San Francisco Bay Ferry
A SERVICE OF WETA

Executive Officer
Commercial Harbor Craft Regulations
California Air Resources Board
1001 I Street
Sacramento, CA 95814

November 8th, 2024

**Subject: San Francisco Bay Area Water Emergency Transportation Authority – Resubmission of Alternative Control of Emissions (ACE) Plan**

Dear CARB Executive Officer:
Pursuant to CCR Title 17, section 93118.5 (f) Alternative Control of Emissions (ACE), the San Francisco Bay Area Water Emergency Transportation Authority (WETA), the administering agency of San Francisco Bay Ferry services, is resubmitting an Alternative Control of Emissions plan to comply with the California Air Resources Board's Amendments to the Commercial Harborcraft regulations that were approved in 2022 and implemented on January 1, 2023. Our initial submission, dated March 19th 2024, has been updated to incorporate additional requirements clarified in subsequent staff level meetings.

Over the last four years, WETA has been working with CARB staff, the top marine engineers in the country and various marine propulsion and battery manufacturers to understand the opportunities to implement zero emission technology in the high speed, high passenger capacity marine sector. WETA was able to secure a California Energy Commission grant to develop a zero-emission blueprint detailing how the agency can achieve a zero-emission operation on its short and medium length routes. WETA also commissioned a life cycle analysis on different marine batteries capable of powering high speed zero emission vessels and has secured over $136 million in funding from regional, state and federal sources to implement this ACE plan.

As a result of these various efforts, WETA feels confident in its commitment, included in this ACE plan, to transition at least 50% of its vessel fleet to zero emissions by 2035. The attached ACE Plan includes three documents, a spreadsheet with the actual calculations, a narrative detailing how the ACE Plan calculations were developed with relevant background information, and vessel compliance extension requests as required by CARB.

Our Board of Directors and staff understand that this goal is aggressive for the maritime industry at this time since we are only just now starting to see significant advancements of zero emission technology in this sector. We hope that this commitment will send the right signal to the maritime manufacturing industry to get options on the market as fast as possible while paving the way for other public and private vessel operators to adopt this technology on a faster timeline and at a lower cost.

We look forward to completing the public comment process for ACE Plans and starting to implement our transition to zero emissions. My staff is available to meet and discuss any questions you may have.

Sincerely,

Seamus Murphy
Executive Director

Cc: Chair of CARB
WETA Board of Directors

Appendix 1

WATER EMERGENCY TRANSPORTATION AUTHORITY

aurora marine design

# Commercial Harbor Craft Alternative Compliance Emissions Plan Narrative

The Water Emergency Transit Authority (WETA) is a local agency with multi-county jurisdiction, which was established by the California Legislature to expand regional ferry service and coordinate waterborne emergency response activities on San Francisco Bay. WETA's vision is to develop, operate and manage an expanded and enhanced region-wide ferry system that provides a reliable, state-of-the-art, and attractive transportation option for the Bay Area, and to play a critical role in coordinating and providing water transportation to serve emergency response and economic recovery needs.

The WETA Alternative Control of Emissions (ACE) plan currently consists of 4 sets of calculations. The ACE plan requires a baseline emissions calculation. The baseline calculation is for the owner's fleet up through December 31st, 2034, assuming 2 years of extensions for every vessel. The ACE plan calculations are to show equal to or less emissions than the baseline emissions contemplated in the CHC rules.

The calculations provided differ from the regulation in that they provide for low and high use scenarios to firmly establish the robustness of WETA's plan. The reason for these multiple calculations is that service levels can be fluid and new future routes are not guaranteed. Therefore, the low use calculations contemplate running hours aligned to the low end of current operating hours to start with and only adds services that are known to be approved and funded. The low use scenario provides for a low level of operational service growth over the regulated period. The high calculations start with the high end of current operating hours and adds all the possible future services, even those that are currently not approved or funded.

The operating hours between the baseline and the ACE calculations are the same for both the low use and high use calculations. However, the individual vessel hours utilized per year change based on the ACE plan and when conversions, repowers and new build deliveries will take place. The assumptions represent WETA's best estimation for the two operating scenarios on how and when the plan will be achieved. The exact assumptions will be detailed in the body of this ACE plan narrative.

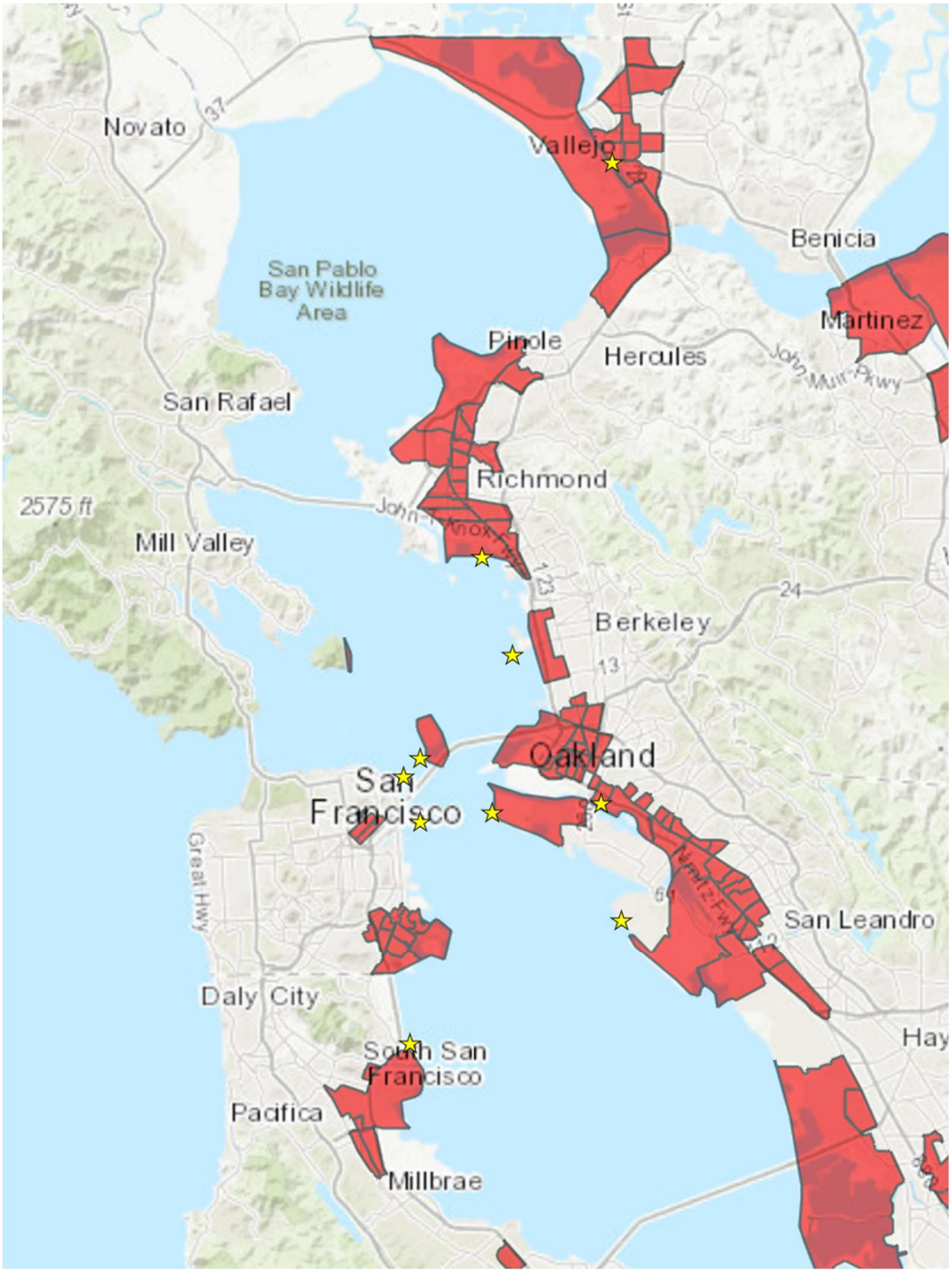
The calculations only address Nitrous Oxide (NO) and Particulate Matter (PM) emissions. These two are the only sources of emissions that the regulations aim to limit for diesel engines. The Tier 4 engines add Selective Catalytic Reduction (SCR's) that address NO emissions. The CARB Level 3 Verified Diesel Particulate Filters (DPF's) address the PM emissions.

## Record Keeping

WETA has a robust electronic Preventative Maintenance (PM) planning and maintenance tracking program. The primary input into their system is vessel operating hours. All vessel operating hours are closely logged for input into their PM system in addition for use with CHC reporting and National Transportation Database (NTD) reporting that is required. WETA will be able to comply will all recordkeeping and reporting requirements CARB has for this ACE plan.

## Impact to Disadvantaged Communities (DAC)

Every WETA ferry terminal is either directly located within a California EPA Disadvantaged Community, or located within the 2 mile range specified in CARBs CHC that warrants special DAC consideration. WETA vessels exclusively operate in the San Francisco Bay Area of the RCW. Every vessel route, and consequently all WETA vessel operations are exclusively within a DAC. No adjustments to vessel allocations as presented in this ACE plan result in a higher burden for a DAC over any other communities. The map below shows DACs in red and WETA terminals are indicated as yellow stars. Detailed terminal addresses and their distances to DACs are detailed in the Terminals Tab of the calculations spreadsheet.



## Low Use Baseline Calculations

The low use baseline calculations are based off the CHC regulations regarding calculation guidance and vessel compliance. Based on guidance provided from CARB staff, each vessel is assumed to have two-year extensions before compliance date for the model year of engine installed. Draft extension requests and justifications, in-line with extension (e)(12)(E)2. "Feasibility Extension E2", and (e)(12)(E)5. "Scheduling Exceptions E5", are provided as Appendix 6 to this plan.

All vessels are assumed to comply with the CHC regulations by repowering to the most stringent EPA Tier currently available with the addition of a CARB Level 3 Validated DPF following the two-year extension. The values used for the different EPA Tier and CARB CHC compliant EPA Tier 4 + DPF are sourced from CARB documentation from the CHC rulemaking. So as not to repeat this for every line in the baseline calculation the EPA emissions values for NOx and PM for each engine tier and horsepower level are sourced from the ISOR Appendix H table H-5. These are the values that CARB used for their emissions calculations, so it is assumed they are acceptable to use for these emissions calculations. It is assumed that CARB utilized the figures in Table H-5 for very specific reasons and these ACE plan calculations should follow the same guidance. The emissions values used for the EPA Tier 4+DPF and EPA Tier 3+DPF were sourced from the Final Regulation Order for the CHC regulations tables 11 and 12 for performance standards.

The low use baseline calculation contemplates the existing services and minimal future routes. The existing routes are estimated with a low growth in service hours based off the low end of service hours experienced historically. The future routes are estimated to have a low level of service hours. Repower impacts on individual vessel operating hours for the given project years were accommodated in both the baseline and ACE operating hour plans.

### Operating Hours

Operating hours presented in this report refer to vessel operating hours, not the sum total of engine operating hours. WETA vessels exclusively operate with both propulsion engines online and typically a single generator. Central Bay hour usage starts at 23,500 vessel operating hours a year in 2023. The operating hours are estimated to increase to 25,250 hours in 2026 and increase to 28,000 hours in 2027. These increases in operating hours are accounting for the assumption of the Treasure Island route, expected to start in FY26/27, and some service growth. The service hours increase again in 2028 to 29,500 hours per year to account for additional service growth. The annual estimated service hours for Central Bay operations flat line from 2028 through 2034 assuming no additional growth or additional service.

North Bay hour usage starts at 13,500 operating hours a year in 2023. The annual estimated service hours for North Bay operations are a flat line through 2034 assuming no additional growth or additional service.

| Existing Routes | Location |
|---|---|
| Oakland/Alameda Main Street to San Francisco | Central Bay |
| Oakland/Alameda Main Street to South San Francisco | Central Bay |
| Oakland/Alameda Main Street to Oracle Park | Central Bay |
| Oakland/Alameda Main Street to Chase Center | Central Bay |
| Alameda Sea Plane Lagoon to San Francisco | Central Bay |
| Alameda Harbor Bay to San Francisco | Central Bay |
| San Francisco Ferry Building to Pier 41 | Central Bay |
| Richmond to San Francisco | Central Bay |

| | |
|---|---|
| Mare Island to Vallejo | North Bay |
| Vallejo to San Francisco | North Bay |
| Vallejo to Giants Stadium/Oracle Park | North Bay |

The “Baseline Low” use tab on the calculation spreadsheet contemplates the addition of service on the following routes.

| Future Routes | Location |
|---|---|
| San Francisco to Treasure Island | Central Bay |
| San Francisco to Mission Bay | Central Bay |

## Baseline Low Calculation Vessel Nomenclature

The “Baseline Low” use tab on the calculation’s spreadsheet includes the following existing vessels. Vessels that are part of a class are considered to have similar propulsion configurations only differing in model year of the engines.

| Existing Vessels | |
|---|---|
| **Vessel Class** | **Vessel Name** |
| Gemini Class | Gemini |
| | Pisces |
| | Scorpio |
| | Taurus |
| Hydrus Class | Hydrus |
| | Cetus |
| | Argo |
| | Carina |
| | Peralta |
| | Bay Breeze |
| Pyxis Class | Pyxis |
| | Vela |
| | Lyra |
| Intintoli Class | Intintoli |
| | Mare Island |
| Dorado Class | Dorado |
| | Delphinus |
| **Currently Under Construction** | |
| 320 PAX DPF Class | Hull 160 – Shipyard Number, name pending selection process |
| | Hull 161– Shipyard Number, name pending selection process |
| **Future Planed Construction** | |
| 149PAX ZEAT Class | 149PAX ZEAT#1 – In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#2 – In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#3 – In design process no shipyard awarded yet, Short Run all battery electric vessel |
| 400PAX DPF Class | 400PAX DPF#1 – In design process no shipyard awarded yet, EPA T4+DPF |

| | |
|---|---|
| | 400PAX DPF#2 – In design process no shipyard awarded yet, EPA T4+DPF |

## Low Use ACE Calculations

The low use ACE calculation contemplates the existing services and minimal future routes. The existing routes are estimated with a low growth in service hours based off the low end of service hours experienced historically. The future routes are estimated to have a low level of service hours. All emissions factors are derived in the same manner as they were for the baseline calculations, however unused configurations of the vessel's rows are hidden for clarity. As an example, where a vessel is not contemplated to be repowered in the ACE calculations the DPF configuration rows of the vessel are hidden. The major difference in the ACE calculations is that the emissions reducing vessel repower projects and all battery electric vessels are used to offset the emissions from vessel classes that are not possible to be repowered with CARB mandated EPA Tier 4+DPF engines.

WETA has recently built two new classes of vessels with EPA Tier 4 engines; the Pyxis class vessels (Pyxis, Vela and Lyra) and the Dorado Class (Dorado and Delphinus). At the time of their design and construction, it was not known that CARB would require additional emissions equipment above federal standards. Further modification of these new vessels to comply with CHC regulations is not possible because the required equipment (DPF's) represent an extreme increase in equipment volume and weight. In the case of the subject 5 vessels, the DPF's proposed by the engine distributor as meeting the manufactures requirements represents the addition of equipment equal to the volume of the existing main engines and weighing as much as 50% of the weight of the existing main engines. The vessels, as designed, did not account for this drastic increase in propulsion machinery volume and weight. The analogy is like someone asking you to add a box to your car that is the same size as your engine. It can be done but you will either have to pay to have someone lengthen your car by 2 or 3 feet or lose your back seat and your rear window. The subject vessels would require tens of millions of dollars to add the space required for the DPF's. A similar scope of work was attempted by WETA for an existing vessel to be converted to EPA Tier 4. The SCR's required an additional 8 feet of hull length added to the vessel to account for them. In that case all bids received were either equal to or significantly high enough to warrant reassigning the vessel to another FTA operator out of California and building a new boat that was designed around the EPA Tier 4 equipment.

The Dorado class was originally planned to have a 3rd and 4th vessel with matching configurations to the first 2 hulls in the class but due to production delays and the publication of the new CHC regulations they were re-bid with a different propulsion package that had a more favorable path to CHC compliance. As such they are referred to as a different class, the 320PAX DPF Class, in this plan. WETA has been working closely with the selected engine manufacturer to try and get their European Engine+SCR+DPF system certified to EPA Tier 4 and Validated to CARB Level 3 for the DPF. The class Hulls 160 and 161 are therefore calculated in the ACE plan as starting as CHC compliant propulsion systems. Below is a detailed list of assumptions used in the low use ACE calculations per vessel class.

### Gemini Class (Gemini, Pisces, Scorpio, & Taurus)

The Gemini Class is currently operating with MAN EPA Tier 4 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Gemini Class will not be repowered and operated in this configuration through the 2034 emissions year.

### Hydrus Class (Hydrus, Cetus, Argo, & Carina)

The Hydrus Class is currently operating with MTU EPA Tier 3 main engines with aftermarket non-certified SCR's and EPA Tier 3 generators. The Hydrus Class is planned to be converted to full battery electric propulsion that will result in zero emissions at the vessel. The CHC regulations do not require ZEAT for these vessels.

These vessels are being converted to ZEAT to offset the other vessels that cannot be brought into compliance. The calculations still show emissions for this vessel after the repower. Those emissions are based off the emissions for the CAMX electrical grid for the electricity used to charge the vessel. The only emissions used are NOx as the eGRID data indicates that there are no PM emissions from the electrical grid. Calculating the emissions from the GRID was not required but was used to fairly calculate the impact of the electric vessels and fairly evaluate the difference between battery electric and hydrogen fuel cell vessels.

The low use ACE calculations assume the vessels conversion schedule will be completed as follows:

Hydrus - repowered to full battery electric propulsion in 2028.

Cetus - repowered to full battery electric propulsion in 2029.

Argo - repowered to full battery electric propulsion in 2030.

Carina - repowered to full battery electric propulsion in 2031.

### Peralta

The Peralta is currently operating with MAN EPA Tier 2 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Peralta will not be repowered due to its age. The Peralta will be operated through the 2029 emissions year and it's replacement vessel has not yet been determined.

### Bay Breeze

The Bay Breeze is currently operating with MAN EPA Tier 2 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Bay Breeze will not be repowered. The Bay Breeze will be operated through the 2025 emissions year, whereupon it will be replaced by the 320PAX Tier 4+DPF Class - Hull 160.

### Pyxis Class (Pyxis, Vela, & Lyra)

The Pyxis class is currently operating with MTU EPA Tier 4 main engines and EPA Tier 3 generators. The low use ACE calculations assume the Pyxis Class will not be repowered and will be operated in this configuration through the 2034 emissions year.

The Pyxis class vessels were built between 2017 and 2019 and were used by MTU to obtain their EPA Tier 4 certification for the 4000 series engines. The Pyxis class were the first EPA tier 4 fast ferries built in the USA. The design of the vessel was tailored to the new EPA Tier 4 SCRs as these were the first units in production for MTU. Given that the vessels were designed around the leading edge of emissions control technology just a few years ago, there was no weight or space allowance for additional emissions control equipment. This is the reason that the Pyxis class vessels are not going to be repowered. The repower would require additional hull length, higher output engines and larger waterjets to account for the additional 20,000 lbs. of weight from the installation of DPFs and additional hull length that would be required to fit the DPFs. Additionally, the engines installed in the Pyxis class are the highest output EPA Tier 4 fast ferry rated/suitable engines available in the US today. There are higher rated engines available, but they are either not EPA Tier 4 rated or offer a power to weight/size factor that is implausible for fast ferry operations. The Pyxis class are currently operating at the bare minimum speed to meet service requirements and are at the limit of the installed waterjets capacity for a vessel of this size and weight. All these factors make it near impossible, and certainly financially implausible, to repower these vessels to be CHC compliant.

### Intintoli Class (Intintoli & Mare Island)

The Intintoli class is currently operating with MAN EPA Tier 2 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Intintoli class will not be repowered, Intintoli will be run through the 2027 emissions year,

and Mare Island will be run through the 2028 emissions year. These vessels will be replaced by the 400PAX ZEAT class - hulls 1 and 2.

### Dorado Class (Dorado & Delphinus)

The Dorado class is currently operating with MAN EPA Tier 4 main engines and EPA Tier 3 generators. The low use ACE calculations assume the Dorado class will not be repowered and operated in this configuration through the 2034 emissions year.

The Dorado was delivered in 2022 and Delphinus is due to enter service in early 2024. Both vessels were delivered 4 years after the start of construction. Due to the COVID-19 pandemic, labor shortages and supply chain issues resulted in significant delays and the extended build time. The Dorado class vessels were designed around the leading edge of emissions control technology just a few years ago and the engineering and design of the vessel did not allow for the additional space and weight for the emissions control equipment required under CARB's CHC regulations. For this reason, the Dorado class vessels are not going to be repowered.

### 320PAX Tier 4+DPF Class (Hulls 160 & 161)

The 320PAX Tier 4+DPF Class is currently under construction with MAN EPA Tier 4 main engines and EPA Tier 3 generators. WETA is working to certify of the MAN propulsion package with CARB compliant DPF's to EPA Tier 4 and CARB Level 3 but it is not known if this will be achieved prior to machinery delivery. Hulls 160 and 161 were a modification of the Dorado class to a propulsion configuration that offered a better path to CHC compliance. The contract for these vessels was put to bid after CARB published its intensions to require DPF's in addition to the highest emissions tier available. At the time of Contract award and vessel design there were no approved DPF's for the generators. The designer was not able to maintain an adequate space reservation for the addition of future generator DPF's.

The low use ACE calculation assumes hull 160 (Bay Breeze replacement) will not be repowered and operated without DPF's through the 2034 emissions year. Hull 160 is forecast to be delivered in late 2024, 4 years after the start of construction. Hull 161(Solano replacement) is forecast to be delivered in 2025, 4 years after the start of construction. Due to the COVID-19 pandemic, labor shortages and supply chain issues resulted in significant delays and the extended build time.

### 149PAX ZEAT Class (#1, #2, & #3)

Starting in 2026, WETA will be assuming the operation of passenger ferry service to Treasure Island and Mission Bay. Both of these new routes are considered short run (under 3 nautical miles) ferry routes as defined by the amended CHC regulations. 149PAX ZEAT Class will be a 149-passenger medium speed all battery electric ferry operating on short run ferry routes. 149 PAX ZEATs #1 and #2 are planned to enter service in 2026. 149PAX ZEAT #3 is planned to enter service in 2027.

This class of vessel is currently under design and the estimated power required has been used for these calculations. The calculations still show emissions for this vessel. Those emissions are based off the emissions for the CAMX electrical grid for the electricity used to charge the vessel. The only emissions used are NOx as the eGRID data indicates that there are no PM emissions from the electrical grid. Calculating the emissions from the GRID was not required but was used to fairly calculate the impact of the electric vessels and fairly evaluate the difference between battery electric and hydrogen fuel cell vessels.

### 400PAX ZEAT Class (#1 & #2)

The 400PAX ZEAT Class will be a 250-400 passenger medium speed all battery electric ferry. This class is not slated for short run ferry routes and could be constructed as a diesel engine powered vessel. 400PAX ZEAT #1 (Intintoli's replacement) is forecasted to enter service in 2027. 400PAX ZEAT #2 (Mare Island's replacement) is forecasted to enter service in 2028.

This class of vessel is currently under design and the estimated power level has been used for these calculations. The calculations still show emissions for this vessel. Those emissions are based off the emissions for the CAMX electrical grid for the electricity used to charge the vessel. The only emissions used are NOx as the eGRID data indicates that there are no PM emissions from the electrical grid. Calculating the emissions from the GRID was not required but was used to fairly calculate the impact of the electric vessels and fairly evaluate the difference between battery electric and hydrogen fuel cell vessels.

### Operating Hours

The Central Bay and North Bay operating hours for existing and future routes in the Low Use ACE Calculations match the Low Use Baseline operating hour totals. The exact hour allocations for each vessel differ between the two plans to accommodate the planned vessel conversion schedules required to meet each plan.

### ACE Low Calculation Vessel Nomenclature

The "ACE Low" use tab on the calculation's spreadsheet includes the following existing vessels, vessels under construction and vessels in design and or planning. Vessels that are part of a class are considered to have similar propulsion configurations only differing in model year of the engines.

| Existing Vessels | |
|---|---|
| **Vessel Class** | **Vessel Name** |
| Gemini Class | Gemini |
| | Pisces |
| | Scorpio |
| | Taurus |
| Hydrus Class | Hydrus |
| | Cetus |
| | Argo |
| | Carina |
| | Peralta |
| | Bay Breeze |
| Pyxis Class | Pyxis |
| | Vela |
| | Lyra |
| Intintoli Class | Intintoli |
| | Mare Island |
| Dorado Class | Dorado |
| | Delphinus |
| **Currently Under Construction** | |
| 320PAX DPF Class | Hull 160 – Shipyard Number, name pending selection process |
| | Hull 160 – Shipyard Number, name pending selection process |
| **Future Planed Construction** | |

| | |
|---|---|
| 149PAX ZEAT Class | 149PAX ZEAT#1 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#2 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#3 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| 400PAX ZEAT Class | 400PAX ZEAT#1 - In design process no shipyard awarded yet, full battery electric vessel. |
| | 400PAX ZEAT#2 - In design process no shipyard awarded yet, full battery electric vessel. |

## High Use Baseline Calculations

The high use baseline calculations are based off the CHC regulations regarding calculation guidance and vessel compliance. Based on guidance provided from CARB staff, each vessel is assumed to have two-year extensions before compliance date for the model year of engine installed. Draft extension requests and justifications, in-line with extension (e)(12)(E)2. "Feasibility Extension E2", and (e)(12)(E)5. "Scheduling Exceptions E5", are provided as Appendix 6 to this plan.

All vessels are assumed to comply with the CHC regulations by repowering to the most stringent EPA Tier currently available with the addition of a CARB Level 3 Validated DPF following the two-year extension. The values used for the different EPA Tier and CARB CHC compliant EPA Tier 4 + DPF are sourced from CARB documentation from the CHC rulemaking.

The "Baseline High" tab on the calculation spreadsheet contemplates the existing service plus the addition of all future planned routes, even ones that are still in the preliminary planning processes. The following routes are estimated with a high growth in service hours based off the high end of service hours experienced. The future routes are estimated at a high level of operating hours. Repower impacts on individual vessel operating hours for the given project years were accommodated in both the baseline and ACE operating hour plans.

### Operating Hours

Operating hours presented in this report refer to vessel operating hours, not the sum total of engine operating hours. WETA vessels exclusively operate with both propulsion engines online and typically a single generator. Central Bay hour usage starts out higher at 31,000 vessel operating hours a year in 2023. The operating hours are estimated to increase to 33,500 hours in 2026 and increase to 38,000 hours in 2027. These increases in operating hours are accounting for the assumption of the Treasure Island route and the addition of the Mission Bay, Treasure Island/Mission Bay/San Francisco triangle and the Berkeley routes and some service growth. The service hours increase again in 2028 to 55,000 hours per year to account for possible future increase in service routes. The annual estimated service hours for Central Bay operations flat line from 2028 through 2034 assuming no additional growth or additional service.

North Bay hour usage starts at 17,000 operating hours a year in 2023. The annual estimated service hours for North Bay operations flat line through 2034 assuming no additional growth or additional service.

| Existing Routes | Location |
|---|---|
| Oakland/Alameda Main Street to San Francisco | Central Bay |
| Oakland/Alameda Main Street to South San Francisco | Central Bay |
| Oakland/Alameda Main Street to Oracle Park | Central Bay |
| Oakland/Alameda Main Street to Chase Center | Central Bay |
| Alameda Sea Plane Lagoon to San Francisco | Central Bay |
| Alameda Harbor Bay to San Francisco | Central Bay |
| San Francisco Ferry Building to Pier 41 | Central Bay |
| Richmond to San Francisco | Central Bay |
| Mare Island to Vallejo | North Bay |
| Vallejo to San Francisco | North Bay |
| Vallejo to Giants Stadium/Oracle Park | North Bay |

The “Baseline High” use tab on the calculation spreadsheet contemplates the addition of service on the following routes.

| Future Routes | Location |
|---|---|
| San Francisco to Treasure Island | Central Bay |
| San Francisco to Mission Bay | Central Bay |
| San Francisco to Treasure Island to Mission Bay | Central Bay |
| Berkeley to San Francisco | Central Bay |
| Berkeley to Oracle Park | Central Bay |
| Berkeley to Chase Center | Central Bay |
| Oakland/Alameda to Larkspur Landing | Central Bay |
| To Be Determined Future Routes | Central Bay |

## Baseline High Calculation Vessel Nomenclature

The “Baseline High” use tab on the calculation’s spreadsheet includes the following existing vessels, vessels under construction and vessels in design and or planning. Vessels that are part of a class are considered to have similar propulsion configurations only differing in model year of the engines.

| Existing Vessels | |
|---|---|
| Vessel Class | Vessel Name |
| Gemini Class | Gemini |
| | Pisces |
| | Scorpio |
| | Taurus |
| Hydrus Class | Hydrus |
| | Cetus |
| | Argo |
| | Carina |
| | Peralta |
| | Bay Breeze |
| Pyxis Class | Pyxis |
| | Vela |
| | Lyra |
| Intintoli Class | Intintoli |
| | Mare Island |
| Dorado Class | Dorado |
| | Delphinus |
| Currently Under Construction | |
| 320PAX DPF Class | Hull 160 – Shipyard Number, name pending selection process |
| | Hull 160 – Shipyard Number, name pending selection process |
| Future Planed Construction | |
| 149PAX ZEAT Class | 149PAX ZEAT#1 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#2 - In design process no shipyard awarded yet, Short Run all battery electric vessel |

| | |
|---|---|
| | 149PAX ZEAT#3 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| 400PAX DPF Class | 400PAX DPF#1 – Notionally planned if ACE Plan is not approved, EPA T4+DPF |
| | 400PAX DPF#2 – Notionally planned if ACE Plan is not approved, EPA T4+DPF |

## High Use ACE Calculations

The High use ACE calculation contemplates the existing service plus the addition of all future planned routes, even ones that are still in the preliminary planning processes which have not been fully funded. The existing routes are estimated with a high growth in service hours. The future routes are estimated at a high level of operating hours. All emissions factors are derived in the same manner as they were for the baseline calculations, however unused configurations of the vessel's rows are hidden for clarity. As an example, where a vessel is not contemplated to be repowered in the ACE calculations the DPF configuration rows of the vessel are hidden. The major difference in the ACE calculations is that emissions reducing repowers and all battery electric vessels are used to offset emissions from other vessel classes that are not possible to repower with CARB mandated EPA Tier 4+DPF engines.

WETA has recently built two new classes of vessels with EPA Tier 4 engines; the Pyxis class vessels (Pyxis, Vela and Lyra) and the Dorado Class (Dorado and Delphinus). At the time of their design and construction, it was not known that CARB would require additional emissions equipment above federal standards. Further modification of these new vessels to comply with CHC regulations is not possible because the required equipment (DPF's) represent an extreme increase in equipment volume and weight. In the case of the subject 5 vessels, the DPF's proposed by the engine distributor as meeting the manufactures requirements represents the addition of equipment equal to the volume of the existing main engines and weighing as much as 50% of the weight of the existing main engines. The vessels, as designed, did not account for this drastic increase in propulsion machinery volume and weight. The analogy is like someone asking you to add a box to your car that is the same size as your engine. It can be done but you will either have to pay to have someone lengthen your car by 2 or 3 feet or lose your back seat and your rear window. The subject vessels would require tens of millions of dollars to add the space required for the DPF's. A similar scope of work was attempted by WETA for an existing vessel to be converted to EPA Tier 4. The SCR's required an additional 8 feet of hull length added to the vessel to account for them. In that case all bids received were either equal to or significantly high enough to warrant reassigning the vessel to another FTA operator out of California and building a new boat that was designed around the EPA Tier 4 equipment.

