

APPENDIX D-4
Beneficiary Eligible Mitigation Action Certification

BENEFICIARY ELIGIBLE MITIGATION ACTION CERTIFICATION

Beneficiary: State of Florida

Lead Agency Authorized to Act on Behalf of the Beneficiary: Florida Department of Environmental Protection
(Any authorized person with delegation of such authority to direct the Trustee delivered to the Trustee pursuant to a Delegation of Authority and Certificate of Incumbency)

Action Title:	Florida DERA 2020 - Marine Engine Replacement
Beneficiary's Project ID:	DG003
Funding Request No.	<i>(sequential)</i> 1
Request Type: (select one or more)	<input type="checkbox"/> Reimbursement <input checked="" type="checkbox"/> Advance <input type="checkbox"/> Other (specify): _____
Payment to be made to: (select one or more)	<input checked="" type="checkbox"/> Beneficiary <input type="checkbox"/> Other (specify): _____
Funding Request & Direction (Attachment A)	<input checked="" type="checkbox"/> Attached to this Certification <input type="checkbox"/> To be Provided Separately

SUMMARY

Eligible Mitigation Action	<input type="checkbox"/> Appendix D-2 item (specify): _____
Action Type	<input checked="" type="checkbox"/> Item 10 - DERA Option (5.2.12) (specify and attach DERA Proposal): _____
Explanation of how funding request fits into Beneficiary's Mitigation Plan (5.2.1):	
Florida's Beneficiary Mitigation Plan (MP) allocates 15% of available funding for DERA projects (MP pages 3, 24, and 25).	
Detailed Description of Mitigation Action Item Including Community and Air Quality Benefits (5.2.2):	
This project is for the replacement of high emitting marine diesel engines with new, controlled engines. This effort is in accordance with both Florida's MP and the FDEP 2019 DERA Work Plan, which states a focus on identifying projects at ports for marine vessel emissions reduction. According to EPA's Diesel Emissions Quantifier, a marine diesel replacement project yields about a 90 percent reduction of NOx.	
Estimate of Anticipated NOx Reductions (5.2.3):	
According to EPA's Diesel Emissions Quantifier, a marine diesel replacement project yields about a 90 percent reduction of NOx.	
Identification of Governmental Entity Responsible for Reviewing and Auditing Expenditures of Eligible Mitigation Action Funds to Ensure Compliance with Applicable Law (5.2.7.1):	
Florida Department of Environmental Protection (DEP)	
Describe how the Beneficiary will make documentation publicly available (5.2.7.2).	
DEP maintains a webpage dedicated to the providing background resources and current information about the Mitigation Trust. DEP also maintains a DERA webpage as required under the federal grant. Additionally, DEP manages an electronic mailing subscription service to provide notices and information to all subscribers. All pages are navigable from the main webpage at www.FloridaDEP.gov/volkswagen .	
Describe any cost share requirement to be placed on each NOx source proposed to be mitigated (5.2.8).	
DEP is providing the maximum cost share allowable under the most recent DERA Program Guide (2019) issued by EPA. The maximum cost share allowable for this project (diesel engine replacements) is 40 percent by DEP and 60 percent by the marine vessel owner.	
Describe how the Beneficiary complied with subparagraph 4.2.8, related to notice to U.S. Government Agencies (5.2.9).	
DEP sent notice via ground mail and electronic mail to the representatives of the U.S. Department of Agriculture, and the U.S. Department of the Interior listed in subparagraph 4.2.8 of the Final Trust Agreement on February 22, 2018.	

If applicable, describe how the mitigation action will mitigate the impacts of NOx emissions on communities that have historically borne a disproportionate share of the adverse impacts of such emissions (5.2.10). Land based units are more accurately quantifiable for mitigating community based impacts of NOx emissions compared to this project, compared to this project, where the majority of the operating time will take place on open water. The value of this project is in the reduction of emissions while idling in port or dock and the number of passengers on board during operation or on the premises while docked. Ports historically have concentrated emissions.

ATTACHMENTS
(CHECK BOX IF ATTACHED)

- Attachment A** **Funding Request and Direction.**
- Attachment B** **Eligible Mitigation Action Management Plan Including Detailed Budget and Implementation and Expenditures Timeline (5.2.4).**
- Attachment C** **Detailed Plan for Reporting on Eligible Mitigation Action Implementation (5.2.11).**
- Attachment D** **Detailed cost estimates from selected or potential vendors for each proposed expenditure exceeding \$25,000 (5.2.6). [Attach only if project involves vendor expenditures exceeding \$25,000.]**
- Attachment E** **DERA Option (5.2.12). [Attach only if using DERA option.]**
- Attachment F** **Attachment specifying amount of requested funding to be debited against each beneficiary's allocation (5.2.13). [Attach only if this is a joint application involving multiple beneficiaries.]**


CERTIFICATIONS

By submitting this application, the Lead Agency makes the following certifications:

1. **This application is submitted on behalf of Beneficiary _____ State of Florida _____, and the person executing this certification has authority to make this certification on behalf of the Lead Agency and Beneficiary, pursuant to the Certification for Beneficiary Status filed with the Court.**
2. **Beneficiary requests and directs that the Trustee make the payments described in this application and Attachment A to this Form.**
3. **This application contains all information and certifications required by Paragraph 5.2 of the Trust Agreement, and the Trustee may rely on this application, Attachment A, and related certifications in making disbursements of trust funds for the aforementioned Project ID.**
4. **Any vendors were or will be selected in accordance with a jurisdiction's public contracting law as applicable. (5.2.5)**
5. **Beneficiary will maintain and make publicly available all documentation submitted in**

support of this funding request and all records supporting all expenditures of eligible mitigation action funds subject to applicable laws governing the publication of confidential business information and personally identifiable information. (5.2.7.2)

DATED: February 17, 2020



[NAME] John Dawson
[TITLE] Deputy Director
Division of Air Resource Management
Florida Department of Environmental Protection
[LEAD AGENCY]

for

State of Florida
[BENEFICIARY]

Attachment B

Eligible Mitigation Action Management Plan – Project Management Plan

Implementation and Expenditures Timeline – Project Schedule and Milestones

Milestone	Estimated Start/End Date
DEP Publishes Notice of Funding Availability Statewide	2/7/2020 – 2/18/2020
DEP Reviews Applications	2/19/2020 – 2/21/2020
DEP Notifies Applicant(s) of Award	2/21/2020
DEP Develops and Executes Grant Agreement with Grantee	2/23/2020 – 2/27/2020
Grantee Commences Work on Enumerated Deliverables	2/23/2020 – 2/27/2020
Grantee Submits Final Deliverable (Scrapping Certificate)	6/30/2020 – 9/30/2020
Grantee Submits Reimbursement Request to DEP	6/30/2020 – 9/30/2020
DEP Reimburses Grantee/Grant Close-Out	6/30/2020 – 9/30/2020
DEP Submits Semiannual Report to Trustee	6/30/2020 – 9/30/2020
Project Completion Date	9/30/2020

Budget Narrative

As listed in the timeline above, Florida DEP will publish a statewide notice of funding availability for the replacement of old, heavily emitting marine vessel diesel engines with new, controlled diesel engines. FDEP will identify the project(s) which provide high emissions benefits, can be completed in a timely manner, and will encumber significant amounts of available funding. This project will be completed before the end of the federal fiscal year, which ends September 30, 2020, to ensure the EPA base and bonus funding will be accessible. Once a grantee has been identified, FDEP will develop and execute a grant agreement detailing a more specific timeline and schedule of values for an accurate budget. FDEP will not be using any funding for FDEP staff and any other administrative costs.

Marine Diesel Engine Project Estimates

	Total Approved Budget	Share of Total Budget to be Funded by the Trust	Share of Total Budget Funded by Federal DERA Grant	Cost-Share, if applicable (Grantee 1)
Project Totals	\$4,550,000	\$1,000,000	\$820,000	\$2,730,000
Percentage		21.98%	18.02%	60%

Projected Trust Allocations

	February – September 2020
1. Anticipated 2020 Project Funding Request to be paid through the Trust	\$1,000,000
2. Anticipated Annual Cost Share	\$3,550,000 (\$820,000 from DERA and \$2,730,000 from Grantee)
3. Anticipated Total Project Funding by Year	\$4,550,000
4. Cumulative Trustee Payments Made to Date Against Cumulative Approved Beneficiary Allocation	0
5. Current Beneficiary Project Funding to be paid through the Trust (line 1)	\$1,000,000
6. Total Funding Allocated to for Beneficiary, inclusive of Current Action by Year (line 4 plus line 5)	\$1,000,000
7. Beneficiary Share of Estimated Funds Remaining in Trust	\$166,278,744.54
8. Net Beneficiary Funds Remains in Trust Net of cumulative Beneficiary Funding Actions	\$165,278,744.54

Attachment C

Detailed Plan for Reporting on Eligible Mitigation Action Implementation

As set forth in subparagraph 5.2.11 of the Environmental Trust Agreement for State Beneficiaries (Final Trust Agreement), Beneficiaries must set for a “detailed plan for reporting on Eligible Mitigation Action implementation” to be included in an Appendix D-4 funding request. The Florida Department of Environmental Protection intends to report based on the obligations set forth in 5.3 of the Final Trust Agreement, seen below:

5.3 Beneficiary Reporting Obligations: For each Eligible Mitigation Action, no later than six months after receiving its first disbursement of Trust Assets, and thereafter no later than January 30 (for the preceding six-month period of July 1 to December 31) and July 30 (for the preceding six-month period of January 1 to June 30) of each year, each Beneficiary shall submit to the Trustee a semiannual report describing the progress implementing each Eligible Mitigation Action during the six-month period leading up to the reporting date (including a summary of all costs expended on the Eligible Mitigation Action through the reporting date). Such reports shall include a complete description of the status (including actual or projected termination date), development, implementation, and any modification of each approved Eligible Mitigation Action. Beneficiaries may group multiple Eligible Mitigation Actions and multiple sub-beneficiaries into a single report. These reports shall be signed by an official with the authority to submit the report for the Beneficiary and must contain an attestation that the information is true and correct and that the submission is made under penalty of perjury. To the extent a Beneficiary avails itself of the DERA Option described in Appendix D-2, that Beneficiary may submit its DERA Quarterly Programmatic Reports in satisfaction of its obligations under this Paragraph as to those Eligible Mitigation Actions funded through the DERA Option. The Trustee shall post each semiannual report on the State Trust’s public-facing website upon receipt.

