Air Pollutant Emission Performance for the **2024 Model Year** On-Road Vehicle Fleet

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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 (NO_x), particulate matter (PM), cold non-methane hydrocarbons (NMHC), evaporative emissions (EVAP)) from new on-road vehicles and engines. The Tier 3 fleet average standards which came into place in July of 2015 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 (MYs) and beyond. 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 MY was the first MY 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 2024 MY fleet of vehicles. A total of 26 companies submitted end of MY reports comprising a total of 1,808,386 vehicles manufactured in Canada or imported into Canada for the purpose of first retail sale. This report includes the fleet average NMOG+NO_x, 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+NO_x performance with that of the pre-Tier 3 MYs.

The average NMOG+NO_x value for the Canadian 2024 MY combined fleet of light-duty vehicles and light-duty trucks 1 is 0.0318593 grams/mile compared to the standards of 0.037 grams/mile. The average NMOG+NO_x value for the Canadian 2024 MY combined fleet of light-duty trucks 2, heavy-light duty trucks and medium-duty passenger vehicles is 0.04469244 grams/mile compared to the standard of 0.038 grams/mile. The average NMOG+NO_x value for the Canadian 2024 MY fleet of Class 2B vehicles is 0.17001 grams/mile compared to the standard of 0.178 grams/mile. The average NMOG+NO_x value for the Canadian 2024 MY fleet of Class 3 vehicles is 0.24823 grams/mile compared to the standard of 0.247 grams/mile.

The overall NMOG+NO_x fleet averages demonstrate continued industry improvements in emission performance since 2004. While the fleet average values for the light-duty trucks 2, heavy-light duty trucks and medium-duty passenger vehicles fleet and the Class 3 fleet are slightly above the applicable standards for the 2024 MY, companies have 3 years to offset any carryover deficits, and all currently remain in compliance with the fleet averaging provisions of the Regulations.

All companies have complied with the 2024 PM and EVAP standards and have met the cold NMHC fleet average standards.

All companies remain in compliance with the Regulations.

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 2024 MY. It's based on data submitted by companies in their end of MY 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), as well as heavy-duty vehicles, heavy-duty engines and on-road motorcycles with those of the U.S. EPA through incorporation by reference to the U.S. Code of Federal Regulations (CFR).

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

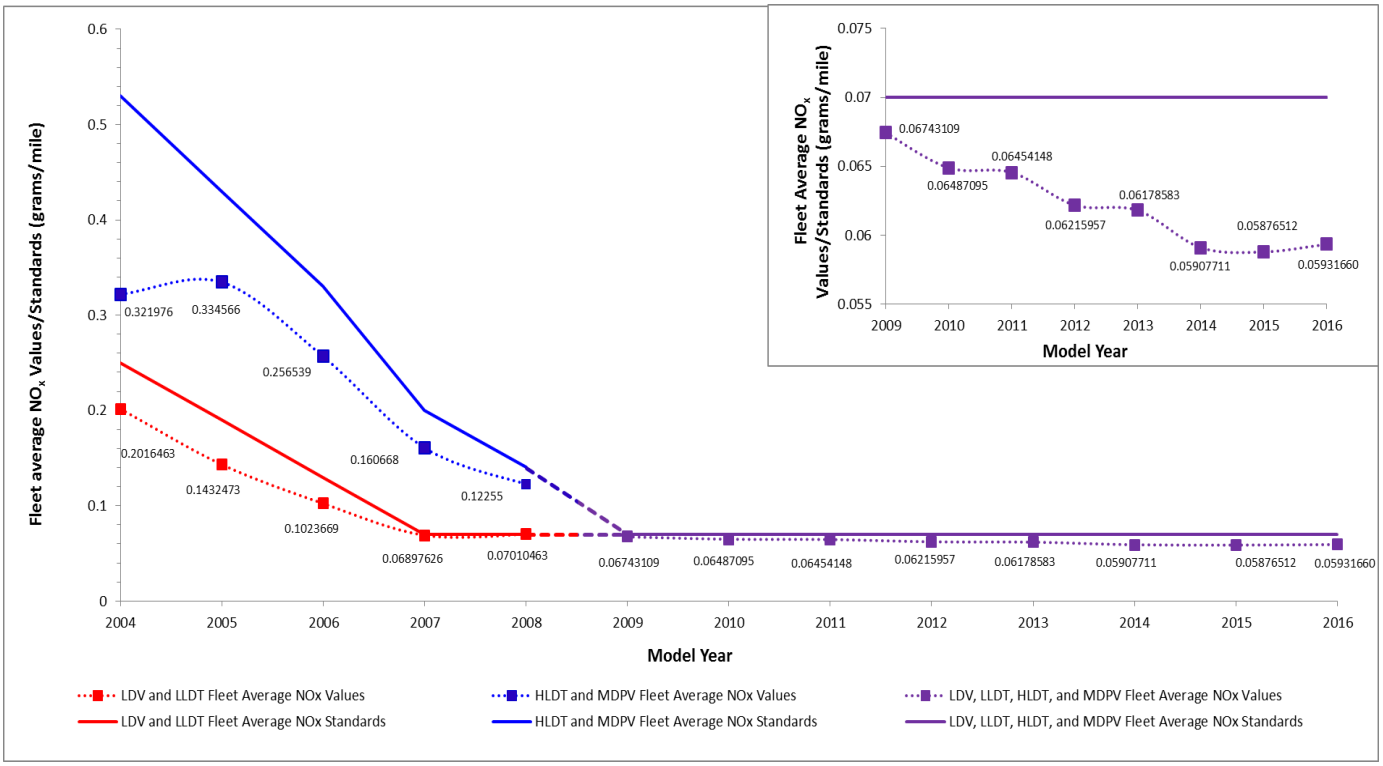
[1] Light-duty vehicles are generally passenger cars.

