

**APPENDIX D-4**

**BENEFICIARY ELIGIBLE MITIGATION ACTION CERTIFICATION**

**State of Connecticut  
Commercial Marine Vessels Round 2  
June 17, 2020**

**APPENDIX D-4**  
**Beneficiary Eligible Mitigation Action Certification**

**BENEFICIARY ELIGIBLE MITIGATION ACTION CERTIFICATION**

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Beneficiary \_\_\_\_\_

Lead Agency Authorized to Act on Behalf of the Beneficiary \_\_\_\_\_  
*(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)*

<b>Action Title:</b>	
<b>Beneficiary's Project ID:</b>	
<b>Funding Request No.</b>	<i>(sequential)</i>
<b>Request Type:</b> (select one or more)	<input type="checkbox"/> Reimbursement <span style="margin-left: 200px;"><input type="checkbox"/> Advance</span> <input type="checkbox"/> Other (specify): _____
<b>Payment to be made to:</b> (select one or more)	<input type="checkbox"/> Beneficiary <input type="checkbox"/> Other (specify): _____
<b>Funding Request &amp; Direction (Attachment A)</b>	<input type="checkbox"/> Attached to this Certification <input type="checkbox"/> To be Provided Separately

**SUMMARY**

<b>Eligible Mitigation Action</b> <input type="checkbox"/> Appendix D-2 item (specify): _____ <b>Action Type</b> <input type="checkbox"/> Item 10 - DERA Option (5.2.12) (specify and attach DERA Proposal): _____
<b>Explanation of how funding request fits into Beneficiary's Mitigation Plan (5.2.1):</b>
<b>Detailed Description of Mitigation Action Item Including Community and Air Quality Benefits (5.2.2):</b>
<b>Estimate of Anticipated NOx Reductions (5.2.3):</b>
<b>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):</b>
<b>Describe how the Beneficiary will make documentation publicly available (5.2.7.2).</b>
<b>Describe any cost share requirement to be placed on each NOx source proposed to be mitigated (5.2.8).</b>
<b>Describe how the Beneficiary complied with subparagraph 4.2.8, related to notice to U.S. Government Agencies (5.2.9).</b>

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).

**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 \_\_\_\_\_, 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:** \_\_\_\_\_

*Paul E. Farrell*

\_\_\_\_\_  
Paul E. Farrell  
Director of Air Planning

\_\_\_\_\_  
**[LEAD AGENCY]**

**for**

\_\_\_\_\_  
**[BENEFICIARY]**

## **APPENDIX D-4 – Supplemental Information Beneficiary Eligible Mitigation Action Certification**

**Beneficiary: State of Connecticut**

**Lead Agency: Department of Energy and Environmental Protection**

**In support of funding request No. 10 – Commercial Marine Vessels**

### **Appendix D-4-Summary**

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#### **Explanation of how funding request fits into Beneficiary’s Mitigation Plan (5.2.1):**

The State of Connecticut (State), pursuant to the 2018 Mitigation Plan, filed with Wilmington Trust (WT) on April 26, 2018, outlined a protocol for the selection of commercial marine vessels replacement and repower projects, including ferries, tugs and shorepower for ocean going vessels, to protect the state's air quality and the health of vulnerable populations. The primary goal of the State’s 2018 Mitigation Plan is to improve and protect ambient air quality by selecting and implementing eligible mitigation projects that will (1) achieve significant and sustained cost effective reductions in Nitrogen Oxide (NO<sub>x</sub>) emissions, (2) support statewide energy, environmental and economic development goals and (3) reduce impacts on environmental justice and other impacted communities.

Commercial marine vessels emitted 1664 tons or 4.2% of all mobile sources nitrogen oxides (NO<sub>x</sub>) emissions in the State during 2014. The funding identified in the 2018 Mitigation Plan (mitigation funding or mitigation funds) will provide the State an opportunity to mitigate the impact of excess NO<sub>x</sub> emissions associated with commercial marine vessels. Funding this request allows the replacement of two propulsion engines, two auxiliary generator sets, gearboxes and other equipment on the Fishers Island Ferry District’s M/V Race Point, which will have immediate and long-lasting benefits for Connecticut's air quality.

#### **Detailed Description of Mitigation Action Item Including Community and Air Quality Benefits (5.2.2):**

The purpose of this project is for The Fishers Island Ferry District (FIFD) to repower the M/V Race Point ferry by replacing its two existing unregulated propulsion engines and two existing unregulated auxiliary generator sets with 2019 or 2020 EPA certified Tier-3 engines. The project will also require new gearboxes, and related equipment in the M/V Race Point. The FIFD provides year round passenger ferry service between New London, CT and Fishers Island, NY. Because of technology advances on the new engines, the project will significantly enhance local air quality around the two ports by reducing engine emissions and will improve engine efficiency by decreasing fuel consumption. It is important to note that these ports and the marine traffic they experience are part of a transportation corridor that parallels Connecticut’s coastline and includes both highway and rail traffic. Decreasing air pollutants in this heavily-travelled corridor leads to improved ambient air quality and human health in communities located in nonattainment areas, areas with historical air quality issues, or in areas that bear a disproportionate share of the air pollution burden. Such communities are often located along transportation corridors such as these. Significant health benefits accrue from reduced public exposure to diesel particulate matter, which the U.S. Environmental Protection Agency (EPA) has classified as a likely human carcinogen. Decreasing the number of work and school days lost to asthma, chronic obstructive pulmonary disease (COPD) and other health conditions aggravated by air pollution benefits the local economy.

The reduction in emissions of the ozone precursor, NO<sub>x</sub>, will be a benefit in a state that is in nonattainment with the 2008 and 2015 National Ambient Air Quality Standards for 8-Hour Ozone (NAAQS) and in an area of the state that has been disproportionately impacted by air pollution from diesel vehicles and marine port activity. In addition, the new engine technology will increase operating efficiency and reduce greenhouse gas emissions.

The expected benefits of the repower of the M/V Race Point include tons of pollution reduced or avoided over the lifetime of the engines, specifically NO<sub>x</sub> and GHGs. Net reduction in gallons of diesel fuel used and reduced public exposure to diesel particulate matter, which EPA has classified as a likely carcinogen. Additionally, the marine engine repower project is expected to improve ambient air quality and health in communities located in nonattainment areas, in areas with historical air quality issues, or in areas that bear a disproportionate share of the air pollution burden, as well as benefits to the local economy, and the welfare of residents in such communities.

**Estimate of Anticipated NO<sub>x</sub> Reductions (5.2.3):**

The estimated emissions were calculated using the EPA's Diesel Emissions Quantifier (DEQ.) The anticipated NO<sub>x</sub> emissions reductions from the commercial marine vessels mitigation project is 2.721 tons per year (tpy) and the lifetime NO<sub>x</sub> emissions reduction from this group is also 2.721 tpy. It should be noted that [recent studies](#) indicate that the actual lifetime for marine engines is nearly twice the default value used by EPA; therefore, the emissions benefits for marine repowers could be much higher. The project will result in annual health benefits of \$120,000 per year.

