



State of New Jersey

Department of Environmental Protection

CHRIS CHRISTIE
Governor

BOB MARTIN
Commissioner

KIM GUADAGNO
Lt. Governor

PROJECT SOLICITATION

OVERALL GOAL

The State of New Jersey, as a potential beneficiary of the Trust established pursuant to the national Volkswagen settlement, intends to use its allocation from the mitigation trust to efficiently implement projects that reduce oxides of nitrogen (NOx) emissions in a cost effective and technically feasible manner. The implemented projects must meet the criteria of the Consent Decree. New Jersey is issuing this solicitation for project ideas to ensure a broad range of project ideas are considered. Additional opportunities will be provided for public input during the upcoming months.

Submissions must be received by November 27, 2017 and must contain all the information outlined in the "Project Proposals" section of this document.

ELIGIBLE PROJECTS

A general summary is below. [Click here for comprehensive list and associated definitions.](#)

Source Category	Emission Reduction Strategy	Allowed Expenditure Amount
1. Class 8 local freight trucks & port drayage trucks	Repower and replacement	Up to 40% for repower with diesel or alternative fuel or up to 75% (up to 100% if government owned) for repower with electric. Electric charging infrastructure costs are eligible expense. Up to 25% for replacement with diesel or alternative fuel or up to 75% (up to 100% if government owned) for electric replacement. Electric charging infrastructure costs are eligible expense.
2. Class 4-8 school bus, shuttle bus or transit bus	Repower and replacement	Same as row 1
3. Freight switching locomotives	Repower and replacement	Same as row 1
4. Ferries/Tugs	Repower	Same as row 1
5. Oceangoing vessels	Shorepower	Up to 25% for shore side infrastructure if non-government owned (up to 100% if government owned)

6. Class 4-7 local freight trucks	Repower and replacement	Same as row 1.
7. Airport ground support equipment	Repower and replacement	Up to 75% to repower or replace with electric (up to 100% if government owned). Electric charging infrastructure costs are eligible expense.
8. Forklifts and Port Cargo Handling Equipment	Repower and replacement	Up to 75% to repower or replace with electric (up to 100% if government owned). Electric charging infrastructure costs are eligible expense.
9. Electric vehicle charging stations or hydrogen fueling stations for light duty vehicles only		Up to 100% to purchase, install and maintain infrastructure if available to public at <i>government owned</i> property. Up to 80% to purchase, install and maintain infrastructure if available to public at <i>non-government owned</i> property. Up to 60% to purchase, install and maintain infrastructure at a workplace or multi-unit dwelling that is not available to the general public. Up to 33% to purchase, install and maintain infrastructure for publicly available hydrogen dispensing that is high volume or up to 25% for lower volume.

PROJECT PROPOSALS

Proposals must be submitted by close of business on November 27, 2017. Electronic submittals are preferred and should be sent to VWComments@dep.nj.gov however paper submittals will also be accepted and should be sent to:

NJDEP
 Division of Air Quality
 Mail code 401-02E
 Trenton, NJ 08625-0420
 Attn: VW Settlement

All proposals must contain the following information; incomplete applications will not be considered. If your project is selected, you may be contacted for additional detailed information. Send questions to VWComments@dep.nj.gov

To enter information electronically use Adobe Reader

CONTACT INFORMATION

Organization Name	Gloucester Terminals LLC
Organization Address	101 South King Street
City, State Zip Code	Gloucester City, NJ 08030
Contact Person	Lisa Kline
Title/Position	General Counsel
Phone	(856) 742-3002
E-mail	lkline@holtlogistics.com

PROJECT NAME	Gloucester Terminal Electric Ship-to-Shore Cranes
---------------------	---

PROJECT CATEGORY OR CATEGORIES (choose from 1-9 in "Eligible Projects" section above)

1 2 3 4 5 6 7 8 9

PROJECT PRIORITY Priority # 1A of 2 proposals
If submitting more than one proposal, what is the sponsor's priority of this proposal?

