ZEV Credit Options

For Advanced Clean Cars II and Early Action Credits in Washington's Current Program

By
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For the

Air Quality Program

Washington State Department of Ecology
Olympia, Washington

February 2022

Information

This document is available on the rulemaking web page for Chapter 173-423 WAC and Chapter 173-400 WAC: https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC173-423-400Jan18

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Map of Counties Served

Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400

Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	P.O. Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 West Alder Street Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 North Monroe Spokane, WA 99205	509-329-3400
Headquarters	Statewide	P.O. Box 46700 Olympia, WA 98504	360-407-6000

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List of Acronyms

ACC I	Advanced Clean Cars I
ACC II	Advanced Clean Cars II
BEV	battery electric vehicle
BEVx	battery electric vehicle with a range extending internal combustion engine
CARB	California Air Resources Board
Ecology	Washington State Department of Ecology
EV	electric vehicle
FCEV	hydrogen fuel cell electric vehicle
IIJA	Infrastructure Investment and Jobs Act
MY	model year
NEV	neighborhood electric vehicle
PHEV	plug-in hybrid electric vehicle
AT PZEV	advanced technology partially zero emission vehicle
SUV	sport utility vehicle
TZEV	transitional zero emission vehicle
ZEV	zero emission vehicle

Executive Summary

For this evaluation of credit options to ensure a continued robust zero emission vehicles (ZEV) market in Washington, the Washington State Department of Ecology (Ecology) reviewed the credits offered by other recent ZEV states, Washington's ZEV market share compared to those states, current ZEV sales trends and market share in Washington, projections and forecasts of future ZEV sales nationally, projected future ZEV sales and market share in Washington, and projected credit availability in Washington from ZEV sales for MY 2025 through MY 2030. We then evaluated five options for credit offerings in Washington.

Ecology developed policy goals for the ZEV credit options and is requesting stakeholder feedback on how the five options achieve those goals. Ideally, the preferred credit option should:

- Provide credits in Washington to level the reliance on banked credits for compliance between model years 2026 and 2030
- Provide an incentive for ZEV delivery to Washington before model year 2025
- Support automakers that have invested in ZEV technology
- Prevent rewarding an automaker at the expense of another
- Maximize the number of ZEVs deployed in Washington
- Maximize reductions in criteria pollutants – nitrogen oxides (NOx) and fine particles (PM2.5) – and greenhouse gas emissions

Ecology evaluated five ZEV credit options.

Option 1: Provide automakers the number of credits proportional to their credits in California's credit bank

Option 2: Provide automakers the number of credits proportional to their credits in California's credit bank, adjusted for more robust ZEV sales in Washington as compared to other ZEV states

Option 3: Adopt the ACC II rule with its proposed flexibilities with no additional pre-established credit bank under ACC I

Option 4: Allow automakers to generate action credits for ZEV sales for MY 2023 and MY 2024, i.e., during the two years before the ZEV program begins in Washington

Option 5: Combination option of proportional credits and early action credits

- Option 5a: Option 4 and Option 1
- Option 5b: Option 4 and Option 2
- Option 5c: Option 4 and Option 3

Table 1. Summary of Credit Options

Option	Potential Proportional Credits	Potential Early Action Credits	Total Credits
Option 1	283,530.56	0.00	283,530.56
Option 2	150,271.19	0.00	150,271.19
Option 3	0.00	0.00	0.00
Option 4	0.00	247,843.20	247,843.20
Option 5a	283,530.56	247,843.20	531,373.76
Option 5b	150,271.19	247,843.20	398,114.39
Option 5c	0.00	247,843.20	247,843.20

Introduction

Ecology in November 2021 adopted the California ZEV requirement into Chapter 173-423 WAC to require automakers delivering light-duty vehicles for sale in Washington to make a certain percentage of those vehicles ZEVs. ZEVs can include battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV), or hydrogen fuel cell electric vehicles (FCEV). In adopting this rule, Ecology opted not to offer proportional or early action credits to automakers, due to current robust sales of ZEVs in the state. The current California ZEV rule, known as Advanced Clean Cars I (ACC I), requires ZEV sales to increase annually up to 22% for model year (MY) 2025, which is the first year that the rule will become enforceable in Washington. MY 2025 vehicles will become available in Washington in calendar year 2024.

In December 2021, the California Air Resources Board (CARB) released a draft Advanced Clean Cars II (ACC II) rule, which would extend the ZEV program to MY 2035. Also in this draft, CARB proposed a number of changes to the credit system by which automakers attain compliance with the program. The current CARB credit system offers between 0.5 to 4.0 credits per vehicle, depending on powertrain (BEV, PHEV, or FCEV), all-electric range, and other factors. One important change proposed for the CARB credit system is that vehicles would receive a maximum of 1.0 credit, converting the annually increasing ZEV credit percentage requirement into an actual sales percentage, rather than a credit percentage. The actual sales percentage will continue from MY 2026 to MY 2035, when it requires 100% ZEVs (see Figure 1).