**Describe how the Beneficiary will make documentation publicly available (5.2.7.2):**

Complete information and documentation will be posted on DEEP's Volkswagen incentive program website at: <https://portal.ct.gov/DEEP/Air/Mobile-Sources/VW/VW-Settlement---Home>; promotional materials will also be posted and cross-linked on DEEP's DERA Grants page at: <https://portal.ct.gov/DEEP/Air/Mobile-Sources/DERA-Grants> and on its [Drive Clean CT](#) Facebook Page.

**Describe any cost share requirement to be placed on each NO<sub>x</sub> source proposed to be mitigated (5.2.8):**

Connecticut's 2018 Mitigation Plan outlines that diesel mitigation funds will provide for government owned eligible ferries, tugs and shorepower for oceangoing vessels:

- Up to 65% of the cost of a repower with new diesel or alternate fueled (e.g., CNG, propane, hybrid) engines, including the costs of installation,
- Up to 65% of the cost of a repower with new all-electric engines, including the costs of installation of the engines and associated charging infrastructure; and
- Up to 65% for the costs associated with the shore-side system, including cables, cable management systems, shore power coupler systems, distribution control systems, installation, and power distribution components.

FIFD was awarded 65% of the cost of replacing its two existing unregulated propulsion engines and two existing unregulated auxiliary generator sets with 2019 or 2020 EPA certified Tier-3 engines, resulting in a 35% cost share for the applicant. A total of \$819,260.00 has been allocated from trust funds for the commercial marine vessel repower mitigation project.

**Describe how the Beneficiary complied with subparagraph 4.2.8, related to notice to U.S. Government Agencies (5.2.9):**

On February 22, 2018, within 30 days of the State being named a Beneficiary, the Connecticut Department of Energy and Environmental Protection (DEEP), the State's Lead Agency as designated in accordance with the requirements specified in Appendix D-3, contacted, by U.S. Post and electronic mail, the U.S. Departments of Agriculture and Interior, as specified in subparagraph 4.2.8, plus the Bureau of Indian Affairs, the Defense Department and Bureau of Prisons, all of which have lands in the state.

**If applicable, describe how the mitigation action will mitigate the impacts of NO<sub>x</sub> emissions on communities that have historically borne a disproportionate share of the adverse impacts on such emissions (5.2.10):**

The reduction of NO<sub>x</sub> from the repower of this commercial marine vessel will improve air quality and protect human health across the state, especially in environmental justice and other underserved communities. The repower of the M/V Race Point has the potential to positively impact air quality in environmental justice communities because the ferry operates in New London, a distressed municipality. According to the Connecticut Department of Economic Community Development (DECD) the City of New London is the most distressed municipality in the state. Project benefits will originate at the ferry landing at 5 Waterfront Park in New London, CT. The exhaust emissions from the Fishers Island Ferry have disproportionately negative impacts on the local population's air quality due to the proximity of the population and the fact that ports generally experience a disproportionate quantity of air pollution from diesel fleets, including marine vessels. Populations that live and work in near proximity to the ferry terminals as well as passengers will benefit from this project by the direct reduction of ozone precursor, GHG and particulate matter emissions.

Major transportation corridors, including I-95, I-84 and I-91 and the rail lines that parallel them, connect New England with the rest of the United States. Barges, ships and ferries are also critical elements of the region's transportation sector. Transportation activity generates air pollution that, along with other upwind sources, negatively impacts air quality and public health in Connecticut. DEEP's criteria for evaluating and selecting projects for funding specifically address location in environmental justice communities, which are characterized, in part, by disproportionate air pollution impacts, and nearness to diesel transportation hubs, including ports, rail yards and highways.



**ELIGIBLE MITIGATION ACTION MANAGEMENT PLAN INCLUDING DETAILED  
BUDGET AND IMPLEMENTATION AND EXPENDITURES TIMELINE**

**ATTACHMENT B**

**PROJECT MANAGEMENT PLAN  
PROJECT SCHEDULE AND MILESTONES  
COMMERCIAL MARINE VESSELS CATEGORY**

**Project Management Plan– Project Schedule and Milestones**

<b>Milestone</b>	<b>Date</b>
Connecticut submitted its beneficiary form to US District Court, CA Northern District and to the Trustee	October 2017
Connecticut certified as a Designated Beneficiary under the VW Trust	January 29, 2018
Connecticut submitted its final mitigation plan to Wilmington Trust (the Trustee).	April 26, 2018
Request for Round 2 Proposals Announced	August 1, 2019
DEEP Informational Webinar	August 7, 2019
Request for Round 2 Proposals Closing - Application Deadline	September 16, 2019
Round 2 Awards Selected and Notification sent to Awardees/Recipients	November 22, 2019
Recipients enter into Contracts, Purchase Orders	CY 2020, Q1
Marine Engines Delivered	CY 2020, Q2 – Q4
Recipients submit proof of destruction and scrappage documentation	CY 2021, Q1- Q2
DEEP Receives all required invoices and documentation	Upon completion but no later than May 31, 2021*
DEEP reviews, requests corrections if necessary, certifies project completion, and provides reimbursement.	CY2020, Q4 – CY2021, Q1-Q2
DEEP reports to Trustee on status of and expenditures with Mitigation Actions completed and underway	Within 6 months of first disbursement; January 30 and July 30 thereafter

\*In light of the current impacts of COVID 19, DEEP may grant extensions to this deadline requested as a result of disruptions in production or other related issues affecting awardees.

**Project Budget**

<b>Budget Category</b>	<b>Total Approved Project Budget</b>	<b>Share of Total Budget Funded by the Trust</b>	<b>Cost Share Paid by Recipient</b>
Equipment Expenditure			
Fisher Island Ferry District	\$1,260,400.00	\$ 819,260.00	\$441,140.00
<b>Project Totals</b>			
Percentage of Total Project Cost	100%	65%	35%
DEEP Administrative <sup>1</sup>	\$122,889.00	\$122,889.00	\$0
<b>Project Totals with DEEP Administrative</b>	<b>\$1,383,289.00</b>	<b>\$942,149.00</b>	<b>\$441,140.00</b>