PROJECT BUDGET
Provide total estimated project budget, include source and amount of cost share if applicable.
Approx. \$18.2 million. Gloucester Terminals LLC ("Gloucester Terminal") will contribute 48.5% of the cost.

PROJECT DESCRIPTION (Briefly describe the project by completing the following questions)

Geographic area where emissions reductions will occur? Gloucester City in Camden County, NJ

Estimated size of population benefitting from the emission reductions? 12,000

Estimated useful life of the project? Approx. 30 years

Number of engines/vehicles/vessels/equipment included in the project? 2

Estimated emission benefits should be expressed in tons per year (TPY) of emission reduced for NOx and for PM 2.5 over the lifetime of the project. Identify methodology used.

Estimated NOx benefits? 49.24 TPY
Methodology Used? See Attachment A

Particulate matter (PM 2.5) benefits? 6.85 TPY
Methodology Used? See Attachment A

Will the project benefit one or more communities that are disproportionately impacted by air pollution? If so, please describe.
Yes. Gloucester City (Camden County) is recognized as an Environmental Justice area (see EPA's Env. Justice Screening & Mapping Tool-<https://ejscreen.epa.gov/mapper>). It is also a National Priority County under DERA as an area having highest emissions from diesel engines.

Project partners, if any?

Explain how the project will provide cost effective and technically feasible emission reductions. Cost effectiveness should be expressed in dollars per ton per year of emissions reduced for NOx and for PM 2.5.

Using Gloucester Terminal's projected capital cost share of the project budget, the cost per ton of removal is approximately \$9,328 for NOx and \$65,625 for PM. Using the requested capital cost contribution, the cost per ton of removal is approximately \$9,904 for NOx and \$69,684 for PM. Although these values will be refined when more detailed costs are known, they demonstrate that the project is highly cost-effective if funding is received.

Estimated timeframe for implementation? Include a project timeline that identifies start and end dates, as well as the timeframe for key milestones.

2 months: Prepare engineering drawings and a request for proposals; obtain bid packages from vendors.

2-4 months: Review bid packages and award contract

12-18 months: Complete upgrades of electric infrastructure, refurbish and electrify one existing crane and delivery of electric ship-to-shore crane

18-24 months: Installation and testing of electric ship-to-shore cranes

Demonstrated success in implementing similar projects?

An independently managed affiliate of Gloucester Terminal is in the process of implementing a similar project in a neighboring State (Pennsylvania). That project is being undertaken as part of a capital investment program at the Port of Philadelphia by the Philadelphia Regional Port Authority, with financial support from the Commonwealth of Pennsylvania.

If your proposed project involves alternative fuels, provide a demonstration of current or future plans to provide adequate refueling infrastructure.

Has your organization been approved to receive and expend any other grant funds related to this project? If so, please provide details.

Please provide any additional information that supports this project.

This alternative proposal provides an opportunity to more significantly leverage the funding requested in the proposal submitted by Gloucester Terminals LLC on November 27, 2017. As set forth below, Gloucester Terminal proposes to utilize the requested funds to purchase one new electric crane and to electrify one existing diesel-powered crane, as well as to install the necessary electrical infrastructure upgrades. This project would fully replace the use of the

Two additional pages have been provided as supplemental space to answer any of the questions above.

Supplemental Page 1

two current rail-mounted diesel-powered cranes and would reduce the need for the rubber-tired diesel crane at the Terminal, and thus significantly reduce diesel emissions from the Terminal.