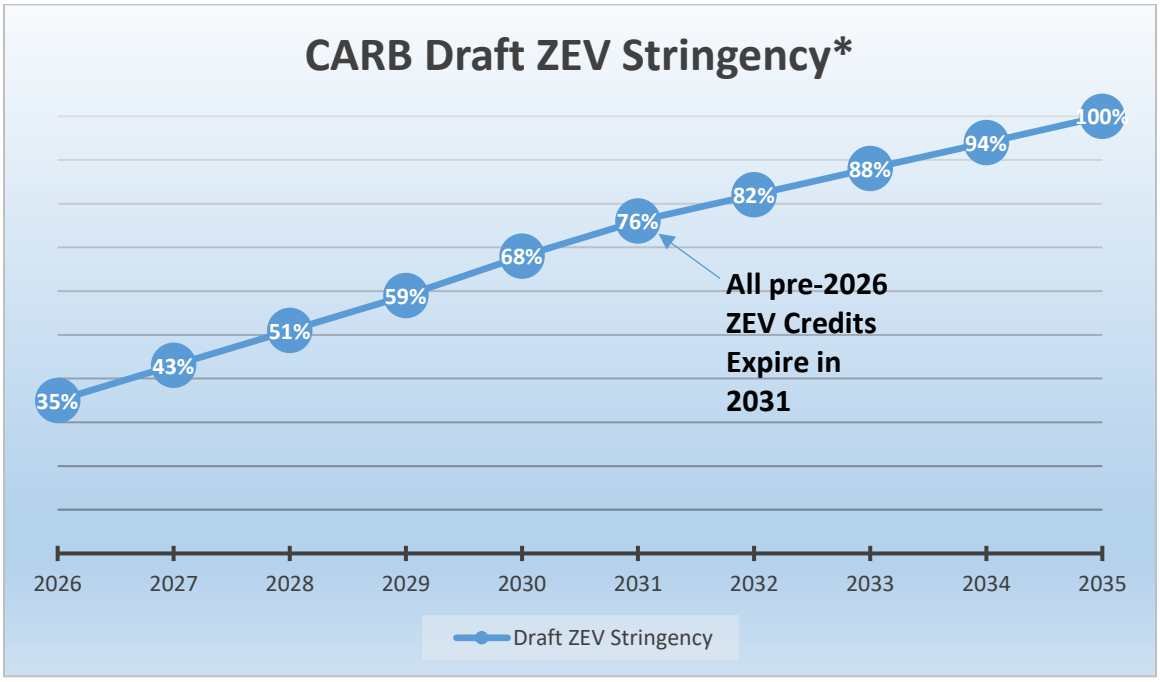

Figure 1. CARB Draft ZEV Stringency
*Note: Draft numbers as of 2/8/2022, final numbers subject to change
Source: CARB, Draft Zero Emission Vehicle Regulation 1962.4

CARB anticipates that automakers would use banked credits to ease the transition from a credit percentage to a sales percentage requirement for MY 2026-2030. All historical (pre-2026) credits would expire in MY 2031, resulting in a ZEV requirement that reflects actual sales percentages from MY 2031-2035. However, Washington's ZEV program did not allocate a bank of proportional credits to automakers when it was adopted in November 2021 and is not currently offering early action credits. As a result, there will be no banked credits in Washington's ZEV program to smooth the transition to the new credit system for MY 2026 and beyond, so it is reasonable to assume that some automakers may face challenges in meeting the ZEV requirements in Washington for MY 2026-2030 more than they might in California and other states.

Ecology is evaluating possible credit options for Washington. To do this, we first look at what was offered by other states that have recently adopted the ZEV program, then review recent ZEV sales data for Washington and these other states. We then review recent automaker announcements for ZEV commitments and investments, market forecasts of ZEV market penetration, and other relevant data to evaluate the potential future market for electric vehicles in Washington and compare that to the expected annual ZEV stringency being proposed by CARB. The results of that evaluation shape the potential credit options that we present as mechanisms to facilitate a smooth transition to more stringent ZEV requirements and help support robust automaker compliance with Washington's program through the transition to 100% ZEV vehicle sales.

Examples from Other States

CARB first adopted a ZEV program in 1990 and amended it several times through 2009, when the current ZEV program and credit system were established. Nine other states adopted the California ZEV program by 2009. Automakers began accruing ZEV credits in those states shortly thereafter, and have continued to accrue large banks of credits to the present day.

Recently, several new states, Colorado (adopted in 2019), Washington (2020), Minnesota (2021), Nevada (2021), and Virginia (2021), have adopted the California ZEV program and have developed a variety of solutions to address automaker credits. Since these states came into the program later, automakers there did not have the 10+ years of accrued credits that they currently have in the early adopter states. All of the other recent-adopter states, besides Washington, gave automakers either proportional credits (an amount proportionate to the automaker's California credit bank, adjusted for state size) or early action credits (for selling ZEVs in the state before the rules take effect), or both. Regulatory text describing the credit offerings from the four recent-adopter states besides Washington can be found in Appendix A.

Three of the recent-adopter states offered automakers proportional credits, plus early-action credits, with no restrictions on the use of those credits. Colorado took a different approach, offering two choices for automaker credits. One option offers proportional credits that can be used to meet up to 36% of the automakers ZEV credit obligation each year (MY 2023-2025), but no early-action credits. The other option offers proportional credits that can be used to meet up to 23% of the automakers ZEV credit obligation each year (MY 2023-2025), but also offers early-action credits for the two model years before the regulation went into effect in the state (MY 2021-2022). These credit offerings are summarized in Table 2.

Table 2. Summary of Credits Offered by Recent Adopter ZEV States

State	Proportional Credits	Early Action Credits
Colorado – Option 1	Yes – Full Usage Limited to 36%	No
Colorado – Option 2	Yes – Full Usage Limited to 23%	Yes
Washington	None	No
Minnesota	Yes – Full	Yes
Nevada	Yes – Full	Yes
Virginia	Yes – Full	Yes

It should be noted that ZEV sales in each of the other recent-adopter states are substantially lower than ZEV sales in Washington. For instance, for MY 2020, Colorado's ZEV sales were the highest among the four at 3.8% of their total new light-duty vehicles sales, according to data obtained from Atlas EV Hub[1]. Similarly, ZEV sales were 1.6% in Minnesota, 2.9% in Nevada, and 2.0% in Virginia for MY 2020. By contrast, Washington's ZEV sales for MY 2020 were 5.1%, while

[1] https://www.atlasevhub.com/materials/automakers-dashboard/

California saw ZEV sales for MY 2020 of 7.9% of all new light-duty vehicle sales. Nationally, ZEV sales for MY 2020 were 2.2% of all new light-duty vehicle sales, according to Atlas EV Hub data (see Table 3 below).

Table 3. State ZEV Sales Market Share for MY 2020

State	MY 2020 ZEV Market Share (%)
California	7.9
Colorado	3.8
Minnesota	1.6
Nevada	2.9
Virginia	2.0
Washington	5.1
Nationally	2.2

Source: Atlas EV Hub Automaker Dashboard

Current ZEV Sales in Washington and Other States

Washington has seen strong ZEV sales over the past several years, even before the state's ZEV mandate has taken effect. Among all states, Washington has consistently been ranked second in the nation for ZEV market share, coming in behind only California. This fact was a primary reason why Washington decided not to offer proportional or early-action credits to automakers when adopting ZEV rules in November 2021. For more information on these decisions, refer to the Concise Explanatory Statement for the 2021 rulemaking.[2]

Nationally, ZEV sales growth was relatively flat at around 1-2% through the late 2010s, but started to rapidly accelerate beginning in the 3rd Quarter of 2020. By the 3rd Quarter of 2021, ZEV sales had reached a 5.0% market share nationally, more than double that of the same quarter of the previous year. ZEV national market share declined in the 4th Quarter, mostly due to component shortages and supply chain issues.