<sup>1</sup>Subject to Appendix D-2 15% administrative cap

**PROJECTED TRUST ALLOCATIONS**

	2017	2018	2019-2020	2020-2021
1. Anticipated Annual Project Funding Request to be paid through the Trust	\$0	\$0	\$0	\$942,149.00
2. Anticipated Annual Cost Share	\$0	\$0	\$0	\$441,140.00
3. Anticipated Total Project Funding by Year (line 1 plus line 2)	\$0		\$0	\$1,383,289.00
4. Cumulative Trustee Payments Made to Date Against Cumulative Approved Beneficiary Allocation	\$0	\$0	\$2,882,026.84	\$0
5. Current Beneficiary Project Funding to be paid through the Trust (line 1)	\$0	\$0	\$0	\$942,149.00
6. Total Funding Allocated to Beneficiary, inclusive of Current Action by Year (line 4 plus line 5)	\$0	\$0	\$0	\$942,149.00
7. Beneficiary Share of Estimated Funds Remaining in the Trust	\$0	\$0	\$0	\$43,463,473.70
8. Net Beneficiary Funds Remaining in Trust, net of cumulative Beneficiary Funding Actions (line 7 minus line 6)	\$0	\$0	\$0	\$42,521,324.70

**ATTACHMENT B**

**ELIGIBLE MITIGATION ACTION MANAGEMENT PLAN**

**ATTACHMENT B-1**

**ELIGIBLE MITIGATION ACTION MANAGEMENT PLAN FOR FISHER ISLAND FERRY  
DISTRICT**

## Eligible Mitigation Action Management Plan

**Purpose:** The purpose of this project is for The Fishers Island Ferry District (FIFD) to repower the M/V Race Point by replacing its two existing unregulated propulsion engines and two existing unregulated auxiliary generator sets, as specified in Appendix A, with 2019 or 2020 EPA certified Tier-3 engines, as specified in Appendix B. The project will also require new gearboxes, and related equipment in the ferry M/V Race Point. The FIFD provides year round passenger ferry service between New London, CT and Fishers Island, NY. Because of technology advances on the new engines, the project will enhance local air quality around the the two ports by reducing engine emissions. The reduction in emissions of the ozone precursor, nitrogen oxides, will be a benefit in a state that is in nonattainment with the National Ambient Air Quality Standards for Ozone and in an area of the state that has been disproportionately impacted by air pollution from diesel vehicles and marine port activity.

The Fishers Island Ferry District shall be responsible for all phases of the project including project management services and materials as needed to complete this project. Completion of the project shall include documentation of the scrappage of the replaced engines.

**Project Title:** *Ferry Vessel Marine Engine Repower Project – Race Point*

**Description:** Following the approval of this Eligible Mitigation Action Management Plan (Plan), The Fishers Island Ferry District shall begin providing the services outlined in this Plan, and continue to provide services through the completion of the project, which will be no later than May 31, 2021.

### 1. Funding

The Connecticut Department of Energy and Environmental Protection (DEEP) is granting a maximum of \$819,260.00 in 2019 Volkswagen NOx Mitigation Trust funding to The Fishers Island Ferry District, the grantee. The Fishers Island Ferry District has agreed to contribute an estimated additional \$441,140.00 to the above referenced project through a combination of cash and in kind services, bringing the estimated total value of the project to \$1,260,400.00. Payment is contingent upon documentation of the completion of the tasks outlined in this Plan.

### 2. Work Tasks

The Plan is summarized according to the following three tasks:

*Task 1: Planning and Procurement*

*Task 2: Marine Engine Purchase, Delivery, Installation, and Completion of Project*

*Task 3: Provide Updates and Information for Semi-Annual and Other Reports as Required*

#### **Task 1: Planning and Procurement**

The Fishers Island Ferry District shall conduct the project, provide oversight and track project progress. To ensure timely completion of the project, The Fishers Island Ferry District shall include, in this Plan, a work plan with a schedule of expected target dates, milestones, responsible

parties and completion dates to achieve specific tasks and accomplishments during the budget and project period. The schedule must be approved by DEEP and The Fishers Island Ferry District.

The Fishers Island Ferry District may use their own procurement processes to identify possible vendors for the purchase of the new engines and shipyard for installation. However, those procurement procedures must reflect all applicable Federal, State and local laws, rules and regulations. The requirements for accessing VW Trust funds require the submission of detailed cost estimates from selected or potential vendors for each proposed expenditure exceeding \$25,000. This is described in Section 5.2 of the Environmental Mitigation Trust Agreement for State Beneficiaries (Mitigation Trust Agreement) between Connecticut, as a State Beneficiary, and Wilmington Trust, which is attached as Appendix D.

*Task 1 Deliverables:*

- Approved work plan with project timeline/schedule
- Estimates or proposals from potential vendors and shipyards
- Summary of criteria used for selecting vendor(s) and shipyard
- Name and address of vendor(s) and shipyard selected
- Copy of purchase order(s) issued for new engines and to the shipyard for installation
- Documentation of down payments or other up-front payments made for the project

**Task 2: Marine Engine Purchase, Delivery, Installation, and Completion of Project**

After selecting a vendor and issuing a purchase order for the new engines, The FIFD will track the progress of the manufacturing and installation of the new engines in the M/V Race Point.

The Fishers Island Ferry District shall render the replaced engines inoperable, in accordance with Mitigation Trust Agreement requirements for scrappage under the VW grant. Disabling the engine consists of cutting, drilling, or punching a three inch by three inch (3" x 3") hole in the engine block.

The Fishers Island Ferry District shall provide documentation that the engines have been scrapped. FIFD shall submit to DEEP an invoice for payment, along with confirmation that the project has been completed.

*Task 2 Deliverables:*

- Documentation of delivery of engines for *M/V Race Point*
- Invoice from vendor for delivered engines and documentation of payment to vendor
- Invoice from shipyard for installation of new engines
- Completed copy of Certificate of Engine/Chassis Destruction (See Appendix C)
- Required photographic scrappage documentation for replaced engines, at a minimum, must include:
  - Engine installed on vessel;
  - Engine label;
  - Engine block, prior to hole;

- Engine block, after hole; and
- Other pictures as needed
- Confirmation that the project is completed and that the engines are operating satisfactorily for their intended use and that sea trials have been completed
- An invoice to DEEP for reimbursement under the grant

**Task 3: Provide Updates and Information for Semi-Annual and Other Reports as Required**

The Fishers Island Ferry District shall provide DEEP with status updates to be included in DEEP's semi-annual reports to Wilmington Trust. Semi-annual progress updates will be requested before the 1st of the month following the end of each half year (i.e., July 1, 2020, and January 1, 2021). Follow-up status reports may be requested after May of 2021. FIFD will also contribute material necessary for a final report to Wilmington Trust upon completion of the project, which shall be no later than May 31, 2021.

Items to be provided may include, but will not be limited to:

- Environmental results;
- Work plan accomplishments;
- Challenges encountered during planning and implementation;
- Emissions reductions;
- Budgetary issues, including funds expended;
- Public relations activities;
- Technical and identification information for vehicles and engines; and
- Jobs preserved or created.

*Task 3 Deliverables:*

- Status Updates for Semi-annual Reports
- Any required material for Final Report

**3. VW Mitigation Trust Grant Conditions**

The Fishers Island Ferry District commits to comply with the conditions listed in the Mitigation Trust Agreement, between DEEP and Wilmington Trust, which is attached as Appendix D.

