Hearing Before the U.S. Senate Committee on Environment and Public Works

Examining the Diesel Emissions Reduction Act of 2019

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Testimony of
Mr. Kurt Nagle, President and Chief Executive Officer
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406 Dirksen Senate Office Building

10:00 AM

Chairman Barrasso, Ranking Member Carper and Members of the Committee. I am here today to voice strong support for reauthorization of the Environmental Protection Agency's (EPA) Diesel Emissions Reduction Act (DERA) program. Over the last 10 years, this funding has been key to incentivizing and expanding port environmental programs to improve air quality impacted by port operations. DERA has always enjoyed strong bipartisan support for its voluntary nature in partnering with local communities to reduce certain diesel emissions.

As you are likely aware, ports are national transportation assets. Seaports are economic engines and vital freight gateways to the global marketplace for American farmers, manufacturers and consumers, and serve as critical infrastructure for the U.S. military. They also support the growing cruise industry. Ports support 23 million American jobs and handle $6 billion in goods per day, resulting in $4.6 trillion of economic activity. Overall, U.S. seaports support 25 percent of the U.S. economy. Additionally, the amount of freight moved in the U.S. is projected to grow 15 percent by 2045, and America's trade volume is expected to quadruple after 2030.

While trade yields tremendous economic benefits for the port community, as well as for local, state and federal governments, it can impact the air quality in and around port communities. Reducing air emissions continues to be a high priority for ports, especially in areas where a port plans to expand, is located in a National Ambient Air Quality Standards non-attainment area or is close to residential communities. Ports are often in urban areas where cities and towns emerged. They must share this crowded space with large populations that often live close to the port. Ports are multimodal facilities served by vessels, trucks and rail, and use cargo handling equipment – many of which use diesel fuel.

Seaports are working to identify solutions that enhance our coastal resources and reduce environmental impact, not just air emissions. The American Association of Port Authorities (AAPA) and its members are committed to delivering prosperity through environmentally sustainable seaports by improving the coastal environment, managing their environmental

impact and engaging stakeholders and community members. AAPA's members are proactively working to enhance the air, water and land of the coastal environment. Through partnerships, such as DERA, seaports are working to reduce air emissions, as well as find solutions to the challenge of aquatic invasive species and protect and create wildlife habitats.

In the area of air emissions, AAPA was an early supporter of the creation of the DERA grants and has supported continued funding for this program over the years. Additionally, AAPA supported the adoption of the North American Emissions Control Area to require the use of low sulfur fuel by marine vessels. This has significantly reduced air emissions from ocean going ships, the largest air emission concern of most ports. DERA, on the other hand, is a voluntary program that helps address mostly other contributors, such as trucks and locomotives, as well as equipment such as cargo handling equipment including cranes.

According to EPA between 2008 and 2018, a total of 150 clean diesel grants have been awarded to port-specific projects, totaling $148 million. An additional $64 million was awarded through DERA to multi-sector projects that involve ports. Between 2013 and 2017, about 40 percent of total DERA funding was awarded for ports' projects. The FY 2018 grants have been, or will soon be, awarded to projects in and around seaports totaling approximately $19 million of the total $41 million available. An addition, $5 million is for locomotive projects, many of which carry port cargo.

In applying for grants, ports determine their biggest need. Just last month, the EPA awarded a DERA grant of $400,000 to the Alabama State Port Authority, to replace a 1982 locomotive with a Tier IV locomotive engine. EPA estimates that this change will result in a lifetime reduction of nearly 102.2 tons of nitrogen oxides and 3.4 tons of PM. This is the port's fourth such grant. When it is complete, the port will have converted half of its locomotive fleet from tier 0 to tier 4 yielding significant reductions in the port's emissions profile. Other ports such as Long Beach, Georgia, Maryland and Tacoma have used DERA funds for cleaner locomotives as well.

DERA has been especially helpful in supporting larger ports' clean truck programs. This includes clean truck programs at the Port of Baltimore, Massport, New York and New Jersey, Houston, Seattle, and Georgia. These programs help truckers who service the ports buy new cleaner "drayage" trucks that not only reduce emissions but are more fuel efficient. These trucks do not have the resources to replace their trucks as many are independent operators and these trucks are very long lasting.

The end of this testimony includes more details on health benefits of some of these grants at individual ports. Let me detail some of them here, especially for ports who have Members on this Committee.

The Maryland Port Administration has been awarded seven competitive DERA grants for the Port of Baltimore totaling over $7 million, and another $900,000 through a DERA state award. They have used their grants to exchange 181 port drayage trucks, 110 pieces of cargo handling equipment, four marine diesel engines and six switcher locomotives. Between 2012 and 2016, due to the availability of funding programs like DERA, the Port of Baltimore was able to reduce emissions by 19 percent while cargo throughput increased by 10 percent. Their trucking replacement program, for example, has resulted in a reduction of

2,056 tons of nitrous oxides; 84 ton in PM 2.5 particulate matter; 78 tons is hydro carbons and 524 tons in carbon monoxide.

