



ZERO EMISSION VEHICLE (ZEV) STANDARD

REPORT ON THE RESULTS
OF THE FIRST
COMPLIANCE PERIOD

CONTEXT

In 2016, Québec adopted the [*Act to increase the number of zero-emission motor vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions*](#) (ZEV Act). The attendant regulations came into force in January 2018. In addition to contributing to combating climate change, the zero-emission vehicle (ZEV) standard seeks to spur the automobile market to develop more models that use increasingly efficient low-carbon technologies and engender broader availability of such vehicles in Québec.

Since January 11, 2018, motor vehicle manufacturers that sell or lease 4 500 or more new vehicles annually in Québec, on average, have been subject to the ZEV standard. They must accumulate credits by providing ZEVs or low-emission vehicle (LEVs) on the Québec market. The government determines the credit target, which is calculated by applying a percentage to the total number of new light-duty vehicles that each automaker sells or leases in Québec. Accordingly, each sale or lease of a vehicle that the Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) recognizes gives the automaker credits, the number of which varies according to the type of vehicle and its electric range. The higher a vehicle's electric driving range, the greater the number of credits the automaker obtains. At the end of each compliance period, the automakers must have accumulated the number of credits corresponding to the requirements that the government set for that period.

This document reports the results of the first

What is a compliance period?

A compliance period is a period during which motor vehicle manufacturers must satisfy the regulatory obligations linked to predetermined vehicle model years. For each period, a deadline is set for reporting (as a number of credits due) to the government. The date is September 1 of the calendar year following the end of the period.

The first compliance period, related to the first year of application of the ZEV Act, covered vehicles for model year 2018 (sold in Québec during calendar years 2017 to 2019, in certain cases) and stipulated September 1, 2019 as the reporting deadline.

Starting in 2019, the compliance period will be three years. Accordingly, at the conclusion of the 2019-2021 compliance period, on September 1, 2022 automakers must have reported all sales of ZEVs and LEVs for model years 2019, 2020 and 2021 to accumulate the requisite credits to fulfil their obligations (Figure 2).

compliance period related to the sale of vehicles for the 2018 model year and in respect of which the reports were to be submitted to the government not later than September 1, 2019. When the ZEV Act was adopted, the government wished to recognize the effort of automakers that were precursors on the Québec market. For this reason, it also granted motor vehicle manufacturers bonus credits for ZEVs and LEVs for model years 2014 to 2017 sold in Québec. The manufacturers can use the credits to fulfil their regulatory obligations for the 2018 or subsequent compliance periods.

The credit requirements and the total credits that automotive manufacturers must accumulate to satisfy such requirements are calculated according to the section 64 of the ZEV Act.

REVIEW OF THE RESULTS OF THE FIRST COMPLIANCE PERIOD AS OF SEPTEMBER 1, 2019

In this initial compliance period, all the motor vehicle manufacturers subject to the Act fulfilled their regulatory obligations whether by accumulating credits from their own sales or leasing of ZEVs and LEVs or by acquiring credits from other manufacturers.

Motor vehicle manufacturers subject to the Act and categories

Motor vehicle manufacturers are divided into three categories according to the total number of vehicles for model years 2015, 2016 and 2017 that they have sold or leased, on average, in Québec. This categorization indicates whether they are subject to the standard and under what conditions:

- small automakers (fewer than 4 500 vehicles) are not subject to the ZEV standard but can participate voluntarily and, accordingly, report their vehicles as eligible and buy or sell the credits that they accumulate;
- intermediate automakers (between 4 500 and 19 999 vehicles) are subject to the ZEV standard;
- large automakers (20 000 vehicles or more) are subject to the ZEV standard and additional requirements starting in 2020.

Requirements and accumulation of credits by motor vehicle manufacturers subject to the Act

To determine the requirements applicable to each of the motor vehicle manufacturers subject to the Act, the MELCC uses average vehicle sales for model years 2014, 2015 and 2016, to which it applies the percentage of credits required by [regulation](#) for model year 2018 (3.5%), applicable both to large and intermediate manufacturers.

Table 1 summarizes the motor vehicle manufacturers subject to the Act and voluntary participants, their respective classification, and the requirements pertaining to the credits. For the 2018 compliance period, ten large manufacturers and four intermediate manufacturers were subject to the ZEV Act. Two small manufacturers participated voluntarily.