**4. Submission of Materials**

For the purposes of this Plan, all correspondence, summaries, reports, products, requests and invoices shall be submitted to:

Sharon Gustave (Assigned Project Manager)  
Department of Energy and Environmental Protection  
Bureau of Air Management  
79 Elm Street  
Hartford, CT 06106-5127  
E-Mail: sharon.gustave@ct.gov

**5. Schedule of Tasks & Payments**



Payments by the Commissioner shall allow for use of funds to meet allowable financial obligations incurred in conjunction with this Project and shall be scheduled as follows, provided that the total sum of all payments shall not exceed 65% of the total project cost with a maximum cap of \$819,260.00.

Task & Deliverables	Task Delivery Date	Estimated Budget		
		VW Funds	Fishers Island Ferry District Cost-Share	Project Total
<b>1. Planning &amp; Procurement</b> <ul style="list-style-type: none"> <li>Approved work plan with project timeline/schedule</li> <li>Estimates or proposals from potential vendors and shipyards</li> <li>Summary of criteria used for selecting vendor(s) and shipyard</li> <li>Name and address of vendor(s) and shipyard selected</li> </ul>	February-March 2020	\$0	\$0	\$0
<ul style="list-style-type: none"> <li>Copy of Purchase Order(s) Issued for new engines and shipyard for installation</li> <li>Documentation of down payments or other up-front payments made for the project</li> </ul>	April - June 2020	\$0	\$183,700	\$183,700
<b>2. Delivery of New Engines, Scrappage of Replaced Engines, Completion of Project</b> <ul style="list-style-type: none"> <li>Documentation of delivery of engines</li> <li>Invoice from the vendor for delivered engines and documentation of payment to vendor</li> <li>Invoice from shipyard for installation of new engines</li> </ul>	October 2020 – February 2021	\$0	\$1,076,700	\$1,076,700
<ul style="list-style-type: none"> <li>Completed copy of Certificate of Engine/Chassis Destruction</li> <li>Required photographic scrappage documentation for replaced engines</li> <li>Confirmation that the project is completed and that the engines are operating satisfactorily for their intended use and that sea trials have been completed</li> <li>An invoice to DEEP for reimbursement under the grant</li> </ul>	April 30, 2021	\$819,260	-\$819,260	\$0
<b>3. Provide Updates and Information for Semi-Annual and Other Reports</b> <ul style="list-style-type: none"> <li>Status Update for First Semi-Annual Report</li> <li>Status Update for Second Semi-Annual Report</li> <li>Status Update for Third Semi-Annual Report</li> <li>Status Update for Fourth Semi-Annual Report.</li> <li>Status Update for Fifth Semi-Annual Report.</li> <li>Required material for Final Report (upon completion but no later than 5/31/21)</li> </ul>	07/01/20 01/01/21 07/01/21 01/01/22 07/01/22 05/31/21	\$0	\$0	\$0
<b>Total:</b>		\$819,260	\$441,140	\$1,260,400

Payment for each task referenced above cannot exceed the budgeted amount for each task. Total Payment shall not exceed 65% of the total project cost with a maximum cap of \$819,260, which shall constitute full and complete compensation from the DEEP for the replacement of two existing

FINAL

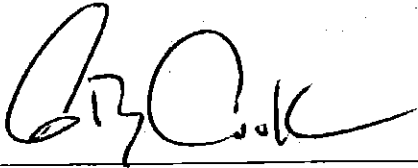
unregulated propulsion engines and two existing unregulated auxiliary generator sets on the FIFD M/V Race Point. The total sum of all payments shall not exceed total funds committed by DEEP.

Payment is contingent upon completion of the tasks outlined in this Plan and providing documentation of compliance with the Mitigation Trust Agreement, between DEEP and Wilmington Trust, which is attached as Appendix D.

**6. Extensions/Amendments**

Formal written amendment of the agreement is required for changes to the terms and conditions specifically stated in the original agreement and any prior amendments.

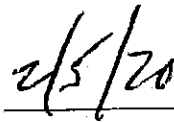
Time extensions may be granted, under certain circumstances, upon request. **Otherwise, the Project must be completed by May 31, 2021.**



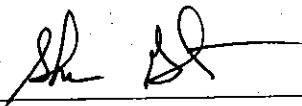
Geb Cook

Company Signatory Name

The Fishers Island Ferry District Authorized Representative

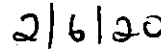


Date



Sharon Gustave

DEEP Assigned Project Manager  
Bureau of Air Management, DEEP



Date

**Appendix A: Eligible Ferry Engines to be replaced on FIFD M/V Race Point**

Engine Type	Engine Make	Engine Model	Engine Model Year	Engine Serial Number	EPA Tier Level
Propulsion	Caterpillar	3412T	1985	60M02076	Unregulated
Propulsion	Caterpillar	3412T	1985	60M02068	Unregulated
Auxiliary	Detroit Diesel	3-71	1985	3A0097797	Unregulated
Auxiliary	Detroit Diesel	3-71	1985	3A0097511	Unregulated

**Appendix B: Replacement Ferry Engine Specifications**

Note: Initial specifications for replacement engines below is preliminary based on the initial grant application and may change once actual vendor selection is completed.

Engine Type	Engine Make	Engine Model	Engine Model Year
Propulsion	Caterpillar	C32	2019/2020
Propulsion	Caterpillar	C32	
Auxiliary	Northern Lights	M1066A1	
Auxiliary	Northern Lights	M1066A1	

**ATTACHMENT C**

**DETAILED PLAN FOR REPORTING ON ELIGIBLE MITIGATION ACTION  
IMPLEMENTATION**

## ATTACHMENT C

### DETAILED PLAN FOR REPORTING ON ELIGIBLE MITIGATION ACTION IMPLEMENTATION

The Connecticut Department of Energy and Environmental Protection (DEEP) will provide detailed reporting on the Diesel Emissions Mitigation Trust project in two ways:

1. Timely updates to DEEP's Volkswagen (VW) Settlement Information Webpage, and
2. Connecticut's semiannual reporting obligation to Wilmington Trust (the "Trustee")

DEEP maintains a webpage that has been designed to support public access to information relative to the VW Settlement and DEEP's administration of mitigation funds so as to implement the program in an open and transparent manner. DEEP's VW Settlement Information webpage and all supporting information and documentation can be found at: <https://portal.ct.gov/DEEP/Air/Mobile-Sources/VW/VW-Settlement---Admin-Archive>. Timely updates to the webpage as well as direct outreach via email to those who have requested notification will inform the general public on project solicitations, and project status including when the projects identified herein have been completed.

Subparagraph 5.3 of the Environmental Mitigation Trust Agreement for State Beneficiaries details Connecticut's 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."