[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. The exact definitions for LDT1 and LDT2 can be found in the Regulations.

[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 progressively more stringent emission standards (Tier 3) for passenger cars, light-duty trucks and certain heavy-duty vehicles for 2017 and later MYs that are imported or manufactured in Canada. The amendments established vehicle and fleet average standards over the MYs 2017 to 2025 for combined emissions of NMOG and NO_x and established 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 LDVs, light-duty trucks and MDPVs will have to comply with progressively more stringent exhaust emission standards, reaching a fleet average standard for emission of NMOG+NO_x of 30 milligrams per mile as of MY 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+NO_x, reaching fleet average standards of 178 milligrams/mile and 247 milligrams/mile, respectively, as of MY 2022.

Also, as of MY 2017, new PM exhaust emission standards were introduced by using a phase-in approach where an increasing percentage of vehicles in a company's fleet for each successive MY are required to comply with the standards, with full implementation commencing with MY 2021. The Regulations

[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).

provides for an alternative phase-in compliance approach for these standards which 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 1 MY included in the phase-in period. For vehicles 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 MY 2017, new EVAP standards were introduced by using a phase-in approach where an increasing percentage of a company's fleet of vehicles for each successive MY are required to comply with the standards, with full implementation commencing with MY 2022. The Regulations provides for an alternative phase-in compliance approach for these standards which 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 1 MY 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 2015 amendments also introduced new fleet average standards in Canada for cold temperature exhaust emissions of NMHCs. For fleets consisting of vehicles with a GVWR up to 6,000 lb, the cold temperature NMHC fleet average standard was fixed at 0.3 grams/mile, starting with the 2017 MY. For fleets consisting of vehicles with a GVWR above 6,000 lb and up to 10,000 lb, the cold temperate NMHC fleet average standard was fixed at 0.5 grams/mile, starting with the 2017 MY.

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 MY. The end of MY 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 3 reporting for the 2024 MY

Under the Tier 3 standards, companies certify a vehicle to a combined "NMOG+NO_x" bin. These bins represent the Federal Test Procedure (FTP) standards that vehicles are certified against. For the 2024 MY, a company's fleet average NMOG+NO_x FTP values are calculated over the following fleets:

1) a company's fleet that is composed of all of its LDVs and LDT 1 to which the applicable NMOG+NO_x standard applies for a useful life of 120,000 miles

2) a company's fleet that is composed of all of its LDVs and LDT1 to which the applicable NMOG+NO_x standard applies for a useful life of 150,000 miles
3) a company's fleet that is composed of all of its LDT2, HLDT and MDPVs
4) a company's fleet that is composed of all of its Class 2B vehicles
5) a company's fleet that is composed of all of its Class 3 vehicles

Table 1, table 2 and table 3 outlines the corresponding exhaust emission standards for the Tier 3 FTP bins.

Table 1**:** 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+NO_x	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 MY 2019.

Table 2: Class 2B vehicle Tier 3 federal test procedure bin exhaust emission standards (grams/mile)

Bin number	NMOG+NO_x	CO
395[1]	0.395	6.4
340[1]	0.340	6.4
250	0.250	6.4
200	0.200	4.2
170	0.170	4.2
150	0.150	3.2
0	0.000	0.0

1 Transitional Bins to which vehicles may be certified to through MY 2021.

Table 3: Class 3 vehicle Tier 3 federal test procedure bin exhaust emission standards (grams/mile)

Bin number	NMOG+NO_x	CO
630[1]	0.630	7.3
570[1]	0.570	7.3
400	0.400	7.3
270	0.270	4.2
230	0.230	4.2
200	0.200	3.7
0	0.000	0.0

1 Transitional Bins to which vehicles may be certified to through MY 2021.

Table 4 presents the companies that submitted an end of MY 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 4: overview of company reports (Tier 3)

Company	Makes	Number of test groups
Aston Martin Lagonda Ltd.	Aston Martin	3
BMW Group Canada	BMW, MINI, Rolls-Royce	26
FCA Canada Inc.	Chrysler, Dodge, Jeep, Fiat, Alfa Romeo, RAM	30
Ferrari North America, Inc.	Ferrari	5
Ford Motor Company of Canada, Ltd.	Ford, Lincoln	50
General Motors of Canada Company	Buick, Cadillac, Chevrolet, GMC	33
Honda Canada Inc.	Acura, Honda	29
Hyundai Auto Canada Corp.	Hyundai	36
Ineos Automotive Canada Limited	Ineos	1
Jaguar Land Rover Canada, ULC	Jaguar, Land Rover	12
Kia Canada Inc.	Kia	26
Lucid Motors Canada ULC	Lucid	3
Maserati North America, Inc.	Maserati	6
Mazda Canada Inc.	Mazda	11
McLaren Automotive Ltd.	McLaren	2
Mercedes-Benz Canada Inc.	Mercedes, Smart	46
Mitsubishi Motor Sales of Canada	Mitsubishi	5
Nissan Canada Inc.	Infiniti, Nissan	20
Porsche Cars Canada, Ltd.	Porsche	13
Rivian Automotive Canada, Inc.	Rivian	3
Subaru Canada, Inc.	Subaru	7
Tesla Motors Canada Inc.	Tesla	10
Toyota Canada Inc.	Lexus, Scion, Toyota	42
VinFast Canada Inc.	VinFast	1
Volkswagen Group Canada	Audi, Bentley, Bugatti, Lamborghini, Volkswagen	33
Volvo Cars of Canada Corp.	Volvo	4

Table 5 summarizes the distribution of vehicles by the NMOG+NO_x standard for each bin.

