

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	Roof Height (inches)
Vocational Vehicles						
LHD Class 2b-5	8,501 - 19,500	388	373	2.85	10yrs/110,000miles	N/A
MHD Class 6-7	19,501 - 33,000	234	225	5.60	10yrs/185,000miles	N/A
HHD Class 8	Greater than 33,000	226	222	7.50	10yrs/435,000miles	N/A
Tractors						
Class 7 Low-Roof All Cabs	26,001 - 33,000	107	104	12.50	10yrs/185,000miles	120 or less
Class 7 Mid-Roof All Cabs	26,001 - 33,000	119	115	12.50	10yrs/185,000miles	121-147
Class 7 High-Roof All Cabs	26,001 - 33,000	124	120	12.50	10yrs/185,000miles	148 or greater
Class 8 Low-Roof Day Cab	Greater than 33,000	81	80	19.00	10yrs/435,000miles	120 or less
Class 8 Low-Roof Sleeper Cab	Greater than 33,000	68	66	19.00	10yrs/435,000miles	120 or less
Class 8 Mid-Roof Day Cab	Greater than 33,000	88	86	19.00	10yrs/435,000miles	121-147
Class 8 Mid-Roof Sleeper Cab	Greater than 33,000	76	73	19.00	10yrs/435,000miles	121-147
Class 8 High-Roof Day Cab	Greater than 33,000	92	89	19.00	10yrs/435,000miles	148 or greater
Class 8 High-Roof Sleeper Cab	Greater than 33,000	75	72	19.00	10yrs/435,000miles	148 or greater

Table 2-1

LHD Vocational Vehicles

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		TOTAL	
	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	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Autocar													0	0
Blue Bird Body													0	0
Chanje										4,385		526	0	4,911
Chrysler Group			7,823		10,612		15,121		8,014		15,996		57,566	0
Daimler Trucks													0	0
E-One													0	0
El Dorado													0	0
EVO Bus													0	0
Ferrara Fire													0	0
Ford Motor			338,493		54,320		40,201		31,639		41,495		506,148	0
General Motors			45,803		62,030		2,591						110,424	0
Gillig LLC													0	0
Isuzu Motors			42,816		55,820		64,177		43,559		46,888		253,260	0
Kovatch Mobile													0	0
Mitsubishi Fuso			1,360		2,445		882		3,361		169	7,072	8,217	7,072
Motor Coach Ind.													0	0
Navistar, Inc.				8,393									0	8,393
New Flyer													0	0
Oshkosh													0	0
PACCAR, Inc.	5		212		67		65		37		58		444	0
Terex Corporation													0	0
Tiffin Motor Homes													0	0
Van Hool													0	0
Volvo Group													0	0
TOTALS	5	0	436,507	8,393	185,294	0	123,037	0	86,610	4,385	104,606	7,598	936,059	20,376

Table 2-2
MHD Vocational Vehicles
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		TOTAL	
	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	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Autocar													384	0
Blue Bird Body			58,034		69,126		71,126		70,911		64,353		333,550	0
Chanje													0	0
Chrysler Group													0	0
Daimler Trucks	72,587		64,601		106,254		170,177		206,705		172,345		792,669	0
E-One													0	0
El Dorado													0	0
EVO Bus													0	0
Ferrara Fire													0	0
Ford Motor			64,651		47,486		70,183		148,110		74,621		405,051	0
General Motors													0	0
Gillig LLC			438		386		126		53				1,003	0
Isuzu Motors											7,625		7,625	0
Kovatch Mobile													0	0
Mitsubishi Fuso													0	0
Motor Coach Ind.													0	0
Navistar, Inc.	142,054				68,834		54,000		127,160		157,167		549,215	0
New Flyer					174		286		124				584	0
Oshkosh													0	0
PACCAR, Inc.	2,580		15,528		23,342		26,348		32,128		44,431		144,357	0
Terex Corporation													0	0
Tiffin Motor Homes			1,256										1,256	0
Van Hool													0	0
Volvo Group													0	0
TOTALS	217,221	0	204,508	0	315,602	0	392,246	0	585,191	0	520,926	0	2,235,694	0

