
Diesel Emissions Reduction Act (DERA) Sixth Report to Congress

Highlights of the Diesel Emissions Reduction Act Program 2008–2020



Acronyms and Abbreviations

ARRA	American Recovery and Reinvestment Act of 2009
ARPA	American Rescue Plan Act
CHE	Cargo Handling Equipment
CO	Carbon Monoxide
DERA	Diesel Emissions Reduction Act
DEQ	Diesel Emissions Quantifier
EPA	U.S. Environmental Protection Agency
EV	Electric Vehicle
FY	Fiscal Year
HC	Hydrocarbons
ICR	Information Collection Request
MOVES	Motor Vehicle Emission Simulator
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NO _x	Nitrogen Oxides
OTAQ	Office of Transportation and Air Quality
PM	Particulate Matter
PM _{2.5}	Particulate Matter less than 2.5 microns in diameter
PO	Project Officer
POP	Place of Performance
RFA	Request for Applications
RTG	Rubber-Tired Gantry

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Executive Summary

The diesel engine powers almost every sector of the American economy, from transportation to energy generation. Due to diesel engine regulations and emissions standards set by the U.S. Environmental Protection Agency (EPA) over the past few decades, engines currently coming off the manufacturing line now emit sixty times less particulate matter (PM).¹ There are still approximately eight million older diesel engines in use that generate large amounts of emissions, such as PM and nitrogen oxides (NO_x). Diesel engines, especially those used in marine and rail operations, can operate for many years.

The EPA's decades-long effort to reduce [criteria air pollutants](#), as defined by the [EPA's National Ambient Air Quality Standards \(NAAQS\)](#), [air toxics](#), and other emissions from diesel fuel used in transportation, has resulted in significant public health and environmental benefits, while advancing technology and minimizing cost. These benefits are a result of several EPA programs that address diesel emissions and protect public health and air quality, including the EPA's Office of Transportation and Air Quality (OTAQ) [Diesel Emissions Reduction Act \(DERA\) Program](#).

DERA, originally authorized under the [Energy Policy Act of 2005](#), was reauthorized in the [Diesel Emissions Reduction Act of 2010](#) and in the [Consolidated Appropriations Act of 2021](#), enabling the EPA to offer funding assistance to accelerate the upgrade or retirement of older diesel engines. The EPA prepared this report in response to the DERA statutory authority, which states:

(a) In general – Not later than 1 year after the date on which funds are made available under this part, and biennially thereafter, the Administrator shall submit to Congress a report evaluating the implementation of the programs under this subtitle

(b) Inclusions.— The report shall include a description of—

- 1) the total number of grant applications received;*
- (2) each grant, rebate, or loan made under this subtitle, including the amount of the grant, rebate, or loan;*
- (3) each project for which a grant, rebate, or loan is provided under this subtitle, including the criteria used to select the grant, rebate, or loan recipients;*
- (4) the actual and estimated air quality and diesel fuel conservation benefits, cost-effectiveness, and cost-benefits of the grant, rebate, and loan programs under this subtitle;*
- (5) the problems encountered by projects for which a grant, rebate, or loan is provided under this subtitle;*
- (6) any other information the Administrator considers to be appropriate; and*
- (7) in the last report sent to Congress before January 1, 2016, an analysis of the need to continue the program, including an assessment of the size of the vehicle and engine fleet that could provide benefits from being retrofit under this program and a description of the number and types of applications that were not granted in the preceding year.*

The Fifth Report to Congress covers results from the DERA program fiscal years 2008 to 2018. The Sixth Report to Congress includes results from the DERA Program for two additional fiscal years, 2019 and 2020. Since the inaugural year of funding for the DERA Program in 2008, through 2020, the EPA has awarded

¹ PM standards for on-highway engines were updated from 0.6 g/hp-hr in 1988 to 0.01 g/hp-hr in 2007. More information on the EPA's emission standards can be found on the [Heavy Duty Highway Engines and Vehicles webpage](#).

nearly \$960 million to replace or retrofit approximately 76,900 engines or vehicles to reduce diesel emissions nationwide. The total amount of funding appropriated to the DERA Program by fiscal year (FY) can be found in Figure 1. The DERA Program promotes an array of diesel emissions reduction strategies by working with manufacturers, fleet operators, air quality professionals, environmental and community organizations, and state and local officials. Together, the EPA and others work to achieve emissions reductions in areas experiencing diminished air quality from diesel fleets. To accomplish this goal, DERA offers two competitive grant programs and one non-competitive grant program. In accordance with 42 U.S.C. § 16132, the DERA National Grant Program is one of the competitive grant programs that allocates DERA funds to eligible applicants that achieve significant reductions in diesel emissions. Similarly, the DERA Tribal and Territory Grant Program is the other competitive grant program that allocates DERA funds to Tribal governments (or inter-Tribal consortia), Alaska Native Villages, and territory governments for projects that achieve reductions in diesel emissions. In accordance with 42 U.S.C. § 16133, the DERA State Grant Program is the non-competitive grant program that allocates DERA funds to eligible U.S. states and territories for the establishment of diesel emissions reduction programs.

In accordance with 42 U.S.C. § 16132, DERA prioritizes projects that maximize health benefits, conserve diesel fuel usage, and serve areas of poor air quality.² As a result, the DERA Program prioritizes projects that reduce emissions in nonattainment or maintenance areas for PM and ozone.³ DERA competitive grant applications are awarded points based on how the project benefits poor air quality areas and the extent to which the project will engage community stakeholders. The DERA Program also prioritizes goods movement projects because these projects tend to take place in communities that are impacted by higher levels of diesel exhaust, such as those near ports, rail yards, and distribution centers.⁴

As stipulated in the [Energy Policy Act of 2005](#) and as described in 42 U.S.C. § 16133, approximately 30 percent of the DERA appropriation in each FY is allocated to states and territories to fund programs for diesel emissions reduction projects.⁵ The remaining 70 percent of the DERA appropriation in 42 U.S.C. § 16132 is used for competitive grants and rebates. Up to one percent of the DERA appropriation may support management and oversight (M&O) funding for the program, which is used for outreach, the Diesel Emissions Quantifier ([DEQ](#)) to calculate diesel emissions benefits, grant tracking oversight, and other contracts that support and strengthen DERA Program administration and effectiveness.

² More information on the DERA Program and its statutory goals can be found on the [EPA DERA webpage](#)

³ A county is identified as “priority” if it is designated as a nonattainment or maintenance area for PM or ozone based on the EPA Green Book. The [DERA National Grants: Past Program Documents webpage](#) includes previous versions of the Priority Area List.

⁴ “Goods movement” is defined as the distribution of freight (including raw materials, parts, and finished consumer products) by all modes of transportation including marine, air, rail, and truck.

⁵ The Diesel Emissions Reduction Program is authorized by Title VII, Subtitle G of the Energy Policy Act of 2005, 42 USC 16131-7, et seq., as amended.