Attachment D

Detailed Cost Estimates from Selected or Potential Vendors for Each Proposed Expenditure

The cost estimate for this project has a ceiling of \$4,550,000. The estimated cost per engine is between \$650,000 and \$850,000. Cost estimates will be provided by the grantee during the project period to show at least three unique manufacturers and the price for engine models which can serve a similar purpose as the engines being replaced. Based on public information provided through surveys and requests for information, this range of prices is the best current estimate for engine replacements on passenger vessels, which are the type of vessel that are most common for the size and scope of the project the FDEP is aiming to fund. Examples of similar engine types are attached below.

FDEP is making one funding request for this project. FDEP is only requesting \$1,000,000 in Mitigation Trust funds for this project.

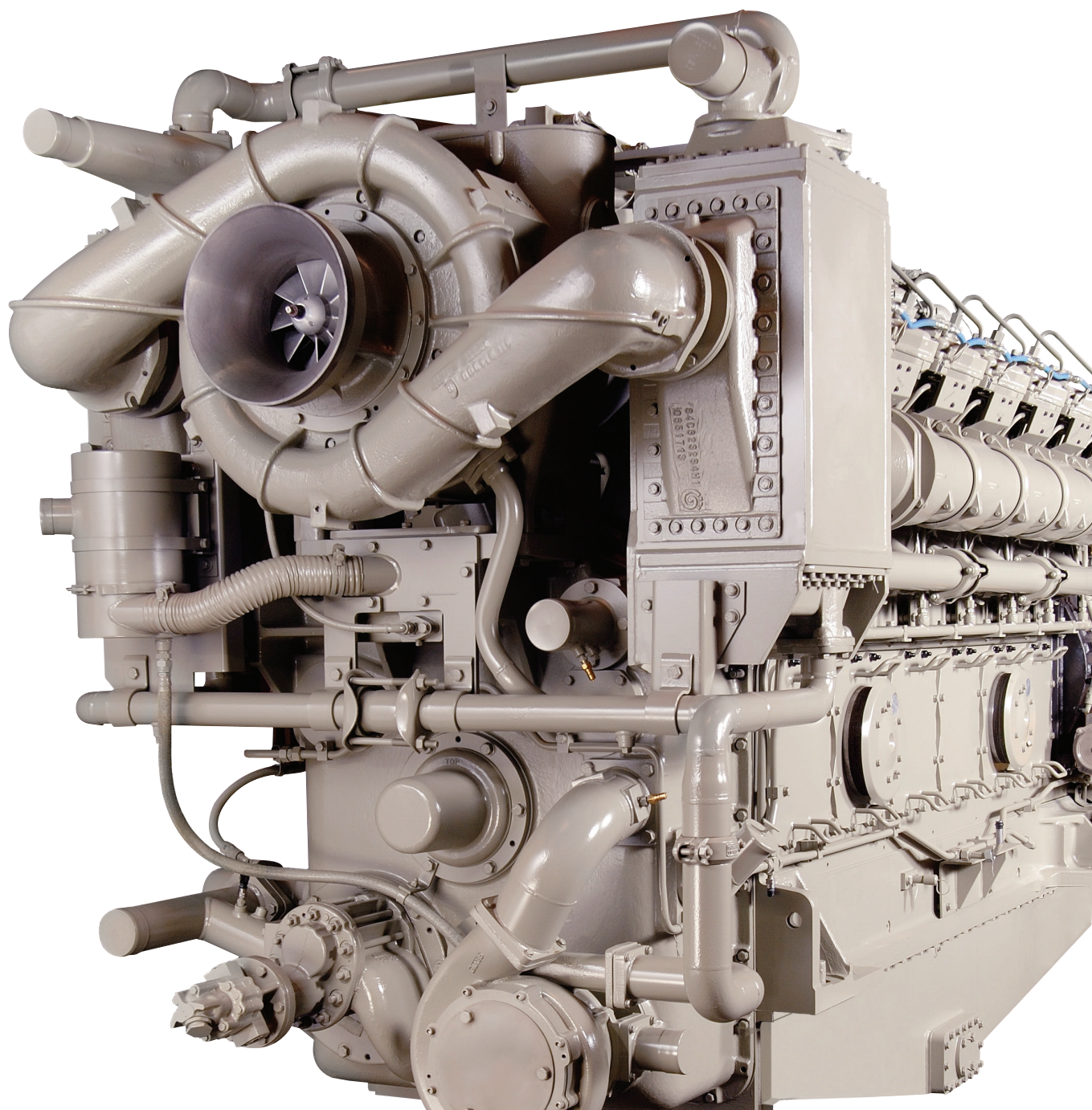
Eligible Replacement Marine Diesel Engine	Estimates
Tier 3 or Tier 4	\$650,000 – \$850,000

Budget Category	Estimated Price
Marine Diesel Engines (4)	\$650,000 – \$850,000 per
Freight	\$150,000
Labor (dismantle, removal, repower, electrical, welding, scrapping, etc.)	\$350,000 – \$500,000
Dry Dock (Rent, relocation, barge, etc.)	\$100,000 – \$250,000
Supplies (necessary for repower)	\$150,000 – \$250,000
Overhead	N/A
Fringe Benefits	N/A
Travel	N/A
Total Project Cost	\$3,350,000 – \$4,550,000

GE
Marine

Rugged and reliable

GE's high-performance V228 Series diesel engines



V228 Series engines—Dependable, long-lasting marine power

GE has been designing and building high-performance diesel engines for more than 40 years. Today, we're one of the leading manufacturers of medium-speed engines in the world. Our V228 Series engines produce continuous power from 1045 kw to 3060 kw. With exceptional reliability and operating costs among the lowest in their class, V228 engines from GE are the right choice for dependable, efficient power.

They work harder.

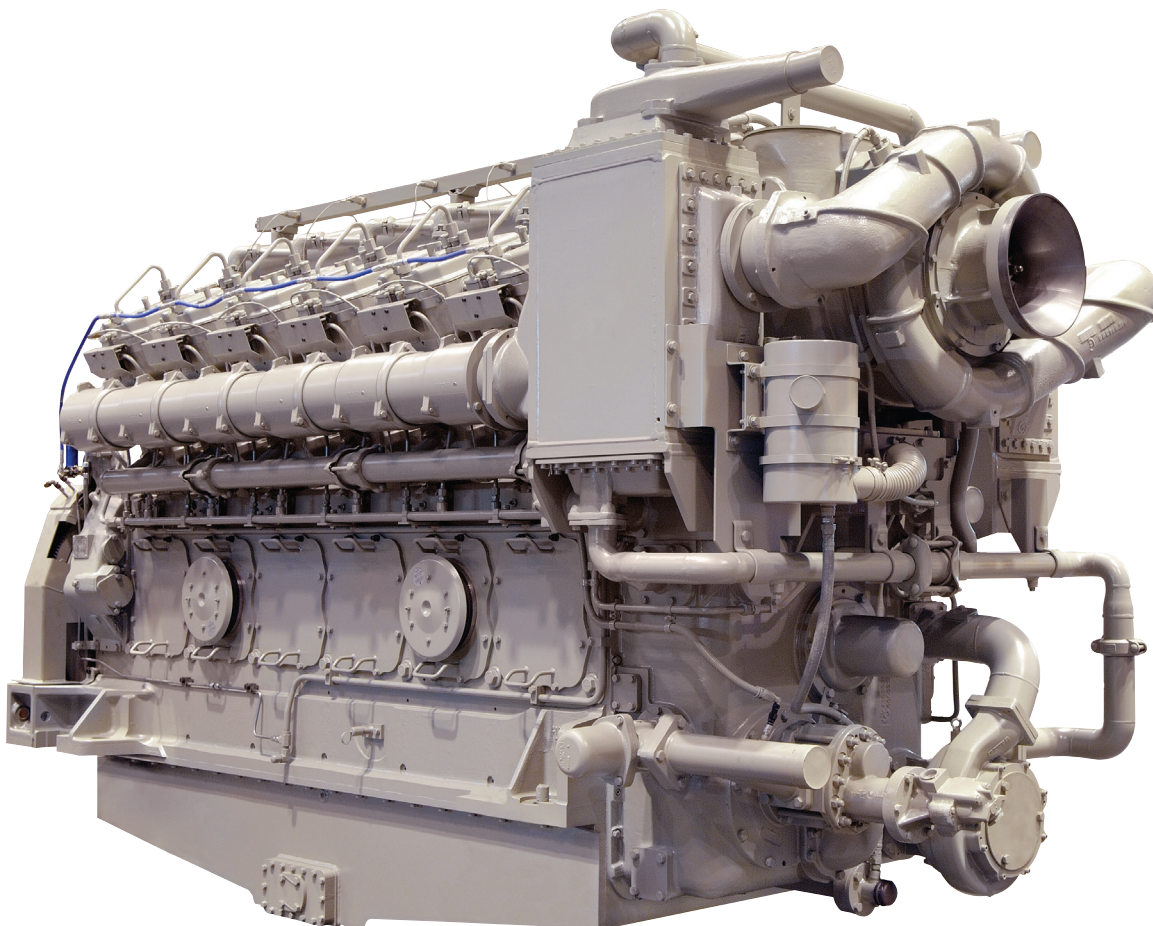
GE's V228 engines are high-compression, four-stroke, medium-speed, turbocharged, electronically fuel injected, class-approved engines designed and built for rigorous marine applications. Our medium-speed engines are proven reliable, with more than 150 million hours of service. They are also among the most fuel-efficient engines in their class.

They go longer.

With rugged construction and quality-assured parts, V228 engines are capable of operating cost-effectively for more than 20 years. Most components can go without overhaul for up to 40,000 hours on a typical marine duty cycle. Among medium-speed engines on the market, V228 engines offer one of the lowest life-cycle costs.