Table 2-3
HHD Vocational Vehicles
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		TOTAL	
	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	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Autocar											154,009		154,009	0
Blue Bird Body			24,740		28,439		30,348		34,142		24,518	9,308	142,187	9,308
Chanje													0	0
Chrysler Group													0	0
Daimler Trucks	187,890		183,121		211,873		297,599		334,152		290,568		1,505,203	0
E-One			4,267		0		0		5,667		10,019		19,953	0
El Dorado			5,771		5,109		6,525		2,884		6,450		26,739	0
EVO Bus			2,300		1,233		1,174		1,390		235		6,332	0
Ferrara Fire									1,436		581		2,017	0
Ford Motor							251		2,711		2,956		5,918	0
General Motors													0	0
Gillig LLC			22,397		20,162		22,590		28,570	1,033	36,657	3,098	130,376	4,131
Isuzu Motors													0	0
Kovatch Mobile							3,002		3,250		2,617		8,869	0
Mitsubishi Fuso													0	0
Motor Coach Ind.			18,312		18,975		20,456		17,967		32,067		107,777	0
Navistar, Inc.	186,954				44,843		60,666		87,392		106,628		486,483	0
New Flyer					14,055		31,620		30,765	23,265	31,261	164,435	107,701	187,700
Oshkosh			9,168		10,055		12,799		8,434		19,428		59,884	0
PACCAR, Inc.	28,467		162,636		288,222		318,538		333,780		413,134		1,544,777	0
Terex Corporation			4,055		4,160		12,241		1,383		2,215		24,054	0
Tiffin Motor Homes			17,180										17,180	0
Van Hool									31,343		26,560		57,903	0
Volvo Group			128,370		181,910		237,817		196,902		243,089		988,088	0
TOTALS	403,311	0	582,317	0	829,036	0	1,055,626	0	1,122,168	24,298	1,402,992	176,841	5,395,450	201,139

Table 2-4
MHD Vocational Tractors
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar													0	0
Daimler Trucks	1,046		1,808		2,916		2,160		3,841		1,509		13,280	0
Ford Motor							-26		76		58		108	0
Kovatch Mobile													0	0
Navistar, Inc.											2,487		2,487	0
PACCAR, Inc.	1,742		1,355		1,272		662		645		995		6,671	0
Volvo Group													0	0
TOTALS	2,788	0	3,163	0	4,188	0	2,796	0	4,562	0	5,049	0	22,546	0

Table 2-5
HHD Vocational Tractors
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Autocar											18,531		18,531	0
Daimler Trucks	23,163		15,686		23,617		34,638		21,650		40,716		159,470	0
Ford Motor							52		29		124		205	0
Kovatch Mobile									88		26		114	0
Navistar, Inc.											11,488		11,488	0
PACCAR, Inc.	4,341		46,484		66,314		41,705		30,221		52,748		241,813	0
Volvo Group			113,551		26,981		23,992		18,104		49,162		231,790	0
TOTALS	27,504	0	175,721	0	116,912	0	100,387	0	70,092	0	172,795	0	663,411	0

Table 3
All Heavy-Duty Vocational Vehicles
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013				MY 2014				MY 2015				MY 2016			
	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			69,126	28,439			71,126	30,348	
Chanje																
Chrysler Group					7,823				10,612				15,121			
Daimler Trucks		73,633	211,053			66,409	198,807			109,170	235,490			172,337	332,237	
E-One							4,267				0				0	
El Dorado							5,771				5,109				6,525	
EVO Bus							2,300				1,233				1,174	
Ferrara Fire																
Ford Motor					338,493	64,651			54,320	47,486			40,201	70,157	303	
General Motors					45,803				62,030				2,591			
Gillig LLC						438	22,397			386	20,162			126	22,590	
Isuzu Motors					42,816				55,820				64,177			
Kovatch Mobile															3,002	
Mitsubishi Fuso					1,360				2,445				882			
Motor Coach Ind.							18,312				18,975				20,456	
Navistar, Inc.		142,054	186,954					8,393		68,834	44,843			54,000	60,666	
New Flyer										174	14,055			286	31,620	
Oshkosh							9,168				10,055				12,799	
PACCAR, Inc.	5	4,322	32,808		212	16,883	209,120		67	24,614	354,536		65	27,010	360,243	
Terex Corporation							4,055				4,160				12,241	
Tiffin Motor Homes						1,256	17,180									
Van Hool																
Volvo Group							241,921				208,891				261,809	
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