The Port Authority of New York and New Jersey also has a very successful clean truck program that has been expanded due to DERA grants. In February of this year, EPA announced that it has awarded $2 million to the Port Authority of New York and New Jersey to replace up to 80 model year 2006 and older short-haul trucks that service Port Authority facilities with cleaner, newer model year trucks by offering truckers up to 50 percent of the cost to scrap and replace each vehicle up to $25,000. According to EPA, this Diesel Emissions Reduction Act grant will foster the replacement of older trucks with 2013 and newer trucks, and will reduce emissions of diesel particulate matter and other pollutants such as nitrogen oxides. EPA expects this grant to result in emission reductions of 49.5 tons of nitrogen oxides, 16.5 tons of carbon monoxide and 2.15 tons of fine particulates per year.

Ports have also used DERA grants for supporting repowering or replacing cargo handling equipment. Massport for example received a grant in 2015 of $634,000 to retrofit five rubber-tired-gantry cranes with new Tier 4 engines resulting in a reduction in short tons of NO_x 101; carbon monoxide of 74; carbon dioxide of 1,055 and particulates of 11.

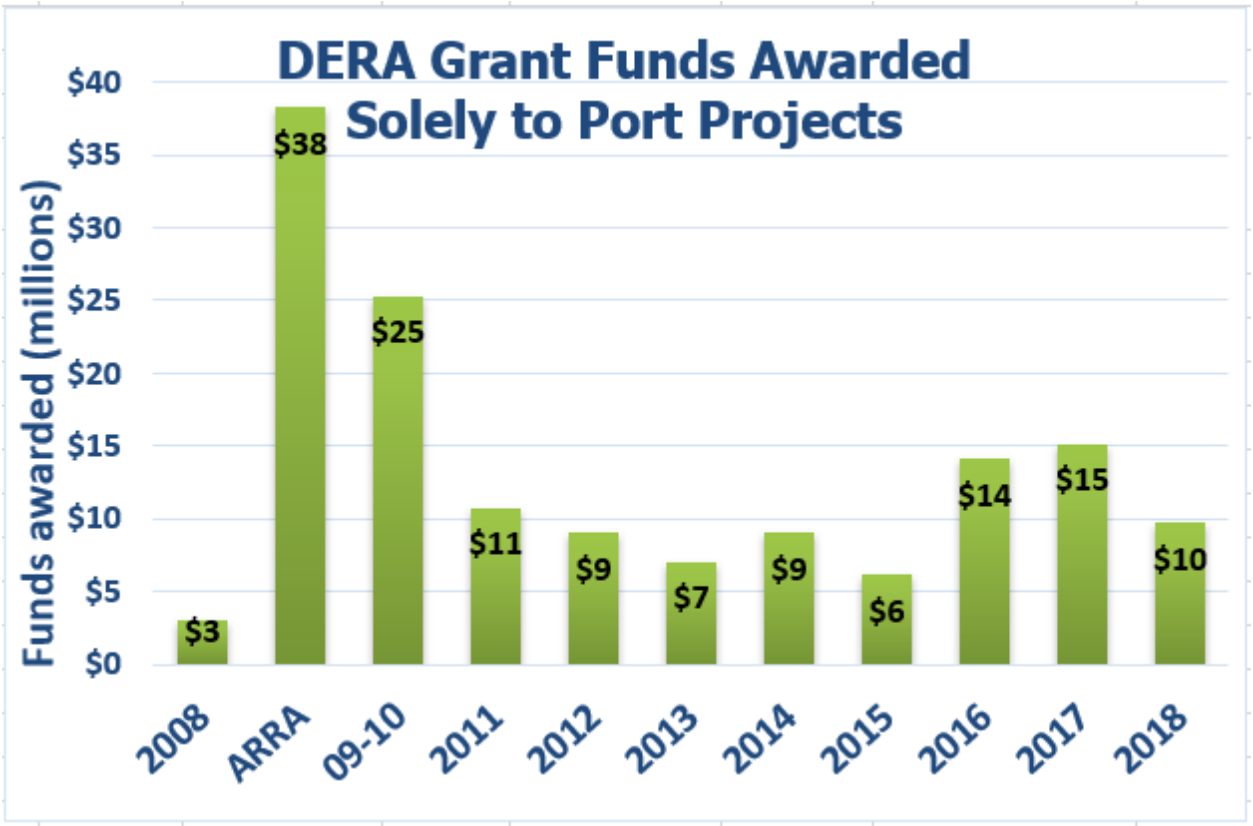
The Ports of Virginia, Georgia, Oakland, Long Beach, Houston and Los Angeles have also used their grants to retrofit or replace cargo handling equipment. The Georgia Ports Authority (GPA) reports that of the seven DERA grants it received, two provided funds to assist in the repowering of 20 rubber-tired gantry cranes with variable frequency inverters. GPA was on the forefront of changing the RTG technology with the variable inverters that provided power when needed, as needed, instead of running at full power. This change resulted in immediately cutting fuel use by 33 percent and the associated emissions. Total lifetime emissions reductions are estimated at 36,400 tons.