DEEP shall, in the semiannual report following the Trustee's initial disbursement of funds as directed by DEEP, describe the progress implementing this Eligible Mitigation Action that will include a summary of all costs expended on the Eligible Mitigation action through the reporting date. The report will also include a complete description of the status, development, implementation (including project schedule and milestone updates), and any modification to the projects under this Eligible Mitigation Action.

**ATTACHMENT D**

**DETAILED COST ESTIMATES FROM SELECTED OR POTENTIAL VENDORS FOR EACH  
PROPOSED EXPENDITURE EXCEEDING \$25,000**

**ATTACHMENT D**

**DETAILED COST ESTIMATES FROM SELECTED OR POTENTIAL VENDORS FOR EACH  
PROPOSED EXPENDITURE EXCEEDING \$25,000**

**Fishers Island Ferry Vessel Marine Engine Repower Project – Race Point (Attachment D-1)**

<b>Engine Type</b>	<b>Engine Make</b>	<b>Engine Model</b>	<b>Model year (MY)</b>	<b>Fuel</b>	<b>Cost</b>
Propulsion	Caterpillar	C32	2019 or 2020	Diesel	\$175,700.00
Propulsion	Caterpillar	C32	2019 or 2020	Diesel	\$175,700.00
Auxiliary	Northern Lights	M1066A1	2019 or 2020	Diesel	\$115,400.00
Auxiliary	Northern Lights	M1066A1	2019 or 2020	Diesel	\$115,400.00
<b>Total</b>					<b>\$582,200.00</b>

See attached vendor cost estimate for Fisher Island Ferry District.

**ATTACHMENT D-1**

**VENDOR ESTIMATE FOR FISHER ISLAND FERRY DISTRICT**

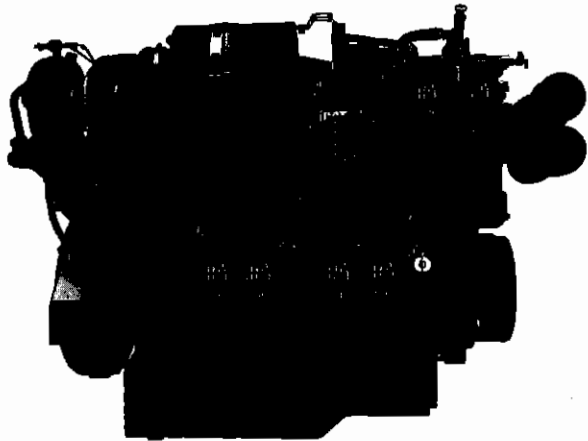


# C32

## MARINE PROPULSION ENGINE (U.S. EPA Tier 3 / IMO II)

560HPkW (750HP) @ 1800rpm

586HPkW (800HP) @ 1800rpm



C32 Marine Propulsion Engine  
U.S. EPA Tier 3 / IMO II

### ENGINE SPECIFICATIONS

**Configuration**

Vee 12, 4-stroke-cycle diesel

**Emissions**

U.S. EPA Tier 3 / IMO II  
emissions certified

**Rated Engine Speed**

1600 - 1800 rpm

**Bore x Stroke**

145 mm x 162 mm  
5.71 in x 6.38 in

**Displacement**

32.1 Liter  
1959 cu in

**Aspiration**

Turbocharged-aftercooled  
aspiration

**Governor**

Electronic (A4 ECM)

**Refill Capacity**

Lube Oil System w/Oil filter change:  
146 L (38.5 gal)

**Oil Change Interval**

1000 hrs

**Cooling**

Heat exchanger or keel cooled

**Flywheel Housing**

SAE No. 0 with SAE No. 18  
flywheel (136 teeth)

**Rotation**

Counterclockwise from flywheel end

### FEATURES AND BENEFITS

- Separate-circuit aftercooling – no sea water in aftercooler
- Reliable electronic controlled unit injector fuel system
- Enhanced control of fuel injection optimized through crank timing and the A4 ECM technology
- Advanced combustion technology to optimize fuel consumption and meet emissions without aftertreatment
- Industry leading power reserve
- Wide range of available Marine Society certifications
- Industry-leading warranty coverage for factory packaged components
- Global dealer network for service in any location

### STANDARD ENGINE EQUIPMENT

- Separate circuit aftercooled (SCAC)
- Heat exchanger or Keel Cooling
- Watercooled exhaust manifold and turbocharger
- Deep or shallow sump oil pan
- Right or left hand service sides
- Oil fill, simplex filter and dipstick
- Duplex fuel filters with hybrid fuel lines
- Hard seawater lines – no flexible hoses
- Fuel transfer and priming pump
- Adjustable front support mounting system
- Customer wiring and service tool connector
- Flanges for cooling connections, ANSI or DIN
- 24V control system

### OPTIONAL ATTACHMENTS

- Starting motors – air, electric or dual
- Charging alternator
- Duplex oil filters
- MECP I control panel
- MECP II or MECP III control panel with Cat® Alarm and Protection System
- Front drives including stub shaft and pump drive
- Rear SAE A or B pump drives
- Closed crankcase fumes disposal
- Primary fuel filter with water separator, fuel cooler

### A RATING (UNRESTRICTED CONTINUOUS) DEFINITION

Typical applications: For vessels operating at rated load and rated speed up to 100% of the time without interruption or cyclical load (80% to 100% load factor). Typical operation ranges from 5000 to 8000 hours per year

**BUILT FOR IT.**

**CAT®**

# TECHNICAL DATA

C32 Marine Propulsion Engine (U.S. EPA Tier 3/IMO II)

## PROP DEMAND FUEL CONSUMPTION

rpm	Brake Specific Fuel Consumption 559 bkW (750 bhp) @ 1800 rpm			
	bhp	lb/bhp-hr	bkW	g/bkW-hr
1800	750	0.344	559	209.1
1600	526	0.361	393	219.4
1400	353	0.347	263	211.3
1200	222	0.360	166	219.0
1000	129	0.371	96	225.9
800	66	0.397	49	241.7

- ISO 3046/1 fluid consumption tolerance of -0/+5%

rpm	Brake Specific Fuel Consumption 596 bkW (800 bhp) @ 1800 rpm			
	bhp	lb/bhp-hr	bkW	g/bkW-hr
1800	800	0.346	596	210.7
1600	562	0.336	419	204.5
1400	376	0.349	281	211.7
1200	237	0.362	177	220.4
1000	137	0.381	102	231.6
800	70	0.411	52	251.3

- ISO 3046/1 fluid consumption tolerance of -0/+5%

**Note:**

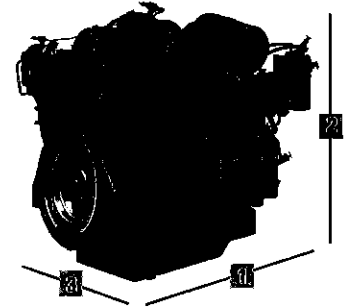
Please reference TMI Web for most current information (Cat dealers only)

Consult your local Cat dealer to create a customized engine TCO (Total Cost of Ownership) analysis specific to your vessel.