Table 3 - Continued
All Heavy-Duty Vocational Vehicles
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2017				MY 2018				TOTAL				
	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						384	172,540			0	384	172,540	0
Blue Bird Body		70,911	34,142			64,353	24,518	9,308		0	333,550	142,187	9,308
Chanje				4,385				526		0	0	0	4,911
Chrysler Group	8,014				15,996					57,566	0	0	0
Daimler Trucks		210,546	355,802			173,854	331,284			0	805,949	1,664,673	0
E-One			5,667				10,019			0	0	19,953	0
El Dorado			2,884				6,450			0	0	26,739	0
EVO Bus			1,390				235			0	0	6,332	0
Ferrara Fire			1,436				581			0	0	2,017	0
Ford Motor	31,639	148,186	2,740		41,495	74,679	3,080			506,148	405,159	6,123	0
General Motors										110,424	0	0	0
Gillig LLC		53	28,570	1,033			36,657	3,098		0	1,003	130,376	4,131
Isuzu Motors	43,559				46,888	7,625				253,260	7,625	0	0
Kovatch Mobile			3,338				2,643			0	0	8,983	0
Mitsubishi Fuso	3,361				169			7,072		8,217	0	0	7,072
Motor Coach Ind.			17,967				32,067			0	0	107,777	0
Navistar, Inc.		127,160	87,392			159,654	118,116			0	551,702	497,971	8,393
New Flyer		124	30,765	23,265			31,261	164,435		0	584	107,701	187,700
Oshkosh			8,434				19,428			0	0	59,884	0
PACCAR, Inc.	37	32,774	364,001		58	45,426	465,882			444	151,029	1,786,590	0
Terex Corporation			1,383				2,215			0	0	24,054	0
Tiffin Motor Homes										0	1,256	17,180	0
Van Hool			31,343				26,560			0	0	57,903	0
Volvo Group			215,006				292,251			0	0	1,219,878	0
TOTALS	86,610	589,754	1,192,260	28,683	104,606	525,975	1,575,787	184,439		936,059	2,258,241	6,058,861	221,515

Table 4
All Heavy-Duty Vocational Vehicles
GHG Credits (Mg CO2) Banked Summary - Through Model Year 2018

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		384	172,540	
Blue Bird Body		333,550	142,187	9,308
Chanje				4,911
Chrysler Group	57,566			
Daimler Trucks		732,316	1,453,620	
E-One			19,953	
El Dorado			26,739	
EVO Bus			6,332	
Ferrara Fire			2,017	
Ford Motor	506,148	405,159	6,123	
General Motors	110,424			
Gillig LLC		1,003	130,376	4,131
Isuzu Motors	253,260	7,625		
Kovatch Mobile			8,983	
Mitsubishi Fuso	8,217			7,072
Motor Coach Ind.			107,777	
Navistar, Inc.		409,648	311,017	453
New Flyer		584	107,701	187,700
Oshkosh			59,884	
PACCAR, Inc.	439	141,261	1,748,897	
Terex Corporation			24,054	
Tiffin Motor Homes		1,256	17,180	
Van Hool			57,903	
Volvo Group			1,219,878	
TOTALS	936,054	2,032,786	5,623,161	213,575

Table 6-1

MHD Tractors - Class 7 Low-Roof All Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-2,720		918		241		81		-217		99		-1,598	0
Navistar, Inc.	2,410				511		458		937		1,004		5,320	0
PACCAR, Inc.			32		-25		698		160		-155		710	0
Volvo Group													0	0
TOTALS	-310	0	950	0	727	0	1,237	0	880	0	948	0	4,432	0

