Environment and Climate Change Canada
Environnement et Changement climatique Canada

Air Pollutant Emission Performance for the 2017 Model Year On-Road Vehicle Fleet

In relation to the On-Road Vehicle and Engine Emission Regulations under the Canadian Environmental Protection Act, 1999

Canada

Notice

The information contained in this report is compiled from data reported to Environment and Climate Change Canada pursuant to the On-Road Vehicle and Engine Emission Regulations under the Canadian Environmental Protection Act, 1999. Information presented in this report is subject to ongoing verification.

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EXECUTIVE SUMMARY

The On-Road Vehicle and Engine Emission Regulations (hereinafter referred to as the “Regulations”) establish national emission standards to limit smog-forming emissions (non-methane organic gases (NMOG), nitrous oxides (NOx), particulate matter (PM), cold non-methane hydrocarbons (NMHC), evaporative emissions (EVAP)) from new on-road vehicles and engines. The Tier 3 fleet average standards continue to align with the progressively more stringent standards adopted by the U.S. Environmental Protection Agency (EPA) over the 2017 through 2025 model years. These Regulations require importers and manufacturers of new vehicles to meet fleet average emission standards for air pollutants and establish annual compliance reporting requirements. The 2017 model year, is the first model year in which companies are required to meet the new Tier 3 standards.

This report summarizes the fleet average air pollutant emission performance of the Canadian 2017 model year fleet of vehicles. A total of 23 companies submitted end of model year reports comprising a total of 1,987,313 vehicles manufactured in Canada or imported into Canada for the purpose of first retail sale. This report includes the fleet average NMOG+NOx, cold NMHC and EVAP values for each company as well as their number of emission credits or deficits. It also provides a comparison of the distribution of vehicles certified to the various emission bins and compares the overall NMOG+NOx performance with that of the pre-Tier 3 model years.

The average NMOG+NOx value for the Canadian 2017 model year combined fleet of light-duty vehicles and light-duty trucks 1 is 0.0937067 grams/mile compared to the standards of 0.086 grams/mile. The average NMOG+NOx value for the Canadian 2017 model year combined fleet of light-duty trucks 2, heavy-light duty trucks and medium-duty passenger vehicles is 0.1113309 grams/mile compared to the standard of 0.101 grams/mile.

The overall NMOG+NOx fleet averages demonstrate continued industry improvements in emission performance since 2004. While the fleet average values are above the applicable standards for the 2017 model year, companies have three years to offset any deficits incurred, and currently remain in compliance with the fleet averaging provisions of the Regulations. All companies have complied with the 2017 PM and EVAP phase-in percentages and have met the Cold NMHC fleet average standards.

1. PURPOSE

The purpose of this report is to summarize the fleet average air pollutant emission performance of individual companies and the overall Canadian fleet for the 2017 model year (MY). It is based on data submitted by companies in their end of model year reports and any subsequent revisions received prior to the publication of this report. It also serves to report on the effectiveness of the Canadian fleet average air pollutant emission program in achieving the environmental performance objectives outlined in the Regulations.

2. THE REGULATIONS

On January 1, 2004, the On-Road Vehicle and Engine Emission Regulations came into effect under the *Canadian Environmental Protection Act, 1999* (CEPA). These Regulations introduced more stringent national emission standards for on-road vehicles and engines. The Regulations align Canada's emission standards for light-duty vehicles[1] (LDVs), light light-duty trucks[2] (LLDTs) composed of Light-Duty Trucks 1 (LDT1) and Light-Duty Trucks 2 (LDT2), heavy light-duty trucks[3] (HLDTs) composed of Light-Duty Trucks 3 (LDT3) and Light-Duty Trucks 4 (LDT4), medium-duty passenger vehicles[4] (MDPVs), heavy-duty vehicles, heavy-duty engines and on-road motorcycles with those of the United States Environmental Protection Agency (U.S. EPA) through incorporation by reference to the U.S. Code of Federal Regulations (CFR).

From model year 2004 through model year 2016, companies were required to meet fleet average NOx emission standards (Tier 1 and Tier 2 standards). Figure 1 shows the overall Canadian performance during those years.

[1] Light-duty vehicles are generally passenger cars.

[2] Light light-duty trucks are generally vans, sport utility vehicles and pick-up trucks having GVWR of 2 722 kg (6 000 pounds) or less.

[3] Heavy light-duty trucks are generally vans, sport utility vehicles and pick-up trucks having a GVWR of more than 2 722 (6 000 pounds) and up to 3 856 kg (8 500 pounds).

[4] Medium-duty passenger vehicles are generally heavier passenger-type vehicles, such as vans and sport utility vehicles having a gross vehicle weight rating (GVWR) greater than 3 856 kg (8 500 pounds) and less than 4 536 kg (10 000 pounds).