The Port of Virginia also reports on significant benefits from DERA grants related to dredge repowering, a hybrid shuttle carrier demonstration project and the more recent hybrid shuttle carrier project that is just underway. As the most recent award supports nine shuttle trucks, the health benefits are triple from its 2014 award. Other port areas that used DERA grants for marine vessels include Cleveland, Portland, New Jersey, Puget Sound, Long Beach and Connecticut.

For example, the Port of Portland, helped leverage a DERA grant in 2011 obtained by the Oregon Department of Environmental Quality to repower the Dredge Oregon that resulted in diesel particulates reduction of 80 percent and a reduction of greenhouse gases by 25 percent. The Dredge Oregon was the port's largest diesel particulate emitter.

The EPA Ports Initiative has an excellent webpage that shows more details for all the port-related grants. According to that website, the vast majority of port grants in the last few years have been awarded through the national program, rather than the state DERA allocations. For example, in FY 2017, 14 port awards came from the national program and only two came from the state DERA allocation. Below is a link to the Ports Initiative webpage on DERA awards. The chart below is from the EPA website.

https://www.epa.gov/ports-initiative/overview-clean-diesel-grants-awarded-ports-projects



Source: EPA

Finally, let me note that as a key committee responsible for infrastructure that impacts ports, I want to encourage you to ensure any infrastructure legislation that is enacted helps build America's 21st century seaport infrastructure. We have an opportunity as a nation to do that. The FAST Act must be more flexible for port and intermodal projects. We also are hopeful that you will fast track consideration of the AAPA proposal to reform HMT spending to fix the system. We would like this to occur before the next WRDA and stand ready to continue the process of seriously considering this proposal within your Committee.

The following attachments provide individual ports' summaries of their DERA grants and the health impacts from the program.

News Releases from Region 04
EPA Awards Funding to Reduce Diesel Emissions
at the State Port Authority in Mobile, Ala.

Clean Diesel Grant to Reduce 102.2 Tons of Nitrogen Oxides and 3.4 Tons of PM2.5
02/21/2019
Contact Information:
James Pinkney (region4press@epa.gov)
(404) 562-9183 (Direct), (404) 562-8400 (Main),

ATLANTA (February 21, 2019) – The U.S. Environmental Protection Agency (EPA) is awarding a Diesel Emissions Reduction Act (DERA) Clean Diesel Funding Assistance Program grant totaling $400,000 to the Alabama State Port Authority in Mobile, Ala. to support efforts to reduce diesel emissions and exposure by replacing one 1982 locomotive with a Tier IV locomotive engine.

"Diesel engines are incredibly durable, with millions in operation in Alabama, and across the nation," **said EPA Acting Region 4 Administrator Mary S. Walker.** "These grants provide not only environmental and health benefits by eliminating exposure to diesel exhaust, but cost-effectiveness as well.

Reducing emissions from diesel engines is one of the most important air quality challenges facing the country. Even with EPA's stringent heavy-duty highway, nonroad, marine and locomotive standards set to take effect over the next decade, millions of diesel engines already in use will continue to emit large amounts of nitrogen oxides, particulate matter and air toxics, which contribute to serious public health problems. This investment will have a lifetime reduction of nearly 102.2 tons of Nitrogen Oxides and 3.4 tons of $PM_{2.5}$.

These emissions are linked to thousands of premature deaths, hundreds of thousands of asthma attacks, millions of lost work days, and numerous other health impacts every year. This grant will eliminate or reduce diesel emissions through the implementation of cleaner engines, vehicles, and technologies.
For more information about EPA's National Clean Diesel campaign and DERA program, visit www.epa.gov/cleandiesel.

Georgia Ports Authority (GPA)

EPA DERA Grants

GPA has received seven grants over a period of nine years. Four of these grants were to assist in the replacement of owner / operator, older dray trucks of 1993 - 2007 truck vintage with 2011 or newer, similar Class 8 trucks. This group of dray truck owners are some of the most economically challenged truckers in the industry with the vast majority having substandard credit and little chance of purchasing the 2010 / 2011 or newer trucks. These cost share programs to date have replaced 84 trucks with the potential of 165 trucks at program completion. In addition to these newer trucks being more fuel efficient which decrease emissions, the trucks being replaced are reducing pollution components as calculated by the EPA's DEQ (Diesel Emissions Quantifier). The emission components reduced by the newer trucks as measured by the DEQ calculations are NO_x which is reduced by up to 90.7%, $PM_{2.5}$ by up to 94.5%, HC by up to 92.6%, CO by up to 93.6%, and CO2 by up to 10.4%.

Another two grants provided funds to assist in the repowering of 20 RTGs (rubber-tired gantry cranes) with variable frequency inverters. GPA was on the forefront of changing the RTG technology with the variable inverters that provided power when needed as needed instead of running at full power whether lifting a load or waiting for another load. The RPMs went from a constant 2100 RPMs to variable levels of 800- 2100 immediately cutting full use by 33% and the associated emissions. Emissions were further reduced through the Tier 4 engines. Total lifetime emission reductions by the DEQ calculations are 36,500 tons.