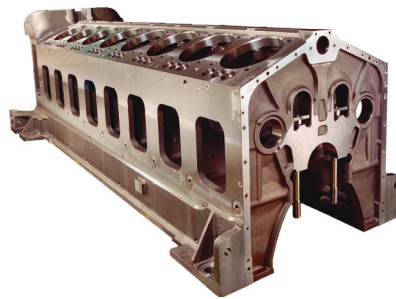
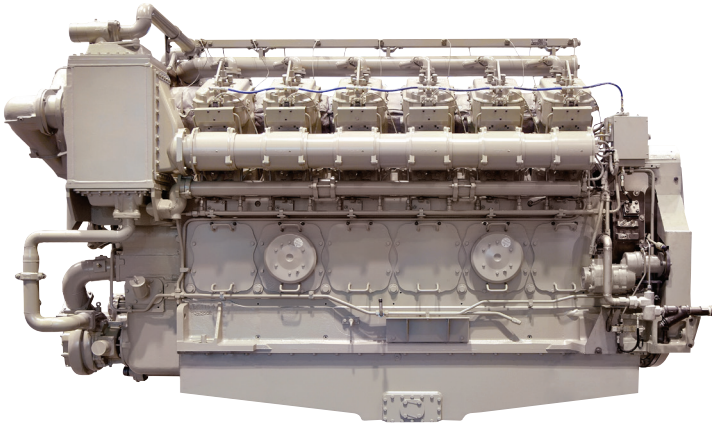
They run smarter.

A high-capacity turbocharger, electronic fuel injection and efficient combustion management come together in V228 engines to make fuel and lube oil consumption as well as emissions among the lowest in the industry. V228 engines comply with MARPOL Annex VI and U.S. EPA Marine Tier 1 and Tier 2 requirements.



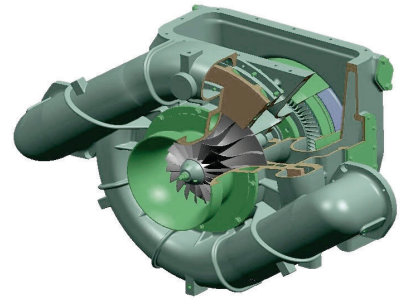
The easy-to-maintain engine

The modularized construction of our V228 engines improves maintainability. Among the features that make maintenance easier are large access doors on the engine mainframe to reach bearings and other crankcase components. The segmented camshaft, sectional exhaust manifold and unitized power assembly are features that simplify removal and replacement of components.



Rigid Cast Mainframe

The V228 engine mainframes feature high-strength, monobloc cast-iron construction. All water, fuel and exhaust piping is externally mounted, eliminating the potential for internal contamination. Large access doors allow for easier maintenance, and generous casing and ribbed cross-members dampen vibration.



High-Performance Turbocharger

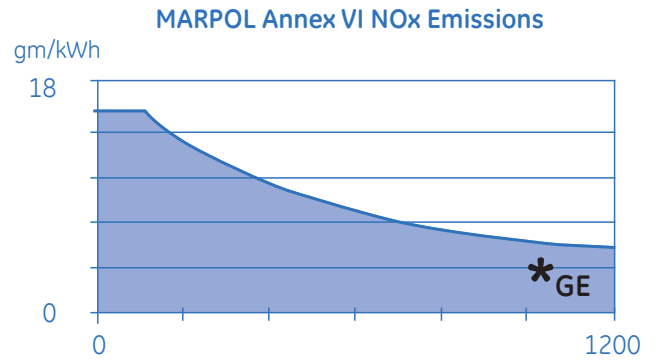
GE's expertise in gas turbine technology contributes to an industry-leading design for performance in the turbocharger. A high compression ratio improves efficiency across the load range. Dual modular pulse piping preserves exhaust pulse energy for maximal thermal efficiency, and the stainless dual exhaust pipe exhibits long component life.

V228 components

Designed for high reliability and low life-cycle costs

The low-emissions solution

Proven EFI technology, integrated with GE's PowerStar™ engine control module, makes V228 engines the natural choice for environmental compliance. Without exhaust gas treatment, NOx emissions are below MARPOL Annex VI regulatory standards. V228 engines comply with U.S. EPA Marine Tier 1 and Tier 2 standards as well.



Unitized Power Assembly

Four-bolt mounting makes assembly removal fast and easy. Electron-beam welding of the steel liner to the forged head prevents leakage. Stainless steel valve seats, inconel exhaust, chromed intake valves and valve rotators extend overhaul intervals and component life.

Electronic Fuel Injection (EFI)

Our EFI systems ensure compliance to all major regulatory standards. Precise fuel management and control also yields fuel savings. The reliability and performance of electronic fuel injection technologies from GE have been proven with more than 150 million hours of engine service over the past decade.



High-Strength Pistons

Forged steel crowns with forced oil lubrication and cooling promote heat reduction for longer life. A three-ring arrangement, which distributes pressure more evenly, and a cut-back design decrease lube oil consumption. A lightweight aluminum skirt offers high heat resistance. The master and articulated rod share a common journal, minimizing engine length while maximizing bearing width.

Segmented Camshaft

The camshaft in a V228 engine is arranged in individual sections for easy inspection and maintenance. Forged and hardened camshaft lobes reduce wear. Oversized end bearings decrease loads for longer camshaft life.



Heavy-Duty Crankshaft

The engine's one-piece crankshaft is forged from high-quality steel, nitride-hardened for long life. Hefty journals and crank pins minimize surface loads, and large radii fillet welded counterweights reduce stress for longer crankshaft life.

Tolerant Tri-Metal Main Bearings

The main bearings are oversized to reduce pressure while providing exceptional oil-wedge formation for low wear. A sacrificial run in overlay promotes rapid conformity at start-up. A nickel barrier ensures superior heat resistance, while a lead tin overlay serves as a high-tolerance contaminant trap for particles and degraded oil.

Stay the course with V228 Series engines



GE's V228 Series engines are designed to power workboats, tugs, towboats, offshore supply vessels, ferries, dredges, fishing vessels and other marine transport applications. Dependable and durable, these medium-speed engines are among the best in their class for fuel efficiency and low life-cycle costs. Engines are available in 8-, 12- and 16-cylinder configurations.



The right support right when you need it

With more than 15,000 medium-speed diesel engines in service worldwide, it's critical we have the parts and service to support them. And we do—through a network of parts distribution centers and service representatives available 24/7 around the globe. We're a leader in the on-time delivery of parts and services.



Learn from the diesel engine experts

In addition to product and service support, we provide comprehensive instruction in diesel engine maintenance. Our learning facility in Erie, Pennsylvania, features classrooms, computer simulated training and an engine laboratory. Our instructors also provide on-site training at customer locations around the world. We offer custom-designed instructional courses, computer-based learning aids, expert technical advisors, training videos and train-the-trainer programs.

V228 Series engine specifications

Item	Electronic Fuel Injected (EFI)		
	8V228	12V228	16V228
Number of cylinders	8	12	16
Stroke cycle	4	4	4
Cylinder arrangement	45-degree V	45-degree V	45-degree V
Bore	228.6 mm (9 in.)	228.6 mm (9 in.)	228.6 mm (9 in.)
Stroke	266.7 mm (10.5 in.)	266.7 mm (10.5 in.)	266.7 mm (10.5 in.)
Compression ratio	15.7:1	15.7:1	15.7:1
Power Output at 1050 rpm			
Continuous [†]	1526 kw (2045 bhp)	2290 kw (3070 bhp)	3052 kw (4100 bhp)
Maximum [†]	1678 kw (2250 bhp)	2518 kw (3375 bhp)	3357 kw (4500 bhp)
Power Output at 1000 rpm			
Continuous [†]	1453 kw (1948 bhp)	2180 kw (2922 bhp)	2906 kw (3896 bhp)
Maximum [†]	1598 kw (2143 bhp)	2398 kw (3214 bhp)	3197 kw (4286 bhp)
Power Output at 900 rpm			
Continuous [†]	1308 kw (1753 bhp)	1962 kw (2630 bhp)	2616 kw (3506 bhp)
Maximum [†]	1438 kw (1929 bhp)	2158 kw (2893 bhp)	2877 kw (3857 bhp)
Engine Dimensions			
A Height w/deep sump	2762 mm (109 in.)	2762 mm (109 in.)	3030 mm (119 in.)
B Height w/shallow sump	2555 mm (101 in.)	2555 mm (101 in.)	2555 mm (101 in.)
C Length	3298 mm (130 in.)	4136 mm (163 in.)	4975 mm (196 in.)
D Width	1734 mm (68 in.)	1734 mm (68 in.)	1734 mm (68 in.)
E Crank center line to marine sump	978 mm (39 in.)	968 mm (38 in.)	1246 mm (49 in.)
F Crank center line to mounting feet	480 mm (19 in.)	480 mm (19 in.)	480 mm (19 in.)
G Exhaust diameter	457 mm (18 in.)	508 mm (20 in.)	610 mm (24 in.)
Dry Weight	12,478 kg (27,509 lbs)	17,778 kg (39,200 lbs)	22,132 kg (48,800 lbs)

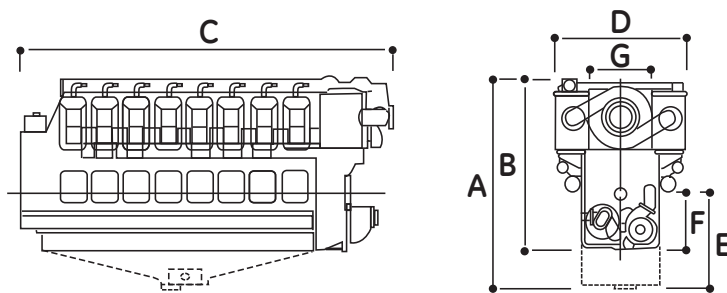
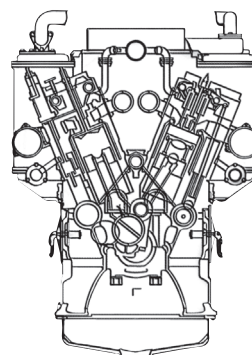
[†]Ratings are based on ISO3046-1

To learn more

Call us 24/7 at 1-866-656-8786 or +630-893-3344
or e-mail us at ge.marine@ge.com.

