Manufacturer Averaging, Banking, and Trading Report for Nonroad CI Engines

Last Revision: December 2015 Version Number 3.6

Current Model Year Credit Calculations

Model Year:

Engine Family Name or Test Group	Tier in Effect	If Tier 2, Reserved for Future Use?	Do Tier 4 Alternative Compliance Options Apply? (Y/N)	Gen Sets? (Y/N)	Air Cooled, hand-startable, and direct injection? (Tier 4 and <8 kW engines only)	Average Power (kW)	Parameter	Averaging Set	FEL (g/kW-hr)	Indirect Fuel Injection - Tier 2/3 only (Y/N)	Useful Life (Hours)	Production Volume (actual sales/ production) (S)	Percent of Total Production that is Tracked (T)	Percent of Tracked Production that is Sold within U.S. (U)	NOx Tracking Adjustment Factor (F)	Production Volume Used in Credit Calculations (V)	Tier 2/3 Applicable Standard (g/kW-hr)	Tier 4 Applicable Standard (g/kW-hr)	NOx or NMHC+NOx Averaging Credits Generated or Used	PM Averaging Credits Generated or Used	Messages	Comments

Engine Family Name or Test Group	Tier in Effect	If Tier 2, Reserved for Future Use?	Do Tier 4 Alternative Compliance Options Apply? (Y/N)	Gen Sets? (Y/N)	Air Cooled, hand-startable, and direct injection? (Tier 4 and <8 kW engines only)	Average Power (kW)	Parameter	Averaging Set	FEL (g/kW-hr)	Indirect Fuel Injection - Tier 2/3 only (Y/N)	Useful Life (Hours)	Production Volume (actual sales/ production) (S)	Percent of Total Production that is Tracked (T)	Percent of Tracked Production that is Sold within U.S. (U)	NOx Tracking Adjustment Factor (F)	Production Volume Used in Credit Calculations (V)	Tier 2/3 Applicable Standard (g/kW-hr)	Tier 4 Applicable Standard (g/kW-hr)	NOx or NMHC+NOx Averaging Credits Generated or Used	PM Averaging Credits Generated or Used	Messages	Comments

Engine Families Using Credits: V = (S*T*U) + [(S*(1-T)*(U+(1-U)*(1-F))]   If T >= 0.70 but < 0.90, then F = (0.50) * (T) + (0.55)
Engine Families Generating Credits: V = (S*T*U) + [(S*(1-T)*U*F)]   If T >= 0.50 but < 0.70, then F = (2.0) * (T) - (0.50)
If T < 0.50, then F = 0
if T >= 0.90, then F = 1

	Averaging Sets - NMHC + NOx Credits					
	≥ 19 kW	Indirect Fuel Injection (≥ 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection (≥ 19 kW marine diesel)	< 19 kW (marine diesel)
Current MY Credits (all credits generated and used)						
Tier 2 Credits - not reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 2 Credits - reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 3 Credits	0.00	0.00		0.00	0.00	
TOTAL CURRENT MY CREDITS AVAILABLE FOR AVERAGING (Tier 2 and 3 Credits not reserved)	0.00	0.00	0.00	0.00	0.00	0.00

	≤ 560 kW Averaging Set		> 560 kW Averaging Set
	≤ 560 kW NOx Credits	≤ 560 kW NMHC+NOx Credits	> 560 KW NOx Credits
Current MY Tier 4 Credits (all credits generated and used)	0.00	0.00	0.00

	Averaging Set - PM Credits	
	> 560 KW	≤ 560 kW
Current MY Tier 4 Credits (all credits generated and used)	0.00	0.00

	Averaging Sets - PM Credits					
	≥ 19 kW	Indirect Fuel Injection (> 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection (> 19 kW marine diesel)	< 19 kW (marine diesel)
Current MY Credits (all credits generated and used)						
Tier 2 Credits - not reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 2 Credits - reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 3 Credits	0.00	0.00		0.00	0.00	
TOTAL CURRENT MY CREDITS AVAILABLE FOR AVERAGING (Tier 2 and 3 Credits not reserved)	0.00	0.00	0.00	0.00	0.00	0.00

Current Model Year Credit Calculations - MANUAL

Model Year:

Engine Family Name or Test Group	Tier in Effect	If Tier 2, Reserved for Future Use?	Do Tier 4 Alternative Compliance Options Apply? (Y/N)	Gen Sets? (Y/N)	Air Cooled, hand-startable, and direct injection? (Tier 4 and <8 kW engines only)	Average Power (kW)	Parameter	Averaging Set	FEL (g/kW-hr)	Indirect Fuel Injection - Tier 2/3 only (Y/N)	Useful Life (Hours)	Production Volume (actual sales/ production) (S)	Percent of Total Production that is Tracked (T)	Percent of Tracked Production that is Sold within U.S. (U)	NOx Tracking Adjustment Factor (F)	Production Volume Used in Credit Calculations (V)	Tier 2/3 Applicable Standard (g/kW-hr)	Tier 4 Applicable Standard (g/kW-hr)	NOx or NMHC+NOx Averaging Credits Generated or Used	PM Averaging Credits Generated or Used	Messages	Comments