Table 6-2

MHD Tractors - Class 7 Mid-Roof All Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	7,219		11,056		10,656		12,076		5,848		5,141		51,996	0
Navistar, Inc.					23		12		143		16		194	0
PACCAR, Inc.					-5		5		5				5	0
Volvo Group													0	0
TOTALS	7,219	0	11,056	0	10,674	0	12,093	0	5,996	0	5,157	0	52,195	0

Table 6-3

MHD Tractors - Class 7 High-Roof All Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	37,428		49,409		38,973		50,366		33,097		61,679		270,952	0
Navistar, Inc.	396				6,487		15,621		10,709		5,208		38,421	0
PACCAR, Inc.			-9		435		-1,085		-3,346		-1,727		-5,732	0
Volvo Group													0	0
TOTALS	37,824	0	49,400	0	45,895	0	64,902	0	40,460	0	65,160	0	303,641	0

Table 6-4
HHD Tractors - Class 8 Low-Roof Day Cabs
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-21,423		33,721		10,521		31,539		49,755		58,599		162,712	0
Navistar, Inc.	29,780				8,637		9,001		27,729		30,531		105,678	0
PACCAR, Inc.			4,885		63,136		83,931		134,645		187,144		473,741	0
Volvo Group			8,538		24,307		31,655		48,722		53,532		166,754	0
TOTALS	8,357	0	47,144	0	106,601	0	156,126	0	260,851	0	329,806	0	908,885	0

Table 6-5
HHD Tractors - Class 8 Mid-Roof Day Cabs
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	72,562		83,162		87,196		98,940		60,566		103,040		505,466	0
Navistar, Inc.													0	0
PACCAR, Inc.			49		1,529		529		1,099		1,488		4,694	0
Volvo Group													0	0
TOTALS	72,562	0	83,211	0	88,725	0	99,469	0	61,665	0	104,528	0	510,160	0

Table 6-6
HHD Tractors - Class 8 High-Roof Day Cabs
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	265,827		284,531		412,663		520,976		320,054		364,288		2,168,339	0
Navistar, Inc.	179,814				164,002		234,544		176,953		154,448		909,761	0
PACCAR, Inc.			4,918		78,360		93,451		126,000		175,284		478,013	0
Volvo Group			72,335		218,981		438,194		274,067		265,323		1,268,900	0
TOTALS	445,641	0	361,784	0	874,006	0	1,287,165	0	897,074	0	959,343	0	4,825,013	0

Table 6-7
HHD Tractors - Class 8 Low-Roof Sleeper Cabs
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		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	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	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	-49,180		-31,746		-56,226		-29,713		-3,818		-6,753		-177,436	0
Navistar, Inc.					-5,736		-3,827		-3,240		-2,190		-14,993	0
PACCAR, Inc.			-6,662		-110,230		-72,839		-36,655		-51,375		-277,761	0
Volvo Group			-12,422		-13,942		-13,546		-6,686		-6,579		-53,175	0
TOTALS	-49,180	0	-50,830	0	-186,134	0	-119,925	0	-50,399	0	-66,897	0	-523,365	0

Table 6-8

HHD Tractors - Class 8 Mid-Roof Sleeper Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		TOTAL	
	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	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Daimler Trucks	-169,077		-74,550		-79,790		-112,197		-94,271		-94,287		-624,172	0
Navistar, Inc.					-43,813		-35,317		-26,886		-27,382		-133,398	0
PACCAR, Inc.			-14,513		-225,237		-239,495		-180,970		-212,551		-872,766	0
Volvo Group			-37,498		-47,532		-50,177		-29,332		-33,192		-197,731	0
TOTALS	-169,077	0	-126,561	0	-396,372	0	-437,186	0	-331,459	0	-367,412	0	-1,828,067	0