In Washington, the ZEV sales market share in the 3rd Quarter of 2021 reached 8.6%, up from 4.8% in the same quarter of 2020, before hitting 11.1% for the 4th Quarter 2021. For comparison to the previously discussed states, the 4th Quarter 2021 ZEV sales market share was 16.7% in California, 7.6% in Colorado, 3.4% in Minnesota, 9.8% in Nevada, and 5.2% in Virginia (Table 4). Full year 2021 ZEV market share was slightly lower, demonstrating the increasing market share for ZEVs as 2021 progressed.

Table 4. State ZEV Sales Market Share for Q3 2021, Q4 2021, and Full Year 2021

State	Q3 2021 (%)	Q4 2021 (%)	Full Year 2021 (%)
California	13.9	16.7	12.6
Colorado	7.0	7.6	6.0
Minnesota	3.3	3.4	2.9
Nevada	6.6	9.8	5.6
Virginia	4.4	5.2	3.8
Washington	8.6	11.1	7.7
Nationally	5.0	3.6	3.9

Source: Atlas EV Hub Automaker Dashboard

As shown in Figure 2 below, ZEV sales in Washington have been consistently gaining market share over the past couple of years, achieving 5.1% market share in 2020 and 7.7% market share in 2021. The figure shows the dip in the 2nd and 3rd Quarters of 2020 that resulted from the economy-wide shutdowns due to the COVID-19 pandemic. As of the end of 2021, Washington had more than 87,000 ZEVs on the roads.

[2] This document can be downloaded from: https://apps.ecology.wa.gov/publications/SummaryPages/2102030.html

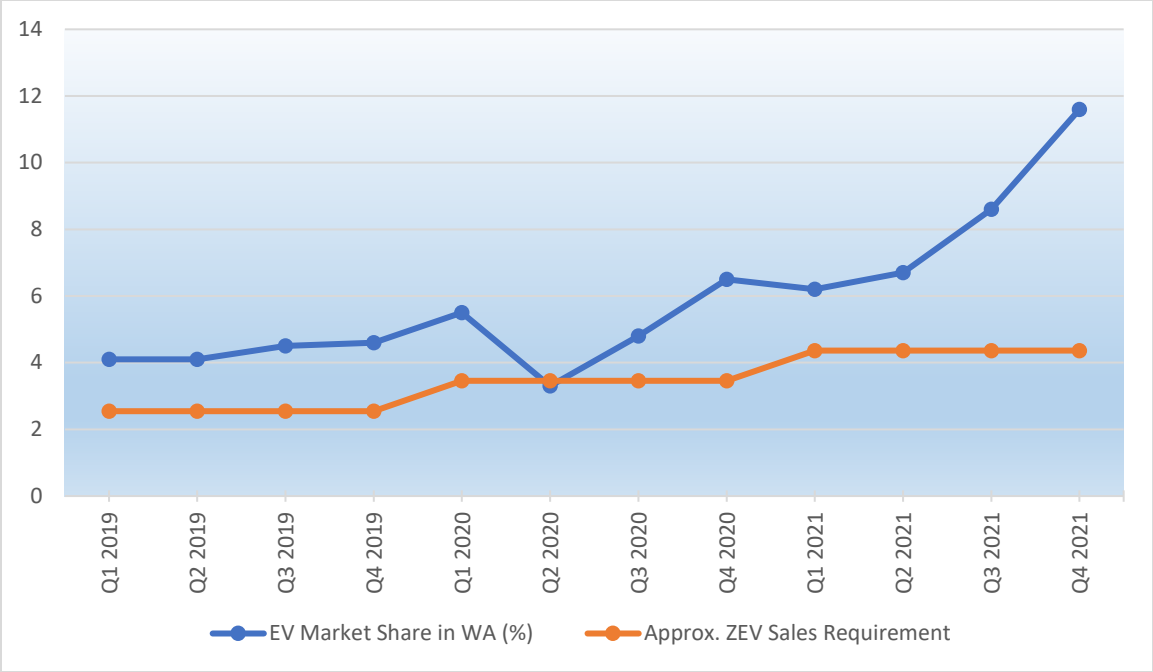

Figure 2 EV Market Share in Washington
Source: Atlas EV Hub Automaker Dashboard

Projected Future ZEV Sales Nationally

Looking forward, it is difficult to predict precisely how many ZEVs will be sold in any given year, but some estimates can be made based on standard assumptions, as well as past and current trends. Additionally, several market analysis firms have made future estimates for ZEV sales and ZEV market share.

Over the past decade, automakers have invested billions of dollars[3] in developing electric powertrains and have worked in recent years on developing production capacity to meet the ever-increasing demand for electric vehicles. Each year, they have introduced more ZEV models in more vehicle segments and price points, a trend which is expected to rapidly accelerate starting in 2022. An analysis by the Electric Power Research Institute[4] shows that the number of electric vehicle models offered in the US is expected to increase from 62 in 2021 to 100 in 2022 (Figure 3) and continue increasing to 146 models by 2025. These offerings include more of the highly popular sport utility vehicles (SUV) and pickup trucks, along with commitments from the automakers to produce these vehicles in large volumes. These new offerings will help to increase ZEV market penetration in these popular segments.