GE Marine
2901 East Lake Road
Erie, Pennsylvania 16531

www.getransportation.com



PRODUCT SPECIFICATIONS FOR 3516C IMO II

POWER RATING

Power Range	1650-3386 bhp (1230-2525 bkW)
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ENGINE SPECIFICATIONS

Speed Range	1200-1800 rpm
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Emissions	IMO II
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Aspiration	TTA
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Bore	8.46 in
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Stroke	7.48 in
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Displacement	4765.0 in ³
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Rotation from Flywheel End	Counterclockwise or clockwise
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Configuration	Vee 16, 4-Stroke-Cycle Diesel
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DIMENSIONS & WEIGHTS

Minimum Dry Weight	17550.0 lb
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Minimum Length	143.1 in
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Maximum Length	148.0 in
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Minimum Height	77.4 in
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Maximum Height	84.6 in
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Minimum Width	80.2 in
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Maximum Width	84.3 in
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3516C IMO II STANDARD EQUIPMENT

AIR INLET SYSTEM

Corrosion resistant separate circuit freshwater aftercooled, powercore air cleaner

CONTROL SYSTEM

Dual Caterpillar® A3 Electronic Control Unit (ECU) LH with electronic unit injector fuel system rigid wiring harness (10 amp DC power required to drive ECU)

COOLING SYSTEM

Gear-driven centrifugal auxiliary sea water pump, gear-driven centrifugal jacket water pump, expansion tank for commercial engines, coolant shunt tank on lightweight engines, engine oil cooler, thermostats and housing.

ECU FUNCTIONS

Programmable low idle, SAEJ1939 data link, Cat® data link, engine diagnostics, general alarm relay, programmable parameters (system application and tattletales), Caterpillar ET service tool interface, remote shutdown, shutdown notify, load feedback, overspeed shutdown, overspeed verify

EXHAUST SYSTEM

Dry gas-tight exhaust manifolds with heat shields, dual turbochargers with watercooled bearings and heat shield. Wastegate on select ratings

FUEL SYSTEM

Electronically controlled unit injectors, simplex fuel filter (RH) with service indicators, fuel transfer pump

INSTRUMENTATION

Marine Power Display of: Engine oil pressure, engine water temperature, fuel pressure, engine speed, fuel consumption, overspeed shutdown notification light, prelube and shutdown override

LUBE SYSTEM

Gear-driven pump, top-mounted dual crankcase breather groups, simplex oil filter, oil filler and dipstick

POWER TAKE-OFFS

Accessory drive, two-sided front housing

PROTECTION SYSTEM

Emergency stop pushbutton, safety shutoff, oil pressure, and water temperature

GENERAL

Two lifting eyes mounted to cylinder heads, Caterpillar yellow paint, parts books and maintenance manuals, shrink-wrap.

ISO CERTIFICATION

Factory-designed systems built at Caterpillar ISO 9001:2000 certified facilities.

3516C IMO II OPTIONAL EQUIPMENT

AIR INLET SYSTEM

AIR INLET SYSTEM

Air Cleaner Removal

Remote Air Inlet Adapters

CHARGING SYSTEM

Battery Chargers

Charging Alternators

CONTROL SYSTEM

Throttle Position Sensor

Throttle Synchronization

COOLING SYSTEM

Water Level Switch Gauge

Coolant Level Sensors

Connections

Keel Cooling Conversions

Heat Exchangers

Auxiliary Water Pumps

Sea Water Pump Removal

Coolant Shunt Tanks

Air Separator

Marine Gear Cooling

EXHAUST SYSTEM

Exhaust Outlet

Flexible Fittings

Elbows

Flanges

Flange and Exhaust Expanders

Mufflers

FUEL SYSTEM

Fuel Cooler

Fuel Priming Pumps

Flexible Fuel Lines

Rigid Fuel Lines

Primary Fuel Filter

Fuel level switch

INSTRUMENTATION

PL1000T Communication Module

PL1000E Communication Module

Customer Interface

Thermocouples

Remote Panel Display

Remote Cylinder Temperature Display

Pilot House Instrument Panels

Marine Gear Sensors

Engine Vision Display System

LUBE SYSTEM

Oil Pan

Oil Pan Accessories

Sump Pumps

Prelubrication Options

Lubricating Oil

CENTRIFUGAL OIL FILTER

MOUNTING SYSTEM

Engine Supports

Vibration Isolation Mountings

POWER TAKE-OFFS

Flexible Coupling and Guards

Front Housing Accessories

Upper Left Hand Front Location:

Upper Right Hand Front Location:

Upper Right Hand Rear Location:

Lower Left Hand Front Location:

Lower Left Hand Rear Location:

Front Housing Accessory Drives

Upper LH Accessory Drive

Upper RH Accessory Drive

Front Power Take Offs

Crankshaft Pulleys

Damper Guard Removals

PROTECTION SYSTEM

Air Inlet Shutoffs

Switches and Contactors

Explosion Relief Valve

Sensors

SPARE PARTS KITS

Parts Kits

Pump Kits

Fuel Transfer

Lube Oil

SPECIAL APPEARANCE

Chrome Plated Relief Valves

Black Air Cleaners

STARTING SYSTEM

Starting Motors or Barring Device

Air Starting Motors Options

Starting Aids

Battery Sets - 24 Volt - Dry

Battery Rack

GENERAL

Tool Set

Caterpillar Datalink Wire

PRODUCT SPECIFICATIONS FOR 3516E TIER 4 / IMO III

POWER RATING

Power Range	2501-3386 bhp (1865-2525 bkW)
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ENGINE SPECIFICATIONS

Speed Range	1600-1800 rpm
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Emissions	U.S. EPA Tier 4 Final, IMO III
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Aspiration	TTA
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Bore	6.69 in
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Stroke	8.46 in
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Displacement	4765.0 in ³
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Rotation from Flywheel End	Counterclockwise
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Configuration	Vee 16, 4-Stroke-Cycle Diesel
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DIMENSIONS & WEIGHTS

Width	89.9 in
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Length	125.7 in
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Height	87.6 in
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Dry Weight	21164.0 lb
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3516E TIER 4 / IMO III STANDARD EQUIPMENT

AIR INLET SYSTEM

Corrosion-resistant aftercooler core

CONTROL SYSTEM

Dual A5 engine control modules with electronic unit injection and low pressure fuel system

COOLING SYSTEM

Auxiliary fresh water pump

Gear Driven, centrifugal jacket water pump with 40% more capacity

EXHAUST SYSTEM

Dual turbochargers with water-cooled bearings and heat shields

FUEL SYSTEM

Duplex Fuel and Oil Filtration

GENERAL

Vibration damper and guard

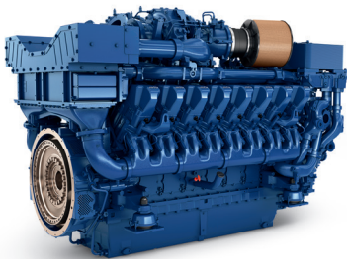
Meets SOLAS regulations



Marine

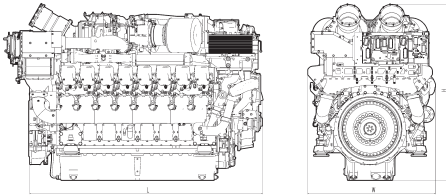
DIESEL ENGINES 12/16/20V 4000 M05

for vessels with unrestricted continuous operation (1A)



Engine	Dimensions (LxWxH) mm (in)	Mass, dry kg (lbs)
12V 4000	2750 x 1793 x 2070 (108 x 71 x 81)	8000 (17637)
16V 4000	3190 x 1550 x 2070 (126 x 61 x 81)	9300 (20500)
20V 4000	3710 x 1550 x 2070 (146 x 61 x 81)	11600 (25575)

All dimensions are approximate, for complete information refer to the installation drawing.



Optional equipment and finishing shown. Standard may vary.

Typical applications: e.g. work boats, tugs, barges, ferries, governmental vessels

Engine Model		12V 4000 M05			16V 4000 M05				20V 4000 M05	
Rated power ICFN	kW	1500	1680	1920	1840	2000	2240	2560	2800	3200
ICFN	(bhp)	(2012)	(2253)	(2575)	(2467)	(2682)	(3004)	(3433)	(3755)	(4291)
Speed	rpm	1600	1800	1800	1600	1600	1800	1800	1800	1800
No. of cylinders		12			16				20	
Displacement	l (cu in)	57.2 (3491)			76.3 (4656)				95.4 (5822)	
Emission legislation*		IMO II/IMO III**/EPA 4**			IMO II/IMO III**/EPA 4**				IMO II/IMO III**.#	

* IMO - International Maritime Organisation (MARPOL); EPA - US Marine Regulation 40 CFR 1042 ** IMO III with SCR

Standard Equipment	
Starting system	Electric starter motor 24V, 2 pole
Oil system	Gear driven lube oil pump, switchable oil filter, centrifugal oil filter, lube oil heat exchanger, closed crankcase ventilation
Fuel system	Fuel delivery pump, duplex fuel filter with diverter valve, common rail fuel injection system with high-pressure pump, pressure accumulator and electronic fuel injection with cylinder cutout system, jacketed HP fuel lines, flame-proof hose lines, leak-off fuel monitoring, switchable pre-filter with water separator in conjunction with switchable additional secondary filter
Cooling system	Separate high and low temperature cooling circuit (engine version for separate heat exchanger), gear driven coolant circulation pumps
Combustion air system	Engine coolant temperature-controlled intercooler, turbocharging with 2 water-cooled turbochargers, on-engine seawater-resistant air filters, intake air silencer (16V/20V)
Exhaust system	Triple-walled, liquid-cooled, on-engine exhaust manifolds, 30° (upwards against horizontal) elbows discharge, exhaust bellow
Mounting system	Resilient engine mounting
Engine management system	Engine control and monitoring system (ADEC); engine interface module - EIM, engine mounted, expansion in compliance with extended scope of monitoring*
Engine safety system	The scope of delivery for the engine fulfils SOLAS requirements for admissible surface temperature and shielding of fuel and lube oil lines
Optional Equipment	
Starting system	Coolant preheating system, air starter
Oil system	Lube oil priming system, oil level monitoring, automatic oil replenishment system with basic scope of monitoring, automatic oil filter, lube oil extraction pump
Fuel system	Fuel conditioning system with water separator
Cooling system	Coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, engine mounted coolant expansion tank, gear driven coolant circulation pump, raw-water connection for gearbox cooling
Combustion air system	Intake air silencer (12V)
Exhaust system	90° elbow for horizontal discharge
Auxiliary PTO	Bilgepump, PTOs at free end of engine, charging generator, 120A, 28V, 2 pole
Gearbox option	Various reserve reduction gearbox models, elec. actuated, gearbox mounts, PTO for hydraulic pump at driving shaft or at mediate shaft, trolling, trailing pump, propeller shaft flange
Classification	ABS, BV, DNV, GL, LR including necessary extensions to scope of supply
Power transmission	Torsional resilient coupling with bearing housing interface module, torsional resilient and off-set