Table 5: distribution of Tier 3 vehicles by NMOG+NO_x standard of each bin

Tier and bin number	NMOG+NO_x standard (grams/mile)	Total number of vehicles in "bin"	Percentage of vehicles in "bin"
Tier 3 Bin 400	0.400	1,022	0.057
Tier 3 Bin 395	0.395	0	0.000
Tier 3 Bin 340	0.340	0	0.000
Tier 3 Bin 270	0.270	9,153	0.506
Tier 3 Bin 250	0.250	31	0.002
Tier 3 Bin 230	0.230	19,790	1.094

Tier 3 Bin 200	0.200	11,628	0.643
Tier 3 Bin 170	0.170	16,216	0.897
Tier 3 Bin 160	0.160	2,863	0.158
Tier 3 Bin 150	0.150	17,171	0.950
Tier 3 Bin 125	0.125	37,089	2.051
Tier 3 Bin 70	0.070	251,553	13.910
Tier 3 Bin 50	0.050	240,762	13.314
Tier 3 Bin 30	0.030	999,132	55.250
Tier 3 Bin 20	0.020	16,330	0.903
Tier 3 Bin 0	0.000	185,646	10.266
Total number of Tier 3 vehicles in 2024 MY fleet			1,808,386

3.1. Fleet average NMOG+NO_x emission performance

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

Table 6 and table 7 both taken from section 86.1811-17 of the CFR, present the declining fleet average Tier 3 FTP and Supplemental Federal Test Procedure (SFTP) emission standards for NMOG+NO_x for LDVs, light-duty trucks, HLDTs and MDPVs from MY 2017 to MY 2025.

Table 6: declining fleet average Tier 3 federal test procedure emission standards for NMOG+NO_x (grams/mile)

MY	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 and subsequent model years	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 MY 2018.

Table 7: declining fleet average Tier 3 supplemental federal test procedure emission standards for NMOG+NO_x (grams/mile)

MY	NMOG+NO_x (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 and subsequent model years	0.050

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

Table 8, from section 86.1818-18 of the CFR, presents the declining fleet average Tier 3 FTP emission standards for NMOG+NO_x for Class 2B and Class 3 vehicles from MY 2018 to MY 2022.

Table 8: declining fleet average federal test procedure emission standards for NMOG+NO_x (grams/mile)

MY	Class 2B	Class 3
2016 [1]	0.333	0.548
2017 [1]	0.310	0.508
2018	0.278	0.451
2019	0.253	0.400
2020	0.228	0.349
2021	0.203	0.298
2022	0.178	0.247

1 Fleet-average standards are shown for 2016 and 2017 for purposes of voluntary early compliance.

3.1.1. Light-duty vehicles and light-duty trucks 1, 150k

Table 9 presents the summary of the company average NMOG+NO_x FTP values for their LDV/LDT1 150k fleets.

Table 9: summary of company average NMOG+NO_x 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+NO_x value (grams/mile)	Total 2024 MY credits[7]	Credit balance[8]
Aston Martin Lagonda Ltd.	52	0.0742	0	0
BMW Group Canada	14,461	0.036748	4	2,253
FCA Canada Inc.	7,623	0.02365	0	0
Ferrari North America, Inc.	348	0.0657	0	0
Ford Motor Company of Canada, Ltd.	13,783	0.024273	175	130

[7] Negative totals represent a deficit.

[8] Does not include early action credits and credit transfers within averaging sets.

General Motors of Canada Company	46,466	0.036183	38	702
Honda Canada Inc.	48,933	0.031293	0	0
Hyundai Auto Canada Corp.	75,130	0.027806	0	0
Jaguar Land Rover Canada, ULC	332	0.0844	-16	72
Kia Canada Inc.	63,715	0.026104	0	0
Lucid Motors Canada ULC	140	0	5	14
Maserati North America, Inc.	388	0.0724	0	0
Mazda Canada Inc.	24,042	0.040244	-78	1,925
McLaren Automotive Ltd.	108	0.119	0	0
Mercedes-Benz Canada Inc.	7,181	0.02355	97	625
Mitsubishi Motor Sales of Canada	24,111	0.070000	0	0
Nissan Canada Inc.	50,808	0.032225	243	3,908
Porsche Cars Canada, Ltd.	4,327	0.08144	0	0
Subaru Canada, Inc.	57,066	0.035945	0	0
Tesla Motors Canada Inc.	46,868	0.00000	1,734	12,424
Toyota Canada Inc.	72,167	0.033520	251	3,729
Volkswagen Group Canada	40,209	0.044300	-294	5,207
Volvo Cars of Canada Corp.	5,958	0.007182	178	535

Table 10 presents the summary of the company average NMOG+NO_x SFTP values for their LDV/LDT1 150k fleets.