List of vehicles eligible for credits

As of September 1, 2019, twelve of the fourteen motor vehicle manufacturers subject to the Act and two manufacturers not subject to it reported a total of 190 versions of vehicles,¹ divided among five model years, the sale or leasing of which allow for the accumulation of credits. Of this total, 115 are zero-emission vehicles (ZEVs), i.e. all-electric vehicles or vehicles that run on hydrogen-powered fuel cells, 69 are low-emission vehicles (LEVs), i.e. rechargeable hybrid vehicles, and six are range-extender vehicles (REVs), i.e. LEVs equipped with a range extender. The [list of eligible vehicles](#) is updated regularly.

¹ Since the number of credits granted to a vehicle depends on its electric range, the Minister can grant several versions of a given model their own number if their autonomy differs.

Table 1: Categories of motor vehicle manufacturers and number of credits that they accumulated for the first compliance period

Manufacturer		Number of credits accumulated (2018 compliance period)*						Requirement	Remaining credits	
		NZEV	RZEV	NLEV	RLEV	NREV	RREV			Total
Large	General Motors of Canada Company	7 726.25	120.72	8 939.96	16.05	-	-	16 802.98	1 497.93	15 305.05
	Ford Motor Company of Canada Limited	2 011.54	5.77	1 317.65	5.46	-	-	3 340.42	1 729.56	1 610.86
	FCA Canada Inc.	1 500.00	-	394.07	3.54	-	-	1 897.61	1 775.84	121.77
	Honda Canada Inc.	8 000.00	-	312.09	-	-	-	8 312.09	1 616.11	6 695.98
	Hyundai Auto Canada Corp.	1 300.05	-	302.34	-	-	-	1 602.39	1 275.16	327.23
	Kia Canada Inc.	2 681.29	-	168.98	-	-	-	2 850.27	903.63	1 946.64
	Mazda Canada Inc.	1 200.00	-	1 200.00	-	-	-	2 400.00	1 008.42	1 391.58
	Nissan Canada inc.	6 972.39	313.55	-	-	-	-	7 285.94	1 268.68	6 017.26
	Toyota Canada Inc.	3 125.39	10.00	2 532.26	-	-	-	5 667.65	1 832.69	3 834.96
	Volkswagen Group Canada Inc.	1 638.00	-	221.47	-	-	-	1 859.47	1 000.15	859.32
Intermediate	BMW Canada Inc.	162.27	-	147.07	1.23	551.56	2.16	864.29	310.49	553.80
	Mercedes-Benz Canada Inc.	773.36	-	59.03	-	-	-	832.39	335.94	496.45
	Subaru Canada, Inc.	2 200.00	-	-	-	-	-	2 200.00	539.71	1 660.29
	Mitsubishi Motor Sales of Canada, Inc.	325.74	2.36	1 972.80	1.32	-	-	2 302.22	282.65	2 019.57
Small	Porsche Cars Canada, Ltd.	-	-	155.33	-	-	-	155.33	-	155.33
	Tesla Motors Canada ULC	463.48	66.69	-	-	-	-	530.17	-	530.17
Total		40 079.76	519.09	17 723.05	27.60	551.56	2.16	58 903.22	15 376.96	43 526.26

* ZEV: zero-emission vehicle LEV: low-emission vehicle REV: range-extender vehicle N: New R: Reconditioned

Notes: The small manufacturers included on the list participated voluntarily in the acquisition and transaction of credits.
 The credits accumulated as of September 1, 2019 include those acquired from other motor vehicle manufacturers (transfer of credits).

Credits accumulated by the automotive industry

Table 1 also takes stock of the credits recorded in the accounts of the motor vehicle manufacturers at the end of the 2018 compliance period, i.e. as of September 1, 2019. The credits can have been accumulated either by selling eligible vehicles or purchasing credits from other manufacturers.

A total of 58 903.22 credits were accumulated through the sale of 34 144 new vehicles and 609 reconditioned vehicles reported by 14 motor vehicle manufacturers.

Transfer of credits between manufacturers

To comply with the standard, the motor vehicle manufacturers must obtain credits from other manufacturers that have surplus credits. As of September 1, 2019, for the 2018 compliance period, seven motor vehicle manufacturers carried out seven transactions. Some 17 041.39 credits were thus transferred from one manufacturer to another (Table 2).