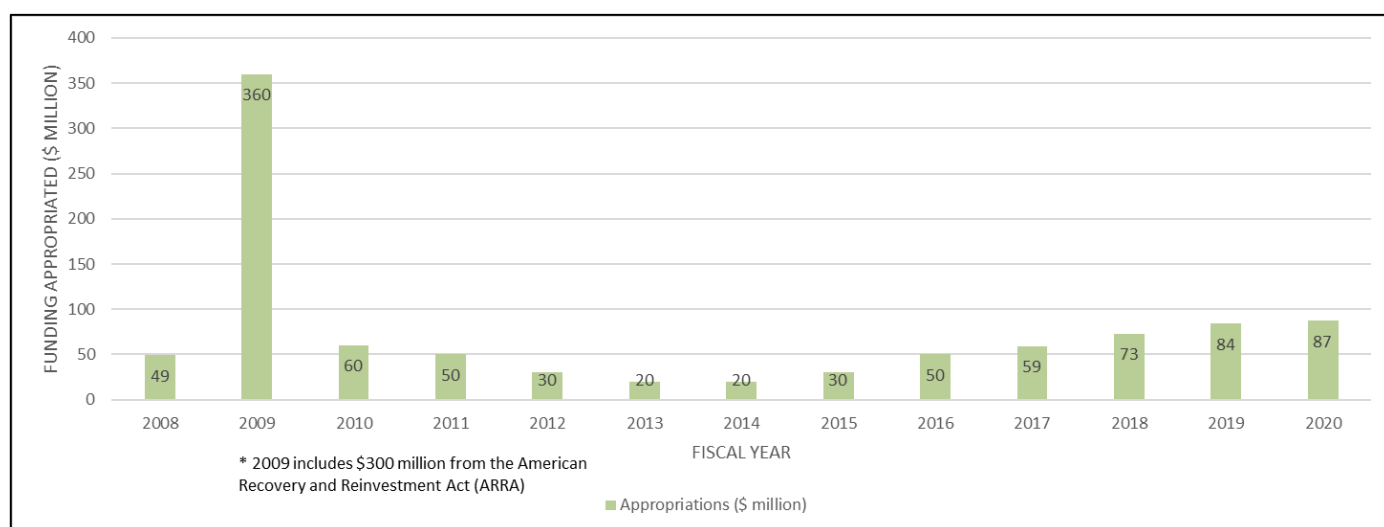


Figure 1: DERA Appropriation Funding (\$ millions) by FY (2008 to 2020)

Figure 1 shows the total DERA appropriation by FY from 2008, when the first awards were made, through 2020. The [Fifth Report to Congress](#), published in 2022, covered results from the DERA Program for FYs 2008 to 2018. This Sixth Report to Congress includes results from DERA for two additional FYs, 2019 and 2020, broken down by funding opportunity. The EPA has continued to award funding in subsequent FYs; a summary on FYs beyond 2020 will be covered in more detail in the next Report to Congress when these projects are finalized or are close to completion.

In addition to DERA appropriations, a DERA Option was made available in the 2016 Volkswagen Settlement. States, the District of Columbia, Puerto Rico, and Federally recognized Indian Tribes are eligible beneficiaries that have used these funds.⁶

Air Quality Benefits

More than 76,900 engines in vehicles, vessels, locomotives, and other pieces of equipment were replaced or retrofitted with DERA funds during FYs 2008 to 2020. DERA projects during these years are estimated to have reduced approximately 499,000 tons of NO_x and approximately 16,600 tons of PM over the lifetime of the old engines.⁷ These diesel emissions reduction projects are also estimated to reduce approximately 19,400 tons of hydrocarbons (HC) and about 66,600 tons of carbon monoxide (CO) and expected to save over 572 gallons of diesel fuel over the lifetime of the affected engines.

⁶ For further information regarding the Volkswagen Settlement and how states and Tribes can benefit, visit the [Volkswagen Settlement: DERA Option webpage](#).

⁷ In the DERA Fifth Report to Congress, PM_{2.5} emission reductions were estimated to be approximately 16,800 tons for engines replaced between FYs 2008 and 2018, which is slightly higher than the estimation for engines replaced between FYs 2008 and 2020. The lower estimate of lifetime PM_{2.5} reduction in this Report can likely be attributed to several projects that have not yet been completed, causing the estimated emission reductions to be lower than what the actual reductions will be upon project closeout.

Economic Benefits

Each Federal dollar invested in DERA projects has leveraged approximately \$2.30 in funding from other government agencies, private organizations, industries, and nonprofit organizations.⁸ DERA funding has accelerated upgrades and replacements for diesel vehicles and equipment.

Local Demand for the DERA Program

Stakeholders have shown interest in EPA-funded DERA projects. Since the inception of DERA, funding request amounts have exceeded funding availability in each FY. In FYs 2019 and 2020 alone, grant and rebate applicants requested \$220 million more in funds than available from DERA appropriations.

DERA funding opportunities are designed to meet individual grantee needs by providing flexibility on eligible diesel vehicles, engines, and equipment, allowing a grantee to target vehicle(s) or equipment that best meet their needs and circumstances. The EPA is committed to long-lasting engagement with local stakeholders to ensure their unique DERA projects continue to provide benefits after the project period has closed. Funding opportunities in the DERA Program from FYs 2021-2024 evolved with market and stakeholder demands by supporting clean air for Americans in nonattainment and maintenance areas and supporting cost-effective projects.

Table 1: DERA Overall Program Outcomes and Accomplishments (FYs 2008 to 2020)

Approximate Emission and Fuel Reductions		DERA Program Funding	
	499,000 tons of NO _x		\$960 million in funds awarded
	16,600 tons of PM _{2.5}		76,900 vehicles and engines retrofitted or replaced
	66,600 tons of CO		32% of awards in areas with air quality challenges
	572 million gallons of diesel saved		\$2.30 to \$1.00 leveraging of funds from non-Federal sources

Table 1 details the outcomes of the overall DERA Program from FYs 2008 to 2020. The EPA estimates a reduction of approximately 499,000 tons of NO_x, 16,600 tons of PM_{2.5}, 66,600 tons of CO, and 572 million gallons of diesel fuel consumed over the lifetime of the engines and vehicles funded during FYs 2008 through 2020 of the DERA Program. Vehicle and engine information and emissions and fuel reductions included in Table 1 are estimates based on data reported to the DERA Program by awardees. Data is considered “proposed” until project closeout and final vehicle data is submitted to the EPA. After closeout, “proposed” records are updated to reflect “final” data reported.

DERA Projects Prioritized in Locations with Poor Air Quality

Competitive DERA grant applications receive more points, and are therefore prioritized for selection, when vehicles, engines, and equipment operate in areas designated as having poor air quality. For grant applications to receive points under this criterion, vehicles or equipment proposed for funding must operate

⁸ More information on individual DERA awards can be found on the [DERA webpage](#).

a majority of the time in one or more of the counties identified on the associated program's priority area list based on nonattainment or maintenance area location, which are designated by [EPA's Nonattainment Areas for Criteria Air Pollutants \(Green Book\)](#) and the [National Air Toxics Assessment \(NATA\)](#). This criterion is used for grant awards, while rebates are selected by a lottery system.

Since the first DERA grants were awarded in 2008, the EPA has focused attention on PM and ozone nonattainment and maintenance areas as well as areas with elevated air toxics exposure to achieve maximum benefits for every dollar spent. Approximately 32 percent of projects awarded in FYs 2008 to 2020 included vehicles operating in areas with these air quality challenges, and approximately 39 percent of projects in the competitive National Program occurred in these areas. In FYs 2019 and 2020, DERA awarded approximately \$88 million for projects occurring in areas with poor air quality.

Vehicles and Equipment Funded by Sectors and Technologies

In the early years of DERA, most applicants requested funding primarily for retrofits of on-highway vehicles, especially long-haul trucks and school buses. As a result, the EPA funded thousands of retrofits for on-highway heavy-duty vehicles. As the DERA Program progressed and EPA's on-highway 2007 standards were implemented, applicant interest shifted toward the replacement of vehicles, vessels, and equipment in ports, rail yards, and other goods movement facilities.

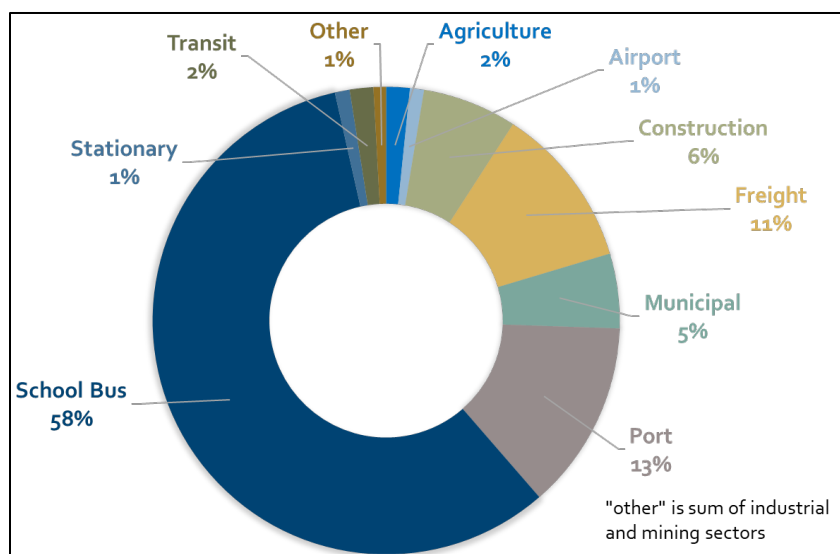


Figure 2: DERA Funded Projects by Technology Sector (FYs 2008 to 2020)

Figure 2 above details the percentage of funded projects from 2008 to 2020 in each technology sector. Approximately 58 percent of projects included school bus replacements. Additionally, there were over 240 port and multi-sector projects, over 90 municipal projects, and over 90 construction projects.