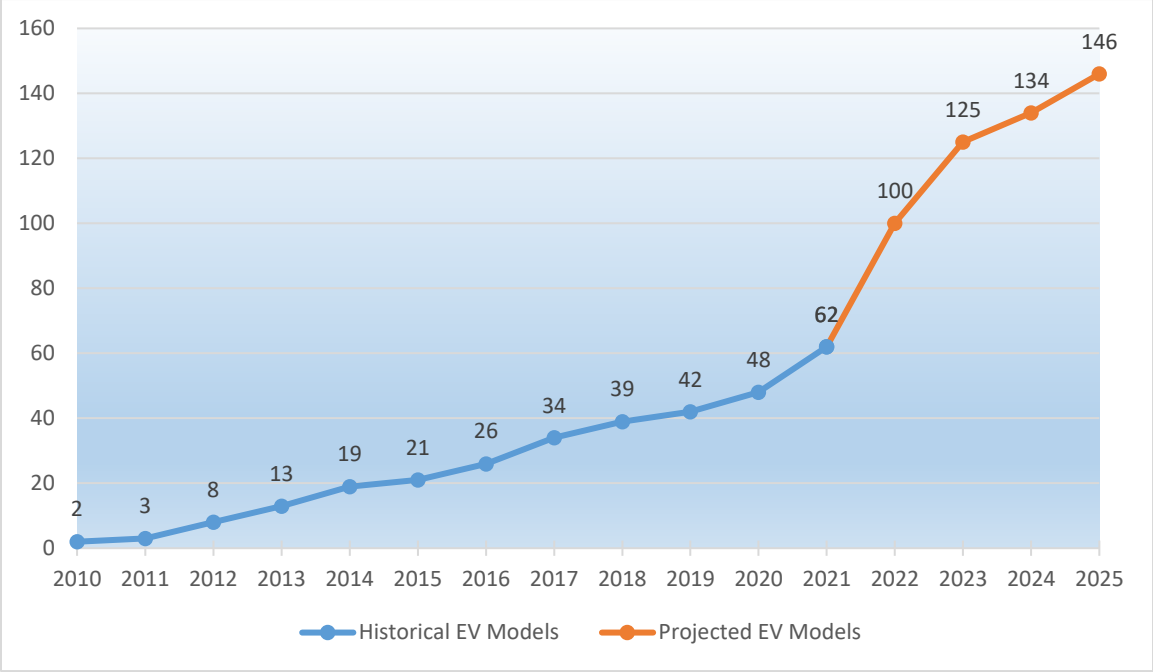

Figure 3. Total Number of Electric Vehicle Models in the US Market (BEV, PHEV, & FCEV)
Source: Electric Power Research Institute and The Morning Consult

Several market research firms have published forecasts for nationwide EV sales over the next decade or more. These forecasts are based on a variety of factors and include numerous

[3] https://www.reuters.com/business/autos-transportation/gm-sees-2022-operating-profit-13-bln-15-bln-2022-02-01/
[4] https://morningconsult.com/2021/12/22/electric-vehicles-consumers-2022/

assumptions for future EV availability and sales. Most estimates were made prior to the start of the COVID-19 pandemic, which coincided with a greatly accelerated uptake of EVs throughout the country. Numerous forecasts of EV market penetration were published in 2019 and early in 2020 by PwC, LMC Automotive, IHS Markit, Wood Mackenzie, Bloomberg New Energy Finance, and the U.S. Energy Information Administration, among others. These forecasts vary widely, ranging from 8%-20% of new, light-duty vehicle sales in 2025, 24%-35% in 2030, and 38%-75% in 2040. Again, these are pre-pandemic forecasts that do not take into account the expanded public awareness and acceptance of EVs that occurred during the pandemic. The forecasts also do not account for the increased sales and market penetration of EVs observed during 2020 and 2021, resulting from both this expanded awareness and acceptance, as well as more affordable new model availability and the first available models in the highly-desirable larger sport utility vehicle (SUV) and pickup truck segments. Therefore we would anticipate that these are conservative estimates that underestimate future ZEV market penetration.

Automakers have also been increasing production volumes for many desirable EVs, including the Ford F-150 Lightning, which has seen Ford nearly double expected production volumes twice, from an initial volume of 40,000 trucks per year when first introduced in 2020, to 80,000 trucks, then again to 150,000 trucks. The increased production volumes have resulted from stronger than anticipated demand for these vehicles, including 200,000 preorders for the F-150 Lightning. Similarly, GM announced in January 2022 massive investments in battery factories and EV assembly plants will allow it to produce 600,000 electric pickup trucks and 1 million total EVs per year by 2025.

Pre-pandemic market forecasts also do not account for the increased focus on EVs and EV charging stations by the Biden Administration, relative to previous administrations. On August 5, 2021, the Biden Administration and several major US automakers declared a nationwide goal of 40%-50% EV market share by 2030. Further, in November 2021, President Biden signed the Infrastructure Investment and Jobs Act (IIJA) into law, which allocates $7.5 Billion to build up to 500,000 EV charging stations throughout the country. In addition, the proposed Build Back Better Act, if passed, would allocate billions of dollars of additional funding for EV charging stations, EV rebates and tax credits, and other measures designed to expand the market share for EVs and, eventually, transition the transportation sector to an all zero-emission future.

Projected Future ZEV Sales in Washington

Taking all of these market, funding, and political developments into account, it appears EV market penetration is clearly moving more quickly now than compared to pre-pandemic estimates and will likely continue to accelerate throughout the remainder of this decade. Based on these factors, as well as a number of assumptions about the Washington vehicle market, Ecology has projected the EV market share in the state through 2035, assuming that the CARB standards requiring 100% of the light-duty vehicle market to be electric are in effect. As can be seen in Figure 4, below, the projected EV market share in Washington is expected to be similar to the proposed CARB standard for each year through 2035.

It should be noted that the projected EV market share is the aggregate total of sales by all automakers required to meet the ZEV standards and does not reflect the compliance scenario of any single automaker. Some automakers will over-comply with the standard for a given year, generating credits, and some automakers will under-comply with the standard for a given year, generating deficits that they will need to make up by purchasing credits from over-complying automakers.