The Dorado class was originally planned to have a 3rd and 4th vessel with matching configurations to the first 2 hulls in the class but due to production delays and the publication of the new CHC regulations they were re-bid with a different propulsion package that had a more favorable path to CHC compliance. As such they are referred to as a different class, the 320PAX DPF Class, in this plan. WETA has been working closely with the selected engine manufacturer to try and get their European Engine+SCR+DPF system certified to EPA Tier 4 and Validated to CARB Level 3 for the DPF. The class hulls 160 and 161 are therefore calculated in the ACE plan as starting as CHC compliant propulsion systems. Below is a detailed list of assumptions used in the high use ACE calculations per vessel class.

### Gemini Class (Gemini, Pisces, Scorpio, & Taurus)

The Gemini Class is currently operating with MAN EPA Tier 4 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Gemini Class will not be repowered and operated in this configuration through the 2034 emissions year.

### Hydrus Class (Hydrus, Cetus, Argo, & Carina)

The Hydrus Class is currently operating with MTU EPA Tier 3 main engines with aftermarket non-certified SCR's and EPA Tier 3 generators. The Hydrus Class is planned to be converted to full battery electric propulsion that will result in zero emissions at the vessel. The CHC regulations do not require ZEAT for these vessels.

These vessels are being converted to ZEAT to offset the other vessels that cannot be brought into compliance. The calculations still show emissions for this vessel after the repower. Those emissions are based off the emissions for the CAMX electrical grid for the electricity used to charge the vessel. The only emissions used are NOx as the eGRID data indicates that there are no PM emissions from the electrical grid. Calculating the emissions from the GRID was not required but was used to fairly calculate the impact of the electric vessels and fairly evaluate the difference between battery electric and hydrogen fuel cell vessels.

The low use ACE calculations assume the vessels conversion schedule will be completed as follows:

Hydrus - repowered to full battery electric propulsion in 2028.

Cetus - repowered to full battery electric propulsion in 2029.

Argo - repowered to full battery electric propulsion in 2030.

Carina - repowered to full battery electric propulsion in 2031.

### Peralta

The Peralta is currently operating with MAN EPA Tier 2 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Peralta will not be repowered due to its age. The Peralta will be operated through the 2029 emissions year and it's replacement vessel has not yet been determined.

### Bay Breeze

The Bay Breeze is currently operating with MAN EPA Tier 2 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Bay Breeze will not be repowered. The Bay Breeze will be operated through the 2025 emissions year, whereupon it will be replaced by the 320PAX Tier 4+DPF Class - Hull 160.

### Pyxis Class (Pyxis, Vela, & Lyra)

The Pyxis class is currently operating with MTU EPA Tier 4 main engines and EPA Tier 3 generators. The low use ACE calculations assume the Pyxis Class will not be repowered and will be operated in this configuration through the 2034 emissions year.

The Pyxis class vessels were built between 2017 and 2019 and were used by MTU to obtain their EPA Tier 4 certification for the 4000 series engines. The Pyxis class were the first EPA tier 4 fast ferries built in the USA. The design of the vessel was tailored to the new EPA Tier 4 SCRs as these were the first units in production for MTU. Given that the vessels were designed around the leading edge of emissions control technology just a few years ago, there was no weight or space allowance for additional emissions control equipment. This is the reason that the Pyxis class vessels are not going to be repowered. The repower would require additional hull length, higher output engines and larger waterjets to account for the additional 20,000 lbs. of weight from the installation of DPFs and additional hull length that would be required to fit the DPFs. Additionally, the engines installed in the Pyxis class are the highest output EPA Tier 4 fast ferry rated/suitable engines available in the US today. There are higher rated engines available, but they are either not EPA Tier 4 rated or offer a power to weight/size factor that is implausible for fast ferry operations. The Pyxis class are currently operating at the bare minimum speed to meet service requirements and are

at the limit of the installed waterjets capacity for a vessel of this size and weight. All these factors make it near impossible, and certainly financially implausible, to repower these vessels to be CHC compliant.

### Intintoli Class (Intintoli & Mare Island)

The Intintoli class is currently operating with MAN EPA Tier 2 main engines and EPA Tier 2 generators. The low use ACE calculations assume the Intintoli class will not be repowered, Intintoli will be run through the 2027 emissions year, and Mare Island will be run through the 2028 emissions year. These vessels will be replaced by the 400PAX ZEAT class - hulls 1 and 2.

### Dorado Class (Dorado & Delphinus)

The Dorado class is currently operating with MAN EPA Tier 4 main engines and EPA Tier 3 generators. The low use ACE calculations assume the Dorado class will not be repowered and operated in this configuration through the 2034 emissions year.

The Dorado was delivered in 2022 and Delphinus is due to enter service in early 2024. Both vessels were delivered 4 years after the start of construction. Due to the COVID-19 pandemic, labor shortages and supply chain issues resulted in significant delays and the extended build time. The Dorado class vessels were designed around the leading edge of emissions control technology just a few years ago and the engineering and design of the vessel did not allow for the additional space and weight for the emissions control equipment required under CARB's CHC regulations. For this reason, the Dorado class vessels are not going to be repowered.

### 320PAX DPF Class (Hulls 160 & 161)

The 320PAX DPF Class is currently under construction with MAN EPA Tier 4 main engines and EPA Tier 3 generators. WETA is working to certify of the MAN propulsion package with CARB compliant DPF's to EPA Tier 4 and CARB Level 3 but it is not known if this will be achieved prior to machinery delivery. Hulls 160 and 161 were a modification of the Dorado class to a propulsion configuration that offered a better path to CHC compliance. The contract for these vessels was put to bid after CARB published its intensions to require DPF's in addition to the highest emissions tier available. At the time of Contract award and vessel design there were no approved DPF's for the generators. The designer was not able to maintain an adequate space reservation for the addition of future generator DPF's.

The low use ACE calculation assumes hull 160 (Bay Breeze replacement) will not be repowered and operated without DPF's through the 2034 emissions year. Hull 160 is forecast to be delivered in late 2024, 4 years after the start of construction. Hull 161(Solano replacement) is forecast to be delivered in 2025, 4 years after the start of construction. Due to the COVID-19 pandemic, labor shortages and supply chain issues resulted in significant delays and the extended build time.

### 149PAX ZEAT Class (#1, #2, & #3)

Starting in 2026, WETA will be assuming the operation of passenger ferry service to Treasure Island and Mission Bay. Both of these new routes are considered short run (under 3 nautical miles) ferry routes as defined by the amended CHC regulations. 149PAX ZEAT Class will be a 149-passenger medium speed all battery electric ferry operating on short run ferry routes. 149 PAX ZEATs #1 and #2 are planned to enter service in 2026. 149PAX ZEAT #3 is planned to enter service in 2027.

This class of vessel is currently under design and the estimated power required has been used for these calculations. The calculations still show emissions for this vessel. Those emissions are based off the emissions for the CAMX electrical grid for the electricity used to charge the vessel. The only emissions used are NOx as the eGRID data

indicates that there are no PM emissions from the electrical grid. Calculating the emissions from the GRID was not required but was used to fairly calculate the impact of the electric vessels and fairly evaluate the difference between battery electric and hydrogen fuel cell vessels.

### 400PAX ZEAT Class (#1 & #2)

The 400PAX ZEAT Class will be a 250-400 passenger medium speed all battery electric ferry. This class is not slated for short run ferry routes and could be constructed as a diesel engine powered vessel. 400PAX ZEAT #1 (Intintoli's replacement) is forecasted to enter service in 2027. 400PAX ZEAT #2 (Mare Island's replacement) is forecasted to enter service in 2028.

This class of vessel is currently under design and the estimated power level has been used for these calculations. The calculations still show emissions for this vessel. Those emissions are based off the emissions for the CAMX electrical grid for the electricity used to charge the vessel. The only emissions used are NOx as the eGRID data indicates that there are no PM emissions from the electrical grid. Calculating the emissions from the GRID was not required but was used to fairly calculate the impact of the electric vessels and fairly evaluate the difference between battery electric and hydrogen fuel cell vessels.

### Operating Hours

The Central Bay and North Bay operating hours for existing and future routes in the High Use ACE Calculations match the High Use Baseline operating hour totals. The exact hour allocations for each vessel differ between the two plans to accommodate the planned vessel conversion schedules required to meet each plan.

### ACE High Calculation Vessel Nomenclature

The "ACE high use" tab on the calculation's spreadsheet includes the following existing vessels, vessels under constructure and vessels in design and or planning. Vessels that are part of a class are considered to have similar propulsion configurations only differing in model year of the engines.

| Existing Vessels | |
|---|---|
| Vessel Class | Vessel Name |
| Gemini Class | Gemini |
| | Pisces |
| | Scorpio |
| | Taurus |
| Hydrus Class | Hydrus |
| | Cetus |
| | Argo |
| | Carina |
| | Peralta |
| | Bay Breeze |
| Pyxis Class | Pyxis |
| | Vela |
| | Lyra |
| Intintoli Class | Intintoli |
| | Mare Island |
| Dorado Class | Dorado |
| | Delphinus |

| Currently Under Construction | |
|---|---|
| 320PAX DPF Class | Hull 160 – Shipyard Number, name pending selection process |
| | Hull 160 – Shipyard Number, name pending selection process |
| **Future Planed Construction** | |
| 149PAX ZEAT Class | 149PAX ZEAT#1 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#2 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| | 149PAX ZEAT#3 - In design process no shipyard awarded yet, Short Run all battery electric vessel |
| 400PAX ZEAT Class | 400PAX ZEAT#1 - In design process no shipyard awarded yet, full battery electric vessel. |
| | 400PAX ZEAT#2 - In design process no shipyard awarded yet, full battery electric vessel. |

## Conclusions

| WETA Alternative Control of Emissions (ACE) Plan Calculation Summary Table | | |
|---|---|---|
| | | |
| ACE Strategy | Fleet Averaging | |
| Number of Vessels in ACE plan total: | 24 | |
| Vessels in ACE plan in service now | 16 | |
| Vessels under construction | 3 | |
| Vessels in Design phase | 5 | |
| | | |
| | Low Use Plan | High Use Plan |
| Nominal Compliance Baseline Total Emissions (lbs) | 2,570,984 | 3,757,768 |
| ACE Scenario Total Emissions (lbs) | 2,143,796 | 2,895,487 |
| ACE Plan Total Emissions Reduction (lbs) | 427,188 | 862,281 |
| Percentage Reduction | 16.62% | 22.95% |
| | | |
| Nominal Compliance Baseline - NOx (lbs) | 2,541,629 | 3,716,109 |
| ACE Scenario - NOx (lbs) | 2,114,467 | 2,853,970 |
| ACE Plan NOx Reduction (lbs) | 427,163 | 862,139 |
| Percentage Reduction | 16.81% | 23.20% |
| | | |
| Nominal Compliance Baseline - PM (lbs) | 29,355 | 41,658 |
| ACE Scenarion - PM (lbs) | 29,329 | 41,517 |
| ACE Plan PM Reduction (lbs) | 26 | 142 |
| Percentage Reduction | 0.09% | 0.34% |

The calculations submitted represent WETA's best estimate of a range of operating hours and routes that are, or could be, serviced in the effective period of the new CHC regulation. The time period is January 1st, 2023, to December 31st, 2034. These calculations were devised to show that the ACE plan as proposed by WETA provides for

equal to or less emissions than the CARB CHC baseline calculations for each scenario considered. The two scenarios have been chosen to show that the plan is robust and will outperform CARB's requirements throughout a range of operating scenarios.

The calculations were also intended to show a margin between the ACE emissions and the CARB baseline emissions. In both the low use and high use scenarios the calculations proved that WETA's alternative compliance plan will provide for less emissions than what CARB is regulating CHC to. In the low use scenario, the ACE plan provides a 16.6% reduction in emission (NOx+PM) when compared to the CARB CHC low use baseline. In the high use scenario, the ACE plan provides a 22.8% reduction in emissions when compared to the CARB CHC high use baseline. The high use case sees substantial emissions reductions, even over the low use case by relying heavily on the use of battery electric drive vessels which are expected to see substantial improvements in vessel reliability. The predicted reductions in overall fleetwide emissions are substantially beyond what the regulation requires, notably achieved while executing a capital plan that is aggressive but realistic.

Given the reduction of emissions compared to the CHC rules, WETA does not intend to apply for any further vessel compliance extensions upon approval of this ACE plan.

WETA is achieving these reductions but undertaking a program to electrify their routes where it is reasonable. WETA has expended considerable effort to determine the phases that these routes can be logically converted to full battery electric operation and has started the implementation program. This program offered WETA and CARB the largest emissions reductions in a manner that was both possible and fiscally obtainable. The baseline compliance as detailed in the CHC regulations was not possible for WETA to achieve with the assets currently in their fleet. The proposal as detailed in this Alternative Control of Emission plan is possible and offers what WETA believes to be the best path forward with the most responsible use of the public funding available to WETA.

Any inquiries or further clarifications regarding this ACE plan should be directed to:

Jan Rybka
SF Bay Ferry / Water Emergency Transportation Authority
Senior Marine Project Manager
rybka@watertransit.org
510.847.4461

## Appendix 1: Detailed Calculation Columns Description

Column A – Vessel This Column contains the subject vessel name for the row being calculated. The vessel name is repeated for each row that corresponds to either a propulsion or auxiliary engine for that vessel. As an example, the first vessel Gemini, has four rows, one for each of the two propulsion engines and one for each of the two auxiliary engines.

You will note that the vessel name changes on subsequent sections from Gemini to Gemini DPF. The rows where the name has changed to Gemini DPF signifying changes to the subject engines to comply with CARB CHC regulations. The subject engine will be EPA Tier 3 or 4 +DPF based on the highest emissions tier available today. You will also note some vessels have two configurations and some have three. This is based on the compliance dates for the propulsion and auxiliary engines. Where those two classifications of engines do not have the same compliance year the repower to the CARB compliant engine and emissions systems are staggered to strictly align with the compliance timelines provided in the regulations.

Finally, in Column A you will note that after each configuration of the vessel there is a separator line labeled Gemini Annual Hours as an example. These annual hours are input further over to the right in columns U through AG. Those hours are the hours operated that calendar year under that emissions configuration.

Column B – Type This column contains the identification of the engines for that row. Engines are identified as Main or Aux. Main engines are propulsion engines used to move the vessel through the water. Aux is short for Auxiliary engines which are used to generate electrical energy for the vessels support systems.

Column C – OEM This column contains the common name of the engine original equipment manufacturer. While the name used here may not be the full legal names of the OEM it is enough for someone familiar with heavy-duty off-road diesel engine manufacturers. Where future repowers or new builds do not have a clear direction TBD is used in this column to signify the exact equipment cannot be chosen at this time. The horsepower levels are estimated to the best of our ability based off the current craft, planned craft and engineering analysis.

At the summary row below each vessel configuration Column C has a label of “Gen Hour Factor”. This is the percentage of main engine running hours that the generators are running. There are always two generators on each vessel with only one running at a time therefore the running hours are not equal to the main engine running hours. There will be more description in the Column D section for the number.

Column D – Model This column contains the model number of the engine for that row. Where future repowers or new builds do not have a clear direction TBD is used in this column to signify the exact equipment cannot be chosen at this time.

At the summary row below each vessel configuration Column D has the “Gen Hour Factor” number input. This is the factor multiplied against the main engine operating hours to represent the generator operating hours. There are two generators with only one running at a time. However, the generator often runs when the main engines are offline during layovers. Each vessel configuration has a section for a specific factor, however looking at the historical data all the vessels currently have their generators running about 2/3$^{rds}$ of their main engine operating hours. This was left in each vessel configuration in case any of the operators using this format intend to employ alternative or hybrid generator scenarios that might change this factor for the different vessel configurations.

Column E – Engine Family This column contains the EPA engine family number where it is known. Where future repowers or new builds do not have a clear direction TBD is used in this column to signify the exact equipment cannot be chosen at this time or future changes to EPA family numbers are possible.

Column F – Year This column contains the year the subject engine was manufacturer according to the tag on the engine block.

Column G – HP This column contains the rated horsepower of the subject engine.

Column H – EPA Tier This column contains the EPA emission Tier that the subject engine has or will have in the case of future new builds or repowers.

Column I – Compliance Year This column contains the compliance year for the subject engine based on the year of manufacture and Table 14 or Table 17 from CHC regulation.

Column J – Baseline 2yr ext. This column contains the year repower has to take place based on ACE plan guidance of 2 years of extensions from the compliance dates in Column I.

Column K – NOx g/bhp-hr This column contains the mass of Nitrous Oxides emissions from the subject engine in grams per brake horsepower hour. These values are sourced from CARB's ISOR Appendix H table H-5 based on engine EPA emissions Tier rating and horsepower bin as defined by CARB. These values are used as this is the standard that CARB used in their calculations to justify these new CHC regulations. The emissions values from this table are applied for all engines, including CARB Tier4+DPF and Tier3+DPF engines as values in Table 12 of the CHC regulations are less conservative and integrate Hydro Carbon emissions into the NOx emission numbers. Use of these emission numbers was agreed upon during WETA's meeting with CARB on 13 March 2023 and documented in the meeting notes sent via email on that day. If any further definition is required as to the source of these values, please refer to ISOR Appendix H from the Proposed Amendments to the CHC Regulation for CARB's explanations.

Column L – LF ISOR Appendix H Table H-9 This column contains the Load Factors for the propulsion and auxiliary engines used in the calculations. These values are sourced from CARB's ISOR Appendix H table H-9 based on CARB's review of all the Ferries. These LF's have been reviewed and represent a very good average LF for WETA's ferry operations. Some routes have higher LF's, and some routes have lower LF's. Since no one vessel is dedicated to any one specific route the CARB LF's are used in the calculations as WETA believes they represent the best average of the fleet and the routes. If any further definition is required as to the source of these values, please refer to ISOR Appendix H from the Proposed Amendments to the CHC Regulation for CARB's explanations.

Column M – NOx R99 Reduction This column contains the percentage reduction of NOx emissions per engine EPA emissions tiers as outlined in ISOR Appendix E and applied per WETA's meeting with CARB on 13 March 2023 and documented in the meeting notes sent via email on that day.

Column N – NOx Emissions lbs./hr This column contains the calculated NOx emission in pounds per hour for the subject engine in that row. This is calculated by multiplying the columns G, K, L, and (1-M) by the ratio of pounds per gram 0.0220462.

Column O – NOx eGrid Emissions lbs./hr This column contains the calculated NOx emission in pounds per hour for the subject electric prime mover. This is calculated by dividing the emissions data from the EPA eGrid for CAMX (California) region for Nitrous Oxide (NO) emissions in pounds per megawatt hour by a factor if 1340.482 to convert from megawatt hours to pounds per horsepower hours. This calculation will come into play in the ACE low and ACE high tab calculations for electric vessels. While these are zero emissions vessels at the vessel themselves

there are emissions from the power grid to charge them. Only NO is calculated as PM emission values are not provided in the eGRID reporting. It is assumed that the emissions regulations on stationary power plants has no measurable PM emissions.

Column P thru AA – 2023 -2034 NOx Emissions in lbs. These columns contain the calculated NOx emission in pounds for the subject engine or prime mover in that row for the subject year (year located in Row 2). The summary rows contain the planned operating hours for each vessel in the associated year. The emissions are calculated by multiplying the correct NOx emissions classification in lbs. per hour (either Column N or O) by the estimated operating hours for the subject year. For auxiliary engines, the hours are additionally multiplied by the generator hour factor associated with that engine. As an example, in row 3 and column P (2023) for the Gemini propulsion engine the calculated value in cell P3 is equal to N3*V7. Cell V7 is the low estimate of the operating hours for the subject vessel for the subject year on the "Baseline Low" and "Ace Low" tabs. "Baseline High" and "Ace High" tabs the estimated hours represent the high estimated operating hours.

At the bottom of the sheet there are totals in these columns for total annual NOx Emissions for the fleet, "Central Bay Hour Usage", "North Bay Hour Usage" and "Total Vessel Hour Usage". These values are calculated by summing emissions and separately the individual vessel annual hours for the subject column year that are to be allocated to the subject Operations center. This is done to help estimate total service hours, future service additions and as a check on existing service hours to ensure individual vessel annual hours are estimated accurately. The individual vessels annual operating hour allocation changes depending on a great number of factors including service levels, new routes, vessel retirement, vessel repowers and major maintenance allowances.

Column AB – NOx Emissions 2023 thru 2034, lbs. This column contains the estimated NOx emission in pounds for the subject engine or prime mover in that row for the period from January1, 2023 through December 31, 2034. This number is the summation of the values from columns P through AA for the subject row.

At the bottom of the sheet on each tab or scenario (Baseline Low, Baseline High, ACE Low and ACE High) there is a totaled emissions for all the vessels through the entire time contemplated. This number is the summation of all the values in Column AH.

Column AC – PM g/bhp-hr This column contains the mass of Particulate Matter emissions from the subject engine in grams per brake horsepower hour. These values are sourced from CARB's ISOR Appendix H table H-5 based on engine EPA emissions Tier rating and horsepower bin as defined by CARB. These values are used as this is the standard that CARB used in their calculations to justify these new CHC regulations. Use of these emission numbers was agreed upon during WETA's meeting with CARB on 13 March 2023 and documented in the meeting notes sent via email on that day. If any further definition is required as to the source of these values, please refer to ISOR Appendix H from the Proposed Amendments to the CHC Regulation for CARB's explanations.

Column AD – PM CARB Tier 4+DPF g/bhp-hr This column contains the PM emissions from the subject engine in grams per brake horsepower hour. This number is the sum of the NOx and PM emissions from Table 11 of the final CHC regulation order for EPA Tier 4 engines with the addition of a CARB Level 3 validated DPF.

Column AE – CARB Tier 3+DPF g/bhp-hr This column contains the PM emissions from the subject engine in grams per brake horsepower hour. This number is the sum of the NOx and PM emissions from Table 12 of the final CHC regulation order for EPA Tier 3 engines with the addition of a CARB Level 3 validated DPF.

Column AF – LF ISOR Appendix H Table H-9 This column contains the Load Factors for the propulsion and auxiliary engines used in the calculations. These values are sourced from CARB's ISOR Appendix H table H-9 based on CARB's review of all the Ferries. These LF's have been reviewed and represent a very good average LF for WETA's

ferry operations. Some routes have higher LF's, and some routes have lower LF's. Since no one vessel is dedicated to any one specific route the CARB LF's are used in the calculations as WETA believes they represent the best average of the fleet and the routes. If any further definition is required as to the source of these values, please refer to ISOR Appendix H from the Proposed Amendments to the CHC Regulation for CARB's explanations.

Column AG – PM R99 Reduction This column contains the percentage reduction of PM emissions per engine EPA emissions tiers as outlined in ISOR Appendix E and applied per WETA's meeting with CARB on 13 March 2023 and documented in the meeting notes sent via email on that day.

Column AH –PM Emissions lbs./hr This column contains the calculated PM emission in pounds per hour for the subject engine in that row. This is calculated by multiplying columns G, AF, (1-AG) and the applicable PM emissions rate (columns AC, AD, or AE) by the ratio of pounds per gram 0.0220462.

Column AI thru AT – 2023 -2034 PM Emissions in lbs. These columns contain the calculated PM emission in pounds for the subject engine or prime mover in that row for the subject year (year located in Row 2). The summary rows contain the planned operating hours for each vessel in the associated year. The emissions are calculated by multiplying the PM emissions classification in lbs. per hour (Column AH) by the estimated operating hours for the subject year. For auxiliary engines, the hours are additionally multiplied by the generator hour factor associated with that engine.

At the bottom of the sheet there are totals in these columns for total annual PM Emissions for the fleet, "Central Bay Hour Usage", "North Bay Hour Usage" and "Total Vessel Hour Usage". These values are calculated by summing emissions and separately the individual vessel annual hours for the subject column year that are to be allocated to the subject Operations center. This is done to help estimate total service hours, future service additions and as a check on existing service hours to ensure individual vessel annual hours are estimated accurately. The individual vessels annual operating hour allocation changes depending on a great number of factors including service levels, new routes, vessel retirement, vessel repowers and major maintenance allowances.

Column AU – PM Emissions 2023 thru 2034, lbs. This column contains the estimated PM emission in pounds for the subject engine or prime mover in that row for the period from January1, 2023 through December 31, 2034. This number is the summation of the values from columns P through AA for the subject row.

At the bottom of the sheet on each tab or scenario (Baseline Low, Baseline High, ACE Low and ACE High) there is a totaled emissions for all the vessels through the entire time contemplated. This number is the summation of all the values in Column AH.

Column AV – Total Emissions 2023 thru 2034, lbs. This column contains the Total estimated emission (NOx + PM) in pounds for the subject engine or prime mover in that row for the period from January1, 2023 through December 31, 2034. This number is the summation of the values from columns AB and AU for the subject row.

At the bottom of the sheet on each tab or scenario (Baseline Low, Baseline High, ACE Low and ACE High) there is a totaled emissions for all the vessels through the entire time contemplated. This number is the summation of all the values in Column AV.

Appendix 2: Attestations

# Application for Alternative Control of Emissions (ACE) for the Commercial Harbor Craft Regulation

## Attestations

| Confirm each of the following statement by selecting TRUE from the dropdown menu to the left of each statement. | |
|---|---|
| **True** | I, an authorized representative of San Francisco Bay Ferry / Water Emergency Transportation Authority, attest to the veracity of the information submitted in the ACE application packet and declaring that the information submitted accurately represents the actual and/or intended long-term operation of the ACE plan described in the application packet. |
| **True** | Emission reductions included in this ACE only includes diesel PM and NOx emissions from harbor craft within the applicant's fleet that operate within a single specified California air basin, or another defined geographic area approved by the E.O<br><br>*93118.5 section (f)(1)(G)* |
| **True** | Applicant will maintain operating records of:<br>1. all the reporting and recordkeeping requirements specified in subsection (m) and (o) on and after January 1, 2023;<br>2. maintenance procedures; and<br>3. emissions test results<br><br>*93118.5 section (f)(1)(H)* |
| **True** | Applicant will retain records and reports for the lifetime of each engine and must submit these records and reports to the E.O. in the manner specified in the approved ACE or upon request by the E.O.<br><br>*93118.5 section (f)(1)(H)* |
| **True** | Emission reductions included in this ACE does not include reductions that are otherwise required by any local, State, or federal rule, regulation, or statute, or that are achieved or estimated from equipment not located in the region to which the ACE applies.<br><br>*93118.5 section (f)(1)(I)* |
| **True** | The ACE application does not use equipment acquired by funds or grants that prohibit use of funds to comply with State regulations, laws, or mandates.<br><br>*93118.5 section (f)(1)(I)* |
| **True** | Applicant will not operate any harbor craft under the ACE unless the person has first been notified in writing by the E.O. of the ACE's approval. Prior to such approval, the applicant must comply with the requirements in the CHC regulation on and after January 1, 2023.<br><br>*93118.5 section (f)(1)(J)* |