Engine Family Name or Test Group	Tier in Effect	If Tier 2, Reserved for Future Use?	Do Tier 4 Alternative Compliance Options Apply? (Y/N)	Gen Sets? (Y/N)	Air Cooled, hand-startable, and direct injection? (Tier 4 and <8 kW engines only)	Average Power (kW)	Parameter	Averaging Set	FEL (g/kW-hr)	Indirect Fuel Injection - Tier 2/3 only (Y/N)	Useful Life (Hours)	Production Volume (actual sales/ production) (S)	Percent of Total Production that is Tracked (T)	Percent of Tracked Production that is Sold within U.S. (U)	NOx Tracking Adjustment Factor (F)	Production Volume Used in Credit Calculations (V)	Tier 2/3 Applicable Standard (g/kW-hr)	Tier 4 Applicable Standard (g/kW-hr)	NOx or NMHC+NOx Averaging Credits Generated or Used	PM Averaging Credits Generated or Used	Messages	Comments

Engine Families Using Credits: V = (S*T*U) + [(S*(1-T)*(U+(1-U)*(1-F))]
Engine Families Generating Credits: V = (S*T*U) + [(S*(1-T)*U*F)]

If T >= 0.70 but < 0.90, then F = (0.50) * (T) + (0.55)
If T >= 0.50 but < 0.70, then F = (2.0) * (T) - (0.50)
If T < 0.50, then F = 0
If T >= 0.90, then F = 1

	Averaging Sets - NMHC + NOx Credits					
	≥ 19 kW	Indirect Fuel Injection (≥ 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection (≥ 19 kW marine diesel)	< 19 kW (marine diesel)
Current MY Credits (all credits generated and used)						
Tier 2 Credits - not reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 2 Credits - reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 3 Credits	0.00	0.00		0.00	0.00	
TOTAL CURRENT MY CREDITS AVAILABLE FOR AVERAGING (Tier 2 and 3 Credits not reserved)	0.00	0.00	0.00	0.00	0.00	0.00

	≤ 560 kW Averaging Set		> 560 kW Averaging Set
	≤ 560 kW NOx Credits	≤ 560 kW NMHC+NOx Credits	> 560 KW NOx Credits
Current MY Tier 4 Credits (all credits generated and used)	0.00	0.00	0.00

	Averaging Set - PM Credits	
	> 560 KW	≤ 560 kW
Current MY Tier 4 Credits (all credits generated and used)	0.00	0.00

	Averaging Sets - PM Credits					
	≥ 19 kW	Indirect Fuel Injection (> 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection (> 19 kW marine diesel)	< 19 kW (marine diesel)
Current MY Credits (all credits generated and used)						
Tier 2 Credits - not reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 2 Credits - reserved for potential use in Tier 4	0.00	0.00	0.00	0.00	0.00	0.00
Tier 3 Credits	0.00	0.00		0.00	0.00	
TOTAL CURRENT MY CREDITS AVAILABLE FOR AVERAGING (Tier 2 and 3 Credits not reserved)	0.00	0.00	0.00	0.00	0.00	0.00