Table 6-9

HHD Tractors - Class 8 High-Roof Sleeper Cabs

GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY 2014		MY 2015		MY 2016		MY 2017		MY 2018		TOTAL	
	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	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated	Conventional Plus Off-Cycle Credits Generated	Advanced Technology Credits Generated
Daimler Trucks	967,290		879,024		877,908		1,669,315		612,114		611,660		5,617,311	0
Navistar, Inc.					326,906		283,242		78,889		149,142		838,179	0
PACCAR, Inc.			6,438		202,484		532,340		255,298		247,785		1,244,345	0
Volvo Group			3,876		244,933		675,812		173,053		173,722		1,271,396	0
TOTALS	967,290	0	889,338	0	1,652,231	0	3,160,709	0	1,119,354	0	1,182,309	0	8,971,231	0

Table 7
All Heavy-Duty Tractors
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013			MY 2014			MY 2015			MY 2016		
	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	MHD Conventional Plus Off-Cycle	HHD 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	Credits Generated	Credits Generated
Daimler Trucks	41,927	1,065,999		61,383	1,174,142		49,870	1,252,272		62,523	2,178,860	
Navistar, Inc.	2,806	209,594					7,021	449,996		16,091	487,643	
PACCAR, Inc.				23	-4,885		405	10,042		-382	397,917	
Volvo Group					34,829			426,747			1,081,938	
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

Table 7 - Continued
All Heavy-Duty Tractors
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2017			MY 2018			TOTAL		
	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology	MHD Conventional Plus Off-Cycle	HHD Conventional Plus Off-Cycle	Advanced Technology
	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated	Credits Generated
Daimler Trucks	38,728	944,400		66,919	1,036,547		321,350	7,652,220	0
Navistar, Inc.	11,789	253,446		6,227	304,548		43,934	1,705,227	0
PACCAR, Inc.	-3,182	299,416		-1,882	347,774		-5,018	1,050,264	0
Volvo Group		459,823			452,807		0	2,456,144	0
TOTALS	47,335	1,957,085	0	71,264	2,141,676	0	360,266	12,863,855	0

Table 8
All Heavy-Duty Tractors
GHG Credits (Mg CO₂) Banked Summary - Through Model Year 2018

Manufacturer	MHD	HHD	
	Conventional Plus Off-Cycle Credit Balance	Conventional Plus Off-Cycle Credit Balance	Advanced Technology Credit Balance
Daimler Trucks	279,423	6,586,221	0
Navistar, Inc.	41,128	1,495,633	0
PACCAR, Inc.	428	1,055,149	0
Volvo Group		2,456,144	0
TOTALS	320,979	11,593,147	0

Table 9
Heavy-Duty Vehicles Averaging Set Summary
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013				MY2014				MY 2015				MY2016			
	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			69,126	28,439			71,126	30,348	
Chanje																
Chrysler Group					7,823				10,612				15,121			
Daimler Trucks		115,560	1,277,052			127,792	1,372,949			159,040	1,487,762			234,860	2,511,097	
E-One							4,267				0				0	
El Dorado							5,771				5,109				6,525	
EVO Bus							2,300				1,233				1,174	
Ferrara Fire																
Ford Motor					338,493	64,651			54,320	47,486			40,201	70,157	303	
General Motors					45,803				62,030				2,591			
Gillig LLC						438	22,397			386	20,162			126	22,590	
Isuzu Motors					42,816				55,820				64,177			
Kovatch Mobile															3,002	
Mitsubishi Fuso					1,360				2,445				882			
Motor Coach Ind.							18,312				18,975				20,456	
Navistar, Inc.		144,860	396,548					8,393		75,855	494,839			70,091	548,309	
New Flyer										174	14,055			286	31,620	
Oshkosh							9,168				10,055				12,799	
PACCAR, Inc.	5	4,322	32,808		212	16,906	204,235		67	25,019	364,578		65	26,628	758,160	
Terex Corporation							4,055				4,160				12,241	
Tiffin Motor Homes						1,256	17,180									
Van Hool																
Volvo Group							276,750				635,638				1,343,747	
TOTALS	5	264,742	1,706,408	0	436,507	269,077	1,962,124	8,393	185,294	377,086	3,085,005	0	123,037	473,274	5,302,371	0