Table 10: summary of company average NMOG+NO_x 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+NO_x value (grams/mile)	Total 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	52	0.0570	0	0
BMW Group Canada	14,461	0.045955	160	2,326
FCA Canada Inc.	7,623	0.02739	0	0
Ferrari North America, Inc.	348	0.0592	0	0

Ford Motor Company of Canada, Ltd.	13,783	0.027896	401	3,296
General Motors of Canada Company	46,466	0.054347	123	4,753
Honda Canada Inc.	48,933	0.051849	0	0
Hyundai Auto Canada Corp.	75,130	0.028110	0	0
Jaguar Land Rover Canada, ULC	332	0.0901	0	0
Kia Canada Inc.	63,715	0.030315	0	0
Lucid Motors Canada ULC	140	0	8	21
Maserati North America, Inc.	388	0.0735	0	0
Mazda Canada Inc.	24,042	0.056523	11	5,466
McLaren Automotive Ltd.	108	0.0794	0	0
Mercedes-Benz Canada Inc.	7,181	0.02649	219	2,841
Mitsubishi Motor Sales of Canada	24,111	0.076644	0	0
Nissan Canada Inc.	50,808	0.041790	773	7,046
Porsche Cars Canada, Ltd.	4,327	0.07927	0	0
Subaru Canada, Inc.	57,066	0.052803	0	0
Tesla Motors Canada Inc.	46,868	0.00000	2,671	17,041
Toyota Canada Inc.	72,167	0.049726	525	10,188
Volkswagen Group Canada	40,209	0.056747	10	9,100
Volvo Cars of Canada Corp.	5,958	0.009488	283	746

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

Table 11 provides a summary of the company average NMOG+NO_x FTP values for their LDT2/HLDT/MDPV fleets.

Table 11: summary of company average NMOG+NO_x 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+NO_x value (grams/mile)	Total 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	14	0.0700	0	0
BMW Group Canada	21,310	0.031227	144	-615
FCA Canada Inc.	84,189	0.042200	0	0
Ford Motor Company of Canada, Ltd.	195,864	0.0356845	454	1,223
General Motors of Canada Company	209,062	0.0373206	142	-4603
Honda Canada Inc.	66,081	0.044925	0	0
Hyundai Auto Canada Corp.	49,939	0.036613	0	0
Ineos Automotive Canada Limited	534	0.05	0	0
Jaguar Land Rover Canada, ULC	8,980	0.03341	41	1,111
Kia Canada Inc.	17,789	0.048789	0	0
Maserati North America, Inc.	51	0.130	0	0
Mazda Canada Inc.	48,225	0.043471	-264	1,917
Mercedes-Benz Canada Inc.	15,572	0.034505	54	144
Mitsubishi Motor Sales of Canada	27,738	0.040033	0	0
Nissan Canada Inc.	40,546	0.058183	-818	5,089
Porsche Cars Canada, Ltd.	7,470	0.07257	0	0
Rivian Automotive Canada, Inc.	967	0.000	37	79
Subaru Canada, Inc.	30,671	0.035682	0	0
Tesla Motors Canada Inc.	2,314	0.000	88	88
Toyota Canada Inc.	179,909	0.0393907	-250	3,445
VinFast Canada Inc.	1,764	0.000	67	105
Volkswagen Group Canada	101,549	0.0499435	-1,213	1,442
Volvo Cars of Canada Corp.	10,049	0.052991	-151	475

Table 12 provides a summary of the company average NMOG+NO_x SFTP values for their LDT2/HLDT/MDPV fleets.

Table 12: summary of company average NMOG+NO_x 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+NO_x value (grams/mile)	Total 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	14	0.0570	0	0
BMW Group Canada	21,310	0.047524	202	-451
FCA Canada Inc.	84,189	0.046263	0	0
Ford Motor Company of Canada, Ltd.	195,864	0.0515491	1,068	6,911
General Motors of Canada Company	209,062	0.0548361	452	-4,682
Honda Canada Inc.	66,081	0.066389	0	0
Hyundai Auto Canada Corp.	49,939	0.043978	0	0
Ineos Automotive Canada Limited	534	0.05	0	0
Jaguar Land Rover Canada, ULC	8,980	0.06080	0	0
Kia Canada Inc.	17,789	0.048789	0	0
Maserati North America, Inc.	51	0.145	0	0
Mazda Canada Inc.	48,225	0.065702	-420	3,151
Mercedes-Benz Canada Inc.	15,572	0.040523	257	3,445
Mitsubishi Motor Sales of Canada	27,738	0.065050	0	0
Nissan Canada Inc.	40,546	0.084287	-1,106	1,337
Porsche Cars Canada, Ltd.	7,470	0.07733	0	0
Rivian Automotive Canada, Inc.	967	0.000	55	111
Subaru Canada, Inc.	30,671	0.049759	0	0
Tesla Motors Canada Inc.	2,314	0.0000	132	132
Toyota Canada Inc.	179,909	0.0470094	1,797	12,011
VinFast Canada Inc.	1,764	0.000	101	151
Volkswagen Group Canada	101,549	0.0516130	547	5,545
Volvo Cars of Canada Corp.	10,049	0.065748	-88	7

3.1.3. Class 2B vehicles

Table 13 presents the summary of the company average NMOG+NO_x FTP values for their Class 2B vehicle fleets.

Table 13: summary of company average NMOG+NO_x federal test procedure values for the Class 2B vehicle fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NO_x value (grams/mile)	Total 2024 MY credits	Credit balance
FCA Canada Inc.	11,556	0.18976	0	0
Ford Motor Company of Canada, Ltd.	28,069	0.15865	543	2,911
General Motors of Canada Company	15,914	0.18178	-60	-1,661
Mercedes-Benz Canada Inc.	6,581	0.1553	149	625

3.1.4. Class 3 vehicles

Table 14 presents the summary of the company average NMOG+NO_x FTP values for their Class 3 fleets.