* only above 2250 kW

> Intake air temperature 25°C/Sea water temperature 25°C

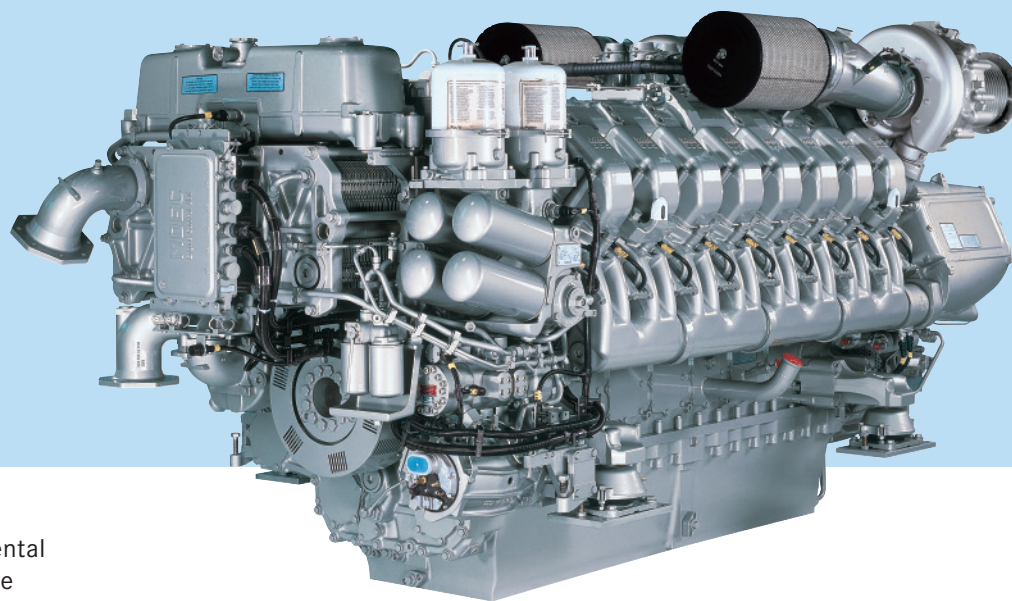
> Barometric pressure 1000 mbar

Specifications are subject to change without notice. All dimensions are approximate, for complete information refer to installation drawing. For further information consult your MTU distributor.

Diesel Engines 16V 4000 M61R/M61

for Vessels

with Unrestricted Continuous Operation (1A)



Typical applications:

Work Boats, Ferries, Governmental Vessels, Tugs, Barges and Large Sailing Yachts

Engine Model		16V 4000 M61R	16V 4000 M61
Rated power ICFN	kW (bhp)	1520 (2040)	2000 (2680)
Speed	rpm	1600	1800
No. of cylinders		16	16
Bore/stroke	mm (in)	165/190 (6.5/7.5)	165/190 (6.5/7.5)
Displacement, total	l (cu in)	65.0 (3967)	65.0 (3967)
Flywheel housing		SAE 00	SAE 00
Gearbox model		WAF 763 i = 4.6 - 5.7	WAF 863 L i = 4.4 - 5.8

Performance and Fuel Consumption		16V 4000 M61R			16V 4000 M61		
Speed	rpm	1600	1400	1000	1800	1600	1200
Maximum power	kW	1520	1520	700	2000	2000	1150
	bhp	2035	2035	940	2680	2680	1540
Power on propeller curve (n ³)	kW	1520	1020	370	2000	1400	600
	bhp	2035	1370	495	2680	1875	805
Fuel consumption on propeller curve ¹⁾	g/kWh	206	214	213	206	209	211
	l/h	377.3	263.0	95.0	496.4	352.5	152.5
	gal/h	99.7	64.5	25.1	131.1	93.1	40.3

¹⁾ Tolerance +5% per ISO 3046, Diesel fuel to DIN EN 590 with a min L.H.V. of 42800kJ/kg (18390 BTU/lb)



Standard Equipment

Starting System	Electric starter motor 24 V, 2 pole
Oil System	Gear driven lube oil pump, lube-oil duplex filter with diverter valve, centrifugal oil filter, lube-oil heat exchanger, handpump for oil extraction
Fuel System	Fuel delivery pump, fuel duplex filter with diverter valve, "Common Rail" fuel injection system with high-pressure pump, pressure accumulator and electronic fuel injection with cylinder cutout system, jacketed HP fuel lines, flame proof hose lines, leak-off fuel tank level monitored, fuel hand pump, fuel pre-filter with water separator
Cooling System	MTU-split-circuit coolant system, coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, gear driven coolant circulation pump, raw-water connection for gearbox cooling
Combustion Air System	Engine coolant temperature-controlled intercooler, sequential turbocharging with 2 water-cooled turbochargers, on-engine set of seawater-resistant combustion-air filters
Exhaust System	Triple-walled, liquid-cooled, on-engine exhaust manifolds, exhaust bellows (horiz. discharge)
Mounting System	Resilient mounts
Power Transmission	Torsional and offset compensating couplings
Auxiliary PTO	Charging generator, 120A, 28V, 2 pole
Engine Management System	Engine control and monitoring system (MDEC), interface to gearbox control, interface to remote control and monitoring system, local operating panel (LOP)

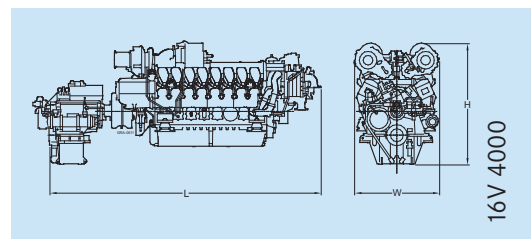
Optional Equipment

Starting System	Coolant preheating system
Oil System	Lube oil priming system
Cooling System	Engine version for sealed engine coolant system in conjunction with ship's side recooling system
Exhaust System	Exhaust outlet elbow (45°, 70°, 90°)
Auxiliary PTO	Bilgepump
Engine Management System	In compliance with Classification Society Regulations
Monitoring / Control System	Fuel consumption measurement device (KRAL), monitoring and control system MCS-5, remote control system RCS-5
Gearbox Options	Various reverse reduction gearbox models, el. actuated, gearbox mounts, PTO for hydraulic pump at driving shaft or at mediate shaft, trolling, trailing pump, propeller shaft flange
Classification	ABS, BV, CCS, CR, DNV, GL, KR, LR, NK, RINA incl. necessary extensions to scope of supply

The rated power corresponds to ISO 3046-1:2002 (E) and ISO 15550:2002(E); Intake air temperature 25°C / Sea water temperature 25°C; Intake air depression 15 mbar / Exhaust back pressure 30 mbar; Barometric pressure 1000 mbar. The power produced at the flywheel will be within the tolerance of ±3% - according to ISO 15550:2002(E)- up to 45°C (113°F) combustion air temperature measured at the air cleaner inlet and up to 32°C (89,6°F) sea or raw water temperature measured at the sea water pump suction inlet. All engines fulfill IMO and EPA Tier 2 emission regulations. Emission- and classification- certificates are available on request. Specifications are subject to change without notice. All dimensions are approximate. For complete information refer to installation drawing. For further information consult your MTU dealer.

Dimensions and Masses (incl. gearbox)

Engine Model		16V 4000 M61R	16V 4000 M61
Length [L]	mm (in)	4785 (188.4)	4885 (192.3)
Width [W]	mm (in)	1520 (59.8)	1520 (59.8)
Height [H]	mm (in)	2225 (87.6)	2335 (91.9)
Mass [dry]	kg (lbs)	10535 (23225)	11335 (24989)



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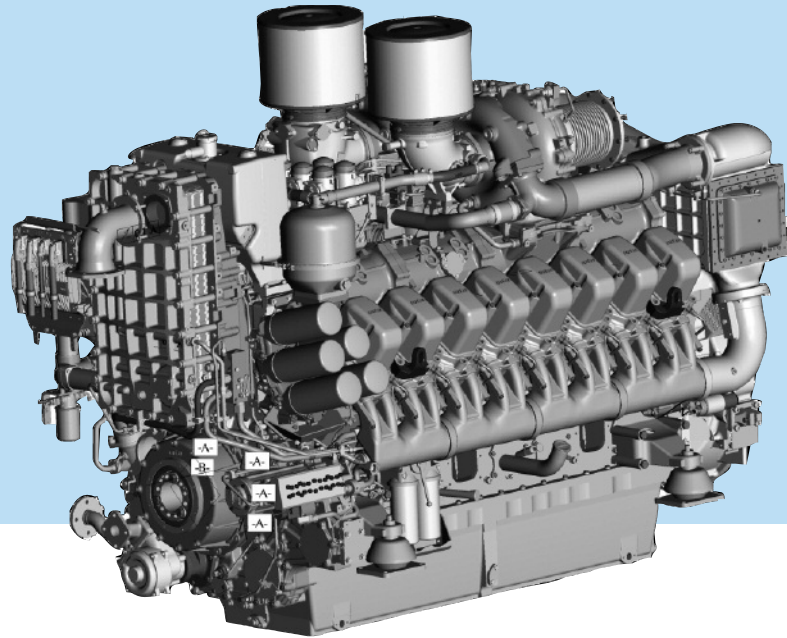
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Diesel engines 16V 4000 M53/M63



