in the winter, where there is less disturbance of any wetlands areas, by taking advantage of frozen ground. Helicopter-assisted delivery of equipment also may be an option. The MARAD coordinator pointed out that if US Army Corps of Engineers permits are required for the project, MARAD has an agreement with USACE to coordinate reviews of projects that involve both agencies.

2. Environmental permits and reviews

The dock upgrade portion of the project may be required a standard trade permit for electric hookups. The upland portions of the project may require state and local permits; project partner Chugach is in the process of researching potential permit requirements. All project participants are motivated to move the project forward rapidly, in compliance with all relevant regulations and standards. No right-of-way acquisition is needed for the project.

3. State and local approvals

Project participants expect the timely issuance of permits for this project, consistent with other projects commonly performed to provide power upgrades. Since the project participants are the relevant transportation facility owners/lessees, there is no need to acquire right-of-way.

The project is expected to draw broad support, as it engages new demand for power, on an interruptible basis. In short, the project not only reduces air emissions at the port area when cruise vessels are docked there but also helps reduce overhead and ratepayer costs for all electric power consumers in the Chugach Electric region.

4. Information on environmental reviews, approvals, and permits by other agencies

At this time, it is unknown what permits might be required, particularly for the upland work. The project is early in the design/planning phase and more specific permitting research and requests will be evaluated as part of the design process. The project does not depend on, nor is it affected by, U.S. Army Corps of Engineers investment or U.S. Army Corps of Engineers planned activities.

C. Risk mitigation

Project sponsors evaluated the project for risk. For the dock upgrade portion of the project, the key risk is whether additional costs will be incurred due to the requirements for a cable management system appropriate for the site. Since the project is still at an early design stage, there are factors that may increase costs. As mitigation, a 30% contingency was added to the budget for this cost element of the project.

In addition, long lead times for equipment and materials are worsening, and it is unclear what the supply availability will look like at the time when PIDP awards are announced, or even out when a grant agreement is signed.

The primary risk associated with the electric infrastructure upgrade portion of the project is the current worldwide supply chain delays. Some pieces of equipment—including some types of transformers—currently have a lead time between 12- 24 months. This global shortage of electric equipment is impacting all electric utilities construction projects. As a mitigation effort, Chugach will aggressively pursue advanced planning to keep the project on a reasonable schedule and revise delivery estimates once the project has gone through the procurement phase.

Section VI: Domestic Preference

Project sponsors confirm that all elements of the project will meet domestic sourcing requirements. These include specialized equipment for use at the dock, as well as more general equipment used around the country for the line upgrades in the upland areas.

Section VII: Determinations

Project determination	Guidance
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 safety, efficiency and reliability of goods movement through a port or intermodal connection to a port in several ways. First, the project will provide an electric vehicle charging station at the port, which will facilitate conversion to electric vehicles for use by the local logistics companies. Lynden Transportation in particular has recognized this benefit in their letter of support found in Appendix B. Second, the project improves the resilience of the power transmission to the Anton Anderson Memorial Tunnel. This upgrade will improve the reliability

Project determination	Guidance
	of the tunnel as a key piece of infrastructure for goods transiting the port and Anchorage. See the letter provided by Alaska Railroad provided in Appendix B.
2. The project is cost effective.	Not applicable to small projects at small ports and projects in noncontiguous states.
3. The eligible applicant has the authority to carry out the project.	Pursuant to the Alaska Administrative Code (3 AAC 105.020. "Administration of assistance from other sources"),[8] Alaska Energy Authority "may apply for, accept, and administer financial and other assistance from public agencies and private sources for the construction, financing, operation, and maintenance of power projects…" AEA has formed a partnership with the other project participants. This partnership is captured in an MOU that outlines the roles and responsibilities of the parties on the project.
4. The eligible applicant has sufficient funding available to meet the matching requirements.	Applicant and project partners have committed sufficient funds to meet matching requirements,

[8] *Source*: http://www.legis.state.ak.us/basis/aac.asp#3.105

Project determination	Guidance
	as delineated in the MOU provided in Appendix A.
5. The project will be completed without unreasonable delay.	Project partners have consulted with MARAD's NEPA Coordinator in the Office of the Environment. After discussion, the parties agreed there is a moderate likelihood that the project will qualify for a NEPA Categorical Exclusion. The risks that the project will not are somewhat controllable, as the means and methods of the upland improvements have not been finalized. There may be opportunity, depending on conditions of the existing line, to execute the project in a manner which will not require extensive permitting or analysis. Additionally, Chugach is planning to award Engineering Procurement Contractor (EPC) contract in 2022, in order to allow expedient work on the project should the project be selected for a PIDP grant award in FY2022.