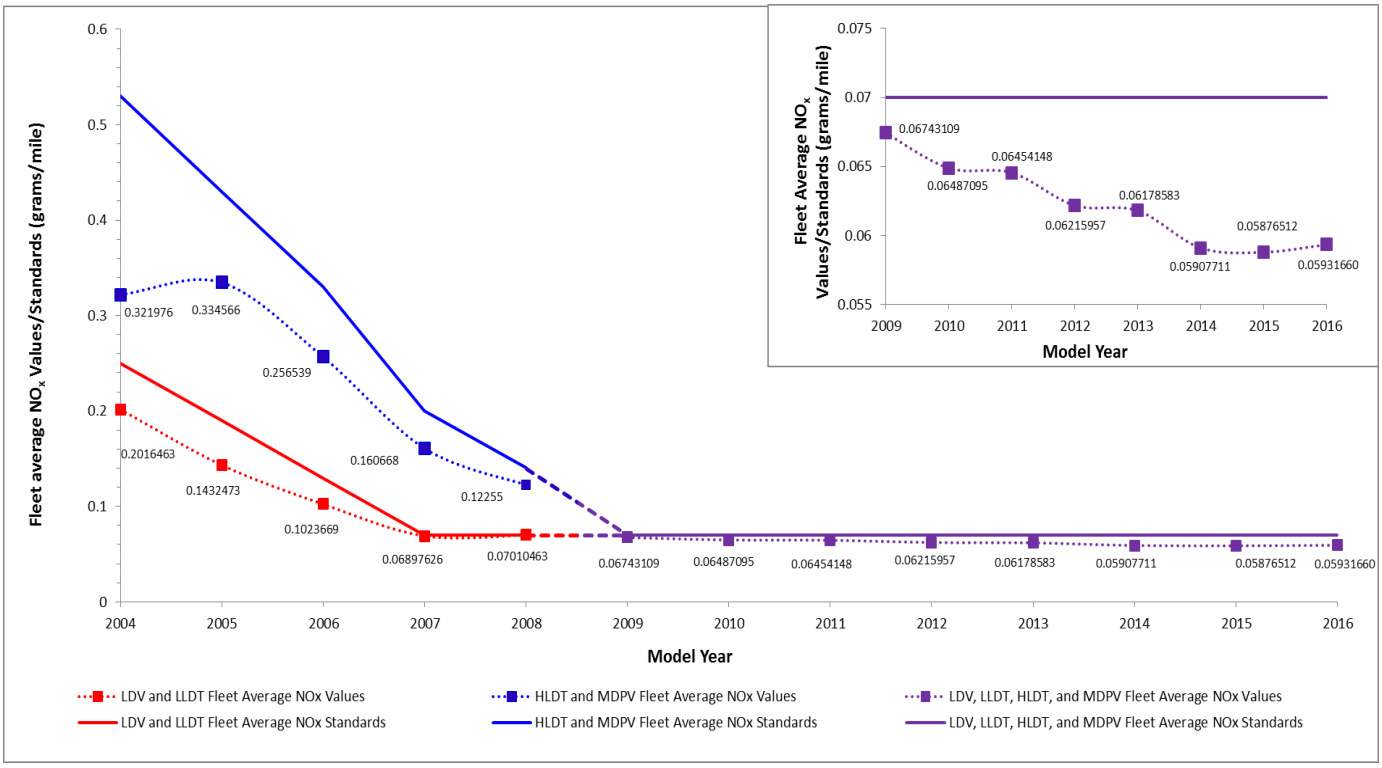

Figure 1: NOx fleet averages and standards for model years 2004 through 2016

The Regulations were subsequently amended in 2015 to set new emission standards for passenger cars, light-duty trucks and certain heavy-duty vehicles for 2017 and later model years that are imported or manufactured in Canada. The amendments establish progressively more stringent vehicles and fleet average standards over the model years 2017 to 2025 for combined emissions of NMOG and NOx and establish a phase-in schedule for more stringent PM and evaporative emission standards, in alignment with the U.S. EPA standards adopted in 2014.

A company's fleet of light-duty vehicles, light-duty trucks and medium-duty passenger vehicles will have to comply with progressively more stringent exhaust emission standards, reaching a fleet average standard for emission of NMOG+NOx of 30 milligrams per mile as of model year 2025. Similarly, heavy-duty vehicle weight classes 2B[5] and 3[6] will be required to comply with progressively more stringent fleet average standards for emissions of NMOG+NOx, reaching fleet average standards of 178 milligrams/mile and 247 milligrams/mile, respectively, as of model year 2022.

Also, as of model year 2017, new particulate matter (PM) exhaust emission standards are introduced by means of a phase-in approach through which an increasing percentage of vehicles in a company's fleet for each successive model year will be required to comply with the standards, with full implementation starting with model year 2021. An alternative phase-in compliance approach for these standards allows companies to conform to the standards by demonstrating that an equivalent number of vehicles conform to the new standards, when averaged over more than one model year included in the phase-in period. For vehicles

[5] Heavy-duty Class 2B vehicles are generally delivery vans and heavy-duty pick-up trucks having a GVWR of more than 3 856 kg (8 500 lb) but less than or equal to 4 536 kg (10 000 lb).

[6] Heavy-duty Class 3 vehicles are generally delivery vans and heavy-duty pick-up trucks have a GVWR of more than 4 536 kg (10 000 lb) but less than or equal to 6 530 kg (14 000 lb).

with a gross vehicle weight rating (GVWR) up to 6 000 lb, the PM standard is 3 milligrams/mile. For vehicles with a GVWR above 6 000 lb and up to 14 000 lb, this standard is 3 milligrams/mile for the applicable light-duty trucks and MDPVs, and 8 milligrams/mile and 10 milligrams/mile for heavy-duty vehicle weight classes 2B and 3, respectively.