## DIMENSIONS & WEIGHT

	Length (1)	Height (2)	Width (3)	Empty weight
min.	83.9 in/2130 mm	59.3 in/1507 mm	57.1 in/1451 mm	6950 lb/3152 kg
max.	89.8 in/2280 mm	63.5 in/1613 mm	57.3 in/1455 mm	7160 lb/3248 kg

Note:  
Do not use these dimensions for installation design. See general dimension drawings for detail.



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LEHM0250-01

To find your nearest dealer, please visit: [www.cat.com/marine](http://www.cat.com/marine)

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Materials and specifications are subject to change without notice.  
The International System of Units (SI) is used in this publication.



**99 - 160 kW, 60 Hz @ 1800 RPM**  
**80 - 115 kW, 50 Hz @ 1500 RPM**

#### Aftercooled For High Power Density

Northern Lights pioneered the marinization of this engine, and still leads the way in Engineering quality. Case in point: the exclusive M1066 aftercooler. Because cooler air is more oxygenated than warm, it makes for better combustion. This aftercooler, along with electronically controlled fuel injection, give you more kW output.

#### Electronic System Profiler

"ESP" is a window to your set's real time operating condition. The ECU that controls the electronic fuel injection produces a SAE J1939 data stream of engine information that can be shown on an optional CAN Bus monitor panel.

## Component Specific Features

#### Engine Block

- Lugged six cylinder, four cycle, in-line, liquid cooled, overhead valve, marine diesel based on heavy-duty industrial engine block.
- Balanced, forged, hardened crankshaft with induction hardened journals and rolled fillets.
- Bimetallic valves have chrome stems & rotators.
- Replaceable valve seats and guides.
- Three ring aluminum alloy pistons with Ni-Resist insert for the top ring. Keystone piston ring reduces carbon buildup under light loads.
- Torsional crankshaft vibration damper for smooth operation.
- 8 groove, poly-vee drive belt powers the DC alternator & freshwater coolant system pump.
- Replaceable, wet cylinder liners for long life and low rebuild costs.

#### Fuel System

- Direct fuel injection systems (see feature box below)
- Ring clamp fuel filter with air bleed and drain.
- Diaphragm-type, mechanically driven fuel transfer pump with manual priming lever. Electric fuel transfer pump on M1066A2 and A3.
- Flexible fuel lines routed to fuel manifold on base frame for easy installation of vessel's hard piping.

#### Lubrication System

- 500 hour oil change interval when fuel and oil requirements are met.
- Positive displacement gear-type oil pump.
- Full flow, spin-on oil filter.
- Oil spray coating reduces piston crown temperature for longer life.
- Freshwater, plate-type, full flow oil cooler reduces heat and thermal breakdown of lube oil.
- Large capacity oil pan.
- Cast aluminum rocker arm cover traps valve noise and acts as a closed loop crank-case vent to keep oil vapor in the engine.
- Lube oil drain for quick oil changes.

#### Freshwater Cooling System

- 2 thermostats for safety and quicker warm-ups.
- Heat exchanger cooling includes:  
Gear driven, flexible impeller seawater pump. Easy to clean, tube-type heat exchanger is made of cupro-nickel for long life.
- Cast iron, expansion tank with brass filler neck for easy filling.
- Cast-iron exhaust manifold has double pass freshwater flow for even temperature control, fast warm-up and no hot spots.
- Zinc anode electrolysis protection.



#### Classification Standards

- ABS Type approval on M1066A1 A2 and A3 models. Lloyd's Register states that Northern Lights marine generator sets have been successfully tested in accordance with relevant requirements of Lloyd's Register for Marine Generator applications.



# M1066 US EPA Tier II

## Features and Benefits

#### Superior PMG Generator Ends

Northern Lights generator ends achieve  $\pm 0.5\%$  voltage regulation. All have low temperature rise ratings that meet or exceed classification society requirements including ABS and Lloyds. All M1066 generator sets have Permanent Magnet Generators for 300% short circuit capability required for classed vessels.

#### Committed to Providing Complete Solutions

Northern Lights products are thoroughly factory tested and go through a complete quality control program to ensure your total satisfaction. Our design philosophy allows us to provide comprehensive solutions to your power production needs. Because engine room space is always at a premium, Northern Lights offers Low-Profile generator sets that save valuable inches where you need it most. Our line of options and accessories are designed to integrate into a total power system specifically built for your vessel. PTO's, sound enclosures and custom panels are among the options that make your power system as unique as your boat.

#### Air System-Turbocharger-Aftercooler

- Dry air filter cleans air and reduces air intake noise.
- M1066A1, A2 and A3 models have aftercooler with aircraft quality, 70/30 cupro-nickel, two pass element. Oval water tubes are easy to clean and stronger than round tubes. Corrugated air cooling fin design supports tubes better than plate fin type. Seawater piping is cast bronze and stainless steel. Water never touches the cast aluminum air ducts. No gaskets; all components are machined and have o-ring seals. Seawater direct from the pump for maximum cooling. Dry bolt holes protect cylinders.
- Turbocharged to increase output. The turbocharger turbine housings are freshwater cooled for safety.
- US EPA Tier II certified for use in non-US flagged vessels.

#### DC Electrical System and Electronic System Profiler

- Standard, S-3B remote mount control panel with NEMA enclosure has engine hour meter, coolant temperature gauge, oil pressure gauge, DC voltage meter, start-stop switch and shutdown bypass switch.
- Low oil pressure and high coolant temperature safety shutdowns.
- Northern Lights ESP supplies SAE J1939 data stream through a CAN bus plug for optional engine monitor.
- Negative ground, 12 volt DC system has circuit breaker, starter motor and battery charging alternator with regulator.
- Reliable relay based DC system is easy to trouble shoot and repair. Each relay is inexpensive and simply plug-in. No expensive printed circuit board to fail. Relays make multi-panel installation up to 110 ft from set quick & easy. Engine and panel are pre-wired and have terminal strips.

#### AC Generator

- Direct coupled, single bearing, 12 lead, re-connectable AC generator. Maintenance free brushless design.
- Generators meet or exceed ABS standards and include class H insulation, accessible diodes, oversized ball bearings and marine grade shafts. Conservative heat rise rating of  $95^{\circ}/50^{\circ}$  on T, A Series and 60 Hz H units. (Heat rise rating of  $110^{\circ}/45^{\circ}$  on 50 Hz H units.)
- Engines and generators are torsionally matched for long life.
- Isochronous electronic governor for 0% AC frequency droop.
- Automatic voltage regulator gives fast response to electrical load changes. Voltage is regulated to  $\pm 0.5\%$  (one half of one percent) over the entire range from no load to full load.
- All M1066 models have PMG (permanent magnet generator) to power the automatic voltage regulator for 300% short circuit capability needed by classed vessels.