Project determination	Guidance
6. The project cannot be easily and efficiently completed without federal funding or financial assistance available to the project sponsor.	The project scope will likely be unaffected by FY2022 PIDP funding. Project sponsors have identified the minimum identifiable scope that provides shore power to the vessels. However, it is possible that the sponsors choose to postpone the scope of the project that involves an EV charging station. Currently there is no other EV charging station in the area, which limits its utility to charging for vehicles involved in drayage movements within a certain distance of the port. Since this would be the first and only such EV infrastructure in Whittier, it may get postponed. If the project is not awarded in FY2022 PIDP, the project schedule may be postponed altogether. It is likely design will be completed in 2022, and the project shelved until capital funds are identified. If federal funds are not received, project costs would likely increase due to inflationary trends and supply chain challenges.

Unique Entity Identifier and System for Award Management

The Alaska Energy Authority is registered in the System for Award Management as "Alaska Energy Authority (Inc)." The **UEI** is F3N8ZSHJXUH8, as shown below.

Appendices

A. Memorandum of Understanding

B. Letters of Support

C. Shore Power Emissions Analysis

Appendix A

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

1. Parties. This Memorandum of Understanding ("MOU"), is made and entered into between the Alaska Energy Authority ("AEA"), a corporation of the State of Alaska, Chugach Electric Association, Inc. ("Chugach"), an Alaska not-for-profit cooperative electric utility, and Princess Cruise Lines, Ltd. ("Princess"), a Bermuda company, relating to the proposed conveyance of federal grant funding from AEA to Chugach and Princess to perform electric distribution system improvements between Portage and Whittier and to provide shore-to-ship power facilities on the Princess-owned/operated cruise ship dock in Whittier. AEA, Chugach, and Princess are referred to collectively in this MOU as the "Parties". The Parties believe this MOU provides mutual benefit and agree to the terms and conditions provided below.

2. Terms and Conditions.

a. AEA's Role and Responsibilities. AEA shall be the lead entity that will submit a timely grant application to the 2022 Port Infrastructure Development Program, administered by the U.S. Maritime Administration, requesting funding for the project in an amount detailed in the grant application. AEA's application shall designate the requested funds to be used for purpose of providing electric service connections in the Port of Whittier for both ship power and for electric vehicle charging infrastructure. AEA shall notify Chugach of the granting agency's decision within ten (10) days of receiving such decision. The receipt of such grant funds by AEA is also subject to legislative approval. If awarded, AEA shall negotiate on a commercially reasonable basis and execute grant agreements with Chugach and Princess, including the pass-through of certain federal funding obligations. AEA shall be responsible for compiling and completing any reports required by the granting agency. The amount of funding conveyed from AEA to Chugach and Princess through the grant agreements shall be net of AEA's grant administration costs, which shall be no more than 5 percent of the total grant award.

b. Chugach's Role and Responsibilities. Chugach shall be a joint applicant and will provide AEA with information—relevant to its portion of the distribution system work—necessary to complete the grant application and/or any reports required by the granting agency. If awarded, Chugach shall negotiate on a commercially reasonable basis and execute a grant agreement with AEA. Chugach shall provide matching funds of $1.1 million primarily or exclusively through a line extension credit. Chugach shall also negotiate on a commercially reasonable basis and execute an appropriate interconnection agreement with Princess. Chugach will own and operate the electric distribution system on the utility side of the meter. Chugach's obligations under this paragraph shall be expressly conditioned upon and subject to Chugach's prior receipt of any board, regulatory, or other third-party approvals legally required in connection with this MOU or the agreements referenced herein.

c. Princess's Role and Responsibilities. Princess shall be a joint applicant and will provide AEA with information—relevant to its portion of the shore power system and related dock work—necessary to complete the grant application and/or any reports required by the granting agency. If awarded, Princess shall negotiate on a commercially reasonable

basis and execute a grant agreement with AEA. Princess shall provide matching funds of $3.0 million to the project. Princess owns the dock upon which the shore power equipment will be located and agrees to provide the spaces necessary to complete the grant funded project and to own and operate the equipment on the customer's side of the electric meter. Princess agrees such terms shall be included in the interconnection agreement negotiated with Chugach.