As of model year 2017, new evaporative emission (EVAP) standards are introduced by means of a phase-in approach through which an increasing percentage of a company's fleet of vehicles for each successive model year will be required to comply with the standards, with full implementation starting with model year 2022. An alternative phase-in compliance approach for these standards allows companies to conform to the standards by demonstrating that an equivalent number of vehicles conform to the new standards, when averaged over more than one model year included in the phase-in period. For LDV and LDT1 vehicles, this standard is 0.3 grams per test. For LDT2 vehicles, this standard is 0.4 grams per test. For HLDTs, this standard is 0.5 grams per test and for heavy-duty vehicles (Class 2B and 3), this standard is 0.6 grams per test.

The amendments also introduce new fleet average standards in Canada for cold temperature exhaust emissions of non-methane hydrocarbons (NMHCs). For fleets consisting of vehicles with a GVWR up to 6 000 lb, the cold temperature NMHC fleet average standard is fixed at 0.3 grams/mile, starting with the 2017 model year. For fleets consisting of vehicles with a GVWR above 6 000 lb and up to 14 000 lb, the cold temperate NMHC fleet average standard is fixed at 0.5 grams/mile, starting with the 2017 model year.

Flexibilities for vehicles sold concurrently in Canada and the United States are included for compliance with the fleet average emission standards as well as the phase-in emission standards. These flexibilities recognize that the emission performance of a company's fleet of vehicle models that are sold concurrently in the United States is effectively anchored by the U.S. regulatory program.

The Regulations require that all companies submit a compliance report to the Minister no later than May 1 after the end of each model year. The end of model year report must contain detailed information concerning the company's fleet(s) and/or groups of vehicles.

For more information regarding the Regulations, or more specifically, the calculation of fleet average values and emission credits or deficits, please refer to the Regulations, which can be found on the Environment and Climate Change Canada CEPA Environmental Registry.

3. TIER 2 REPORTING FOR THE 2017 MODEL YEAR

HLDTs and MDPVs are not subject to Tier 3 standards for the 2017 model year and therefore must continue to comply with the Tier 2 standards, unless the company has elected to voluntarily certify the vehicles to Tier 3 standards. Companies certify their vehicles to a bin for which there are specific emission standards for NOx and other pollutants (see Table 1). Table 2 presents the companies that submitted an end of model year report which contained vehicles that were certified to Tier 2 standards, including the vehicle makes and the number of Tier 2 certified test groups.

Table 1: Light-duty vehicle, light light-duty truck, heavy light-duty truck and medium-duty passenger vehicle Tier 2 federal test procedure bin exhaust emission standards (grams/mile)

Bin number	NOx	NMOG	CO	Formaldehyde	PM
8	0.20	0.125/0.156	4.2	0.018	0.02
7	0.15	0.09	4.2	0.018	0.02
6	0.10	0.09	4.2	0.018	0.01
5	0.07	0.09	4.2	0.018	0.01
4	0.04	0.07	2.1	0.011	0.01
3	0.03	0.055	2.1	0.011	0.01
2	0.02	0.01	2.1	0.004	0.01
1	0.00	0.00	0.0	0.000	0.00

Table 2: Scope of company reports (Tier 2)

Company	Makes	Number of test groups
BMW Group Canada	BMW, Mini, Rolls-Royce	3
FCA Canada Inc.	Chrysler, Dodge, Jeep, Fiat, Alfa Romeo, RAM	3
Ford Motor Company of Canada, Ltd.	Ford, Lincoln	9
General Motors of Canada Company	Buick, Cadillac, Chevrolet, GMC	6
Honda Canada Inc.	Acura, Honda	1
Lotus Cars Ltd	Lotus	1
Maserati North America, Inc.	Maserati	1
Mercedes-Benz Canada Inc.	Mercedes, Smart	4
Porsche Cars Canada, Ltd.	Porsche	3
Toyota Canada Inc.	Lexus, Scion, Toyota	3
Volkswagen Group Canada	Audi, Bentley, Bugatti, Lamborghini, Volkswagen	2

3.1. FLEET AVERAGE NO_X EMISSION PERFORMANCE

Table 3 summarizes the distribution of vehicles by the NOx standard for each Tier 2 bin. It also provides the calculated fleet average NOx value of the Canadian Tier 2 fleet for the 2017 model year.

Table 3: Distribution of vehicles by NOx standard of each bin

Tier and bin number	NOx standard (grams/mi)	Total number of vehicles in "bin"	Percentage of vehicles in "bin"
Tier 2 Bin 8	0.20	843	0.28
Tier 2 Bin 7	0.15	0	0
Tier 2 Bin 6	0.10	0	0
Tier 2 Bin 5	0.07	230 947	77.42
Tier 2 Bin 4	0.04	66 522	22.3
Tier 2 Bin 3	0.03	0	0
Tier 2 Bin 2	0.02	0	0
Tier 2 Bin 1	0.00	0	0

For the 2017 model year, almost all of the 298 312 Tier 2 vehicles (99.72% of the fleet) were certified to a bin at or below the fleet average NOx standard of 0.07 grams/mile. The average NOx value for the Canadian fleet was 0.0636775 grams/mile.

A total of 11 companies submitted a report containing Tier 2 vehicles for the 2017 model year composed of HLDT's and MDPV's.

The company average NOx values ranged from 0.053667 grams/mile to 0.070000 grams/mile for the fleet of HLDTs, and MDPVs, and no companies reported a fleet average NOx value that was above the standard of 0.07 grams/mile (see Table 4).

A total of 1 886 credits were generated by companies for the 2017 model year. No company incurred a deficit with respect to their fleet, and no company reported a deficit at the end of this model year. In addition, there were no Tier 2 credit transfers to or from companies for the 2017 model year.