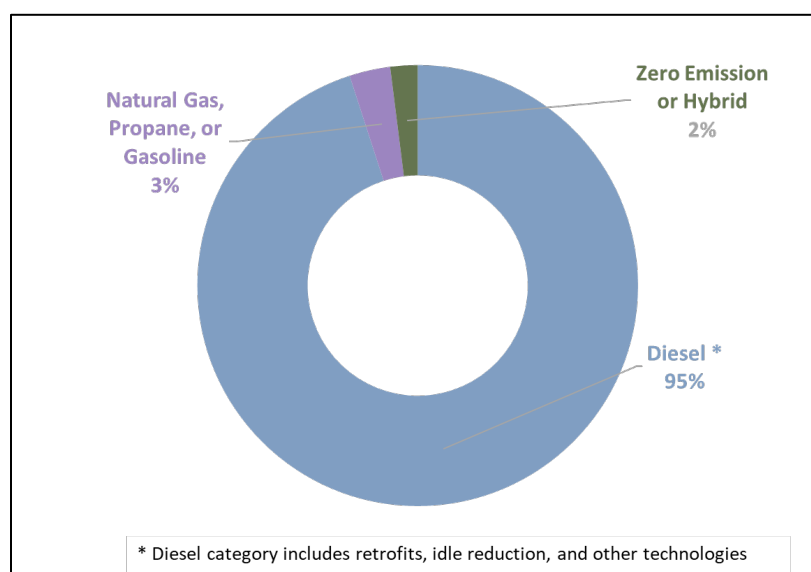


Figure 3: DERA Funded Engines and Vehicles by Fuel Type (FYs 2008 to 2020)

Figure 3 above details the percentage of DERA-funded engines and vehicles by fuel type in 2008 to 2020. About 95 percent were diesel engines and vehicles. About five percent were natural gas, propane, gasoline, zero-emission, or hybrid engines and vehicles.

Figures 4a (non-continental U.S. and Territories) and 4b (continental U.S.) below provide a visual summary of the number of DERA awards by county of performance for all programs during FYs 2008 to 2020 in the continental U.S., Alaska, Hawaii, Puerto Rico, U.S. Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. The primary area where affected vehicles/engines operate, or where the majority of the emissions benefits of the project will be realized, is defined as the place of performance (POP). “Maintenance” and “nonattainment” refer to counties and their respective status regarding maintenance and nonattainment with the EPA’s PM_{2.5} and ozone standards.

Figure 4b below contains the legend for the number of awards, NAAQS designation, and type of DERA funding, which applies to both figures.

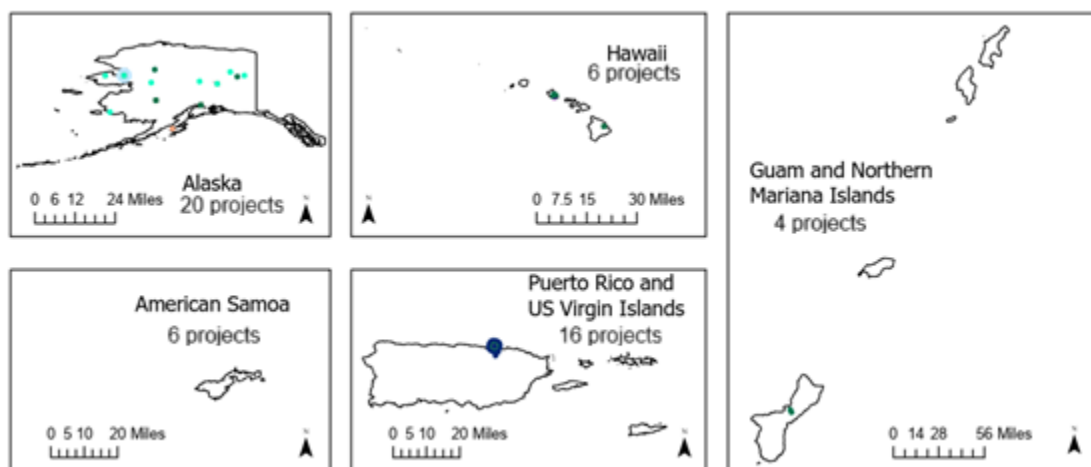


Figure 4a: DERA Funded Grants and Rebates by Location in Non-Continental U.S. and Territories (FYs 2008 to 2020)

As shown in Figure 4a above, there were 20 projects funded in Alaska, six projects funded in Hawaii, six projects funded in American Samoa, 16 total projects funded in Puerto Rico and the U.S. Virgin Islands (15 in Puerto Rico and one in the U.S. Virgin Islands), and four projects funded in Guam and the Northern Mariana Islands from FYs 2008 to 2020. Most projects with a POP outside the continental U.S. were funded through the DERA National or DERA Tribal Programs.