The last grant was used to install AESS (automatic equipment start stop) units on 11 locomotives. The annual fuel savings was calculated to be 52,200 gallons of diesel per year or 688,000 over the DEQ calculated remaining life. The calculated annual emissions reductions were expected to be 236.75 tons or a total DEQ lifetime of almost 3,100 tons. Both the fuel and emissions lifetime reductions are probably conservative as these engines continue to operate for very long periods.

APM Terminals Replaces 16 Yard Tractors with the Cleanest Equipment on the Market

Port of Los Angeles Terminal Operator Donates Retired Cargo Handling Equipment to LA Unified Occupational Training Programs

SAN PEDRO, Calif. – August 9, 2018 – With the help of a federal grant secured by the Port of Los Angeles, APM Terminals (APMT) Pier 400 has replaced 16 yards tractors with the cleanest cargo handling equipment available. The container terminal operator also donated 12 of the outgoing yard tractors to auto mechanic training programs in the Los Angeles Unified School District (LAUSD).

"This is a great outcome on all fronts," said Steven Trombley, Managing Director, APM Terminals, Los Angeles. "We're running a cleaner terminal and doing our part to improve the air for those who live and work in the harbor area. At the same time, we're supporting workforce training by providing students the equipment they need to prepare for high-skilled, good-paying jobs in the goods movement industry right here in Southern California."

APMT invested more than $1.5 million in the project. Additionally, the U.S. Environmental Protection Agency contributed more than $500,000 in the form of a Diesel Emissions Reduction Act (DERA) grant. The program supports projects that reduce air pollution by using diesel emission reduction technologies.

As an alternative to destroying the replaced equipment, APMT sought and obtained EPA approval to donate the retired yard tractors to LAUSD diesel mechanic training programs. Normally, DERA grants require outgoing equipment to be permanently disabled.

"This project is a model of sustainability," said Port of Los Angeles Executive Director Gene Seroka. "We applaud APMT for its foresight, creativity and willingness to invest in green growth and education."

APMT's new yard tractors are built with the cleanest available technology compliant with Tier 4 final diesel engine standards established in 2014. LAUSD accepted as many of the retired yard tractors as it could transport, all of which have Tier 3 model engines compliant with 2006 emissions control standards.

The 12 tractors are now at three school sites throughout Los Angeles. Eight went to Harbor Occupational Center in San Pedro, two to Bell High School, and two to Van Nuys High School.

"We were very excited and honored to get this equipment from APM Terminals," said Principal Sonya Ramirez of Harbor Occupational Center, which specializes in adult education and career technical training. "Until now, our students have largely been working on older equipment. These tractors with Tier 3 engines allow our students to graduate and enter the workforce with the advantage of hands-on experience with the type of equipment they will actually see on the job."

As part of its ongoing clean air strategies, the Port routinely seeks out environmental grants and incentives to offset the cost of upgrading on-road trucks and off-road terminal

equipment, flags opportunities for its tenants and business partners, and assists them in applying for funding. The same DERA grant that helped APMT upgrade its tractors also provided $116,000 to TraPac, which operates a container terminal at Berths 136-147, to defray its cost of repowering two heavy-duty forklifts with Tier 4 engines.

Combined, the two projects are expected to eliminate 322 tons of nitrogen oxides (NO_x), 75 tons of particulate matter (PM), 14 tons of hydrocarbons (HC), and 237 tons of carbon monoxide (CO). NO_x and HC are components of smog, and PM and CO are toxic contaminants. The total reduction in harmful emissions represents a savings of more than $11.2 million annually in health care costs to the public in Los Angeles County. Deploying the cleanest available cargo handling equipment furthers the Port's larger goal under the Clean Air Action Plan of accelerating progress toward a zero emissions future while protecting and strengthening its competitive position in the global economy. Improving the quality of life in neighboring communities disproportionately affected by environmental pollution and assisting the region in attaining federal clean air standards are key objectives.

The Port of Los Angeles is America's premier port and has a strong commitment to developing innovatively strategic and sustainable operations that benefit Southern California's economy and quality of life. North America's leading seaport by container volume and cargo value, the Port of Los Angeles facilitated $284 billion in trade during 2017. San Pedro Bay port complex operations and commerce facilitate one in nine jobs in the five-county Southern California region.

Massport's Participation in EPA DERA Funding for the Clean Truck Program

- Two EPA DERA grants totaling $1,300,000 awarded
  - CY11 DERA grant $500,000 to replace 20 trucks
  - CY16 DERA grant $800,000 to replace 26 trucks
  - To date, 42 trucks have been replaced
    - ✓ Funding available in the current DERA grant for four more applications (pending)

- The 46 trucks replaced by EPA DERA funding provide the following annual emission reductions (short tons):
  - NO_x 46.80
  - Carbon Monoxide 15.60
  - Hydrocarbons 2.68
  - Particulates 2.61
    - ✓ Emissions for the four pending truck replacements based on fleet averages

- In 2015, Massport funding of $1,000,000 replaced 40 trucks using the EPA DERA 2011 Clean Truck Program guidelines

DERA Grant for Rubber-Tired-Gantry Cranes (RTG)

