

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

RULE 1631 - PILOT CREDIT GENERATION PROGRAM FOR MARINE VESSELS

(Adopted May 11, 2001)(Amended October 4, 2002)

(a) Purpose

The purpose of this rule is to provide opportunities to generate NO_x mobile source emission reduction credits (MSERCs) for use in RECLAIM through the voluntary repowering or engine remanufacturing of diesel-fueled marine vessels.

(b) Applicability

(1) This rule applies to persons who voluntarily elect to generate NO_x MSERCs, which may be used in RECLAIM pursuant to Rule 2008 – Mobile Source Credits through the repowering or engine remanufacturing of diesel-fueled captive marine vessels with engines having emissions that are at or below a specified emission standard.

(2) This rule does not apply to any:

(A) emission reductions produced by monies from any public air quality related funding program including but not limited to Rule 2202, the Carl Moyer Memorial Air Quality Standards Attainment Program, or AB2766 funding;

(B) emission reductions required pursuant to any law, rule, or regulation, or legal instrument such as a legal settlement or consent decree; or

(C) emission reductions from a marine engine included in the Certification, Averaging, Banking, and Trading Provisions specified in 40 CFR Part 94, Subpart D.

(c) Definitions

(1) ACTIVITY LEVEL (AL) means for the purpose of this rule, the number of gallons of fuel consumed per year.

(2) APPLICATION means for the purpose of this rule, the Rule 1631 MSERC Application as specified in subdivision (e).

- (3) BASELINE EMISSION FACTOR (EF_{base}) means the emission factor, used to quantify annual emissions from a diesel-fueled marine vessel engine prior to repowering or engine remanufacture as determined pursuant to paragraph (f)(3).
- (4) CAPTIVE MARINE VESSEL means a marine vessel that exclusively operates within district waters at all times during the credit generation period, except as allowed pursuant to paragraphs (d)(2) and (d)(3).
- (5) CREDIT GENERATION PERIOD means the timeframe that MSERCs are being generated and begins on the date that the requirements of subdivision (d) are met and can extend no longer than June 30, 2005. The first segment of the credit generation period, which may be 12 months or less, is referred to as the “initial credit generation period” and each 12 month segment of the credit generation period thereafter, is referred to as the “annual credit generation period.”
- (6) CREDIT ISSUANCE PERIOD means the timeframe that MSERCs are issued and begins on the date that the requirements of subdivision (g) are met.
- (7) DIESEL FUEL means any fuel that is commonly known as diesel fuel No. 1-D or 2-D, or meets the specifications in ASTM D 975, Standard Specifications for Diesel Fuel Oils.
- (8) DISTRICT WATERS means the overwater boundaries extending out 25 nautical miles perpendicular from the northernmost coastal intersection point of Los Angeles County and southernmost coastal intersection point of Orange County.
- (9) ENGINE REMANUFACTURE OR REMANUFACTURING means the replacement of all marine engine components from an existing 500 or greater horsepower marine engine, except the original engine block, with new applicable factory certified components including, but not limited to fuel injectors with built-in timing systems, compressors and turbochargers, blowers, intercoolers, pistons, liners, bearings, camshafts, camshaft bearings and shells, dampers, fuel pumps, and oil and fuel filters.
- (10) GLOBAL POSITIONING SYSTEM OR GPS means a satellite-based radionavigation receiver capable of providing the time and position of a unit.
- (11) MARINE ENGINE means a compression-ignited internal combustion engine used for propulsion on a marine vessel that is greater than or equal to 130 kilowatts (175 horsepower) and having a specific engine displacement less than 30 liters per cylinder.

- (12) MARINE VESSEL means for the purpose of this rule, any tug boat, tow boat, push boat, passenger/excursion boat, lighter barge, work boat, supply boat, crew boat, utility boat, passenger ferry, barge, dredge, or commercial fishing boat.
- (13) MOBILE SOURCE EMISSION REDUCTION CREDIT (MSERC) means for the purpose of this rule, emission reduction credits that meet the requirements of this rule and are issued as specified in paragraph (g)(2).
- (14) NEW MARINE ENGINE means a marine engine that has never before been installed on a marine vessel, or any other mobile or stationary source and where the equitable or legal title to the engine has never been transferred to an ultimate purchaser.
- (15) OPTIONAL EMISSION FACTOR (EF_{opt}) means for the purpose of this rule, the emission factor used to quantify annual emissions from a marine vessel after repowering or engine remanufacture as determined under paragraph (f)(4).
- (16) RECLAIM FACILITY means any stationary source subject to Regulation XX, pursuant to Rule 2001 – Applicability.
- (17) REPOWER OR REPOWERING means the replacement of an existing marine engine with a new marine engine having emissions that meet a specified emission standard.
- (18) RETIRE OR RETIRED means that the credit, regardless of the expiration date of the credit, can no longer be transferred or used.
- (19) SURPLUS means that emission reductions achieved throughout the duration of the emission reduction activity that are not required or relied upon by any local, state, or federal rule, or regulation, and the federal Clean Air Act; and are not required or relied upon in an attainment demonstration, reasonable further progress demonstration, or emissions inventory thereby ensuring that there is no double counting of emission reductions.