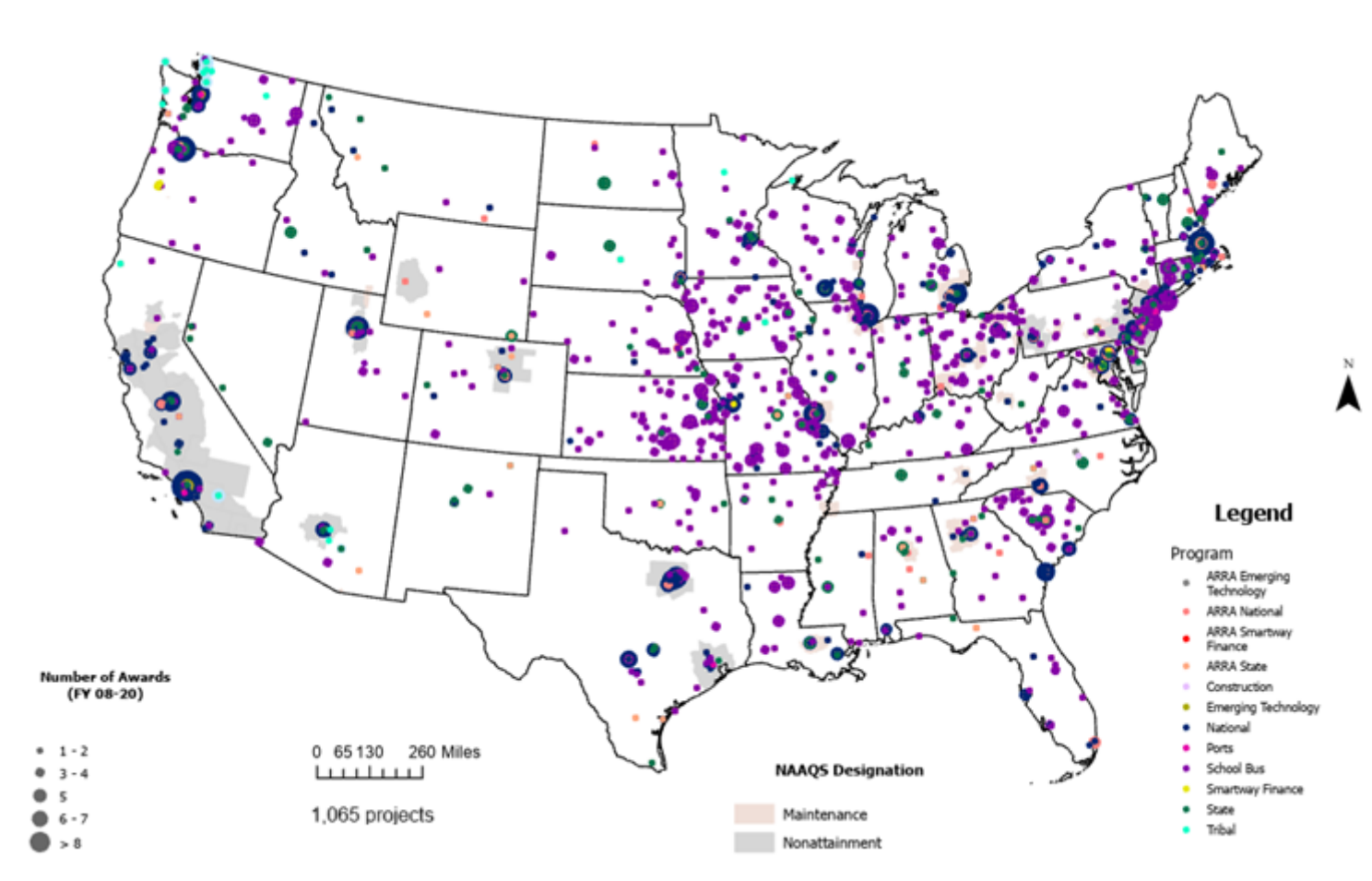


Figure 4b: DERA Funded Grants and Rebates by Location and County Level Areas in Continental U.S. (FYs 2008 to 2020)

As shown in Figure 4b above, there were over 1,900 projects funded across the continental U.S. from FYs 2008-2020. School bus retrofits and replacements were the most frequent and widespread projects funded by DERA from FYs 2008-2020. The DERA National Program also awarded projects, many of which had a POP in a nonattainment or maintenance area for PM and/or ozone.

DERA Program Overview: 2019-2020

The following four sections of this report outline FYs 2019 and 2020 activities for the individual National, Tribal,⁹ and State DERA Grant Programs and the School Bus Rebate Program.¹⁰ In FYs 2019 and 2020, the EPA funded approximately \$177 million across the country through competitive (national and Tribal) grants, state grants, and school bus rebates to replace or retrofit approximately 4,220 diesel engines and vehicles. These grants and rebates fund equipment and engines in multiple sectors, including school buses, ports, and freight, and include a variety of upgrade types, such as vehicle and engine replacements.¹¹

Table 2: DERA Program Outcomes (FYs 2019 and 2020)

Approximate Emission and Fuel Reductions		DERA Program Funding	
	12,000 tons of NO _x		\$177 million funds awarded
	450 tons of PM _{2.5}		97 national competitive grants awarded
	1,680 tons of CO		7 Tribal competitive grants awarded
	33.5 million gallons of diesel saved		55 of 56 eligible states and territories awarded grants
			4,220 vehicles or engines retrofitted or replaced

Table 2 details the outcomes of the overall DERA Program in FYs 2019 and 2020. The EPA estimates a reduction of approximately 12,000 tons of NO_x, 450 tons of PM_{2.5}, 570 tons of HC, 1,680 tons of CO, and 33.5 million gallons of diesel fuel consumed over the lifetime of the engines and vehicles funded during FYs 2019 and 2020 of the DERA Program.

⁹ The Tribal grant program combined FYs 2018 and 2019 into a single grant competition. Because of this, 2018 data is included in this report for the Tribal grant program only.

¹⁰ More information on the DERA School Bus Rebate Program can be found on the [EPA School Bus Rebates: Diesel Emissions Reduction Act webpage](#).

¹¹ Vehicle and engine information and emissions and fuel use reductions included in this report are estimates. Approximately 49 percent of DERA diesel emission vehicle records for FYs 2019 and 2020 in this report are considered “proposed” records until the grant or rebate is closed and final vehicle data is submitted to the EPA. After grant or rebate closeout, “proposed” records will be updated to “final” records to be included in future Reports to Congress.

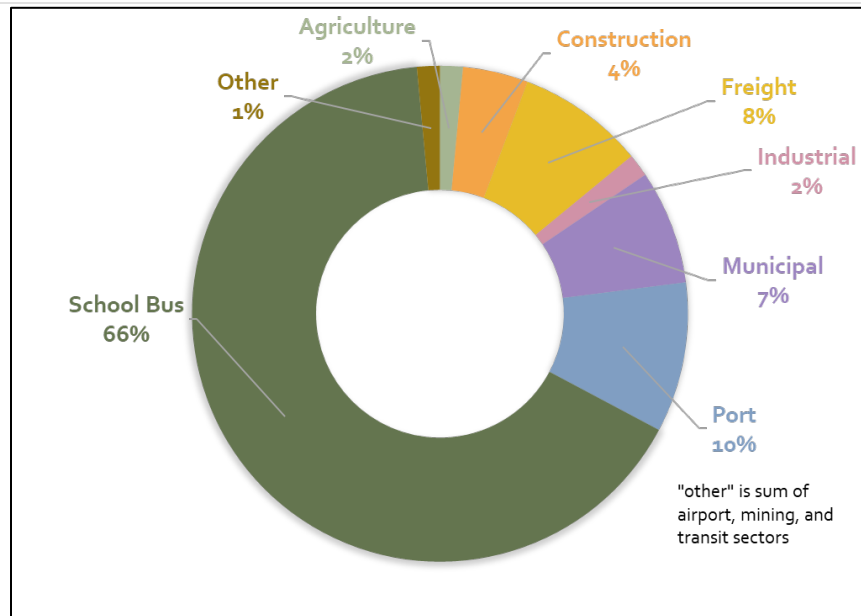


Figure 5: DERA Funded Projects by Technology Sector (FYs 2019 and 2020)

Vehicle and engine types that were funded for replacement using DERA funds in FYs 2019 and 2020 are detailed above in Figure 5. School buses were the most frequently funded replacements, with approximately 290 school buses retrofitted or replaced FYs 2019 and 2020 had a slightly larger school bus sector, by percentage, when compared to DERA-funded projects by technology sector in Figure 2. Additionally, over 40 replacements were port vehicles or engines, and approximately 30 were freight vehicles or engines.

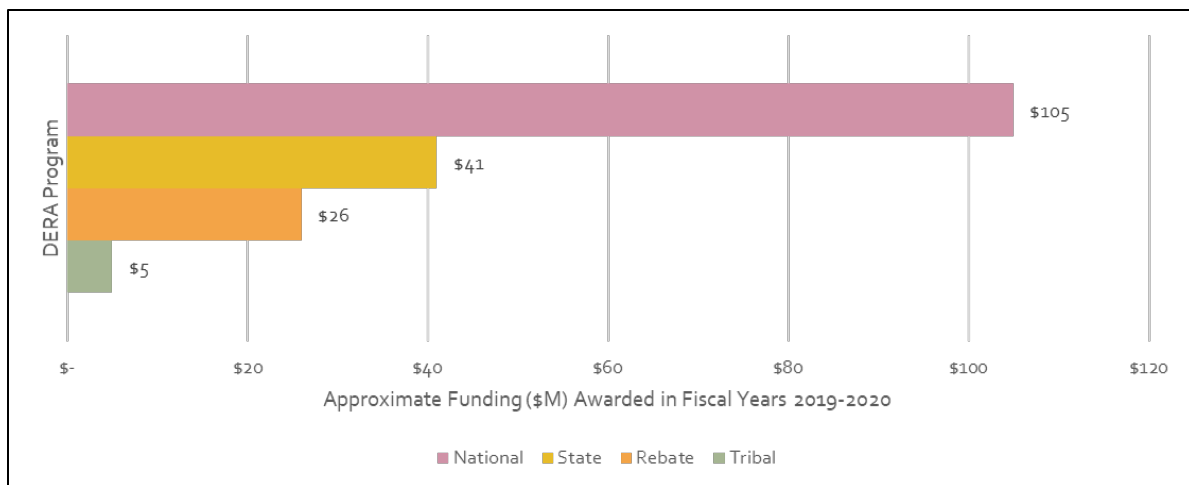


Figure 6: DERA Funded Projects (\$ Million) by DERA Program (FYs 2019 and 2020)

Figure 6 above illustrates the approximate value of DERA-funded projects by program in FYs 2019 and 2020. The DERA National Program awarded the greatest amount at approximately \$105 million, and the DERA State Program awarded approximately \$41 million.¹²

