

Table 1 and Table 5
Heavy-Duty Vehicle GHG Emissions Standards for Model Years 2014-20

Vehicle Type	GVWR (lbs)	CO2 (g/ton-mile) MY 2014-16	CO2 (g/ton-mile) MY 2017-20	Payload (tons)	Useful Life (miles)	Roof Height (inches)
Vocational Vehicles						
LHD Class 2b-5	8,501 - 19,500	388	373	2.85	*110,000	N/A
MHD Class 6-7	19,501 - 33,000	234	225	5.60	185,000	N/A
HHD Class 8	Greater than 33,000	226	222	7.50	435,000	N/A
Tractors						
Class 7 Low-Roof All Cabs	26,001 - 33,000	107	104	12.50	185,000	120 or less
Class 7 Mid-Roof All Cabs	26,001 - 33,000	119	115	12.50	185,000	121-147
Class 7 High-Roof All Cabs	26,001 - 33,000	124	120	12.50	185,000	148 or greater
Class 8 Low-Roof Day Cab	Greater than 33,000	81	80	19.00	435,000	120 or less
Class 8 Low-Roof Sleeper Cab	Greater than 33,000	68	66	19.00	435,000	120 or less
Class 8 Mid-Roof Day Cab	Greater than 33,000	88	86	19.00	435,000	121-147
Class 8 Mid-Roof Sleeper Cab	Greater than 33,000	76	73	19.00	435,000	121-147
Class 8 High-Roof Day Cab	Greater than 33,000	92	89	19.00	435,000	148 or greater
Class 8 High-Roof Sleeper Cab	Greater than 33,000	75	72	19.00	435,000	148 or greater

* Useful Life Changed to 150,000 miles for LHD Vehicles Starting in Model Year 2021

Table 2-1

LHD Vocational Vehicles

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Manufacturer										
Autocar										
Blue Bird Body										
Chanje										4,385
Chrysler Group			7,823		10,612		15,121		8,014	
Daimler Coaches										
Daimler Trucks										
E-One										
El Dorado										
EVO Bus										
Ferrara Fire										
Ford Motor			338,493		54,320		40,201		31,639	
General Motors			45,803		62,030		2,591			
Gillig LLC										
Hino Manufacturing										
Hino Motors										
Isuzu Motors			42,816		55,820		64,177		43,559	
Kovatch Mobile										
Mitsubishi Fuso			1,360		2,445		882		3,361	
Motor Coach Ind.										
Navistar, Inc.				8,393						
New Flyer										
Oshkosh										
PACCAR, Inc.	5		212		67		65		37	
Rosenbauer Motors										
Spartan Fire										
Terex Corporation										
Tiffin Motor Homes										
Van Hool										
Volvo Group										
XOS Trucks										
TOTALS	5	0	436,507	8,393	185,294	0	123,037	0	86,610	4,385

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar								
Blue Bird Body								
Chanje		526						4,911
Chrysler Group	15,996		10,739		38,092		106,397	
Daimler Coaches								
Daimler Trucks								
E-One								
El Dorado								
EVO Bus								
Ferrara Fire								
Ford Motor	41,495		135,491		138,976		780,615	
General Motors			6,775		1,937		119,136	
Gillig LLC								
Hino Manufacturing								
Hino Motors			3,967				3,967	
Isuzu Motors	46,888		52,793		88,127		394,180	
Kovatch Mobile								
Mitsubishi Fuso	169	7,072	891		2,542		11,650	7,072
Motor Coach Ind.								
Navistar, Inc.					909		909	8,393
New Flyer								
Oshkosh								
PACCAR, Inc.	58		63		133		640	
Rosenbauer Motors								
Spartan Fire								
Terex Corporation								
Tiffin Motor Homes								
Van Hool								
Volvo Group								
XOS Trucks								
TOTALS	104,606	7,598	210,719	0	270,716	0	1,417,494	20,376