(d) Credit Generator Requirements

- (1) Any person that elects to generate MSERCs under this rule shall meet all of the following requirements:
 - (A) Repower existing diesel-fueled marine vessels with new marine engines or remanufacture existing marine engines, to meet an optional emission factor specified in paragraph (f)(4), prior to January 1, 2004;

- (B) Demonstrate that each marine vessel is equipped with GPS or another method that is approved by the District, CARB, and EPA that is capable of monitoring and recording that the marine vessel is operated within the district waters at all times during the credit generation period;
 - (C) Demonstrate that the purchase contract for acquisition of the new marine engine used for repowering is signed no earlier than October 1, 2000, and that the new marine engine is not installed prior to May 11, 2001 or for new components used in engine remanufacturing signed and installed no earlier than October 4, 2002;
 - (D) Demonstrate that the marine vessel is a captive marine vessel during the credit generation period, except as provided for in paragraphs (d)(2) and (d)(3);
 - (E) Submit an Application as specified in subdivision (e);
 - (F) Demonstrate compliance with the monitoring, recordkeeping, and reporting requirements specified in subdivision (h); and
 - (G) Perform engine maintenance and service on remanufactured engines according to the original equipment manufacturer's schedule of recommended engine maintenance and service submitted in subparagraph (e)(1)(L).
- (2) A marine vessel may travel beyond the boundaries of the district waters no more than twice per calendar year and only for the purpose of maintenance or repair. In order for this provision to apply, the following requirements must be met and documented:
- (A) The credit generator documents any travel beyond district waters as specified in paragraph (h)(6) and submits the documentation with the information specified in paragraphs (h)(3) and (h)(4);
 - (B) The credit generator provides a signed declaration that the marine vessel did not conduct any commercial activities during the travel time outside district waters and submits the declaration with the information specified in paragraphs (h)(3) and (h)(4); and
 - (C) The activity level attributable to travel beyond the district waters is not included in the data and information submitted to the district as specified in paragraphs (h)(3) and (h)(4).
- (3) The requirements of paragraph (d)(2) are effective as of October 4, 2002 for any participating marine vessels repowered or remanufactured on or after May 11, 2001.

(e) Application

(1) Any person that elects to generate MSERCs under this rule shall submit an Application to the District no later than 30 days after repowering the marine vessel or engine remanufacture and before January 1, 2004. The Application shall include the following:

- (A) A description of the repower or engine remanufacture project, including, at a minimum, the marine vessel name, marine vessel identification number, marine vessel type, owner, and for both the original and replacement engine, the engine make, engine model, engine model year, engine serial number, horsepower, injection timing, and engine speed;
- (B) Identification of the geographic area served by the marine vessel during the credit generation period;
- (C) Identification of the location where the participating marine vessel is anchored or docked when not in service;
- (D) Documentation showing the date of purchase and installation for the new marine engine or date of remanufacture;
- (E) In-use source test data for establishing the baseline emission factor pursuant to paragraph (f)(3), in units of either grams of NO_x per kilowatt-hour (g/kW-hr) or grams of NO_x per brake horsepower-hour (g/bhp-hr) that demonstrates compliance with paragraph (f)(3);
- (F) In the case of new marine engines, engine manufacturers emission test data, or in the case of engine remanufacturing, in-use source test data according to the protocols specified in subparagraph (f)(3)(B), for establishing the optional emission factor pursuant to paragraph (f)(4), in units of either g/kW-hr or g/bhp-hr, and all necessary conversion factors for the new marine engine used in the repowering or remanufactured engine that demonstrates compliance with subparagraph (d)(1)(A);
- (G) The projected initial service date of the participating captive marine vessel that would represent the beginning of the credit generation period;
- (H) Identification of the intended user(s) of the MSERCs, if available.