Field Descriptions for Current MY Credit Calc

Fields (Current MY Credit Calc)	Description
Engine Family Name or Test Group	Enter the 12-character engine family name or test group name.
Tier in Effect	Select Tier 2, 3 or 4 based on the standards that apply to the engine family.
If Tier 2, Reserved for Future Use?	If the engine family or test group is subject to Tier 2, but will be reserved for future use in Tiers 3 or 4, select "Y" from the drop-down menu.
Do Tier 4 Alternative Compliance Options Apply? (Y/N)	Select "Y" from the dropdown menu if alternative compliance options apply. If an alternative compliance option(s) apply (including alternate standards, alternate FELs, Temporary Compliance Adjustment Factors (TCAF), etc.), use the Current MY Credit Calc-MANUAL worksheet. The credits from both Current MY Credit Calc worksheets will be reflected in the corresponding averaging set in the Summary worksheets. The Manual worksheet allows the user to enter in both the standards and FELs for the engine family. **NOTE: If TCAF applies, please adjust the FEL accordingly and insert a note in the "Comments" field to describe the adjustment.**
Gen Sets? (Y/N)	Select "Y" from the dropdown menu if the engine family consists of generator sets. This option only applies to engine families with a power rating above 560 kW.
Air Cooled, hand-startable, and direct injection? (Tier 4 and <8 kW engines only)	Select "Y" from the dropdown menu if the engine family consists of hand-startable, air-cooled, direct injection engines below 8 kW subject to Tier 4 standards. The term hand-startable generally refers to engines that are started using a hand crank or pull cord. Note that these engines may not generate either PM or NMHC+NOx credits but the manufacturer may use credits under the ABT program to ensure that these engines are in compliance (see 40 CFR 1039.101(c) and Table 1 of 40 CFR 1039.102). If "Y" is selected, it is assumed that the alternate PM standard of 0.6 g/kW-hr applies. If the regular Tier 4 PM standard of 0.4 g/kW-hr applies, please select "N".
Average Power (kW)	Enter the average power rating of all configurations within the engine family, calculated on a U.S. volume sales-weighted basis.
Parameter	Select the applicable parameter: NOx, NMHC + NOx or PM
Averaging Set	Selected the applicable averaging set: 1) At or above 19 kW (Tier 2 &3); 2) Below 19 kW (Tier 2); 3) At or above 19 kW (marine diesel only) (Tier 2 & 3); 4) Below 19 kW (marine diesel only) (Tier 2); 5) Above 560 kW (Tier 4);or 6) At or below 560 kW (Tier 4). Note that for Tier 2/3 engine families, manufacturers are allowed to use credits generated on marine engines to demonstrate compliance for land-based applications, but not vice versa.
FEL (g/kW-hr)	Enter the applicable NOx, NMHC + NOx or PM family emission limit (FEL) for the engine family. This value should not exceed the applicable FEL caps under Part 89 or 1039.
Indirect Fuel Injection - Tier 2/3 only (Y/N)	If the engine family is subject to Tier 2 or 3 standards under Part 89, select Y or N to indicate whether the engine family uses indirect fuel injection. Under 89.206(b)(4) emission credits generated from engines rated at or above 19 kW utilizing indirect fuel injection may not be traded to other manufacturers.
Useful Life (Hours)	Enter the useful life for the engine family in hours.
Production Volume (actual sales/production) (S)	Enter the number of nonroad engines produced and sold within the given engine family for the current model year. Do not include engines sold to equipment or vehicle manufacturers that are exempt from the standards to address hardship issues or the need for implementation flexibility. Note that this value corresponds to the variable "S" in the tracking calculations as shown directly below the data entry cells.

Fields (Current MY Credit Calc)	Description
Percent of Total Production that is Tracked (T)	Enter the fraction of the "Production Volume" that can be tracked to the point of first retail sale. If this fraction is greater than 0.50 untracked engines may be included in the credit calculations. EPA accepts projections of untracked nonroad engines when at least 50 percent of the engines have actually been tracked to the point of first retail sale. If the percent of tracked engines is at or above 90 percent, no adjustment will be made to untracked engines. Note that this value corresponds to the variable "T" in the tracking calculations as shown directly below the data entry cells.
Percent of Tracked Production that is Sold within U.S. (U)	Of those that can be tracked, enter the fraction that were sold domestically within the United States. Note that this value corresponds to the variable "U" in the tracking calculations as shown directly below the data entry cells.
NOx Tracking Adjustment Factor (F)	This factor is calculated automatically in the Current MY Credit Calc worksheet (if using the 'MANUAL' worksheet, this value is entered by the user). The factor is based on the "Percent of Total Production that is Tracked" and adjusts the number of untracked engines that are eligible to participate in ABT depending on the percent of overall sales that can be tracked. If the percent of untracked engines exceeds 50%, then only tracked engines are eligible to participate in the ABT program. If the percent of untracked engines is less than 10%, then no adjustment factor is applied. Note that this value corresponds to the variable "F" in the tracking calculations as shown directly below the data entry cells.
Production Volume Used in Credit Calculations (V)	This value is calculated automatically in the Current MY Credit Calc worksheet (if using the 'MANUAL' worksheet, it is entered by the user). This value represents the production volume eligible to participate in the ABT program and it is the number that is used to calculate the credit balance. Note that this value corresponds to the variable "V" in the tracking calculations as shown directly below the data entry cells.
Tier 2/3 Applicable Standard (g/kW-hr)	The standard is automatically populated in the Current MY Credit Calc worksheet (if using the 'MANUAL' worksheet, the standard is entered by the user) and is based on the Tier, Average Power Rating and Parameter. See Table 1 at 63 FR 57001.
Tier 4 Applicable Standard (g/kW-hr)	The standard is automatically populated in the Current MY Credit Calc worksheet (if using the 'MANUAL' worksheet, the standard is entered by the user) and is based on the Tier, Average Power Rating and Parameter. See Table 1 at 63 FR 57001.
NOx or NMHC+NOx Averaging Credits Generated or Used	Credits are calculated automatically in the Current MY Credit Calc worksheet (if using the 'MANUAL' worksheet, it is entered by the user) and represents the product of: 1) the difference between the NOx + NMHC standard and the FEL; 2) production volume; 3) average power rating; and 4) useful life.
PM Averaging Credits Generated or Used	Credits are calculated automatically in the Current MY Credit Calc worksheet (if using the 'MANUAL' worksheet, it is entered by the user) and represents the product of: 1) the difference between the PM standard and the FEL; 2) production volume; 3) average power rating; and 4) useful life.
Messages	If any of the entered data are incompatible or inconsistent with the program requirements and/or limitations, a note will be automatically displayed in this field. These messages are intended to help identify inconsistencies between the data entered for Tier, Average Power Rating, Averaging Set, and FEL, and are incorporated into both the automatic and manual worksheets.
Comments	This field may be used to enter in any additional information regarding special circumstances or characteristics associated with the engine family name or credit calculations. This field is for informational purposes only and would not affect credit calculations or compliance determinations. The information entered may be used to distinguish between multiple entries for a split engine family, identify issues that EPA should be aware of as the data are evaluated, or track characteristics of the engine family name for internal purposes (e.g., identifying configurations, sub-configurations, model names/numbers, etc.).