3. General Provisions.

a. Termination. This MOU may be terminated by written notice of any Party at any time without liability to the other Parties.

b. Amendments. This MOU may be amended by written mutual agreement of the Parties.

c. Governing Law/Jurisdiction/Venue. This MOU, for all purposes, shall be construed in accordance with the laws of Alaska without regard to conflicts of law principles. Any action or proceeding by any of the Parties arising under or relating to this MOU shall be brought only in a state or federal court located in Anchorage, Alaska. The parties hereby irrevocably submit to the exclusive jurisdiction of such courts and waive the defense of inconvenient forum to the maintenance of any such action or proceeding in such venue.

d. Reasonable Best Efforts. The Parties will use their reasonable best efforts to effectuate the intent and purpose of this MOU.

e. No Third-Party Beneficiaries. Nothing herein is intended or shall be construed to confer upon any person or entity other than the Parties and their successors or assigns, any rights or remedies under or by reason of this MOU.

f. No Assignment. Neither this MOU, nor any rights or obligations hereunder may be assigned, delegated or conveyed by any Party without the prior written consent of the other Parties.

4. Costs and Expenses. Except as otherwise agreed herein, each Party shall be responsible for its own costs and expenses associated with pursuing the proposed transactions described in this MOU, including without limitation (i) the performance of its obligations under this MOU, (ii) pursuing any approvals necessary to effectuate this MOU, and/or (iii) resolving any disputes between the Parties that arise out of this MOU.

5. Contact Information

Curtis Thayer
813 W Northern Lights Blvd.
Anchorage, AK 99503
Tel: (907) 771-3000
cthayer@akenergyauthority.org

Arthur Miller
Chugach Electric Association, Inc.
5601 Electron Drive
Anchorage, AK 99518
Tel: (907) 762-4758
arthur_miller@chugachelectric.com

Robert Morgenstern
Princess Cruise Lines, Ltd.
24305 Town Center Dr.
Santa Clarita, CA 91355
Tel: (206) 295-3967
rmorgenstern@hagroup.com

6. Counterparts. This MOU may be executed manually or by electronic signature in counterparts, each of which shall be deemed an original, but all of which together shall be deemed one and the same agreement. A signed copy of this MOU delivered by fax, email or other means of electronic transmission, shall be deemed to have the same effect as delivery of an original signed copy of this MOU.

Signature page follows

IN WITNESS WHEREOF, the Parties hereto have executed this MOU as of the last date set forth below.

Alaska Energy Authority

By: DocuSigned by: _____ Date: 5/15/2022
Name: Curtis Thayer
Title: Executive Director

Chugach Electric Association, Inc.

By: _____ Date: 5/16/2022
Name: Arthur Miller
Title: Acting Chief Executive Officer

Princess Cruise Lines, Ltd.

By: _____ Date: 5/13/2022
Name: Robert Morgenstern
Title: SVP Destination Services | Port Operations & Shore Excursions
HA Group | Princess Cruises, Holland America, Seabourn & P&O Australia

Appendix B

Letters of Support

ALASKA RAILROAD

May 9, 2022

Maritime Administration
Office of Port Infrastructure Development
1200 New Jersey Avenue SE
Washington, DC 20590

RE: Alaska Energy Authority (AEA) FY2022 Port Infrastructure Development Program (PIDP) Grant Application

Dear Grant Program Director:

The Alaska Railroad Corporation (ARRC) supports the Holland America / Princess Tours AEA FY2022 PIDP grant application to bring power to its dock in Whittier, Alaska.

ARRC is an independent, state-owned corporation that provides year-round public transportation, supports the visitor industry, and moves freight through some of the most populated areas of the state. Our passenger trains operate rail service from tidewater at Seward, through Anchorage, and deep into Alaska's interior, terminating just east of Fairbanks. ARRC also transports passengers to and from Whittier, a gateway to Prince William Sound. In addition, the Alaska Railroad provides vital freight infrastructure, working seamlessly with other transportation providers to move cargo to communities statewide. In Whittier, our barge dock offers a direct connection with the Lower 48 transportation systems via a regular rail-marine service.

As we consider future transportation needs — in Alaska and in the United States — we remain mindful of our environmental footprint. Dock electrification and an associated increase in power supply would be a boon for Whittier, unlocking opportunities for the railroad and our partners to access more efficient, environmentally friendly means of moving people and goods. Moreover, we understand the project could potentially improve power reliability in the Whittier Tunnel, which is the only land access to Whittier. Whether accommodating electric vehicle use, enhancing passenger and freight operations, or fortifying community access, the Alaska Railroad supports additional infrastructure and power capabilities to the area.