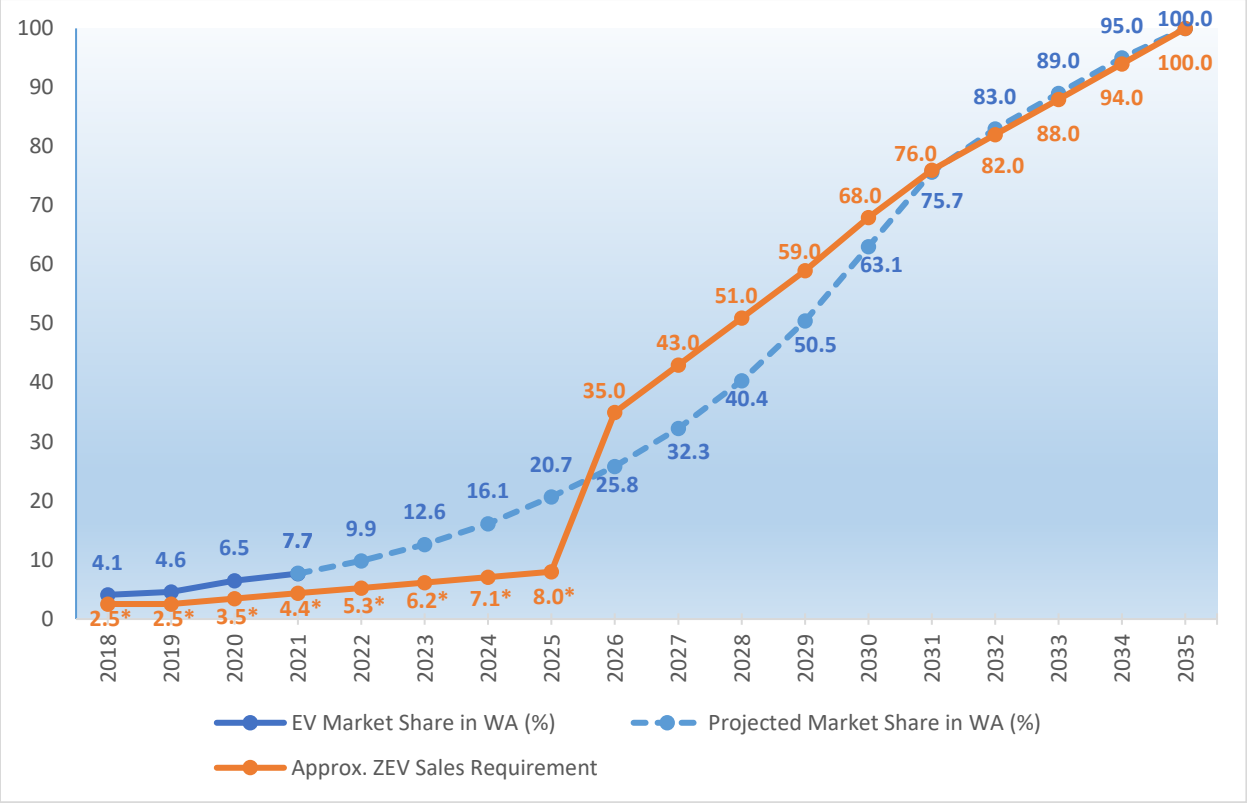

Figure 4. Projected EV Market Share in Washington

*NOTE: The ZEV standard for 2018-2025 is a credit percentage based on multiple credits offered per vehicle. Proposed changes to the credit system in 2026 would offer only a single credit per vehicle, resulting in a more direct sales percentage requirement for the ZEV standard. The standards shown for 2018-2025 have been adjusted to approximate a sales percentage to maintain consistency throughout the chart.

Based on the projected EV market share in Washington, Ecology calculated the credits that would be earned by all automakers for MY 2025 through MY 2030 and compared that to the total number of credits needed for full program compliance. Results are shown in Table 5, below. Credits for MY 2025 would be awarded based on the current ACC I allocation, which currently averages 3.2 credits per vehicle. From MY 2026 through MY 2030, the credit system will be based on the final ACC II rule, which is currently proposing only one credit per vehicle. As shown in Table 5, sufficient credits would be generated by automakers in the first year of the Washington ZEV program to cover the statewide compliance obligation for MY 2026 through MY 2029. Projections for MY 2030 show another year of over compliance with the program as EV market share continues to increase.

Table 5. Projected ZEV Sales and Credits in Washington – MY 2025 through MY 2030

Model Year	All New Light Duty Sales	% EVs	New Light Duty EV Sales	Credits Earned	ZEV Mandate (%)	Credits Needed	Yearly Over/Under Compliance	Running Total
2025	289,406	20.7	59,907	191,702	22.0	63,669	128,033	128,033
2026	303,877	25.8	78,400	78,400	35.0	106,357	-27,957	100,077
2027	319,070	32.3	103,060	103,060	43.0	137,200	-34,141	65,936
2028	335,024	40.4	135,350	135,350	51.0	170,862	-35,513	30,424
2029	351,775	50.5	177,646	177,646	59.0	207,547	-29,901	523
2030	369,364	63.1	233,069	233,069	68.0	251,168	-18,099	-17,576

Credit Options for Automaker Compliance

Ecology expects automakers in Washington to generate sufficient credits from ZEV sales in MY 2025 to cover some of the projected annual deficits starting in MY 2026, but would exhaust their credit banks and result in deficits starting in MY 2030.

California's new rule will allow historical ACC I credits to be used for MY 2026 through MY 2030. Credits earned under ACC I (through MY 2025) will expire starting with MY 2031. From MY 2031 onward, automakers will be required to meet the ZEV mandate mostly with actual vehicle sales each year, although EV sales in excess of the requirement will generate credits that can be used in later years to ease compliance. We are evaluating five options to maximize program goals in Washington and ensure robust compliance by automakers. Options range from full proportional credits, similar to what was offered by other states, to no proportional credits. Additionally, Washington is considering offering early action credits for ZEV sales prior to our program starting with MY 2025. Each option is briefly summarized below and discussed in the following sections.

- **Option 1 – Full proportional credits** – would provide automakers the number of credits proportionate to their credits in California's credit bank.
- **Option 2 – Adjusted proportional credits** – would provide a smaller number of proportional credits based on the more robust ZEV sales market in Washington as compared to other recent ZEV states.
- **Option 3 – No Additional ACC I credits** – would adopt the ACC II rule with its proposed flexibilities with no additional pre-established credit bank under ACC I.
- **Option 4 – Early action credits** – would provide early action credits for ZEV sales for MY 2023 and MY 2024.
- **Option 5a – Combination of Option 4 and Option 1**
- **Option 5b – Combination of Option 4 and Option 2**
- **Option 5c – Combination of Option 4 and Option 3**

Option 1 – Full Proportional Credits

Option 1 would provide automakers the number of credits proportionate to their credits in California's credit bank.

To determine how many credits to provide to an automaker, Washington would adjust credits in their California ZEV credit account by a factor of 0.151[5] to account for the ratio of new vehicle sales in Washington compared to California. There are approximately 1.88 million credits in California's bank (based on MY 2020 data). Option 1 provides approximately 283,500 credits to automakers. Table 6 presents the breakdown of credits by automaker and type of credit followed by an explanation of the types of credits and their spending rules.