How is the number of credits that a ZEV or a LEV earns calculated?

ZEVs (and REVs with more than 120 km of electrical autonomy) give the right to a maximum of four credits, determined according to the following formula:

$$(0.01 \times \text{autonomy}^2 [\text{in km}] \times 0.6214) + 0.5$$

LEVs (and REVs with 120 km or less of electrical autonomy) give the right to a maximum of 1.3 credits, determined according to the following formula:

$$(0.01 \times \text{autonomy} [\text{in km}] \times 0.6214) + 0.3$$

Table 2: Transfers of credits between motor vehicle manufacturers (2018 compliance period)

	Manufacturer	Category of credit	Number of credits
Manufacturer transferring the credits	General Motors of Canada Company	NLEV	1 200.00
	Tesla Motors Canada ULC	NZEV	15 841.39
Manufacturer receiving the credits	FCA Canada Inc.	NZEV	1 500.00
	Honda Canada Inc.	NZEV	8 000.00
	Mazda Canada Inc.	NLEV	1 200.00
		NZEV	1 200.00
	Subaru Canada, Inc.	NZEV	2 200.00
	Toyota Canada Inc.	VZEN	2 941.39

* NLEV: new low-emission vehicle

NZEV: new zero-emission vehicle

² The number of credits granted per vehicle is based on the so-called “UDDS” electric range, as calculated by the method that California uses for its own ZEV standard. This value cannot be made public since it is a confidential technical datum (section 3 of the *Regulation respecting the limit on the number of credits that may be used by a motor vehicle manufacturer and the confidentiality of some information*). However, according to the *Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards for Model Years 2022-2025* (pages 4-48), the “UDDS” values can be roughly estimated by dividing by 0.7 the autonomy values published by Natural Resources Canada (public data).

Credits accumulated according to the model year

Based on sales of light-duty vehicles reported by the motor vehicle manufacturers subject to the Act, the MELCC has established at 15 376.96 the total number of credits that the industry should accumulate to satisfy the requirements for the 2018 compliance period.

Reporting on sales of new 2018 model year ZEVs and LEVs indicates that the motor vehicle manufacturers subject to the Act accumulated 18 393.40 credits. The total stands at 58 903.22 credits when the bonus credits granted for model years 2014 to 2017, reconditioned vehicles and the contribution of small manufacturers are included. The motor vehicle manufacturers subject to the Act that had insufficient credits to fulfil their individual requirements acquired credits from other motor vehicle manufacturers (Tables 1 and 2). Accordingly, the entire array of motor vehicle manufacturers subject to the Act satisfied the MELCC's requirements for the first compliance period.

Figure 1 illustrates the breakdown of credits accumulated by the industry according to their source (manufacturer subject or not subject to the Act, reconditioned vehicle, bonus model year, and so on).