Paperwork Reduction Act Notice

Fields (Current MY Credit Calc)	Description
The public reporting and recordkeeping burden for this collection of information is estimated to average 43 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number (2060-0287) in any correspondence. Do not send the completed form to this address.	
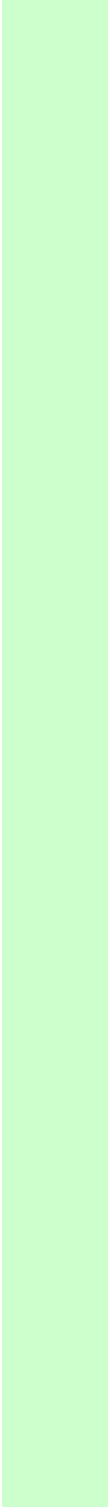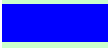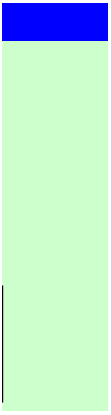
United States
Environmental Protection Agency
Office of Transportation and Air Quality

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Credit Transfers - Tier 2 & 3

Credits Purchased

MY when Credits Earned	Tier in Effect	If Tier 2, Reserved for Future Use?	Averaging Set	Parameter	Date of Transfer	Provider	Recipient	Quantity of Credits Purchased

Summary of Credit Transfers by Averaging Set

	Averaging Set	Purchased	Sold	Net
NMHC + NOx Credits	Tier 2 < 19 kW	0.0	0.0	0.0
	Tier 2 < 19 kW - res. for Tier 4	0.0	0.0	0.0
	Tier 2 < 19 kW (Marine)	0.0	0.0	0.0
	Tier 2 < 19 kW (Marine) - res. for Tier 4	0.0	0.0	0.0
	Tier 2 > 19 kW	0.0	0.0	0.0
	Tier 2 > 19 kW - res. for Tier 4	0.0	0.0	0.0
	Tier 3 > 19 kW	0.0	0.0	0.0
	Tier 2 > 19 kW (Marine)	0.0	0.0	0.0
	Tier 2 > 19 kW (Marine) - res. for Tier 4	0.0	0.0	0.0
	Tier 3 > 19 kW (Marine)	0.0	0.0	0.0
PM Credits	Tier 2 < 19 kW	0.0	0.0	0.0
	Tier 2 < 19 kW - res. for Tier 4	0.0	0.0	0.0
	Tier 2 < 19 kW (Marine)	0.0	0.0	0.0
	Tier 2 < 19 kW (Marine) - res. for Tier 4	0.0	0.0	0.0
	Tier 2 > 19 kW	0.0	0.0	0.0
	Tier 2 > 19 kW - res. for Tier 4	0.0	0.0	0.0
	Tier 3 > 19 kW	0.0	0.0	0.0
	Tier 2 > 19 kW (Marine)	0.0	0.0	0.0
	Tier 2 > 19 kW (Marine) - res. for Tier 4	0.0	0.0	0.0
	Tier 3 > 19 kW (Marine)	0.0	0.0	0.0

Credits Sold

MY when Credits Earned	Tier in Effect	If Tier 2, Reserved for Future Use?	Averaging Set	Parameter	Date of Transfer	Provider	Recipient	Quantity of Credits Sold

NOTE 1: Emission credits generated from Engines rated at or above 19 kW utilizing indirect fuel injection may not be traded to other manufacturers. (See 89.206(b)(4))

NOTE 2: Emission credits may be exchanged between nonroad manufacturers within the same averaging set. (See 89.206(a))

Credit Transfers - Tier 4

Credits Purchased

MY when Credits Earned	Averaging Set	Parameter	Date of Transfer	Provider	Recipient	Quantity of Credits Purchased

Summary of Credit Transfers by Averaging Set

Averaging Set		Purchased	Sold	Net
NOx Credits	> 560 kW	0.0	0.0	0.0
	≤ 560 kW	0.0	0.0	0.0
NMHC+NOx Credits	≤ 560 kW	0.0	0.0	0.0
PM Credits	> 560 kW	0.0	0.0	0.0
	≤ 560 kW	0.0	0.0	0.0

Credits Sold

MY when Credits Earned	Averaging Set	Parameter	Date of Transfer	Provider	Recipient	Quantity of Credits Sold