Table 14: summary of company average NMOG+NO_x federal test procedure values for the Class 3 vehicle fleet

Company	Total number of vehicles in fleet	Fleet average NMOG+NO_x value (grams/mile)	Total 2024 MY credits	Credit balance
FCA Canada Inc.	9,568	0.2840	0	0
Ford Motor Company of Canada, Ltd.	19,241	0.23130	302	-1,159
General Motors of Canada Company	41,236	0.24839	-57	1,824
Mercedes-Benz Canada Inc.	1,255	0.2300	21	440

Fleet average NMOG+NO_x values above the applicable NMOG+NO_x standards (that is, negative total MY credits) 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+NO_x 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 MY 2019. This allows their LDV/LDT1 120k vehicles to meet the less stringent standard of the LDV/LDT1 150k fleet.
3. The average NMOG+NO_x value is above the NMOG+NO_x standard for 1 of its fleets. A company can offset a deficit from 1 fleet with credits from another fleet within the same averaging set.
4. The average NMOG+NO_x value is above the applicable standard. A company can offset a deficit in a subsequent MY.

3.1.5. NMOG+NO_x averaging sets

NMOG+NO_x credits may be exchanged only within an averaging set, as follows:

1) LDV and LDT1 certified to standards based on a useful life of 120,000 miles and 10 years
2) LDV, LDT and MDPV certified to standards based on a useful life of 150,000 miles and 15 years
3) HDV (Class 2B and 3)

However, FTP and SFTP credits are not interchangeable.

3.1.6. Early action credits

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

Early action credits were also earned over the 2016-2017 MYs for a company's fleet of Class 2B vehicles or fleet of Class 3 vehicles if the respective NMOG+NO_x fleet averages are below the applicable standards for the MY in question set out in Table 8.

3.1.7. NMOG+NOx averaging set credit balances

Table 15 presents the company overall credit balances for each NMOG+NOx averaging sets including any early action credits earned. Negative numbers represent a deficit.

Table 15: Company averaging set credit balances

Company	LDV, LDT and MDPV FTP averaging set	LDV, LDT and MDPV SFTP averaging set	HDV averaging set
Aston Martin Lagonda Ltd.	0	0	N/A
BMW Group Canada	1,638	1,875	N/A
FCA Canada Inc.	0	0	0
Ferrari North America, Inc.	0	0	N/A
Ford Motor Company of Canada, Ltd.	5,158	9,227	3,347
General Motors of Canada Company	4,098	5,269	2,789

Honda Canada Inc.	0	0	N/A
Hyundai Auto Canada Corp.	0	0	N/A
Ineos Automotive Canada Limited	0	0	N/A
Jaguar Land Rover Canada, ULC	1,183	0	N/A
Kia Canada Inc.	0	0	N/A
Lucid Motors Canada ULC	14	21	N/A
Maserati North America, Inc.	0	0	N/A
Mazda Canada Inc.	4,225	8,618	N/A
McLaren Automotive Ltd.	0	0	N/A
Mercedes-Benz Canada Inc.	769	6,286	1,065
Mitsubishi Motor Sales of Canada	0	0	N/A
Nissan Canada Inc.	8,996	8,382	125
Porsche Cars Canada, Ltd.	0	0	N/A
Rivian Automotive Canada, Inc.	79	111	N/A
Subaru Canada, Inc.	0	0	N/A
Tesla Motors Canada Inc.	12,512	17,173	N/A
Toyota Canada Inc.	14,868	25,243	N/A
VinFast Canada Inc.	105	151	N/A
Volkswagen Group Canada	6,650	14,645	N/A
Volvo Cars of Canada Corp.	1,010	753	N/A

3.1.8. Overall performance of Canadian fleets

Figure 2 shows the overall Canadian NMOG+NO_x fleet averages from the 2015 to 2024 MY for the LDV/LDT1 and LDT2/HLDT/MDPV fleets.

Figure 2: NMOG+NO_x fleet averages and standards for the light-duty vehicle and light-duty truck 1 fleet and the light-duty truck 2, heavy light-duty trucks and medium-duty passenger vehicles fleet