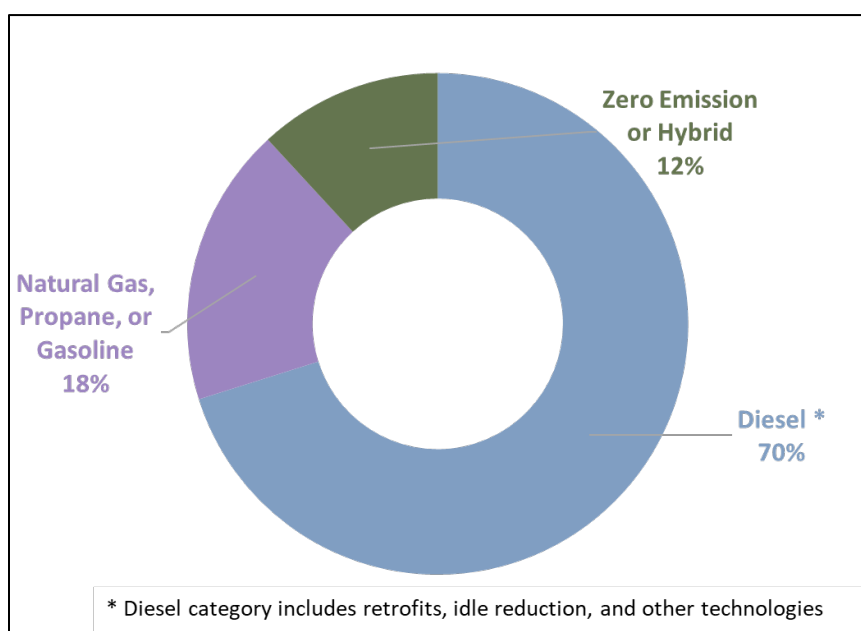


Figure 7: DERA Funded Engines and Vehicles by Fuel Type (FYs 2019 and 2020)

Figure 7 above details the percentage of engines and vehicles by fuel type in FYs 2019 and 2020. Approximately 70 percent were diesel engines and vehicles. Approximately 30 percent were natural gas, propane, gasoline, zero-emission, or hybrid engines and vehicles.

DERA National Grants: 2019-2020

The EPA's OTAQ team competitively solicits grant applications nationwide through the DERA National Program for projects proposing significant reductions in diesel emissions. These DERA grants fund projects that incentivize and accelerate the upgrade or retirement of the legacy diesel fleet.

¹² The DERA Program allocates 30 percent of its appropriations towards the DERA State Program. Any unused DERA State Program allocations are then allocated to the DERA National Program.

Evaluation criteria consider, among other factors, the accompanying economic challenges of impacts, including the lack of resources or other impediments to addressing the adverse impacts that these areas may experience. Applicants must describe engagement with the local area(s) impacted by the project to ensure their meaningful participation with respect to project design, planning, and performance.

Priority for funding under the DERA National Program is given to fleets operating in areas designated as having poor air quality and fleets which service goods movement facilities. Further priority for funding is given to projects that demonstrate the ability to promote and continue efforts to reduce emissions after the project has ended. Additional priority is given to projects describing engagement with affected areas in the design and performance of the project and by demonstrating associated outcomes and benefits.

Table 3: DERA National Program Outcomes (FYs 2019 and 2020)

Approximate Emission and Fuel Reductions		Investment of DERA Program	
	9,900 tons of NO _x		\$105 million funds awarded
	320 tons of PM _{2.5}		97 national competitive grants awarded
	1,300 tons of CO		1,100 vehicles or engines retrofitted or replaced
	30 million gallons diesel saved		39% of awards targeted to areas with air quality challenges

Table 3 above details the outcomes of the DERA National Program in FYs 2019 and 2020. From the \$105 million awarded through 97 national competitive grants, more than 9,900 tons of NO_x and approximately 320 tons of PM_{2.5} were reduced over the lifetime of the projects.

DERA National Program FY 2019 Activities

In FY 2019, the DERA National Program received 109 applications. The EPA funded 43 competitively selected DERA National grants to reduce emissions from nearly 480 diesel engines or equipment for a total of \$51.8 million in FY 2019. The DERA National Program provided grants for equipment and engines in multiple sectors, including school buses, ports, and freight, and covered a variety of upgrade types, including vehicle and engine replacements.

As a result of these awards, it is estimated that there will be a lifetime reduction of approximately 4,800 tons of NO_x, 120 tons of PM_{2.5}, 520 tons of CO, and 11.6 million gallons of diesel fuel consumed. The equipment and engine sectors for projects funded in the FY 2019 DERA National Program are further detailed in Figure 8 below. Of the nearly 480 engine or equipment replacements, over 80 were engine replacements in the airport and port sectors.

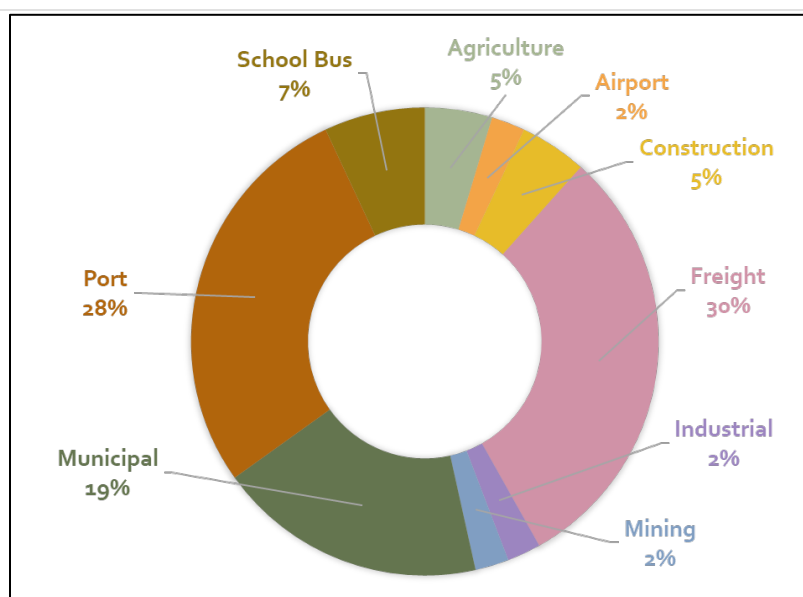


Figure 8: DERA National Funded Projects by Technology Type (FY 2019)

The percentage of projects with vehicle and engine types funded in the FY 2019 DERA National Program are displayed in Figure 8 above. The largest sector funded was freight, with over 110 replacements. Agriculture, school bus, and port vehicles were also frequently funded with approximately 110, 90, and 90 vehicle or engine replacements selected for funding, respectively. Two projects were funded in the construction sector and one project was funded in the mining sector.

DERA National Program FY 2020 Activities

In FY 2020, the DERA National Program received 123 applications. The EPA funded 56 competitively selected DERA National grants to reduce emissions from over 630 diesel engines or equipment for a total of \$53.3 million. As a result of these awards, it is estimated that there will be a lifetime reduction of approximately 5,000 tons of NO_x, 200 tons of PM_{2.5}, 800 tons of CO, and 14.7 million gallons of diesel fuel consumed.