Table 4: Summary of company average NOx values for the heavy light-duty and medium-duty passenger vehicle fleet

Company	Total number of vehicles in fleet	Fleet average NOx value (grams/mile)	Total 2017 model year credits
BMW Group Canada	1 905	0.07	0
FCA Canada Inc.	12 672	0.053667	207
Ford Motor Company of Canada, Ltd.	116 889	0.055646	1 678
General Motors of Canada Company	127 945	0.07	0
Honda Canada Inc.	4 530	0.07	0
Lotus Cars Ltd	13	0.07	0
Maserati North America, Inc.	745	0.07	0
Mercedes-Benz Canada Inc.	11 734	0.069884	1
Porsche Cars Canada, Ltd.	1 614	0.07	0
Toyota Canada Inc.	11 654	0.07	0
Volkswagen Group Canada	8 611	0.07	0

4. TIER 3 REPORTING FOR THE 2017 MODEL YEAR

Under the Tier 3 standards, companies certify a vehicle to a combined “NMOG + NOx” bin. These bins represent the Federal Test Procedure (FTP) standards that vehicles are certified against. For the 2017 model year, a company’s fleet average NMOG+NOx FTP values are calculated over the following fleets:

1) A company’s fleet that is composed of all of its light-duty vehicles and light-duty trucks 1 to which the applicable NMOG+NOx standard applies for a useful life of 120 000 miles;

2) A company’s fleet that is composed of all of its light-duty vehicles and light-duty trucks 1 to which the applicable NMOG+NOx standard applies for a useful life of 150 000 miles;
3) A company’s fleet that is composed of all of its light-duty trucks 2.

Table 5 presents the corresponding exhaust emission standards for the Tier 3 FTP bins.

Table 5: Light-duty vehicle, light light-duty truck, heavy light-duty truck and medium-duty passenger vehicle Tier 3 federal test procedure bin exhaust emission standards (grams/mile)

Bin Number	NMOG + NOX	CO	Formaldehyde	PM
160	0.160	4.2	0.004	0.003
125	0.125	2.1	0.004	0.003
110[1]	0.110	2.1	0.004	0.003
85[1]	0.085	2.1	0.004	0.003
70	0.070	1.7	0.004	0.003
50	0.050	1.7	0.004	0.003
30	0.030	1.0	0.004	0.003
20	0.020	1.0	0.004	0.003
0	0.000	0.0	0.000	0.000

1 Transitional Bins to which vehicles may be certified to through model year 2019.

Table *6* presents the companies that submitted an end of model year report which contained vehicles that were certified to Tier 3 standards, including the vehicle makes and the number of Tier 3 certified test groups.

Table 6: Scope of company reports (Tier 3)

Company	Makes	Number of test groups
Aston Martin Lagonda Ltd.	Aston Martin	2
BMW Group Canada	BMW, Mini, Rolls-Royce	26
FCA Canada Inc.	Chrysler, Dodge, Jeep, Fiat, Alfa Romeo, RAM	23
Ferrari North America, Inc.	Ferrari	3
Ford Motor Company of Canada, Ltd.	Ford, Lincoln	37
General Motors of Canada Company	Buick, Cadillac, Chevrolet, GMC	30
Honda Canada Inc.	Acura, Honda	21
Hyundai Auto Canada Corp.	Hyundai	21
Jaguar Land Rover Canada, ULC	Jaguar, Land Rover	7
Kia Canada Inc.	Kia	23
Maserati North America, Inc.	Maserati	3
Mazda Canada Inc.	Mazda	10
McLaren Automotive Ltd.	McLaren	1
Mercedes-Benz Canada Inc.	Mercedes, Smart	16
Mitsubishi Motor Sales of Canada	Mitsubishi	7
Nissan Canada Inc.	Infiniti, Nissan	32
Porsche Cars Canada, Ltd.	Porsche	8
Subaru Canada, Inc.	Subaru	8
Tesla Motors Canada Inc.	Tesla	3
Toyota Canada Inc.	Lexus, Scion, Toyota	30
Volkswagen Group Canada	Audi, Bentley, Bugatti, Lamborghini, Volkswagen	24
Volvo Cars of Canada Corp.	Volvo	4

Table 7 summarizes the distribution of vehicles by the NMOG+NOx standard for each bin.

Table 7: Distribution of Tier 3 vehicles by NMOG+NOx standard of each bin

Tier and Bin Number	NMOG+NOx standard (grams/mile)	Total number of vehicles in "bin"	Percentage of vehicles in "bin"
Tier 3 Bin 160	0.160	42 766	2.53
Tier 3 Bin 125	0.125	634 765	37.59
Tier 3 Bin 110[1]	0.110	368 531	21.82
Tier 3 Bin 85[1]	0.085	6 106	0.36
Tier 3 Bin 70	0.070	472 614	27.99
Tier 3 Bin 50	0.050	9 201	0.54
Tier 3 Bin 30	0.030	145 872	8.64
Tier 3 Bin 20	0.020	0	0
Tier 3 Bin 0	0.000	9 146	0.53
Total number of Tier 3 vehicles in 2017 MY fleet			1 688 614

1 Transitional Bins

4.1. FLEET AVERAGE NMOG+NO_X EMISSION PERFORMANCE

This section describes the manufacturers NMOG+NOx fleet average performance.