- Funding of $634,000 to retrofit TIER 3 engines with TIER 5 engines on five RTGS

News Releases from Region 02
EPA to Provide $2 Million in Grants to Port Authority Areas of New York and New Jersey to Reduce Air Pollution

Grant projected to replace up to 80 old trucks, eliminate 49.5 tons of nitrogen oxides and 16.5 tons of carbon monoxide
02/06/2019
Contact Information:
Elias Rodriguez (rodriguez.elias@epa.gov)
212-637-3664

(New York, N.Y.) Today, the U.S. Environmental Protection Agency (EPA) announced that it has allocated $2 million to the Port Authority of New York and New Jersey to replace up to 80 model year 2006 and older short-haul trucks that service Port Authority facilities with cleaner, newer model year trucks by offering truckers up to 50 percent of the cost to scrap and replace each vehicle up to $25,000.

"The Truck Replacement program is another example of how we are successfully partnering with the private sector by helping support businesses even as we clean up the environment," **said EPA Regional Administrator Pete Lopez.** "Pollution from diesel engines is linked to asthma, respiratory problems, heart attacks and is especially dangerous to children and the elderly. Reducing air pollution from diesel engines has enormous health benefits that translates directly into fewer hospitalizations and less missed days of work and school. Replacing old dirty trucks with newer ones makes a significant difference in areas around Port Authority facilities."

This Diesel Emissions Reduction Act grant will foster the replacement of older trucks with 2013 and newer trucks and will reduce emissions of diesel particulate matter and other pollutants such as nitrogen oxides. EPA expects this grant to result in emission reductions of 49.5 tons of nitrogen oxides, 16.5 tons of carbon monoxide and 2.15 tons of fine particulates per year. These are short-haul trucks, commonly called drayage trucks, which frequently call at the Port Authority's Marine Terminals.

Background
EPA provides grants under the Diesel Emissions Reduction Act to protect human health and improve air quality by reducing emissions from diesel engines. The particles in diesel exhaust can penetrate deep into the lungs and pose serious health risks, including increasing the risk of cancer and aggravating the symptoms of asthma and other respiratory problems. In addition, diesel exhaust contributes to already unhealthy levels of smog, which are formed when chemicals released by vehicles, power plants, and industrial boilers react in sunlight.

The Truck Replacement Program is one of many control measures created under the comprehensive Clean Air Strategy for the Port of New York and New Jersey developed by the Port Authority in partnership with EPA; the New York Shipping Association; North Jersey Transportation Planning Authority; New York Metropolitan Transportation Council; New Jersey Department of Environmental Protection; New York State Department of Environmental Conservation; NYC Office of the Mayor; and Cities of Newark, Elizabeth, Jersey City and Bayonne.

For information about the EPA's clean diesel program,
visit: https://www.epa.gov/cleandiesel
To apply for the truck replacement program at the Port Authority of New York and New Jersey, please visit: https://www.panynj.gov/truckers-resources/truck-replacement.html
Follow EPA Region 2 on Twitter at http://twitter.com/eparegion2 and visit our Facebook page, http://facebook.com/eparegion2

The Port of New York and New Jersey

Diesel Emission Reduction Act (DERA) Grant Benefits Summary

Under the Clean Diesel Funding Assistance Program FY 2018, The Port Authority of New York and New Jersey (Port Authority) received a $2 million DERA grant. This Program will help achieve the Port Authority's, state's and federal government's goals to reduce emissions and improve air quality. With the new grant money, the agency anticipates it will replace approximately 80 privately owned and operated EMY 1996 – 2006 drayage trucks with trucks meeting engine model year (EMY) 2013 or newer EPA compliant engines. The result would be a reduction in emission of criteria pollutants – contributing to the improved health and quality of life within the New York/Northern New Jersey/Long Island Non-Attainment Area. An additional benefit would be improved safety for the truckers who call on the Port of New York and New Jersey daily.

Replacing older model trucks with newer ones is a critical component of the agency's port-related strategic plan and one that will provide significant environmental benefits, not only on port property, but in the communities that surround it.

Due to current requirements, the DERA funding program is the preferred option for port-related vehicle replacement programs as there are no Buy America provisions in the grant. In contrast, with the Federal Highway Administration's Congestion Mitigation and Air Quality (CMAQ) grant, port authorities must seek a waiver from the Buy America provision because no US vehicle manufacturer can certify to a domestic sourcing and manufacturing process for all steel or iron components in the vehicle. There are also limited US original equipment manufacturers for Class 8 vehicles to choose from. The Port Authority currently has $13.7M in CMAQ funds on hold pending Buy America waivers; one of which has been in process for over 18 months.

A considerable portion of emissions related to port activity occur off-port property and generate from equipment and sources owned by private stakeholders. In many cases, port authorities do not have the authority to impose holistic policy changes or force private entities to purchase newer, cleaner and more environmentally-friendly equipment. Federal and State support of environmental programs and a renewed focus on systemic policy changes are essential to support positive local, regional and national impacts to communities and the environment.