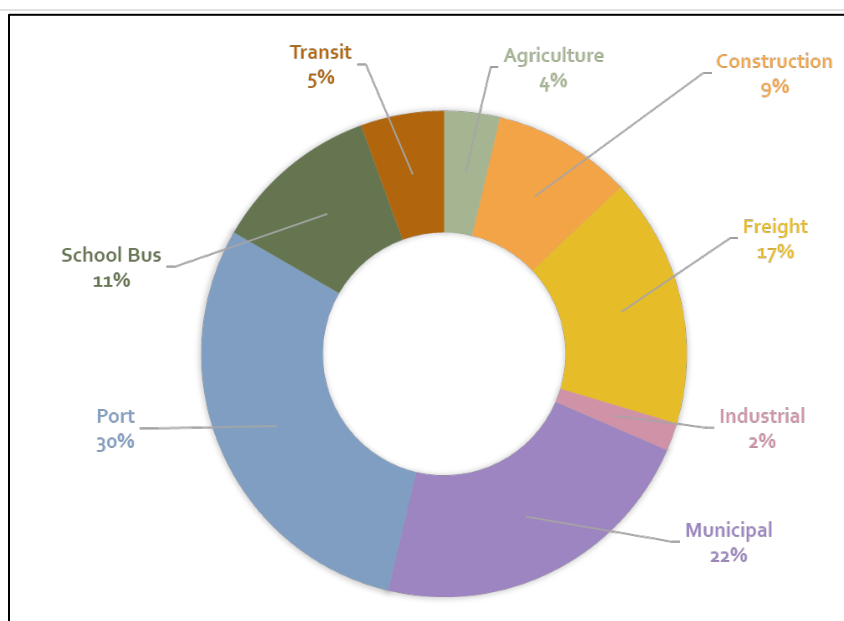


Figure 9: DERA National Funded Projects by Technology Type (FY 2020)

In FY 2020, the DERA National Program funded projects with equipment and engine replacements, with nearly 190 replacements in ports and nearly 170 replacements funded in freight. The agriculture sector had 100 funded replacements, and the municipal sector had over 80 funded replacements.

DERA Tribal Grants: 2018-2020

Competitive grants for Tribal governments (including inter-Tribal consortia) and Alaska Native Villages that have jurisdiction over transportation or air quality fund a wide variety of diesel emissions reduction projects. A priority for the DERA Program is to work with Tribes to reduce diesel emissions. The U.S. maintains a government-to-government relationship with the 574 Federally recognized Native American Indian Tribes and Alaska Native Villages.¹³

In FYs 2009 through 2013, Tribal funding was offered as a “set-aside” within the framework of the DERA National Program. Recognizing that Tribes may have various administrative, technical, and financial considerations that other national applicants may not, the EPA began a separate competition for Tribes in 2014 to address the unique needs and concerns of Tribal grantees. This program waived the cost share requirement and as a result Tribal participation in the program increased substantially.

For the two grant cycles for FYs 2018-2020 received a total of 22 applications. Of these 22 applications, the EPA DERA Tribal Program awarded over \$4.7 million to 15 projects in Alaska, California, South Dakota, and Washington to reduce emissions from nearly 40 diesel engines or equipment. As a result of these grants, nearly six million gallons of diesel fuel were not consumed.

¹³ For more information on Federal government involvement with Tribal communities, visit the Department of the Interior’s [Government Tribal Work webpage](#).

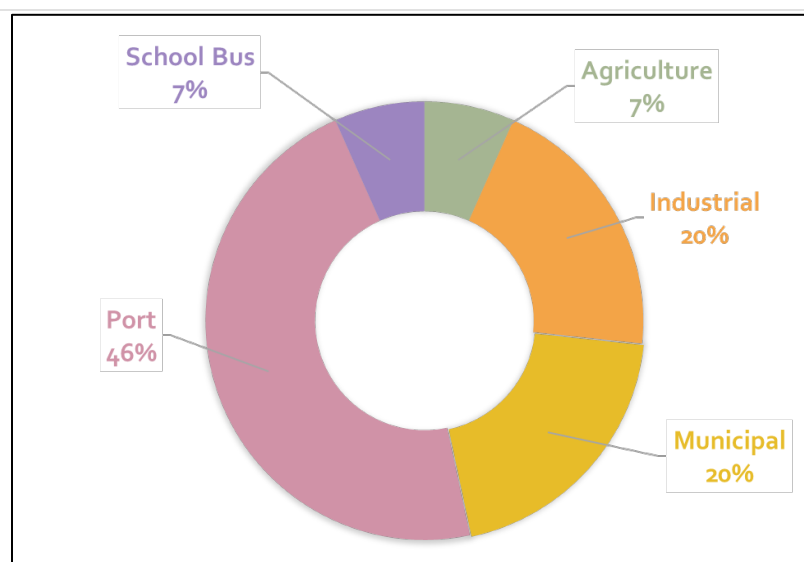


Figure 10: DERA Tribal Funded Projects by Technology Type (FYs 2018 to 2020)

As shown in Figure 10 above, the largest upgrade sector for the DERA Tribal Program in FYs 2018-2020 was for port projects, which included auxiliary and propulsion engine replacements. The second largest upgrade sector was for municipal and industrial stationary generator replacements. The 2018-2020 DERA Tribal Program funded more port, municipal, and industrial projects, by percentage, compared to all DERA-funded projects by technology sector in Figure 2.

Case Study 1

Tribal Grant Program – FY 2019

Blue Lake Rancheria



In the EPA's Region 9, the Blue Lake Rancheria Tribe in California was awarded over \$107,000 in Federal funds from a FY 2019 DERA Tribal grant to scrap and replace a 1992 Wildland Fire class 8 Engine with a lower-emitting diesel engine model. The purpose of the Wildland Fire Engine Replacement project was to reduce human exposure to diesel emissions in and around the Tribal community. The total project cost was nearly \$447,000,

including over \$107,000 in National DERA grant funding, over \$220,400 in cost share from the Blue Lake Rancheria, and over \$116,400 from the DERA Tribal option of the Volkswagen Settlement funds, which became available to Tribes in FY 2017. The project was successfully completed with the purchase of a lower-emitting model fire engine to serve the Tribal community, pictured in this section.

Moving Forward – Tribal Grants

Based on stakeholder input, the EPA made two major changes in 2021 to the DERA Tribal Program. The first change waived the mandatory cost share requirement for the Tribal grants program, which makes DERA funding more obtainable to applicants that face severe financial constraints. The second change allowed DERA to offer a separate funding opportunity for the U.S. territories of Guam, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands, and American Samoa to encourage their participation in the DERA Program. This action led to the EPA offering the first combined Request for Applications (RFA) for Tribes and eligible territories in 2021, then known as the "DERA Tribal and Insular Area" Program. In 2024, due to stakeholder feedback, the EPA changed the program's name to the "DERA Tribal and Territory" Program. All corresponding materials will reflect this name change moving forward.

The EPA limits eligibility under the DERA Tribal Program to allow eligible entities to compete for DERA grant funds and implement diesel emissions reduction projects. Participation in the DERA Tribal Program is encouraged by creating longer application periods, less stringent eligibility requirements for vehicles and equipment, and no mandatory cost shares, as compared to the DERA National Program. Although funds are announced under a single competition, Tribal applicants only compete against Tribal applicants, and eligible territories only compete against other eligible territories.

DERA State Grants: 2019-2020

Per 42 U.S.C. § 16133, the EPA must offer 30 percent of the annual appropriation to states and territories to implement their own diesel emissions reduction projects and programs. Eligible entities include government agencies in the 50 states and the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. If the state or territory agrees to match the base amount allocated, 42 U.S.C. § 16133 states that the EPA shall provide an additional funding

amount equal to 50 percent of the base allocation. Agencies run their own programs to implement projects and offer funding to fleets within their states. State agencies must select projects according to EPA's eligibility and cost share requirements, but the selections are made entirely by the states to best fit state and local needs.

