



B.C. Zero-Emission Vehicles Act: Regulations Intentions Paper

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1. Context

Government recently released its CleanBC plan as part of its commitment to stimulating sustainable growth and jobs using clean energy to power B.C.'s economy while driving down greenhouse gas (GHG) emissions. Transportation accounts for 39% of B.C.'s GHG emissions, or 25 million tonnes per year of carbon pollution. The CleanBC plan identified concrete actions to reduce GHG emissions across sectors including a plan to introduce a zero-emission vehicles (ZEV) standard. Budget 2019 has further supported the implementation of CleanBC with increased financial support to complementary demand-side ZEV programs.

The Province fulfilled a CleanBC commitment when it passed the *Zero-Emission Vehicles Act* (ZEV Act) on May 30, 2019. The ZEV Act requires automakers to meet ZEV sales targets reaching 10% of light-duty vehicle sales by 2025, 30% by 2030, and 100% by 2040. The legislation is intended to ensure a greater availability of ZEVs at more affordable prices in B.C., as well as provide a regulatory backstop to ensure the Province's GHG reduction targets are met. With the passage of the legislation, B.C. joined a growing number of jurisdictions with ZEV standards, including Quebec, California, and nine other U.S. states, and became the first jurisdiction in the world to legislate a 100% ZEV target.

2. Discussion

While the ZEV Act provides the overarching framework for the ZEV standard in British Columbia, some of the more technical components will be prescribed by its regulations. This paper outlines the Province's intentions with respect to the ZEV Act regulations, to seek input from stakeholders.

2.1 Who is being regulated?

Vehicle manufacturers, or suppliers, are being regulated. Section 2 of the ZEV Act identifies that a person is a supplier of a vehicle make if that person supplies motor vehicles of the vehicle make for consumer sale or lease in B.C.

Government intends for the ZEV Act and regulations to ensure that compliance is required by suppliers representing 99% of the light-duty vehicle sales market, with 90% of the market having to also provide a certain percentage of battery electric vehicles (BEVs), hydrogen fuel cell vehicles (FCEVs) or extended-range electric vehicles (EREVs). To do this, the ZEV Act provides for the ability to establish different classes of suppliers.

It is proposed that the ZEV regulations:

- *Define the following classes of suppliers based on the average annual sales volumes of the 3 previous consecutive years (e.g. MY 2017-2019 for MY 2020):*
 - *Small – under 1,000 vehicles sold per year on average*
 - *Medium – 1,000-7,999 vehicles sold per year on average*
 - *Large – 8,000+ vehicles sold per year on average*
- *Identify the “small” class of suppliers as the class of suppliers for which certain sections of the ZEV Act (as identified in the ZEV Act) do not apply, unless they opt-in.*

2.2 What kind of vehicles are being regulated?

Together, the ZEV Act and regulation will identify to which motor vehicles the ZEV requirements apply. In CleanBC, the Province identified that the ZEV standard would be applied to the sale or lease of new light-duty vehicles, with the possibility of placing ZEV requirements on additional vehicle classes in the future. The ZEV Act identifies that the Part 2 targets only apply to light-duty motor vehicles. However, it leaves to regulation any additional definition of the vehicles to which the ZEV Act applies.

One key issue to be set by regulation is the definition of light-duty. In Canada and the U.S. light-duty vehicles have a standard meaning - gross vehicle weight ratings (GVWR) equal to or below 3,856 kg. This is mirrored in California's ZEV mandate. Quebec's ZEV legislation includes medium-duty passenger vehicles by placing the weight limit at 4,500 kg.

Other vehicle classes are not being regulated at this time, however, the sale or lease of medium and heavy-duty vehicles is proposed to be eligible for credits under initiative agreements.

It is proposed that the ZEV regulations define the following vehicle class:

- *Light-duty motor vehicle – to mean vehicles and trucks up to and including GVWR 3,856kg.*

In addition, it is proposed that the ZEV regulations ensure the ZEV Act:

- *Include neighbourhood zero emission vehicles;*
- *Exclude motorcycles, golf carts, implements of agriculture, industrial utility vehicles, all-terrain vehicles, off-road side-by-side vehicles, and snowmobiles.*

2.3 What is the compliance and reporting date?

Compliance under the ZEV Act will be assessed each year on the same date. Under Section 17 of the ZEV Act, a model year report is due within a prescribed number of days after the compliance date. California has a May 1st deadline for suppliers to submit their main report, and September 1st to submit any supplemental report. Quebec uses September 1st in the calendar year following the model year of a vehicle make for its compliance date and model year report due date.