Table 2-2

MHD Vocational Vehicles

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Manufacturer										
Autocar										
Blue Bird Body			58,034		69,126		71,126		70,911	
Chanje										
Chrysler Group										
Daimler Coaches										
Daimler Trucks	72,587		64,601		106,254		170,177		206,705	
E-One										
El Dorado										
EVO Bus										
Ferrara Fire										
Ford Motor			64,651		47,486		70,183		148,110	
General Motors										
Gillig LLC			438		386		126		53	
Hino Manufacturing										
Hino Motors										
Isuzu Motors										
Kovatch Mobile										
Mitsubishi Fuso										
Motor Coach Ind.										
Navistar, Inc.	142,054				68,834		54,000		127,160	
New Flyer					174		286		124	
Oshkosh										
PACCAR, Inc.	2,580		15,528		23,342		26,348		32,128	
Rosenbauer Motors										
Spartan Fire										
Terex Corporation										
Tiffin Motor Homes			1,256							
Van Hool										
Volvo Group										
XOS Trucks										
TOTALS	217,221	0	204,508	0	315,602	0	392,246	0	585,191	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar	384		637		779		1,800	
Blue Bird Body	64,353		45,025	2,382	36,800	9,913	415,375	12,295
Chanje								
Chrysler Group								
Daimler Coaches								
Daimler Trucks	172,345		240,296		360,479		1,393,444	
E-One								
El Dorado								
EVO Bus								
Ferrara Fire								
Ford Motor	74,621		106,942		120,435		632,428	
General Motors			2,965		4,045		7,010	
Gillig LLC							1,003	
Hino Manufacturing			6,237		25		6,262	
Hino Motors			17,608		4,096		21,704	
Isuzu Motors	7,625		5,029		10,301		22,955	
Kovatch Mobile								
Mitsubishi Fuso								
Motor Coach Ind.								
Navistar, Inc.	157,167		212,387		389,621		1,151,223	
New Flyer							584	
Oshkosh								
PACCAR, Inc.	44,431		50,075		106,223	3,709	300,655	3,709
Rosenbauer Motors								
Spartan Fire								
Terex Corporation								
Tiffin Motor Homes							1,256	
Van Hool								
Volvo Group					3,063		3,063	
XOS Trucks					21	3,465	21	3,465
TOTALS	520,926	0	687,201	2,382	1,035,888	17,087	3,958,783	19,469

Table 2-3

HHD Vocational Vehicles

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar										
Blue Bird Body			24,740		28,439		30,348		34,142	
Chanje										
Chrysler Group										
Daimler Coaches										
Daimler Trucks	187,890		183,121		211,873		297,599		334,152	
E-One			4,267		0		0		5,667	
El Dorado			5,771		5,109		6,525		2,884	
EVO Bus			2,300		1,233		1,174		1,390	
Ferrara Fire									1,436	
Ford Motor							251		2,711	
General Motors										
Gillig LLC			22,397		20,162		22,590		28,570	1,033
Hino Manufacturing										
Hino Motors										
Isuzu Motors										
Kovatch Mobile							3,002		3,250	
Mitsubishi Fuso										
Motor Coach Ind.			18,312		18,975		20,456		17,967	
Navistar, Inc.	186,954				44,843		60,666		87,392	
New Flyer					14,055		31,620		30,765	23,265
Oshkosh			9,168		10,055		12,799		8,434	
PACCAR, Inc.	28,467		162,636		288,222		318,538		333,780	
Rosenbauer Motors										
Spartan Fire										
Terex Corporation			4,055		4,160		12,241		1,383	
Tiffin Motor Homes			17,180							
Van Hool									31,343	
Volvo Group			128,370		181,910		237,817		196,902	
XOS Trucks										
TOTALS	403,311	0	582,317	0	829,036	0	1,055,626	0	1,122,168	24,298

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar	154,009		128,614		77,490		360,113	
Blue Bird Body	24,518	9,308	15,523	77,077	17,115	136,717	174,825	223,102
Chanje								
Chrysler Group								
Daimler Coaches			179				179	
Daimler Trucks	290,568		423,942		802,833		2,731,978	
E-One	10,019		5,253		8,394		33,600	
El Dorado	6,450		7,027		6,890		40,656	
EVO Bus	235						6,332	
Ferrara Fire	581		1,250		626		3,893	
Ford Motor	2,956		2,786		2,169		10,873	
General Motors								
Gillig LLC	36,657	3,098	35,565		23,516		189,457	4,131
Hino Manufacturing			10				10	
Hino Motors			483				483	
Isuzu Motors								
Kovatch Mobile	2,617		2,026		5,063		15,958	
Mitsubishi Fuso								
Motor Coach Ind.	32,067		28,204		43,029	2,046	179,010	2,046
Navistar, Inc.	106,628		156,828		273,195		916,506	
New Flyer	31,261	164,435	33,979	170,268	37,215	90,495	178,895	448,463
Oshkosh	19,428		21,983		34,468		116,335	
PACCAR, Inc.	413,134		516,072		951,502	1,037	3,012,351	1,037
Rosenbauer Motors					4,365		4,365	
Spartan Fire					6,049		6,049	
Terex Corporation	2,215		2,320		1,944		28,318	
Tiffin Motor Homes							17,180	
Van Hool	26,560		27,764		29,013	1,013	114,680	1,013
Volvo Group	243,089		236,701		502,458	5,236	1,727,247	5,236
XOS Trucks								
TOTALS	1,402,992	176,841	1,646,509	247,345	2,827,334	236,544	9,869,293	685,028