Appendix 3

WETA ACE Plan - Baseline Low Calculations

| | | | | | | | | | | ISOR Appendix H Table H-5 | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | | ISOR Appendix H Table H-5 | CHC Regulation Table 11 | | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vessel | Type | OEM | Model | Engine Family | Year | HP | EPA Tier | Compliance Year | baseline 2yr ext | NOx g/bhp-hr | CARB LF ISOR Appendix H Table H-9 | NOx R99 Reductions | NOx Emissions lbs/hr | NOx eGrid Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | NOx Emissions 2023 thru 2034, lbs | PM g/bhp-hr | PM CARB Tier 4+ DPF g/bhp-hr | PM CARB Tier 3+ DPF g/bhp-hr | CARB LF ISOR appendix H Table H-9 | PM R99 Reductions | PM Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | PM Emissions 2023 thru 2034, lbs | Total Emissions 2023 thru 2034, lbs |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 1,546 | 1,546 | 1,546 | - | - | - | - | - | - | - | - | **6,699** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 31 | 31 | 31 | - | - | - | - | - | - | - | - | **135** | **6,834** |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 1,546 | 1,546 | 1,546 | - | - | - | - | - | - | - | - | **6,699** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 31 | 31 | 31 | - | - | - | - | - | - | - | - | **135** | **6,834** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 271 | 271 | 271 | - | - | - | - | - | - | - | - | **1,173** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 9 | 9 | 9 | - | - | - | - | - | - | - | - | **39** | **1,211** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 271 | 271 | 271 | - | - | - | - | - | - | - | - | **1,173** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 9 | 9 | 9 | - | - | - | - | - | - | - | - | **39** | **1,211** |
| **Gemini Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 1,500 | 1,500 | 1,500 | | | | | | | | | | | | | | | | | 2,000 | 1,500 | 1,500 | 1,500 | - | - | - | - | - | - | - | - | |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 1,546 | 2,061 | - | - | - | - | **5,411** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 31 | 42 | - | - | - | - | **109** | **5,520** |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 1,546 | 2,061 | - | - | - | - | **5,411** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 31 | 42 | - | - | - | - | **109** | **5,520** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **843** | | | | 0.31 | 30% | 0.00097 | - | - | - | - | 0 | 1 | 1 | 1 | - | - | - | - | **3** | **846** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **843** | | | | 0.31 | 30% | 0.00097 | - | - | - | - | 0 | 1 | 1 | 1 | - | - | - | - | **3** | **846** |
| **Gemini 1/2 DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | 750 | 1,000 | 1,500 | 2,000 | | | | | | | | | | | | | - | - | - | - | 750 | 1,000 | 1,500 | 2,000 | - | - | - | - | |
| **Gemini DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 515 | **4,122** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 2 | **20** | **4,142** |
| **Gemini DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 515 | **4,122** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 2 | **20** | **4,142** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 161 | 241 | 161 | 80 | **642** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 0 | **3** | **645** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 161 | 241 | 161 | 80 | **642** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 0 | **3** | **645** |
| **Gemini DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 1,000 | 1,500 | 1,000 | 500 | | | | | | | | | - | - | - | - | - | - | - | 1,000 | 1,500 | 1,000 | 500 | |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 1,546 | 1,546 | 1,288 | - | - | - | - | - | - | - | - | **6,441** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 31 | 31 | 26 | - | - | - | - | - | - | - | - | **130** | **6,571** |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 1,546 | 1,546 | 1,288 | - | - | - | - | - | - | - | - | **6,441** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 31 | 31 | 26 | - | - | - | - | - | - | - | - | **130** | **6,571** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 271 | 271 | 226 | - | - | - | - | - | - | - | - | **1,128** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 9 | 9 | 7 | - | - | - | - | - | - | - | - | **37** | **1,165** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 271 | 271 | 226 | - | - | - | - | - | - | - | - | **1,128** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 9 | 9 | 7 | - | - | - | - | - | - | - | - | **37** | **1,165** |
| **Pisces Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 1,500 | 1,500 | 1,250 | | | | | | | | | | | | | | | | | 2,000 | 1,500 | 1,500 | 1,250 | - | - | - | - | - | - | - | - | |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 1,546 | 2,061 | - | - | - | - | **5,411** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 31 | 42 | - | - | - | - | **109** | **5,520** |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 1,546 | 2,061 | - | - | - | - | **5,411** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 31 | 42 | - | - | - | - | **109** | **5,520** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **843** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 0 | 1 | 1 | 1 | - | - | - | - | **3** | **846** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **843** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 0 | 1 | 1 | 1 | - | - | - | - | **3** | **846** |
| **Pisces 1/2 DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | 750 | 1,000 | 1,500 | 2,000 | | | | | | | | | | | | | - | - | - | - | 750 | 1,000 | 1,500 | 2,000 | - | - | - | - | |
| **Pisces DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 1,031 | **4,638** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 5 | **22** | **4,660** |
| **Pisces DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 1,031 | **4,638** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 5 | **22** | **4,660** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **723** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | **3** | **726** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **723** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | **3** | **726** |
| **Pisces DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 1,000 | 1,500 | 1,000 | 1,000 | | | | | | | | | - | - | - | - | - | - | - | 1,000 | 1,500 | 1,000 | 1,000 | |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,061 | 1,546 | 1,288 | - | - | - | - | - | - | - | - | **6,957** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 42 | 31 | 26 | - | - | - | - | - | - | - | - | **140** | **7,097** |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,061 | 1,546 | 1,288 | - | - | - | - | - | - | - | - | **6,957** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 42 | 31 | 26 | - | - | - | - | - | - | - | - | **140** | **7,097** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 361 | 271 | 226 | - | - | - | - | - | - | - | - | **1,218** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 12 | 9 | 7 | - | - | - | - | - | - | - | - | **40** | **1,258** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 361 | 271 | 226 | - | - | - | - | - | - | - | - | **1,218** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 12 | 9 | 7 | - | - | - | - | - | - | - | - | **40** | **1,258** |
| **Scorpio Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,000 | 1,500 | 1,250 | | | | | | | | | | | | | | | | | 2,000 | 2,000 | 1,500 | 1,250 | - | - | - | - | - | - | - | - | |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 2,061 | 2,061 | - | - | - | - | **5,926** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 42 | 42 | - | - | - | - | **120** | **6,046** |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 2,061 | 2,061 | - | - | - | - | **5,926** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 42 | 42 | - | - | - | - | **120** | **6,046** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 321 | 321 | - | - | - | - | **923** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 0 | 1 | 1 | 1 | - | - | - | - | **4** | **927** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 321 | 321 | - | - | - | - | **923** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 0 | 1 | 1 | 1 | - | - | - | - | **4** | **927** |
| **Scorpio 1/2 DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | 750 | 1,000 | 2,000 | 2,000 | | | | | | | | | | | | | - | - | - | - | 750 | 1,000 | 2,000 | 2,000 | - | - | - | - | |
| **Scorpio DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 1,031 | **4,638** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 5 | **22** | **4,660** |
| **Scorpio DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 1,031 | **4,638** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 5 | **22** | **4,660** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **723** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | **3** | **726** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 241 | 321 | - | - | - | - | **723** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | **3** | **726** |
| **Scorpio DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 1,000 | 1,500 | 1,000 | 1,000 | | | | | | | | | - | - | - | - | - | - | - | 1,000 | 1,500 | 1,000 | 1,000 | |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,061 | 1,546 | 1,546 | - | - | - | - | - | - | - | - | **7,214** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 42 | 31 | 31 | - | - | - | - | - | - | - | - | **146** | **7,360** |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,061 | 1,546 | 1,546 | - | - | - | - | - | - | - | - | **7,214** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 42 | 31 | 31 | - | - | - | - | - | - | - | - | **146** | **7,360** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 361 | 271 | 271 | - | - | - | - | - | - | - | - | **1,263** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 12 | 9 | 9 | - | - | - | - | - | - | - | - | **42** | **1,305** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 361 | 271 | 271 | - | - | - | - | - | - | - | - | **1,263** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 12 | 9 | 9 | - | - | - | - | - | - | - | - | **42** | **1,305** |
| **Taurus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,000 | 1,500 | 1,500 | | | | | | | | | | | | | | | | | 2,000 | 2,000 | 1,500 | 1,500 | - | - | - | - | - | - | - | - | |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 2,577 | 2,061 | - | - | - | - | **6,441** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 52 | 42 | - | - | - | - | **130** | **6,571** |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 773 | 1,031 | 2,577 | 2,061 | - | - | - | - | **6,441** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 16 | 21 | 52 | 42 | - | - | - | - | **130** | **6,571** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 401 | 321 | - | - | - | - | **1,004** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 0 | 1 | 2 | 1 | - | - | - | - | **4** | **1,008** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 120 | 161 | 401 | 321 | - | - | - | - | **1,004** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 0 | 1 | 2 | 1 | - | - | - | - | **4** | **1,008** |
| **Taurus 1/2 DPF Hours** | | Gen Hour Factor | .667 | | | | | | | | | | | Annual Hours | | | | | 750 | 1,000 | 2,500 | 2,000 | | | | | | | | | | | | | - | - | - | - | 750 | 1,000 | 2,500 | 2,000 | - | - | - | - | |
| **Taurus DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 2,061 | **5,668** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 10 | **27** | **5,696** |
| **Taurus DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 1,031 | 1,546 | 1,031 | 2,061 | **5,668** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 5 | 7 | 5 | 10 | **27** | **5,696** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 161 | 241 | 161 | 321 | **883** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | **4** | **887** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 161 | 241 | 161 | 321 | **883** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 1 | 1 | 1 | **4** | **887** |
| **Taurus DPF Hours** | | Gen Hour Factor | .667 | | | | | | | | | | | Annual Hours | | | | | | | | | 1,000 | 1,500 | 1,000 | 2,000 | | | | | | | | | - | - | - | - | - | - | - | 1,000 | 1,500 | 1,000 | 2,000 | |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 12,171 | 12,171 | 11,065 | 11,065 | 13,278 | 8,852 | - | - | - | - | - | - | **68,601** | 0.05 | | | 0.31 | 30% | 0.04664 | 128 | 128 | 117 | 117 | 140 | 93 | - | - | - | - | - | - | **723** | **69,324** |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 12,171 | 12,171 | 11,065 | 11,065 | 13,278 | 8,852 | - | - | - | - | - | - | **68,601** | 0.05 | | | 0.31 | 30% | 0.04664 | 128 | 128 | 117 | 117 | 140 | 93 | - | - | - | - | - | - | **723** | **69,324** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 740 | 740 | 673 | 673 | 807 | 538 | - | - | - | - | - | - | **4,171** | 0.07 | | | 0.39 | 30% | 0.00683 | 13 | 13 | 11 | 11 | 14 | 9 | - | - | - | - | - | - | **71** | **4,242** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 740 | 740 | 673 | 673 | 807 | 538 | - | - | - | - | - | - | **4,171** | 0.07 | | | 0.39 | 30% | 0.00683 | 13 | 13 | 11 | 11 | 14 | 9 | - | - | - | - | - | - | **71** | **4,242** |
| **Hydrus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,750 | 2,750 | 2,500 | 2,500 | 3,000 | 2,000 | | | | | | | | | | | | | | | 2,750 | 2,750 | 2,500 | 2,500 | 3,000 | 2,000 | - | - | - | - | - | - | |
| **Hydrus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 2,843 | 2,843 | 2,488 | 2,132 | **12,438** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 14 | 14 | 12 | 10 | 10 | **60** | **12,498** |
| **Hydrus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 2,843 | 2,843 | 2,488 | 2,132 | **12,438** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 14 | 14 | 12 | 10 | 10 | **60** | **12,498** |
| **Hydrus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 598 | 598 | 523 | 449 | **2,616** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | **11** | **2,627** |
| **Hydrus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 598 | 598 | 523 | 449 | **2,616** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | **11** | **2,627** |
| **Hydrus DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 2,000 | 2,000 | 1,750 | 1,500 | 1,500 | | | | | | | | - | - | - | - | - | - | - | 2,000 | 2,000 | 1,750 | 1,500 | 1,500 | |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 12,171 | 12,171 | 11,065 | 11,065 | 14,384 | 8,852 | - | - | - | - | - | - | **69,707** | 0.05 | | | 0.31 | 30% | 0.04664 | 128 | 128 | 117 | 117 | 152 | 93 | - | - | - | - | - | - | **735** | **70,442** |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 12,171 | 12,171 | 11,065 | 11,065 | 14,384 | 8,852 | - | - | - | - | - | - | **69,707** | 0.05 | | | 0.31 | 30% | 0.04664 | 128 | 128 | 117 | 117 | 152 | 93 | - | - | - | - | - | - | **735** | **70,442** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 740 | 740 | 673 | 673 | 875 | 538 | - | - | - | - | - | - | **4,238** | 0.07 | | | 0.39 | 30% | 0.00683 | 13 | 13 | 11 | 11 | 15 | 9 | - | - | - | - | - | - | **72** | **4,310** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 740 | 740 | 673 | 673 | 875 | 538 | - | - | - | - | - | - | **4,238** | 0.07 | | | 0.39 | 30% | 0.00683 | 13 | 13 | 11 | 11 | 15 | 9 | - | - | - | - | - | - | **72** | **4,310** |
| **Cetus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,750 | 2,750 | 2,500 | 2,500 | 3,250 | 2,000 | | | | | | | | | | | | | | | 2,750 | 2,750 | 2,500 | 2,500 | 3,250 | 2,000 | - | - | - | - | - | - | |
| **Cetus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 2,843 | 2,843 | 2,488 | 2,132 | **12,438** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 14 | 14 | 12 | 10 | 10 | **60** | **12,498** |
| **Cetus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 2,843 | 2,843 | 2,488 | 2,132 | **12,438** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 14 | 14 | 12 | 10 | 10 | **60** | **12,498** |
| **Cetus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 598 | 598 | 523 | 449 | 449 | **2,616** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | **11** | **2,627** |
| **Cetus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 598 | 598 | 523 | 449 | 449 | **2,616** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | **11** | **2,627** |
| **Cetus DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | - | 2,000 | 2,000 | 1,750 | 1,500 | 1,500 | | | | | | | | - | - | - | - | - | - | - | 2,000 | 2,000 | 1,750 | 1,500 | 1,500 | |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 8,852 | 11,065 | 14,384 | 8,852 | 2,213 | - | - | - | - | - | **71,920** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 93 | 117 | 152 | 93 | 23 | - | - | - | - | - | **758** | **72,678** |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 8,852 | 11,065 | 14,384 | 8,852 | 2,213 | - | - | - | - | - | **71,920** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 93 | 117 | 152 | 93 | 23 | - | - | - | - | - | **758** | **72,678** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 538 | 673 | 875 | 538 | 135 | - | - | - | - | - | **4,373** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 9 | 11 | 15 | 9 | 2 | - | - | - | - | - | **74** | **4,447** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 538 | 673 | 875 | 538 | 135 | - | - | - | - | - | **4,373** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 9 | 11 | 15 | 9 | 2 | - | - | - | - | - | **74** | **4,447** |
| **Argo Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 2,000 | 2,500 | 3,250 | 2,000 | 500 | | | | | | | | | | | | | | 3,000 | 3,000 | 2,000 | 2,500 | 3,250 | 2,000 | 500 | - | - | - | - | - | - | |
| **Argo DPF** | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 3,554 | 2,843 | 2,488 | 2,488 | 2,132 | **13,505** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 17 | 14 | 12 | 12 | 10 | **65** | **13,570** |
| **Argo DPF** | Main | MTU | 12V4000M65L | Unknown | 2029

# WETA ACE Plan - Baseline Low Calculations

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bay Breeze Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,000 | 250 | | | | | | | | | | | | | | | | | 2,000 | 2,000 | 250 | - | - | - | - | - | - | - | - | - | | |
| **Pyxis** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,270 | 4,270 | 4,270 | 4,880 | 7,320 | 6,100 | - | - | - | - | - | **35,991** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 86 | 86 | 86 | 99 | 148 | 123 | - | - | - | - | - | **727** | **36,718** |
| **Pyxis** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,270 | 4,270 | 4,270 | 4,880 | 7,320 | 6,100 | - | - | - | - | - | **35,991** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 86 | 86 | 86 | 99 | 148 | 123 | - | - | - | - | - | **727** | **36,718** |
| **Pyxis** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 712 | 712 | 712 | 814 | 1,221 | 1,017 | - | - | - | - | - | **6,003** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 12 | 12 | 12 | 14 | 21 | 17 | - | - | - | - | - | **101** | **6,104** |
| **Pyxis** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 712 | 712 | 712 | 814 | 1,221 | 1,017 | - | - | - | - | - | **6,003** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 12 | 12 | 12 | 14 | 21 | 17 | - | - | - | - | - | **101** | **6,104** |
| **Pyxis Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 1,750 | 1,750 | 1,750 | 2,000 | 3,000 | 2,500 | | | | | | | | | | | | | 2,000 | 1,750 | 1,750 | 1,750 | 2,000 | 3,000 | 2,500 | - | - | - | - | - | | |
| **Pyxis+DPF** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 2,440 | 4,880 | 8,540 | 6,100 | 4,880 | **26,841** | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 12 | 23 | 41 | 29 | 23 | **129** | **26,970** |
| **Pyxis+DPF** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 2,440 | 4,880 | 8,540 | 6,100 | 4,880 | **26,841** | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 12 | 23 | 41 | 29 | 23 | **129** | **26,970** |
| **Pyxis+DPF** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 452 | 904 | 1,583 | 1,131 | 904 | **4,974** | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 2 | 4 | 6 | 5 | 4 | **20** | **4,994** |
| **Pyxis+DPF** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 452 | 904 | 1,583 | 1,131 | 904 | **4,974** | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 2 | 4 | 6 | 5 | 4 | **20** | **4,994** |
| **Pyxis+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | - | | | 1,000 | 2,000 | 3,500 | 2,500 | 2,000 | | | | | | | | - | - | - | - | - | - | - | 1,000 | 2,000 | 3,500 | 2,500 | 2,000 | | |
| **Vela** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 3,660 | 4,270 | 4,270 | 5,490 | 7,320 | 6,710 | - | - | - | - | - | **36,601** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 74 | 86 | 86 | 111 | 148 | 135 | - | - | - | - | - | **739** | **37,340** |
| **Vela** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 3,660 | 4,270 | 4,270 | 5,490 | 7,320 | 6,710 | - | - | - | - | - | **36,601** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 74 | 86 | 86 | 111 | 148 | 135 | - | - | - | - | - | **739** | **37,340** |
| **Vela** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 610 | 712 | 712 | 916 | 1,221 | 1,119 | - | - | - | - | - | **6,105** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 10 | 12 | 12 | 15 | 21 | 19 | - | - | - | - | - | **103** | **6,208** |
| **Vela** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 610 | 712 | 712 | 916 | 1,221 | 1,119 | - | - | - | - | - | **6,105** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 10 | 12 | 12 | 15 | 21 | 19 | - | - | - | - | - | **103** | **6,208** |
| **Vela Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 1,500 | 1,750 | 1,750 | 2,250 | 3,000 | 2,750 | | | | | | | | | | | | | 2,000 | 1,500 | 1,750 | 1,750 | 2,250 | 3,000 | 2,750 | - | - | - | - | - | | |
| **Vela+DPF** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 2,440 | 7,320 | 8,540 | 6,100 | 6,710 | **31,111** | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 12 | 35 | 41 | 29 | 32 | **150** | **31,260** |
| **Vela+DPF** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 2,440 | 7,320 | 8,540 | 6,100 | 6,710 | **31,111** | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 12 | 35 | 41 | 29 | 32 | **150** | **31,260** |
| **Vela+DPF** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 452 | 1,357 | 1,583 | 1,131 | 1,244 | **5,766** | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 2 | 5 | 6 | 5 | 5 | **23** | **5,789** |
| **Vela+DPF** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 452 | 1,357 | 1,583 | 1,131 | 1,244 | **5,766** | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 2 | 5 | 6 | 5 | 5 | **23** | **5,789** |
| **Vela+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | - | | | 1,000 | 3,000 | 3,500 | 2,500 | 2,750 | | | | | | | | - | - | - | - | - | - | - | 1,000 | 3,000 | 3,500 | 2,500 | 2,750 | | |
| **Lyra** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 3,660 | 4,880 | 4,270 | 5,490 | 6,100 | 6,710 | - | - | - | - | - | **35,991** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 74 | 99 | 86 | 111 | 123 | 135 | - | - | - | - | - | **727** | **36,718** |
| **Lyra** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 3,660 | 4,880 | 4,270 | 5,490 | 6,100 | 6,710 | - | - | - | - | - | **35,991** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 74 | 99 | 86 | 111 | 123 | 135 | - | - | - | - | - | **727** | **36,718** |
| **Lyra** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 610 | 814 | 712 | 916 | 1,017 | 1,119 | - | - | - | - | - | **6,003** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 10 | 14 | 12 | 15 | 17 | 19 | - | - | - | - | - | **101** | **6,104** |
| **Lyra** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 610 | 814 | 712 | 916 | 1,017 | 1,119 | - | - | - | - | - | **6,003** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 10 | 14 | 12 | 15 | 17 | 19 | - | - | - | - | - | **101** | **6,104** |
| **Lyra Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 1,500 | 2,000 | 1,750 | 2,250 | 2,500 | 2,750 | | | | | | | | | | | | | 2,000 | 1,500 | 2,000 | 1,750 | 2,250 | 2,500 | 2,750 | - | - | - | - | - | | |
| **Lyra+DPF** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 2,440 | 7,320 | 8,540 | 6,100 | 6,710 | **31,111** | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 12 | 35 | 41 | 29 | 32 | **150** | **31,260** |
| **Lyra+DPF** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 2,440 | 7,320 | 8,540 | 6,100 | 6,710 | **31,111** | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 12 | 35 | 41 | 29 | 32 | **150** | **31,260** |
| **Lyra+DPF** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 452 | 1,357 | 1,583 | 1,131 | 1,244 | **5,766** | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 2 | 5 | 6 | 5 | 5 | **23** | **5,789** |
| **Lyra+DPF** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 452 | 1,357 | 1,583 | 1,131 | 1,244 | **5,766** | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 2 | 5 | 6 | 5 | 5 | **23** | **5,789** |
| **Lyra+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | - | | | 1,000 | 3,000 | 3,500 | 2,500 | 2,750 | | | | | | | | - | - | - | - | - | - | - | 1,000 | 3,000 | 3,500 | 2,500 | 2,750 | | |
| **Intintoli** | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2010 | 3,433 | 2 | 2025 | 2027 | 5.08 | 0.31 | 10% | 10.73 | | 26,817 | 26,817 | 26,817 | 24,136 | 10,727 | - | - | - | - | - | - | - | **115,315** | 0.09 | | | 0.31 | 30% | 0.14781 | 370 | 370 | 370 | 333 | 148 | - | - | - | - | - | - | - | **1,589** | **116,903** |
| **Intintoli** | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 10.73 | | 26,817 | 26,817 | 26,817 | 24,136 | 10,727 | - | - | - | - | - | - | - | **115,315** | 0.09 | | | 0.31 | 30% | 0.14781 | 370 | 370 | 370 | 333 | 148 | - | - | - | - | - | - | - | **1,589** | **116,903** |
| **Intintoli** | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 584 | 584 | 584 | 526 | 234 | - | - | - | - | - | - | - | **2,512** | 0.11 | | | 0.39 | 30% | 0.00993 | 17 | 17 | 17 | 15 | 7 | - | - | - | - | - | - | - | **71** | **2,583** |
| **Intintoli** | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 584 | 584 | 584 | 526 | 234 | - | - | - | - | - | - | - | **2,512** | 0.11 | | | 0.39 | 30% | 0.00993 | 17 | 17 | 17 | 15 | 7 | - | - | - | - | - | - | - | **71** | **2,583** |
| **Intintoli Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,500 | 2,500 | 2,250 | 1,000 | | | | | | | | | | | | | | | 2,500 | 2,500 | 2,500 | 2,250 | 1,000 | - | - | - | - | - | - | - | | |
| **Mare Island** | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 10.73 | | 26,817 | 26,817 | 26,817 | 10,727 | - | - | - | - | - | - | - | - | **91,179** | 0.09 | | | 0.31 | 30% | 0.14781 | 370 | 370 | 370 | 148 | - | - | - | - | - | - | - | - | **1,256** | **92,435** |
| **Mare Island** | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 10.73 | | 26,817 | 26,817 | 26,817 | 10,727 | - | - | - | - | - | - | - | - | **91,179** | 0.09 | | | 0.31 | 30% | 0.14781 | 370 | 370 | 370 | 148 | - | - | - | - | - | - | - | - | **1,256** | **92,435** |
| **Mare Island** | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2010 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 584 | 584 | 584 | 234 | - | - | - | - | - | - | - | - | **1,986** | 0.11 | | | 0.39 | 30% | 0.00993 | 17 | 17 | 17 | 7 | - | - | - | - | - | - | - | - | **56** | **2,043** |
| **Mare Island** | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 584 | 584 | 584 | 234 | - | - | - | - | - | - | - | - | **1,986** | 0.11 | | | 0.39 | 30% | 0.00993 | 17 | 17 | 17 | 7 | - | - | - | - | - | - | - | - | **56** | **2,043** |
| **Mare Island Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,500 | 2,500 | 1,000 | - | | | | | | | | | | | | | | | 2,500 | 2,500 | 2,500 | 1,000 | - | - | - | - | - | - | - | - | | |
| **Dorado** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 1.83 | | 4,576 | 3,203 | 5,491 | 4,576 | 5,491 | 5,491 | 5,491 | - | - | - | - | - | **34,317** | 0.03 | | | 0.31 | 30% | 0.03696 | 92 | 65 | 111 | 92 | 111 | 111 | 111 | - | - | - | - | - | **693** | **35,010** |
| **Dorado** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 1.83 | | 4,576 | 3,203 | 5,491 | 4,576 | 5,491 | 5,491 | 5,491 | - | - | - | - | - | **34,317** | 0.03 | | | 0.31 | 30% | 0.03696 | 92 | 65 | 111 | 92 | 111 | 111 | 111 | - | - | - | - | - | **693** | **35,010** |
| **Dorado** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.37 | | 615 | 430 | 738 | 615 | 738 | 738 | 738 | - | - | - | - | - | **4,610** | 0.07 | | | 0.39 | 30% | 0.00624 | 10 | 7 | 12 | 10 | 12 | 12 | 12 | - | - | - | - | - | **78** | **4,688** |
| **Dorado** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.37 | | 615 | 430 | 738 | 615 | 738 | 738 | 738 | - | - | - | - | - | **4,610** | 0.07 | | | 0.39 | 30% | 0.00624 | 10 | 7 | 12 | 10 | 12 | 12 | 12 | - | - | - | - | - | **78** | **4,688** |
| **Dorado Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 1,750 | 3,000 | 2,500 | 3,000 | 3,000 | 3,000 | | | | | | | | | | | | | 2,500 | 1,750 | 3,000 | 2,500 | 3,000 | 3,000 | 3,000 | - | - | - | - | - | | |
| **Dorado+DPF** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | 1,373 | 3,660 | 5,491 | 4,576 | 4,576 | **19,675** | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | 7 | 18 | 26 | 22 | 22 | **95** | **19,770** |
| **Dorado+DPF** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | 1,373 | 3,660 | 5,491 | 4,576 | 4,576 | **19,675** | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | 7 | 18 | 26 | 22 | 22 | **95** | **19,770** |
| **Dorado+DPF** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | 205 | 546 | 819 | 683 | 683 | **2,937** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | 1 | 2 | 3 | 3 | 3 | **12** | **2,948** |
| **Dorado+DPF** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | 205 | 546 | 819 | 683 | 683 | **2,937** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | 1 | 2 | 3 | 3 | 3 | **12** | **2,948** |
| **Dorado+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | 750 | 2,000 | 3,000 | 2,500 | 2,500 | | | | | | | | - | - | - | - | - | - | - | 750 | 2,000 | 3,000 | 2,500 | 2,500 | | |
| **Dephinus** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4 | 2029 | 2031 | 1.04 | 0.31 | 0% | 1.83 | | - | 3,660 | 5,491 | 4,576 | 5,491 | 5,491 | 5,491 | 5,948 | 3,660 | - | - | - | **39,808** | 0.03 | | | 0.31 | 30% | 0.03696 | - | 74 | 111 | 92 | 111 | 111 | 111 | 120 | 74 | - | - | - | **804** | **40,611** |
| **Dephinus** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4 | 2029 | 2031 | 1.04 | 0.31 | 0% | 1.83 | | - | 3,660 | 5,491 | 4,576 | 5,491 | 5,491 | 5,491 | 5,948 | 3,660 | - | - | - | **39,808** | 0.03 | | | 0.31 | 30% | 0.03696 | - | 74 | 111 | 92 | 111 | 111 | 111 | 120 | 74 | - | - | - | **804** | **40,611** |
| **Dephinus** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3 | 2028 | 2030 | 3.22 | 0.39 | 10% | 0.37 | | - | 492 | 738 | 615 | 738 | 738 | 738 | 799 | 492 | - | - | - | **5,347** | 0.07 | | | 0.39 | 30% | 0.00624 | - | 8 | 12 | 10 | 12 | 12 | 12 | 14 | 8 | - | - | - | **90** | **5,438** |
| **Dephinus** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3 | 2028 | 2030 | 3.22 | 0.39 | 10% | 0.37 | | - | 492 | 738 | 615 | 738 | 738 | 738 | 799 | 492 | - | - | - | **5,347** | 0.07 | | | 0.39 | 30% | 0.00624 | - | 8 | 12 | 10 | 12 | 12 | 12 | 14 | 8 | - | - | - | **90** | **5,438** |
| **Dephinus Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | 2,000 | 3,000 | 2,500 | 3,000 | 3,000 | 3,000 | 3,250 | 2,000 | | | | | | | | | | | - | 2,000 | 3,000 | 2,500 | 3,000 | 3,000 | 3,000 | 3,250 | 2,000 | - | - | - | | |
| **Dephinus+DPF** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | - | - | - | 5,491 | 5,491 | **10,981** | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | - | - | - | 26 | 26 | **53** | **11,034** |
| **Dephinus+DPF** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | - | - | - | 5,491 | 5,491 | **10,981** | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | - | - | - | 26 | 26 | **53** | **11,034** |
| **Dephinus+DPF** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | - | 819 | 819 | **1,639** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | - | 3 | 3 | **7** | **1,646** |
| **Dephinus+DPF** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | - | 819 | 819 | **1,639** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | - | 3 | 3 | **7** | **1,646** |
| **Dephinus+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | | - | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | - | - | - | - | - | 3,000 | 3,000 | | |
| **Hull 160 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 2,577 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **19,839** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 12 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **95** | **19,935** |
| **Hull 160 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 2,577 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **19,839** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 12 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **95** | **19,935** |
| **Hull 160 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 2,577 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **19,839** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 12 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **95** | **19,935** |
| **Hull 160 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 2,577 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **19,839** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 12 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **95** | **19,935** |
| **Hull 160 TBD Name** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2023 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 615 | 615 | 738 | 615 | 676 | 799 | 676 | - | - | - | **4,733** | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 10 | 10 | 12 | 10 | 11 | 14 | 11 | - | - | - | **80** | **4,813** |
| **Hull 160 TBD Name** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2023 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 615 | 615 | 738 | 615 | 676 | 799 | 676 | - | - | - | **4,733** | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 10 | 10 | 12 | 10 | 11 | 14 | 11 | - | - | - | **80** | **4,813** |
| **Hull 160 Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | 2,500 | 2,500 | 3,000 | 2,500 | 2,750 | 3,250 | 2,750 | | | | | | | | | | | - | - | 2,500 | 2,500 | 3,000 | 2,500 | 2,750 | 3,250 | 2,750 | - | - | - | | |
| **Hull 160+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 160+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 160+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 160+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 160+DPF TBD Name** | Aux | John Deere | 4045 | unknown | 2031 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 410 | 819 | 819 | **2,049** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 3 | 3 | **8** | **2,057** |
| **Hull 160+DPF TBD Name** | Aux | John Deere | 4045 | unknown | 2031 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 410 | 819 | 819 | **2,049** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 3 | 3 | **8** | **2,057** |
| **Hull 160+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | | 1,500 | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | - | - | - | - | 1,500 | 3,000 | 3,000 | | |
| **Hull 161 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **17,778** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **85** | **17,864** |
| **Hull 161 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **17,778** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **85** | **17,864** |
| **Hull 161 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **17,778** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **85** | **17,864** |
| **Hull 161 TBD Name** | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 2,577 | 3,092 | 2,577 | 2,834 | 3,350 | 2,834 | - | - | - | **17,778** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 12 | 15 | 12 | 14 | 16 | 14 | - | - | - | **85** | **17,864** |
| **Hull 161 TBD Name** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2024 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 123 | 615 | 738 | 615 | 676 | 799 | 676 | - | - | - | **4,241** | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 2 | 10 | 12 | 10 | 11 | 14 | 11 | - | - | - | **72** | **4,313** |
| **Hull 161 TBD Name** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2024 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 123 | 615 | 738 | 615 | 676 | 799 | 676 | - | - | - | **4,241** | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 2 | 10 | 12 | 10 | 11 | 14 | 11 | - | - | - | **72** | **4,313** |
| **Hull 161 Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | 500 | 2,500 | 3,000 | 2,500 | 2,750 | 3,250 | 2,750 | | | | | | | | | | | - | - | 500 | 2,500 | 3,000 | 2,500 | 2,750 | 3,250 | 2,750 | - | - | - | | |
| **Hull 161+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 161+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 161+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 161+DPF TBD Name** | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,546 | 3,092 | 3,092 | **7,730** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 7 | 15 | 15 | **37** | **7,767** |
| **Hull 161+DPF TBD Name** | Aux | John Deere | 4045 | unknown | 2025 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 410 | 819 | 819 | **2,049** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 3 | 3 | **8** | **2,057** |
| **Hull 161+DPF TBD Name** | Aux | John Deere | 4045 | unknown | 2025 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 410 | 819 | 819 | **2,049** | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 3 | 3 | **8** | **2,057** |
| **Hull 161+DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | | 1,500 | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | - | - | - | - | 1,500 | 3,000 | 3,000 | | |
| **149PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 134 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,925** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **1,925** |
| **149PAX ZEAT #1TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 134 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,925** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **1,925** |
| **149PAX ZEAT #1TBD Name** | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 5 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | **72** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **72** |
| **149PAX ZEAT #1 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | 1,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | | | | | | | - | - | - | 1,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | |
| **149PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 90 | 179 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,835** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **1,835** |
| **149PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 90 | 179 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,835** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **1,835** |
| **149PAX ZEAT #2 TBD Name** | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 3 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | **69** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **69** |
| **149PAX ZEAT #2 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | 1,000 | 2,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | | | | | | | - | - | - | 1,000 | 2,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | |
| **149PAX ZEAT #3 TBD Name** | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | - | 134 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,701** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **1,701** |
| **149PAX ZEAT #3 TBD Name** | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | - | 134 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,701** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **1,701** |
| **149PAX ZEAT #3 TBD Name** | Aux | TBD | TBD | TBD | 2026 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | - | 5 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | **64** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **64** |
| **149PAX ZEAT #3 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | 1,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | | | | | | | - | - | - | - | 1,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | |
| **400PAX DPF #1 TBD Name** | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | **29,852** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | 21 | 21 | 21 | 21 | 21 | 21 | 21 | **144** | **29,996** |
| **400PAX DPF #1 TBD Name** | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | **29,852** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | 21 | 21 | 21 | 21 | 21 | 21 | 21 | **144** | **29,996** |
| **400PAX DPF #1 TBD Name** | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | 897 | 897 | 897 | 897 | 897 | 897 | 897 | **6,279** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | **25** | **6,304** |
| **400PAX DPF #1 TBD Name** | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | 897 | 897 | 897 | 897 | 897 | 897 | 897 | **6,279** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 4 | **25** | **6,304** |
| **400PAX DPF #1 Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | |
| **400PAX DPF #2 TBD Name** | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | 4,620 | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | **25,943** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | 22 | 21 | 21 | 21 | 21 | 21 | **125** | **26,068** |
| **400PAX DPF #2 TBD Name** | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | 4,620 | 4,265 | 4,265 | 4,265 | 4,265 | 4,265 | **25,943** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | 22 | 21 | 21 | 21 | 21 | 21 | **125** | **26,068** |
| **400PAX DPF #2 TBD Name** | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | 972 | 897 | 897 | 897 | 897 | 897 | **5,460** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | **22** | **5,482** |
| **400PAX DPF #2 TBD Name** | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | 972 | 897 | 897 | 897 | 897 | 897 | **5,460** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | **22** | **5,482** |
| **400PAX DPF #2 Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | 3,250 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | - | 3,250 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Total Emissions (lbs)** | | | | | | | | | | | | | | | **320,819** | **326,587** | **304,324** | **275,956** | **240,355** | **196,165** | **153,253** | **132,599** | **147,446** | **147,762** | **148,446** | **147,917** | **2,541,629** | | | | | | | **4,607** | **4,654** | **4,352** | **3,800** | **3,139** | **2,644** | **2,135** | **1,115** | **846** | **687** | **690** | **688** | **29,355** | **2,543,853** |
| **Central Bay Hour Usage** | | | | | | | | | | | | | | | 23,500 | 23,500 | 23,500 | 25,250 | 28,000 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | | | | | | | | 23,500 | 23,500 | 23,500 | 25,250 | 28,000 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | | |
| **North Bay Hour Usage** | | | | | | | | | | | | | | | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | | | | | | | | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | | |
| **Total Vessel Hour Usage** | | | | | | | | | | | | | | | 37,000 | 37,000 | 37,000 | 38,750 | 41,500 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | | | | | | | | 37,000 | 37,000 | 37,000 | 38,750 | 41,500 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | | |

| | | | | | |
|---|---|---|---|---|---|
| **CARB T4+DPF** | T4+DPF | 0-3,700kw | C1<7L | 1.30 | 0.005 |
| **CARB T3+DPF** | T3+DPF | 0.9<Disp>1.2L | <35kw/L | 3.22 | 0.013 |

| eGRID | Elec | Nox | lbs/hp-hr | 0.000388 | 0.000 |
|---|---|---|---|---|---|
| Hydrogen | 50KW-hr of electricity per kg of H2, 55% eff 1 kg of H2 gets you 18.5kw-hr in fuel cell, 34% overall eff | | | H2 uses eGrid at load/.34 for efficiency | |
| g/kw-hr to g/bhp/hr | 0.7457 | | | | |

**Table 17: Compliance Dates for Tier 2, Tier 3, or Tier 4 Engines on Ferries (Except Short-Run Ferries), Pilot Vessels, All Tug/Towboats, and Push Boats**

| Engine Model Year and Vessel Category | Compliance Date |
|---|---|
| 2009 and earlier (Except Pilot Vessels) | 12/31/2024 |
| 2012 and Earlier Pilot Vessels | 12/31/2025 |
| 2010 – 2012 All Other Vessels* | 12/31/2025 |
| 2013 – 2015** | 12/31/2026 |
| 2016 – 2019** | 12/31/2027 |
| 2020 – 2021** | 12/31/2028 |
| 2022 and later** | 12/31/2029 |

*Ferries (Except Short-Run Ferries), All Tug/Towboats, and Push Boats. **All vessels listed in the title of this table, including ferries (except short-run), pilot, all tug/towboats, and push boats. [Note: For example, for a 2020 model year diesel engine on a tugboat operating in Regulated California Waters, the owner or operator must bring the engine into compliance with the requirements of subsection (e)(12)(C) by December 31, 2028.]