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Summary - NMHC + NOx

Model Year:	Manufacturer:										

Averaging Set

	NO$_x$/NMHC+NO$_x$ Credits - Tier 2 and 3					NOx/NMHC+NOx Credits - Tier 4	
Credits Subtracted	≥ 19 kW	Indirect Fuel Injection (≥ 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection (≥ 19 kW marine diesel)	< 19 kW (marine diesel)	> 560 kW	≤ 560 kW

Credit Balances before Averaging:

- **Credits Acquired via Trading Activity**
  - Tier 2 NMHC+NOx Credits acquired via trading
  - Tier 2 NMHC+NOx Credits acquired via trading - previously reserved for Tier 4
  - Tier 3 NMHC+NOx and Tier 4 NOx Credits acquired via trading
  - Tier 4 NMHC+NOx Credits
- **Credits Carried Over from Previous Model Years**
  - Tier 1 (NOx only) credits
  - Tier 2 NMHC+NOx credits - not reserved for Tier 4
  - Tier 2 NMHC+NOx credits - previously reserved for Tier 4
  - Tier 3 NMHC+NOx credits and Tier 4 NOx credits
  - Tier 4 NMHC+NOx Credits
- **Current MY Credits Generated and Used**
  - Tier 2 NMHC+NOx credits - not reserved for Tier 4
  - Tier 2 NMHC+NOx credits - potentially reserved for Tier 4
  - Tier 3 NMHC+NOx credits and Tier 4 NOx credits
  - Tier 4 NMHC+NOx Credits

Summary of Credit Balances:

- **Credits Acquired via Trading Activity**
  - Tier 2 NMHC+NOx Credits acquired via trading
  - Tier 2 NMHC+NOx Credits acquired via trading - previously reserved for Tier 4
  - Tier 3 NMHC+NOx and Tier 4 NOx Credits acquired via trading
  - Tier 4 NMHC+NOx Credits
- **Credits Carried Over from Previous Model Years**
  - Tier 1 (NOx only) credits
  - Tier 2 NMHC+NOx credits
  - Tier 2 NMHC+NOx credits - previously reserved for Tier 4
  - Tier 3 NMHC+NOx credits and Tier 4 NOx credits
  - Tier 4 NMHC+NOx Credits
- **Current MY Credits**
  - Tier 2 NMHC+NOx credits (not reserved for potential Tier 4 use)
  - Tier 2 NMHC+NOx credits - previously reserved for Tier 4
  - Tier 3 NMHC+NOx credits and Tier 4 NOx credits
  - Tier 4 NMHC+NOx Credits

Final Credit Balances

	≥ 19 kW	Indirect Fuel Injection (≥ 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection marine	< 19 kW (marine diesel)	> 560 kW	≤ 560 kW
FINAL Tier 1 (NOx only) Balance available for Banking/Trading *	0.0	0.0		0.0	0.0			
FINAL Tier 2 (NMHC+NOx) Balance available for Banking/Trading * (not reserved)	0.0	0.0	0.0	0.0	0.0	0.0		
FINAL Tier 2 NMHC+NOx credits reserved for potential use in Tier 4	0.0	0.0	0.0	0.0	0.0	0.0		
FINAL Tier 3 (NMHC+NOx) Balance available for Banking/Trading *	0.0	0.0		0.0	0.0			
FINAL Tier 4 (NOx) Balance available for Banking/Trading							0.0	0.0
FINAL Tier 4 (NMHC+NOx) Balance available for Banking/Trading								0.0

* Credits generated from engines at or above 19 kW using Indirect Fuel Injection are not eligible for trading.

Credit Usage and Averaging

Number of Credits to be Applied **	FROM						TO				Messages	FROM Credits Subtracted	TO Credits Added
	Tier	Parameter	Type	Averaging Set	Indirect Fuel Injection? (Tiers 1, 2, or 3 only)	Reserved? (Tier 2)	Tier	Parameter	Averaging Set	Indirect Fuel Injection? (Tiers 1, 2, or 3 only)			

** Note: Credits from Tiers 2 and 3 averaging sets at or above 19 kW should only be applied to the Tier 4 averaging set above 560 kW if the engines families from which credits are being applied are rated above 560 kW.