Table 2-4

MHD Vocational Tractors

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar										
Daimler Trucks	1,046		1,808		2,916		2,160		3,841	
Ford Motor							-26		76	
Hino Motors										
Kovatch Mobile										
Navistar, Inc.										
PACCAR, Inc.	1,742		1,355		1,272		662		645	
Volvo Group										
TOTALS	2,788	0	3,163	0	4,188	0	2,796	0	4,562	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar								
Daimler Trucks	1,509		2,097		5,391		20,768	
Ford Motor	58		35		96		239	
Hino Motors								
Kovatch Mobile								
Navistar, Inc.	2,487		2,535		5,949		10,971	
PACCAR, Inc.	995		1,495		1,574		9,740	
Volvo Group								
TOTALS	5,049	0	6,162	0	13,010	0	41,718	0

Table 2-5

HHD Vocational Tractors

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar										
Daimler Trucks	23,163		15,686		23,617		34,638		21,650	
Ford Motor							52		29	
Hino Motors										
Kovatch Mobile									88	
Navistar, Inc.										
PACCAR, Inc.	4,341		46,484		66,314		41,705		30,221	
Volvo Group			113,551		26,981		23,992		18,104	
TOTALS	27,504	0	175,721	0	116,912	0	100,387	0	70,092	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar	18,531		24,978		18,776		62,285	
Daimler Trucks	40,716		54,940		91,771		306,181	
Ford Motor	124		43		36		284	
Hino Motors			1,008				1,008	
Kovatch Mobile	26						114	
Navistar, Inc.	11,488		14,821		52,553		78,862	
PACCAR, Inc.	52,748		54,771		76,917		373,501	
Volvo Group	49,162		33,943		90,877		356,610	
TOTALS	172,795	0	184,504	0	330,930	0	1,178,845	0

Table 3
All Heavy-Duty Vocational Vehicles
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013				MY 2014				MY 2015				MY 2016				MY 2017			
	LHD Conventional Plus Off-Cycle Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	LHD Conventional Plus Off-Cycle Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	LHD Conventional Plus Off-Cycle Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	LHD Conventional Plus Off-Cycle Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	LHD Conventional Plus Off-Cycle Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Autocar																				
Blue Bird Body						58,034	24,740													
Chanje																				
Chrysler Group					7,823															
Daimler Coaches																				
Daimler Trucks		73,633	211,053			66,409	198,807													
E-One							4,267													
El Dorado							5,771													
EVO Bus							2,300													
Ferrara Fire																				
Ford Motor					338,493	64,651														
General Motors					45,803															
Gillig LLC						438	22,397													
Hino Manufacturing																				
Hino Motors																				
Isuzu Motors					42,816															
Kovatch Mobile																				
Mitsubishi Fuso					1,360															
Motor Coach Ind.							18,312													
Navistar, Inc.		142,054	186,954																	
New Flyer																				
Oshkosh							9,168													
PACCAR, Inc.	5	4,322	32,808		212	16,883	209,120													
Rosenbauer Motors																				
Spartan Fire																				
Terex Corporation							4,055													
Tiffin Motor Homes						1,256	17,180													
Van Hool																				
Volvo Group							241,921													
XOS Trucks																				
TOTALS	5	220,009	430,815	0	436,507	207,671	758,038	8,393	185,294	319,790	945,948	0	123,037	395,042	1,156,013	0	86,610	589,754	1,192,260	28,683