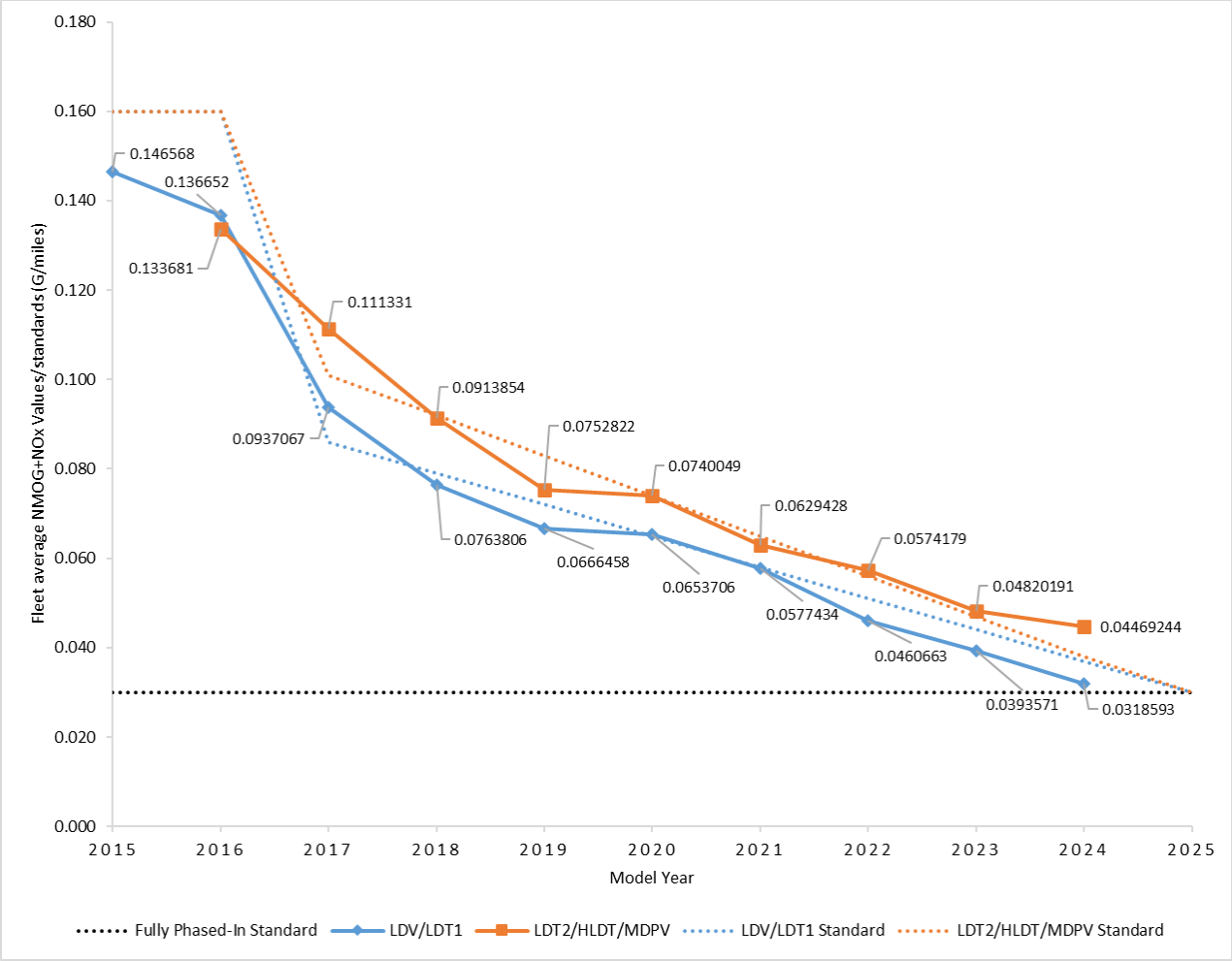
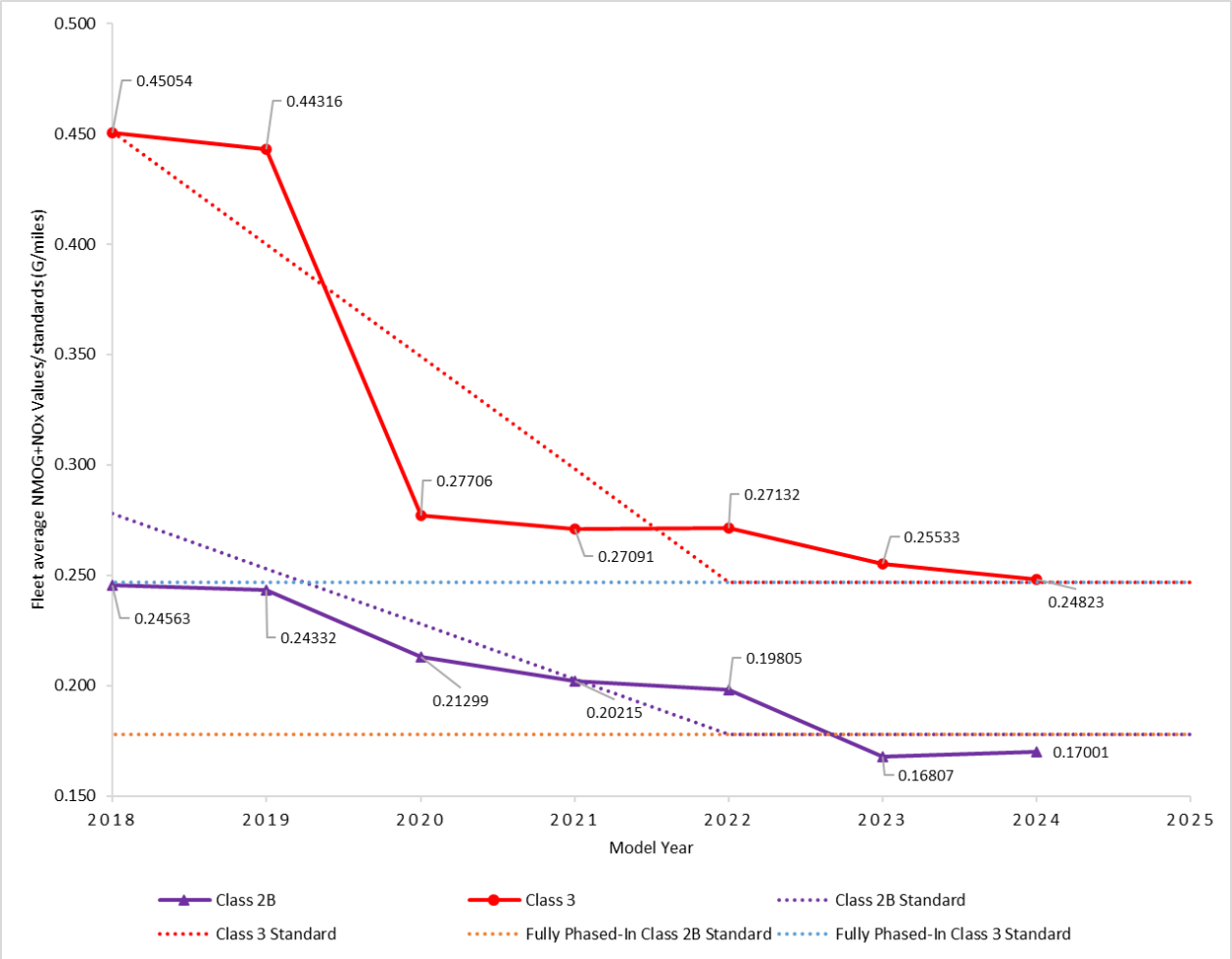