Table 8 and Table 9, both taken from section 86.1811-17 of the Code of Federal Regulations (CFR), present the declining fleet average Tier 3 FTP and Supplemental Federal Test Procedure (SFTP) emission standards for NMOG+NOx from model year 2017 to model year 2025.

Table 8: Declining fleet average Tier 3 federal test procedure emission standards for NMOG+NOx (grams/mile)

Model Year	LDV, LDT1 – 150 000 mile useful life [1]	LDV, LDT1 – 120 000 mile useful life [1]	LDT2, HLDT[2]
2017 [3]	0.086	0.073	0.101
2018	0.079	0.067	0.092
2019	0.072	0.061	0.083
2020	0.065	0.055	0.074
2021	0.058	0.049	0.065
2022	0.051	0.043	0.056
2023	0.044	0.037	0.047
2024	0.037	0.031	0.038
2025	0.030	0.026	0.030

1 Vehicles certified to standards based on a useful life of 120 000 miles may comply based on the fleet-average standard specified for 150 000 mile useful life in certain circumstances as specified in paragraph (b)(8)(iii)(A) of this section.

2 MDPVs are subject to all the same emission standards and certification provisions that apply to LDT4.

3 HLDT and MDPV must meet the Tier 3 standards starting with model year 2018.

Table 9: Declining fleet average Tier 3 supplemental federal test procedure emission standards for NMOG+NOx (grams/mile)

Model year	NMOG + NOX (grams/mile)
2017 [1]	0.103
2018	0.097
2019	0.090
2020	0.083
2021	0.077
2022	0.070
2023	0.063
2024	0.057
2025	0.050

1 HLDT and MDPV must meet the Tier 3 standards starting with model year 2018.

4.1.1. Light-duty vehicles and light-duty trucks 1, 120k

Table *10* presents the summary of the company average NMOG+NOx FTP values for their LDV/LDT1 120k fleets.

Table 10: Summary of company average NMOG+NOx federal test procedure values for the light-duty vehicle and light-duty truck 1, 120K fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NOx value (grams/mile)	Total 2017 model year credits[7]
Aston Martin Lagonda Ltd.	28	0.125	0
BMW Group Canada	4 943	0.125056	-257
Jaguar Land Rover Canada, ULC	316	0.125	-17
Maserati North America, Inc.	624	0.160	0
McLaren Automotive Ltd.	112	0.125	0
Mercedes-Benz Canada Inc.	2 319	0.159331	-200
Mitsubishi Motor Sales of Canada	8 279	0.160	0
Porsche Cars Canada, Ltd.	320	0.160	0

Table 11 presents the summary of the company average NMOG+NOx SFTP values for their LDV/LDT1 120k fleets.

Table 11: Summary of company average NMOG+NOx supplemental federal test procedure values for the light-duty vehicle and light-duty truck 1, 120K fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NOx value (grams/mile)	Total 2017 model year credits
Aston Martin Lagonda Ltd.	28	0.103	0
BMW Group Canada	4 943	0.162027	-292
Jaguar Land Rover Canada, ULC	316	0.09	0
Maserati North America, Inc.	624	0.100	0
McLaren Automotive Ltd.	112	0.103	0
Mercedes-Benz Canada Inc.	2 319	0.084652	43
Mitsubishi Motor Sales of Canada	8 279	0.100	0
Porsche Cars Canada, Ltd.	320	0.100	0

[7] Negative totals represent a deficit.

4.1.2. light-duty vehicles and light-duty trucks 1, 150k

Table 12 presents the summary of the company average NMOG+NOx FTP values for their LDV/LDT1 150k fleets.

Table 12: Summary of company average NMOG+NOx federal test procedure values for the light-duty vehicle and light-duty truck 1, 150K fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NOx value (grams/mile)	Total 2017 model year credits
Aston Martin Lagonda Ltd.	54	0.125	0
BMW Group Canada	20 918	0.44076	876
FCA Canada Inc.	22 827	0.116179	-689
Ferrari North America, Inc.	275	0.125	0
Ford Motor Company of Canada, Ltd.	57 085	0.097460	-628
General Motors of Canada Company	85 582	0.108613	-1 944
Honda Canada Inc.	172 813	0.103	0
Hyundai Auto Canada Corp.	172 817	0.096384	0
Jaguar Land Rover Canada, ULC	2 023	0.060459	53
Kia Canada Inc.	61 593	0.090477	0
Mazda Canada Inc.	35 684	0.063009	820
Mercedes-Benz Canada Inc.	20 049	0.071385	293
Mitsubishi Motor Sales of Canada	13 385	0.065555	0
Nissan Canada Inc.	88 876	0.081905	0
Porsche Cars Canada, Ltd.	2 037	0.134879	0
Subaru Canada, Inc.	24 546	0.096529	0
Tesla Motors Canada Inc.	3 483	0	300
Toyota Canada Inc.	89 327	0.088891	0
Volkswagen Group Canada	71 609	0.069003	1 436
Volvo Cars of Canada Corp.	1 331	0.127103	0

Table 13 presents the summary of the company average NMOG+NOx SFTP values for their LDV/LDT1 150k fleets.