Manufacturer	MY 2018				MY 2019				MY 2020				TOTAL			
	LHD Conventional Plus Off-Cycle	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	LHD Conventional Plus Off-Cycle	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	LHD Conventional Plus Off-Cycle	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	LHD Conventional Plus Off-Cycle	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology
Autocar		384	172,540			637	153,592			779	96,266			1,800	422,398	
Blue Bird Body		64,353	24,518	9,308		45,025	15,523	79,459		36,800	17,115	146,630		415,375	174,825	235,397
Chanje				526												4,911
Chrysler Group	15,996				10,739				38,092				106,397			
Daimler Coaches							179								179	
Daimler Trucks		173,854	331,284			242,393	478,882			365,870	894,604		1,414,212	3,038,159		
E-One			10,019				5,253				8,394				33,600	
El Dorado			6,450				7,027				6,890				40,656	
EVO Bus			235												6,332	
Ferrara Fire			581				1,250				626				3,893	
Ford Motor	41,495	74,679	3,080		135,491	106,977	2,829		138,976	120,531	2,205		780,615	632,667	11,157	
General Motors					6,775	2,965			1,937	4,045			119,136	7,010		
Gillig LLC			36,657	3,098			35,565				23,516			1,003	189,457	4,131
Hino Manufacturing						6,237	10			25				6,262	10	
Hino Motors					3,967	17,608	1,491			4,096			3,967	21,704	1,491	
Isuzu Motors	46,888	7,625			52,793	5,029			88,127	10,301			394,180	22,955		
Kovatch Mobile			2,643				2,026				5,063				16,072	
Mitsubishi Fuso	169			7,072	891				2,542				11,650			7,072
Motor Coach Ind.			32,067				28,204				43,029	2,046			179,010	2,046
Navistar, Inc.		159,654	118,116			214,922	171,649		909	395,570	325,748		909	1,162,194	995,368	8,393
New Flyer			31,261	164,435			33,979	170,268			37,215	90,495		584	178,895	448,463
Oshkosh			19,428				21,983				34,468				116,335	
PACCAR, Inc.	58	45,426	465,882		63	51,570	570,843		133	107,797	1,028,419	4,746	640	310,396	3,385,852	4,746
Rosenbauer Motors											4,365				4,365	
Spartan Fire											6,049				6,049	
Terex Corporation			2,215				2,320				1,944				28,318	
Tiffin Motor Homes														1,256	17,180	
Van Hool			26,560				27,764				29,013	1,013			114,680	1,013
Volvo Group			292,251				270,644			3,063	593,335	5,236		3,063	2,083,857	5,236
XOS Trucks										21		3,465		21		3,465
TOTALS	104,606	525,975	1,575,787	184,439	210,719	693,363	1,831,013	249,727	270,716	1,048,898	3,158,264	253,631	1,417,494	4,000,502	11,048,138	724,873

Table 4
All Heavy-Duty Vocational Vehicles
GHG Credits (Mg CO2) Banked Summary - Through Model Year 2020

Manufacturer	LHD	MHD	HHD	
	Conventional Plus Off-Cycle Credit Balance	Conventional Plus Off-Cycle Credit Balance	Conventional Plus Off-Cycle Credit Balance	Advanced Technology Credit Balance
Autocar		1,800	422,398	
Blue Bird Body		288,215	121,646	235,397
Chanje				6,679
Chrysler Group	119,629			
Daimler Coaches			179	
Daimler Trucks		1,165,000	2,392,809	
E-One			29,333	
El Dorado			29,776	
EVO Bus			2,799	
Ferrara Fire			3,893	
Ford Motor	527,410	520,530	11,157	
General Motors	15,372	7,010		
Gillig LLC		179	146,898	4,131
Hino Manufacturing		6,262	10	
Hino Motors	5,395	21,704	1,491	
Isuzu Motors	401,940	22,955		
Kovatch Mobile			16,072	
Mitsubishi Fuso	10,670			9,618
Motor Coach Ind.			141,723	2,046
Navistar, Inc.	1,236	951,306	763,571	
New Flyer		410	164,840	448,463
Oshkosh			97,112	
PACCAR, Inc.	484	256,035	2,789,388	4,746
Rosenbauer Motors			4,365	
Spartan Fire			6,049	
Terex Corporation			20,103	
Tiffin Motor Homes		0	0	
Van Hool			114,680	1,013
Volvo Group		3,063	1,633,045	5,236
XOS Trucks		21		3,465
TOTALS	1,082,136	3,244,490	8,913,337	720,794

Table 6-1

MHD Tractors - Class 7 Low-Roof All Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-2,720		918		241		81		-217	
Navistar, Inc.	2,410				511		458		937	
PACCAR, Inc.			32		-25		698		160	
Volvo Group										
TOTALS	-310	0	950	0	727	0	1,237	0	880	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	99		356		722		-520	
Navistar, Inc.	1,004		645		2,990		8,955	
PACCAR, Inc.	-155		56		518		1,284	
Volvo Group								
TOTALS	948	0	1,057	0	4,230	0	9,719	0

Table 6-2

MHD Tractors - Class 7 Mid-Roof All Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	7,219		11,056		10,656		12,076		5,848	
Navistar, Inc.					23		12		143	
PACCAR, Inc.					-5		5		5	
Volvo Group										
TOTALS	7,219	0	11,056	0	10,674	0	12,093	0	5,996	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	5,141		8,360		16,583		76,939	
Navistar, Inc.	16		13		37		244	
PACCAR, Inc.			-5		-9		-9	
Volvo Group								
TOTALS	5,157	0	8,368	0	16,611	0	77,174	0