- (I) The historical annual average activity level for the participating captive marine vessel for the previous calendar two-year period;
 - (J) Designation of the RECLAIM Compliance Cycle for each marine vessel for the initial and each annual credit generation period through the entire credit generation period.
 - (K) The projected activity level for the initial credit generation period and the projected annual activity level after the initial credit generation period which coincides with either RECLAIM Compliance Cycle 1 or 2, up to June 30, 2005. The projected activity level for any participating marine vessel should not exceed 120% of the most recent two-year historical annual average activity level specified in subparagraph (e)(1)(I).
 - (L) For engine remanufacturing, a written certification from the original equipment manufacturer (OEM) or its authorized agent that all engine components are new, except for the original engine block, along with the remanufactured engine's serial number and horsepower, and the OEMs schedule of recommended engine maintenance and service.
- (2) If the initial service date, as specified in subparagraph (e)(1)(G) of the participating captive marine vessel is before the Application is approved, the Application shall include the following additional information:
- (A) Proof of delivery of the new replacement marine engine or engine remanufacture components;
 - (B) For repowered marine vessels, proof that the original marine engine is destroyed, sold, or otherwise transferred to a new owner who operates the engine outside of the district with the location and identity of the new owner along with a copy of a written notification informing the new owner that the original marine engine must not be installed in a marine vessel or other mobile or stationary source which is operated in the state of California; and
 - (C) For repowered marine vessels, written certification or signed declaration from the credit generator that any original marine engine that is not sold, scrapped, or otherwise transferred to a new owner or location outside the district has not been and will not be installed in a marine vessel or other mobile or stationary source which is operated in the state of California.

- (3) If the initial service date, as specified in subparagraph (e)(1)(G) is after the Application is approved, the credit generator shall provide information specified under paragraph (e)(2) prior to credit issuance pursuant to paragraph (g)(1).
- (4) The Application shall be deemed a plan, and plan fees shall be assessed in accordance with Rule 309 – Fees for Regulation XVI.
- (5) The Executive Officer shall approve or disapprove the Application and any subsequent revisions submitted pursuant to paragraph (e)(6), in writing within 90 days of submittal of a complete Application or Application revision.
- (6) Notwithstanding subparagraph (e)(7), any person that submits an Application may amend the Application to:
 - (A) revise information provided under subparagraphs (e)(1)(A) through (e)(1)(I) at any time;
 - (B) revise the original projected activity levels specified in subparagraph (e)(1)(K) no later than 30 days for the initial credit generation period and 180 days for the annual credit generation period after the beginning eligibility credit issuance date pursuant to subparagraph (g)(2)(B) of the MSERCs; or
 - (C) remove a marine vessel from the Application, provided the credit generator retires MSERCs or MSERCs converted into RTCs to cover reductions projected for that marine vessel for the entire current and subsequent credit generation periods in which the replaced vessel would have generated credits.
- (7) An Application shall not be amended to add a marine vessel that is removed from the Application pursuant to subparagraph (e)(6)(C) until the following annual credit generation period.

(f) MSERC Quantification

- (1) MSERCs shall be quantified using the following equation:

$$\text{MSERC} = \frac{(\text{EF}_{\text{base}} - \text{EF}_{\text{opt}}) \times \text{EC}_{\text{opt}} \times \text{AL}}{454}$$

Where

MSERC = Mobile source emission reduction credit (pounds)

EF_{base} = Baseline emission factor (grams of NO_x/bhp-hr or grams of NO_x/kW-hr)

- EF_{opt} = Optional emission factor (grams of NO_x/bhp-hr or grams of NO_x/kW-hr)
- EC_{opt} = Energy Consumption Factor at the maximum rated speed for the replacement or remanufactured engine (bhp-hr/gallon or kW-hr/gallon)
- AL = Activity level (gallon)
- 454 = Conversion factor from grams to pounds

- (2) The projected and actual activity level used to quantify the MSERCs shall be determined from the information submitted pursuant to subdivisions (e) and (h), respectively.
- (3) To quantify MSERCs from the repowering or engine remanufacturing of marine vessels the value of the baseline emission factor shall be:
- (A) determined using an emission factor in grams of NO_x per brake horsepower-hour or grams of NO_x per kilowatt-hour;
 - (B) based on emissions testing using either ISO 8178-E3 or CARB-approved in-situ source testing referenced in Diesel Marine Vessel Emissions Testing Protocol, Santa Barbara County Air Pollution Control District, July 1999. If the Santa Barbara protocol is used, the appropriate manufacturer propeller curves shall be used to reflect any changes to the propeller or transmission of the participating marine vessel;
 - (C) less than or equal to 19.8 grams of NO_x per brake horsepower-hour (26.6 grams of NO_x per kilowatt-hour); and
 - (D) determined by emission testing with the engine injection timing set to the original equipment manufacturer's recommended specifications if available and currently applicable to the marine engine, otherwise the injection timing shall be set according to normal operating parameters.
- (4) To quantify MSERCs from the repowering or engine remanufacturing of marine vessels the value of the optional emission factor shall be:
- (A) based on engine manufacturer's test data for new marine engines using certification test protocols referenced in 40 CFR Part 94 – Control of Emissions of Air Pollution from New Marine Compression-Ignition Engines at or Above 37 kW;