Figure 3 shows the overall Canadian NMOG+NO_x fleet averages from the 2018 to 2024 MY for the Class 2B and Class 3 fleets.

Figure 3: NMOG+NO_x Fleet averages and standards for the Class 2B fleet and the Class 3 fleet



3.2. 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

3.2.1. 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 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	52	0.3	0	0
BMW Group Canada	22,909	0.3	0	0
FCA Canada Inc.	29,632	0.3	0	0
Ferrari North America, Inc.	348	0.3	0	0
Ford Motor Company of Canada, Ltd.	94,779	0.3	0	0
General Motors of Canada Company	95,189	0.3	0	0
Honda Canada Inc.	108,498	0.2	0	0
Hyundai Auto Canada Corp.	96,578	0.3	0	0
Jaguar Land Rover Canada, ULC	3,031	0.3	0	0
Kia Canada Inc.	67,090	0.3	0	0
Maserati North America, Inc.	388	0.3	0	0
Mazda Canada Inc.	61,611	0.3	0	35,438
McLaren Automotive Ltd.	108	0.3	0	0
Mercedes-Benz Canada Inc.	11,207	0.1	2,241	10,952
Mitsubishi Motor Sales of Canada	38,026	0.3	0	0
Nissan Canada Inc.	72,907	0.3	0	0
Porsche Cars Canada, Ltd.	7,462	0.3	0	0
Subaru Canada, Inc.	85,036	0.2	0	0
Toyota Canada Inc.	185,855	0.3	0	0
Volkswagen Group Canada	122,132	0.3	0	0
Volvo Cars of Canada Corp.	8,305	0.3	0	0

3.2.2. 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 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	14	0.5	0	0
BMW Group Canada	7,566	0.3	1,513	4,648
FCA Canada Inc.	58,035	0.3	0	0
Ford Motor Company of Canada, Ltd.	100,052	0.4	10,005	96,909
General Motors of Canada Company	106,521	0.4	10,652	88,950
Honda Canada Inc.	5,072	0.3	0	0
Hyundai Auto Canada Corp.	993	0.3	199	464
Ineos Automotive Canada Limited	534	0.5	0	0
Jaguar Land Rover Canada, ULC	6,171	0.5	0	3,398
Maserati North America, Inc.	51	0.3	0	0
Mazda Canada Inc.	10,627	0.5	0	0
Mercedes-Benz Canada Inc.	8,930	0.2	2,679	14,979
Mitsubishi Motor Sales of Canada	13,823	0.5	0	0
Nissan Canada Inc.	13,038	0.4	1,304	3,820
Porsche Cars Canada, Ltd.	3,410	0.3	0	0
Toyota Canada Inc.	59,634	0.4	5,963	14,186
Volkswagen Group Canada	1,890	0.5	0	8,217
Volvo Cars of Canada Corp.	2,617	0.3	523	2,332

3.3. 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

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

Table 20 shows 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 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	52	0.3	0	0
BMW Group Canada	10,848	0.3	0	0
FCA Canada Inc.	3,478	0.3	0	0
Ferrari North America, Inc.	348	0.3	0	0
Ford Motor Company of Canada, Ltd.	6,485	0.3	0	0
General Motors of Canada Company	46,466	0.3	0	0
Honda Canada Inc.	48,933	0.3	0	0
Hyundai Auto Canada Corp.	47,632	0.3	0	0
Jaguar Land Rover Canada, ULC	332	0.3	0	0
Kia Canada Inc.	49,301	0.3	0	0
Maserati North America, Inc.	388	0.4	0	0
Mazda Canada Inc.	24,013	0.3	0	0
McLaren Automotive Ltd.	108	0.3	0	0
Mercedes-Benz Canada Inc.	4,665	0.3	0	0
Mitsubishi Motor Sales of Canada	24,111	0.3	0	0
Nissan Canada Inc.	45,399	0.3	0	0
Porsche Cars Canada, Ltd.	3,896	0.3	0	0
Subaru Canada, Inc.	57,066	0.3	0	0
Toyota Canada Inc.	71,627	0.3	0	0

Volkswagen Group Canada	35,250	0.3	0	0
Volvo Cars of Canada Corp.	873	0.3	0	0

3.3.2. 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 for the light-duty truck 2 fleet