Future Program Considerations

- Eligibility
    - At this juncture, the eligible vehicle projects encompass Class 5 - Class 8 on-road (including buses), marine, locomotive, and non-road such as CHE, which is more than sufficient to cover Port-related equipment. However, the grant does not allow heavy-duty trucks with engine model year 1995 or older to participate. While this make sense due long-haul trucks, the rule significantly underestimates port drayage vehicles' longevity. The Port Authority of NY & NJ recommends EPA grant an exemption for these older vehicles.
- Availability
    - The Port Authority of NY & NJ recommends the EPA consider incentivize and encourage regions that are exceptional performers. Ways to achieve this could be to expand availability of funds or consider past performance.

- Process
    - The Port Authority of NY & NJ recommends a longer grant submission period, which could help port authorities collaborate with its tenants, community stakeholders and third-party partners.

Port Houston

DERA

Port Houston has used grant funds from the Environmental Protection Agency's Diesel Emissions Reduction Act (DERA) Clean Diesel Funding Assistance Program since 2009 to help us and our port users/stakeholders to reduce NO_x and PM2.5 emissions in the Houston area. The DERA funds are extremely important to Port Houston since we are located in the Houston-Galveston-Brazoria ozone nonattainment area and in an area that has experienced high PM2.5 emissions in the past. Port Houston has used DERA funds to replace, repower, or retrofit our own equipment and vehicles. More importantly, however, is that Port Houston made the decision, as part of our environmental stewardship initiatives, to help our port users/stakeholders get access to these funds since they are private entities. Under the DERA rules private entities are not eligible to directly apply for DERA grant funds but a governmental entity like Port Houston can apply on their behalf.

Port Houston has used $5,947,208.66 in DERA grant funds for 154 different projects that included both our projects and our port users/stakeholder's projects. This has resulted in a total of 160.7 annual tons of NO_x and 8.8 annual tons of PM2.5 being reduced. This was attributed to the following projects:

- Replacement of 13 forklifts, 3 terminal tractors and 1wheel loader that reduced 34.5 annual tons of NO_x and 1.5 annual tons of PM2.5 starting in 2009
- Repower of 8 forklifts, repower of 3 marine engines, and the replacement of 21 terminal tractors that reduced 33.1 annual tons of NO_x and 2.3 annual tons of PM2.5 starting in 2010
- Repower of 9 forklifts and the replacement of 16 terminal tractors and 15 forklifts that reduced 48.4 annual tons of NO_x and 2.7 annual tons of PM2.5 starting in 2011
- Replacement of 13 terminal tractors and 4 onroad drayage trucks that reduced 18 annual tons of NO_x and 1 annual ton of PM2.5 starting in 2016
- Replacement of 11 terminal tractors and 4 onroad drayage trucks that reduced 18.8 annual tons of NO_x and 0.9 annual tons of PM2.5 starting in 2017
- Replacement of 7 onroad drayage trucks that reduced 7.9 annual tons of NO_x and 0.4 annual tons of PM2.5 starting in 2018

Furthermore, there were additional 21 tons of NO_x and 30.5 tons of PM2.5 emissions that were achieved but were for only a limited time. This included:

- 21 tons of NO_x and 29.4 tons of PM that were reduced from fuel switching to cleaner fuel on 163 ship visits to Port Houston in 2010 and 2011 before the North America Emission Control Area was in force
- 1.1 tons of PM2.5 were reduced from the retrofit of 26 terminal tractors in 2010. However, the retrofits were removed a couple of years later due to equipment malfunction and the bankruptcy of the retrofit manufacturer.

Maryland Department of Transportation Maryland Port Administration (MDOT MPA)

Diesel Emission Reduction Act (DERA) Grant Benefits Summary

Introduction

The movement of cargo through US ports relies heavily on the use diesel-powered engines. The emissions from this equipment adversely impacts air quality, especially in communities near marine terminals. Ports have long been identified as a geographical source of diesel emissions. To reduce the impacts to Port neighbors, workers and the environment, diesel equipment is being retrofitted, repowered, or replaced with the cleaner version. Identifying funding for diesel emission reduction is a priority for the Port of Baltimore.

The Port of Baltimore has benefited from EPA's Diesel Emission Reduction Act (DERA) funding since the program's inception in 2008. The Maryland Department of Transportation Maryland Port Administration (MDOT MPA) has successfully solicited grants under EPA's clean diesel funding assistance programs to help upgrade cargo handling equipment (CHE), Port drayage (dray) trucks and harbor craft that operate in the Port at both public and private marine terminals. In addition, MDOT MPA has received one-time funding from EPA under the ARRA program. MDOT MPA was also an early participant in EPA's Clean Ports Initiative work groups.

To date, MDOT MPA has been awarded 7 competitive federal DERA grants totaling over $7 million. In addition, based on the Port's partnership with the Maryland Department of the Environment (MDE), MDOT MPA has also received an additional $900,000 of funding for diesel drayage truck replacement through non-competitive DERA award funds provided by EPA to the State.

MDOT MPA DERA Activities

Since 2008, MDOT MPA has coordinated the upgrade or retrofitting of 110 pieces of CHE, 181 Port drayage trucks, 4 marine diesel engines, and 6 switcher locomotives. The following table is a summary of air quality projects undertaken by the Port of Baltimore using EPA funds made available through DERA and ARRA.