It is proposed that the ZEV regulation:

- *Set the compliance date for September 30th in the calendar year following the model year of a vehicle make (e.g. the compliance date for model year 2020 vehicle sales would be September 30, 2021).*
- *Set that the model year reports are due within twenty days after the compliance date for a model year (e.g. the reporting date for model year 2020 vehicle sales would be October 20, 2021).*

2.4 How will model year be defined?

Compliance under the ZEV Act is based on model year. The federal *On-Road Vehicle and Engine Emission Regulation* provides a standard definition for model year in Canada. Section 1 of the ZEV Act provides for the definition of model year to be prescribed by regulation.

It is proposed that ZEV regulation:

- *Define model year using the federal On-Road Vehicle and Engine Emission Regulation definition.*

2.5 ZEV Types

The legislation is designed to ensure B.C. has the cleanest vehicle options so that the Province can meet both the CleanBC emissions and ZEV targets. The purpose of establishing ZEV types is to be able to assign different rules (e.g. regarding credits earned) to each type, as well as to be able to assign each type to a ZEV class. ZEV classes are used so that targets can be set for different ZEV classes.

Section 1 of the ZEV Act defines ZEVs as a motor vehicle that is propelled by electricity or hydrogen from an external source and emits no GHGs at least some of the time. The regulations propose to further categorize types of ZEVs.

It is proposed that the ZEV regulations define the following ZEV types:

Type	Definition	Variation	Range	Applicable Years
Battery Electric Vehicle (BEV)	1. ZEV that is propelled solely by an electric motor powered solely by a battery.	Standard	80.47km minimum	2020-2040
		Short	Less than 80.47km	2020-2040
Hydrogen Fuel Cell Electric Vehicle (FCEV)	1. ZEV that is propelled solely by an electric motor powered solely by a hydrogen fuel cell.	Standard	80.47km minimum	2020-2040
		Short	Less than 80.47km	2020-2040
Extended range electric vehicle (EREV)	1. Capable of plugging into an electricity source. 2. Its drive wheels are always driven solely by electric motor(s), with the on-board internal combustion engine used solely as a generator to charge the batteries.	Standard	121km minimum	2020-2025
			80.47km minimum	2026-2040
		Medium	16km to 121km	2020-2025
		Short	Less than 16km	2020-2025
Less than 80.47km	2026-2040			
Plug-in Hybrid Electric Vehicle (PHEV)	1. Capable of plugging into an electricity source. 2. Can be driven solely using electricity and can be propelled by an electric motor powered by a battery.	Standard	16km minimum	2020-2025
			80.47km minimum	2026-2040
		Short	Less than 16km	2020-2025

			Less than 80.47km	2026-2040
Hydrogen Internal Combustion Engine Vehicles (HICE)	1. Propelled entirely by an internal combustion engine that burns hydrogen.	Standard	16km minimum	2020-2025
			80.47km minimum	2026-2040
		Short	Less than 16km	2020-2025
			Less than 80.47km	2026-2040
Neighbourhood Zero Emission Vehicle (NZEV)	1. As per the <i>Motor Vehicle Act</i> Regulations ¹ : a vehicle that travels on 4 wheels and is powered by an electric motor that is designed to allow the vehicle to attain a speed of 32km/hr but not more than 40 km/hr in a distance of 1.6km on a paved level surface.	n/a	n/a	2020-2040

2.6 ZEV Classes

The purpose of establishing ZEV classes within the ZEV Act and the regulations is to be able to distinguish ZEV unit requirements for different ZEV classes.

It is proposed that the ZEV regulations:

- *Define the following ZEV classes:*
 - *“ZEV Class A” to consist of the following types of ZEVs:*
 - *BEV*
 - *FCEV*
 - *EREV*
 - *“ZEV Class B” to consist of the following types of ZEVs:*
 - *PHEV*
 - *HICE*
 - *EREV – medium*
 - *NZEV*
 - *“ZEV Class C”:*
 - *PHEV-short*
 - *EREV-short*
 - *BEV-short*
 - *HICE-short*
 - *FCEV-short*

¹ http://www.bclaws.ca/civix/document/id/complete/statreg/26_58_01#division_d2e855

2.7 Supply of ZEVs and Compliance Ratios

In order to meet the ZEV sales targets that it identifies, the ZEV Act establishes a ZEV unit system in which suppliers must earn ZEV credits (positive ZEV units) for a model year equal or greater than the ZEV units that will be deducted (as established by the formula in section 11) from their ZEV unit 'account' each year. To be in compliance, the balance of ZEV units in a regulated party's 'account' at the end of every compliance year must be zero or positive, although one grace year is allowed as long as the supplier can make up both ZEV units from the previous year and the current year.