WETA ACE Plan - ACE Low Calculations

| Vessel | Type | OEM | Model | Engine Family | Year | HP | EPA Tier | Compliance Year | baseline 2yr ext | ISOR Appendix H Table H-5 | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | | | ISOR Appendix H Table H-5 | CHC Regulation Table 11 | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | NOx g/bhp-hr | CARB LF ISOR Appendix H Table H-9 | NOx R99 Reductions | NOx Emissions lbs/hr | NOx eGrid Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | NOx Emissions 2023 thru 2034, lbs | PM g/bhp-hr | PM CARB Tier 4+ DPF g/bhp-hr | PM CARB Tier 3+ DPF g/bhp-hr | CARB LF ISOR appendix H Table H-9 | PM R99 Reductions | PM Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | PM Emissions 2023 thru 2034, lbs | Total Emissions 2023 thru 2034, lbs |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 1,546 | 1,288 | 1,031 | 1,288 | 1,031 | 1,031 | 1,031 | 515 | 515 | **16,232** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 31 | 26 | 21 | 26 | 21 | 21 | 21 | 10 | 10 | **328** | **16,560** |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 1,546 | 1,288 | 1,031 | 1,288 | 1,031 | 1,031 | 1,031 | 515 | 515 | **16,232** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 31 | 26 | 21 | 26 | 21 | 21 | 21 | 10 | 10 | **328** | **16,560** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 271 | 226 | 180 | 226 | 180 | 180 | 180 | 90 | 90 | **2,842** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 9 | 7 | 6 | 7 | 6 | 6 | 6 | 3 | 3 | **93** | **2,935** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 271 | 226 | 180 | 226 | 180 | 180 | 180 | 90 | 90 | **2,842** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 9 | 7 | 6 | 7 | 6 | 6 | 6 | 3 | 3 | **93** | **2,935** |
| **Gemini Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,250 | 2,500 | 1,500 | 1,250 | 1,000 | 1,250 | 1,000 | 1,000 | 1,000 | 1,000 | 500 | 500 | | | | | | | | 2,000 | 2,250 | 2,500 | 1,500 | 1,250 | 1,000 | 1,250 | 1,000 | 1,000 | 1,000 | 500 | 500 | | |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 1,546 | 1,288 | 1,031 | 1,031 | 1,288 | 1,031 | 515 | 515 | 515 | **15,717** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 31 | 26 | 21 | 21 | 26 | 21 | 10 | 10 | 10 | **317** | **16,034** |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 1,546 | 1,288 | 1,031 | 1,031 | 1,288 | 1,031 | 515 | 515 | 515 | **15,717** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 31 | 26 | 21 | 21 | 26 | 21 | 10 | 10 | 10 | **317** | **16,034** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 271 | 226 | 180 | 180 | 226 | 180 | 90 | 90 | 90 | **2,751** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 9 | 7 | 6 | 6 | 7 | 6 | 3 | 3 | 3 | **90** | **2,842** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 271 | 226 | 180 | 180 | 226 | 180 | 90 | 90 | 90 | **2,751** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 9 | 7 | 6 | 6 | 7 | 6 | 3 | 3 | 3 | **90** | **2,842** |
| **Pisces Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,250 | 2,500 | 1,500 | 1,250 | 1,000 | 1,000 | 1,250 | 1,000 | 500 | 500 | 500 | | | | | | | | 2,000 | 2,250 | 2,500 | 1,500 | 1,250 | 1,000 | 1,000 | 1,250 | 1,000 | 500 | 500 | | |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 1,546 | 1,288 | 1,288 | 1,031 | 1,288 | 773 | 515 | 515 | 515 | **15,717** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 31 | 26 | 26 | 21 | 26 | 16 | 10 | 10 | 10 | **317** | **16,034** |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 1,546 | 1,288 | 1,288 | 1,031 | 1,288 | 773 | 515 | 515 | 515 | **15,717** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 31 | 26 | 26 | 21 | 26 | 16 | 10 | 10 | 10 | **317** | **16,034** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 271 | 226 | 226 | 180 | 226 | 135 | 90 | 90 | 90 | **2,751** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 9 | 7 | 7 | 6 | 7 | 4 | 3 | 3 | 3 | **90** | **2,842** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 271 | 226 | 226 | 180 | 226 | 135 | 90 | 90 | 90 | **2,751** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 9 | 7 | 7 | 6 | 7 | 4 | 3 | 3 | 3 | **90** | **2,842** |
| **Scorpio Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,250 | 2,500 | 1,500 | 1,250 | 1,250 | 1,000 | 1,250 | 750 | 500 | 500 | 500 | | | | | | | | 2,000 | 2,250 | 2,500 | 1,500 | 1,250 | 1,250 | 1,000 | 1,250 | 750 | 500 | 500 | | |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 2,061 | 1,288 | 1,288 | 1,031 | 1,031 | 773 | 515 | 515 | 515 | **15,975** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 42 | 26 | 26 | 21 | 21 | 16 | 10 | 10 | 10 | **323** | **16,297** |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,061 | 2,319 | 2,577 | 2,061 | 1,288 | 1,288 | 1,031 | 1,031 | 773 | 515 | 515 | 515 | **15,975** | 0.03 | | | 0.31 | 30% | 0.02081 | 42 | 47 | 52 | 42 | 26 | 26 | 21 | 21 | 16 | 10 | 10 | 10 | **323** | **16,297** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 361 | 226 | 226 | 180 | 180 | 135 | 90 | 90 | 90 | **2,797** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 12 | 7 | 7 | 6 | 6 | 4 | 3 | 3 | 3 | **92** | **2,889** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 361 | 406 | 451 | 361 | 226 | 226 | 180 | 180 | 135 | 90 | 90 | 90 | **2,797** | 0.17 | | | 0.39 | 30% | 0.00890 | 12 | 13 | 15 | 12 | 7 | 7 | 6 | 6 | 4 | 3 | 3 | 3 | **92** | **2,889** |
| **Taurus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,250 | 2,500 | 2,000 | 1,250 | 1,250 | 1,000 | 1,000 | 750 | 500 | 500 | 500 | | | | | | | | 2,000 | 2,250 | 2,500 | 2,000 | 1,250 | 1,250 | 1,000 | 1,000 | 750 | 500 | 500 | 500 | | |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | - | - | - | - | - | - | - | **59,749** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | - | - | - | - | - | - | - | **630** | **60,379** |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | - | - | - | - | - | - | - | **59,749** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | - | - | - | - | - | - | - | **630** | **60,379** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | - | - | - | - | - | - | - | **3,633** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | - | - | - | - | - | - | - | **61** | **3,694** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | - | - | - | - | - | - | - | **3,633** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | - | - | - | - | - | - | - | **61** | **3,694** |
| **Hydrus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | - | | | | | | | | | | | | | | | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | - | - | - | - | - | - | - | | |
| **Hydrus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | 0.00 | 0.2239 | - | - | - | - | - | - | 448 | 672 | 672 | 672 | 672 | 672 | **3,807** | | | | | | | | | | | | | | | | | **-** | **3,807** |
| **Hydrus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | 0.00 | 0.2239 | - | - | - | - | - | - | 448 | 672 | 672 | 672 | 672 | 672 | **3,807** | | | | | | | | | | | | | | | | | **-** | **3,807** |
| **Hydrus ZEAT** | Main | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | | 0.39 | | 0.00 | 0.0294 | - | - | - | - | - | - | 59 | 88 | 88 | 88 | 88 | 88 | **500** | | | | | | | | | | | | | | | | | **-** | **500** |
| **Hydrus ZEAT Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | - | - | - | - | - | - | 2,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | | - | - | - | - | - | - | 2,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | 8,852 | - | - | - | - | - | - | **68,601** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | 93 | - | - | - | - | - | - | **723** | **69,324** |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | 8,852 | - | - | - | - | - | - | **68,601** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | 93 | - | - | - | - | - | - | **723** | **69,324** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | 538 | - | - | - | - | - | - | **4,171** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | 9 | - | - | - | - | - | - | **71** | **4,242** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | 538 | - | - | - | - | - | - | **4,171** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | 9 | - | - | - | - | - | - | **71** | **4,242** |
| **Cetus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | 2,000 | | | | | | | | | | | | | | | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | 2,000 | - | - | - | - | - | - | | |
| **Cetus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | 448 | 672 | 672 | 672 | 672 | | **3,135** | | | | | | | | | | | | | | | | | **-** | **3,135** |
| **Cetus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | 448 | 672 | 672 | 672 | 672 | | **3,135** | | | | | | | | | | | | | | | | | **-** | **3,135** |
| **Cetus ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | - | - | 59 | 88 | 88 | 88 | 88 | | **412** | | | | | | | | | | | | | | | | | **-** | **412** |
| **Cetus ZEAT Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | | - | - | - | - | - | - | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | | |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | 12,171 | 8,852 | - | - | - | - | - | **80,772** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | 128 | 93 | - | - | - | - | - | **851** | **81,623** |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | 12,171 | 8,852 | - | - | - | - | - | **80,772** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | 128 | 93 | - | - | - | - | - | **851** | **81,623** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | 740 | 538 | - | - | - | - | - | **4,911** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | 13 | 9 | - | - | - | - | - | **83** | **4,994** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | 740 | 538 | - | - | - | - | - | **4,911** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | 13 | 9 | - | - | - | - | - | **83** | **4,994** |
| **Argo Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | 2,750 | 2,000 | | | | | | | | | | | | | | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | 2,750 | 2,000 | - | - | - | - | - | | |
| **Argo ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | 448 | 672 | 672 | 672 | | | **2,463** | | | | | | | | | | | | | | | | | **-** | **2,463** |
| **Argo ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | 448 | 672 | 672 | 672 | | | **2,463** | | | | | | | | | | | | | | | | | **-** | **2,463** |
| **Argo ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | - | - | 59 | 88 | 88 | 88 | | | **324** | | | | | | | | | | | | | | | | | **-** | **324** |
| **Argo ZEAT Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | | - | - | - | - | - | - | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | | |
| **Carina** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | 12,171 | 12,171 | 8,852 | - | - | - | - | **92,943** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | 128 | 128 | 93 | - | - | - | - | **980** | **93,923** |
| **Carina** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 13,278 | 13,278 | 11,065 | 11,065 | 11,065 | 12,171 | 12,171 | 8,852 | - | - | - | - | **92,943** | 0.05 | | | 0.31 | 30% | 0.04664 | 140 | 140 | 117 | 117 | 117 | 128 | 128 | 93 | - | - | - | - | **980** | **93,923** |
| **Carina** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2017 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | 740 | 740 | 538 | - | - | - | - | **5,651** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | 13 | 13 | 9 | - | - | - | - | **96** | **5,747** |
| **Carina** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2017 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 807 | 807 | 673 | 673 | 673 | 740 | 740 | 538 | - | - | - | - | **5,651** | 0.07 | | | 0.39 | 30% | 0.00683 | 14 | 14 | 11 | 11 | 11 | 13 | 13 | 9 | - | - | - | - | **96** | **5,747** |
| **Carina Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | 2,750 | 2,750 | 2,000 | | | | | | | | | | | | | 3,000 | 3,000 | 2,500 | 2,500 | 2,500 | 2,750 | 2,750 | 2,000 | - | - | - | - | | |
| **Carina ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | - | 448 | 672 | 672 | | | **1,792** | | | | | | | | | | | | | | | | | **-** | **1,792** |
| **Carina ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | - | 448 | 672 | 672 | | | **1,792** | | | | | | | | | | | | | | | | | **-** | **1,792** |
| **Carina ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | - | - | - | 59 | 88 | 88 | | | **235** | | | | | | | | | | | | | | | | | **-** | **235** |
| **Carina ZEAT Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | | - | - | - | - | - | - | | | | | | | | | | - | - | - | - | - | - | - | - | - | - | - | - | | |
| **Peralta** | Main | Cummins | QSK50 | 7CEXM019.AAB | 2007 | 1,600 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 5.00 | | 11,249 | 7,499 | 4,999 | 4,999 | 2,500 | 2,500 | 2,500 | - | - | - | - | - | **36,246** | 0.09 | | | 0.31 | 30% | 0.06889 | 155 | 103 | 69 | 69 | 34 | 34 | 34 | - | - | - | - | - | **499** | **36,745** |
| **Peralta** | Main | Cummins | QSK50 | 7CEXM019.AAB | 2007 | 1,600 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 5.00 | | 11,249 | 7,499 | 4,999 | 4,999 | 2,500 | 2,500 | 2,500 | - | - | - | - | - | **36,246** | 0.09 | | | 0.31 | 30% | 0.06889 | 155 | 103 | 69 | 69 | 34 | 34 | 34 | - | - | - | - | - | **499** | **36,745** |
| **Peralta** | Aux | John Deere | 4045TF275 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 406 | 271 | 180 | 180 | 90 | 90 | 90 | - | - | - | - | - | **1,308** | 0.17 | | | 0.39 | 30% | 0.00890 | 13 | 9 | 6 | 6 | 3 | 3 | 3 | - | - | - | - | - | **43** | **1,351** |
| **Peralta** | Aux | John Deere | 4045TF275 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 406 | 271 | 180 | 180 | 90 | 90 | 90 | - | - | - | - | - | **1,308** | 0.17 | | | 0.39 | 30% | 0.00890 | 13 | 9 | 6 | 6 | 3 | 3 | 3 | - | - | - | - | - | **43** | **1,351** |
| **Peralta Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,250 | 1,500 | 1,000 | 1,000 | 500 | 500 | | | | | | | | | | | | | | | 2,250 | 1,500 | 1,000 | 1,000 | 500 | 500 | 500 | - | - | - | - | - | | |
| **Bay Breeze** | Main | MTU | 16V2000M70 | 7MDDM31.8MRR | 2007 | 1,410 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 4.41 | | 5,507 | 4,406 | - | - | - | - | - | - | - | - | - | - | **9,913** | 0.09 | | | 0.31 | 30% | 0.06071 | 76 | 61 | - | - | - | - | - | - | - | - | - | - | **137** | **10,050** |
| **Bay Breeze** | Main | MTU | 16V2000M70 | 7MDDM31.8MRR | 2010 | 1,410 | 2 | 2025 | 2027 | 5.08 | 0.31 | 10% | 4.41 | | 5,507 | 4,406 | - | - | - | - | - | - | - | - | - | - | **9,913** | 0.09 | | | 0.31 | 30% | 0.06071 | 76 | 61 | - | - | - | - | - | - | - | - | - | - | **137** | **10,050** |
| **Bay Breeze** | Aux | John Deere | 4045TF270 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 226 | 180 | - | - | - | - | - | - | - | - | - | - | **406** | 0.17 | | | 0.39 | 30% | 0.00890 | 7 | 6 | - | - | - | - | - | - | - | - | - | - | **13** | **419** |
| **Bay Breeze** | Aux | John Deere | 4045TF270 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 226 | 180 | - | - | - | - | - | - | - | - | - | - | **406** | 0.17 | | | 0.39 | 30% | 0.00890 | 7 | 6 | - | - | - | - | - | - | - | - | - | - | **13** | **419** |
| **Bay Breeze Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 1,250 | 1,000 | | | | | | | | | | | | | | | | | | | 1,250 | 1,000 | - | - | - | - | - | - | - | - | - | - | | |
| **Pyxis** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,880 | 5,490 | 3,660 | 4,880 | 5,490 | 4,880 | 4,880 | 6,100 | 4,880 | 4,880 | 6,100 | **61,002** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 99 | 111 | 74 | 99 | 111 | 99 | 99 | 123 | 99 | 99 | 123 | **1,232** | **62,234** |
| **Pyxis** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,880 | 5,490 | 3,660 | 4,880 | 5,490 | 4,880 | 4,880 | 6,100 | 4,880 | 4,880 | 6,100 | **61,002** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 99 | 111 | 74 | 99 | 111 | 99 | 99 | 123 | 99 | 99 | 123 | **1,232** | **62,234** |
| **Pyxis** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 814 | 916 | 610 | 814 | 916 | 814 | 814 | 1,017 | 814 | 814 | 1,017 | **10,175** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 14 | 15 | 10 | 14 | 15 | 14 | 14 | 17 | 14 | 14 | 17 | **172** | **10,347** |
| **Pyxis** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 814 | 916 | 610 | 814 | 916 | 814 | 814 | 1,017 | 814 | 814 | 1,017 | **10,175** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 14 | 15 | 10 | 14 | 15 | 14 | 14 | 17 | 14 | 14 | 17 | **172** | **10,347** |
| **Pyxis Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,000 | 2,250 | 1,500 | 2,000 | 2,250 | 2,000 | 2,000 | 2,500 | 2,000 | 2,000 | 2,500 | | | | | | | | 2,000 | 2,000 | 2,250 | 1,500 | 2,000 | 2,250 | 2,000 | 2,000 | 2,500 | 2,000 | 2,000 | 2,500 | | |
| **Vela** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,880 | 5,490 | 3,660 | 4,880 | 4,880 | 4,880 | 6,100 | 4,880 | 4,880 | 6,100 | 4,880 | **60,392** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 99 | 111 | 74 | 99 | 99 | 99 | 123 | 99 | 99 | 123 | 99 | **1,219** | **61,611** |
| **Vela** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,880 | 5,490 | 3,660 | 4,880 | 4,880 | 4,880 | 6,100 | 4,880 | 4,880 | 6,100 | 4,880 | **60,392** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 99 | 111 | 74 | 99 | 99 | 99 | 123 | 99 | 99 | 123 | 99 | **1,219** | **61,611** |
| **Vela** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 814 | 916 | 610 | 814 | 814 | 814 | 814 | 1,017 | 814 | 814 | 1,017 | 814 | **10,073** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 14 | 15 | 10 | 14 | 14 | 14 | 17 | 14 | 14 | 17 | 14 | **170** | **10,243** |
| **Vela** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 814 | 916 | 610 | 814 | 814 | 814 | 814 | 1,017 | 814 | 814 | 1,017 | 814 | **10,073** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 14 | 15 | 10 | 14 | 14 | 14 | 17 | 14 | 14 | 17 | 14 | **170** | **10,243** |
| **Vela Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,000 | 2,000 | 2,250 | 1,500 | 2,000 | 2,000 | 2,000 | 2,000 | 2,500 | 2,000 | 2,000 | 2,500 | | | | | | | | 2,000 | 2,000 | 2,250 | 1,500 | 2,000 | 2,000 | 2,000 | 2,000 | 2,500 | 2,000 | 2,000 | 2,500 | | |
| **Lyra** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,880 | 5,490 | 4,880 | 4,270 | 4,880 | 6,100 | 4,880 | 4,880 | 6,100 | 4,880 | 4,880 | **61,002** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 99 | 111 | 99 | 86 | 99 | 123 | 99 | 99 | 123 | 99 | 99 | **1,232** | **62,234** |
| **Lyra** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 4,880 | 4,880 | 5,490 | 4,880 | 4,270 | 4,880 | 6,100 | 4,880 | 4,880 | 6,100 | 4,880 | 4,880 | **61,002** | 0.03 | | | 0.31 | 30% | 0.04927 | 99 | 99 | 111 | 99 | 86 | 99 | 123 | 99 | 99 | 123 | 99 | 99 | **1,232** | **62,234** |
| **Lyra** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 814 | 916 | 814 | 712 | 814 | 1,017 | 814 | 814 | 1,017 | 814 | 814 | **10,175** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 14 | 15 | 14 | 12 | 14 | 17 | 14 | 14 | 17 | 14 | 14 | **172** | **10,347** |
| **Lyra** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 814 | 814 | 916 | 814 | 712 | 814 | 1,017 | 814 | 814 | 1,017 | 814 | 814 | **10,175** | 0.07 | | | 0.39 | 30% | 0.01032 | 14 | 14 | 15 | 14 | 12 | 14 | 17 | 14 | 14 | 17 | 14 | 14 | **172** | **10

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hull 161 Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | 250 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | | | | | | | | - | - | 250 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | | |
| **149PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 179 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,970** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **1,970** |
| **149PAX ZEAT #1TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 179 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,970** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **1,970** |
| **149PAX ZEAT #1TBD Name** | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | **74** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **74** |
| **149PAX ZEAT #1 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | 2,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | | | | | | | - | - | - | 2,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | |
| **149PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 90 | 179 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,835** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **1,835** |
| **149PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 90 | 179 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,835** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **1,835** |
| **149PAX ZEAT #2 TBD Name** | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 3 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | **69** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **69** |
| **149PAX ZEAT #2 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | 1,000 | 2,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | | | | | | | - | - | - | 1,000 | 2,000 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | |
| **149PAX ZEAT #3 TBD Name** | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | - | 134 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,701** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **1,701** |
| **149PAX ZEAT #3 TBD Name** | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | - | 134 | 224 | 224 | 224 | 224 | 224 | 224 | 224 | **1,701** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **1,701** |
| **149PAX ZEAT #3 TBD Name** | Aux | TBD | TBD | TBD | 2026 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | - | 5 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | **64** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **64** |
| **149PAX ZEAT #3 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | 1,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | | | | | | | - | - | - | - | 1,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 | | |
| **400PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2028 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | 448 | 672 | 672 | 672 | 672 | 672 | 672 | 672 | **5,151** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **5,151** |
| **400PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2028 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | 448 | 672 | 672 | 672 | 672 | 672 | 672 | 672 | **5,151** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **5,151** |
| **400PAX ZEAT #1 TBD Name** | Aux | TBD | TBD | TBD | 2028 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | 59 | 88 | 88 | 88 | 88 | 88 | 88 | 88 | **677** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **677** |
| **400PAX ZEAT #1 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | - | 2,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | - | - | - | - | 2,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | |
| **400PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2029 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | 448 | 672 | 672 | 672 | 672 | 672 | 672 | **4,479** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **4,479** |
| **400PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2029 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | 448 | 672 | 672 | 672 | 672 | 672 | 672 | **4,479** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **4,479** |
| **400PAX ZEAT #2 TBD Name** | Aux | TBD | TBD | TBD | 2029 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | - | 59 | 88 | 88 | 88 | 88 | 88 | 88 | **588** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | **588** |
| **400PAX ZEAT #2 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | - | 2,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | 2,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Total Emissions (lbs)** | | | | | | | | | | | | | | | **320,982** | **260,034** | **241,670** | **233,924** | **213,405** | **182,311** | **153,258** | **124,293** | **104,523** | **95,229** | **92,419** | **92,419** | **2,114,467** | | | | | | | **4,584** | **3,812** | **3,586** | **3,134** | **2,811** | **2,430** | **2,085** | **1,742** | **1,484** | **1,266** | **1,198** | **1,198** | **29,329** | **2,143,796** |
| **Central Bay Hour Usage** | | | | | | | | | | | | | | | 23,500 | 23,500 | 23,500 | 25,250 | 28,000 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | | | | | | | | 23,500 | 23,500 | 21,000 | 25,250 | 28,000 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | 29,500 | | |
| **North Bay Hour Usage** | | | | | | | | | | | | | | | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | | | | | | | | 13,500 | 13,500 | 16,000 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | 13,500 | | |
| **Total Vessel Hour Usage** | | | | | | | | | | | | | | | 37,000 | 37,000 | 37,000 | 38,750 | 41,500 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | | | | | | | | 37,000 | 37,000 | 37,000 | 38,750 | 41,500 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | | |

| | | | | | |
|---|---|---|---|---|---|
| **CARB T4+DPF** | T4+DPF | 0-3,700kw | C1<7L | 1.30 | 0.005 |
| **CARB T3+DPF** | T3+DPF | 0.9<Disp>1.2L | <35kw/L | 3.22 | 0.013 |
| **eGRID** | Elec | Nox | lbs/hp-hr | 0.000388 | 0.000 |
| **Hydrogen** | 50kW-hr of electricity per kg of H2, 55% eff 1 kg of H2 gets you 18.5kw-hr in fuel cell, 34% overall eff | | | H2 uses eGrid at load/.34 for efficiency | |
| **g/kw-hr to g/bhp/hr** | 0.7457 | | | | |

## Table 17: Compliance Dates for Tier 2, Tier 3, or Tier 4 Engines on Ferries (Except Short-Run Ferries), Pilot Vessels, All Tug/Towboats, and Push Boats

| Engine Model Year and Vessel Category | Compliance Date |
|---|---|
| 2009 and earlier (Except Pilot Vessels) | 12/31/2024 |
| 2012 and Earlier Pilot Vessels | 12/31/2025 |
| 2010 – 2012 All Other Vessels* | 12/31/2025 |
| 2013 – 2015** | 12/31/2026 |
| 2016 – 2019** | 12/31/2027 |
| 2020 – 2021** | 12/31/2028 |
| 2022 and later** | 12/31/2029 |

*Ferries (Except Short-Run Ferries), All Tug/Towboats, and Push Boats. **All vessels listed in the title of this table, including ferries (except short-run), pilot, all tug/towboats, and push boats. [Note: For example, for a 2020 model year diesel engine on a tugboat operating in Regulated California Waters, the owner or operator must bring the engine into compliance with the requirements of subsection (e)(12)(C) by December 31, 2028.]