Paperwork Reduction Act Notice

OMB No. 2060-0287

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Summary - PM

Model Year:	Manufacturer:	Averaging Set										Credit Usage and Averaging												FROM	TO
		PM Credits - Tier 2 and 3					PM Credits - Tier 4			Number of Credits to be Applied **	FROM					TO			Messages					Credits Subtracted	Credits Added
		≥ 19 kW	Indirect Fuel Injection (≥ 19 kW)	< 19 kW	≥ 19 kW (marine diesel)	Indirect Fuel Injection (≥ 19 kW marine diesel)	< 19 kW (marine diesel)	> 560 kW	≤ 560 kW		Tier	Type	Averaging Set	Indirect Fuel Injection? (Tiers 2 or 3 only)	Reserved? (Tier 2)	Tier	Averaging Set	Indirect Fuel Injection? (Tiers 2 or 3 only)						
																								0	0
Credit Balances before Averaging:																								0	0
	Credits Acquired via Trading Activity	0																						0	0
	Tier 2 PM Credits acquired via trading																							0	0
	Tier 2 PM Credits acquired via trading - previously reserved for Tier 4																							0	0
	Tier 3 and Tier 4 PM Credits acquired via trading																							0	0
	Credits Carried Over from Previous Model Years																							0	0
	Tier 2 PM credits - not reserved for Tier 4																							0	0
	Tier 2 PM credits - previously reserved for Tier 4																							0	0
	Tier 3 and Tier 4 PM credits																							0	0
	Current MY Credits Generated and Used																							0	0
	Tier 2 PM credits - not reserved for Tier 4																							0	0
	Tier 2 PM credits - potentially reserved for Tier 4																							0	0
	Tier 3 and Tier 4 PM credits																							0	0
																								0	0
																								0	0
																								0	0
Summary of Credit Balances:																								0	0
	Credits Acquired via Trading Activity	0																						0	0
	Tier 2 PM Credits acquired via trading																							0	0
	Tier 2 PM Credits acquired via trading - previously reserved for Tier 4																							0	0
	Tier 3 and Tier 4 PM Credits acquired via trading																							0	0
	Credits Carried Over from Previous Model Years																							0	0
	Tier 2 PM credits																							0	0
	Tier 2 PM credits - previously reserved for Tier 4																							0	0
	Tier 3 and Tier 4 PM credits																							0	0
	Current MY Credits																							0	0
	Tier 2 PM credits (not reserved for potential Tier 4 use)																							0	0
	Tier 2 PM credits - previously reserved for Tier 4	0																						0	0
	Tier 3 and Tier 4 PM credits																							0	0
																								0	0
																								0	0
Final Credit Balances																									
	FINAL Tier 2 PM Balance available for Banking/Trading * (not reserved)	0.0	0.0	0.0	0.0	0.0	0.0																		
	FINAL Tier 2 PM credits reserved for potential use in Tier 4	0.0	0.0	0.0	0.0	0.0	0.0																		
	FINAL Tier 3 PM Balance available for Banking/Trading *	0.0	0.0		0.0	0.0																			
	FINAL Tier 4 PM Balance available for Banking/Trading							0.0	0.0																

* Credits generated from engines at or above 19 kW using Indirect Fuel Injection are not eligible for trading.

** Note: Credits from Tiers 2 and 3 averaging sets above 19 kW should only be applied to the Tier 4 averaging set above 560 kW if the engines families from which credits are being applied are rated at or above 560 kW.

Manufacturer Avera

Instructions

I. Background

 A major component of the final rule for nonroad diesel engines is the avera
based on the model year, engine family, and the NOx, NMHC + NOx, or PM
information related to credits or deficits under the ABT program, EPA has cr
Year (MY) 2009 and beyond. This reporting template covers engine families

and "Summary"   PM.

● **Current MY Credit Calc:** This worksheet contains 23 fields, which apply
set. The first 15 columns are the fields that require data entry or input from
be modified manually. One of these columns (Messages) indicates whether
columns. This column (Comments) allows for the entry of any additional cor
calculations for the model year selected (2009 and beyond). There are filter

● **Current MY Credit Calc – MANUAL:** This worksheet contains the same
fields. This worksheet should be used only when there are unique circumsta
worksheet are unable to process accurately. In this worksheet, with the exc
the summary section below the data entry cells are automatically calculated
both NMHC + NOx and PM. Note that as with the Current MY Credit Calc w

● **Field Descriptions:** This worksheet contains detailed notes on each of the
existence of any drop-down menus, and any other information that would be

● **Credit Transfers – Tier 2 & 3:** This worksheet summarizes any credit tra
manufacturer has not transferred any credits to a separate entity.

● **Credit Transfers – Tier 4:** This worksheet summarizes any credit transfe
has not transferred any credits to a separate entity.

● **Summary – NMHC + NOx:** This worksheet provides an overall summary
and allows the manufacturer to enter in credits from previous model years s
credits will be used to document compliance with the NMHC + NOx standard
used to apply credits from one Tier or Averaging Set to another. If the data
Messages column. For example, there are limitations on the application of p
Tier 2 or 3 credits that are applied to Tier 4 balances are subject to a 20 per

● **Summary – PM:** This worksheet provides an overall summary of the non
enter in credits from previous model years so that banked credits can be pro
worksheet also applies to this worksheet.

III. Entering Data for the Current Model Year

 Several fields have drop-down menus within the data entry cells. These me
drop-down menu is displayed within each cell. Filters are also available and

Step 1: Enter in the appropriate information for each data element in the firs
or preset values based on the information and data entered in the first 15 co
the fields within the "Current MY Credit Calc – MANUAL" worksheet (the tot

Each engine family (or portion of each engine family) that is subject to a spe
and FEL are compatible for each entry. Within both the automatic and man
limitations. For example, if Tier 1 and NOx are selected, but the Average Po
power rating.