Grant Year	Granting Agency	Grant Amount	# pieces of equipment upgraded or retrofitted	Completed Projects
2008	EPA DERA	$ 361,000	16 pieces of CHEs	Engine retrofits
2009	EPA ARRA	$ 3,500,000	23 dray trucks, 3 harbor craft, 42 CHEs	Engine retrofits and replacement
2009/2010	EPA DERA	$ 1,376,000	64 Dray truck	Replacement
2012	EPA DERA	$ 215,000	10 Dray trucks	Replacement
2012	MDE (DERA State)	$ 215,000	10 Dray trucks	Replacement
2013	EPA DERA	$ 750,000	23 Dray trucks	Replacement
2013	MDE (DERA State)	$ 88,946	3 Dray trucks	Replacement
2015	EPA (DERA)	$ 870,000	28 Dray trucks	Replacement

2016	EPA (DERA)	$ 978,302	26 pieces CHEs; 6 switcher locomotives	Engine retrofits, replacement, and technology
2016	MDE (DERA State)	$ 136,886	8 Dray trucks	Replacement
2017	MDE (DERA State)	$ 217,788	5 Dray trucks	Replacement
2018	MDE (DERA State)	$ 245,359	7 Dray trucks	In Process
2018	EPA DERA	$ 2,453,952	CHEs, Marine and Dray trucks	In process

CHEs consist of a mix of nonroad equipment, such as fork lifts, yard tractors, rubber tire gantry cranes, reach stackers, and empty handlers. This equipment is critical to the day-to-day cargo handling operations in the Port. Engine retrofits have included utilizing diesel emissions reduction technologies on existing engines or upgrading the engines with newer engine models.

Dray trucks are short haul diesel trucks that move marine containers in and out of the port to the local and regional distribution centers. Many dray truck operations in the Port of Baltimore are owner/operator businesses that rely on the movement of Port cargo for their livelihood. The Port's highly successful Dray Truck Replacement Program provides rebates averaging $24,000 for truck owners to upgrade their vehicles to a newer engine. The newer engines produce lower emissions and increase fuel economy, which is a further economic benefit the owner.

Reducing the emissions from Port-related locomotive and marine engines is another priority for the Port of Baltimore. Using DERA funds, MDOT MPA has worked with its partners to install start/stop software and electrical hardware on Port switcher locomotives to minimize diesel emissions while idling.

MDOT MPA DERA Benefits

Approximately 2 million residents live in communities close to marine terminals in the Port of Baltimore who may be exposed to emissions from diesel engines. Many of these neighborhoods have high population densities and considered disadvantaged communities. All have benefitted from reduced emissions and improved air quality through the reduction of criteria pollutants that were supported through DERA funding.

Between 2012 and 2016, due to the availability of funding programs like DERA, the Port of Baltimore was able to reduce emissions by 19% while cargo throughput increased by 10%. Decreases in emissions and increases in efficiencies were realized due to CHE modernization, replacement of the older dray trucks, and operational changes.

The following table shows the life time emissions reductions in tons for equipment replaced to date and scheduled to be replaced as part of DERA and ARRA funding to the Port of Baltimore.

Equipment Type	**NO_x tons (nitrous oxides)**	**PM 2.5 tons (particulate matter 2.5 um)**	**HC tons (hydro carbons)**	**CO tons (carbon monoxide)**
Dray Trucks	2,056	84	78	524
CHE	1,248	80	63	399
Marine (projected)	35	1.74	1.3	3.6

MDOT MPA implements a robust stakeholder outreach program and engagement program. Over the years, MDOT MPA has received letters of support for the DERA grant applications from a growing number of local community groups, businesses, environmental advocacy organizations, and other non-governmental organizations.

The Port stakeholders recognize the importance of EPA funding to support improving air quality, especially in non-attainment areas for criteria air pollutants, such as the Baltimore Region. The DERA program is a crucial component of the Port's Strategic Plan, which includes the reduction of air emissions while continuing to grow cargo throughput. Programs like DERA help to ensure that the Port of Baltimore can continue to meet these objectives.

Virginia Port Authority

DERA Grants

On August 29, 2017, the U.S. Environmental Protection Agency (EPA) awarded the Virginia Department of Environmental Quality (DEQ) a state Diesel Emission Reductions Act (DERA) grant 96352901 in the amount of $255,042 for the 2017 Virginia Clean Diesel Project. This grant agreement will enable DEQ to administer the DERA project through a sub-agreement with the Mid-Atlantic Regional Air management Administration (MARAMA). The initiative will continue to provide financial incentives for participants in the Virginia Port Authority Green Operators (GO) Program to replace older model drayage trucks with 2011 or newer trucks and reduce emissions. A listing of drayage truck replacements accomplished to date can be found on this website.