Table 6-3

MHD Tractors - Class 7 High-Roof All Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	37,428		49,409		38,973		50,366		33,097	
Navistar, Inc.	396				6,487		15,621		10,709	
PACCAR, Inc.			-9		435		-1,085		-3,346	
Volvo Group										
TOTALS	37,824	0	49,400	0	45,895	0	64,902	0	40,460	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	61,679		67,685		68,457		407,094	
Navistar, Inc.	5,208		21,395		44,775		104,591	
PACCAR, Inc.	-1,727		-2,629		-1,027		-9,388	
Volvo Group								
TOTALS	65,160	0	86,451	0	112,205	0	502,297	0

Table 6-4

HHD Tractors - Class 8 Low-Roof Day Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-21,423		33,721		10,521		31,539		49,755	
Navistar, Inc.	29,780				8,637		9,001		27,729	
PACCAR, Inc.			4,885		63,136		83,931		134,645	
Volvo Group			8,538		24,307		31,655		48,722	
TOTALS	8,357	0	47,144	0	106,601	0	156,126	0	260,851	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	58,599		91,717		150,894		405,323	
Navistar, Inc.	30,531		47,251		84,791		237,720	
PACCAR, Inc.	187,144		237,065		419,945	9,547	1,130,751	9,547
Volvo Group	53,532		72,335		136,885		375,974	
TOTALS	329,806	0	448,368	0	792,515	9,547	2,149,768	9,547

Table 6-5

HHD Tractors - Class 8 Mid-Roof Day Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	72,562		83,162		87,196		98,940		60,566	
Navistar, Inc.										
PACCAR, Inc.			49		1,529		529		1,099	
Volvo Group										
TOTALS	72,562	0	83,211	0	88,725	0	99,469	0	61,665	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	103,040		138,042		231,205		874,713	
Navistar, Inc.								
PACCAR, Inc.	1,488		860		1,405		6,959	
Volvo Group								
TOTALS	104,528	0	138,902	0	232,610	0	881,672	0

Table 6-6

HHD Tractors - Class 8 High-Roof Day Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	265,827		284,531		412,663		520,976		320,054	
Navistar, Inc.	179,814				164,002		234,544		176,953	
PACCAR, Inc.			4,918		78,360		93,451		126,000	
Volvo Group			72,335		218,981		438,194		274,067	
TOTALS	445,641	0	361,784	0	874,006	0	1,287,165	0	897,074	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	364,288		461,237		846,468		3,476,044	
Navistar, Inc.	154,448		245,132		457,046		1,611,939	
PACCAR, Inc.	175,284		167,763		301,582		947,358	
Volvo Group	265,323		313,566		578,252	14,270	2,160,718	14,270
TOTALS	959,343	0	1,187,698	0	2,183,348	14,270	8,196,059	14,270

Table 6-7

HHD Tractors - Class 8 Low-Roof Sleeper Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-49,180		-31,746		-56,226		-29,713		-3,818	
Navistar, Inc.					-5,736		-3,827		-3,240	
PACCAR, Inc.			-6,662		-110,230		-72,839		-36,655	
Volvo Group			-12,422		-13,942		-13,546		-6,686	
TOTALS	-49,180	0	-50,830	0	-186,134	0	-119,925	0	-50,399	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-6,753		-8,323		-11,877		-197,636	
Navistar, Inc.	-2,190		-3,926		-5,356		-24,275	
PACCAR, Inc.	-51,375		-79,947		-161,168		-518,876	
Volvo Group	-6,579		-5,670		-15,241		-74,086	
TOTALS	-66,897	0	-97,866	0	-193,642	0	-814,873	0

Table 6-8

HHD Tractors - Class 8 Mid-Roof Sleeper Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-169,077		-74,550		-79,790		-112,197		-94,271	
Navistar, Inc.					-43,813		-35,317		-26,886	
PACCAR, Inc.			-14,513		-225,237		-239,495		-180,970	
Volvo Group			-37,498		-47,532		-50,177		-29,332	
TOTALS	-169,077	0	-126,561	0	-396,372	0	-437,186	0	-331,459	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-94,287		-114,999		-223,610		-962,781	
Navistar, Inc.	-27,382		-42,482		-63,657		-239,537	
PACCAR, Inc.	-212,551		-311,376		-573,847		-1,757,989	
Volvo Group	-33,192		-33,911		-68,302		-299,944	
TOTALS	-367,412	0	-502,768	0	-929,416	0	-3,260,251	0