As is the case in California and Quebec, large volume suppliers will also need to meet battery-electric, hydrogen fuel cell-electric or extended range electric vehicle credit levels (i.e. ZEV Class A credit requirements) as part of meeting their ZEV compliance targets. The two requirements are needed because the ZEV Act sets the framework to require certain classes of suppliers to have to accumulate certain types of ZEV units, all set by regulation.

While the ZEV minimum sales targets themselves are identified in the ZEV Act (10% in 2025, 30% in 2030, 100% in 2040), there are several ways that credit requirements could be set to meet those targets. Given that the ZEV Act identifies ZEV sales targets to 2040, and that industry has expressed an interest in having as much advance notice of credit requirements as possible, a schedule of annual compliance ratios is proposed below. California and Quebec have set credit requirements only to 2025.

How many years' notice on compliance ratios is recommended to allow industry to effectively plan for their compliance with the ZEV Act in B.C.? What are the considerations with setting annual targets to 2040, versus some earlier interim period?

The credit requirement framework identified below follows California's model until 2025. In 2026, it proposes that the formula for credit values-per-ZEV switch to a one-credit-per-vehicle formula. This switch is proposed in order to simplify the system by making the credit requirements align with legislated vehicle targets. It is also based on the assumption that the broader ZEV market will have evolved sufficiently to longer-range ZEVs, that there will no longer be a need for the regulation to encourage supply of the longest-range ZEVs. It should be noted that regardless of the credit system used, the overall outcome being pursued is the same, i.e. an increasing % ZEV sales requirement to ensure that the ZEV sales targets in the ZEV Act are met. The intention would be to allow any credit balance in 2025 to be carried forward to 2026 and beyond.

One option under consideration for the compliance ratios, is that the ZEV regulations:

- Identify the large supplier as the class of supplier that has to meet the minimum ZEV Class A % requirement
- Identify the compliance ratios as follows:

Model Year	Total ZEV Compliance Ratio (CR in s.11(1) of ZEV Act)	Minimum ZEV Class A Compliance Ratio (large suppliers only) (CR in s.11(2) of ZEV Act)	Estimated Forecast ZEV Sales % Related to Compliance Ratios
2020	9.5%	6%	5%
2021	12.0%	8%	6%
2022	14.5%	10%	7%
2023	17.0%	12%	8%
2024	19.5%	14%	9%
2025	22.0%	16%	10%
2026	14%	10%	14%
2027	18%	13%	18%
2028	22%	16%	22%
2029	26%	19%	26%
2030	30%	21%	30%
2031	37%	26%	37%
2032	44%	31%	44%
2033	51%	36%	51%
2034	58%	41%	58%
2035	65%	46%	65%
2036	72%	51%	72%
2037	79%	56%	79%
2038	86%	61%	86%
2039	93%	66%	93%
2040	100%	70%	100%

2.8 ZEV Credits from consumer sales

Consumer sales of ZEVs is one of the ways the ZEV Act enables suppliers to accumulate ZEV credits towards their targets. The ZEV Act provides authority for regulations to be made regarding the accumulation of credits from consumer sales. The legislation allows for regulations to specify how many ZEV credits will be received for each ZEV sale.

Both California and Quebec use a standard equation for calculating ZEV credits. Their ZEV targets, however, only go to 2025.

One option under consideration for the credit formulas, is that the ZEV regulations:

- For model years 2020-2025, set the equation to determine ZEV credits per sale as follows:
 - For BEV, FCEV and EREV:
 - Each consumer sale is equal to $(R \times 0.006214) + 0.50$ of ZEV Class A credits
 - ZEV Class A credits earned per ZEV is capped at 4 ZEV credits
 - For PHEV, HICE, EREV-medium:
 - each consumer sale equal to $(R \times 0.006214) + 0.30$ of ZEV Class B credits
 - ZEV credits earned per ZEV is capped at 1.1 ZEV credits
 - Where R = the electric range determined by the US Environmental Protection Agency Light-duty Urban Dynamometer Driving Schedule (UDDS) method provided for in U.S. 40 CFR Appendix I to Part 86²
- For the 2026-2040 timeframe, set the following rules:
 - For BEV, FCEV, EREV with a minimum range of 80.47km, each consumer sale is equal to 1 ZEV Class A credit
 - For PHEV, HICE with a minimum range of 80.47km, each consumer sale is equal to 1 ZEV Class B credit
- Identify that each consumer sale of an NZEV is equal to 0.15 ZEV Class B credits
- Identify that where the result of a calculation above contains more than 2 decimals, it is rounded to the nearest second decimal

2.9 ZEV Credits from Initiative Agreements

Initiative agreements are another compliance pathway where the ZEV Act enables suppliers to accumulate ZEV credits towards their targets. The ZEV Act gives the director, with the approval of the Minister, authority to enter into an agreement to issue credits for actions taken by suppliers to reduce GHG emissions from motor vehicles and increase consumer sales or use of ZEVs in B.C.