- (B) for engine remanufacturing, equal to the applicable emission standards specified in Table 1 – Thresholds for NO_x Optional Emission Factors and verified by emission testing according to the protocols specified in subparagraph (f)(3)(B) to be less than or equal to the applicable emission standards specified in Table 1;
 - (C) determined using an emission factor in grams of NO_x per brake horsepower-hour or grams of NO_x per kilowatt-hour;
 - (D) for new marine engines, less than or equal to the applicable emission standards specified in Table 1 Thresholds for NO_x Optional Emission Factors; and.
 - (E) determined using the same emission related engine parameters as used in normal operation for the new or remanufactured engine which may have an effect on engine emissions including, but not limited to injection timing, injection pressure, and any other verifiable parameter deemed necessary by the District.
- (g) Credit Issuance
- (1) The Executive Officer shall issue MSERCs provided the credit generator has written approval of the Application and has provided the information specified in subparagraph (e)(2)(A) through (e)(2)(C);
 - (2) The Executive Officer shall issue MSERCs:
 - (A) in pounds of NO_x for the amount indicated in the approved Application in one-year increments;
 - (B) designated with a beginning and ending date based on the date of credit issuance;
 - (C) for the number of credit issuance periods up to June 30, 2005, and shall be based on the annual projected activity level specified in subparagraph (e)(1)(K); and
 - (D) discounted upon issuance by ten percent which will be retired for the benefit of the environment.
 - (3) Any reductions other than NO_x that result from implementation of projects subject to this rule shall be for the benefit of the environment and ineligible for transfer or use.
 - (4) The actual amount of MSERCs issued shall be based on the approved Application or any subsequent verification by the Executive Officer.

- (5) Notwithstanding Rule 2008 – Mobile Source Credits, MSERCs converted to RTCs shall be issued for either RECLAIM Compliance Cycle 1 or 2 provided that each annual credit generation period coincides with the entire cycle selected. If the initial credit generation period begins prior to the start of a complete RECLAIM Compliance Cycle, that portion of MSERCs converted to RTCs shall be issued for the current or previous cycle provided that this initial credit generation period completely coincides with the cycle selected.
 - (6) Any MSERCs not used by the specified expiration date shall be retired to benefit the environment and be ineligible for transfer or use.
- (h) Monitoring, Recordkeeping, and Reporting
- (1) For all participating marine vessels identified in the approved Application, the credit generator shall monitor and maintain quarterly records of the gallons of fuel consumed per captive marine vessel.
 - (2) For each captive marine vessel, the credit generator shall maintain quarterly records of:
 - (A) the location where the participating marine vessel is anchored or docked, when not in service;
 - (B) marine vessel identification number, engine make, engine model, engine model year, and engine serial number;
 - (C) marine vessel loss, sale, lease, repower, engine overhaul, and in the case of remanufactured engines, any engine maintenance or service performed according to the OEMs schedule of recommended engine maintenance and service;
 - (D) when a marine vessel is replaced due to loss or malfunction, identification of replaced marine vessel and engine and replacement engine make, engine model, engine model year, and engine serial number;
 - (E) when a marine vessel is sold or leased, identification and location of new owner or lessee; and
 - (F) any emission test results completed to verify or certify a participating engine.
 - (3) Within 30 days after the end of each twelve-month credit generation period, the credit generator shall submit:

- (A) the activity level specified in paragraph (h)(1) for the previous twelve-month credit generation period; and
 - (B) the information specified in subparagraphs (h)(2)(A) through (h)(2)(F) if any marine vessel identified in the Application is lost or malfunctions.
- (4) Notwithstanding paragraph (h)(3), if the initial credit generation period begins prior to the start of a complete RECLAIM Compliance Cycle and is three months or less, the credit generator shall submit the information specified in paragraph (h)(3) within 30 days after the end of the annual credit generation period following the initial credit generation period. For an initial credit generation period that is greater than three months, the credit generator shall submit the information specified in paragraph (h)(3) within 30 days after the end of the initial credit generation period.
- (5) Record and maintain data collected through a GPS or another method as approved by the District, CARB and EPA to demonstrate that the marine vessel is a captive marine vessel throughout the credit generation period.
- (6) When a marine vessel travels outside district waters during the credit generation period for the purpose of maintenance or repair, the credit generator shall:
 - (A) Record the date the vessel leaves and returns to district waters;
 - (B) Record the port of call or destination where the maintenance or repair was performed;
 - (C) Keep an invoice or receipt documenting date(s) and type of maintenance or repair performed; and
 - (D) Submit the information specified in this paragraph with the information specified in paragraphs (h)(3) and (h)(4).
- (7) The District or a district approved contractor will conduct one source test not more than eighteen months from the beginning date of the initial credit generation period and a second source test on or before June 30, 2005 on each participating marine vessel using a remanufactured engine. Such source tests shall be conducted using the protocols and originally tested emission-related engine parameters specified in paragraph (f)(4).
- (8) The District may conduct an unannounced inspection of the originally tested emission-related engine parameters specified in subparagraph (f)(4)(E) periodically throughout the credit generation period.

(i) Annual Reconciliation

- (1) The actual activity level submitted pursuant to paragraphs (h)(3) and (h)(4) shall be reviewed upon submittal to evaluate if any shortfall exists between the actual activity level and the projected activity level submitted.
- (2) If a shortfall exists between the actual and projected activity levels, the credit generator and user are subject to the penalty provisions specified under subdivision (k).
- (3) If the actual activity level exceeded the projected activity level, then the Executive Officer shall after performing the evaluation required by paragraph (i)(1) issue additional MSERCs equal to the amount of the increase and pursuant to subdivision (g) for use in the current RECLAIM Compliance Cycle that ends no later than six months from the last day of the credit generation period of which the increase in activity level occurred.

(j) Credit Use

MSERCs generated under this rule may be used as RTCs under the provisions of Regulation XX – Regional Clean Air Incentive Market (RECLAIM).

(k) Penalties

- (1) If a shortfall exists pursuant to paragraph (i)(1), credits equal to 110 percent of the shortfall shall be obtained and surrendered to the Executive Officer such that the applicant shall retire NO_x MSERCs generated under the same or different Application or RTCs that are approved and designated for use within the same RECLAIM cycle or if not available, from the next RECLAIM cycle.
- (2) Any person submitting an Application who falsifies information in the Application or fails to implement any provision of the Application, shall be subject to the penalties specified in the Health and Safety Code for violation of District rules and in addition shall be grounds for the Executive Officer to take one or more of the following actions:
 - (A) disapprove the Application and void all previously issued MSERCs, and those already converted to RTCs, that have not yet expired;

- (B) designate the applicant to be ineligible to generate MSERCs; or
 - (C) assess the penalty specified in paragraph (k)(1).
 - (3) If the shortfall cannot be reconciled through paragraph (k)(1), any person who uses MSERCs or MSERCs converted into RTCs generated under this rule at a RECLAIM facility where there is a shortfall in emission reductions or where previously issued MSERCs, and those already converted to RTCs, that have not yet expired are voided, shall be subject to the provisions specified in Rule 2010 – Administrative Remedies and Sanctions for RECLAIM rule violations. If there are multiple credit holders or users of credits generated under the same Application, each holder or user shall retire MSERCs or RTCs according to their prorated share of credits purchased.
 - (4) If a participating marine vessel travels outside the district waters during the credit generation period, except as allowed pursuant to paragraphs (d)(2) and (d)(3), then MSERCs or MSERCs converted into RTCs shall be voided to cover reductions projected for that marine vessel for the entire current credit generation period.
- (l) Program Review
- (1) On or before April 2003 and April 2005, the Executive Officer shall complete a review and present a report to the Governing Board that includes but not be limited to the following information:
 - (A) General description of projects participating in the pilot program and the amount of NO_x MSERCs, including the amount converted to RTCs, generated under the pilot program;
 - (B) The location of the credit generation projects and facilities using RTCs under this pilot program;
 - (C) The amount of NO_x MSERCs retired to benefit the environment; and
 - (D) The amount of concurrent non-NO_x emission reductions such as PM and toxic air contaminants, generated under the pilot program that have been retired to benefit the environment.
 - (2) The Governing Board may suspend approval of pending Applications and receipt of additional Applications through a noticed public hearing.

Table 1
Thresholds for NO_x Optional Emission Factors

Engine Speed, n (rpm)	NO_x¹ (g/kW-hr)	NO_x¹ (g/bhp-hr)
< 130	17	12.7
130 < n < 2000	$45 * n^{-0.2}$	$33.6 * n^{-0.2}$
≥ 2000	9.8	7.3

1. Emission Standards in Table 1 represent the NO_x emission limits referenced in MARPOL Annex VI.