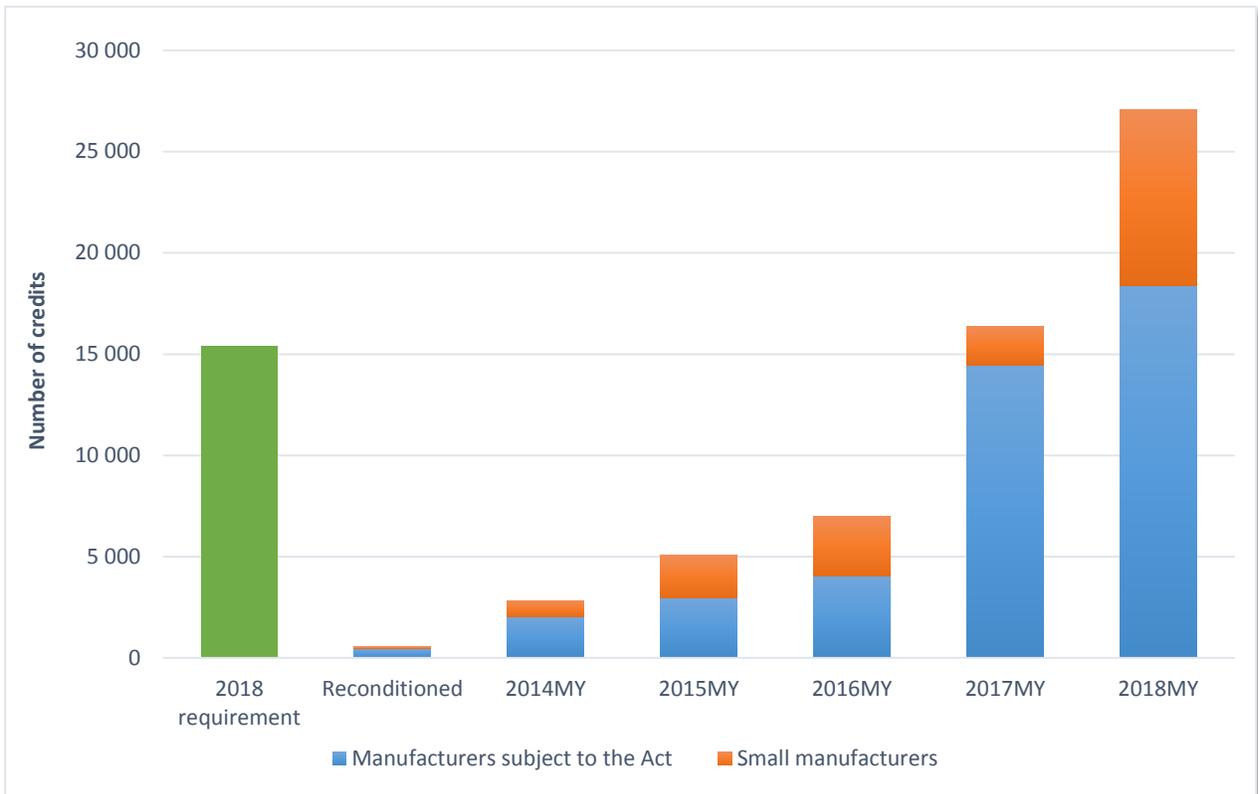


Figure 1: Requirements and source of credits for the first compliance period

FORTHCOMING COMPLIANCE PERIODS

Starting in model year 2019, compliance periods will be three years. The next period will thus cover model years 2019, 2020 and 2021 and reports must be submitted for the three years in September 2022.

The credit targets required of motor vehicle manufacturers are still set for each year by the implementing regulation of the *Act to increase the number of zero-emission motor vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions*. They will increase gradually, to reach 22% for 2025 (Figure 2).

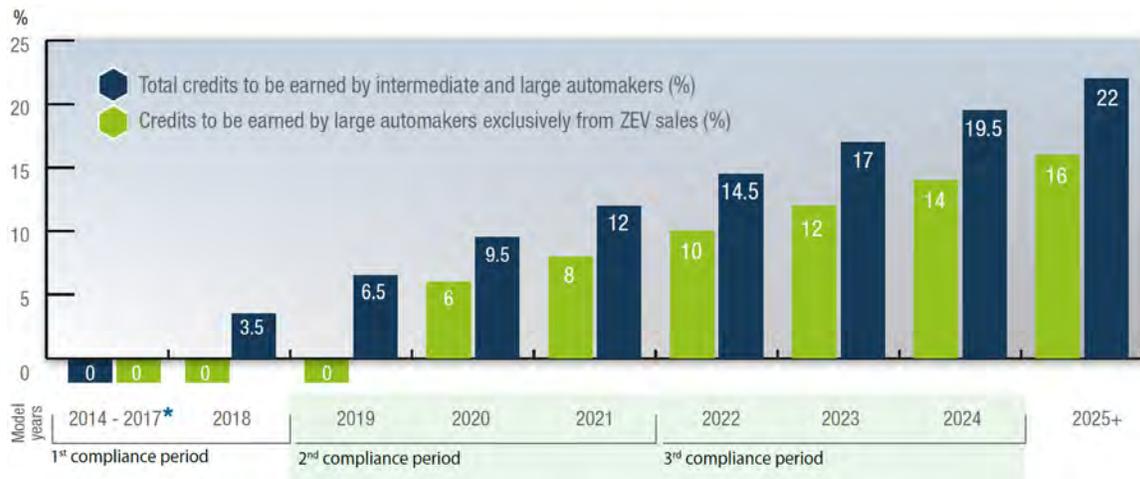


Figure 2: Credit requirements for the next compliance periods

Starting in 2020, large manufacturers will have to accumulate a percentage of credits attributable solely to the sale of zero-emission vehicles (ZEVs). Indeed, from then on, the minimum requirement for credits to be accumulated by the motor vehicle manufacturers subject to the Act will be 9.5%, of which 6% must come solely from the sale of ZEVs in the case of large manufacturers. Québec's requirements will thus echo those in force in California.