Table 6. Manufacturer ZEV Credits under Option 1 – Full Proportional Credits Scenario

Manufacturer	ZEV (BEV & FCEV)	BEVx	TZEV (PHEV)	NEV+	Discount AT PZEV & PZEV	Option 1 Credits
BMW	2,317.98	4,901.55	143.16	0.00	0.00	7,362.69
Fiat Chrysler (Stellantis)	12,635.57	0.00	0.00	0.00	0.00	12,635.57
Ford	6,888.63	0.00	10,527.98	721.46	521.25	18,659.32
GM	27,814.89	0.00	18,630.10	245.44	0.00	46,690.43
Honda	6,200.82	0.00	1,983.44	1,249.43	154.12	9,587.81
Hyundai	2,049.77	0.00	203.47	0.00	210.29	2,463.53
Jaguar Land Rover	1,156.98	0.00	55.00	0.00	0.00	1,211.98
Kia	2,231.48	0.00	506.04	0.00	538.16	3,275.68
Lightning Systems	11.89	0.00	0.00	0.00	0.00	11.89
Mazda	52.40	0.00	0.00	0.00	0.00	52.40
Mercedes Benz	2,530.34	0.00	361.36	0.00	0.00	2,891.70
Miles	0.00	0.00	0.00	0.78	0.00	0.78
Mitsubishi	217.29	0.00	192.62	0.00	55.43	465.34
Nissan	9,242.54	0.00	0.00	0.00	0.00	9,242.54
Subaru	7,590.73	0.00	0.00	12.94	0.00	7,603.67
Tesla	113,619.25	0.00	0.00	0.00	0.00	113,619.25
Toyota	28,243.88	0.00	4,173.97	0.00	6,001.18	38,419.03
Volkswagen	8,242.77	0.00	497.43	0.00	0.00	8,740.20
Volvo	0.00	0.00	366.87	0.00	178.92	545.79
Zenith	9.44	0.00	0.00	0.00	0.00	9.44
Zipcar	0.00	0.00	0.00	0.00	41.55	41.55
TOTALS	231,056.63	4,901.55	37,641.43	2,230.04	7,700.91	283,530.56

[5] Washington sales (295,582) divided by California sales (1,959,243) = 0.151

Description of Credits and Spending Rules:

- **ZEV** = zero-emission vehicle (fuel cell and battery electric); can be used for both ZEV and TZEV requirements.
- **BEVx** = range extended battery electric vehicle; BEVx credits can be used for up to 50% of the manufacturer's ZEV credit requirement. BEVx credits can also be used toward meeting the manufacturer's TZEV requirement.
- **TZEV** = transitional zero-emission vehicle (plug-in hybrid electric vehicles); can be used for up to 3.5% of a large volume manufacturer's 2020 compliance requirement of 9.5% or for all of an intermediate volume manufacturer's 2020 compliance requirement of 9.5%.
- **NEV** = neighborhood electric vehicle; NEV credits may be used to satisfy up to 25% of the portion of a manufacturer's requirement that can be met with credits from TZEVs.
- **Discount AT PZEV and PZEV** = conversion of advanced technology partial zero-emission vehicle (clean hybrids) and partial zero-emission vehicle (clean gasoline) credits per 1962.1(g)(2)(f). Discount credits may be used to satisfy up to 25% of the portion of a manufacturer's requirement that can be met with credits from TZEVs. If a manufacturer has both NEV and discount credits, the combined usage of these two types of credit categories toward meeting the manufacturer's TZEV requirement may not exceed 25% (i.e., no stacking).

Discussion

Option 1 would allocate a little more than 283,500 credits to automakers for use through MY 2030. This amount of credits would satisfy 100 percent of all automakers' ZEV sales obligations for MY 2025 through MY 2027, even without any actual ZEV sales.

CARB is considering a cap on the use of historical credits (pre-MY 2026), for use from MY 2026 through MY 2030. The proposed 15% cap would allow automakers to use banked credits to satisfy 15% of their annual credit obligation. Assuming a cap of 15% is finalized in the rule, the full proportional credits allocated under Option 1 would satisfy the full 15% of automakers' aggregate ZEV sales obligations for MY 2025 through MY 2030, though some automakers would need to purchase credits from other automakers. California is proposing that remaining historical credits would expire in 2031.

Questions

Ecology is requesting comments from stakeholders on Option 1. Please provide comments on these questions:

- Should Ecology offer full proportional credits to automakers as described in Option 1?
- Should Ecology consider a different cap on credits, similar to the approach taken by Colorado?
- What size cap should that be?

Option 2 – Adjusted Proportional Credits

Option 2 would provide a smaller number of proportional credits based on the more robust ZEV sales market in Washington as compared to other recent ZEV states (Colorado, Minnesota, Nevada, and Virginia).

To determine how many credits to provide to an automaker, Washington would adjust credits in each California ZEV credit account by a factor of 0.53 to account for the ratio of new vehicle sales in Washington compared to other ZEV states. Table 7 presents the breakdown of credits by automaker and by type of credit under Option 2. Option 2 would allocate just over 150,000 total credits to automakers.

Table 7. Manufacturer ZEV Credits under Option 2 – Adjusted Proportional Credits Scenario

Manufacturer	ZEV (BEV & FCEV)	BEVx	TZEV (PHEV)	NEV+	Discount AT PZEV & PZEV	Option 2 Credits
BMW	1,228.53	2,597.82	75.87	0.00	0.00	3,902.22
Fiat Chrysler (Stellantis)	6,696.85	0.00	0.00	0.00	0.00	6,696.85
Ford	3,650.97	0.00	5,579.83	382.37	276.26	9,889.43
GM	14,741.89	0.00	9,873.95	130.08	0.00	24,745.92
Honda	3,286.43	0.00	1,051.22	662.20	81.68	5,081.53
Hyundai	1,086.38	0.00	107.84	0.00	111.46	1,305.68
Jaguar Land Rover	613.20	0.00	29.15	0.00	0.00	642.35
Kia	1,182.68	0.00	268.20	0.00	285.23	1,736.11
Lightning Systems	6.30	0.00	0.00	0.00	0.00	6.30
Mazda	27.77	0.00	0.00	0.00	0.00	27.77
Mercedes Benz	1,341.08	0.00	191.52	0.00	0.00	1,532.60
Miles	0.00	0.00	0.00	0.41	0.00	0.41
Mitsubishi	115.16	0.00	102.09	0.00	29.38	246.63
Nissan	4,898.55	0.00	0.00	0.00	0.00	4,898.55
Subaru	4,023.09	0.00	0.00	6.86	0.00	4,029.95
Tesla	60,218.20	0.00	0.00	0.00	0.00	60,218.20
Toyota	14,969.26	0.00	2,212.20	0.00	3,180.63	20,362.09
Volkswagen	4,368.67	0.00	263.64	0.00	0.00	4,632.31
Volvo	0.00	0.00	194.44	0.00	94.83	289.27
Zenith	5.00	0.00	0.00	0.00	0.00	5.00
Zipcar	0.00	0.00	0.00	0.00	22.02	22.02
TOTALS	122,460.01	2,597.82	19,949.96	1,181.92	4,081.48	150,271.19

Discussion

Option 2 would allocate a little more than 150,000 credits to automakers for use through MY 2030. This amount of credits would be sufficient to satisfy 100% of all automakers' ZEV sales obligations for MY 2025 and MY 2026, even without any actual ZEV sales. Assuming a cap of

15% for historical credit usage, the partial proportional credits allocated under Option 2 would satisfy the full 15% of all automakers ZEV sales obligations for MY 2025 through MY 2030.