The principal objective of funding awarded under the DERA State Program is to achieve significant reductions in diesel emissions from vehicles, engines, and equipment operating in areas designated as poor air quality areas. Each state's workplan must discuss how the state will ensure that projects selected for funding support the programmatic priorities listed in the DERA State Program Guide. In total, states and territories received over \$51 million in FYs 2019 and 2020.¹⁴ Over the lifetime of these vehicle and engine replacements, these projects are estimated to result in reductions of approximately 1,700 tons of NO_x, 100 tons of PM_{2.5}, 300 tons of CO, and 1.4 million gallons of diesel fuel.¹⁵

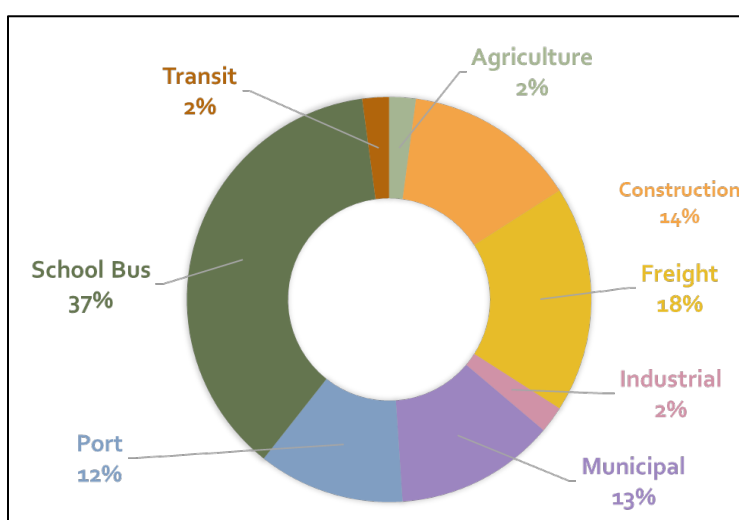


Figure 11: DERA State Funded Projects by Technology Type (FYs 2019 and 2020)

Nearly 100 state projects were funded in FYs 2019 and 2020 to replace over 490 vehicles. The largest upgrade sector for the DERA State program in FYs 2019 and 2020 was school buses, which accounted for over 240 vehicle replacements. Approximately 180 replacements were port marine vessels, nonroad vehicles, or on-road drayage trucks. There were fewer than five projects funded in each of the transit, industrial, and agricultural sectors during FYs 2019 and 2020. The 2019-2020 DERA State Program funded more construction, freight, and municipal projects, and fewer school bus projects, by percentage, compared to all DERA-funded projects by technology sector in Figure 2.

¹⁴ Fiscal year 2019 and 2020 state grant results are combined because FY 2020 funds were awarded as a supplemental amendment and extension to the FY 2019 grant awards.

¹⁵ Emissions data was converted into the number of gallons of diesel fuel saved using this [EPA equivalency calculator](#).

Case Study 2

State Grant Program – FYs 2019-2020

Virginia Department of Environmental Quality Green Operator Program

In the EPA's Region 3, the Virginia Department of Environmental Quality received over \$667,000 through a DERA State grant to replace over 20 legacy diesel class 8 drayage trucks (shown at right) with lower-emitting diesel engines to improve air quality and reduce diesel emissions. Drayage truck carriers haul containers of exports and imports at the Port of Virginia, one of the largest ports in the Mid-Atlantic, and generate significant diesel truck traffic in the surrounding metropolitan area.



The Port of Virginia Green Operator (GO) Program partners with truck companies and individual owner and operators serving the Port of Virginia and local railyards to replace old drayage trucks with newer engines to reduce emissions.

DERA School Bus Rebate Program: 2019-2020

The Diesel Emissions Reduction Act of 2010 provided the EPA with the authority to award rebates in addition to grants. The EPA designed the DERA [School Bus Rebate Program](#) to encourage school bus fleet turnover so more children can ride buses certified to the most recent emissions standards.

DERA rebates may be awarded to public institutions, some non-profit organizations, and private entities that have a license, lease, or contract with an eligible public organization. Rebates and grants differ in a variety of ways. One distinction is the one-page rebate application compared to the more complex grant application process. The quantity of vehicles and amount of funding for each rebate is specified up front, and selections are made using a lottery process. Once the selected applicant has completed and submitted all documentation, they are reimbursed with the rebate funds.

The EPA has a long history implementing DERA projects in the school bus sector. Eligible replacement school buses include those that operate on lower-emitting diesel fuel, battery, or alternative fuels, like propane or compressed natural gas.

During FYs 2019 and 2020, the EPA received over 900 school bus rebate applications. In total, the EPA awarded approximately \$18.1 million under the DERA School Bus Rebate Program for over 260 fleets to replace nearly 700 school buses. The EPA estimates a reduction of approximately 270 tons of NO_x, 20 tons of PM_{2.5}, 40 tons of HC, and 40 tons of CO over the lifetime of the engines and vehicles funded through rebates for FYs 2019 and 2020.

Case Study 3

School Bus Rebate Program – FY 2019

Beaverton School District Rebate Project



In the EPA's Region 10, Beaverton School District in Beaverton, Oregon, received \$200,000 in the 2019 DERA School Bus Rebate Program to replace five 2005 diesel buses and five 2006 diesel buses. The rebate awarded through this program helped the school purchase 10 new 2020 propane-fueled school buses, pictured in this section.

New propane-fueled buses can reduce emissions by over 90 percent compared to emissions from older pre-2007 diesel buses. This results in cleaner air on the bus, in bus loading areas, and throughout the

communities in which the buses operate.

Following the guidelines of the program, before receiving funding for the new buses, Beaverton School District scrapped 10 pre-2007 diesel buses. This involved drilling a three-inch hole in the engine block of each older buses to ensure that each bus would not be placed back into use. Beaverton School District applied for the 2020 DERA School Bus Rebate Program the following year and was selected to replace nine more pre-2007 diesel school buses.

DERA Funding at Ports

Ports play a significant role in the nation's transportation system and goods movement supply chain. Many ports are located near populations that are impacted by poor air quality. Ships, harbor craft, cargo handling equipment (CHE), drayage trucks, and locomotives can be significant contributors to diesel emissions at ports.

In this report, port projects refer to projects occurring in places alongside navigable water with facilities for the loading and unloading of passengers and/or cargo from ships, ferries, and other vessels. DERA grants have also been awarded for projects at inland ports, railyards, and other goods movement facilities. Since 2008, fleets at coastal and inland water ports have been a priority for DERA funding with nearly \$190 million, including over \$66 million from the [American Recovery and Reinvestment Act](#) (ARRA), going to ports projects from FYs 2008 to 2020. In FYs 2019 and 2020, an additional 10 grants totaling over \$12 million were awarded through DERA to multi-sector projects that involve ports.

DERA funding for ports has varied over the years. In FY 2013, the EPA set aside \$4 million for the first year of a stand-alone Ports DERA RFA. In FY 2014, the EPA issued a second stand-alone Ports RFA and received 15 applications. The EPA awarded approximately \$5 million for four projects that replaced drayage trucks, CHE, a diesel crane with an electric crane, and ferry engines. Eligible entities included public port authorities at coastal or inland water ports. The EPA awarded points to applicants that partnered with groups representing residents and encouraged partnerships with local governments, terminal operators, shipping carriers, and other business entities involved in port operations.

In FYs 2019 and 2020, over \$35 million was awarded to port projects to replace or retrofit nearly 290 engines in the DERA National Program. These improvements are estimated to result in a lifetime reduction of NO_x by nearly 7,200 tons and PM_{2.5} by nearly 200 tons. Close to \$14 million was awarded to replace or retrofit over 190 port engines under the DERA State Program during the same FYs, estimated to result in a lifetime reduction of over 1,300 tons of NO_x and over 70 tons of PM_{2.5}. The DERA Tribal Program awarded nearly \$1.3 million to replace or retrofit 11 port engines during FYs 2019 and 2020.