#### Special Equipment

- Hydrostatic mounts isolate 98% of set vibration from hull.
- Welded steel base frame with drip pan. Easy to clean.
- Bellguard protects operator.
- Sparkling white, IMRON® poly-urethane paint protects your set.
- Operator's and parts manuals.
- Optional low profile sound enclosure for industry best attenuation in smaller package.

# M1066 Series

## Tier II

# General Specifications and Dimensions

AC Output <sup>1</sup>	M1066T	M1066A	M1066A1	M1066A2	M1066A3
60 Hz, 1800 RPM <sup>1</sup> kW	99 kW	n/a	130 kW	145 kW	160 kW
50 Hz, 1500 RPM <sup>1</sup> kW	80 kW	99 kW	105 kW	115 kW	n/a
Voltage regulation and PMG	All models: ±0.5% (±1/2 of 1 percent) voltage regulation & permanent magnet generator AVR power supply.				
Frequency droop control	All models: Isochronous 0% frequency droop control				
Phase and power factor	All models: 3 phase-0.8 power factor is standard				
Generator full load temperature rise	All models (except where noted): 95°C temperature rise at 50°C ambient <sup>2</sup>				

Lugger Marine Diesel Engine Data					
Inline cylinders/Operating cycle	All models: Inline six / four cycle				
Aspiration	Turbocharged	Turbo Aftercooled	Turbo Aftercooled	Turbo Aftercooled	Turbo Aftercooled
Displacement - cld (liter)	All models: 414 (6.8)				
Bore/Stroke - inches (mm)	All models: 4.19/5 (106/127)				
HP @ 1800 RPM (1500 RPM) <sup>3</sup>	150 (114)	n/a (149)	200 (160)	228 (172)	256 (n/a)
Max. front power take off HP - 60 Hz (50 Hz)	149 (114)	n/a (149)	190(168)	190 (158)	190 (n/a)
Oil capacity with filter - quarts (ltr)	20 (19)	34 (32.5)	34 (32.5)	34 (32.5)	34 (32.5)

Engine Cooling System					
Approx. heat exchanger cooling capacity - gal (ltr)	All models: 6.5 (24.7)				
Min. seawater inlet/discharge through hull dia. - in (mm)	1.25 (32)	2 (51)	2 (51)	2 (51)	2 (51)
Sea water pump inlet hose ID - in (mm)	1.25 (32)	2 (51)	2 (51)	2 (51)	2 (51)
Heat rejection to jacket water - BTU min 60Hz/50Hz	CF	n/a / 4553	CF	CF / 5110	CF (n/a)
Freshwater pump capacity - 60 Hz - gpm (lpm)	60 (227)	n/a	60 (227)	60 (227)	60 (227)
50 Hz - gpm (lpm)	50 (189)	50 (189)	50 (189)	50 (189)	N/A
Seawater pump capacity - 60 Hz - gpm (lpm)	24 (91)	n/a	42 (159)	42 (159)	42 (159)
50 Hz - gpm (lpm)	20 (76)	35 (133)	35 (133)	35 (133)	N/A
Max. seawater pump suction head - in (m)	All models: 39 (1)				
Consult factory for keel and skin cooler data					

DC Electrical System					
DC starting voltage - standard (optional)	12 (24)				
Min. battery capacity - amp hr/12V CCA (24V CCA)	All models: 225/800 (570)				
Starter rolling amps @0° 12VDC (24VDC)920 (600)	All models: 920 (600)				
12Volt battery cable size up to 10 ft - 3m	All models: 000				

Air & Exhaust Systems					
Generator cooling air flow 1&3 phase - 60 Hz (50 Hz)/cfm	1100 (915)	n/a (915)	1100 (915)	1100 (CF)	1100 (N/A)
Air consumption - 60 Hz - cfm (m <sup>3</sup> /m)	352 (9.2)	n/a	420 (11.9)	452 (12.8)	494 (14)
50 Hz - cfm (m <sup>3</sup> /m)	240 (6.8)	297 (8.4)	318 (9.0)	348 (9.9)	N/A
Exhaust gas volume - 60 Hz - cfm (m <sup>3</sup> /m)	851 (24.1)	n/a	1081 (30.6)	1162 (32.9)	1306 (37)
50 Hz - cfm (m <sup>3</sup> /m)	600 (17)	756 (21.4)	995 (28.2)	1070 (30.3)	N/A
Exhaust gas temp - 60 Hz - F° (C°)	984° (529°)	n/a	966° (519°)	986° (520°)	991° (533)
50 Hz - F° (C°)	945° (507°)	935 (502)	1076° (580°)	1076° (580°)	N/A
Approx. heat radiated to air BTU/min -60 Hz (60 Hz)	812 (656)	n/a (969)	1060 (861)	1189 (984)	1312 (N/A)
Max. exhaust Back Pressure - inch H <sub>2</sub> O (mm H <sub>2</sub> O)	All models: 30 (762)				

Fuel System					
Fuel injection pump type and control	Rotary Electronic	Rotary Electronic	Electronic	Electronic	Electronic
Min. suction & return line - in (mm)	All models: 3/8 (9.5)				
Max. fuel transfer pump suction lift - in (mm)	All models: 36 (914)				
Max. fuel flow to transfer pump - gph 60 Hz (50 Hz)	23.5 (22.7)	n/a (23.7)	25.6 (24.7)	49.6 (47.9)	49.6 (N/A)
Full load fuel returned to tank - gph 60 Hz (50 Hz)	15.6 (16.4)	n/a (16.4)	14.5 (15.6)	38.2 (38.7)	36.9 (N/A)
Specific fuel consumption max load - 60 Hz - lbs.hp.hr.	0.377	n/a	0.359	0.352	0.351
50 Hz - lbs.hp.hr.	0.355	0.349	0.347	0.347	N/A
Approx. fuel rate at 60 Hz full load - gph (lph) <sup>4</sup>	7.92 (30)	n/a	11.12 (42)	11.33 (42.9)	12.66 (47.9)
50 Hz full load - gph (lph) <sup>4</sup>	6.35 (24)	7.32 (27.7)	9.19 (37.5)	9.30 (35.2)	N/A

Maximum Engine Operating Angle					
Continuous, with separate expansion tank.	All Models	Front Down: 0-5°, (0-10°)	Rear Down: 0-12°.	Left or Right Down: 0-5°, (0-23°)	
Intermittent - 2 minutes.	All Models Front or Rear Down: 0-30°. Left or Right Down: 0-30°				