Company	Total number of vehicles in fleet	Fleet average EVAP value (grams/mile)	Total 2024 MY credits	Credit balance
BMW Group Canada	12,061	0.3	1,206	6,825
FCA Canada Inc.	26,154	0.4	0	0
Ford Motor Company of Canada, Ltd.	88,294	0.4	0	0
General Motors of Canada Company	48,723	0.4	0	0
Honda Canada Inc.	59,565	0.4	0	0
Hyundai Auto Canada Corp.	48,946	0.4	0	0
Jaguar Land Rover Canada, ULC	2,699	0.4	0	0
Kia Canada Inc.	17,789	0.4	0	0
Mazda Canada Inc.	37,598	0.4	0	15,735
Mercedes-Benz Canada Inc.	6,542	0.3	654	5,679
Mitsubishi Motor Sales of Canada	13,915	0.4	0	0
Nissan Canada Inc.	27,508	0.4	0	0
Porsche Cars Canada, Ltd.	3,566	0.4	0	0
Subaru Canada, Inc.	27,970	0.3	0	0
Toyota Canada Inc.	114,228	0.4	0	0
Volkswagen Group Canada	86,882	0.3	8,688	8,688
Volvo Cars of Canada Corp.	7,432	0.4	0	0

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

Table 22 presents the summary of company average EVAP values for their HLTD/MDPV fleets.

Table 22: summary of company average EVAP values for the heavy light-duty truck and medium-duty passenger vehicle fleet

Company	Total number of vehicles in fleet	Fleet average EVAP value (grams/mile)	Total 2024 MY credits	Credit balance
Aston Martin Lagonda Ltd.	14	0.5	0	0
BMW Group Canada	7,566	0.5	0	0
FCA Canada Inc.	58,035	0.5	0	0
Ford Motor Company of Canada, Ltd.	100,052	0.5	0	0
General Motors of Canada Company	106,521	0.5	0	0
Honda Canada Inc.	5,072	0.5	0	0
Hyundai Auto Canada Corp.	993	0.5	0	0
Ineos Automotive Canada Limited	534	0.5	0	0
Jaguar Land Rover Canada, ULC	6,171	0.5	0	0
Maserati North America, Inc.	51	0.3	0	0
Mazda Canada Inc.	10,627	0.5	0	0
Mercedes-Benz Canada Inc.	8,930	0.5	0	0
Mitsubishi Motor Sales of Canada	13,823	0.5	0	0
Nissan Canada Inc.	13,038	0.5	0	0
Porsche Cars Canada, Ltd.	3,410	0.5	0	0
Toyota Canada Inc.	59,634	0.4	5,963	6,103
Volkswagen Group Canada	1,890	0.5	0	3,970
Volvo Cars of Canada Corp.	2,617	0.4	262	439

3.3.4. Class 2B and Class 3 vehicles

Table 23 presents the summary of company average EVAP values for their Class 2B and Class 3 fleets.

Table 23: summary of company average EVAP values for the Class 2B and Class 3 vehicle fleet

Company	Total number of vehicles in fleet	Fleet average EVAP value (grams/mile)	Total 2024 MY credits	Credit balance
FCA Canada Inc.	6,040	0.6	0	0
Ford Motor Company of Canada, Ltd.	28,806	0.6	0	0
General Motors of Canada Company	24,148	0.6	0	0
Mercedes-Benz Canada Inc.	0	0.0	0	82

3.3.5. Evaporative emission averaging sets

The following separate averaging sets apply for evaporative emission standards:

1) LDV and LDT1 together represent a single averaging set

2) LDT2 represents a single averaging set

3) HLDT and MDPV represents a single averaging set

4) HDV (Class 2B and 3) represents a single averaging set

Credits can be exchanged across averaging sets as follows if additional credits are needed to offset a deficit after the final year of maintaining deficit credits:

1) You may exchange LDV/LDT1 and LDT2 emission credits

2) You may exchange HLDT and HDV emission credits

3.4. PM and EVAP phase-in performance

For the 2024 MY, 100% of a company's fleet of light-duty vehicles, light-duty trucks and medium-duty passenger vehicles and 100% of a company's fleet of Class 2B and Class 3 vehicles must meet the Tier 3 PM standards and 100% of a company's overall fleet must meet the Tier 3 EVAP standards. All companies met these requirements.

4. Conclusions

The 2024 MY results represent the eight-reporting cycle under the new more stringent Tier 3 emission standards. All companies subject to reporting requirements submitted end of MY reports comprising a total of 1,808,386 vehicles manufactured in Canada or imported into Canada for the purpose of first retail sale.

The average NMOG+NO_x value for the Canadian 2024 MY combined fleet of light-duty vehicles and light-duty trucks 1 is 0.0318593 grams/mile compared to the standards of 0.037 grams/mile. The average NMOG+NO_x value for the Canadian 2024 MY combined fleet of light-duty trucks 2, heavy-light duty trucks and medium-duty passenger vehicles is 0.04469244 grams/mile compared to the standard of 0.038 grams/mile. The average NMOG+NO_x value for the Canadian 2024 MY fleet of Class 2B vehicles is 0.17001 grams/mile compared to the standard of 0.178 grams/mile. The average NMOG+NO_x value for the Canadian 2024 MY fleet of Class 3 vehicles is 0.24823 grams/mile compared to the standard of 0.247 grams/mile.

The overall NMOG+NO_x fleet averages demonstrate continued industry improvements in emission performance since 2004. While the fleet average values for the light-duty trucks 2, heavy-light duty trucks and medium-duty passenger vehicles fleet and the Class 3 fleet are slightly above the applicable standards for the 2024 MY, companies have 3 years to offset any carryover deficits, and all currently remain in compliance with the fleet averaging provisions of the Regulations.

All companies have complied with the PM and EVAP standards and have met the cold NMHC fleet average standards.

All companies remain in compliance with the Regulations.