| | | | | | | | | | | ISOR Appendix H Table H-5 | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | ISOR Appendix H Table H-5 | CHC Regulation Table 11 | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vessel | Type | OEM | Model | Engine Family | Year | HP | EPA Tier | Compliance Year | baseline 2yr ext | NOx g/bhp-hr | CARB LF ISOR Appendix H Table H-9 | NOx R99 Reductions | NOx Emissions lbs/hr | NOx eGrid Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | NOx Emissions 2023 thru 2034, lbs | PM g/bhp-hr | PM CARB Tier 4+ DPF g/bhp-hr | PM CARB Tier 3+ DPF g/bhp-hr | CARB LF ISOR appendix H Table H-9 | PM R99 Reductions | PM Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | PM Emissions 2023 thru 2034, lbs | Total Emissions 2023 thru 2034, lbs |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,577 | 2,061 | - | - | - | - | - | - | - | - | **9,791** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 52 | 42 | - | - | - | - | - | - | - | - | **198** | **9,989** |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,577 | 2,061 | - | - | - | - | - | - | - | - | **9,791** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 52 | 42 | - | - | - | - | - | - | - | - | **198** | **9,989** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 451 | 361 | - | - | - | - | - | - | - | - | **1,714** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 15 | 12 | - | - | - | - | - | - | - | - | **56** | **1,770** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 451 | 361 | - | - | - | - | - | - | - | - | **1,714** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 15 | 12 | - | - | - | - | - | - | - | - | **56** | **1,770** |
| **Gemini Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,500 | 2,500 | 2,000 | | | | | | | | | | | | | | | | | 2,500 | 2,500 | 2,500 | 2,000 | - | - | - | - | - | - | - | **9** | |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,350 | 4,122 | 4,122 | - | - | - | - | **12,625** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 68 | 83 | 83 | - | - | - | - | **255** | **12,880** |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,350 | 4,122 | 4,122 | - | - | - | - | **12,625** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 68 | 83 | 83 | - | - | - | - | **255** | **12,880** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 522 | 642 | 642 | - | - | - | - | **1,967** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **1,975** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 522 | 642 | 642 | - | - | - | - | **1,967** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **1,975** |
| **Gemini 1/2 DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | 1,000 | 3,250 | 4,000 | 4,000 | | | | | | | | | | | | | - | - | - | - | 1,000 | 3,250 | 4,000 | 4,000 | - | - | - | - | | |
| **Gemini DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 4,122 | 4,122 | **14,429** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 20 | 20 | **69** | **14,498** |
| **Gemini DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 4,122 | 4,122 | **14,429** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 20 | 20 | **69** | **14,498** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 642 | 642 | **2,248** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | **9** | **2,257** |
| **Gemini DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 642 | 642 | **2,248** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | **9** | **2,257** |
| **Gemini DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 2,000 | 4,000 | 4,000 | 4,000 | | | | | | | | | - | - | - | - | - | - | - | - | 2,000 | 4,000 | 4,000 | 4,000 | | |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,061 | 2,061 | - | - | - | - | - | - | - | - | **9,276** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 42 | 42 | - | - | - | - | - | - | - | - | **187** | **9,463** |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,061 | 2,061 | - | - | - | - | - | - | - | - | **9,276** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 42 | 42 | - | - | - | - | - | - | - | - | **187** | **9,463** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 361 | 361 | - | - | - | - | - | - | - | - | **1,624** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 12 | 12 | - | - | - | - | - | - | - | - | **53** | **1,677** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 361 | 361 | - | - | - | - | - | - | - | - | **1,624** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 12 | 12 | - | - | - | - | - | - | - | - | **53** | **1,677** |
| **Pisces Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,500 | 2,000 | 2,000 | | | | | | | | | | | | | | | | | 2,500 | 2,500 | 2,000 | 2,000 | - | - | - | - | - | - | - | **53** | |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,350 | 4,122 | 4,122 | - | - | - | - | **12,625** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 68 | 83 | 83 | - | - | - | - | **255** | **12,880** |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,350 | 4,122 | 4,122 | - | - | - | - | **12,625** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 68 | 83 | 83 | - | - | - | - | **255** | **12,880** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 522 | 642 | 642 | - | - | - | - | **1,967** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **1,975** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 522 | 642 | 642 | - | - | - | - | **1,967** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **1,975** |
| **Pisces 1/2 DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | 1,000 | 3,250 | 4,000 | 4,000 | | | | | | | | | | | | | - | - | - | - | 1,000 | 3,250 | 4,000 | 4,000 | - | - | - | - | | |
| **Pisces DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 4,122 | 4,122 | **14,429** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 20 | 20 | **69** | **14,498** |
| **Pisces DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 4,122 | 4,122 | **14,429** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 20 | 20 | **69** | **14,498** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 642 | 642 | **2,248** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | **9** | **2,257** |
| **Pisces DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 642 | 642 | **2,248** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | **9** | **2,257** |
| **Pisces DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 2,000 | 4,000 | 4,000 | 4,000 | | | | | | | | | - | - | - | - | - | - | - | - | 2,000 | 4,000 | 4,000 | 4,000 | | |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,061 | 2,061 | - | - | - | - | - | - | - | - | **9,276** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 42 | 42 | - | - | - | - | - | - | - | - | **187** | **9,463** |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,061 | 2,061 | - | - | - | - | - | - | - | - | **9,276** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 42 | 42 | - | - | - | - | - | - | - | - | **187** | **9,463** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 361 | 361 | - | - | - | - | - | - | - | - | **1,624** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 12 | 12 | - | - | - | - | - | - | - | - | **53** | **1,677** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 361 | 361 | - | - | - | - | - | - | - | - | **1,624** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 12 | 12 | - | - | - | - | - | - | - | - | **53** | **1,677** |
| **Scorpio Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,500 | 2,000 | 2,000 | | | | | | | | | | | | | | | | | 2,500 | 2,500 | 2,000 | 2,000 | - | - | - | - | - | - | - | **53** | |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,607 | 4,122 | 4,122 | - | - | - | - | **12,883** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 73 | 83 | 83 | - | - | - | - | **260** | **13,143** |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,607 | 4,122 | 4,122 | - | - | - | - | **12,883** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 73 | 83 | 83 | - | - | - | - | **260** | **13,143** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 562 | 642 | 642 | - | - | - | - | **2,007** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **2,015** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 562 | 642 | 642 | - | - | - | - | **2,007** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **2,015** |
| **Scorpio 1/2 DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | 1,000 | 3,500 | 4,000 | 4,000 | | | | | | | | | | | | | - | - | - | - | 1,000 | 3,500 | 4,000 | 4,000 | - | - | - | - | | |
| **Scorpio DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 4,122 | 4,122 | **14,429** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 20 | 20 | **69** | **14,498** |
| **Scorpio DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 4,122 | 4,122 | **14,429** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 20 | 20 | **69** | **14,498** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 642 | 642 | **2,248** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | **9** | **2,257** |
| **Scorpio DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 642 | 642 | **2,248** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 3 | 3 | **9** | **2,257** |
| **Scorpio DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 2,000 | 4,000 | 4,000 | 4,000 | | | | | | | | | - | - | - | - | - | - | - | - | 2,000 | 4,000 | 4,000 | 4,000 | | |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,061 | 2,061 | - | - | - | - | - | - | - | - | **9,276** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 42 | 42 | - | - | - | - | - | - | - | - | **187** | **9,463** |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 2,577 | 2,577 | 2,061 | 2,061 | - | - | - | - | - | - | - | - | **9,276** | 0.03 | | | 0.31 | 30% | 0.02081 | 52 | 52 | 42 | 42 | - | - | - | - | - | - | - | - | **187** | **9,463** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 361 | 361 | - | - | - | - | - | - | - | - | **1,624** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 12 | 12 | - | - | - | - | - | - | - | - | **53** | **1,677** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 451 | 451 | 361 | 361 | - | - | - | - | - | - | - | - | **1,624** | 0.17 | | | 0.39 | 30% | 0.00890 | 15 | 15 | 12 | 12 | - | - | - | - | - | - | - | - | **53** | **1,677** |
| **Taurus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,500 | 2,000 | 2,000 | | | | | | | | | | | | | | | | | 2,500 | 2,500 | 2,000 | 2,000 | - | - | - | - | - | - | - | **53** | |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,607 | 4,122 | 4,122 | - | - | - | - | **12,883** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 73 | 83 | 83 | - | - | - | - | **260** | **13,143** |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | 1,031 | 3,607 | 4,122 | 4,122 | - | - | - | - | **12,883** | 0.03 | | | 0.31 | 30% | 0.02081 | - | - | - | - | 21 | 73 | 83 | 83 | - | - | - | - | **260** | **13,143** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 562 | 642 | 642 | - | - | - | - | **2,007** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **2,015** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | 161 | 562 | 642 | 642 | - | - | - | - | **2,007** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | 1 | 2 | 3 | 3 | - | - | - | - | **8** | **2,015** |
| **Taurus 1/2 DPF Hours** | | Gen Hour Factor | .667 | | | | | | | | | | | Annual Hours | | | | | 1,000 | 3,500 | 4,000 | 4,000 | | | | | | | | | | | | | - | - | - | - | 1,000 | 3,500 | 4,000 | 4,000 | - | - | - | - | | |
| **Taurus DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 3,607 | 3,607 | **13,398** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 17 | 17 | **64** | **13,462** |
| **Taurus DPF** | Main | MAN | D2862LE48B | D2862LE48B | 2030 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | 2,061 | 4,122 | 3,607 | 3,607 | **13,398** | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | 10 | 20 | 17 | 17 | **64** | **13,462** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 562 | 562 | **2,088** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 2 | 2 | **8** | **2,096** |
| **Taurus DPF** | Aux | John Deere | 4045 | unknown | 2024 | 87 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.24 | | - | - | - | - | - | - | - | - | 321 | 642 | 562 | 562 | **2,088** | | | 0.013 | 0.39 | 0% | 0.00097 | - | - | - | - | - | - | - | - | 1 | 3 | 2 | 2 | **8** | **2,096** |
| **Taurus DPF Hours** | | Gen Hour Factor | .667 | | | | | | | | | | | Annual Hours | | | | | | | | | 2,000 | 4,000 | 3,500 | 3,500 | | | | | | | | | - | - | - | - | - | - | - | - | 2,000 | 4,000 | 3,500 | 3,500 | | |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 15,491 | 15,491 | 15,491 | 15,491 | 17,703 | 15,491 | - | - | - | - | - | - | **95,156** | 0.05 | | | 0.31 | 30% | 0.04664 | 163 | 163 | 163 | 163 | 187 | 163 | - | - | - | - | - | - | **1,003** | **96,159** |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 15,491 | 15,491 | 15,491 | 15,491 | 17,703 | 15,491 | - | - | - | - | - | - | **95,156** | 0.05 | | | 0.31 | 30% | 0.04664 | 163 | 163 | 163 | 163 | 187 | 163 | - | - | - | - | - | - | **1,003** | **96,159** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 942 | 942 | 942 | 942 | 1,076 | 942 | - | - | - | - | - | - | **5,786** | 0.07 | | | 0.39 | 30% | 0.00683 | 16 | 16 | 16 | 16 | 18 | 16 | - | - | - | - | - | - | **98** | **5,884** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 942 | 942 | 942 | 942 | 1,076 | 942 | - | - | - | - | - | - | **5,786** | 0.07 | | | 0.39 | 30% | 0.00683 | 16 | 16 | 16 | 16 | 18 | 16 | - | - | - | - | - | - | **98** | **5,884** |
| **Hydrus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 3,500 | 3,500 | 3,500 | 4,000 | 3,500 | | | | | | | | | | | | | | | 3,500 | 3,500 | 3,500 | 3,500 | 4,000 | 3,500 | - | - | - | - | - | **98** | |
| **Hydrus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 6,397 | 6,397 | 5,331 | 4,975 | **28,075** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 31 | 31 | 26 | 24 | **135** | **28,210** |
| **Hydrus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 6,397 | 6,397 | 5,331 | 4,975 | **28,075** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 31 | 31 | 26 | 24 | **135** | **28,210** |
| **Hydrus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 1,346 | 1,346 | 1,121 | 1,047 | **5,905** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 5 | 5 | 4 | 4 | **24** | **5,929** |
| **Hydrus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 1,346 | 1,346 | 1,121 | 1,047 | **5,905** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 5 | 5 | 4 | 4 | **24** | **5,929** |
| **Hydrus DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | 4,500 | 4,500 | 3,750 | 3,500 | | | | | | | | | - | - | - | - | - | - | - | - | 4,500 | 4,500 | 3,750 | 3,500 | | |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 15,491 | 15,491 | 15,491 | 15,491 | 17,703 | 17,703 | - | - | - | - | - | - | **97,369** | 0.05 | | | 0.31 | 30% | 0.04664 | 163 | 163 | 163 | 163 | 187 | 187 | - | - | - | - | - | - | **1,026** | **98,395** |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 15,491 | 15,491 | 15,491 | 15,491 | 17,703 | 17,703 | - | - | - | - | - | - | **97,369** | 0.05 | | | 0.31 | 30% | 0.04664 | 163 | 163 | 163 | 163 | 187 | 187 | - | - | - | - | - | - | **1,026** | **98,395** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 942 | 942 | 942 | 942 | 1,076 | 1,076 | - | - | - | - | - | - | **5,920** | 0.07 | | | 0.39 | 30% | 0.00683 | 16 | 16 | 16 | 16 | 18 | 18 | - | - | - | - | - | - | **100** | **6,020** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 942 | 942 | 942 | 942 | 1,076 | 1,076 | - | - | - | - | - | - | **5,920** | 0.07 | | | 0.39 | 30% | 0.00683 | 16 | 16 | 16 | 16 | 18 | 18 | - | - | - | - | - | - | **100** | **6,020** |
| **Cetus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 3,500 | 3,500 | 3,500 | 4,000 | 4,000 | | | | | | | | | | | | | | | 3,500 | 3,500 | 3,500 | 3,500 | 4,000 | 4,000 | - | - | - | - | - | **100** | |
| **Cetus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 6,397 | 6,397 | 5,331 | 4,975 | **28,075** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 31 | 31 | 26 | 24 | **135** | **28,210** |
| **Cetus DPF** | Main | MTU | 12V4000M65L | Unknown | 2028 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | - | - | 6,397 | 6,397 | 5,331 | 4,975 | **28,075** | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | - | - | 31 | 31 | 26 | 24 | **135** | **28,210** |
| **Cetus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 1,346 | 1,346 | 1,121 | 1,047 | **5,905** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 5 | 5 | 4 | 4 | **24** | **5,929** |
| **Cetus DPF** | Aux | John Deere | 4045 | unknown | 2028 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | - | - | 1,346 | 1,346 | 1,121 | 1,047 | **5,905** | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | - | - | 5 | 5 | 4 | 4 | **24** | **5,929** |
| **Cetus DPF Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | - | 4,500 | 4,500 | 3,750 | 3,500 | | | | | | | | | - | - | - | - | - | - | - | - | 4,500 | 4,500 | 3,750 | 3,500 | | |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 15,491 | 15,491 | 13,278 | 15,491 | 17,703 | 17,703 | 19,916 | - | - | - | - | - | **115,073** | 0.05 | | | 0.31 | 30% | 0.04664 | 163 | 163 | 140 | 163 | 187 | 187 | 210 | - | - | - | - | - | **1,213** | **116,285** |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 15,491 | 15,491 | 13,278 | 15,491 | 17,703 | 17,703 | 19,916 | - | - | - | - | - | **115,073** | 0.05 | | | 0.31 | 30% | 0.04664 | 163 | 163 | 140 | 163 | 187 | 187 | 210 | - | - | - | - | - | **1,213** | **116,285** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 942 | 942 | 807 | 942 | 1,076 | 1,076 | 1,211 | - | - | - | - | - | **6,997** | 0.07 | | | 0.39 | 30% | 0.00683 | 16 | 16 | 14 | 16 | 18 | 18 | 20 | - | - | - | - | - | **118** | **7,115** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 942 | 942 | 807 | 942 | 1,076 | 1,076 | 1,211 | - | - | - | - | - | **6,997** | 0.07 | | | 0.39 | 30% | 0.00683 | 16 | 16 | 14 | 16 | 18 | 18 | 20 | - | - | - | - | - | **118** | **7,115** |
| **Argo Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 3,500 | 3,000 | 3,500 | 4,000 | 4,000 | 4,500 | | | | | | | | | | | | | | 3,500 | 3,500 | 3,000 | 3,500 | 4,000 | 4,000 | 4,500 | - | - | - | - | **118** | |
| **Argo DPF** | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42

# WETA ACE Plan - Baseline High Calculations

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bay Breeze Annual Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 3,500 | 3,500 | | | | | | | | | | | | | | | | | 3,500 | 3,500 | 3,500 | - | - | - | - | - | - | - | - | - | | |
| Pyxis | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 6,100 | 4,880 | 4,880 | 4,880 | 7,320 | 7,320 | 3,660 | - | - | - | - | - | 39,041 | 0.03 | | | 0.31 | 30% | 0.04927 | 123 | 99 | 99 | 99 | 148 | 148 | 74 | - | - | - | - | - | 788 | 39,829 |
| Pyxis | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 6,100 | 4,880 | 4,880 | 4,880 | 7,320 | 7,320 | 3,660 | - | - | - | - | - | 39,041 | 0.03 | | | 0.31 | 30% | 0.04927 | 123 | 99 | 99 | 99 | 148 | 148 | 74 | - | - | - | - | - | 788 | 39,829 |
| Pyxis | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,017 | 814 | 814 | 814 | 1,221 | 1,221 | 610 | - | - | - | - | - | 6,512 | 0.07 | | | 0.39 | 30% | 0.01032 | 17 | 14 | 14 | 14 | 21 | 21 | 10 | - | - | - | - | - | 110 | 6,622 |
| Pyxis | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,017 | 814 | 814 | 814 | 1,221 | 1,221 | 610 | - | - | - | - | - | 6,512 | 0.07 | | | 0.39 | 30% | 0.01032 | 17 | 14 | 14 | 14 | 21 | 21 | 10 | - | - | - | - | - | 110 | 6,622 |
| Pyxis Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,000 | 2,000 | 2,000 | 3,000 | 3,000 | 1,500 | | | | | | | | | | | | | 2,500 | 2,000 | 2,000 | 2,000 | 3,000 | 3,000 | 1,500 | - | - | - | - | - | | |
| Pyxis+DPF | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 8,540 | 9,760 | 10,980 | 7,320 | 7,320 | 43,921 | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 41 | 47 | 53 | 35 | 35 | 211 | 44,132 |
| Pyxis+DPF | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 8,540 | 9,760 | 10,980 | 7,320 | 7,320 | 43,921 | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 41 | 47 | 53 | 35 | 35 | 211 | 44,132 |
| Pyxis+DPF | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 1,583 | 1,809 | 2,035 | 1,357 | 1,357 | 8,140 | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 6 | 7 | 8 | 5 | 5 | 33 | 8,172 |
| Pyxis+DPF | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 1,583 | 1,809 | 2,035 | 1,357 | 1,357 | 8,140 | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 6 | 7 | 8 | 5 | 5 | 33 | 8,172 |
| Pyxis+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | 3,500 | 4,000 | 4,500 | 3,000 | 3,000 | | | | | | | | - | - | - | - | - | - | - | 3,500 | 4,000 | 4,500 | 3,000 | 3,000 | | |
| Vela | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 6,100 | 4,880 | 4,880 | 4,880 | 7,320 | 8,540 | 8,540 | - | - | - | - | - | 45,141 | 0.03 | | | 0.31 | 30% | 0.04927 | 123 | 99 | 99 | 99 | 148 | 172 | 172 | - | - | - | - | - | 912 | 46,053 |
| Vela | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 6,100 | 4,880 | 4,880 | 4,880 | 7,320 | 8,540 | 8,540 | - | - | - | - | - | 45,141 | 0.03 | | | 0.31 | 30% | 0.04927 | 123 | 99 | 99 | 99 | 148 | 172 | 172 | - | - | - | - | - | 912 | 46,053 |
| Vela | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,017 | 814 | 814 | 814 | 1,221 | 1,424 | 1,424 | - | - | - | - | - | 7,529 | 0.07 | | | 0.39 | 30% | 0.01032 | 17 | 14 | 14 | 14 | 21 | 24 | 24 | - | - | - | - | - | 127 | 7,656 |
| Vela | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,017 | 814 | 814 | 814 | 1,221 | 1,424 | 1,424 | - | - | - | - | - | 7,529 | 0.07 | | | 0.39 | 30% | 0.01032 | 17 | 14 | 14 | 14 | 21 | 24 | 24 | - | - | - | - | - | 127 | 7,656 |
| Vela Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 2,500 | 2,000 | 2,000 | 2,000 | 3,000 | 3,500 | 3,500 | | | | | | | | | | | | | 2,500 | 2,000 | 2,000 | 2,000 | 3,000 | 3,500 | 3,500 | - | - | - | - | - | | |
| Vela+DPF | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 4,880 | 9,760 | 10,980 | 8,540 | 8,540 | 42,701 | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 23 | 47 | 53 | 41 | 41 | 205 | 42,907 |
| Vela+DPF | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 4,880 | 9,760 | 10,980 | 8,540 | 8,540 | 42,701 | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 23 | 47 | 53 | 41 | 41 | 205 | 42,907 |
| Vela+DPF | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 904 | 1,809 | 2,035 | 1,583 | 1,583 | 7,914 | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 4 | 7 | 8 | 6 | 6 | 32 | 7,945 |
| Vela+DPF | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 904 | 1,809 | 2,035 | 1,583 | 1,583 | 7,914 | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 4 | 7 | 8 | 6 | 6 | 32 | 7,945 |
| Vela+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | 2,000 | 4,000 | 4,500 | 3,500 | 3,500 | | | | | | | | - | - | - | - | - | - | - | 2,000 | 4,000 | 4,500 | 3,500 | 3,500 | | |
| Lyra | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 7,320 | 4,880 | 6,100 | 4,880 | 7,320 | 8,540 | 7,320 | - | - | - | - | - | 46,361 | 0.03 | | | 0.31 | 30% | 0.04927 | 148 | 99 | 123 | 99 | 148 | 172 | 148 | - | - | - | - | - | 936 | 47,298 |
| Lyra | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 7,320 | 4,880 | 6,100 | 4,880 | 7,320 | 8,540 | 7,320 | - | - | - | - | - | 46,361 | 0.03 | | | 0.31 | 30% | 0.04927 | 148 | 99 | 123 | 99 | 148 | 172 | 148 | - | - | - | - | - | 936 | 47,298 |
| Lyra | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,221 | 814 | 1,017 | 814 | 1,221 | 1,424 | 1,221 | - | - | - | - | - | 7,733 | 0.07 | | | 0.39 | 30% | 0.01032 | 21 | 14 | 17 | 14 | 21 | 24 | 21 | - | - | - | - | - | 131 | 7,863 |
| Lyra | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,221 | 814 | 1,017 | 814 | 1,221 | 1,424 | 1,221 | - | - | - | - | - | 7,733 | 0.07 | | | 0.39 | 30% | 0.01032 | 21 | 14 | 17 | 14 | 21 | 24 | 21 | - | - | - | - | - | 131 | 7,863 |
| Lyra Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 2,000 | 2,500 | 2,000 | 3,000 | 3,500 | 3,000 | | | | | | | | | | | | | 3,000 | 2,000 | 2,500 | 2,000 | 3,000 | 3,500 | 3,000 | - | - | - | - | - | | |
| Lyra+DPF | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 6,100 | 7,320 | 10,980 | 8,540 | 8,540 | 41,481 | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 29 | 35 | 53 | 41 | 41 | 199 | 41,681 |
| Lyra+DPF | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4+DPF | | | 1.04 | 0.31 | 0% | 2.44 | | - | - | - | - | - | - | - | 6,100 | 7,320 | 10,980 | 8,540 | 8,540 | 41,481 | | 0.005 | | 0.31 | 0% | 0.01173 | - | - | - | - | - | - | - | 29 | 35 | 53 | 41 | 41 | 199 | 41,681 |
| Lyra+DPF | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 1,131 | 1,357 | 2,035 | 1,583 | 1,583 | 7,687 | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 5 | 5 | 8 | 6 | 6 | 31 | 7,718 |
| Lyra+DPF | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.68 | | - | - | - | - | - | - | - | 1,131 | 1,357 | 2,035 | 1,583 | 1,583 | 7,687 | | | 0.013 | 0.39 | 0% | 0.00274 | - | - | - | - | - | - | - | 5 | 5 | 8 | 6 | 6 | 31 | 7,718 |
| Lyra+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | - | | | 2,500 | 3,000 | 4,500 | 3,500 | 3,500 | | | | | | | | - | - | - | - | - | - | - | 2,500 | 3,000 | 4,500 | 3,500 | 3,500 | | |
| Intintoli | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2010 | 3,433 | 2 | 2025 | 2027 | 5.08 | 0.31 | 10% | 10.73 | | 32,181 | 32,181 | 32,181 | 32,181 | 21,454 | - | - | - | - | - | - | - | 150,177 | 0.09 | | | 0.31 | 30% | 0.14781 | 443 | 443 | 443 | 443 | 296 | - | - | - | - | - | - | - | 2,069 | 152,246 |
| Intintoli | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 10.73 | | 32,181 | 32,181 | 32,181 | 32,181 | 21,454 | - | - | - | - | - | - | - | 150,177 | 0.09 | | | 0.31 | 30% | 0.14781 | 443 | 443 | 443 | 443 | 296 | - | - | - | - | - | - | - | 2,069 | 152,246 |
| Intintoli | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 701 | 701 | 701 | 701 | 467 | - | - | - | - | - | - | - | 3,272 | 0.11 | | | 0.39 | 30% | 0.00993 | 20 | 20 | 20 | 20 | 13 | - | - | - | - | - | - | - | 93 | 3,364 |
| Intintoli | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 701 | 701 | 701 | 701 | 467 | - | - | - | - | - | - | - | 3,272 | 0.11 | | | 0.39 | 30% | 0.00993 | 20 | 20 | 20 | 20 | 13 | - | - | - | - | - | - | - | 93 | 3,364 |
| Intintoli Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 3,000 | 3,000 | 2,000 | | | | | | | | | | | | | | | 3,000 | 3,000 | 3,000 | 3,000 | 2,000 | - | - | - | - | - | - | - | | |
| Mare Island | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 10.73 | | 32,181 | 32,181 | 32,181 | 26,817 | - | - | - | - | - | - | - | - | 123,360 | 0.09 | | | 0.31 | 30% | 0.14781 | 443 | 443 | 443 | 370 | - | - | - | - | - | - | - | - | 1,700 | 125,060 |
| Mare Island | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 10.73 | | 32,181 | 32,181 | 32,181 | 26,817 | - | - | - | - | - | - | - | - | 123,360 | 0.09 | | | 0.31 | 30% | 0.14781 | 443 | 443 | 443 | 370 | - | - | - | - | - | - | - | - | 1,700 | 125,060 |
| Mare Island | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2010 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 701 | 701 | 701 | 584 | - | - | - | - | - | - | - | - | 2,687 | 0.11 | | | 0.39 | 30% | 0.00993 | 20 | 20 | 20 | 17 | - | - | - | - | - | - | - | - | 76 | 2,764 |
| Mare Island | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2027 | 3.02 | 0.39 | 10% | 0.35 | | 701 | 701 | 701 | 584 | - | - | - | - | - | - | - | - | 2,687 | 0.11 | | | 0.39 | 30% | 0.00993 | 20 | 20 | 20 | 17 | - | - | - | - | - | - | - | - | 76 | 2,764 |
| Mare Island Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,000 | 3,000 | 2,500 | - | | | | | | | | | | | | | | | 3,000 | 3,000 | 3,000 | 2,500 | - | - | - | - | - | - | - | - | | |
| Dorado | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 1.83 | | 5,491 | 4,576 | 4,576 | 5,491 | 7,321 | 5,948 | 8,236 | - | - | - | - | - | 41,638 | 0.03 | | | 0.31 | 30% | 0.03696 | 111 | 92 | 92 | 111 | 148 | 120 | 157 | - | - | - | - | - | 832 | 42,469 |
| Dorado | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 1.83 | | 5,491 | 4,576 | 4,576 | 5,491 | 7,321 | 5,948 | 8,236 | - | - | - | - | - | 41,638 | 0.03 | | | 0.31 | 30% | 0.03696 | 111 | 92 | 92 | 111 | 148 | 120 | 157 | - | - | - | - | - | 832 | 42,469 |
| Dorado | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.37 | | 738 | 615 | 615 | 738 | 983 | 799 | 1,106 | - | - | - | - | - | 5,593 | 0.07 | | | 0.39 | 30% | 0.00624 | 12 | 10 | 10 | 12 | 17 | 14 | 18 | - | - | - | - | - | 94 | 5,687 |
| Dorado | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.37 | | 738 | 615 | 615 | 738 | 983 | 799 | 1,106 | - | - | - | - | - | 5,593 | 0.07 | | | 0.39 | 30% | 0.00624 | 12 | 10 | 10 | 12 | 17 | 14 | 18 | - | - | - | - | - | 94 | 5,687 |
| Dorado Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 2,500 | 2,500 | 3,000 | 4,000 | 3,250 | 4,500 | | | | | | | | | | | | | 3,000 | 2,500 | 2,500 | 3,000 | 4,000 | 3,250 | 4,250 | - | - | - | - | - | | |
| Dorado+DPF | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | 5,491 | 8,236 | 8,236 | 7,321 | 7,321 | 36,605 | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | 26 | 40 | 40 | 35 | 35 | 176 | 36,781 |
| Dorado+DPF | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | 5,491 | 8,236 | 8,236 | 7,321 | 7,321 | 36,605 | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | 26 | 40 | 40 | 35 | 35 | 176 | 36,781 |
| Dorado+DPF | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | 819 | 1,229 | 1,229 | 1,093 | 1,093 | 5,463 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | 3 | 5 | 5 | 4 | 4 | 22 | 5,485 |
| Dorado+DPF | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | 819 | 1,229 | 1,229 | 1,093 | 1,093 | 5,463 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | 3 | 5 | 5 | 4 | 4 | 22 | 5,485 |
| Dorado+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | 3,000 | 4,500 | 4,500 | 4,000 | 4,000 | | | | | | | | - | - | - | - | - | - | - | 3,000 | 4,500 | 4,500 | 4,000 | 4,000 | | |
| Dephinus | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4 | 2029 | 2031 | 1.04 | 0.31 | 0% | 1.83 | | - | 4,576 | 4,576 | 5,491 | 7,321 | 5,948 | 8,236 | 8,236 | 8,236 | - | - | - | 52,619 | 0.03 | | | 0.31 | 30% | 0.03696 | - | 92 | 92 | 111 | 148 | 120 | 157 | 166 | 166 | - | - | - | 1,053 | 53,672 |
| Dephinus | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4 | 2029 | 2031 | 1.04 | 0.31 | 0% | 1.83 | | - | 4,576 | 4,576 | 5,491 | 7,321 | 5,948 | 8,236 | 8,236 | 8,236 | - | - | - | 52,619 | 0.03 | | | 0.31 | 30% | 0.03696 | - | 92 | 92 | 111 | 148 | 120 | 157 | 166 | 166 | - | - | - | 1,053 | 53,672 |
| Dephinus | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3 | 2028 | 2030 | 3.22 | 0.39 | 10% | 0.37 | | - | 615 | 615 | 738 | 983 | 799 | 1,106 | 1,106 | 1,106 | - | - | - | 7,068 | 0.07 | | | 0.39 | 30% | 0.00624 | - | 10 | 10 | 12 | 17 | 14 | 18 | 19 | 19 | - | - | - | 118 | 7,187 |
| Dephinus | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3 | 2028 | 2030 | 3.22 | 0.39 | 10% | 0.37 | | - | 615 | 615 | 738 | 983 | 799 | 1,106 | 1,106 | 1,106 | - | - | - | 7,068 | 0.07 | | | 0.39 | 30% | 0.00624 | - | 10 | 10 | 12 | 17 | 14 | 18 | 19 | 19 | - | - | - | 118 | 7,187 |
| Dephinus Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | 2,500 | 2,500 | 3,000 | 4,000 | 3,250 | 4,500 | 4,500 | 4,500 | | | | | | | | | | | - | 2,500 | 2,500 | 3,000 | 4,000 | 3,250 | 4,250 | 4,500 | 4,500 | - | - | - | | |
| Dephinus+DPF | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | - | - | 3,660 | 7,321 | 7,321 | 18,302 | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | - | - | 18 | 35 | 35 | 88 | 18,390 |
| Dephinus+DPF | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.83 | | - | - | - | - | - | - | - | - | - | 3,660 | 7,321 | 7,321 | 18,302 | | 0.005 | | 0.31 | 0% | 0.00880 | - | - | - | - | - | - | - | - | - | 18 | 35 | 35 | 88 | 18,390 |
| Dephinus+DPF | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 546 | 1,093 | 1,093 | 2,732 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 4 | 4 | 11 | 2,743 |
| Dephinus+DPF | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 546 | 1,093 | 1,093 | 2,732 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 4 | 4 | 11 | 2,743 |
| Dephinus+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | | 2,000 | 4,000 | 4,000 | | | | | | | | - | - | - | - | - | - | - | - | - | 2,000 | 4,000 | 4,000 | | |
| Hull 160 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 1,546 | 2,577 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 23,189 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 7 | 12 | 15 | 17 | 22 | 22 | 15 | - | - | - | 111 | 23,300 |
| Hull 160 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 1,546 | 2,577 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 23,189 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 7 | 12 | 15 | 17 | 22 | 22 | 15 | - | - | - | 111 | 23,300 |
| Hull 160 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 1,546 | 2,577 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 23,189 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 7 | 12 | 15 | 17 | 22 | 22 | 15 | - | - | - | 111 | 23,300 |
| Hull 160 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2023 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 1,546 | 2,577 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 23,189 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 7 | 12 | 15 | 17 | 22 | 22 | 15 | - | - | - | 111 | 23,300 |
| Hull 160 TBD Name | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2023 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 369 | 615 | 738 | 860 | 1,106 | 1,106 | 738 | - | - | - | 5,532 | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 6 | 10 | 12 | 15 | 19 | 19 | 12 | - | - | - | 94 | 5,625 |
| Hull 160 TBD Name | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2023 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 369 | 615 | 738 | 860 | 1,106 | 1,106 | 738 | - | - | - | 5,532 | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 6 | 10 | 12 | 15 | 19 | 19 | 12 | - | - | - | 94 | 5,625 |
| Hull 160 Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | 1,500 | 2,500 | 3,000 | 3,500 | 4,500 | 4,500 | 3,000 | | | | | | | | | | | - | - | 1,500 | 2,500 | 3,000 | 3,500 | 4,500 | 4,500 | 3,000 | - | - | - | | |
| Hull 160+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 160+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 160+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 160+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2031 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 160+DPF TBD Name | Aux | John Deere | 4045 | unknown | 2031 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 478 | 956 | 956 | 2,390 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 4 | 4 | 10 | 2,400 |
| Hull 160+DPF TBD Name | Aux | John Deere | 4045 | unknown | 2031 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 478 | 956 | 956 | 2,390 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 4 | 4 | 10 | 2,400 |
| Hull 160+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | | 1,750 | 3,500 | 3,500 | | | | | | | | - | - | - | - | - | - | - | - | - | 1,750 | 3,500 | 3,500 | | |
| Hull 161 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 3,092 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 22,674 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 15 | 15 | 17 | 22 | 22 | 15 | - | - | - | 109 | 22,783 |
| Hull 161 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 3,092 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 22,674 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 15 | 15 | 17 | 22 | 22 | 15 | - | - | - | 109 | 22,783 |
| Hull 161 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 3,092 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 22,674 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 15 | 15 | 17 | 22 | 22 | 15 | - | - | - | 109 | 22,783 |
| Hull 161 TBD Name | Main | MAN | D2862LE489 | D2862LE489 | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | 515 | 3,092 | 3,092 | 3,607 | 4,638 | 4,638 | 3,092 | - | - | - | 22,674 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | 2 | 15 | 15 | 17 | 22 | 22 | 15 | - | - | - | 109 | 22,783 |
| Hull 161 TBD Name | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2024 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 123 | 738 | 738 | 860 | 1,106 | 1,106 | 738 | - | - | - | 5,409 | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 2 | 12 | 12 | 15 | 19 | 19 | 12 | - | - | - | 91 | 5,500 |
| Hull 161 TBD Name | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2024 | 148 | 3 | 2029 | 2031 | 3.22 | 0.39 | 10% | 0.37 | | - | - | 123 | 738 | 738 | 860 | 1,106 | 1,106 | 738 | - | - | - | 5,409 | 0.07 | | | 0.39 | 30% | 0.00624 | - | - | 2 | 12 | 12 | 15 | 19 | 19 | 12 | - | - | - | 91 | 5,500 |
| Hull 161 Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | 500 | 3,000 | 3,000 | 3,500 | 4,500 | 4,500 | 3,000 | | | | | | | | | | | - | - | 500 | 3,000 | 3,000 | 3,500 | 4,500 | 4,500 | 3,000 | - | - | - | | |
| Hull 161+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 161+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 161+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 161+DPF TBD Name | Main | MAN | D2862LE48B | D2862LE48B | 2024 | 1,450 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.03 | | - | - | - | - | - | - | - | - | - | 1,804 | 3,607 | 3,607 | 9,018 | | 0.005 | | 0.31 | 0% | 0.00495 | - | - | - | - | - | - | - | - | - | 9 | 17 | 17 | 43 | 9,061 |
| Hull 161+DPF TBD Name | Aux | John Deere | 4045 | unknown | 2025 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 478 | 956 | 956 | 2,390 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 4 | 4 | 10 | 2,400 |
| Hull 161+DPF TBD Name | Aux | John Deere | 4045 | unknown | 2025 | 148 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.41 | | - | - | - | - | - | - | - | - | - | 478 | 956 | 956 | 2,390 | | | 0.013 | 0.39 | 0% | 0.00165 | - | - | - | - | - | - | - | - | - | 2 | 4 | 4 | 10 | 2,400 |
| Hull 161+DPF Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | | | | 1,750 | 3,500 | 3,500 | | | | | | | | - | - | - | - | - | - | - | - | - | 1,750 | 3,500 | 3,500 | | |
| 149PAX ZEAT #1 TBD Name | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 134 | 269 | 313 | 313 | 358 | 403 | 313 | 313 | 313 | 2,730 | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,730 |
| 149PAX ZEAT #1TBD Name | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 134 | 269 | 313 | 313 | 358 | 403 | 313 | 313 | 313 | 2,730 | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,730 |
| 149PAX ZEAT #1TBD Name | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 5 | 10 | 12 | 12 | 13 | 15 | 12 | 12 | 12 | 103 | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 103 |
| 149PAX ZEAT #1 Hours | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | 1,500 | 3,000 | 3,500 | 3,500 | 4,000 | 4,500 | 3,500 | 3,500 | 3,500 | | | | | | | | - | - | - | 1,500 | 3,000 | 3,500 | 3,500 | 4,000 | 4,500 | 3,500 | 3,500 | 3,500 | | |
| 149PAX ZEAT #2 TBD Name | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 90 | 269 | 313 | 313 | 358 | 403 | 313 | 313 | 313 | 2,686 | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,686 |
| 149PAX ZEAT #2 TBD Name | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 90 | 269 | 313 | 313 | 358 | 403 | 313 | 313 | 313 | 2,686 | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,686 |
| 149PAX ZEAT #2 TBD Name | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 3 | 10 | 12 | 12 | 13 | 15 | 12 | 12 | 12 | 101 | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 101 |
| 149PAX ZEAT #2 Hours | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | 1,000 | 3,000 | 3,500 | 3,500 | 4,000 | 4,500 | 3,500 | 3,500 | 3,500 | | | | | | | | - | - | - | 1,000 | 3,000 | 3,500 | 3,500 | 4,000 | 4,500 | 3,500 | 3,500 | 3,500 | | |
| 149PAX ZEAT #3 TBD Name | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 0 | 224 | 313 | 313 | 358 | 358 | 313 | 313 | 313 | 2,507 | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,507 |
| 149PAX ZEAT #3 TBD Name | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 0 | 224 | 313 | 313 | 358 | 358 | 313 | 313 | 313 | 2,507 | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 2,507 |
| 149PAX ZEAT #3 TBD Name | Aux | TBD | TBD | TBD | 2026 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 0 | 8 | 12 | 12 | 13 | 13 | 12 | 12 | 12 | 94 | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 94 |
| 149PAX ZEAT #3 Hours | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | | | | | 2,500 | 3,500 | 3,500 | 4,000 | 4,000 | 3,500 | 3,500 | 3,500 | | | | | | | | - | - | - | - | 2,500 | 3,500 | 3,500 | 4,000 | 4,000 | 3,500 | 3,500 | 3,500 | | |
| 400PAX DPF #1 TBD Name | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | 3,554 | 4,975 | 4,975 | 4,975 | 4,975 | 4,975 | 4,975 | 33,406 | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | 17 | 24 | 24 | 24 | 24 | 24 | 24 | 161 | 33,567 |
| 400PAX DPF #1 TBD Name | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | 3,554 | 4,975 | 4,975 | 4,975 | 4,975 | 4,975 | 4,975 | 33,406 | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | 17 | 24 | 24 | 24 | 24 | 24 | 24 | 161 | 33,567 |
| 400PAX DPF #1 TBD Name | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | 748 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 7,027 | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 28 | 7,055 |
| 400PAX DPF #1 TBD Name | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | 748 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 7,027 | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 28 | 7,055 |
| 400PAX DPF #1 Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | 2,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | | | | | | | | - | - | - | - | - | 2,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | | |
| 400PAX DPF #2 TBD Name | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | 4,265 | 4,975 | 4,975 | 4,975 | 4,975 | 4,975 | 29,142 | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | 21 | 24 | 24 | 24 | 24 | 24 | 140 | 29,282 |
| 400PAX DPF #2 TBD Name | Main | MTU | 12V4000M65L | Unknown | 2029 | 2,000 | 4+DPF | | | 1.04 | 0.31 | 0% | 1.42 | | - | - | - | - | - | - | 4,265 | 4,975 | 4,975 | 4,975 | 4,975 | 4,975 | 29,142 | | 0.005 | | 0.31 | 0% | 0.00683 | - | - | - | - | - | - | 21 | 24 | 24 | 24 | 24 | 24 | 140 | 29,282 |
| 400PAX DPF #2 TBD Name | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | 897 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 6,133 | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 25 | 6,157 |
| 400PAX DPF #2 TBD Name | Aux | John Deere | 4045 | unknown | 2029 | 162 | 3+DPF | | | 3.22 | 0.39 | 0% | 0.45 | | - | - | - | - | - | - | 897 | 1,047 | 1,047 | 1,047 | 1,047 | 1,047 | 6,133 | | | 0.013 | 0.39 | 0% | 0.00181 | - | - | - | - | - | - | 4 | 4 | 4 | 4 | 4 | 4 | 25 | 6,157 |
| 400PAX DPF #2 Hours | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | | | | | | | 3,000 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | | | | | | | | - | - | - | - | - | - | 3,000 | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Emissions (lbs) | | | | | | | | | | | | | | | 413,579 | 410,496 | 409,548 | 387,394 | 322,473 | 316,498 | 285,125 | 226,518 | 236,389 | 237,515 | 235,288 | 235,288 | 3,716,109 | | | | | | | 5,957 | 5,897 | 5,827 | 5,331 | 4,289 | 4,117 | 3,628 | 1,900 | 1,418 | 1,105 | 1,095 | 1,095 | 41,658 | 3,708,490 |
| Central Bay Hour Usage | | | | | | | | | | | | | | | 31,000 | 31,000 | 31,000 | 33,500 | 38,000 | 52,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | | | | | | | | 31,000 | 31,000 | 31,000 | 33,500 | 38,000 | 52,000 | 54,500 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | | |
| North Bay Hour Usage | | | | | | | | | | | | | | | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | | | | | | | | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | | |
| Total Vessel Hour Usage | | | | | | | | | | | | | | | 48,000 | 48,000 | 48,000 | 50,500 | 55,000 | 69,000 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | | | | | | | | 48,000 | 48,000 | 48,000 | 50,500 | 55,000 | 69,000 | 71,500 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | | |

| | | | | | |
|---|---|---|---|---|---|
| CARB T4+DPF | T4+DPF | 0-3,700kw | C1<7L | 1.30 | 0.005 |
| CARB T3+DPF | T3+DPF | 0.9<Disp>1.2L | <35kw/L | 3.22 | 0.013 |

| eGRID | Elec | Nox | lbs/hp-hr | 0.000388 | 0.000 |
|---|---|---|---|---|---|
| Hydrogen | 50kW-hr of electricity/kg of H2, 55% eff 1 kg of H2 gets you 18.5kw-hr in fuel cell, 34% overall eff | | | H2 uses eGrid at load/.34 for efficiency | |
| g/kw-hr to g/bhp/hr | 0.7457 | | | | |

**Table 17: Compliance Dates for Tier 2, Tier 3, or Tier 4 Engines on Ferries (Except Short-Run Ferries), Pilot Vessels, All Tug/Towboats, and Push Boats**

| Engine Model Year and Vessel Category | Compliance Date |
|---|---|
| 2009 and earlier (Except Pilot Vessels) | 12/31/2024 |
| 2012 and Earlier Pilot Vessels | 12/31/2025 |
| 2010 – 2012 All Other Vessels* | 12/31/2025 |
| 2013 – 2015** | 12/31/2026 |
| 2016 – 2019** | 12/31/2027 |
| 2020 – 2021** | 12/31/2028 |
| 2022 and later** | 12/31/2029 |

*Ferries (Except Short-Run Ferries), All Tug/Towboats, and Push Boats. **All vessels listed in the title of this table, including ferries (except short-run), pilot, all tug/towboats, and push boats. [Note: For example, for a 2020 model year diesel engine on a tugboat operating in Regulated California Waters, the owner or operator must bring the engine into compliance with the requirements of subsection (e)(12)(C) by December 31, 2028.]

WETA ACE Plan - ACE High Calculations

| Vessel | Type | OEM | Model | Engine Family | Year | HP | EPA Tier | Compliance Year | baseline 2yr ext | ISOR Appendix H Table H-5 | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | | | ISOR Appendix H Table H-5 | CHC Regulation Table 11 | | | | | | | | | | | | Emissions years, Vessel in seprate lines dependant on emissions configuration | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | NOx g/bhp-hr | CARB LF ISOR Appendix H Table H-9 | NOx R99 Reductions | NOx Emissions lbs/hr | NOx eGrid Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | NOx Emissions 2023 thru 2034, lbs | PM g/bhp-hr | PM CARB Tier 4+ DPF g/bhp-hr | PM CARB Tier 3+ DPF g/bhp-hr | CARB LF ISOR appendix H Table H-9 | PM R99 Reductions | PM Emissions lbs/hr | 2023 NOx in lbs | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | PM Emissions 2023 thru 2034, lbs | Total Emissions 2023 thru 2034, lbs |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,092 | 3,607 | 3,607 | 2,061 | 2,061 | 4,380 | 4,122 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,390** | 0.03 | | | 0.31 | 30% | 0.02081 | 62 | 73 | 73 | 42 | 42 | 88 | 83 | 83 | 73 | 52 | 52 | 52 | **775** | **39,166** |
| **Gemini** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,092 | 3,607 | 3,607 | 2,061 | 2,061 | 4,380 | 4,122 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,390** | 0.03 | | | 0.31 | 30% | 0.02081 | 62 | 73 | 73 | 42 | 42 | 88 | 83 | 83 | 73 | 52 | 52 | 52 | **775** | **39,166** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 541 | 631 | 631 | 361 | 361 | 767 | 722 | 722 | 631 | 451 | 451 | 451 | **6,721** | 0.17 | | | 0.39 | 30% | 0.00890 | 18 | 21 | 21 | 12 | 12 | 25 | 24 | 24 | 21 | 15 | 15 | 15 | **221** | **6,942** |
| **Gemini** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 541 | 631 | 631 | 361 | 361 | 767 | 722 | 722 | 631 | 451 | 451 | 451 | **6,721** | 0.17 | | | 0.39 | 30% | 0.00890 | 18 | 21 | 21 | 12 | 12 | 25 | 24 | 24 | 21 | 15 | 15 | 15 | **221** | **6,942** |
| **Gemini Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,500 | 3,500 | 2,000 | 2,000 | 4,250 | 4,000 | 4,000 | 3,500 | 2,500 | 2,500 | 2,500 | | | | | | | | | | | | | | | | | | | | |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,092 | 3,607 | 3,607 | 2,061 | 2,061 | 4,380 | 4,122 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,390** | 0.03 | | | 0.31 | 30% | 0.02081 | 62 | 73 | 73 | 42 | 42 | 88 | 83 | 83 | 73 | 52 | 52 | 52 | **775** | **39,166** |
| **Pisces** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,092 | 3,607 | 3,607 | 2,061 | 2,061 | 4,380 | 4,122 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,390** | 0.03 | | | 0.31 | 30% | 0.02081 | 62 | 73 | 73 | 42 | 42 | 88 | 83 | 83 | 73 | 52 | 52 | 52 | **775** | **39,166** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 541 | 631 | 631 | 361 | 361 | 767 | 722 | 722 | 631 | 451 | 451 | 451 | **6,721** | 0.17 | | | 0.39 | 30% | 0.00890 | 18 | 21 | 21 | 12 | 12 | 25 | 24 | 24 | 21 | 15 | 15 | 15 | **221** | **6,942** |
| **Pisces** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 541 | 631 | 631 | 361 | 361 | 767 | 722 | 722 | 631 | 451 | 451 | 451 | **6,721** | 0.17 | | | 0.39 | 30% | 0.00890 | 18 | 21 | 21 | 12 | 12 | 25 | 24 | 24 | 21 | 15 | 15 | 15 | **221** | **6,942** |
| **Pisces Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,000 | 3,500 | 3,500 | 2,000 | 2,000 | 4,250 | 4,000 | 4,000 | 3,500 | 2,500 | 2,500 | 2,500 | | | | | | | | | | | | | | | | | | | | |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,607 | 3,092 | 3,607 | 2,319 | 2,061 | 4,122 | 4,380 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,648** | 0.03 | | | 0.31 | 30% | 0.02081 | 73 | 62 | 73 | 47 | 42 | 83 | 88 | 83 | 73 | 52 | 52 | 52 | **780** | **39,428** |
| **Scorpio** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,607 | 3,092 | 3,607 | 2,319 | 2,061 | 4,122 | 4,380 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,648** | 0.03 | | | 0.31 | 30% | 0.02081 | 73 | 62 | 73 | 47 | 42 | 83 | 88 | 83 | 73 | 52 | 52 | 52 | **780** | **39,428** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 631 | 541 | 631 | 406 | 361 | 722 | 767 | 722 | 631 | 451 | 451 | 451 | **6,766** | 0.17 | | | 0.39 | 30% | 0.00890 | 21 | 18 | 21 | 13 | 12 | 24 | 25 | 24 | 21 | 15 | 15 | 15 | **223** | **6,988** |
| **Scorpio** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 631 | 541 | 631 | 406 | 361 | 722 | 767 | 722 | 631 | 451 | 451 | 451 | **6,766** | 0.17 | | | 0.39 | 30% | 0.00890 | 21 | 18 | 21 | 13 | 12 | 24 | 25 | 24 | 21 | 15 | 15 | 15 | **223** | **6,988** |
| **Scorpio Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 3,000 | 3,500 | 2,250 | 2,000 | 4,000 | 4,250 | 4,000 | 3,500 | 2,500 | 2,500 | 2,500 | | | | | | | | | | | | | | | | | | | | |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,607 | 3,092 | 3,607 | 2,319 | 2,061 | 4,122 | 4,380 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,648** | 0.03 | | | 0.31 | 30% | 0.02081 | 73 | 62 | 73 | 47 | 42 | 83 | 88 | 83 | 73 | 52 | 52 | 52 | **780** | **39,428** |
| **Taurus** | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | 1.04 | 0.31 | 0% | 1.03 | | 3,607 | 3,092 | 3,607 | 2,319 | 2,061 | 4,122 | 4,380 | 4,122 | 3,607 | 2,577 | 2,577 | 2,577 | **38,648** | 0.03 | | | 0.31 | 30% | 0.02081 | 73 | 62 | 73 | 47 | 42 | 83 | 88 | 83 | 73 | 52 | 52 | 52 | **780** | **39,428** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 631 | 541 | 631 | 406 | 361 | 722 | 767 | 722 | 631 | 451 | 451 | 451 | **6,766** | 0.17 | | | 0.39 | 30% | 0.00890 | 21 | 18 | 21 | 13 | 12 | 24 | 25 | 24 | 21 | 15 | 15 | 15 | **223** | **6,988** |
| **Taurus** | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 631 | 541 | 631 | 406 | 361 | 722 | 767 | 722 | 631 | 451 | 451 | 451 | **6,766** | 0.17 | | | 0.39 | 30% | 0.00890 | 21 | 18 | 21 | 13 | 12 | 24 | 25 | 24 | 21 | 15 | 15 | 15 | **223** | **6,988** |
| **Taurus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 3,000 | 3,500 | 2,250 | 2,000 | 4,000 | 4,250 | 4,000 | 3,500 | 2,500 | 2,500 | 2,500 | | | | | | | | | | | | | | | | | | | | |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 13,278 | 8,852 | - | - | - | - | - | - | - | **70,814** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 140 | 93 | - | - | - | - | - | - | - | **746** | **71,560** |
| **Hydrus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 13,278 | 8,852 | - | - | - | - | - | - | - | **70,814** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 140 | 93 | - | - | - | - | - | - | - | **746** | **71,560** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 807 | 538 | - | - | - | - | - | - | - | **4,306** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 14 | 9 | - | - | - | - | - | - | - | **73** | **4,378** |
| **Hydrus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 807 | 538 | - | - | - | - | - | - | - | **4,306** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 14 | 9 | - | - | - | - | - | - | - | **73** | **4,378** |
| **Hydrus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,750 | 3,750 | 3,500 | 3,000 | 2,000 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Hydrus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | 0.00 | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **5,934** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **5,934** |
| **Hydrus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | 0.00 | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **5,934** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **5,934** |
| **Hydrus ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | 0.39 | | | 0.00 | 0.0294 | - | - | - | - | - | - | 119 | 132 | 132 | 132 | 132 | 132 | **780** | | | | 0.39 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **780** |
| **Hydrus ZEAT Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | - | - | - | - | - | - | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | | | | | | | | | | | | | |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 13,278 | 15,491 | 15,491 | - | - | - | - | - | - | **92,943** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 140 | 163 | 163 | - | - | - | - | - | - | **980** | **93,923** |
| **Cetus** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2028 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 13,278 | 15,491 | 15,491 | - | - | - | - | - | - | **92,943** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 140 | 163 | 163 | - | - | - | - | - | - | **980** | **93,923** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 807 | 942 | 942 | - | - | - | - | - | - | **5,651** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 14 | 16 | 16 | - | - | - | - | - | - | **96** | **5,747** |
| **Cetus** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 807 | 942 | 942 | - | - | - | - | - | - | **5,651** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 14 | 16 | 16 | - | - | - | - | - | - | **96** | **5,747** |
| **Cetus Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,750 | 3,750 | 3,500 | 3,000 | 3,500 | 3,500 | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | |
| **Cetus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | | 0.2239 | - | - | - | - | - | - | 952 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **4,983** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **4,983** |
| **Cetus ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | | 0.2239 | - | - | - | - | - | - | 952 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **4,983** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **4,983** |
| **Cetus ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | 0.39 | | | | 0.0294 | - | - | - | - | - | - | 125 | 132 | 132 | 132 | 132 | 132 | **655** | | | | 0.39 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **655** |
| **Cetus ZEAT Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | - | - | - | - | - | - | 4,250 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | | | | | | | | | | | | | |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 13,278 | 15,491 | 15,491 | 8,852 | - | - | - | - | - | **101,795** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 140 | 163 | 163 | 93 | - | - | - | - | - | **1,073** | **102,868** |
| **Argo** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 13,278 | 15,491 | 15,491 | 8,852 | - | - | - | - | - | **101,795** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 140 | 163 | 163 | 93 | - | - | - | - | - | **1,073** | **102,868** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 807 | 942 | 942 | 538 | - | - | - | - | - | **6,189** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 14 | 16 | 16 | 9 | - | - | - | - | - | **105** | **6,294** |
| **Argo** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 807 | 942 | 942 | 538 | - | - | - | - | - | **6,189** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 14 | 16 | 16 | 9 | - | - | - | - | - | **105** | **6,294** |
| **Argo Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,750 | 3,750 | 3,500 | 3,000 | 3,500 | 3,500 | 2,000 | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | |
| **Argo ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | 1,008 | | | **3,919** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **3,919** |
| **Argo ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | 1,008 | | | **3,919** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **3,919** |
| **Argo ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | 0.39 | | | | 0.0294 | - | - | - | - | - | - | 118 | 132 | 132 | 132 | | | **515** | | | | 0.39 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **515** |
| **Argo ZEAT Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | - | - | - | - | - | - | - | 4,000 | 4,500 | 4,500 | | | | | | | | | | | | | | | | | | | | | | |
| **Carina** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 15,491 | 13,278 | 15,491 | 15,491 | 8,852 | - | - | - | - | **117,286** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 163 | 140 | 163 | 163 | 93 | - | - | - | - | **1,236** | **118,522** |
| **Carina** | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2029 | 3.69 | 0.31 | 10% | 4.43 | | 16,597 | 16,597 | 15,491 | 15,491 | 13,278 | 15,491 | 15,491 | 8,852 | - | - | - | - | **117,286** | 0.05 | | | 0.31 | 30% | 0.04664 | 175 | 175 | 163 | 163 | 140 | 163 | 163 | 93 | - | - | - | - | **1,236** | **118,522** |
| **Carina** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2017 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 942 | 807 | 942 | 942 | 538 | - | - | - | - | **7,131** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 16 | 14 | 16 | 16 | 9 | - | - | - | - | **121** | **7,252** |
| **Carina** | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2017 | 162 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.40 | | 1,009 | 1,009 | 942 | 942 | 807 | 942 | 942 | 538 | - | - | - | - | **7,131** | 0.07 | | | 0.39 | 30% | 0.00683 | 17 | 17 | 16 | 16 | 14 | 16 | 16 | 9 | - | - | - | - | **121** | **7,252** |
| **Carina Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,750 | 3,750 | 3,500 | 3,500 | 3,000 | 3,500 | 3,500 | 2,000 | - | - | - | - | | | | | | | | | | | | | | | | | | | | |
| **Carina ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | | | | **2,911** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **2,911** |
| **Carina ZEAT** | Main | TBD | TDB | TBD | 2030 | 1,676 | ZEAT | | | 0.31 | | | | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | | | | **2,911** | | | | 0.31 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **2,911** |
| **Carina ZEAT** | Aux | TBD | TBD | TBD | 2030 | 175 | ZEAT | | | 0.39 | | | | 0.0294 | - | - | - | - | - | - | 118 | 132 | 132 | | | | **382** | | | | 0.39 | | 0.00000 | - | - | - | - | - | - | - | - | - | - | - | **-** | **382** |
| **Carina ZEAT Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | - | - | - | - | - | - | - | 4,000 | 4,500 | 4,500 | | | | | | | | | | | | | | | | | | | | | | |
| **Peralta** | Main | Cummins | QSK50 | 7CEXM019.AAB | 2007 | 1,600 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 5.00 | | 7,499 | 7,499 | 7,499 | 7,499 | 7,499 | 7,499 | 4,999 | - | - | - | - | - | **49,994** | 0.09 | | | 0.31 | 30% | 0.06889 | 103 | 103 | 103 | 103 | 103 | 103 | 69 | - | - | - | - | - | **689** | **50,683** |
| **Peralta** | Main | Cummins | QSK50 | 7CEXM019.AAB | 2007 | 1,600 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 5.00 | | 7,499 | 7,499 | 7,499 | 7,499 | 7,499 | 7,499 | 4,999 | - | - | - | - | - | **49,994** | 0.09 | | | 0.31 | 30% | 0.06889 | 103 | 103 | 103 | 103 | 103 | 103 | 69 | - | - | - | - | - | **689** | **50,683** |
| **Peralta** | Aux | John Deere | 4045TF275 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 271 | 271 | 271 | 271 | 271 | 271 | 180 | - | - | - | - | - | **1,804** | 0.17 | | | 0.39 | 30% | 0.00890 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | - | - | - | - | - | **59** | **1,864** |
| **Peralta** | Aux | John Deere | 4045TF275 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 271 | 271 | 271 | 271 | 271 | 271 | 180 | - | - | - | - | - | **1,804** | 0.17 | | | 0.39 | 30% | 0.00890 | 9 | 9 | 9 | 9 | 9 | 9 | 6 | - | - | - | - | - | **59** | **1,864** |
| **Peralta Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 | 1,000 | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | |
| **Bay Breeze** | Main | MTU | 16V2000M70 | 7MDDM31.8MRR | 2007 | 1,410 | 2 | 2024 | 2026 | 5.08 | 0.31 | 10% | 4.41 | | 6,609 | 6,609 | 4,406 | - | - | - | - | - | - | - | - | - | **17,623** | 0.09 | | | 0.31 | 30% | 0.06071 | 91 | 91 | 61 | - | - | - | - | - | - | - | - | - | **243** | **17,866** |
| **Bay Breeze** | Main | MTU | 16V2000M70 | 7MDDM31.8MRR | 2010 | 1,410 | 2 | 2025 | 2027 | 5.08 | 0.31 | 10% | 4.41 | | 6,609 | 6,609 | 4,406 | - | - | - | - | - | - | - | - | - | **17,623** | 0.09 | | | 0.31 | 30% | 0.06071 | 91 | 91 | 61 | - | - | - | - | - | - | - | - | - | **243** | **17,866** |
| **Bay Breeze** | Aux | John Deere | 4045TF270 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 271 | 271 | 180 | - | - | - | - | - | - | - | - | - | **722** | 0.17 | | | 0.39 | 30% | 0.00890 | 9 | 9 | 6 | - | - | - | - | - | - | - | - | - | **24** | **745** |
| **Bay Breeze** | Aux | John Deere | 4045TF270 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2026 | 4.02 | 0.39 | 10% | 0.27 | | 271 | 271 | 180 | - | - | - | - | - | - | - | - | - | **722** | 0.17 | | | 0.39 | 30% | 0.00890 | 9 | 9 | 6 | - | - | - | - | - | - | - | - | - | **24** | **745** |
| **Bay Breeze Annual Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 1,500 | 1,500 | 1,500 | 1,000 | - | - | - | - | - | - | - | - | | | | | | | | | | | | | | | | | | | | |
| **Pyxis** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 8,540 | 4,880 | 4,880 | 6,100 | 6,710 | 6,710 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | **81,742** | 0.03 | | | 0.31 | 30% | 0.04927 | 172 | 99 | 99 | 123 | 135 | 135 | 148 | 148 | 148 | 148 | 148 | 148 | **1,651** | **83,393** |
| **Pyxis** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 8,540 | 4,880 | 4,880 | 6,100 | 6,710 | 6,710 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | **81,742** | 0.03 | | | 0.31 | 30% | 0.04927 | 172 | 99 | 99 | 123 | 135 | 135 | 148 | 148 | 148 | 148 | 148 | 148 | **1,651** | **83,393** |
| **Pyxis** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,424 | 814 | 814 | 1,017 | 1,119 | 1,119 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | **13,634** | 0.07 | | | 0.39 | 30% | 0.01032 | 24 | 14 | 14 | 17 | 19 | 19 | 21 | 21 | 21 | 21 | 21 | 21 | **231** | **13,864** |
| **Pyxis** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,424 | 814 | 814 | 1,017 | 1,119 | 1,119 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | **13,634** | 0.07 | | | 0.39 | 30% | 0.01032 | 24 | 14 | 14 | 17 | 19 | 19 | 21 | 21 | 21 | 21 | 21 | 21 | **231** | **13,864** |
| **Pyxis Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 2,000 | 2,000 | 2,500 | 2,750 | 2,750 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | | | | | | | | | | | | | |
| **Vela** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 8,540 | 6,100 | 4,880 | 6,100 | 6,710 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | **83,572** | 0.03 | | | 0.31 | 30% | 0.04927 | 172 | 123 | 99 | 123 | 135 | 148 | 148 | 148 | 148 | 148 | 148 | **1,688** | **85,260** |
| **Vela** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 8,540 | 6,100 | 4,880 | 6,100 | 6,710 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | **83,572** | 0.03 | | | 0.31 | 30% | 0.04927 | 172 | 123 | 99 | 123 | 135 | 148 | 148 | 148 | 148 | 148 | 148 | **1,688** | **85,260** |
| **Vela** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,424 | 1,017 | 814 | 1,017 | 1,119 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | **13,939** | 0.07 | | | 0.39 | 30% | 0.01032 | 24 | 17 | 14 | 17 | 19 | 21 | 21 | 21 | 21 | 21 | 21 | **236** | **14,175** |
| **Vela** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,424 | 1,017 | 814 | 1,017 | 1,119 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | **13,939** | 0.07 | | | 0.39 | 30% | 0.01032 | 24 | 17 | 14 | 17 | 19 | 21 | 21 | 21 | 21 | 21 | 21 | **236** | **14,175** |
| **Vela Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | 3,500 | 2,500 | 2,000 | 2,500 | 2,750 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | | | | | | | | | | | | | | | | | | | | |
| **Lyra** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 7,320 | 6,100 | 7,320 | 6,100 | 6,710 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | **84,792** | 0.03 | | | 0.31 | 30% | 0.04927 | 148 | 123 | 148 | 123 | 135 | 148 | 148 | 148 | 148 | 148 | 148 | **1,712** | **86,505** |
| **Lyra** | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | 1.04 | 0.31 | 0% | 2.44 | | 7,320 | 6,100 | 7,320 | 6,100 | 6,710 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | 7,320 | **84,792** | 0.03 | | | 0.31 | 30% | 0.04927 | 148 | 123 | 148 | 123 | 135 | 148 | 148 | 148 | 148 | 148 | 148 | **1,712** | **86,505** |
| **Lyra** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,221 | 1,017 | 1,221 | 1,017 | 1,119 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | **14,143** | 0.07 | | | 0.39 | 30% | 0.01032 | 21 | 17 | 21 | 17 | 19 | 21 | 21 | 21 | 21 | 21 | 21 | **239** | **14,382** |
| **Lyra** | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | 3.22 | 0.39 | 10% | 0.61 | | 1,221 | 1,017 | 1,221 | 1,017 | 1,119 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | 1,221 | **14,143** | 0.07 | | | 0.39 | 30% | 0.01032 | 