This PIDP grant-funded capital improvement project clearly represents a winning combination for Alaska residents, visitors, businesses and communities. Please do not hesitate to contact us if you need additional information about the railroad or our support of this grant application.

Sincerely,

Bill O'Leary
President and CEO

Lynden Inc
6520 Kulis Drive
Anchorage, AK 99502
Main: (907) 245-1544
Toll Free: (800) 922-7501
Fax: (907) 245-1744

Maritime Administration
Office of Port Infrastructure Development
1200 New Jersey Ave SE
Washington, DC 20590

RE: Alaska Energy Authority FY2022 PIDP Grant Application

Date: May 5, 2022

Dear Grant Program Director,

The Lynden Family of companies includes air, land and marine transportation to/from and within the State of Alaska.

Currently, Lynden docks a tugboat at the Whittier cruise ship dock. The tug supports a barge/rail service, which utilizes the Whittier harbor as well as rail connections to deliver cargo to the rest of Alaska.

The electrification of the Whittier dock would allow Lynden to maximize efficiency with use of both electric dock equipment and electric transport vehicles to improve their multi-modal cargo operations at Whittier. As the electrification of transportation becomes more commonplace, having the capability to plug in could make the transition much more efficient.

The procurement of electrification to the Whittier dock cannot happen without the needs of the large cruise ships; however, this addition could have long-term benefits for other transportation entities.

Thank you very much for your consideration.
Sincerely,

Jim Jansen

Lynden Inc
Chairman

Appendix C

Shore Power Emissions Analysis

This appendix contains CBI

HA Group Shore Power Emissions Analysis
Whittier

9th May 2022

Assumptions

Assumptions

- Port Load: 2019 Neptune Port Load Data for all ports in the same climate zone
- Climate Zone: F2 (temperate)
- Itineraries: 2022 and 2023
- Whittier Hours in Port: 20 hours
- Energy source for shore power assumed to be 80% Natural Gas & 20% renewable
- Scope 1 (engine & boiler combustion) and Scope 2 (shore power source) emissions factors used reference *UK Government Conversion Factors for greenhouse gas (GHG) reporting*
- Note: realize 70% of expected savings because boiler continues to operate when connected to shore power

Whittier (Anchorage)	45	46
Holland America	18	17
Nieuw Amsterdam	9	8
Noordam	9	9
Princess	27	29
Crown Princess		1
Grand Princess	9	10
Majestic Princess	9	9
Royal Princess	9	
Sapphire Princess		9

Whittier Number of Calls per Year (2022 & 2023)

Emissions Reductions

- **CO_2** factor (MGO): 3.2 units CO_2 / unit fuel → greenhouse gas
- **CO_2** factor (Natural Gas): 0.18438 kg CO_2e/kWh
- **Criteria Emissions: NOx, SOx, CO, Particulate Matter (PM)**
  - **NOx**: IMO Tier II limit assumed, 10.1 g/kWh → greenhouse gas and local respiratory effects
  - **SOx, CO, & PM** according to Marine Diesel Emission rates
- **Visible Emissions**: Eliminated except for engine startup on departure

Noise is expected to reduce with Diesel Engines offline.

Ship	F1	F2	F3
HAL N.Amsterdam	5941	6150	7035
HAL Noordam	6282	6296	6799
PCL Crown	9003	9200	10263
PCL Grand	8615	8644	9629
PCL Majestic	8571	8867	9362
PCL Royal	8270	8524	9876
PCL Sapphire	8239	8517	9325

2019 port load (kW) by climate zone (Neptune)