Based on the information you enter, the "Current MY Credit Calc" workshee
summarized based on the Tier, averaging set, and parameter.

Note that any extra rows that do not contain any data, can be left blank. If a

Step 2: If any transfer of credits/deficits have occurred with another manufa

IV. Summary of NOx and NMHC + NOx Credits

 The "Summary – NMHC + NOx" worksheet contains a summary of all NOx
balances. The initial step requires the entry of carryover or traded credit an
step below. In this worksheet, any cells that are highlighted with a color will
Tier 2 & 3," or "Credit Transfers – Tier 4" worksheets or from other data in th

Step 1: Credit Balances Before Averaging: Enter any carryover credit ba
in this summary sheet based on data entered and calculated within the "Cur
respectively.

Step 2: Credit Usage and Averaging: Using the existing balances (as incl
applied to the current model year credit balances. Each line item in this sec
compatible averaging set.

Since indirect fuel injection credits for engines at or above 19 kW cannot be
2 and 3 averaging sets at or above 19 kW should only be applied to the Tier
credits in the marine diesel averaging sets may be used to cover a shortfall

The Messages column is automatically populated with an error message if a
number of credits to be added to the selected current model year Tier and a
reduction if applicable. Note that if there is an error in the Messages colum

The Summary of Credit Balances section of the worksheet is automatically p
Balances" totals include traded, banked, and current MY credit balances an

V. Summary of PM Credits

The "PM Summary" worksheet contains a summary of all PM credits (both l
carryover or traded PM credit balances. The application and averaging of th
highlighted with a color will be automatically populated based on informatior
worksheets or from other data in this worksheet. Any cell that is gray indica

Step 1: Credit Balances Before Averaging: Enter any carryover credit ba
activity are automatically populated in this summary sheet based on data er
Transfers – Tier 4" worksheets, respectively.

Step 2: Credit Usage and Averaging: Using existing carryover or current
applied/averaged to the current model year credit balance. Ensure that crec

The program elements that apply to PM regarding the transfer of marine cre
for indirect fuel injection are not available for trading. For Tier 2 and 3, mari

The Messages column is automatically populated with an error message if a
number of credits to be added to the selected current model year, Tier, and
reduction, if applicable. Note that if there is an error in the Messages colum

The Summary of Credit Balances section of the worksheet is automatically p
traded, banked, and current MY credit balances and are combined into the o

United States
Environmental Protection Agency
Office of Transportation and Air Quality
ging, Banking, and Trading Report for
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ging, banking, and trading (ABT) program for NOx, NMHC + NOx
l level to which the engine family is certified. In order to help strea
reated an Excel-based template to assist manufacturers with the c
s subject to the ABT reporting requirements under 40 CFR Part 8

to all of the information required to calculate credits for each engi
the manufacturer. The next seven columns (highlighted in light g
r the data entered are inconsistent with the program requirements
mments or notes that may apply to the data or credit calculation a
rs for each column that can be used to filter or sort by clicking on

fields and format as the Current MY Credit Calc worksheet, but in
ances (e.g., split engine families, alternative compliance options, e
eption of the parameter-specific credit totals and the Messages c
by average set and parameter. The totals within this worksheet
orksheet, filters may be used within each column by clicking on th

e 23 fields in the first two worksheets, including a description of t
e relevant to that field (including whether the field is a calculated v

nsfers for Tier 2 and Tier 3 that have occurred between manufac

ers for Tier 4 that have occurred between manufacturers. The use

of the nonroad NMHC + NOx and NOx credits that are reflected
o that banked credits may be properly applied and compared to C
ds. The Credit Usage and Averaging section to the right of the Su
entered in the Credit Usage and Averaging section is inconsisten
previously banked Tier 1 NOx credits, which may not be applied t
cent discount. Any discounts or limitations are integrated into the

road PM credits that have been calculated from the first workshee
pperly applied and compared to current model year credits. The s

enus provide a specific set of choices and using this list, you may
d allow you to view a specific subset of data (e.g., Tier 2 entries or

st 15 columns of the "Current MY Credit Calc" worksheet. The ne
blumns. If special circumstances require additional flexibility for th
als will be automatically reflected in the appropriate Summary wor

ecific standard or averaging set, should have its own separate line
ual worksheets, a note will appear in the "Message" column if dat
bwer Rating is at or below 560 kW, a note will appear in the "Mess

t will calculate the corresponding credit balances for the engine fa

dditional rows are needed, please contact EPA for a revised form

cturer, enter all relevant information into the fields listed in the ap

and NMHC + NOx credits and deficits (both banked and current y
d deficit balances. The process of applying and averaging these
be automatically populated based on information in the "Current
his summary worksheet. Any cell that is gray indicates that data e

lances from prior years. Note that current model year credits and
rent MY Credit Calc," "Current MY Credit Calc – MANUAL," "Cred

luded in the "Credit Balances before Averaging" section), indicate
tion specifies the type of credits being used as well as the Tier to

traded, the credit balances for these engines are maintained sep
4 averaging set above 560 kW if the engine families from which
in the corresponding non-marine averaging set (see 40 CFR 89.2

an invalid selection has been made. The number of credits to be :
averaging set category are displayed in the two right-hand column
, the Credits Subtracted and Credits Added columns will not be c

populated with the credit balances based on the application of NC
d are shown for NOx and NMHC + NOx. Note that credit balance

banked and current year) and allows for the application of these c
hese existing PM credits with current model year PM credits is sur
in the "Current MY Credit Calc," "Current MY Credit Calc – MAN
tes that data entry is not applicable or required.