Table 9 - Continued
Heavy-Duty Vehicles Averaging Set Summary
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY2017				MY2018				TOTAL			
	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						384	172,540		0	384	172,540	0
Blue Bird Body		70,911	34,142			64,353	24,518	9,308	0	333,550	142,187	9,308
Chanje				4,385				526	0	0	0	4,911
Chrysler Group	8,014				15,996				57,566	0	0	0
Daimler Trucks		249,274	1,300,202			240,773	1,367,831		0	1,127,299	9,316,893	0
E-One			5,667				10,019		0	0	19,953	0
El Dorado			2,884				6,450		0	0	26,739	0
EVO Bus			1,390				235		0	0	6,332	0
Ferrara Fire			1,436				581		0	0	2,017	0
Ford Motor	31,639	148,186	2,740		41,495	74,679	3,080		506,148	405,159	6,123	0
General Motors									110,424	0	0	0
Gillig LLC		53	28,570	1,033			36,657	3,098	0	1,003	130,376	4,131
Isuzu Motors	43,559				46,888	7,625			253,260	7,625	0	0
Kovatch Mobile			3,338				2,643		0	0	8,983	0
Mitsubishi Fuso	3,361				169			7,072	8,217	0	0	7,072
Motor Coach Ind.			17,967				32,067		0	0	107,777	0
Navistar, Inc.		138,949	340,838			165,881	422,664		0	595,636	2,203,198	8,393
New Flyer		124	30,765	23,265			31,261	164,435	0	584	107,701	187,700
Oshkosh			8,434				19,428		0	0	59,884	0
PACCAR, Inc.	37	29,592	663,417		58	43,544	813,656		444	146,011	2,836,854	0
Terex Corporation			1,383				2,215		0	0	24,054	0
Tiffin Motor Homes									0	1,256	17,180	0
Van Hool			31,343				26,560		0	0	57,903	0
Volvo Group			674,829				745,058		0	0	3,676,022	0
TOTALS	86,610	637,089	3,149,345	28,683	104,606	597,239	3,717,463	184,439	936,059	2,618,507	18,922,716	221,515

Table 10
Heavy-Duty Vehicles Averaging Set Summary
GHG Credits (Mg CO2) Banked Summary - Through Model Year 2018

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		384	172,540	
Blue Bird Body		333,550	142,187	9,308
Chanje				4,911
Chrysler Group	57,566			
Daimler Trucks		1,011,739	8,039,841	
E-One			19,953	
El Dorado			26,739	
EVO Bus			6,332	
Ferrara Fire			2,017	
Ford Motor	506,148	405,159	6,123	
General Motors	110,424			
Gillig LLC		1,003	130,376	4,131
Isuzu Motors	253,260	7,625		
Kovatch Mobile			8,983	
Mitsubishi Fuso	8,217			7,072
Motor Coach Ind.			107,777	
Navistar, Inc.		450,776	1,806,650	453
New Flyer		584	107,701	187,700
Oshkosh			59,884	
PACCAR, Inc.	439	141,689	2,804,046	
Terex Corporation			24,054	
Tiffin Motor Homes		1,256	17,180	
Van Hool			57,903	
Volvo Group			3,676,022	
TOTALS	936,054	2,353,765	17,216,308	213,575

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 MY2014-16 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 MY2014-16 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

Table 12-1
LHD CI Engine Averaging Set
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

	MY 2013	MY2014	MY 2015	MY2016	MY2017	MY2018	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	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2
Manufacturer							
Cummins Inc.							0
Detroit Diesel							0
Ford Motor		252,236	217,062	161,215	11,289	9,003	650,805
FPT Powertrain		1,215		6,492	-456		7,251
Isuzu Motors			56,886	54,534			111,420
Navistar, Inc.		-681					-681
PACCAR, Inc.							0
Volvo Group							0
TOTALS	0	252,770	273,948	222,241	10,833	9,003	768,795

Table 12-2
MHD CI Engine Averaging Set
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