Table 13: Summary of company average NMOG+NOx supplemental federal test procedure values for the light-duty vehicle and light-duty truck 1, 150K fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NOx value (grams/mile)	Total 2017 model year credits
Aston Martin Lagonda Ltd.	54	0.103	0
BMW Group Canada	20 918	0.059826	903
FCA Canada Inc.	22 827	0.087941	344
Ferrari North America, Inc.	275	0.125	0
Ford Motor Company of Canada, Ltd.	57 085	0.087074	285
General Motors of Canada Company	85 582	0.107076	-352
Honda Canada Inc.	172 813	0.091	0
Hyundai Auto Canada Corp.	172 817	0.098827	0
Jaguar Land Rover Canada, ULC	2 023	0.103	0
Kia Canada Inc.	61 593	0.092465	0
Mazda Canada Inc.	35 684	0.058752	1 579
Mercedes-Benz Canada Inc.	20 049	0.051304	1 036
Mitsubishi Motor Sales of Canada	13 385	0.099364	0
Nissan Canada Inc.	88 876	0.096173	0
Porsche Cars Canada, Ltd.	2 037	0.110544	0
Subaru Canada, Inc.	24 546	0.067296	0
Tesla Motors Canada Inc.	3 483	0	359
Toyota Canada Inc.	89 327	0.088891	0
Volkswagen Group Canada	71 609	0.069003	2 434
Volvo Cars of Canada Corp.	1 331	0.101803	0

4.1.3. Light-duty trucks 2, heavy light-duty trucks, and medium-duty passenger vehicles

Table 14 presents the summary of the company average NMOG+NOx FTP values for their LDT2 fleets.

Table 14: Summary of company average NMOG+NOx federal test procedure values for the light duty truck 2, heavy light-duty truck, and medium-duty passenger vehicle, 150K fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NOx value (grams/mile)	Total 2017 model year credits
BMW Group Canada	9 090	0.125	-218
FCA Canada Inc.	52 863	0.11	-476
Ford Motor Company of Canada, Ltd.	106 410	0.098975	215
General Motors of Canada Company	50 946	0.103104	-107
Honda Canada Inc.	10 800	0.125	0
Jaguar Land Rover Canada, ULC	6 857	0.038455	344
Kia Canada Inc.	6 812	0.125	0
Mazda Canada Inc.	23 428	0.125	-562
Mercedes-Benz Canada Inc.	10 407	0.07	323
Mitsubishi Motor Sales of Canada	3 323	0.07	0
Nissan Canada Inc.	53 020	0.082577	0
Porsche Cars Canada, Ltd.	4 712	0.160	0
Subaru Canada, Inc.	26 700	0.114540	0
Toyota Canada Inc.	121 797	0.091675	0
Volkswagen Group Canada	18 234	0.125	-438
Volvo Cars of Canada Corp.	2 289	0.125	0

Table 15 presents the summary of the company average NMOG+NOx SFTP values for their LDT2 fleets.

Table 15: Summary of company average NMOG+NOx supplemental federal test procedure values for the light duty truck 2, heavy light-duty truck, and medium-duty passenger vehicle, 150K fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NOx value (grams/mile)	Total 2017 model year credits
BMW Group Canada	9 090	0.160055	-519
FCA Canada Inc.	52 863	0.101437	82
Ford Motor Company of Canada, Ltd.	106 410	0.093793	980
General Motors of Canada Company	50 946	0.104772	-90
Honda Canada Inc.	10 800	0.100	0
Jaguar Land Rover Canada, ULC	6 857	0.103	0
Kia Canada Inc.	6 812	0.130	0
Mazda Canada Inc.	23 428	0.094291	204
Mercedes-Benz Canada Inc.	10 407	0.050498	546
Mitsubishi Motor Sales of Canada	3 323	0.100	0
Nissan Canada Inc.	53 020	0.097407	0
Porsche Cars Canada, Ltd.	4 712	0.100	0
Subaru Canada, Inc.	26 700	0.077700	0
Toyota Canada Inc.	121 797	0.085020	0
Volkswagen Group Canada	18 234	0.106531	-64
Volvo Cars of Canada Corp.	2 289	0.100	0

Average NMOG+NOx values above the applicable NMOG+NOx standards for a given fleet can be attributed to the following factors:

1. The company elects to exclude from mandatory compliance with the fleet average NMOG+NOx standard its group of U.S. certified vehicles that are sold in Canada and the U.S. This exclusion is allowed because the objective of the fleet averaging provisions is to achieve an overall Canadian vehicle fleet emission performance comparable to that of the U.S., while minimizing the regulatory burden on companies. An analysis conducted by Environment and Climate Change Canada indicated that, even under extreme scenarios, the variations between the Canadian and U.S. fleet averages are expected to be small.
2. The company made use of an interim provision allowing them to include their LDV/LDT1 120k mile useful life vehicles certified to bins greater than bin 70 in their LDV/LDT1 150k mile useful life fleet. This interim provision may be used through model year 2019. This allows their LDV/LDT1 120k vehicles to meet the less stringent standard of the LDV/LDT1 150k fleet.
3. The average NMOG+NOx value is above the NMOG+NOx standard for one of its fleets. A company can offset a deficit from one fleet with credits from another fleet within the same averaging set.
4. The average NMOG+NOx value is above the applicable standard. A company can offset a deficit in a subsequent model year.

4.1.4. Early action credits

Early Action credits are earned over the 2015-2016 model years for a company's fleet of LDV/LDT1 vehicles and over the 2016-2017 model years for a company's fleet of LDT2/HLDT/MDPV vehicles if the respective NMOG+NOx fleet averages are below the 0.160 standard.

4.1.5. Overall performance of Canadian fleets

Figure 2 shows the overall Canadian NMOG+NOx fleet averages from the 2015 to 2017 model year for the LDV/LDT1 and LDT2/HLDT/MDPV fleets.