In subsequent years, the EPA did not issue a stand-alone ports RFA through DERA to reduce the burden associated with multiple funding opportunities. Instead, the DERA National Program awarded additional points for ports and goods movement projects. The EPA funded over \$50 million in DERA awards to whole or partial port projects under the National, Tribal, and State grant programs in FYs 2019 and 2020.^{16,17}

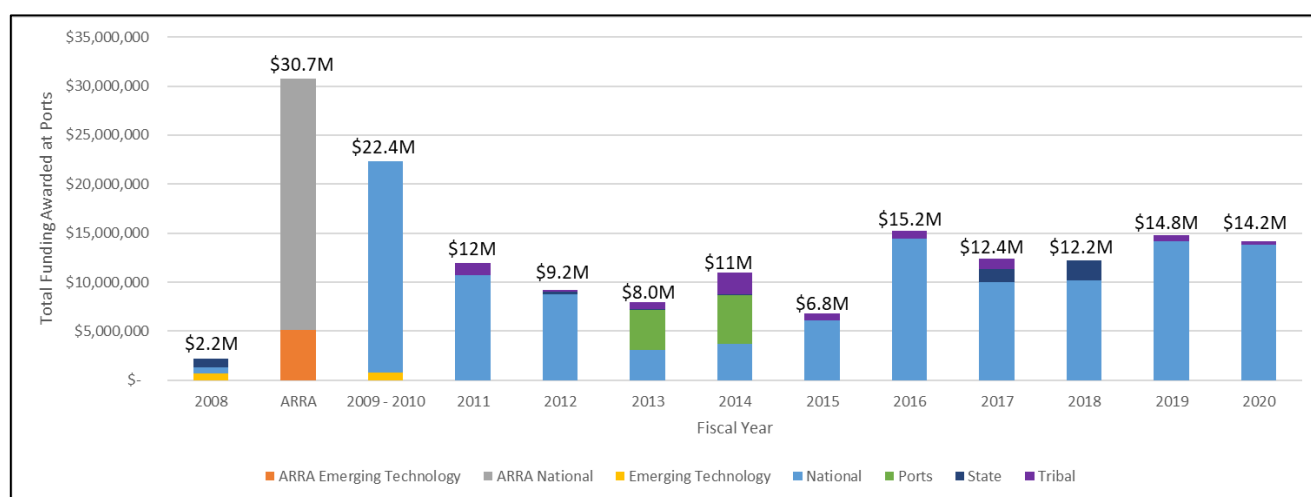


Figure 12. DERA Grant Funds Awarded to Port Projects in the National, Tribal, and State Programs in FYs 2008 to 2020

Figure 12 shows an overview of DERA funding by year for port projects (multi-sector projects that include the port sector are excluded from this depiction). It displays grants awarded through all DERA programs including National, State, Tribal, Ports, Emerging Technologies, and ARRA programs as well as allocations to states. Port projects have been eligible under all DERA grant programs since 2008, and, as described above, a separate DERA Ports solicitation was offered in 2013 and 2014.

Note: Data in Figure 12 are considered proposed until the grant is closed and final data is submitted to the EPA. Final award amount totals and project descriptions may change as grants are implemented and completed. Multi-year awards are shown in Figure 10 by the first FY of the grant. Open grants from the State Program and all multi-sector grants that include the port sector are excluded from Figure 12 because final funding amounts by sector are not readily available for these grants.

¹⁶ For a full list of port sector DERA grants from FYs 2008 to 2020, visit the EPA [webpage on DERA grants awarded for port projects](#).

¹⁷ Additionally, the EPA Clean Ports Program was established by Congress to fund zero-emission port equipment and infrastructure as well as air quality planning at U.S. ports. For more information, visit the [Clean Ports Program website](#).

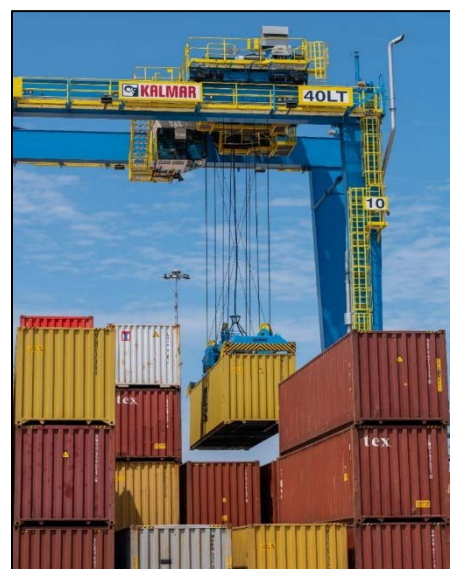
Case Study 4

National Grant Program – FY 2019

Port of Long Beach, California

The EPA awarded a hybrid Rubber-Tired Gantry (RTG) Crane and Marine Vessel project to the Port of Long Beach, California, in EPA's Region 9 to replace three RTG cranes with hybrid tier 4 diesel-electric RTG crane engines and to upgrade three marine vessels to Tier 3 engines.

The 2019 DERA National Program awarded \$1,500,000 in funding for the project. RTG cranes are used to stack and position containerized cargo, as shown in the photos in this section.



Continuous Improvement in the DERA Program

Strong Fiscal Stewardship

The EPA is committed to continually strengthening the oversight of the DERA Program. Following recommendations from the [U.S. EPA's Office of Inspector General's 2014 report](#), the program revised methodologies for emissions reporting, offered yearly Project Officer (PO) and grantee training, created technical guidance related to DERA agreement management, and continued baseline and advanced monitoring of the DERA Program. Additionally, the DERA Program developed a supplemental application form and project reporting forms as part of an Information Collection Request (ICR) ([U.S. Office of Management and Budget Control Number 2060-0754](#)), initially approved in April 2024 and subsequently revised in September 2025 to enhance program oversight and streamline data collection. These digital forms will improve the quality of data collected from applicants and awardees of the DERA Program and strengthen EPA's oversight of the program.

EPA staff conducted site visits to ensure that new buses purchased with DERA funds are in use and available. Between 2019 and 2020, a third-party audit was conducted for the School Bus Rebate Program. The audit contract completed site visits for 40 rebate selectees in 15 states. A total of 175 out of 176

replacement buses were on-site verified, and it was later verified that the only absent bus was on a field trip at the time of the site visit. The DERA Program monitors success and lessons learned from the program and welcomes feedback from potential beneficiaries through the DERA [website](#), [helplines](#), [regional collaboratives](#), conferences, and webinars.

Improvements to Emissions Calculations

The DERA Program has continually updated its web-based emissions reduction calculator, the [DEQ](#), to improve the accuracy of its emissions reduction estimates. These updates include emission factors based on EPA's Motor Vehicle Emission Simulator ([MOVES](#)) [model](#). Due to changes in demand for retrofits, improvements to the emissions calculator, and a reduction in the pool of the oldest diesel vehicles over time, the cost-per-ton of emissions reduction of the DERA Program has increased slightly compared to prior reports.

DERA Evolves with Technology Improvements

The EPA has responded to changes in technology and applicant interest in adopting new technologies. The most common projects in the early years of DERA were diesel exhaust retrofits, such as diesel particulate filters and diesel oxidation catalysts. While DERA continues to offer financial support for these proven cost-effective projects, applicant interest has shifted toward vehicle replacements that meet current EPA emission standards. The DERA Program will continue to monitor and incorporate advancements in lower-emitting medium- and heavy-duty equipment to ensure that applicants can benefit from technologies that best meet their needs.

Looking Ahead for Mobile Sources

DERA Activities for Fiscal Years 2021 and 2022

DERA received annual appropriations of \$90 million in FY 2021 and \$92 million in FY 2022. In FY 2021, the EPA awarded over 50 grants under both the National and State Programs, 10 grants under the Tribal Program, and funding for nearly 200 school bus replacements in the School Bus Rebate Program. The EPA will report on the results of FYs 2021 and 2022 DERA projects in the next Report to Congress when the projects are finalized or close to completion. The EPA will continue to target funding to areas that suffer from poor air quality and prioritize projects that engage residents and provide lasting benefits.

The 2021 American Rescue Plan Act (ARPA) appropriated \$100 million to the EPA, \$7 million of which was allocated to DERA. The \$7 million 2021 ARPA School Bus Rebate Program ran concurrently with the 2021 DERA School Bus Rebate Program cycle, which provided approximately \$10 million to fund new diesel, alternative fuel (propane, gasoline, and compressed natural gas), and zero-emission buses. The lessons learned from the 2021 ARPA School Bus Rebate Program helped inform future EPA funding opportunities, including understanding electric school bus market dynamics and ensuring that outreach efforts are designed to reach all potential applicants.

Web Resources: All DERA Awards

The DERA awarded grants and rebates lists are updated upon grant close-outs for each program and FY; FYs 2008 to 2020 are posted on the [DERA website](#). Information is also available on the EPA website for the [National](#), [Tribal](#), and [State](#) programs as well as the [School Bus Rebate Program](#).

Conclusion

The DERA Program has fulfilled legislation goals that emphasize reducing emissions, conserving diesel fuel, and serving areas of poor air quality.

DERA prioritizes emissions reductions in areas experiencing impacts from diesel fleets. By concentrating on these objectives, the EPA will continue to prioritize areas most in need while further reducing emissions from older diesel engines.