lances from prior years in the appropriate averaging set. Note th
ntered and calculated within the "Current MY Credit Calc," "Curren

model year credits (as included in the Credit Balances before Ave
dits are applied within the corresponding averaging set and maint

dits and the limitations on trading associated with indirect fuel inje
ne diesel credits can be transferred within the final credit balance

an invalid selection has been made. The number of credits to be :
averaging set category are displayed in the two right-hand colum
, the Credits Subtracted and Credits Added columns will not be

populated with the credit balances based on the application of PM
overall PM averaging sets.

Nonroad CI Engines

, and PM. Manufacturers must track the implementation of these provisions
amline and standardize the process by which manufacturers submit
organization, presentation, and submittal of their annual reports for Model
9 (Tier 2 and 3) as well as 40 CFR Part 1039 (Tier 4).

ne family and track the overall credit balances for each nonroad averaging
reen) are preset or calculated values based on the data entered and cannot
or limitations. There is one additional column to the right of these seven
associated with the engine family. This worksheet only applies to
the arrow within the column header.

ncorporates automatic calculations or preset values for only three of the
etc.) that the automatic calculations in the Current MY Credit Calc
olumn, all columns allow for data entry or input from the user. The totals in
will be automatically reflected in the corresponding Summary sheet totals for
he arrow within the column header.

he required data or information, how the data should be entered, the
value based on preceding entries in the spreadsheet).

turers. The use of this worksheet will not be necessary in cases where the

e of this worksheet will not be necessary in cases where the manufacturer

within the Current MY worksheets and/or the Credit Transfers worksheets
Current MY credits. This worksheet allows the manufacturer to outline how
ummary of Credit Balances (both before and after averaging), should be
t with program requirements or limitations, a note will appear within the
o (i.e., averaged with) credits or deficits associated with Tier 4. In addition,
Summary of Credit Balances and Final Credit Balances sections.

et or entered into the second worksheet and allows the manufacturer to
ame approach described above for the Summary – NMHC + NOx

select the applicable option for each line item entry. The arrow for the
ly). The filters can be used by clicking the arrow within the header.

xt seven columns in this worksheet (highlighted in light green) are calculated
e credit calculations (e.g., split engine families), enter in relevant data for
rksheet).

item entry. Ensure that the Tier, Average Power Rating, Averaging Set,
a and/or field selections are inconsistent with program requirements or
sage" column that highlights the incompatibility of the averaging set and

mily. Below the data entry rows, the current model year credit totals are

and specify how many entries/rows will be required.

propriate "Credit Transfer" (Tiers 2 & 3 or Tier 4) worksheet.

ear) and allows for the application of these credits to current model year
existing credits with current model year credits is summarized in the second
MY Credit Calc," "Current MY Credit Calc – MANUAL," "Credit Transfers –
ntry is not applicable or required.

l credits acquired or sold through trading activity are automatically populated
dit Transfers – Tier 2 & 3," or "Credit Transfers – Tier 4" worksheets,

the number of traded, banked, or current model year credits that should be
which the credits will be applied. Ensure that credits are applied to a

arately for both banked and current MY credits. Note that credits from Tiers
credits are being applied are rated above 560 kW. For Tiers 2 and 3,
:04(c)(3) and (4)).

subtracted from the selected Tier and averaging set category as well as the
s. These values are automatically calculated and will reflect the 20 percent
calculated.

)x and NMHC + NOx credits in the preceding sections. The "Final Credit
s for indirect fuel injection are not available for trading.

credits to current model year balances. The initial step requires the entry of
nmarized in the second step. As with other worksheets, any cells that are
UAL," "Credit Transfers – Tier 2 & 3," or "Credit Transfers – Tier 4"

at current model year credits and credits acquired or sold through trading
it MY Credit Calc – MANUAL," "Credit Transfers – Tier 2 & 3," or "Credit

eraging section), indicate the number of credits that should be
ain separate balances for indirect fuel injection.

ection credits are consistent with those for NMHC + NOx. Credit balances
s section to a corresponding nonmarine averaging set, if desired.

subtracted from the selected Tier and averaging set category as well as the
ns. These values are automatically calculated and will reflect the 20 percent
calculated.

l credits in the preceding rows. The "Final Credit Balances" totals include