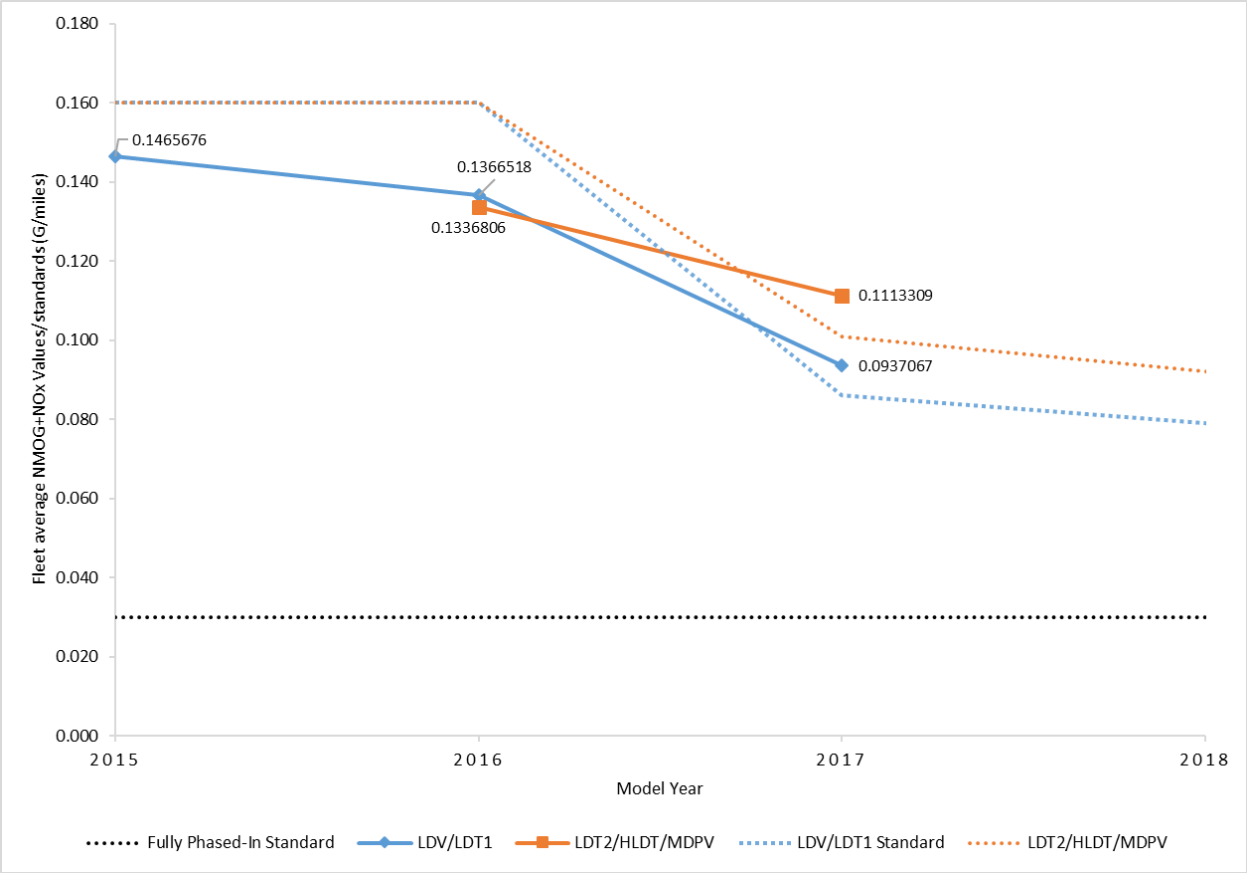

Figure 2: NMOG+NOx Fleet averages and standards

4.2. FLEET AVERAGE COLD NMHC EMISSION PERFORMANCE

This section describes the manufacturer's cold NMHC fleet average performance.

Table 16 presents the fleet average cold temperature NMHC exhaust emission standards.

Table 16: Fleet average cold temperature NMHC exhaust emission standards

Vehicle weight category	Cold temperature NMHC sales- weighted fleet average standard (grams/mile)
LDV and LLDT	0.3
HLDT	0.5

4.2.1. Light-duty vehicles and light light-duty trucks

Table 17 presents the summary of company average cold NMHC values for their LDV/LLDT fleets.

Table 17: Summary of company average cold NMHC values for the light-duty vehicle and light light-duty truck fleet

Company	Total Number of Vehicles in Fleet	Fleet Average Cold NMHC Value (grams/mile)	Total 2017 Model Year Credits
Aston Martin Lagonda Ltd.	82	0.3	0
BMW Group Canada	34 404	0.3	0
FCA Canada Inc.	75 690	0.3	0
Ferrari North America, Inc.	275	0.3	0
Ford Motor Company of Canada, Ltd.	162 973	0.3	0
General Motors of Canada Company	131 579	0.3	0
Honda Canada Inc.	183 613	0.3	0
Hyundai Auto Canada Corp.	172 162	0.3	0
Jaguar Land Rover Canada, ULC	8 276	0.3	0
Kia Canada Inc.	67 928	0.3	0
Maserati North America, Inc.	624	0.4	0
Mazda Canada Inc.	59 112	0.3	0
McLaren Automotive Ltd.	112	0.3	0
Mercedes-Benz Canada Inc.	32 669	0.3	0
Mitsubishi Motor Sales of Canada	24 902	0.3	0
Nissan Canada Inc.	141 012	0.3	0
Porsche Cars Canada, Ltd.	7 069	0.3	0
Subaru Canada, Inc.	51 246	0.3	0
Toyota Canada Inc.	211 124	0.3	0
Volkswagen Group Canada	89 138	0.3	0
Volvo Cars of Canada Corp.	3 620	0.3	0

4.2.2. Heavy light-duty trucks and medium-duty passenger vehicles

Table 18 presents the summary of company average cold NMHC values for their HLDT/MDPV fleets.