Table 6-9

HHD Tractors - Class 8 High-Roof Sleeper Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	967,290		879,024		877,908		1,669,315		612,114	
Navistar, Inc.					326,906		283,242		78,889	
PACCAR, Inc.			6,438		202,484		532,340		255,298	
Volvo Group			3,876		244,933		675,812		173,053	
TOTALS	967,290	0	889,338	0	1,652,231	0	3,160,709	0	1,119,354	0

Manufacturer	MY 2018		MY 2019		MY 2020		TOTAL	
	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology	Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	611,660		814,937		1,788,050		8,220,298	
Navistar, Inc.	149,142		319,756		406,613		1,564,548	
PACCAR, Inc.	247,785		412,043		843,270		2,499,658	
Volvo Group	173,722		305,251		603,279		2,179,926	
TOTALS	1,182,309	0	1,851,987	0	3,641,212	0	14,464,430	0

Table 7
All Heavy-Duty Tractors
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013			MY 2014			MY 2015			MY 2016			MY 2017		
	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Daimler Trucks	41,927	1,065,999		61,383	1,174,142		49,870	1,252,272		62,523	2,178,860		38,728	944,400	
Navistar, Inc.	2,806	209,594					7,021	449,996		16,091	487,643		11,789	253,446	
PACCAR, Inc.				23	-4,885		405	10,042		-382	397,917		-3,182	299,416	
Volvo Group					34,829			426,747			1,081,938			459,823	
TOTALS	44,733	1,275,593	0	61,406	1,204,086	0	57,296	2,139,057	0	78,232	4,146,358	0	47,335	1,957,085	0

Manufacturer	MY 2018			MY 2019			MY 2020			TOTAL		
	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	MHD Conventional Plus Off-Cycle Credits Generated	HHD Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Daimler Trucks	66,919	1,036,547		76,400	1,382,611		85,762	2,781,131		483,512	11,815,962	
Navistar, Inc.	6,227	304,548		22,053	565,731		47,802	879,437		113,789	3,150,395	
PACCAR, Inc.	-1,882	347,774		-2,578	426,408		-518	831,186	9,547	-8,114	2,307,858	9,547
Volvo Group		452,807			651,571			1,234,873	14,270		4,342,588	14,270
TOTALS	71,264	2,141,676	0	95,875	3,026,321	0	133,046	5,726,627	23,817	589,187	21,616,803	23,817

Table 8
All Heavy-Duty Tractors
GHG Credits (Mg CO₂) Banked Summary - Through Model Year 2020

Manufacturer	MHD	HHD	Advanced
	Conventional Plus Off-Cycle Credit Balance	Conventional Plus Off-Cycle Credit Balance	Technology Credit Balance
Daimler Trucks	330,332	8,323,549	
Navistar, Inc.	103,962	2,490,805	
PACCAR, Inc.	0	2,302,701	9,547
Volvo Group		3,881,012	14,270
TOTALS	434,294	16,998,067	23,817

Table 10
Heavy-Duty Vehicles Averaging Set Summary
GHG Credits (Mg CO₂) Banked Summary - Through Model Year 2020

Manufacturer	LHD	MHD	HHD	Advanced Technology
	Conventional Plus Off-Cycle Credit Balance	Conventional Plus Off-Cycle Credit Balance	Conventional Plus Off-Cycle Credit Balance	Technology Credit Balance
Autocar		1800	422,398	
Blue Bird Body		288,215	121,646	235,397
Chanje				6,679
Chrysler Group	119,629			
Daimler Coaches			179	
Daimler Trucks		1,495,332	10,716,358	
E-One			29,333	
El Dorado			29,776	
EVO Bus			2,799	
Ferrara Fire			3,893	
Ford Motor	527,410	520,530	11,157	
General Motors	15,372	7,010		
Gillig LLC		179	146,898	4,131
Hino Manufacturing		6,262	10	
Hino Motors	5,395	21,704	1,491	
Isuzu Motors	401,940	22,955		
Kovatch Mobile			16,072	
Mitsubishi Fuso	10,670			9,618
Motor Coach Ind.			141,723	2,046
Navistar, Inc.	1,236	1,055,268	3,254,376	0
New Flyer		410	164,840	448,463
Oshkosh			97,112	
PACCAR, Inc.	484	256,035	5,092,089	14,293
Rosenbauer Motors			4,365	
Spartan Fire			6,049	
Terex Corporation			20,103	
Tiffin Motor Homes		0	0	
Van Hool			114,680	1,013
Volvo Group		3,063	5,514,057	19,506
XOS Trucks		21		3,465
TOTALS	1,082,136	3,678,784	25,911,404	744,611