Dimensions and Weight - Low Profile <sup>5,6</sup>					
Set length - inch (mm)	81.0 (2058)	90.0 (2286)	90.0 (2286)	90.0 (2286)	90 (2286)
Set width - inch (mm)	All models: 42 (1066)				
Set height - inch (mm)	All models: 41.5 (1054)				
Approx. wet weight HE 3 phase 60 Hz - lbs (kg)	2886 (1306)	3541 (1646)	3541 (1646)	3630 (1646)	3734 (1694)
50 Hz - lbs (kg)	2886 (1306)	3630 (1646)	3630 (1646)	3630 (1646)	3734 (1694)
Sound enclosure length - inch (mm)	TBA (TBA)	90.0 (2286)	90.0 (2286)	90.0 (2286)	90.0 (2286)
Sound enclosure width - inch (mm)	38.0 (965)	42.0 (1067)	42.0 (1067)	42.0 (1067)	42.0 (1067)
Sound enclosure height - inch (mm)	41.0 (1041)	42.0 (1067)	42.0 (1067)	42.0 (1067)	42.0 (1067)
Sound enclosure weight - lbs (kg)	TBA (TBA)	436 (198)	436 (198)	436 (198)	436 (198)

All Models: US EPA Tier II; Available for non-US flagged vessels only.

### NOTES:

- CF = consult factory representative or [www.northern-lights.com](http://www.northern-lights.com) for current information.
- Prime kW ratings for 30 at 0.8 power factor. Consult factory for deration factors.
- Lloyd's Register classed M1066H @ 50 Hz = 110°C temperature rise at 45°C ambient
- Net flywheel hp rating for fully equipped engine at rated speed under SAE J816b.
- Based on prime kW rating at 1800 and 1500 RPM. Fuel rate may vary depending on operating conditions.
- Data for units with hydroelastic mounts, heat exchanger cooling and 3 phase generator ends. Dimensions and weight are affected by optional equipment, AC output, phase, exhaust and cooling configuration.
- Consult factory for data on enclosures for single phase sets or sets with InSep



Northern Lights, Inc. is ISO 9001 certified through  
Lloyd's Register Quality Assurance

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Tel: (206) 789-3880 • 1-800-762-0165 • Fax: (206) 782-5455  
Information and dimensions subject to change without notice.

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## Equipment and Services Quote

The following quote was provided at the request of FIFD. In an effort to simplify the procurement process and expedite the repower, FIFD has requested that the shipyard provide all equipment and shipyard services. The following quote is from Fairhaven Shipyard and represents the equipment and installation estimate. As discussed previously, the engines quoted are for reference only and will require a competitive procurement for final engine selection. Equipment Make/Model/Horsepower as well as costs could change, based on this fact.



Fairhaven Shipyard Companies, Inc.  
50 Fort St, Fairhaven, MA 02719  
(508) 999-1600

September 4, 2019

R.J. Burns  
Manager, Marine Operations  
Fishers Island Ferry District

Dear R.J.,

Below is an initial quote from Fairhaven Shipyard for the repower of the Race Point. Our quote includes purchase of equipment and shipyard labor to complete the repower.

Engine Quote:

Caterpillar C32 660HP at 1600-1800 RPM, 24V start, Keel cooled, dry exhaust  
**\$175,700 each**

The Caterpillar engine weighs 6,950 pounds. The C32 is a heavy duty engine. This Cat engine will physically fit on the current engine beds (a naval architect would have to tell you if the engine beds can handle the additional weight of the C32 vs the current 16V92's which I think weigh about 4900 pounds. The Cat engine comes with a shallow base as an option, which gives clearance for install and service.

Reduction gear quote:

Twin Disc model MGX5204  
**\$49,800 each**

Reduction would be 2:1 vs the 2.6:1 you have currently. Reduction decrease is needed because replacement engines are turning slower.

Generator quote:

Northern Lights M1066A1 130KW generators at 1800 RPM  
**\$115,400 each**

Removal and replacement quote:

The most efficient and cost effective method would involve going through the sides of the boat. There is some equipment in the way but it is easily removed. Budget is as follows:

1. Remove interferences in way of side shell.  
80 hours
2. Cut access hole in port and starboard side.  
60 hours
3. Disconnect engines, gears, generators.  
240 hours
4. Remove all controls, engine panels, etc. from wheelhouse



Fairhaven Shipyard Companies, Inc.  
50 Fort St, Fairhaven, MA 02719  
(508) 999-1600

- 40 hours
- 5. Remove props, uncouple and remove shafts , remove cutlass bearings  
60 hours
- 6. Remove exhaust pipes and mufflers from engine room only  
80 hours
- 7. Rig engines, generators and gears from boat  
240 hours
- 8. Renew engine beds to accommodate new engines  
320 hours
- 9. Remove sea chests, piping and blank off hull  
60 hours
- 10. Rig in new engines and generators  
240 hours
- 11. Install keel coolers and piping for engines and generators (6 coolers), insulate  
600 hours
- 12. Modify exhaust system, not changing pipes that go up the stacks  
320 hours
- 13. Connect fuel system, starting system, expansion tanks, wiring, controls, etc  
420 hours
- 14. Replace cutlass bearings, install shafts and align engines  
320 hours
- 15. Replace side shell, install insulation replace equipment  
320 hours

Total Hours            3400 hours

Using a blended labor rate of \$90 per hour, total labor is \$306,000. It has been my experience doing many of these repowers is that the material cost is about 60% of the labor or \$183,600. That brings the total budget up to **\$489,600** for removal and replacement.

Kevin McLaughlin  
Fairhaven Shipyard Companies, Inc.

### FIFD Race Point Repower Budget

<b>EQUIPMENT</b>			
<i>M/V Race Point</i>			
(2) Engines @ \$175,700/ea	\$228,410.00	\$122,990.00	\$351,400.00
(2) Gearboxes @ \$49,800/ea	\$64,740.00	\$34,860.00	\$99,600.00
Miscellaneous Equipment (e.g., Controls, etc.)	\$34,450.00	\$18,550.00	\$53,000.00
Auxiliary Generator Sets (2) @ \$115,400/ea	\$150,020.00	\$80,780.00	\$230,800.00
<b>TOTAL EQUIPMENT</b>	<b>\$477,620.00</b>	<b>\$257,180.00</b>	<b>\$734,800.00</b>
<b>SUPPLIES</b>			
None Anticipated	\$0.00	\$0.00	\$0.00
<b>CONTRACTUAL</b>			
Installation and Support	\$318,240.00	\$171,360.00	\$489,600.00
Naval Architect	\$23,400.00	\$12,600.00	\$36,000.00
<b>TOTAL CONTRACTUAL</b>	<b>\$341,640.00</b>	<b>\$183,960.00</b>	<b>\$525,600.00</b>
<b>TOTAL PROJECT COSTS</b>	<b>Federal</b>	<b>Cost Share</b>	<b>TOTAL</b>
<b>TOTAL BUDGET</b>	<b>\$819,260.00</b>	<b>\$441,140.00</b>	<b>\$1,260,400.00</b>