Table 18: Summary of company average cold NMHC values for the heavy light-duty truck and medium duty passenger vehicle fleet

Company	Total number of vehicles in fleet	Fleet average cold NMHC value (grams/mile)	Total 2017 model year credits
BMW Group Canada	6 777	0.5	0
FCA Canada Inc.	184 172	0.4	18 422
Ford Motor Company of Canada, Ltd.	116 889	0.4	11 689
General Motors of Canada Company	133 811	0.4	13 381
Honda Canada Inc.	10 950	0.4	0
Jaguar Land Rover Canada, ULC	3 039	0.4	304
Mercedes-Benz Canada Inc.	11 964	0.6	0
Nissan Canada Inc.	7 403	0.5	0
Porsche Cars Canada, Ltd.	2 117	0.5	0
Toyota Canada Inc.	18 863	0.5	0
Volkswagen Group Canada	9 035	0.4	904
Volvo Cars of Canada Corp.	2 719	0.5	0

4.3. FLEET AVERAGE EVAP EMISSION PERFORMANCE

This section describes the manufacturers EVAP fleet average performance.

Table 19 presents the fleet average EVAP emission standards.

Table 19: Tier 3 diurnal plus hot soak emission standards in grams per test

Vehicle category	Low-altitude conditions – fleet average
LDV, LDT1	0.3
LDT2	0.4
HLDT	0.5
HDV	0.6

4.3.1. Light-duty vehicles and light-duty trucks 1

Table 20 presents the summary of company average EVAP values for their LDV/LDT1 fleets.

Table 20: Summary of company average EVAP values for the light-duty vehicle and light duty truck 1 fleet

Company	Total number of vehicles in fleet	Fleet average EVAP value (grams/mile)	Total 2017 model year credits
BMW Group Canada	21 072	0.3	0
FCA Canada Inc.	600	0.4	0
Ford Motor Company of Canada, Ltd.	15 515	0.3	0
Honda Canada Inc.	116 070	0.3	0
Hyundai Auto Canada Corp.	117 266	0.3	0
Jaguar Land Rover Canada, ULC	1 549	0.3	0
Kia Canada Inc.	23 305	0.3	0
Mazda Canada Inc.	23 285	0.3	0
McLaren Automotive Ltd.	112	0.3	0
Mercedes-Benz Canada Inc.	6 834	0.3	0
Mitsubishi Motor Sales of Canada	2 850	0.3	0
Nissan Canada Inc.	12 321	0.3	0
Porsche Cars Canada, Ltd.	382	0.3	0
Subaru Canada, Inc.	9 242	0.3	0
Toyota Canada Inc.	8 032	0.3	0
Volkswagen Group Canada	14 592	0.3	0
Volvo Cars of Canada Corp.	691	0.3	0

4.3.2. Light-duty trucks 2

Table 21 presents the summary of company average EVAP values for their LDT2 fleets.

Table 21: Summary of company average EVAP values fro the light-duty truck 2 fleet

Company	Total number of vehicles in fleet	Fleet average EVAP value (grams/mile)	Total 2017 model year credits
FCA Canada Inc.	3 378	0.4	0
Ford Motor Company of Canada, Ltd.	83 529	0.4	0
General Motors of Canada Company	12 288	0.4	0
Jaguar Land Rover Canada, ULC	6 411	0.4	0
Mazda Canada Inc.	20 077	0.3	2 008
Mercedes-Benz Canada Inc.	1 357	0.3	136
Subaru Canada, Inc.	196	0.3	0
Toyota Canada Inc.	44 622	0.4	0
Volvo Cars of Canada Corp.	220	0.3	0

4.4. PM AND EVAP PHASE-IN PERFORMANCE

For the 2017 model year, 20% of a company's fleet of vehicles must meet the Tier 3 PM standards and 40% must meet the Tier 3 EVAP standards. All companies met these requirements.

5. CONCLUSIONS

The 2017 model year results represents the first reporting cycle under the new more stringent Tier 3 emission standards. All companies subject to reporting requirements submitted end of model year reports comprising a total of 1 987 313 vehicles manufactured in Canada or imported into Canada for the purpose of first retail sale.

The average NMOG+NOx value for the Canadian 2017 model year combined fleet of light-duty vehicles and light-duty trucks 1 is 0.0937067 grams/mile compared to the standards of 0.086 grams/mile. The average NMOG+NOx value for the Canadian 2017 model year combined fleet of light-duty trucks 2, heavy-light duty trucks and medium-duty passenger vehicles is 0.1113309 grams/mile compared to the standard of 0.101 grams/mile.

The overall NMOG+NOx fleet averages demonstrate industry improvements in emission performance. While the fleet average values are above the applicable standards for the 2017 model year, all companies have complied with the fleet averaging provisions of the Regulations.

All companies have complied with the 2017 PM and EVAP phase-in percentages and have met the Cold NMHC fleet average standards.