Typical applications:
e.g. work boats, tugs,
barges

Engine model		16V 4000 M53R	16V 4000 M53	16V 4000 M63	16V 4000 M63L
Rated power ICFN	kW (bhp)	1520 (2038)	1840 (2467)	2000 (2682)	2240 (3004)
Speed	rpm	1600	1800	1800	1800
Flywheel housing		SAE 00	SAE 00	SAE 00	SAE 00
Gearbox model		WAF 763	WAF 863 L	WAF 863 L	WAF 863 L
Gearbox model, alternativ		ZF 7661	ZF 7661	ZF 9311	ZF 9311
Exhaust optimization ¹⁾		IMO/EPA 2/EU IIIA ²⁾	IMO/EPA 2/EU IIIA ²⁾	IMO/EPA 2/EU IIIA ²⁾	IMO/EPA 2/EU IIIA ²⁾
Engine main data					
Bore/Stroke	mm (in)	170/210 (6.7/8.3)	170/210 (6.7/8.3)	170/210 (6.7/8.3)	170/210 (6.7/8.3)
Displacement, total	l (cu in)	76.3 (4656)	76.3 (4656)	76.3 (4656)	76.3 (4656)
Fuel consumption*					
at rated power	g/kWh	195	195	195	202
	l/h (gal/h)	357.1 (94.3)	432.3 (114.2)	469.9 (124.1)	545.0 (144.0)

* Tolerance +5% per ISO 3046, diesel fuel to DIN EN 590 with a min L.H.V. of 42800kJ/kg (18390 BTU/lb)
Power definition according ISO 3046; Intake air temperature: 25°C / Sea water temperature: 25°C; Intake air depression 15 mbar / Exhaust back pressure 30 mbar; Barometric pressure 1000 mbar; no Power reduction at 45°C/32°C (increase fuel consumption: 2%)

M53 - unrestricted continous duty with average load factors p to approximately 90%
M63 - heavy duty with high load factors up to approximately 80%

¹⁾IMO - International Maritime Organisation
EPA - US Marine Regulation 40 CFR 94, with NTE
EU - EU Nonroad Directive 97/68/EC, Tier III A

²⁾ Recognition through the RheinSchUO (CCNR)

Engines available from July 2009



Standard equipment

Starting system	Electric starter motor 24V, 2 pole
Oil system	Gear driven lube oil pump, non switchable oil filter, Centrifugal oil filter, lube oil heat exchanger, pump for lube oil extraction, opened crankcase ventilation
Fuel system	Fuel conditioning system with water separator, Fuel delivery pump, duplex lube fuel filter with diverter valve, common rail fuel injection system with high-pressure pump, pressure accumulator and electronic fuel injection with cylinder cutout system, jacketed HP fuel lines, flame- proof hose lines, leak-off fuel tank level monitoring
Cooling system	Engine version for separate heat exchanger, gear driven coolant circulation pump
Combustion air system	Engine coolant temperature-controlled intercooler, turbocharging with 2 water-cooled turbochargers, on-engine seawater-resistant air filters
Exhaust system	Triple-walled, liquid-cooled, on-engine exhaust manifolds, 30° discharge elbow, exhaust bellows
Mounting system	Resilient mounts
Power transmission	Torsional resilient and off-set compensating coupling (Centa CX for D-Drive) Torsional resilient coupling with bearing housing (Centamax for T-Drive)
Auxiliary PTO	Charging generator, 120A, 28V, 2 pole
Engine management system	Engine control and monitoring system (ADEC) Engine interface module - EiM, engine mounted
Engine safety system	The scope of delivery for the engine fulfills SOLAS requirements for admissible surface temperature and shielding of fuel and lube oil lines

Optional equipment

Starting system	Coolant preheating system air starter
Oil system	Lube oil priming system, oil level monitoring, automatic oil replenishment system with basic scope of monitoring, switchable oil filter with extended scope of monitoring
Fuel System	Switchable pre-filter with water separator in conjunction with switchable additional secondary filter
Cooling system	Coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, engine mounted coolant expansion tank, gear driven coolant circulation pump, raw-water connection for gearbox cooling
Combustion air system	Intake air silencer
Exhaust system	90° discharge elbow
Auxiliary PTO	Bilgepump (as secondary coolant pump), PTOs at free end of engine
Engine management system	Expansion In compliance with extended scope of monitoring (individual exhaust temperature monitoring)
Gearbox option	Various reserve reduction gearbox models, elec. actuated, gearbox mounts, PTO for hydraulic pump at driving shaft or at mediate shaft, trolling, trailing pump, propeller shaft flange
Classification	ABS, BV, CCS, CR, DNV, GL, KR, LR, NK, RINA including necessary extensions to scope of supply

Specifications are subject to change without notice; all dimensions are approximate.
For further information consult your MTU or MTU Detroit Diesel distributor/dealer.

Dimensions and Mass - Engines

Engine model		M53R	M53	M63	M63L
Length [L]	mm (in)	3075 (121,1)	3075 (121,1)	3075 (121,1)	3075 (121,1)
Width [W]	mm (in)	1570 (61,8)	1570 (61,8)	1570 (61,8)	1570 (61,8)
Height [H]	mm (in)	2370 (93,3)	2370 (93,3)	2370 (93,3)	2370 (93,3)
Mass [dry]	kg (lbs)	8800 (19400)	8800 (19400)	8800 (19400)	8800 (19400)

Engines with gearbox

	M53R	M53	M63	M63L
	4560 (179,5)	4560 (179,5)	4560 (179,5)	4560 (179,5)
	1570 (61,8)	1570 (61,8)	1570 (61,8)	1570 (61,8)
	2750 (108,3)	2750 (108,3)	2750 (108,3)	2750 (108,3)
	11165 (26520)	11165 (26520)	11165 (26520)	11165 (26520)

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Attachment E

DERA Option (5.2.12)

Additional Information about the DERA Work Plan

The DERA work plan below, titled, *Florida Diesel Emissions Mitigation Program for Federal Fiscal Year (FY) 2019*, was submitted to the U.S. Environmental Protection Agency (EPA) for the federal fiscal year 2019-2020, which began October 1, 2019, and will end on September 30, 2020. This work plan was drafted and submitted with the intention of utilizing Florida’s Beneficiary Mitigation Trust allocation, identified in Florida’s Beneficiary Mitigation Plan as 15 percent of the total allocation, for various DERA State Grant Program projects. This table shows the total amount of DERA funding provided by EPA in FDEP’s current grant.

WORKPLAN BUDGET	FY17	FY18	FY19
EPA Base Funds Awarded	\$301,991.00*	\$282,020.00	\$342,934.00
EPA Bonus Funds Contingent	\$150,994.00	\$141,010.00	\$171,467.00
Total Mandatory Cost-Share	As required by category		
Total Voluntary Matching Funds**	\$301,991.00	\$282,020.00	\$342,934.00
Total Project Costs	\$754,976.00	\$705,050.00	\$857,335.00

*Of the amount listed, FDEP has previously, prior to the submittal of the Beneficiary Mitigation Plan, and within the performance period of the EPA grant, executed and completed two DERA projects totaling \$295,016.33.

** “Total Voluntary Matching Funds” is the amount, per year, of matching funds which the state is requesting Mitigation Trust funds in order to meet the minimum matching funds requirement.

FDEP’s DERA work plan states the following: “At present, the project types to be funded during the FY 2018 and FY 2019 budget cycles will focus on ports, primarily through marine engines, and other nonroad or rail options located within the freight intermodal sector.” This is evidenced in this funding request for a marine vessel diesel engine replacement project(s).

FISCAL YEAR 2019

STATE CLEAN DIESEL GRANT PROGRAM

WORK PLAN AND BUDGET NARRATIVE TEMPLATE

INSTRUCTIONS: States and territories applying for FY 2019 DERA State Clean Diesel Grant Program funding must use this template to prepare their Work Plan and Budget Narrative.

Please refer to the FY 2019 STATE CLEAN DIESEL PROGRAM INFORMATION GUIDE for full Program details, eligibility criteria and funding restrictions, and application instructions.

SUMMARY PAGE

Project Title: Florida Diesel Emissions Mitigation Program for Federal Fiscal Year (FY) 2019

Project Manager and Contact Information

Organization Name: Florida Department of Environmental Protection

Project Manager: Jeffery F. Koerner
Director, Division of Air Resource Management

Mailing Address: Florida Department of Environmental Protection
2600 Blair Stone Road, MS 5500
Tallahassee, Florida 32399-2400

Phone: (850) 717-9000

Fax: (850) 717-9001

Email: Jeff.Koerner@FloridaDEP.gov

Project Budget Overview:

	FY 2019
EPA Base Allocation	\$342,934
State or Territory Voluntary Matching Funds (if applicable)	\$342,934
EPA Match Incentive (Bonus) (if applicable)	\$171,467
Mandatory Cost-Share	\$ As required by category
TOTAL Project Cost	\$857,335
Other Leveraged Funds	Unknown

Project Period

October 1, 2019 – September 30, 2021

Summary Statement

As stated in the DERA application materials from FY 2018, the Florida Department of Environmental Protection (Department) intends to use available FY 2018 grant funding and is applying for FY 2019 grant funding in conjunction with funds made available to the State of Florida from the Volkswagen Environmental Mitigation Trust (Trust). The Department intends to use funds from the Trust for the state's voluntary match. Florida became a beneficiary of the Trust on January 30, 2018, following a longer-than-expected legal process to establish the Trust. This has delayed implementation of Florida's FY 2018 DERA projects.

In the current DERA project cycle, the Department has identified and encumbered two projects to be completed before June 30, 2019. The first is for the replacement of three marine diesel engines on a vessel in Port Tampa, for a \$141,000 cost share from DERA base funding. The second project is for the replacement of three port drayage trucks at Port Miami for a \$155,663.64 cost share from DERA base funding. This is a total of \$296,663.64 of the \$301,991 from the DERA FY 2017 base funding.

This application will combine the FY 2018 allowable project cost funding of \$705,050 with the FY 2019 allowable project cost funding of \$857,335 to fund eligible projects with state-match funding from the Trust. The Department was successful in securing nonrecurring budget authority from the Florida Legislature to draw down DERA funding for FY 2018 and FY 2019 projects. This budget authority will become available on July 1, 2019. The Department will seek additional budget authority for future DERA projects in the next annual Florida Legislative Session in 2020.

At present, the project types to be funded during the FY 2018 and FY 2019 budget cycles will focus on ports, primarily through marine engines, and other nonroad or rail options located within the freight intermodal sector.