Table 11
Heavy-Duty Engine GHG Emissions Standards for Model Years 2014-20

	Model Years 2014-16			Model Years 2017-20		
	LHD CI	MHD CI	HHD CI	LHD CI	MHD CI	HHD CI
GHG Emissions Standards - Vocationals						
Carbon Dioxide CO2	600	600	567	576	576	555
Nitrous Oxide N2O	0.10	0.10	0.10	0.10	0.10	0.10
Methane CH4	0.10	0.10	0.10	0.10	0.10	0.10
Test Cycle Required for CO2 (FTP or RMC)	FTP	FTP	FTP	FTP	FTP	FTP
GHG Emissions Standards - Tractors						
Carbon Dioxide CO2	N/A	502	475	N/A	487	460
Nitrous Oxide N2O	N/A	0.10	0.10	N/A	0.10	0.10
Methane CH4	N/A	0.10	0.10	N/A	0.10	0.10
Test Cycle Required for CO2 (FTP or RMC)	N/A	RMC	RMC	N/A	RMC	RMC
Other Relevant Info						
Vehicle Class	Class 2b-5	Class 6-7	Class 8	Class 2b-5	Class 6-7	Class 8
GVWR (lbs)	Less than 19,501	19,501 - 33,000	Greater than 33,000	Less than 19,501	19,501 - 33,000	Greater than 33,000
Useful Life (miles)	110,000*	185,000	435,000	110,000*	185,000	435,000

Test Cycle Required for N2O and CH4 measurement is always FTP regardless of vocational or tractor application

* Useful Life for LHD Engines Changed to 150,000 Starting in Model Year 2021

Table 12-1

LHD CI Engine Averaging Set

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

	MY 2013	MY2014	MY 2015	MY2016	MY2017
	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2
Manufacturer					
Cummins Inc.					
Detroit Diesel					
Ford Motor		252,236	217,062	161,215	11,289
FPT Powertrain		1,215		6,492	-456
Isuzu Motors			56,886	54,534	
Navistar, Inc.		-681			
PACCAR, Inc.					
Volvo Group					
TOTALS	0	252,770	273,948	222,241	10,833

	MY2018	MY2019	MY2020	TOTAL
	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2
Manufacturer				
Cummins Inc.				
Detroit Diesel				
Ford Motor	9,003	22,124	359,461	1,032,390
FPT Powertrain				7,251
Isuzu Motors		8,983	4,599	125,002
Navistar, Inc.		28,161	35,577	63,057
PACCAR, Inc.				
Volvo Group				
TOTALS	9,003	59,268	399,637	1,227,700

Table 12-2

MHD CI Engine Averaging Set

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

	MY 2013		MY2014		MY 2015		MY2016		MY2017	
	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated
	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2
Manufacturer										
Cummins Inc.	2,431,980	36,721	3,410,912	43,789	4,133,398	15,849	759,201	-11,977	2,317,429	-4,467
Detroit Diesel									19,499	
Ford Motor							26,165	-1,694	16,742	-1,034
FPT Powertrain										
Isuzu Motors										
Navistar, Inc.			-6,211	-1,048	83,030	-50	70,179	-167	1,752	
PACCAR, Inc.										
Volvo Group										
TOTALS	2,431,980	36,721	3,404,701	42,741	4,216,428	15,799	855,545	-13,838	2,355,422	-5,501

	MY2018		MY2019		MY2020		TOTAL	
	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated
	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2
Manufacturer								
Cummins Inc.	2,045,886	9,008	2,120,459	-12,265	1,962,551	-12,431	19,181,816	64,227
Detroit Diesel	55,375	-698	268,453	1,481	41,808	278	385,135	1,061
Ford Motor	17,924		36,783		71,427		169,041	-2,728
FPT Powertrain					0			
Isuzu Motors								
Navistar, Inc.							148,750	-1,265
PACCAR, Inc.								
Volvo Group								
TOTALS	2,119,185	8,310	2,425,695	-10,784	2,075,786	-12,153	19,884,742	61,295

Table 12-3

HHD CI Engine Averaging Set

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20

Manufacturer	MY 2013		MY2014		MY 2015		MY2016		MY2017	
	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated
	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2
Cummins Inc.	452,659	2,354,276	502,112	3,160,240	441,967	1,639,452	-531,266	-874,489	581,624	-308,689
Detroit Diesel	447,299	1,231,159	612,654	2,041,851	685,880	2,312,587	492,178	512,697	788,844	395,642
Ford Motor										
FPT Powertrain										
Isuzu Motors										
Navistar, Inc.			130,740	-53,184	158,828	4,234	110,497	5,619	53,616	3,014
PACCAR, Inc.			326,065	34,426	537,598	67,663	718,430	71,794	730,166	33,112
Volvo Group			409,923	834,350	1,176,895	610,293	399,166	467,712	682,271	-438,947
TOTALS	899,958	3,585,435	1,981,494	6,017,683	3,001,168	4,634,229	1,189,005	183,333	2,836,521	-315,868