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hull 161 Hours** | | Gen Hour Factor | 67% | | | | | | | | | | | Annual Hours | - | - | 500 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | | | | | | | | - | - | 500 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | | |
| **149PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 269 | 358 | 358 | 403 | 403 | 403 | 403 | 403 | 403 | **3,402** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **3,402** |
| **149PAX ZEAT #1TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 269 | 358 | 358 | 403 | 403 | 403 | 403 | 403 | 403 | **3,402** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **3,402** |
| **149PAX ZEAT #1TBD Name** | Aux | TBD | TDB | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 10 | 13 | 13 | 15 | 15 | 15 | 15 | 15 | 15 | **128** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **128** |
| **149PAX ZEAT #1 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | - | - | - | 3,000 | 4,000 | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | - | - | - | 3,000 | 4,000 | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | |
| **149PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 269 | 358 | 358 | 403 | 403 | 403 | 403 | 403 | 403 | **3,402** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **3,402** |
| **149PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2025 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | 269 | 358 | 358 | 403 | 403 | 403 | 403 | 403 | 403 | **3,402** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **3,402** |
| **149PAX ZEAT #2 TBD Name** | Aux | TBD | TBD | TBD | 2025 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | 10 | 13 | 13 | 15 | 15 | 15 | 15 | 15 | 15 | **128** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **128** |
| **149PAX ZEAT #2 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | - | - | - | 3,000 | 4,000 | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | - | - | - | 3,000 | 4,000 | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | |
| **149PAX ZEAT #3 TBD Name** | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | - | 224 | 358 | 403 | 403 | 403 | 403 | 403 | 403 | **2,999** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **2,999** |
| **149PAX ZEAT #3 TBD Name** | Main | TBD | TDB | TBD | 2026 | 670 | ZEAT | | | | 0.31 | | | 0.0895 | - | - | - | - | 224 | 358 | 403 | 403 | 403 | 403 | 403 | 403 | **2,999** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **2,999** |
| **149PAX ZEAT #3 TBD Name** | Aux | TBD | TBD | TBD | 2026 | 20 | ZEAT | | | | 0.39 | | | 0.0034 | - | - | - | - | 8 | 13 | 15 | 15 | 15 | 15 | 15 | 15 | **113** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **113** |
| **149PAX ZEAT #3 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | - | - | - | - | 2,500 | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | - | - | - | - | 2,500 | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | |
| **400PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2028 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | 784 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **6,830** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **6,830** |
| **400PAX ZEAT #1 TBD Name** | Main | TBD | TDB | TBD | 2028 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | 784 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **6,830** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **6,830** |
| **400PAX ZEAT #1 TBD Name** | Aux | TBD | TBD | TBD | 2028 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | - | 103 | 132 | 132 | 132 | 132 | 132 | 132 | **897** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **897** |
| **400PAX ZEAT #1 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | - | - | - | - | - | 3,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | - | - | - | - | - | 3,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | |
| **400PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2029 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **5,934** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **5,934** |
| **400PAX ZEAT #2 TBD Name** | Main | TBD | TDB | TBD | 2029 | 1,676 | ZEAT | | | | 0.31 | | | 0.2239 | - | - | - | - | - | - | 896 | 1,008 | 1,008 | 1,008 | 1,008 | 1,008 | **5,934** | | | | 0.31 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **5,934** |
| **400PAX ZEAT #2 TBD Name** | Aux | TBD | TBD | TBD | 2029 | 175 | ZEAT | | | | 0.39 | | | 0.0294 | - | - | - | - | - | - | 118 | 132 | 132 | 132 | 132 | 132 | **780** | | | | 0.39 | | | - | - | - | - | - | - | - | - | - | - | - | - | **-** | **780** |
| **400PAX ZEAT #2 Hours** | | Gen Hour Factor | 100% | | | | | | | | | | | Annual Hours | - | - | - | - | - | - | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | | | | | | | - | - | - | - | - | - | 4,000 | 4,500 | 4,500 | 4,500 | 4,500 | 4,500 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Total Emissions (lbs)** | | | | | | | | | | | | | | | **358,717** | **336,322** | **309,999** | **287,858** | **274,755** | **283,392** | **223,471** | **180,503** | **157,869** | **148,253** | **146,415** | **146,415** | **2,853,970** | | | | | | | **5,261** | **4,944** | **4,535** | **3,901** | **3,758** | **4,125** | **3,325** | **2,769** | **2,437** | **2,182** | **2,141** | **2,141** | **41,517** | **2,895,487** |
| **Central Bay Hour Usage** | | | | | | | | | | | | | | | 31,000 | 31,000 | 30,500 | 33,500 | 38,000 | 52,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | | | | | | | | 31,000 | 31,000 | 30,500 | 33,500 | 38,000 | 52,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | | |
| **North Bay Hour Usage** | | | | | | | | | | | | | | | 17,000 | 17,000 | 17,500 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | | | | | | | | 17,000 | 17,000 | 17,500 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | | |
| **Total Vessel Hour Usage** | | | | | | | | | | | | | | | 48,000 | 48,000 | 48,000 | 50,500 | 55,000 | 69,000 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | | | | | | | | 48,000 | 48,000 | 48,000 | 50,500 | 55,000 | 69,000 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | 72,000 | | |

| | | | | | |
|---|---|---|---|---|---|
| **CARB T4+DPF** | T4+DPF | 0-3,700kw | C1<7L | 1.30 | 0.005 |
| **CARB T3+DPF** | T3+DPF | 0.9<Disp>1.2L | <35kw/L | 3.22 | 0.013 |
| **eGRID** | Elec | Nox | lbs/hp-hr | 0.000388 | 0.000 |
| **Hydrogen** | 50kW-hr of electricity/kg of H2, 55% eff 1 kg of H2 gets you 18.5kw-hr in fuel cell, 34% overall eff | | | H2 uses eGrid at load/.34 for efficiency | |
| **g/kw-hr to g/bhp/hr** | 0.7457 | | | | |

### Table 17: Compliance Dates for Tier 2, Tier 3, or Tier 4 Engines on Ferries (Except Short-Run Ferries), Pilot Vessels, All Tug/Towboats, and Push Boats

| Engine Model Year and Vessel Category | Compliance Date |
|---|---|
| 2009 and earlier (Except Pilot Vessels) | 12/31/2024 |
| 2012 and Earlier Pilot Vessels | 12/31/2025 |
| 2010 – 2012 All Other Vessels* | 12/31/2025 |
| 2013 – 2015** | 12/31/2026 |
| 2016 – 2019** | 12/31/2027 |
| 2020 – 2021** | 12/31/2028 |
| 2022 and later** | 12/31/2029 |

*Ferries (Except Short-Run Ferries), All Tug/Towboats, and Push Boats. **All vessels listed in the title of this table, including ferries (except short-run), pilot, all tug/towboats, and push boats. [Note: For example, for a 2020 model year diesel engine on a tugboat operating in Regulated California Waters, the owner or operator must bring the engine into compliance with the requirements of subsection (e)(12)(C) by December 31, 2028.]

Appendix 4

WETA ACE Plan - Vessel Data

| Vessel Data | | | | | | |
|---|---|---|---|---|---|---|
| **Harbor Craft Name** | **Home Port** | **Vessel Type** | **CARB UVI** | **USCG Doc Number** | **Call Sign Number** | **MMSI Nbr** |
| BAY BREEZE | Alameda, CA | Ferry | CARB00016 | 1020550 | WDE3988 | 366971280 |
| INTINTOLI | Alameda, CA | Ferry | CARB00009 | 1050665 | WCX2709 | 366989360 |
| MARE ISLAND | Alameda, CA | Ferry | CARB00010 | 1053103 | WDC2198 | 366989380 |
| PERALTA | Alameda, CA | Ferry | CARB00007 | 1118810 | WDB9847 | 366983830 |
| GEMINI | Alameda, CA | Ferry | CARB00013 | 1213097 | WDE6488 | 367380880 |
| PISCES | Alameda, CA | Ferry | CARB00008 | 1213095 | WDE7319 | 367391830 |
| SCORPIO | Alameda, CA | Ferry | CARB00014 | 1215086 | WDF2159 | 367425520 |
| TAURUS | Alameda, CA | Ferry | CARB00015 | 1215087 | WDF3127 | 367436230 |
| HYDRUS | Alameda, CA | Ferry | CARB00012 | 1275311 | WDJ3145 | 367765240 |
| CETUS | Alameda, CA | Ferry | CARB00017 | 1277145 | WDJ5269 | 367786010 |
| ARGO | Alameda, CA | Ferry | CARB00018 | 1282716 | WDJ8605 | 368018070 |
| CARINA | Alameda, CA | Ferry | CARB00019 | 1290482 | WDK5289 | 368063440 |
| PYXIS | Mare Island, CA | Ferry | CARB00020 | 1286883 | WDK4292 | 368053730 |
| VELA | Mare Island, CA | Ferry | CARB00021 | 1286882 | WDK7865 | 368088590 |
| LYRA | Mare Island, CA | Ferry | CARB00022 | 1286881 | WDK7866 | 368088610 |
| DORADO | Mare Island, CA | Ferry | CARB00023 | 1324772 | WDM8995 | 368248520 |
| DELPHINUS | Mare Island, CA | Ferry | CARB02634 | 1331494 | WDP3038 | 368341690 |
| Hull 160 | Mare Island, CA | Ferry | TBD | TBD | TBD | TBD |
| Hull 161 | Mare Island, CA | Ferry | TBD | TBD | TBD | TBD |
| 149 PAX Hull 1 | Alameda, CA | Short Run Ferry | TBD | TBD | TBD | TBD |
| 149 PAX Hull 2 | Alameda, CA | Short Run Ferry | TBD | TBD | TBD | TBD |
| 149 PAX Hull 3 | Alameda, CA | Short Run Ferry | TBD | TBD | TBD | TBD |
| 400 PAX Hull 1 | Alameda, CA | Ferry | TBD | TBD | TBD | TBD |
| 400 PAX Hull 2 | Alameda, CA | Ferry | TBD | TBD | TBD | TBD |
| HYDRUS ZEAT | Alameda, CA | Ferry | CARB00012 | 1275311 | WDJ3145 | 367765240 |
| CETUS ZEAT | Alameda, CA | Ferry | CARB00017 | 1277145 | WDJ5269 | 367786010 |
| ARGO ZEAT | Alameda, CA | Ferry | CARB00018 | 1282716 | WDJ8605 | 368018070 |
| CARINA ZEAT | Alameda, CA | Ferry | CARB00019 | 1290482 | WDK5289 | 368063440 |

# WETA ACE Plan - Vessel Data

| Main Engines | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Harbor Craft Name** | **Model Number** | **OEM** | **BHP** | **Cylinders** | **EPA Marine Tier** | **Port Engine SN** | **EPA Model Year** | **Family Nbr** | **Stbd Engine SN** | **EPA Model Year** | **Family Nbr** |
| BAY BREEZE | 16V2000M70 | MTU | 1410 | 16 | 2 | 5362004477 | 2007 | 8MDDM31.8MRR | 536109491 | 2010 | AMDDM31.8MRR |
| INTINTOLI | 16V4000M73L | MTU | 3433 | 16 | 2 | 527107963 | 2010 | AMDDN86.2MTR | 527107026 | 2009 | 9MDDN86.2MTR |
| MARE ISLAND | 16V4000M73L | MTU | 3433 | 16 | 2 | 527107023 | 2009 | 9MDDN86.2MTR | 527107025 | 2009 | 9MDDN86.2MTR |
| PERALTA | QSK50 | Cummins | 1600 | 16 | 2 | 33170825 | 2007 | 7CEXM019.AAB | 33170793 | 2007 | 7CEXM019.AAB |
| GEMINI | D2826LE489 | MAN | 1430 | 12 | 4 | 710 6048 804 6068 | 2021 | MMNBN24.2CO4 | 710 6048 812 6068 | 2021 | MMNBN24.2CO4 |
| PISCES | D2826LE489 | MAN | 1430 | 12 | 4 | 710 6065 806 6068 | 2021 | MMNBN24.2CO4 | 710 6065 812 6068 | 2021 | MMNBN24.2CO4 |
| SCORPIO | D2826LE489 | MAN | 1430 | 12 | 4 | 710 6064 816 6068 | 2021 | MMNBN24.2CO4 | 710 6064 818 6068 | 2021 | MMNBN24.2CO4 |
| TAURUS | D2826LE489 | MAN | 1430 | 12 | 4 | 710 6066 804 6068 | 2021 | MMNBN24.2CO4 | 710 6066 812 6068 | 2021 | MMNBN24.2CO4 |
| HYDRUS | 12V4000M64+ | MTU | 1950 | 12 | 3 | 547100432 | 2015 | FMDDN76.3MTK | 547100433 | 2015 | FMDDN76.3MTK |
| CETUS | 12V4000M64+ | MTU | 1950 | 12 | 3 | 547100442 | 2015 | FMDDN76.3MTK | 547100441 | 2015 | FMDDN76.3MTK |
| ARGO | 12V4000M64 | MTU | 1875 | 12 | 3 | 547100458 | 2016 | GMDDN57.2MTK | 547100457 | 2016 | GMDDN57.2MTK |
| CARINA | 12V4000M64 | MTU | 1875 | 12 | 3 | 547100460 | 2016 | GMDDN57.2MTK | 547100459 | 2016 | GMDDN57.2MTK |
| PYXIS | 16V4000M65L | MTU | 3433 | 16 | 4 | 595100004 | 2023 | PMDDN76.3MTS | 595100006 | 2023 | PMDDN76.3MTS |
| VELA | 16V4000M65L | MTU | 3433 | 16 | 4 | 595100014 | 2023 | PMDDN76.3MTS | 595100012 | 2023 | PMDDN76.3MTS |
| LYRA | 16V4000M65L | MTU | 3433 | 16 | 4 | 595100011 | 2023 | PMDDN76.3MTS | 595100009 | 2023 | PMDDN76.3MTS |
| DORADO | 12V4000M65L | MTU | 2575 | 12 | 4 | 594100034 | 2021 | MMDDN76.3MTS | 594100033 | 2021 | MMDDN76.3MTS |
| DELPHINUS | 12V4000M65L | MTU | 2575 | 12 | 4 | 594320016 | 2021 | NMDDN76.3MTS | 594320015 | 2021 | NMDDN76.3MTS |
| Hull 160 | D2862LE48B | MAN | 1430 | 12 | 4+DPF | TBD | TBD | TBD | TBD | TBD | TBD |
| Hull 161 | D2862LE48B | MAN | 1430 | 12 | 4+DPF | TBD | TBD | TBD | TBD | TBD | TBD |
| 149 PAX Hull 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 149 PAX Hull 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 149 PAX Hull 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 400 PAX Hull 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 400 PAX Hull 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| HYDRUS ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| CETUS ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| ARGO ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| CARINA ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

# WETA ACE Plan - Vessel Data

| Generators / Auxiliary Engines | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Harbor Craft Name** | **Model Number** | **OEM** | **BHP** | **Cylinders** | **EPA Marine Tier** | **Port Gen SN** | **EPA Model Year** | **Family Nbr** | **Stbd Gen SN** | **EPA Model Year** | **Family Nbr** |
| BAY BREEZE | 4045TF270 | John Deere | 99 | 4 | 2 | PE4045T743682 | 2008 | 8ADEM06.8275 | PE4045T743681 | 2008 | 8ADEM06.8275 |
| INTINTOLI | 6068TF275 | John Deere | 150 | 6 | 2 | PE6068T814448 | 2011 | BADEN06.8275 | PE6068T814451 | 2011 | BADEN06.8275 |
| MARE ISLAND | 6068TF275 | John Deere | 150 | 6 | 2 | PE6068T825725 | 2011 | BADEN06.8275 | PE6068T808710 | 2010 | AADEN06.8275 |
| PERALTA | 4045TF275 | John Deere | 87 | 4 | 2 | PE4045T704610 | 2008 | 8ADEM06.8275 | PE4045L946634 | 2008 | 8ADEM06.8275 |
| GEMINI | 4045TF275 | John Deere | 87 | 4 | 2 | PE4045T663621 | 2007 | 7ADEM06.8275 | PE4045T663624 | 2007 | 7ADEM06.8275 |
| PISCES | 4045TF275 | John Deere | 87 | 4 | 2 | PE4045T704610 | 2008 | 8ADEM06.8275 | PE4045T711388 | 2008 | 8ADEM06.8275 |
| SCORPIO | 4045TF275 | John Deere | 87 | 4 | 2 | PE4045T727372 | 2008 | 8ADEM06.8275 | PE4045T722673 | 2008 | 8ADEM06.8275 |
| TAURUS | 4045TF275 | John Deere | 87 | 4 | 2 | PE4045T760282 | 2009 | 9ADEN06.8275 | PE4045T760283 | 2009 | 9ADEN06.8275 |
| HYDRUS | 4045AFM85 | John Deere | 162 | 4 | 3 | PE4045L946624 | 2014 | EJDXN06.8148 | PE4045L946634 | 2014 | EJDXN06.8148 |
| CETUS | 4045AFM85 | John Deere | 162 | 4 | 3 | PE4045L997224 | 2016 | GJDXN06.8148 | PE4045L997223 | 2016 | GJDXN06.8148 |
| ARGO | 4045AFM85 | John Deere | 162 | 4 | 3 | 4045L946654 | 2014 | EJDXN06.8148 | 4045L995765 | 2016 | GJDXN06.8148 |
| CARINA | 4045AFM85 | John Deere | 162 | 4 | 3 | PE4045N007650 | 2017 | HJDXN06.8148 | PE4045N007637 | 2017 | HJDXN06.8148 |
| PYXIS | 6068AFM85E | John Deere | 245 | 6 | 3 | PE6068N004186 | 2017 | HJDXN06.8148 | PE6068N004254 | 2017 | HJDXN06.8148 |
| VELA | 6068AFM85E | John Deere | 245 | 6 | 3 | PE6068N004187 | 2017 | HJDXN06.8148 | PE6068N004253 | 2017 | HJDXN06.8148 |
| LYRA | 6068AFM85E | John Deere | 245 | 6 | 3 | PE6068N004311 | 2017 | HJDXN06.8148 | PE6068N004352 | 2017 | HJDXN06.8148 |
| DORADO | 4045AFM85 | John Deere | 133 | 4 | 3 | PE4045N024185 | 2019 | KJDXN06.8148 | PE4045N024184 | 2019 | KJDXN06.8148 |
| DELPHINUS | 4045AFM85 | John Deere | 133 | 4 | 3 | PE4045N037566 | 2022 | NJDXN06.8147 | PE4045N037567 | 2022 | NJDXN06.8147 |
| Hull 160 | 4045AFM85 | John Deere | 133 | 4 | 3 | TBD | TBD | TBD | TBD | TBD | TBD |
| Hull 161 | 4045AFM85 | John Deere | 133 | 4 | 3 | TBD | TBD | TBD | TBD | TBD | TBD |
| 149 PAX Hull 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 149 PAX Hull 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 149 PAX Hull 3 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 400 PAX Hull 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 400 PAX Hull 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| HYDRUS ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| CETUS ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| ARGO ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| CARINA ZEAT | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Appendix 5

# WETA ACE Plan - Terminal to DAC Details

| WETA Terminals | Address | In DAC | 2 Mi Range to DAC | Range to DAC | Associated DAC Census Tract |
|---|---|---|---|---|---|
| Alameda Main Street | 2990 Main Street Alameda CA 94501 | Yes | Yes | 0.00 mi | 6001428700 |
| Harbor Bay Terminal | 215 Adelphian Way Alameda CA 94502 | No | Yes | 1.00 mi | 6001403000 |
| Oakland Terminal | Jack London Square 10 Clay St Oakland Ca 94607 | No | Yes | 0.46 mi | 6001409000 |
| Mission Bay / Oracle Park Terminal | 24 Willie Mays Plaza San Francisco CA 94107 | No | Yes | 0.72 mi | 6075017801 |
| Richmond Terminal | 1453 Harbor Way South Richmond CA 94804 | Yes | Yes | 0.00 mi | 6013380000 |
| San Francisco Ferry Building | 1 Ferry Building San Francisco CA 94105 | No | Yes | 0.88 mi | 6075017801 |
| South San Francisco Terminal | 911 Marina Blvd. South San Fancisco CA 94080 | Yes | Yes | 0.00 mi | 6081602300 |
| Seaplane Lagoon Terminal | 1701 Ferry Point Road, Alameda, CA 94501 | Yes | Yes | 0.00 mi | 6001428700 |
| San Francisco Pier 41 Terminal | Pier 41 San Francisco, CA 94133 | No | Yes | 1.61 mi | 6075012301 |
| Mare Island Terminal & Maintenance Facility | 1050 Nimitz Ave Vallejo CA 94592 | Yes | Yes | 0.00 mi | 6095250801 |
| Vallejo Terminal | 289 Mare Island Way Vallejo CA 94590 | Yes | Yes | 0.00 mi | 6095250900 |
| Central Bay Operations & Maintenance Facility | 670 West Hornet Ave, Alameda CA 94501 | Yes | Yes | 0.00 mi | 6001428700 |
| Treasure Island | 2 Ave of the Palms, Treasure Island Rd, San Francisco, CA 94130 | Yes | Yes | 0.00 mi | 6075017902 |
| Berkeley | Seawall Dr and University Ave, Berkeley CA 94710 | No | Yes | 0.64 mi | 6001422000 |

**Used CalEPA for DAC https://calepa.ca.gov/EnvJustice/GHGInvest/

Appendix 6

San Francisco Bay Ferry
A SERVICE OF WETA

**MEMORANDUM**

TO: Executive Officer
Commercial Harbor Craft Regulations
California Air Resources Board

FROM: Tim Hanners, Director of Project Delivery & Engineering
Water Emergency Transportation Authority (WETA)

SUBJECT: WETA Alternative Control of Emissions (ACE) Base Plan Fleetwide Compliance Extensions Analysis

1. Per CCR Title 17, section 93118.5 (f) (1) (A), a submitter may be granted up to 2 years of compliance extensions for continued vessel operations within the base plan, beyond the Nominal Compliance Baseline, by submitting documentation in accordance with applicable extensions (e)(12)(E) 2.-4.

2. Email communications from CARB staff dated 10 September 2024 provided instruction that, in addition to extensions (e)(12)(E) 2.-4., extension (e)(12)(E) 5. may be applied for vessel operations within the base plan.

3. Accordingly, and in conjunction with guidance from CARB staff, WETA has developed its Base Plans with a 2-year extension assumption for every non-Zero Emission Alternative Technology vessel. Current operating engine identifying information and the associated compliance extensions that WETA is requesting are detailed in Attachment A. Justification for the two types of extensions requested are as follows:

    a. For engines rated greater than 600kW that are EPA Tier 4 compliant, and engines rated lass than 600kW that are EPA Tier 3 compliant, WETA is requesting a 2-year compliance date extension under Feasibility Extension E2 – No Certified Engines or DPFs Available. As displayed in Attachment B.2 there are no level 3 CARB Verified Diesel Emission Control Strategies (VDECS). Template application packages for these extensions are included in Attachment B.

    b. The auxiliary engines on the Gemini vessel will utilize Extension E5 eligibility iv., “for multiple engines on a single vessel with different compliance dates” in 2024 and 2025. The auxiliary engines on the Pisces vessel will utilize Extension E5 eligibility iv. in 2025. Template application packages for these extensions are included in Attachment C.

c. For all other engines WETA is requesting two each 1-year extensions under Scheduling Extension E5. As detailed in Attachment A, eligibility iii applies with multiple engines on multiple vessels with the same compliance date. Template application packages for these extensions are included in Attachment D.

Enclosures:
Attachment A – WETA ACE Base Plan Extension Applicability
Attachment B – Feasibility Extension E2 Package
Attachment C – Scheduling Extension E5 iv Package
Attachment D – Scheduling Extension E5 iii Package

| Vessel | Engine Type | OEM | Model | Engine Family | Model Year | HP | EPA Tier | Comp. Year | 1st Ext Comp. Year | 2nd Ext Comp. Year | Requested Extension | Extension Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gemini | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Gemini | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Gemini | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2025 | 2026 | E5 iv. | Multiple engines on a single vessel with different compliance date |
| Gemini | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2007 | 87 | 2 | 2024 | 2025 | 2026 | E5 iv. | Multiple engines on a single vessel with different compliance date |
| Pisces | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Pisces | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Pisces | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii./E5 iv. | Multiple engines on multiple vessels w/ the same compliance date ('24)<br>Multiple engines on a single vessel w/ different compliance date ('25) |
| Pisces | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii./E5 iv. | Multiple engines on multiple vessels w/ the same compliance date ('24)<br>Multiple engines on a single vessel w/ different compliance date ('25) |
| Scorpio | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Scorpio | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Scorpio | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Scorpio | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Taurus | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Taurus | Main | MAN | D2862LE489 | D2862LE489 | 2021 | 1,450 | 4 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| Taurus | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Taurus | Aux | John Deere | 4045TF275 | 7ADEM06.8275 | 2009 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Hydrus | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2027 | 2028 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Hydrus | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2027 | 2028 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Hydrus | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | - | E2 | There are no Level 3 VDECS commercially available |
| Hydrus | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | - | E2 | There are no Level 3 VDECS commercially available |
| Cetus | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2027 | 2028 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Cetus | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2015 | 1,950 | 3 | 2026 | 2027 | 2028 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Cetus | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Cetus | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Argo | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2028 | 2029 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Argo | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2028 | 2029 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Argo | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2014 | 162 | 3 | 2026 | 2028 | - | E2 | There are no Level 3 VDECS commercially available |
| Argo | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2016 | 162 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Carina | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2028 | 2029 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Carina | Main | MTU | 12V4000M64 | FMDDN76.3MTK | 2016 | 1,950 | 3 | 2027 | 2028 | 2029 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Carina | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2017 | 162 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Carina | Aux | John Deere | 4045AFM85 | EJDXN06.8148 | 2017 | 162 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Peralta | Main | Cummins | QSK50 | 7CEXM019.AAB | 2007 | 1,600 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Peralta | Main | Cummins | QSK50 | 7CEXM019.AAB | 2007 | 1,600 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Peralta | Aux | John Deere | 4045TF275 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Peralta | Aux | John Deere | 4045TF275 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Bay Breeze | Main | MTU | 16V2000M70 | 7MDDM31.8MRR | 2007 | 1,410 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Bay Breeze | Main | MTU | 16V2000M70 | 7MDDM31.8MRR | 2010 | 1,410 | 2 | 2025 | 2026 | 2027 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Bay Breeze | Aux | John Deere | 4045TF270 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Bay Breeze | Aux | John Deere | 4045TF270 | 8ADEM06.8275 | 2008 | 87 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Pyxis | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Pyxis | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2017 | 3,433 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Pyxis | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Pyxis | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Vela | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Vela | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Vela | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Vela | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Lyra | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Lyra | Main | MTU | 16V4000M65L | MMDDN76.3MTS | 2018 | 3,433 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Lyra | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Lyra | Aux | John Deere | 6068AFM85E | HJDXN06.8148 | 2017 | 245 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| Intintoli | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2010 | 3,433 | 2 | 2025 | 2026 | 2027 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Intintoli | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Intintoli | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2026 | 2027 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| Intintoli | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2026 | 2027 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mare Island** | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| **Mare Island** | Main | MTU | 16V4000M73L | AMDDN86.2MTR | 2009 | 3,433 | 2 | 2024 | 2025 | 2026 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| **Mare Island** | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2010 | 150 | 2 | 2025 | 2026 | 2027 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| **Mare Island** | Aux | John Deere | 6068TF275 | HJDXN06.8148 | 2011 | 150 | 2 | 2025 | 2026 | 2027 | E5 iii. | Multiple engines on multiple vessels with the same compliance date |
| **Dorado** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| **Dorado** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2019 | 2,575 | 4 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| **Dorado** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| **Dorado** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2019 | 148 | 3 | 2027 | 2029 | - | E2 | There are no Level 3 VDECS commercially available |
| **Delphinus** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4 | 2029 | 2031 | - | E2 | There are no Level 3 VDECS commercially available |
| **Delphinus** | Main | MTU | 12V4000M65L | MMDDN76.3MTS | 2022 | 2,575 | 4 | 2029 | 2031 | - | E2 | There are no Level 3 VDECS commercially available |
| **Delphinus** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |
| **Delphinus** | Aux | John Deere | 4045AFM85 | KJDXN06.8148 | 2020 | 148 | 3 | 2028 | 2030 | - | E2 | There are no Level 3 VDECS commercially available |

Attachment B

# Application Template for Compliance Extension E2 to the Commercial Harbor Craft Regulation: Technology Availability

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov no later than 9 months and no earlier than 12 months before the compliance date.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| (2) | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| (3) | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | | | |
|---|---|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Gemini | M/V Pisces | M/V Scorpio | M/V Taurus |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00013 | CARB00008 | CARB00014 | CARB00015 |
| | **Vessel category:** | Ferry | Ferry | Ferry | Ferry |
| | **Current compliance date(s):** | Propulsion: 12/31/28 | Propulsion: 12/31/28 | Propulsion: 12/31/28 | Propulsion: 12/31/28 |
| *(6)* | **Requested extension period start:** | Propulsion: 12/31/28 | Propulsion: 12/31/28 | Propulsion: 12/31/28 | Propulsion: 12/31/28 |
| *(7)* | **Requested extension period end dates** (2-year limit)**:** | Propulsion: 12/31/30 | Propulsion: 12/31/30 | Propulsion: 12/31/30 | Propulsion: 12/31/30 |

## Attachments

Complete the following for each engine:

*(8)* ✓ Attachment A: Please attach an evaluation of all current U.S. EPA certified engines meeting applicable performance standards. Label this **ATTACHMENT A**.

See the U.S. EPA Tier 4 marine certified database for a list of certified engines.

*(9)* ✓ Attachment B: Please attach an evaluation of all current CARB-verified DPFs. Label this **ATTACHMENT B**.

See CARB's list of verified diesel emission control strategies for a list of verified DPF.

*(10)*
*(11)* ✓ Attachment C: Please attach an engineering analysis indicating that no combination of certified engines could be used in lieu of engines of the original horsepower rating to perform the work of the original vessel design. This analysis must consider all engines within an applicable range of power ratings, power densities, and other vessel powertrain modifications, including engine controls, azimuth drives and propeller configurations. Label this **ATTACHMENT C**.

Attachment B

# Application Template for Compliance Extension E2 to the Commercial Harbor Craft Regulation: Technology Availability

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov no later than 9 months and no earlier than 12 months before the compliance date.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| (2) | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| (3) | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | | | |
|---|---|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Hydrus | M/V Cetus | M/V Argo | M/V Carina |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00012 | CARB00017 | CARB00018 | CARB00019 |
| | **Vessel category:** | Ferry | Ferry | Ferry | Ferry |
| | **Current compliance date(s):** | Propulsion: 12/31/26<br>Auxiliary: 12/31/26 | Propulsion: 12/31/26<br>Auxiliary: 12/31/27 | Propulsion: 12/31/27<br>Auxiliary: 12/31/26 | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 |
| *(6)* | **Requested extension period start:** | Propulsion: 12/31/26<br>Auxiliary: 12/31/26 | Propulsion: 12/31/26<br>Auxiliary: 12/31/27 | Propulsion: 12/31/27<br>Auxiliary: 12/31/26 | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 |
| *(7)* | **Requested extension period end dates** (2-year limit)**:** | Propulsion: 12/31/28<br>Auxiliary: 12/31/28 | Propulsion: 12/31/28<br>Auxiliary: 12/31/29 | Propulsion: 12/31/29<br>Auxiliary: 12/31/28 | Propulsion: 12/31/29<br>Auxiliary: 12/31/29 |

## Attachments

Complete the following for each engine:

*(8)* ✓ Attachment A: Please attach an evaluation of all current U.S. EPA certified engines meeting applicable performance standards. Label this **ATTACHMENT A**.

See the U.S. EPA Tier 4 marine certified database for a list of certified engines.

*(9)* ✓ Attachment B: Please attach an evaluation of all current CARB-verified DPFs . Label this **ATTACHMENT B**.

See CARB's list of verified diesel emission control strategies for a list of verified DPF.

*(10)*
*(11)* ✓ Attachment C: Please attach an engineering analysis indicating that no combination of certified engines could be used in lieu of engines of the original horsepower rating to perform the work of the original vessel design. This analysis must consider all engines within an applicable range of power ratings, power densities, and other vessel powertrain modifications, including engine controls, azimuth drives and propeller configurations. Label this **ATTACHMENT C**.