For the 2019-2021 compliance period, motor vehicle manufacturers will be able to use their credits accumulated previously to fulfil up to 35% of the requirements for the compliance period under way. Consequently, even if certain motor vehicle manufacturers have accumulated a significant number of credits during the first compliance period, they will still have to acquire at least 65% new credits to satisfy the requirements of the next period.

For the 2022-2024 and subsequent periods, they can use their accumulated credits to attain up to 25% of the credits demanded.

CONCLUSION

As of December 31, 2019, there were slightly more than 66 000 ZEVs and LEVs on Québec roads. All the vehicles are not considered in the review. For example, vehicles from the 2013 and earlier model years did not give entitlement to credits, and credits for vehicles from the 2019 and 2020 model years already sold will be accounted for in the next compliance period. Moreover, some small manufacturers that do not have obligations to satisfy decided to not report their vehicles and to collect credits.

It is difficult to determine the specific impact of the ZEV standard on the entire array of registered vehicles since it is part of a series of tools and measures aimed at promoting the use in Québec of electric vehicles, such as financial incentives, the development of the network of charging stations, the green licence plate and awareness campaigns. However, it is certain that the regulation is beneficial for Québec consumers since it encourages manufacturers to favour Québec over regions that do not maintain a similar system. This is true both for large and intermediate manufacturers, which must fulfil requirements, and for small manufacturers, to which the sale of accumulated credits offers a business opportunity. This will increase the number of vehicles and models available, thus reducing the waiting time to take possession of vehicles. Moreover, it has been noted that 92% of the models now available in California are models that motor vehicle manufacturers report as being available in Québec, compared with only 66% in 2016 when the ZEV Act was adopted.

The gradual increase in the regulatory requirements of the ZEV standard in the coming years will enable Québec consumers to access greater numbers and a broader range of zero-emission or low-emission vehicles, which are the cleanest, most technically advanced on the market. Requirements that are known in advance are also important to enable businesses to adjust their marketing strategies.

Pursuant to the ZEV Act, a report on the implementation of the ZEV standard must be tabled in the National Assembly of Québec in January 2021. This will facilitate exploration of possible solutions to ensure that it remains effective and contributes to Québec's transportation electrification objectives.

GLOSSARY, ACRONYMS AND INITIALISMS

- **ZEV Act:** *Act to increase the number of zero-emission motor vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions*
- **ZEV standard:** zero-emission vehicle standard
- **ZEV regulation:** *Regulation respecting the application of the Act to increase the number of zero-emission motor vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions*
- **MELCC** Ministère de l'Environnement et de la Lutte contre les changements climatiques
- **ZEV:** Zero-emission vehicles, including all-electric vehicles and fuel cell vehicles
- **LEV:** low-emission vehicles, including rechargeable hybrid vehicles and vehicles equipped with a range extender
- **REV:** vehicles equipped with a range extender (as stipulated in the parameters of the ZEV regulation, especially those whose electric range exceeds the range generated by other fuels)

REFERENCES

- The zero-emission vehicle (ZEV) standard
environnement.gouv.qc.ca/changementsclimatiques/vze/index-en.htm
- *Act to increase the number of zero-emission motor vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions*
legisquebec.gouv.qc.ca/en/showdoc/cs/A-33.02
- *Regulation respecting the application of the Act to increase the number of zero-emission motor vehicles in Québec in order to reduce greenhouse gas and other pollutant emissions*
legisquebec.gouv.qc.ca/en/ShowDoc/cr/A-33.02,%20r.%201/
- *Regulation respecting the limit on the number of credits that may be used by a motor vehicle manufacturer and the confidentiality of some information*
legisquebec.gouv.qc.ca/en/ShowDoc/cr/A-33.02,%20r.%202/
- List of new or reconditioned motor vehicles eligible for credits
environnement.gouv.qc.ca/changementsclimatiques/vze/liste-vehicules-admis-en.htm



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