The Department maintains a website that provides the public with information on DERA programs and details past DERA-related projects in the state: <https://floridadep.gov/air/air-director/content/diesel-emissions-reduction-act-dera-florida>

SCOPE OF WORK

STATE/TERRITORY GOALS AND PRIORITIES:

All of Florida is in attainment for the following criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone, particulate matter (both PM₁₀ and PM_{2.5}), and lead (Pb). The majority of Florida is in attainment for sulfur dioxide (SO₂), with the exception of two small geographic areas centered around certain large stationary sources in Hillsborough and Polk counties. These SO₂ impacted areas are mainly due to the influence of large stationary emission sources.

Although most air pollutants in Florida occur in concentrations well below the National Ambient Air Quality Standards (NAAQS), some can occur locally in concentrations that potentially affect the health of Florida's citizens. The pollutants of greatest concern are ground-level ozone and particulate matter, together with the precursors that form them (i.e., NO_x, SO₂, and volatile organic compounds [VOCs]). The use of legacy diesel-powered vehicles is a significant contributor to the total emissions that lead to ground-level ozone formation and increased particulate matter concentrations. Local impacts from diesel exhaust includes a range of hazardous air pollutants, which are an additional health concern.

According to the 2014 National Emission Inventory (NEI), Florida's total emissions of NO_x from all sources, both stationary and mobile, was 582,390 tons.¹ The majority of these NO_x emissions

¹ EPA's 2014 NEI Data: <https://www.epa.gov/air-emissions-inventories/2014-national-emissions-inventory-nei-data>

came from mobile sources. These sources emitted 416,565 tons in 2014, approximately 71% of the total statewide NO_x emissions. In Florida, approximately 33% of all NO_x emissions (194,638 tons) are from diesel-powered mobile sources. Figure 1 shows the sources of NO_x emissions in Florida. Figure 2 shows the distribution of total NO_x emissions by county.

Figure 1. Percentage Distribution by Sector for All NO_x Emissions in Florida (2014)

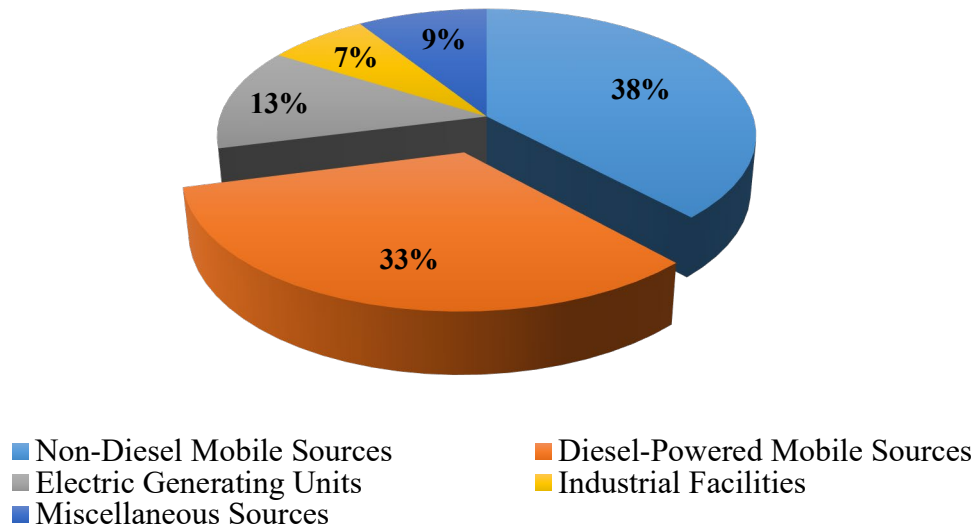


Figure 2. Distribution by County for All NO_x Emissions in Florida (2014)

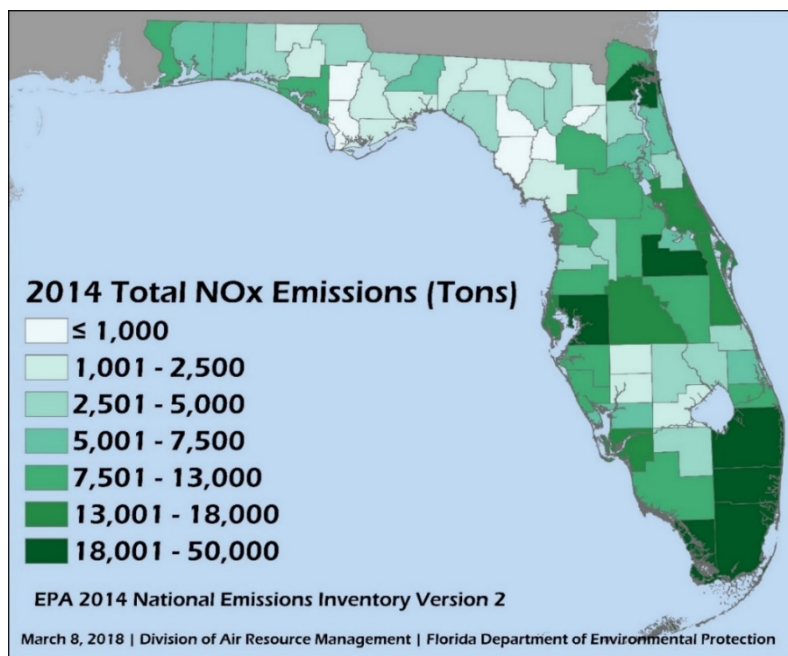


Figure 3 shows the main categories of NO_x emissions from diesel-powered mobile sources. Figure 4 shows mobile sources of NO_x distributed by county. Of the 194,638 tons of NO_x emitted from diesel-powered mobile sources, the sources break down into the following specific subcategories:

- 100,709 tons from on-road diesel heavy-duty vehicles (i.e., tractor trailers);
- 63,675 tons from non-road diesel equipment (e.g., heavy forklifts);
- 16,786 tons from commercial marine vessels (e.g., cruise and container ships);
- 7,448 tons from on-road diesel light-duty vehicles (i.e., personal vehicles); and
- 6,020 tons from diesel-powered locomotives (i.e., switcher locomotives).

Figure 3. Percent Distribution of Diesel-Powered Mobile Source NO_x Emissions (2014)

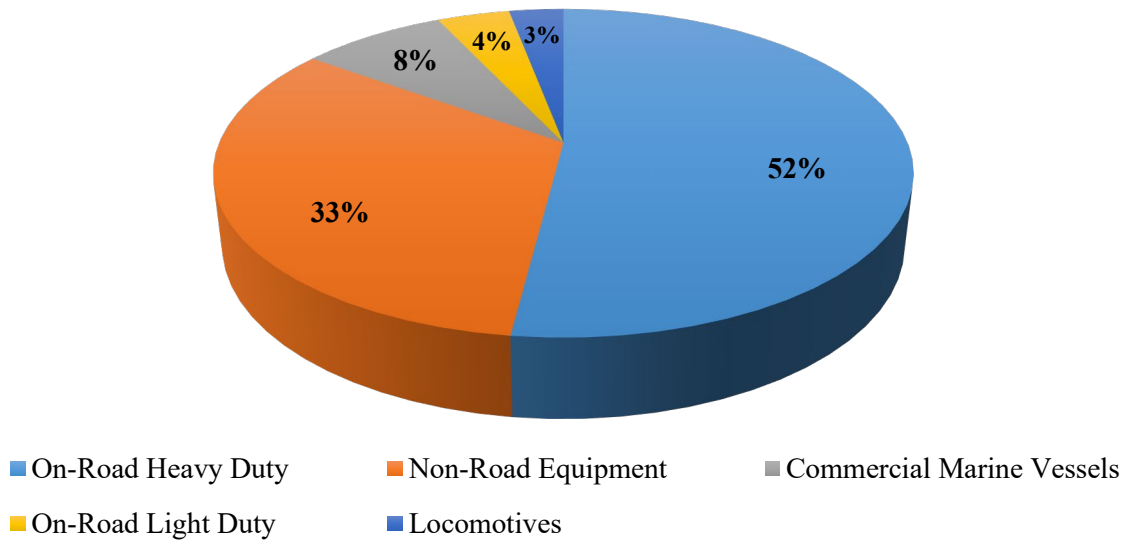
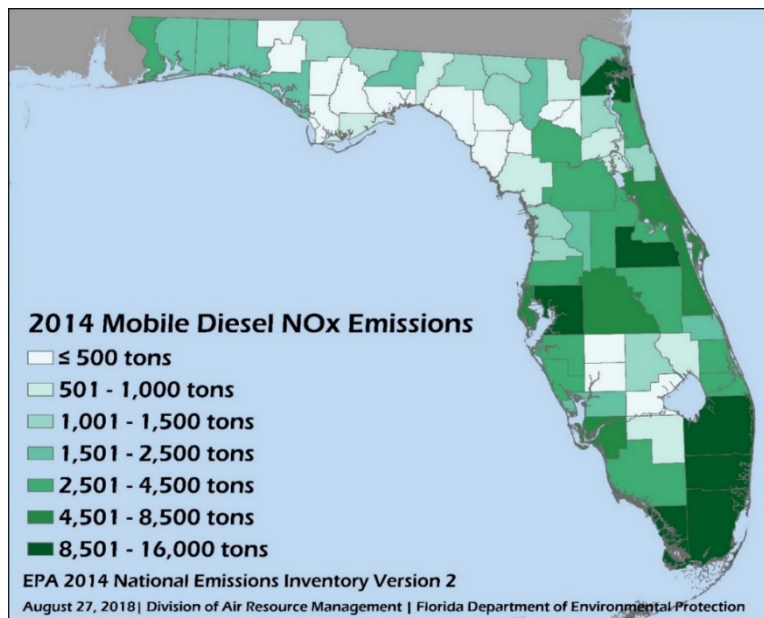


Figure 4. Distribution by County for Mobile Source NO_x Emissions in Florida (2014)



The 2014 NEI indicates that Florida's total emissions of fine particulate matter (PM_{2.5}) from mobile sources is 19,810 tons. Approximately 63 percent of this total is from diesel-powered mobile sources including:

- 5,682 tons from on-road diesel heavy duty vehicles;
- 4,840 tons from non-road diesel equipment;
- 1,389 tons from commercial marine vessels;
- 273 tons from diesel-powered locomotives; and
- 305 tons from on-road diesel light duty vehicles.