Manufacturer	MY2018		MY2019		MY2020		TOTAL	
	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated	Vocational Engine Credits Generated	Tractor Engine Credits Generated
	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2	Net CO2
Cummins Inc.	108,061	75,513	899,669	77,690	747,117	250,436	3,201,943	6,374,429
Detroit Diesel	891,787	743,510	1,041,857	768,702	-122,071	-71,985	4,838,428	7,934,163
Ford Motor								
FPT Powertrain								
Isuzu Motors								
Navistar, Inc.	113,836	58,919	237,206	62,769	158,145	37,718	962,868	119,089
PACCAR, Inc.	875,172	47,235	1,175,446	275,695	266,169	-209,767	4,629,046	320,158
Volvo Group	604,416	-202,446	794,938	-195,230	5,477	-167,529	4,073,086	908,203
TOTALS	2,593,272	722,731	4,149,116	989,626	1,054,837	-161,127	17,705,371	15,656,042

Table 13

**All Heavy-Duty CI Engines - Averaging Set Summary
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-20**

Manufacturer	MY 2013			MY2014			MY 2015			MY2016			MY2017		
	LHD	MHD	HHD	LHD	MHD	HHD	LHD	MHD	HHD	LHD	MHD	HHD	LHD	MHD	HHD
	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2
Cummins Inc.		2,468,701	2,806,935		3,454,701	3,662,352		4,149,247	2,081,419		747,224	-1,405,755		2,312,962	272,935
Detroit Diesel			1,678,458			2,654,505			2,998,467			1,004,875		19,499	1,184,486
Ford Motor				252,236			217,062			161,215	24,471		11,289	15,708	
FPT Powertrain				1,215						6,492			-456		
Isuzu Motors							56,886			54,534					
Navistar, Inc.				-681	-7,259	77,556		82,980	163,062		70,012	116,116		1,752	56,630
PACCAR, Inc.						360,491			605,261			790,224			763,278
Volvo Group						1,244,273			1,787,188			866,878			243,324
TOTALS	0	2,468,701	4,485,393	252,770	3,447,442	7,999,177	273,948	4,232,227	7,635,397	222,241	841,707	1,372,338	10,833	2,349,921	2,520,653

Manufacturer	MY2018			MY2019			MY2020			TOTAL		
	LHD	MHD	HHD	LHD	MHD	HHD	LHD	MHD	HHD	LHD	MHD	HHD
	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2	Credits Generated Net CO2
Cummins Inc.		2,054,894	183,574		2,108,194	977,359		1,950,120	997,553		19,246,043	9,576,372
Detroit Diesel		54,677	1,635,297		269,934	1,810,559		42,086	-194,056		386,196	12,772,591
Ford Motor	9,003	17,924		22,124	36,783		359,461	71,427		1,032,390	166,313	
FPT Powertrain										7,251		
Isuzu Motors				8,983			4,599	0		125,002	0	
Navistar, Inc.			172,755	28,161		299,975	35,577		195,863	63,057	147,485	1,081,957
PACCAR, Inc.			922,407			1,451,141			56,402			4,949,204
Volvo Group			401,970			599,708			-162,052			4,981,289
TOTALS	9,003	2,127,495	3,316,003	59,268	2,414,911	5,138,742	399,637	2,063,633	893,710	1,227,700	19,946,037	33,361,413

Table 14
All Heavy-Duty CI Engines - Averaging Set Summary
GHG Credits (Mg CO2) Banked Summary - Through Model Year 2020

	LHD	MHD	HHD	Advanced Technology
	Credit Balance	Credit Balance	Credit Balance	Credit Balance
	Net CO2	Net CO2	Net CO2	Net CO2
Manufacturer				
Cummins Inc.		3,338,125	403,639	
Detroit Diesel		259,503	3,243,179	
Ford Motor	765,805	15,759		
FPT Powertrain	8,829			
Isuzu Motors	92,638	0		
Navistar, Inc.	86,684	0	312,984	
PACCAR, Inc.			2,028,708	
Volvo Group			467,712	
TOTALS	953,956	3,613,387	6,456,222	0