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Calculation

Ship	Number Calls	Port Load port kW	Energy Per Call kWh	Annual Energy kWh	Fuel MT	DG CO2 MT	Boiler CO2 MT	Total CO2 MT	NOx MT	SOx MT	CO MT	PM MT	Criteria MT	Shore Power CO2e MT	Net savings CO2e MT	Reduction %
2022																
HAL N.Amsterdam	9	6150	123000	1107000	221	708	213	921	8	0.2	3.9	0.4	12	376	545	59%
HAL Noordam	9	6296	125920	1133280	227	725	218	943	8	0.2	4.0	0.4	13	385	558	59%
PCL Crown		9200	184000	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	
PCL Grand	9	8644	172880	1555920	311	996	299	1295	11	0.3	5.4	0.5	17	528	766	59%
PCL Majestic	9	8867	177340	1596060	319	1021	306	1328	11	0.3	5.6	0.6	18	542	786	59%
PCL Royal	9	8524	170480	1534320	307	982	295	1277	11	0.3	5.4	0.5	17	521	756	59%
PCL Sapphire		8517	170340	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	
Sum					**1385**	**4433**	**1330**	**5763**	**49**	**1**	**24**	**2**	**77**	**2352**	**3411**	**59%**
2023																
HAL N.Amsterdam	8	6150	123000	984000	197	630	189	819	7	0.2	3.4	0.3	11	334	485	59%
HAL Noordam	9	6296	125920	1133280	227	725	218	943	8	0.2	4.0	0.4	13	385	558	59%
PCL Crown	1	9200	184000	184000	37	118	35	153	1	0.0	0.6	0.1	2	62	91	59%
PCL Grand	10	8644	172880	1728800	346	1106	332	1438	12	0.3	6.1	0.6	19	587	851	59%
PCL Majestic	9	8867	177340	1596060	319	1021	306	1328	11	0.3	5.6	0.6	18	542	786	59%
PCL Royal		8524	170480	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	
PCL Sapphire	9	8517	170340	1533060	307	981	294	1276	11	0.3	5.4	0.5	17	520	755	59%
Sum					**1432**	**4582**	**1375**	**5956**	**51**	**1**	**25**	**3**	**80**	**2431**	**3526**	**59%**