If Gloucester Terminal is able to convert to electric cranes through receiving VW funding, all of the electricity needed for these cranes would be accounted for by renewable sources, namely the solar array that is housed on the roof of the warehouses at the Terminal. The Terminal has the largest on-dock refrigerated warehouse facility in the U.S. On top of the warehouses, the Terminal has the largest rooftop solar array in North America with a capacity of 9.1 megawatts, creating 11 million kilowatt hours of renewable energy annually. Currently, additional solar panels are being installed at the Terminal which will add an additional capacity of 1.1 megawatts and an additional 1.4 million of kilowatt hours per year, for a total of 10.2 megawatts and an annual output of 12.4 million kilowatt hours. This output will far surpass the electricity needed to operate the two electric cranes, and actually represents a significant percentage of the entire electrical usage by the Terminal.

Gloucester Terminal, located in Gloucester City, New Jersey, specializes in the handling and distribution of imported and exported products, particularly imported fruit during the winter months. Gloucester Terminal consists of 150 acres, and has 4 berths for visiting ships.

Gloucester Terminal is an important economic driver for South Jersey, providing a significant number of well-paying jobs and business and tax revenues. Yet, Gloucester Terminal is at a competitive disadvantage with other ports up and down the eastern coast because it is privately owned and operated, and so has not been eligible for funding opportunities that other ports have benefited from to convert diesel-powered cranes to electric cranes. As a result, Gloucester Terminal has continued to utilize diesel-powered cranes that are less efficient than competitors' electrified cranes and affect the air quality in the neighborhoods surrounding the Terminal. Pursuant to the definitions in Appendix D-2 of the VW Settlement Agreement, the diesel-powered cranes qualify as "Port Cargo Handling Equipment," and therefore are eligible for up to 75% of the cost of a new electric crane. However, under this alternative proposal, Gloucester is seeking funding of only 51.5% of the total project cost and will be contributing 48.5% of the total budget for the project.

Over 1.2 million tons of fruit and associated break bulk cargo move through the Terminal annually, equating to approximately 40% of all imported fruit along the Delaware River. During winter months, in particular, fruit such as grapes, bananas, pineapples and other citrus fruit is imported through the Terminal. Gloucester Terminal's imported fruit business is the source of many well-paying jobs, and so contributes to the local and state economies through business revenues, wages and salaries, and local and state taxes. As of 2013, Gloucester Terminal's economic impact on South Jersey included approximately 3,300 direct, induced and indirect jobs, \$250 million in salaries and re-spending/consumption, \$205.8 million in business revenue, \$86 million in local purchases, and over \$28 million in state and local taxes. Of the jobs associated with the Terminal's business, almost 40% are direct, well-paying, mostly union jobs held by dockworkers, terminal employees, truckers, steamship agents, freight forwarders, tug assist operators and pilots. As business has increased over the past five years, the number of jobs has also increased. The number of full-time employees and employee wage base has increased by approximately 40% in the past five years.

Supplemental Page 2

With the recent dredging in the Delaware River, expansion of the Panama Canal and the uptick in the economy, the Gloucester Terminal is ideally positioned to expand its business and bring about concomitant ripple effects to the surrounding South Jersey area. However, due to the environmental and regulatory constraints, Gloucester Terminal cannot take advantage of this opportunity with its current diesel-powered cranes.

Gloucester Terminal uses diesel-powered cranes to unload containers and break bulk from ships. Because these cranes are diesel powered, they emit NO_x and fine particulate matter, which contribute to the formation of ozone and concentration of fine particles. Although considered to constitute mobile or non-road sources at the federal level, NJDEP has imposed strict stationary source clean air requirements on gantry crane engines. Currently, the Terminal is subject to limitations on the number of hours it can run its diesel-powered cranes, which limits its ability to service its existing business, let alone expand business.

In contrast, virtually every other port along the eastern seaboard is publicly owned and has received significant public funding to convert their previously diesel-powered cranes to electric-powered cranes. Because repowering cranes to electric power involves significant cost, which is only justified for environmental reasons, it is difficult to obtain this funding from typical private sources. As a result, Gloucester Terminal is one of the only ports that still has diesel-powered cranes. Moreover, as an alternative to the significant cost of electrification, Gloucester Terminal has evaluated the possibility of reducing diesel-related emissions by replacing existing gantry crane engines with the latest class of Tier 4F certified engines. After lengthy discussions with engine manufacturers, we have learned that Tier 4F engines and their associated controls have not been demonstrated to be a viable replacement option for the gantry cranes in service at Gloucester Terminal, due to the variable and demanding loads at which the engines are operated and the high temperature of the engine exhaust. In fact, the manufacturers indicated that they would not certify Tier 4F for this use.