It is proposed that the ZEV regulations:

- Specify that the director may only enter into initiative agreements to issue credits for the following actions:
 - Sale or lease of the following types of used ZEVs being sold or leased in B.C. for the first time (i.e. new to B.C.)
 - BEV
 - FCEV
 - EREV
 - EREV-medium
 - PHEV

² <https://www.govinfo.gov/app/details/CFR-2016-title40-vol21/CFR-2016-title40-vol21-part86-app1>

- *Sale of medium duty passenger ZEVs or heavy duty ZEVs, to be defined in the regulations for the purposes of initiative agreements as:*
 - *Medium-duty passenger vehicle – to mean greater than GVWR 3,856kg but less than 4,536kg, and designed to transport people and not equipped with open cargo.*
 - *Heavy-duty vehicle - Class 2B – to mean a class of heavy-duty vehicles that has a GVWR of more than 3,856 kg but not more than 4,536 kg.*
 - *Heavy-duty vehicle - Class 3 – to mean a class heavy-duty vehicle that has a GVWR of more than 4,536 kg but not more than 6,350 kg.*
 - *Heavy-duty vehicle - Class 4 – to mean a class of heavy-duty vehicle that has a GVWR of more than 6,350 kg but not more than 7,257 kg.*
 - *Heavy-duty vehicle - Class 5– to mean a class of heavy-duty vehicle that has a GVWR of more than 7,257 kg but not more than 8,845 kg.*
 - *Heavy-duty vehicle - Class 6– to mean a class of heavy-duty vehicle that has a GVWR of more than 8,845 kg but not more than 11,793 kg.*
 - *Heavy-duty vehicle - Class 7– to mean a class of heavy-duty vehicle that has a GVWR of more than 11,793 kg but not more than 14,969 kg.*
 - *Heavy-duty vehicle - Class 8– to mean a class of heavy-duty vehicle that has a GVWR of more than 14,969 kg.*
- *Identify that the cap on initiative agreement credits that can be earned in a compliance period is 5% of a manufacturer’s total ZEV units’ requirement for the previous model year for each manufacturer*

2.10 ZEV Credits from Purchase Agreements

The ZEV Act provides authority for the creation of regulations respecting purchase agreements.

It is proposed that the ZEV regulations:

- *Specify that the director must consider whether the supplier has no other options for ensuring that their balance at the end of a compliance date does not contain less than zero ZEV units.*
- *Set the purchase agreement price per ZEV unit to the automatic administrative penalty rate + \$500 CAD per ZEV unit.*

2.11 Transfers of ZEV Credits

The ZEV Act provides authority for the creation of regulations respecting transfer of credits between suppliers. Given the authority already provided in the Act, no regulation is contemplated at this time.

2.12 Early issuance for ZEV credits from consumer sales

The ZEV Act provides authority for regulations to be made to prescribe how and when an application for issuance of ZEV credits for consumer sales can be made (i.e. early issuance).

It is proposed that the ZEV regulation:

- *Specify that an application for early issuance of credits in relation to consumer sales can only occur between December 1 and July 31, and only for the period from (and including) January 2 of the calendar year preceding the calendar year of the model year until July 31 of the calendar year after the calendar year of the model year (e.g. for model year 2021, from January 2 of 2020 until July 31, 2022).*

2.13 Monitoring compliance – model year and supplementary reporting

The ZEV Act provides authority for the creation of regulations respecting the timing, form, content and manner of submission of model year and supplementary reports.

It is proposed that the ZEV regulation:

- *Set 20 calendar days after the compliance date (i.e. October 20) as the number of days after the compliance date for a model year that the model year report must be submitted.*
- *Identify that a supplementary report should be provided as an updated model year report and in the form and manner that the director has identified for the model year report.*

2.14 Non-compliance – Automatic and discretionary administrative penalties

The ZEV Act provides authority for the creation of regulations respecting discretionary administrative penalties.

It is proposed that the ZEV regulation:

- *Set the automatic administrative penalty rate at \$5,000 CAD per ZEV unit for all model years, the light-duty vehicle class and all ZEV classes.*
- *Identify discretionary administrative penalties will apply if a supplier fails to: provide a model year or supplementary report; provide written notice as required; retain records as required; provide complete and accurate reports; provide additional information; and/or pay an administrative penalty when it is due.*

3. Providing Input

The Ministry of Energy, Mines and Petroleum Resources requests your written input on this ZEV Act Regulations Intentions Paper by no later than December 3, 2019 to

CEVEnquiries@gov.bc.ca