Florida's ambient monitoring network for PM_{2.5} shows that there are no areas of the state exceeding either the annual or 24-hour PM_{2.5} NAAQS.

The 2014 NEI indicates that Florida's total emissions of coarse particulate matter (PM₁₀) from mobile sources is 33,659 tons. Approximately 47 percent of this total is from diesel-powered mobile sources including:

- 8,564 tons from on-road diesel heavy duty vehicles;
- 4,990 tons from non-road diesel equipment;
- 1,476 tons from commercial marine vessels;
- 295 tons from diesel-powered locomotives; and
- 497 tons from on-road diesel light duty vehicles.

Florida's ambient monitoring network for PM₁₀ shows that there are no areas of the state exceeding the 24-hour PM₁₀ NAAQS.

Overall trends in the state's air quality are good. There does, however, remain work to address local impacts of emissions from older diesel engines, which are projected to remain a component of commercial and government operated vehicle fleets for many years. Encouraging voluntary measures with the aid of grant funding to address related air quality impacts is important to Florida's broader goal of improving air quality for the state's citizens and visitors.

Additionally, prioritizations for project-specific funding through the DERA program will be, to the greatest extent possible, based on project types not prioritized in the Department's Mitigation Plan through the Volkswagen Settlement. Therefore, this next round of DERA funding will focus on port projects.

VEHICLES AND TECHNOLOGIES:

As of the date of this submittal, the Department has identified port projects for this round of DERA funding. Through stakeholder engagement and recent success in funding a marine engine

replacement project and port drayage trucks, the Department has identified the following port projects for consideration:

- Marine engines, including ferries and tugs
- Nonroad cargo handling equipment
- Switcher locomotives
- Port drayage trucks

The Department selected port projects based on the Mitigation Plan focusing on other project types, as well as the recent success funding marine engine and port drayage truck replacement projects.

ROLES AND RESPONSIBILITIES:

The Department will work with entities identified during a Notice of Funding Availability to take place in July 2019. The Department may elect to use Trust Funds to leverage resources beyond the stated voluntary match. As the lead agency designated by the Florida Governor under the Trust, the Department will be responsible for providing the incentive match from the Trust. All cost sharing requirements with project partners will be evaluated to meet minimum DERA guidelines but may be increased depending on the extent of interest from project partners. The Department's DERA Program will consider asking project partners to increase their cost share amount which will allow for the possibility of more DERA project partners and ultimately more units being retrofitted, repowered, or replaced. The Department's Division of Air Resource Management will be responsible for managing the state's DERA program including contract management and purchasing. The Department's Bureau of Finance and Accounting within the Division of Administrative Services will submit to EPA grant drawdown requests after projects are completed.

TIMELINE AND MILESTONES:

The Department intends to identify a list of partners for the FY 2019 DERA program in July 2019. The Department will then develop grant agreements with the selected project partner or partners in August 2019. The Department expects this round of funding to follow this general timeline:

First Round of Port Project Phase Florida's FY 2019-20

- August 2019 – Department develops grant agreements with the final project partner or partners for the FY 2018 and FY 2019 DERA grant pursuant to Florida's FY 2019-20 budget authority.
- November 2019 – Deadline for project partners to select vendors for the project.
- May 2020 – Department conducts program evaluation to ensure progress on selected project or projects.
- June 2020 – Project partner or partners complete all work under the grant agreement and provide all required documentation to the Department thereby becoming eligible for reimbursement. Department reimburses project partners for completed work pursuant to the grant agreement or agreements. Once reimbursements have been paid to the project partners, the Department will prepare and submit a reimbursement package to EPA.

Second Round of Port Project Phase Florida's FY 2019-20

- If the first round of projects does not fully exhaust the total funding for FY 2018 and FY 2019, the Department will identify a second round of funding and work to complete projects by the end of June 2020.

DERA PROGRAMMATIC PRIORITIES:

Projects funded under the DERA grants will align with EPA's programmatic priorities of achieving significant reductions in diesel emissions exposure from engines operating in areas with greater local air quality concerns relating to diesel vehicle emissions. These areas include places where Port projects are found (i.e., dense urban settings on coastal waterways at which numerous Port commerce units operate). As of the date of this submittal, the Department is evaluating Port projects with potential to address emissions taking place on land and units in the water. These emissions reductions will benefit port workers, and, at some ports, also benefit passengers of vessels which are based in the port. Additionally, most of Florida's ports are located in areas closer to the NAAQS for ozone.

EPA'S STRATEGIC PLAN LINKAGE AND ANTICIPATED OUTCOMES/OUTPUTS:

Florida's 2019 DERA grant program will fund mitigation projects consistent with EPA's Strategic Plan for DERA programs to reduce local and regional air pollution from criteria pollutants and air toxics. The Department will utilize EPA's Diesel Emissions Quantifier (DEQ – available at www.epa.gov/cleandiesel/diesel-emissions-quantifier-deq), among other tools, to quantify the emission reductions for each project. The Department will also utilize DEQ-modeled outputs, including the number of engines replaced, and document related outreach and communication efforts to link activities under Florida's 2019 DERA grant program to EPA's Strategic Plan. The two examples of potential projects below show the relative NO_x and PM reductions for switcher locomotives and tugs when repowered with engines that meet new standards.

Switcher Locomotive (1,000 HP Tier 0 engine with 3,000 hours of annual operation)

- Eligible Unit: 6,894 lbs/year of NO_x and 236 lbs/year of PM
- New Unit: 546 lbs/year of NO_x and 6 lbs/year of PM
- Percent Reduced: 94% in NO_x and 97% in PM

Tug Boat (Two 1,000 HP uncontrolled engines with 1,000 hours of annual operation)

- Eligible Unit: 28,702 lbs/year of NO_x and 3,798 lbs/year of PM
- New Unit: 796 lbs/year of NO_x and 76 lbs/year of PM
- Percent Reduced: 97% in NO_x and 98% in PM

SUSTAINABILITY OF THE PROGRAM:

The Department maintains a website that contains records related to past DERA-related projects: <https://floridadep.gov/air/air-director/content/diesel-emissions-reduction-act-dera-florida>. The Department also published a website relating to the Trust: <https://floridadep.gov/volkswagen>

Throughout the administration of Florida’s 2019 DERA State Grant program, the Department will maintain a publicly accessible website and repository of data and information obtained through various outreach and procurement related activities. The Department anticipates utilizing the DERA Option under the Volkswagen Partial Consent Decree over the duration of programmatic activities related to implementation of the Volkswagen Environmental Mitigation Trust. The Department expects that DERA-related projects may occur over multiple years, and the benefits of such projects will be compounded by association with larger-scale diesel emission reduction and NO_x mitigation activities under the Volkswagen Environmental Mitigation Trust. The Department is committed to identifying, developing, and administering projects that maximize the environmental benefits that accrue through targeted diesel emission reduction efforts, consistent with the requirements of the Volkswagen Partial Consent Decree and DERA program. All projects funded through these programs will be documented and archived on a publicly available website, and they may be featured in targeted public communication efforts through web-based and conventional media outlets at both a local and state level.

BUDGET NARRATIVE

Budget Category	FY 2018			FY 2019			Total
	EPA Allocation	Voluntary Match (if applicable)	Mandatory Cost-Share (if applicable)	EPA Allocation	Voluntary Match	Mandatory Cost-Share	
Personnel	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fringe Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Travel	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Supplies	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contractual	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Program Income	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other	\$423,030	\$282,020	TBD	\$514,401	\$342,934	TBD	At Least \$1,562,385
Total Direct Charges	\$423,030	\$282,020	TBD	\$514,401	\$342,934	TBD	At Least \$1,562,385
Indirect Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$423,030	\$282,020	TBD	\$514,401	\$342,934	TBD	At Least \$1,562,385

Explanation of Budget Framework

- ***Personnel***

The Department does not intend to spend any DERA funds to support personnel expenses incurred during the administration of Florida's 2017 and 2018 DERA State Grant program. Work associated with the DERA program will be assumed by current Department staff.

- ***Fringe Benefits***

The Department does not intend to spend any DERA funds to cover fringe benefit costs incurred during the administration of Florida's 2017 and 2018 DERA State Grant program.

- ***Travel***

The Department does not intend to spend any DERA funds on travel costs incurred during the administration of Florida's 2017 and 2018 DERA State Grant program. Travel and other costs associated with the Department's attendance at the Southeast Diesel Collaborative have been budgeted within Department's existing budget and will not be funded by the DERA program.

- ***Equipment***

The Department does not intend to spend any DERA funds on equipment during the administration of Florida's 2017 and 2018 DERA State Grant program.

- ***Supplies***

The Department does not intend to spend any DERA funds on supply costs incurred during the administration of Florida's 2017 and 2018 DERA State Grant program.

- ***Contractual***

The Department does not intend to spend any DERA funds on contractual costs incurred during the administration of Florida's 2017 and 2018 DERA State Grant program.

- ***Other***

The Department intends to provide DERA funds (and associated Volkswagen Environmental Mitigation Trust Funds) through grant agreement relationships with program partners that have eligible projects under the DERA program. Because Florida has not yet identified specified partners or projects, the Department will amend Florida's DERA Workplan when such information becomes available. Once partners and projects have been identified, the state will comply with the state's procurement guidelines, which require competitive procurement.

- ***Indirect Charges***

The Department does not intend to spend any DERA funds on indirect charges incurred during the administration of Florida's 2017 DERA State Grant program.

Administrative Costs Expense Cap

The Department does not intend to spend any DERA funding on administrative costs.

Matching Funds and Cost-Share Funds

Florida plans to utilize matching funds and potentially overmatching funds from the Volkswagen Mitigation Trust for Florida's state match. In addition, the Department will require that all project partners meet the minimum DERA cost share requirements. As stated above, the Department may increase the level of cost share required by project partners. The Department will require that project partners meet all applicable cost-share requirements as specified in the State Clean Diesel Grant Program Information Guide.

Funding Partnerships

The Department does not anticipate activities that qualify under this heading.

Other Leveraged Funds

The Department does not anticipate activities that qualify under this heading.