Questions

Ecology is requesting comments from stakeholders on Option 2. Please provide comments on these questions:

- Should Ecology offer proportional credits adjusted for Washington's more robust ZEV market?
- Is there a better way to adjust proportional credits for Washington?

Option 3 – No Additional ACC I Credits

Option 3 would simply adopt ACC II as written and not provide any additional credits under ACC I. Automakers would still bank credits from ZEV sales for MY 2025 under ACC I, but would not be provided a credit bank of proportional credits.

Discussion

In the ACC II draft rule, CARB is proposing a number of flexibilities that automakers could use to achieve compliance during the transition period from MY 2026 through MY 2030. These include environmental justice credits, limited pooling or transfer of credits between ZEV states, and early action credits for ZEV sales above the standard in MY 2024 and MY 2025. These flexibilities increase the likelihood that automakers will be able to comply with the standard.

Questions

Ecology is requesting comments from stakeholders on Option 3. Please provide comments on these questions:

- Should Ecology adopt ACC II with no provisions for additional credits under ACC I as described in Option 3?
- Does CARB's ACC II rule provide enough flexibilities for automakers to achieve compliance without a pre-established credit bank?

Option 4 – Early Action Credits Only

Option 4 would provide early action credits for ZEV sales for MY 2023 and MY 2024. An early action credit is a credit for a ZEV sale before the ZEV compliance period starts with MY 2025.

Discussion

Offering early action credits provides an incentive to automakers to make EV models available in Washington for the two years before the start of our ZEV program. Without the ability to generate credits during this period, some automakers may choose to send EVs to states that offer credits because they must meet their compliance obligation. Washingtonians would have to go to other states to purchase some of the most popular ZEVs. This option removes the disincentive for an automaker to deliver a ZEV to Washington prior to MY 2025.

Automakers sold a little more than 20,000 EVs (BEV & PHEV) in Washington in calendar year 2021, according to Department of Licensing data. We estimate sales of 33,075 EVs for MY 2023 and 44,376 EVs for MY 2024 that could generate early action credits. Assuming the 2020 average of 3.2 credits per vehicle, according to CARB data, these EVs would generate approximately 247,800 early action credits that automakers could use to ease compliance with Washington's ZEV program starting with MY 2025.

Option 4 would provide the opportunity for automakers to generate nearly 248,000 credits for use through MY 2030. This amount of credits would be sufficient to satisfy 100% of all automakers' ZEV sales obligations for MY 2025, MY 2026 and most of MY 2027, even without any actual ZEV sales. Assuming a cap of 15%, the early action credits generated under Option 4 would satisfy the full 15% of all automakers ZEV sales obligations for MY 2025 through MY 2030.

Questions

Ecology is requesting comments from stakeholders on Option 4. Please provide comments on these questions:

- Should Ecology allow automakers to generate early action credits prior to MY 2025?
- Should Ecology limit usage of these credits?

Option 5 – Combination Option

Option 5 would be a combination of the early action credits in Option 4 with one of the proportional credit options (Options 1, 2, and 3).

- Option 5a: Option 4 and Option 1
- Option 5b: Option 4 and Option 2
- Option 5c: Option 4 and Option 3

Discussion

Options 1 through 3 address the absence of banked credits for automakers under ACC I, while Option 4 addresses the potential lack of ZEV model choices before our ACC I rule starts with MY 2025. Option 5 combines these two elements into a combination of 3 sub-options, 5a through 5c.

Questions

Ecology is requesting comments from stakeholders on Option 5. Please provide comments on these questions:

- Should Ecology offer a combination of proportional credits and early action credits?
- If so, which sub-option would be preferred (Option 5a, 5b, or 5c)?

Summary

For this evaluation of credit options to ensure a continued robust ZEV market in Washington, Ecology reviewed the credits offered by other recent ZEV states, Washington's ZEV market share compared to those states, current ZEV sales trends and market share in Washington, projections and forecasts of future ZEV sales nationally, projected future ZEV sales and market share in Washington, and projected credit availability in Washington from ZEV sales for MY 2025 through MY 2030. We then evaluated five options for credit offerings in Washington. Table 8 presents a summary of those options. We will discuss these potential credit options with stakeholders at the February 28, 2022 stakeholder meeting as part of Ecology's 2022 rulemaking to revise Chapter 173-423 WAC, Clean Vehicles Program and Chapter 173-400 WAC, General Regulations for Air Pollution Sources.[6]

Table 8. Summary of Credit Options

Option	Proportional Credits Offered	Early Action Credits Earned	Total Credits
Option 1	283,530.56	0.00	283,530.56
Option 2	150,271.19	0.00	150,271.19
Option 3	0.00	0.00	0.00
Option 4	0.00	247,843.20	247,843.20
Option 5a	283,530.56	247,843.20	531,373.76
Option 5b	150,271.19	247,843.20	398,114.39
Option 5c	0.00	247,843.20	247,843.20

[6] For details, refer to Ecology's rulemaking page at: https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC173-423-400Jan18

Appendix A. Regulatory Text from Other States' Credit Offerings

Colorado – Adopted 2019

Reference: 5 CCR 1001-24, Part C

V.A. Beginning no later than model year 2023, each manufacturer of ZEVs and TZEVs may open an account in the California ZEV Credit System for banking credits in Colorado.

V.B. *Proportional Starting ZEV Credit Balance*. A manufacturer may deposit into its account in the ZEV Credit Bank a number of credits equal to its starting 2023 model year California credit balance multiplied by the California credit ratio. The deposit may be made only after all credit obligations for model years 2022 and earlier have been satisfied in California. While manufacturers may trade or sell these credits to any other manufacturer, use of these credits is restricted through 2025 model year in accordance with Part C, Section V.C.