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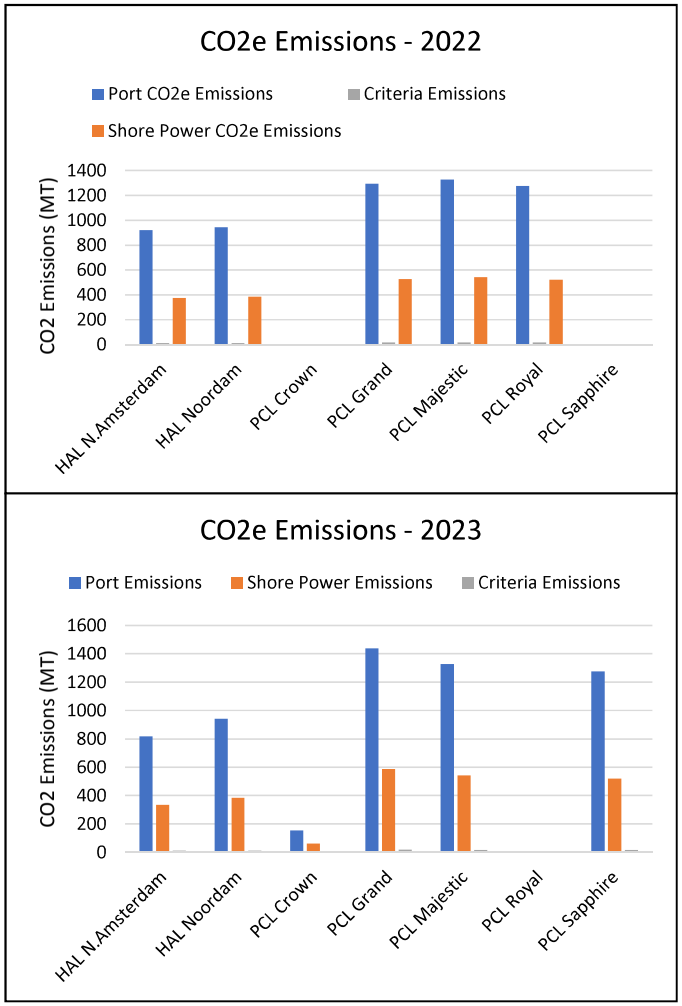
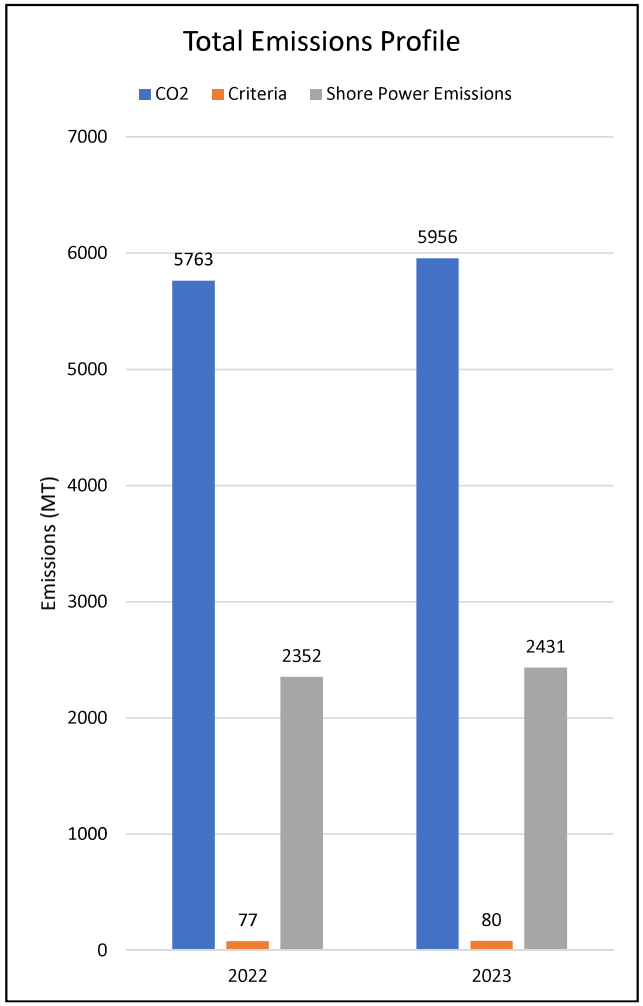
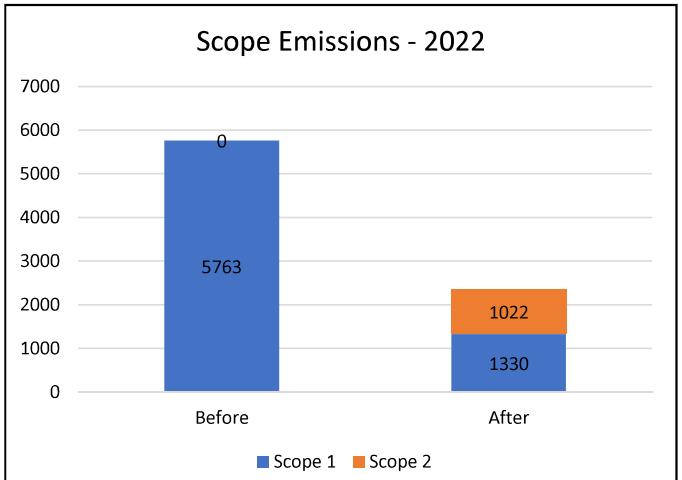
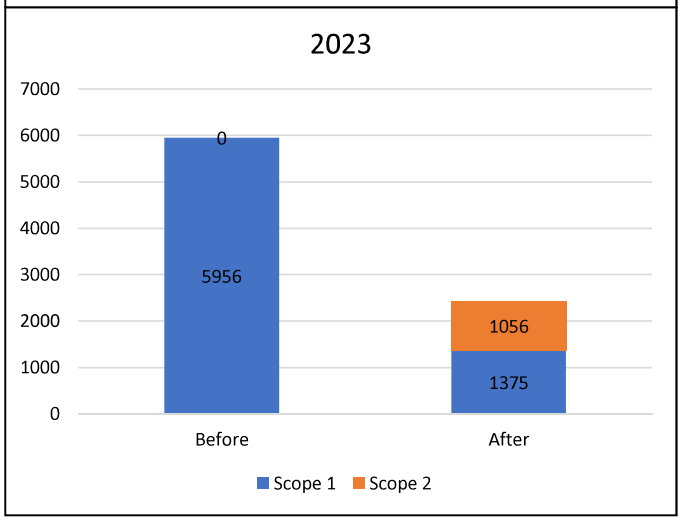
Graphs









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Summary

Emissions Reductions

- **CO_2e**: reduced 3400-3500 metric tons per year (~59%)
- **Criteria Emissions (NOx, SOx, CO, Particulate Matter (PM)):** Reduced 77-80 metric tons per year
- **Visible Emissions**: Eliminated except for engine startup on departure

Additional Benefits

- **Noise:** is expected to reduce with all diesel engines offline
- **Engine Hours:** reduced when engines are offline for increased maintenance intervals
- **Maintenance Flexibility:** improved due to long port time with engines offline

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