If awarded VW funds to convert to electric cranes, Gloucester Terminal will be able to continue to leverage this funding to accommodate the expected increase in business in the coming years. Once the electrical infrastructure is in place, in order to handle future expansion in business the Terminal could cost effectively refurbish and electrify its second rail-mounted crane instead of replacing the current engine with a Tier 2 engine. Thus, when considering the additional benefits of this project, it should be noted that the current investment will allow continued expansion without resorting to diesel-powered cranes.

The VW settlement funds are intended to reduce diesel emissions. The older diesel engines that power the existing Kocks cranes are known emitters of NO_x and PM, and are not capable of being retrofitted with newer Tier 4 diesel engines. Accordingly, Gloucester Terminal believes its Electric Ship-to-Shore Cranes Project is particularly worthy of receiving VW settlement funds.

Gloucester Terminals' Electric Ship-to-Shore Crane Project
VW Trust Fund Project Solicitation Form
Attachment A

Question: Number of engines/vehicles/vessels/equipment included in the project?

Answer:

Replacing two existing ship-to-shore diesel-powered gantry cranes (and will limit needed use of an additional diesel-powered Liebherr mobile-harbor crane) by refurbishing and electrifying one of the existing rail-mounted diesel-powered cranes and purchasing one new electric ship-to-shore crane.

Question: Estimated emission benefits should be expressed in tons per year (TPY) of emission reduced for NO_x and for PM-2.5 over the lifetime of the project. Identify methodology used.

Answer:

Currently, Gloucester Terminals has two Kocks diesel-powered gantry cranes that it would like to operate as much as 4,000 hours/year. Gloucester Terminals also utilizes additional Liebherr diesel-powered mobile harbor cranes to handle containers and break-bulk cargo. By refurbishing and electrifying one of the existing Kocks cranes and purchasing a new electric ship-to-shore crane, the two Kocks cranes' diesel engines will no longer be used, and potential emissions of 36.54 tons per year of NO_x and 6.55 tons per year of Particulate Matter (PM) will be eliminated. In addition, due to the efficiency of the electric ship-to-shore crane, one of the existing diesel-powered Liebherr cranes will be able to be used approximately 50 hours less per week, which equates to an additional reduction of 12.7 tons per year of NO_x and 0.3 tons per year of PM. A total of 49.24 tons per year of NO_x and 6.85 tons per year of PM will be eliminated through this project.

Emissions of PM in this project solicitation have been calculated as total diesel particulate matter (DPM) emissions. Gloucester Terminals has historically conformed with the NJDEP's guidance on Determining Health Risks for Diesel Exhaust Particulates from Internal Combustion Engines when calculating PM emissions at the Terminal.

The methodology used to calculate the reduction in tons per year of NO_x and PM consists of the elimination of the operating hours for the diesel engines in the two existing Kocks gantry cranes as well as the anticipated reduction in operating hours for the Liebherr mobile harbor crane, which would be off-set by the operation of the electric ship-to-shore cranes. The anticipated reduced operating hours were multiplied by emission factors provided through: (1) NJDEP approved source test data for the Kocks crane's primary diesel-powered engines, (2) manufacturer's supplied emission factors, and (3) use of the United States Environmental Protection Agency's (USEPA's) AP-42 Compilation of Air Emission Factors, Chapter 3.3 Gasoline and Diesel Industrial Engines, and Chapter 3.4 for Large Stationary Diesel and All Stationary Dual-fuel Engines.