Attachment B

# Application Template for Compliance Extension E2 to the Commercial Harbor Craft Regulation: Technology Availability

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov no later than 9 months and no earlier than 12 months before the compliance date.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| (2) | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| (3) | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | | |
|---|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Pyxis | M/V Vela | M/V Lyra |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00020 | CARB00021 | CARB00022 |
| | **Vessel category:** | Ferry | Ferry | Ferry |
| | **Current compliance date(s):** | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 |
| *(6)* | **Requested extension period start:** | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 |
| *(7)* | **Requested extension period end dates** (2-year limit)**:** | Propulsion: 12/31/29<br>Auxiliary: 12/31/29 | Propulsion: 12/31/29<br>Auxiliary: 12/31/29 | Propulsion: 12/31/29<br>Auxiliary: 12/31/29 |

## Attachments

Complete the following for each engine:

| | |
|---|---|
| *(8)* | ✓ Attachment A: Please attach an evaluation of all current U.S. EPA certified engines meeting applicable performance standards. Label this **ATTACHMENT A**.<br><br>See the U.S. EPA Tier 4 marine certified database for a list of certified engines. |
| *(9)* | ✓ Attachment B: Please attach an evaluation of all current CARB-verified DPFs. Label this **ATTACHMENT B**.<br><br>See CARB's list of verified diesel emission control strategies for a list of verified DPF. |
| *(10)*<br>*(11)* | ✓ Attachment C: Please attach an engineering analysis indicating that no combination of certified engines could be used in lieu of engines of the original horsepower rating to perform the work of the original vessel design. This analysis must consider all engines within an applicable range of power ratings, power densities, and other vessel powertrain modifications, including engine controls, azimuth drives and propeller configurations. Label this **ATTACHMENT C**. |

Attachment B

# Application Template for Compliance Extension E2 to the Commercial Harbor Craft Regulation: Technology Availability

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov no later than 9 months and no earlier than 12 months before the compliance date.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| (2) | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| (3) | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | |
|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Dorado | M/V Delphinus |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00023 | CARB02634 |
| | **Vessel category:** | Ferry | Ferry |
| | **Current compliance date(s):** | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 | Propulsion: 12/31/29<br>Auxiliary: 12/31/28 |
| *(6)* | **Requested extension period start:** | Propulsion: 12/31/27<br>Auxiliary: 12/31/27 | Propulsion: 12/31/29<br>Auxiliary: 12/31/28 |
| *(7)* | **Requested extension period end dates** (2-year limit)**:** | Propulsion: 12/31/29<br>Auxiliary: 12/31/29 | Propulsion: 12/31/31<br>Auxiliary: 12/31/30 |

## Attachments

Complete the following for each engine:

*(8)* ✓ Attachment A: Please attach an evaluation of all current U.S. EPA certified engines meeting applicable performance standards. Label this **ATTACHMENT A**.

See the U.S. EPA Tier 4 marine certified database for a list of certified engines.

*(9)* ✓ Attachment B: Please attach an evaluation of all current CARB-verified DPFs. Label this **ATTACHMENT B**.

See CARB's list of verified diesel emission control strategies for a list of verified DPF.

*(10)*
*(11)* ✓ Attachment C: Please attach an engineering analysis indicating that no combination of certified engines could be used in lieu of engines of the original horsepower rating to perform the work of the original vessel design. This analysis must consider all engines within an applicable range of power ratings, power densities, and other vessel powertrain modifications, including engine controls, azimuth drives and propeller configurations. Label this **ATTACHMENT C**.

Attachment B-1

Date Published: February 15, 2024

# California Air Resources Board (CARB) Listing of Certified Tier 4 Marine Engines and Marinized Tier 4 Final Non-Road Engines

*This list reflects information compiled by CARB staff to provide commercial harbor craft owners/operators a list of Certified Tier 4 Marine Engines and Marinized Tier 4 Final Non-Road Engines. It does not constitute an endorsement of the listed engines and is intended as a resource only. This list is regularly updated by CARB staff. Manufacturers with Tier 4 engines not listed may contact HarborCraft@arb.ca.gov to request being added.*

**Table 1.** EPA Certified Tier 4 Marine Engines[1]

| Manufacturer | Model | U.S. EPA Category | Power Range (kW) | Engine Weight (kg) | Engine Specifications Links | Date Added to List[2] |
|---|---|---|---|---|---|---|
| Yanmar | 6AYEM-GTWS | 1 | 670-749 | 2,418 (engine only) | *Specifications Sheet* | 10/11/2023 |
| Mitsubishi | S12-R | 1 | 940 | 5,350 (engine only) | *Specifications Sheet* *__Note:__ only the S12-R is Tier 4* | 10/11/2023 |
| Cummins | QSK38 | 1 | 746-1,119 | 5,270 | *Specifications Sheet* | 10/11/2023 |
| Cummins | QSK60 | 1 | 1,491-2,013 | 10,154 | *Specifications Sheet* | 10/11/2023 |
| Caterpillar | 3512E | 1 | 1,000-1,901 | 8,193 | *Specifications Sheet* | 10/11/2023 |

[1] *Annual Certification Data for Vehicles, Engines, and Equipment | US EPA*

[2] 2/15/24 Edit - added a column for the date each engine was added to this list of tier 4 engines.

| | | | | | | |
|---|---|---|---|---|---|---|
| Caterpillar | 3516E | 1 | 1,865-2,525 | 9,620 | *Specifications Sheet* | 10/11/2023 |
| Caterpillar | C32 | 1 | 746-1081 | 3,248 | *Specifications Sheet* | 10/11/2023 |
| Caterpillar | C280-8 | 2 | 2,460-2530 | 19,000 | *Specifications Sheet* | 10/11/2023 |
| Caterpillar | C280-12 | 2 | 3,700-4,060 | 26,035 | *Specifications Sheet* | 10/11/2023 |
| MTU | 12V-4000M05 | 1 | 1,119-1,932 | 8,000 (engine only) | *Specifications Sheet* | 10/11/2023 |
| MTU | 16V-4000M05 | 1 | 1,840-2,576 | 9,300 (engine only) | *Specifications Sheet* | 10/11/2023 |
| MTU | 20V-4000M05 | 1 | 2,300-3,220 | 11,600 (engine only) | *Specifications Sheet* | 10/11/2023 |
| MAN Diesel | D2862 Series | 1 | 749 | 2,270 | *Specifications Sheet* | 10/11/2023 |
| Baudouin | 6M-26.3 | 1 | 441-599 | 2,185 | *Specifications Sheet* | 10/11/2023 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Baudouin | 12M-26.3 | 1 | 883-1214 | 3,615 | *Specifications Sheet* | 10/11/2023 |
| GE | 6L250 MDC | 2 | 1,700-1,900 | 19,944 | *Specifications Sheet* | 10/11/2023 |
| GE | 8L250 MDC | 2 | 2,250-2,500 | 23,356 | *Specifications Sheet* | 10/11/2023 |
| GE | 12V250 MDC | 2 | 3,150-3,500 | 27,080 | *Specifications Sheet* | 10/11/2023 |
| GE | 16V250 MDC | 2 | 4,200-4,700 | 35,788 | *Specifications Sheet* | 10/11/2023 |
| EMD 710 Series | 8E 23 | 2 | 1,250 | 14,742 | *Specifications Sheet* | 10/11/2023 |
| EMD 710 Series | 12E 23 | 2 | - | 19,414 | *Specifications Sheet* | 10/11/2023 |
| EMD 710 Series | 12E 23B | 2 | - | 23,133 | *Specifications Sheet* | 10/11/2023 |
| EMD 710 Series | 16E 23 | 2 | - | 22,589 | *Specifications Sheet* | 10/11/2023 |
| EMD 710 Series | 20E 23 | 2 | 3,729 | 25,719 | *Specifications Sheet* | 10/11/2023 |

**Table 2.** Marinized EPA Certified Tier 4 Final Non-Road Engines

| Manufacturer | Model | U.S. EPA Category | Power Range (kW) | Engine Weight (kg) | Engine Specifications Links | Date Added to List |
|---|---|---|---|---|---|---|
| M&H Engineering | M&H John Deere 4045MD | 1 | 55-130 | 570 | *Specifications Sheet* | 10/11/2023 |
| M&H Engineering | M&H John Deere 6068MD | 1 | 169-224 | 750 | *Specifications Sheet* | 10/11/2023 |
| M&H Engineering | M&H John Deere 6090MD | 1 | 205-317 | 1,056 | *Specifications Sheet* | 10/11/2023 |

Attachment B-2

# Verification Procedure: Currently Verified


**CONTACT**

Medium and Heavy-Duty Vehicle Hotline

**Email** 8666DIESEL@arb.ca.gov

**Phone** (866) 634-3735 / (866) 6DIESEL


The following information is provided as a summary of verified diesel emission control strategies. Additional requirements specific to engine compatibility are provided in the Executive Order. The factors outlined in the Executive Order are legal requirements of each verification; therefore, these conditions must be met before determining if a particular device is applicable to the end-users type of engine. CARB recommends that you contact the manufacturer, or their authorized distributor, prior to making any purchasing decision.

Cleaire products have not been available for sale or lease since it ceased operations on January 18, 2013. ESW CleanTech Incorporated (ESW CleanTech) acquired the Cleaire product line on April 18, 2013, and will provide new sales of product under its ownership as well as support for existing Cleaire customers. Vehicles that have the Cleaire devices already installed in a verified configuration will continue to meet applicable in-use fleet rule requirements. Refer to Cleaire Information for additional information.

More information on the Verification of Diesel Emission Control Strategies can be found here: Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines | California Air Resources Board

Formerly verified devices can be found here: Level 3 | Level 2 | Level 1

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| **Level 3** | Baumot | DOC+DPF | 85% | N/A | Baumot AG, Diesel Particulate Filter System BAB-US for 375 to 500 horsepower, on-road vehicles not equipped with exhaust gas recirculation |
| | Carrier ClearSky DPF (formerly IMPCO) | DOC+DPF | 85% | N/A | Carrier and ComfortPro auxiliary power units powered by select Kubota Z482 diesel engines with model years between 2009 and 2017. |
| | Carrier EES | DOC+DPF | 85% | N/A | Carrier Transicold X4-Series and Vector 8500 /8600MT TRUs and UG/RG TRU gensets with Tier 4f engines rated at <25 hp |
| | Carrier Legacy EES | DOC+DPF | 85% | N/A | Carrier Transicold TRU models X2-Series, XT-Series, XTC-series, Genesis TM900, Genesis TM1000, Ultra XL (with and without standby), Vector 6500, and 6600MT equipped with model years 2004 through 2012 Kubota engines. |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | Catalytic Exhaust Products Ltd. Dieselytic SXS-SC DPF | DPF | 85% | N/A | Stationary prime and emergency standby generators and pumps with Tier 1, Tier 2, or Tier 3 certified off-road engines meeting 0.2 g/bhp-hr or less diesel PM |
| | CDTi Purifilter™ EGR | DPF | 85% | N/A | 2002-2010 model year; on-road; CARB diesel; biodiesel.* |
| | CDTi Purifilter™ H (High Load) | DPF | 85% | N/A | 1993-2006 CA certified engines; Specific 1994-2006 Federally certified engines; on-road; CARB diesel; biodiesel.* |
| | CDTi Purifilter™ Plus | DPF | 85% | N/A | 1993 and 2010 on-road; CARB diesel; biodiesel.* |
| | CDTi Purifilter™ Plus M | DPF | 85% | N/A | 1993 - 2010 on-road; CARB diesel; biodiesel.* |
| | Clariant Corporation EnviCat®- DPF | DPF | 85% | N/A | Stationary prime and emergency standby generators and pumps; CARB diesel; biodiesel.* |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | Cummins Pacific eMission DPF | DPF | 85% | | Stationary emergency standby generators with a PM emission rate of 0.15 g/bhp-hr or less and between 23 to 78 liter displacements. |
| | DCL International Inc. | DPF | 85% | N/A | 1996-2011 model year, off-road; CARB diesel; biodiesel.* |
| | DCL International Inc. TITAN™ (formerly Roadwarrior™) | DPF | 85% | N/A | 1994-2004 model year, on-road; CARB diesel; biodiesel.* |
| | DCL International Inc. | DPF | 85% | N/A | Stationary prime and emergency standby generators, pumps, and compressors; Tier 1, 2, or 3 off-road engines certified to < 0.15 g/bhp-hr PM; CARB diesel; biodiesel.* |
| | Diesel Emission Technologies UltraTrap™ | DPF | 85% | N/A | 1994-2006 on-road;CARB diesel; biodiesel.* |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | Donaldson LNF | DPF | 85% | N/A | 1993-2006 model year on-road; CARB diesel; biodiesel. CARB diesel; biodiesel.* |
| | Donaldson LXF | DPF | 85% | N/A | 2002-2006 model year on-road; CARB diesel; biodiesel.* |
| | Donaldson SEF | DPF | 85% | N/A | 1991-2006 model year on-road; CARB diesel; biodiesel.* |
| | Engine Control System Purifilter$^{TM}$ L (Low Load) | DPF | 85% | N/A | 1994-2004 on-road;CARB diesel; biodiesel.* |
| | Engine Control System Combifilter | DPF | 85% | N/A | 2007 or older off-road; CARB diesel; biodiesel.* |
| | ESW CleanTech Horizon | DPF | 85% | N/A | Most four-stroke on-road engines through 2006; CARB diesel; biodiesel.* |
| | ESW CleanTech LongMile-S | DPF | 85% | N/A | 1993 - 2010 model year on-road applications; CARB diesel; biodiesel.* |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | ESW CleanTech Longview | Lean NOx Catalyst and DPF | 85% | 25% | 1993-2006 model year on-road; CARB diesel; biodiesel.* |
| | ESW CleanTech Phoenix | DPF | 85% | N/A | Most 1996 - 2014 off-road; CARB diesel; biodiesel.* |
| | ESW CleanTech Skyline | DPF | 85% | N/A | Most off-road; CARB diesel; biodiesel.* |
| | ESW CleanTech Vista | DPF | 85% | N/A | 1993-2010 model year on-road; CARB diesel; biodiesel.* |
| | ESW Technologies ThermaCat™ | DPF | 85% | N/A | 1996-2010; off-road; 1993-2006 on-road; CARB diesel; biodiesel.* |
| | ESW Technologies ThermaCat™ e | DPF | 85% | N/A | 1994-2009; on-road; with EGR; CARB diesel; biodiesel.* |
| | Global Emissions Systems, Inc. (GESi) 6000DPF | DPF | 85% | N/A | Stationary prime and emergency standby generators and pumps with Tier 1, Tier 2, or Tier 3 certified off-road engines meeting 0.2 g/bhp-hr or less diesel PM |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | GT Exhaust's GTE Purity$^{TM}$ DPF | DPF | 85% | N/A | Stationary prime and emergency standby generators and pumps with Tier 1, Tier 2, Tier 3, Tier 4i with a rated horse power between 50 and 75 or over 750, or Tier 4 Alt 20% $NO_x$ and PM nonroad or stationary engines meeting 0.2 g/bhp-hr or less diesel PM |
| | HUG Engineering, Inc Mobiclean R | DPF | 85% | N/A | Most 1991 - 2006 on-road; CARB diesel; biodiesel. * |
| | HUG Engineering USA combiKat® | DPF | 85% | N/A | Stationary emergency and prime generators with a PM emission rate of 0.2 g/bhp-hr or less. |
| | HUSS FS-MK Off-Road | DPF | 85% | N/A | Most off-road through 2011 MY; CARB diesel; biodiesel. * |
| | HUSS FS-MK On-Road | DPF | 85% | N/A | Most on-road diesel engines through 2006 MY and most off-road through 2010 MY; CARB diesel; biodiesel. * |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | HUSS MK 35 and MK 50 for TRU | DPF | 85% | N/A | Verified for 1998 and newer TRU's. CARB diesel; biodiesel. * |
| | Johnson Matthey AdvCCRT™ | DPF | 85% | N/A | Specifc 2002-2006; on-road; CARB diesel; biodiesel.* |
| | Johnson Matthey CRT® reformulated | DPF | 85% | N/A | 1993 - 2006; on-road; CARB diesel; biodiesel.* |
| | Johnson Matthey CRT® | DPF | 85% | N/A. | Stationary emergency/standby generators; conditionally verified for stationary prime generators. CARB diesel; biodiesel.* |
| | Johnson Matthey EGRT™ | EGR/DPF | 85% | 40% | 2000 International DT-466, 2000 Cummins ISM 2001 Cummins ISB, 1998-2002 Cummins ISC, 2001 Cummins ISL, 2001 MY DDC - 50, and 2001 DDC - 60. on-road; CARB diesel. |
| | MIRATECH Corporation CombiKat® | DPF | 85% | N/A | Stationary emergency and prime generators with a PM emission rate of 0.2 g/bhp-hr or less. |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | MIRATECH® LTR™ DOC/DPF System | DPF | 85% | N/A | **Update: Effective December 12, 2023, CARB issued an official notice to Miratech Corporation (Miratech), to Cease and Desist marketing, selling, or installing ALL Miratech LTR DOC/DPF systems (LTR systems) as "CARB-Verified". Although the governing CARB Executive Order (EO) DE-14-005-07 previously covered the LTR systems for engines (model years 1996 through 2021), for engine families listed in the EO attachment, that verification is not currently up to date. This notice will remain in effect until Miratech demonstrates to CARB's satisfaction that its LTR systems fully comply with the requirements specified in the In-Use Compliance Requirements of the Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (Verification Procedures) (Cal. Code Regs., tit. 13, §** |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | | | | | **2709). Miratech has stated that it plans to seek and complete remedial measures needed to reinstate compliance. CARB staff will work with Miratech in this regard under the process set forth in the Verification Procedures.** |
| | | | | | Stationary emergency standby generators with a PM emission rate of 0.22 g/bhp-hr or less. |
| | Nett Technologies. NETT GreenTRAP™ DPF | DPF | 85% | N/A | Stationary prime and emergency standby generators and pumps with Tier 1, Tier 2, or Tier 3 certified off-road engines meeting 0.2 g/bhp-hr or less diesel PM |
| | Nett BlueMAX™ NOVA 300e System | DPF SCR | 85% | 85% | Stationary prime generators with a PM emission rate of 0.2 g/bhp-hr or less. |
| | New World Engineering, LLC EADPF | DPF | 85% | N/A | Thermo King single temp TRUs, 2005 to present Yanmar diesel engines <25 hp |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | RYPOS, Inc. ActiveDPF/C3+™ | DPF | 85% | N/A | Verified for both diesel-electric and diesel-hydraulic rubber tired gantry (RTG) cranes; CARB diesel; biodiesel.* |
| | RYPOS DPF/ULETRU™ | DPF | 85% | N/A | 2003 and newer Carrier and ThermoKing TRU's and Pin-on TRU Gensets. |
| | RYPOS DPF/ULETRU™ | DPF | 85% | N/A | 2003 and newer Thermo King Multi-Temp TRU's. |
| | Rypos, Inc. HDPF/C™ | Hybrid DPF | 85% | N/A | 1996-2007 stationary emergency standby generators and pumps with a PM emission rate of 0.2 g/bhp-hr or less and certified to Tier 1, Tier 2, or Tier 3 off-road diesel engine standards; CARB diesel; biodiesel.* |
| | Safety Power Inc., FOx® System | DPF | 85% | N/A | Stationary prime and emergency standby generators and pumps; CARB diesel; biodiesel.* |
| | Thermo King eDPF | DPF | 85% | N/A | 2006-2016 Thermo King auxilary power units; CARB diesel. |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | Universal Emissions Technologies GreenShield® DPF | DPF | 85% | N/A | Stationary prime and emergency standby power generators and pumps with Tier 1, Tier 2, or Tier 3 certified off-road engines. |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| **Level 2** | Engine Control System AZ Purimuffler™/Purifier™ | DOC + Alt Fuel | 50% | 20% | 1996-2002 off-road; PuriNOx |
| | Lubrizol PuriNOx™ | Emulsified Fuel | 50% | 15% | 1988-2003 on-road. |
| | Proventia FTF™ | FTF | 50% | N/A | Most Thermo King trailer TRUs using 1985 through 2003 model year engines; CARB diesel; biodiesel.* |
| | Proventia Bobtail FTF™ | FTF | 50% | N/A | Select Thermo King truck TRUs using 1987 to 2004 model year engines or Carrier Transicold truck TRUs using 1994 to 2004 model year engines. CARB diesel; biodiesel* |
| | Rypos ADPF | DPF | 50% | N/A | 1996-2008 stationary engines (certified to Tier 1, 2, or 3 off-road PM emission level); CARB diesel; biodiesel*; no EGR, DOC or pre-existing DPF. |

Attachment B-2

| PM Level | Product Name | Technology Type | PM Reduction | NOx Reduction | Applicability |
|---|---|---|---|---|---|
| | Rypos, Inc. DPF/LETRU™ | DPF | 50% | N/A | Applicability: Most trailer TRUs using 2003 and older model year engines; ULSD CARB diesel (less than 15 ppm sulfur). |
| | Rypos, Inc. ADPF | DPF | 50% | N/A | Marine Harbor Craft |
| | Rypos ActiveDPF/C™ | DPF | 50% | N/A | Both diesel-electric and diesel-hydraulic rubber tired gantry (RTG) cranes; CARB diesel; biodiesel.* |
| **Level 1** | Viscon California, LLC | Fuel Additive | 25% | N/A | 1985-1995 off-road; CARB diesel. |
| | Vycon REGEN System | Energy Storage System | 25% | 30% | Pre-1996 model year or Tier 1, 2, or 3 certified off-road diesel engines on rubber-tired gantry cranes; biodiesel. * |

* These systems have been verified for use with biodiesel blends. Refer to the executive order for the specific product for information on these requirements.

Attacahment A

Attachment B-2

(800) 242-4450 | helpline@arb.ca.gov
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

Attachment C

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | |
|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Gemini |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00013 |
| | **Vessel category:** | Ferry |
| *(6)* | **Current compliance date(s):** | Auxiliary: 12/31/24 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Auxiliary: 12/31/24 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Auxiliary: 12/31/25 |

## Application Criteria

To apply for this extension, you must be able to identify one of the following criteria.

**A**. Equipment manufacturer delays or installation difficulties;
**B**. New build vessel delays due to shipyard capacity;
**C**. Multiple engines on multiple vessels with the same compliance dates; or
**D**. Multiple engines on a single vessel with different compliance dates.

| | |
|---|---|
| **Reason for extension:** | D |

| | | |
|---|---|---|
| | **FOR CRITERIA A:** | |
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| FOR CRITERIA B: | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| FOR CRITERIA C: | | |
|---|---|---|
| *(14)*<br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(16)*<br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| FOR CRITERIA D: | | |
|---|---|---|
| *(18)*<br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment C

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | |
|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Gemini | M/V Pisces |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00013 | CARB00008 |
| | **Vessel category:** | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Auxiliary: 12/31/25 | Auxiliary: 12/31/25 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Auxiliary: 12/31/25 | Auxiliary: 12/31/25 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Auxiliary: 12/31/26 | Auxiliary: 12/31/26 |

## Application Criteria

To apply for this extension, you must be able to identify one of the following criteria.

**A**. Equipment manufacturer delays or installation difficulties;
**B**. New build vessel delays due to shipyard capacity;
**C**. Multiple engines on multiple vessels with the same compliance dates; or
**D**. Multiple engines on a single vessel with different compliance dates.

| | |
|---|---|
| **Reason for extension:** | D |

| | | |
|---|---|---|
| | **FOR CRITERIA A:** | |
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| FOR CRITERIA B: | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| FOR CRITERIA C: | | |
|---|---|---|
| *(14)*<br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(16)*<br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| FOR CRITERIA D: | | |
|---|---|---|
| *(18)*<br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | | |
|---|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Pisces | M/V Scorpio | M/V Taurus |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00008 | CARB00014 | CARB00015 |
| | **Vessel category:** | Ferry | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Auxiliary: 12/31/24 | Auxiliary: 12/31/24 | Auxiliary: 12/31/24 |
| *(7)* | **Requested extension start dates** (1-year limit): | Auxiliary: 12/31/24 | Auxiliary: 12/31/24 | Auxiliary: 12/31/24 |
| *(8)* | **Requested extension end dates** (1-year limit): | Auxiliary: 12/31/25 | Auxiliary: 12/31/25 | Auxiliary: 12/31/25 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | |
|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Scorpio | M/V Taurus |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00014 | CARB00015 |
| | **Vessel category:** | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Auxiliary: 12/31/25 | Auxiliary: 12/31/25 |
| *(7)* | **Requested extension start dates** (1-year limit): | Auxiliary: 12/31/25 | Auxiliary: 12/31/25 |
| *(8)* | **Requested extension end dates** (1-year limit): | Auxiliary: 12/31/26 | Auxiliary: 12/31/26 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | | | |
|---|---|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Hydrus | M/V Cetus | M/V Argo | M/V Carina |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00012 | CARB00017 | CARB00018 | CARB00019 |
| | **Vessel category:** | Ferry | Ferry | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Propulsion: 12/31/26 | Propulsion: 12/31/26 | Propulsion: 12/31/27 | Propulsion: 12/31/27 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Propulsion: 12/31/26 | Propulsion: 12/31/26 | Propulsion: 12/31/27 | Propulsion: 12/31/27 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Propulsion: 12/31/27 | Propulsion: 12/31/27 | Propulsion: 12/31/28 | Propulsion: 12/31/28 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | | | |
|---|---|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Hydrus | M/V Cetus | M/V Argo | M/V Carina |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00012 | CARB00017 | CARB00018 | CARB00019 |
| | **Vessel category:** | Ferry | Ferry | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Propulsion: 12/31/27 | Propulsion: 12/31/27 | Propulsion: 12/31/28 | Propulsion: 12/31/28 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Propulsion: 12/31/27 | Propulsion: 12/31/27 | Propulsion: 12/31/28 | Propulsion: 12/31/28 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Propulsion: 12/31/28 | Propulsion: 12/31/28 | Propulsion: 12/31/29 | Propulsion: 12/31/29 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | |
|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Peralta |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00007 |
| | **Vessel category:** | Ferry |
| *(6)* | **Current compliance date(s):** | Propulsion: 12/31/24 Auxiliary 12/31/24 |
| *(7)* | **Requested extension start dates** (1-year limit): | Propulsion: 12/31/24 Auxiliary 12/31/24 |
| *(8)* | **Requested extension end dates** (1-year limit): | Propulsion: 12/31/25 Auxiliary 12/31/25 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | |
|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Peralta |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00007 |
| | **Vessel category:** | Ferry |
| *(6)* | **Current compliance date(s):** | Propulsion: 12/31/25 Auxiliary 12/31/25 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Propulsion: 12/31/25 Auxiliary 12/31/25 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Propulsion: 12/31/26 Auxiliary 12/31/26 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | |
|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Bay Breeze |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00016 |
| | **Vessel category:** | Ferry |
| *(6)* | **Current compliance date(s):** | Propulsion: 12/31/24 Auxiliary 12/31/24 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Propulsion: 12/31/24 Auxiliary 12/31/24 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Propulsion: 12/31/25 Auxiliary 12/31/25 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | |
|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Bay Breeze |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00016 |
| | **Vessel category:** | Ferry |
| *(6)* | **Current compliance date(s):** | Propulsion: 12/31/25 Auxiliary 12/31/25 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Propulsion: 12/31/25 Auxiliary 12/31/25 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Propulsion: 12/31/26 Auxiliary 12/31/26 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | |
|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Intintoli | M/V Mare Island |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00009 | CARB00022 |
| | **Vessel category:** | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Prop: 12/31/24 Auxiliary: 12/31/25 | Prop: 12/31/24 Auxiliary: 12/31/25 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Prop: 12/31/24 Auxiliary: 12/31/25 | Prop: 12/31/24 Auxiliary: 12/31/25 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Prop: 12/31/25 Auxiliary: 12/31/26 | Prop: 12/31/25 Auxiliary: 12/31/26 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |

Attachment D

# Application Template for Compliance Extension E5 to the Commercial Harbor Craft Regulation: Scheduling

Complete all indicated fields to be considered for this extension.
Submit your application by e-mail to harborcraft@arb.ca.gov prior to the compliance date. We recommend submitting early so that CARB staff can work with you to resolve any issues before your deadline.

## Company Information

| | | |
|---|---|---|
| *(1)* | **Company name:** | San Francisco Bay Ferry |
| | **Contact name:** | Tim Hanners |
| *(2)* | **Physical address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| *(3)* | **Mailing address:** | Pier 9, Suite 111, The Embarcadero |
| | **City, state and zip code:** | San Francisco, CA 94111 |
| | **Telephone number:** | 415.291.3377 |
| | **Company email address:** | hanners@watertransit.org |

## For CARB Use Only:

| | |
|---|---|
| Date received: | |
| Application number: | |

## Extension Application

| | | | |
|---|---|---|---|
| *(4)* | **Vessel name(s):** | M/V Intintoli | M/V Mare Island |
| *(5)* | **Unique vessel identifier(s) (UVI):** | CARB00009 | CARB00022 |
| | **Vessel category:** | Ferry | Ferry |
| *(6)* | **Current compliance date(s):** | Prop: 12/31/25 Auxiliary: 12/31/26 | Prop: 12/31/25 Auxiliary: 12/31/26 |
| *(7)* | **Requested extension start dates** (1-year limit)**:** | Prop: 12/31/25 Auxiliary: 12/31/26 | Prop: 12/31/25 Auxiliary: 12/31/26 |
| *(8)* | **Requested extension end dates** (1-year limit)**:** | Prop: 12/31/26 Auxiliary: 12/31/27 | Prop: 12/31/26 Auxiliary: 12/31/27 |

## Application Criteria

| To apply for this extension, you must be able to identify one of the following criteria.<br><br>**A**. Equipment manufacturer delays or installation difficulties;<br>**B**. New build vessel delays due to shipyard capacity;<br>**C**. Multiple engines on multiple vessels with the same compliance dates; or<br>**D**. Multiple engines on a single vessel with different compliance dates. | |
|---|---|
| **Reason for extension:** | C |

| **FOR CRITERIA A:** | | |
|---|---|---|
| *(9)* | **Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(10)* | ✓ Attachment A: Please attach documentation that the applicant ordered the new replacement engine or other equipment necessary to comply with the requirements of subsection (e)(12), (e)(13) or (e)(10) at least 6 months prior to the compliance date set forth in subsection (e)(12)(D), (e)(13) or (e)(10). A copy of the purchase order or contract for the new equipment would satisfy this requirement. Label this **ATTACHMENT A**. | |
| *(11)* | ✓ Attachment B: Please attach evidence that the new engine or equipment has not been received or installed since it was ordered due to manufacturing delays, delays encountered by the engine or equipment installer, or delays of inspections that are required to be conducted by local, state, or federal government agencies before the engine or equipment can operate. Label this **ATTACHMENT B**. | |
| | ✓ If not included in the previous attachments, provide a copy of the purchase order or contract for the new equipment. | |

| **FOR CRITERIA B:** | |
|---|---|
| *(12)* | ✓ Attachment A: Please attach a copy of the contract or agreement with the shipyard that the applicant entered into contract 12 months prior to their compliance dates. Label this **ATTACHMENT A**. |
| *(13)* | ✓ Attachment B: Please attach a letter demonstrating the reasons for the delay with supplemental documentation from shipyard. Label this **ATTACHMENT B**. |

| **FOR CRITERIA C:** |
|---|

| | | |
|---|---|---|
| *(14)*<br><br>*(15)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize fleet downtime. Identify in-use engine(s) that the applicant chooses to receive the extension:** | All requested engines are required to minimize fleet downtime. |
| *(16)*<br><br>*(17)* | ✓ Attachment A: Please attach evidence that the fleet consists of 2 or more regulated in-use vessels subject to subsection (e)(12), (e)(13), or (e)(10) that are owned by the same person. Include evidence that two or more engines on a vessel have the same compliance date as two or more engines on another vessel, or if each single engine on three or more vessels have the same compliance date. Label this **ATTACHMENT A**. | |

| **FOR CRITERIA D:** | | |
|---|---|---|
| *(18)*<br><br>*(19)* | **For engines meeting these criteria, extensions can only be applied to the minimum number of engines necessary to minimize the time the vessel is out of service. Identify in-use engine(s) that the applicant chooses to receive the extension:** | |
| *(20)* | ✓ Attachment A: Please attach evidence that two or more engines on a single regulated in-use vessel are subject to different compliance dates in subsection (e)(12), (e)(13), or (e)(10). Label this **ATTACHMENT A**. | |