V.C. Each manufacturer must choose one of the following two options for the 2023 through 2025 model years. A manufacturer that chooses Option 2 must notify the Executive Officer no later than January 1, 2021, or must comply with Option 1.

V.C.1. Option 1: A manufacturer may meet no more than 36 percent of its combined 2023-2025 model year ZEV credit obligation using credits per Part C, Section V.B.

V.C.2. Option 2:

V.C.2.a. A manufacturer may meet no more than 23 percent of its combined 2023-2025 model year ZEV credit obligation using credits per Part C, Section V.B.

V.C.2.b. *Early ZEV Credits*. A manufacturer may earn credits for 2021 and 2022 model year TZEVs and ZEVs, including BEVxs, produced and delivered for sale in Colorado.

Minnesota – Adopted 2021

Reference: 7023.0300 – Zero-Emission Vehicle Standards

Subp. 4. Early-action credits.

A. Beginning with model year 2022 and ending at the beginning of the first effective model year, a motor vehicle manufacturer may earn early-action ZEV credits for delivering ZEVs for sale in the state. A motor vehicle manufacturer choosing to earn early-action ZEV credits under this subpart must notify the commissioner to open an account to track early-action ZEV credits in Minnesota no later than March 1 of the calendar year after the close of the first model year for which the manufacturer intends to accrue early-action credits.

B. New motor vehicles delivered for sale in the state under this subpart earn early-action ZEV credits with the same values established in California Code of Regulations, title 13, section 1962.2.

C. A motor vehicle manufacturer that notifies the commissioner under item A must submit a report to the commissioner at least annually by May 1 of the calendar year after the close of the model year that identifies the necessary delivery and placement data of all motor vehicles generating early-action ZEV credits under this subpart, according to California Code of Regulations, title 13, section 1962.2. The report may be amended based on late sales.

D. After the reporting deadline under item C during the first effective model year and after receiving notice from a motor vehicle manufacturer under subpart 2, item A, the commissioner must load the ZEV credits earned by the motor vehicle manufacturer under this subpart into the manufacturer's California ZEV credit system account.

E. This subpart is effective beginning with a motor vehicle manufacturer's model year 2022.

Subp. 5. Onetime credit allotment.

A. For the first effective model year, the commissioner must deposit into each motor vehicle manufacturer's account a credit allotment equivalent to the first effective model year's ZEV credit requirement for that motor vehicle manufacturer.

B. The credit amount under item A must be calculated for the first effective model year according to California Code of Regulations, title 13, section 1962.2(b)(1)(A) and (B).

C. The commissioner must deposit the onetime credit allotment at the same time that the commissioner loads the ZEV credits earned by the motor vehicle manufacturer under subpart 4, item D, into the manufacturer's California ZEV credit system account.

Nevada – Adopted 2021

Reference: NAC Chapter 445B

Sec. 33. 1. A manufacturer may earn early action credits for any 2022, 2023 and 2024 model year range extended battery electric vehicles, neighborhood electric vehicles, transitional zero emission vehicles and zero emission vehicles the manufacturer produces and delivers for sale in this State on or after January 1, 2022, by reporting the total production and delivery of such vehicles to the Department at the end of the 2022, 2023 and 2024 model years.

2. Any early action credits earned for model years 2022, 2023 and 2024 pursuant to subsection 1 will be managed by the Department and deposited into the manufacturer’s account in the California ZEV Credit Reporting and Data Tracking System for use beginning in model year 2025 in accordance with section 34 of this regulation.

Sec. 34. 1. Beginning with model year 2025, a manufacturer shall open an account in the California ZEV Credit Reporting and Data Tracking System for banking credits generated in this State. The manufacturer may deposit and earn ZEV credits for each qualifying vehicle delivered for sale in this State in accordance with this section and sections 1962.2(c), (d) and (g) of Title 13 of the California Code of Regulations, as adopted by reference pursuant to section 20 of this regulation.

2. For use beginning in model year 2025, the Department shall deposit into the manufacturer's account in the California ZEV Credit System any early action credits earned by the manufacturer pursuant to section 33 of this regulation.

3. For use beginning in model year 2026, once the manufacturer has satisfied all credit obligations for model years 2024 and earlier in California, the Department shall deposit into the manufacturer's account in the California ZEV Credit Reporting and Data Tracking System a number of initial credits equal to the manufacturer's 2025 model year starting California credit balance multiplied by the number of new passenger cars and light-duty trucks the manufacturer produced and delivered for sale in this State in model year 2024 and divided by the number of new passenger cars and light-duty trucks that the manufacturer produced and delivered for sale in California in model year 2024.

Virginia – Adopted 2021

Reference: 10.1-1307.04

5. That the regulations required to be adopted by the State Air Pollution Control Board (Board) pursuant to § 10.1-1307.04 of the Code of Virginia, as created by this act, shall allow any motor vehicle manufacturer to establish a Virginia-specific zero-emission vehicle (ZEV) credit account in the ZEV Credit System and to make a one-time deposit into its account a number of proportional credits equal to its 2025 model year starting California credit balance multiplied by the ratio of the average number of passenger cars and light-duty trucks that a manufacturer produced and delivered for sale in Virginia to the average number of passenger cars and light-duty trucks the manufacturer produced and delivered for sale in California during the time period selected by the manufacturer for calculation of its ZEV requirement for the first effective model year. The deposit shall be made only after all credit obligations for model year 2024 and earlier have been satisfied. While manufacturers may trade or sell these proportional credits to any other manufacturer, these credits may be used to meet up to 18 percent of its ZEV program credit requirements in any model year, unless and until the required regulations are superseded by regulations updating the Advanced Clean Car Program. The Board shall not award or provide any vehicle manufacturer with any other form of ZEV program credits or credit balance prior to the effective date or at the beginning of the compliance period of the regulations required by § 10.1-1307.04 of the Code of Virginia, as created by this act. As part of any update to the required regulations to ensure compliance of the ZEV program with the federal Clean Air Act (42 U.S.C. § 7401 et. seq.), the Board shall adjust, if necessary, restrictions on the use of the proportional credits remaining in manufacturers' Virginia accounts in order to ensure that the percentage of ZEVs required to be delivered for sale under Virginia's ZEV program is approximately equivalent to, but does not exceed, the percentage required under California's ZEV program, taking into account only existing ZEV credit banks, any changes in restrictions on their use, and the effects of new regulatory requirements on the amount and timing of ZEVs required to be delivered for sale.