	MY 2013		MY2014		MY 2015		MY2016		MY2017		MY2018		TOTAL	
	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated 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	2,045,886	9,008	15,098,806	88,923
Detroit Diesel									19,499		55,375	-698	74,874	-698
Ford Motor							26,165	-1,694	16,742	-1,034	17,924		60,831	-2,728
FPT Powertrain													0	0
Isuzu Motors													0	0
Navistar, Inc.			-6,211	-1,048	83,030	-50	70,179	-167	1,752				148,750	-1,265
PACCAR, Inc.													0	0
Volvo Group													0	0
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	2,119,185	8,310	15,383,261	84,232

Table 12-3
HHD CI Engine Averaging Set
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18

Manufacturer	MY 2013		MY2014		MY 2015		MY2016		MY2017		MY2018		TOTAL	
	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated Net CO2	Vocational Engine Credits Generated Net CO2	Tractor Engine Credits Generated 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	108,061	75,513	1,555,157	6,046,303
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	891,787	743,510	3,918,642	7,237,446
Ford Motor													0	0
FPT Powertrain													0	0
Isuzu Motors													0	0
Navistar, Inc.			130,740	-53,184	158,828	4,234	110,497	5,619	53,616	3,014	113,836	58,919	567,517	18,602
PACCAR, Inc.			326,065	34,426	537,598	67,663	718,430	71,794	730,166	33,112	875,172	47,235	3,187,431	254,230
Volvo Group			409,923	834,350	1,176,895	610,293	399,166	467,712	682,271	-438,947	604,416	-202,446	3,272,671	1,270,962
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	2,593,272	722,731	12,501,418	14,827,543

Table 13

**All Heavy-Duty CI Engines - Averaging Set Summary
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18**

Manufacturer	MY 2013			MY2014			MY 2015			MY2016		
	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.		2,468,701	2,806,935		3,454,701	3,662,352		4,149,247	2,081,419		747,224	-1,405,755
Detroit Diesel			1,678,458			2,654,505			2,998,467			1,004,875
Ford Motor				252,236			217,062			161,215	24,471	
FPT Powertrain				1,215						6,492		
Isuzu Motors							56,886			54,534		
Navistar, Inc.				-681	-7,259	77,556		82,980	163,062		70,012	116,116
PACCAR, Inc.						360,491			605,261			790,224
Volvo Group						1,244,273			1,787,188			866,878
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

Table 13 - Continued

**All Heavy-Duty CI Engines - Averaging Set Summary
GHG Credits (Mg CO2) Generated Summary - Model Years 2013-18**

Manufacturer	MY2017			MY2018			TOTAL		
	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
Cummins Inc.		2,312,962	272,935		2,054,894	183,574	0	15,187,729	7,601,460
Detroit Diesel		19,499	1,184,486		54,677	1,635,297	0	74,176	11,156,088
Ford Motor	11,289	15,708		9,003	17,924		650,805	58,103	0
FPT Powertrain	-456						7,251	0	0
Isuzu Motors							111,420	0	0
Navistar, Inc.		1,752	56,630			172,755	-681	147,485	586,119
PACCAR, Inc.			763,278			922,407	0	0	3,441,661
Volvo Group			243,324			401,970	0	0	4,543,633
TOTALS	10,833	2,349,921	2,520,653	9,003	2,127,495	3,316,003	768,795	15,467,493	27,328,961

Table 14
All Heavy-Duty CI Engines - Averaging Set Summary
GHG Credits (Mg CO2) Banked Summary - Through Model Year 2018

	LHD	MHD	HHD	Advanced Technology
	Credit Balance Net CO2	Credit Balance Net CO2	Credit Balance Net CO2	Credit Balance Net CO2
Manufacturer				
Cummins Inc.		12,719,028	4,424,922	
Detroit Diesel		74,176	9,477,630	
Ford Motor	650,805	58,103		
FPT Powertrain	7,251			
Isuzu Motors	111,420			
Navistar, Inc.		154,744	586,119	
PACCAR, Inc.			3,441,436	
Volvo Group			4,543,633	
TOTALS	769,476	13,006,051	22,473,740	0