According to VPA's integrated air emission model, repowering of these vessels is expected to achieve a 90% reduction in PM and VOC emission and a 37% reduction in NO_x emissions from current tug operations in the harbor. When normalized based on the number of containers carried by barge versus by truck between the Norfolk, Portsmouth, and Richmond, further reductions of 63% for VOC and a 34% for CO per ton mile movement of cargo are expected. The EPA Diesel Emission Quantifier estimates that 1420 tons of NO_x and 136 tons of CO emissions can be reduced over the 10-year life of the tug boats.

This task will be completed in two phases between April 2010 and March 2012. In the interim, the barge service will operate using Tier '2' tugboats repowered in 2007 by Norfolk Tug Company. The repowered engines are expected to be in service for ten years unless Norfolk Tug Company chooses to upgrade to meet future emissions standards. 12-15 shipbuilding jobs are expected to be created or preserved by this task. The cost of the NO_x reductions associated with this task is estimated at $18,000/ton.

The chart below is from the 2014 DERA application.

Emissions	NO_x short tons	PM2.5 short tons	HC short tons	CO short tons	CO2 short tons	Diesel gallons
Reductions/Year (per DEQ)	2.161125	0.1720875	0.2505	0.69319	340.594	30,684
Reductions/Lifetime (per DEQ)	22.69935	1.32645	2.257275	6.89471	1,498.62	135,011
Percent Reduced (%)	35.81%	26.29%	30.71%	33.90%	15.00%	15.00%
Cost Effectiveness ($/ton)	$56,549	$967,688	$568,659	$186,176	$857	$9.51

The Community Benefits below comes from the 'Outcomes' portion of one of the data charts.

Community benefits:
Economic health benefits = $371,250 per year

Improved quality of life for residents in the vicinity of VPA facilities from reduction of noise and emission pollution in neighborhoods, including potential increase of property values.

WEST COAST COLLABORATIVE
A public-private partnership to reduce diesel emissions

The goal of the West Coast Collaborative is to leverage federal funds to strategically reduce emissions from the most polluting diesel sources in impacted communities. The Collaborative seeks to improve air quality and public health by targeting the highest polluting engines with the most cost effective control strategies.

DERA 2018: Near-Zero Emissions Locomotive Replacement at the Port of Long Beach

The West Coast Collaborative (WCC) is pleased to announce the South Coast Air Quality Management District's (SCAQMD) receipt of a United States Environmental Protection Agency (US EPA) Diesel Emissions Reduction Act (DERA) grant to replace a diesel switcher locomotive operating at the Port of Long Beach. This project will be implemented using $719,500 in DERA grant funding combined with $2,158,500 in matching funds from SCAQMD.

What is the Project?

This project will replace one model year 2007 Tier 2 diesel switcher locomotive, operating at the Port of Long Beach, with a new Tier 4 diesel switcher locomotive, and transfer the replaced Tier 2 unit to displace a Tier 0 or older switcher locomotive within the Mojave Desert Air Quality Management District (MDAQMD).

Why is this project important?

Exposure to diesel exhaust has been associated with decreased lung function and can also exacerbate the symptoms of asthma, bronchitis and pneumonia. This project will reduce human exposure to diesel emissions as well as the negative health effects associated with exposure. The locomotives to be replaced under this project operate full-time within the South Coast air basin and the Mojave Desert air basin respectively, both of which face significant air quality challenges and remain in non-attainment for ozone and particulate matter. The South Coast is also designated by US EPA as an air toxics assessment area where much of the population is exposed to more than 2.0 $\mu g/m^3$ of diesel particulate matter emissions. People living in the census tracts surrounding the Port of Long Beach face an increased risk of cancer, asthma, birth defects, and decreased lung function.

What are the Environmental Benefits?

Over the remaining lifetime of the affected engines, these replacements are estimated to reduce emissions of oxides of nitrogen (NOx) by 50 tons, particulate matter (PM) by 1.5 tons, hydrocarbons (HC) by 3.7 tons and carbon dioxide (CO_2) by 675 tons. Additionally, the reduction of PM2.5 emissions will also reduce black carbon (BC), which influences climate by directly absorbing light, reducing the reflectivity ("albedo") of snow and ice through deposition, and interacting with clouds.

Who are the Partners on this project?

The project will be administered by the SCAQMD, a regional agency with jurisdiction over air quality in California's South Coast Air Basin. SCAQMD received the DERA grant award through the WCC, and will distribute the grant funds to project partner Metropolitan Stevedore Company (Metro Ports). SCAQMD will be responsible for data monitoring and reporting for the project, and for working with MDAQMD to transfer the Tier 2 locomotive and scrap the replaced Tier 0 locomotive.

What is the Collaborative?

The WCC is an ambitious partnership between leaders from federal, state, local, and tribal government, the private sector, and environmental groups committed to reducing diesel emissions along the West Coast. Partners come from all over Western North America, including: Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington, the Pacific Islands, Canada and Mexico. The WCC is part of the US EPA National Clean Diesel Campaign (www.epa.gov/cleandiesel).

How can I find out more Information?

For more information on this project, please contact Francisco Dóñez at US EPA (donez.francisco@epa.gov or 213-244-1834). For more information on the WCC, please visit our website. www.westcoastcollaborative.org