
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Allen, Chair

2021 - 2022 Regular

Bill No: AB 2350
Author: Wilson and Grayson
Version: 5/16/2022
Urgency: No
Consultant: Evan Goldberg
Hearing Date: 6/22/2022
Fiscal: Yes

SUBJECT: Vehicular air pollution: Zero-Emission Aftermarket Conversion Project

DIGEST: Requires the California Air Resources Board (ARB) to establish the Zero-Emission Aftermarket Conversion Project (ZACP), diverting money from the Clean Vehicle Rebate Project (CVRP) to provide an applicant with a rebate for converting a vehicle into a zero-emission vehicle (ZEV).

ANALYSIS:

Existing law:

- 1) Defines “zero-emission vehicle” (ZEV) as a vehicle that produces no emissions of criteria pollutants, toxic air contaminants, and greenhouse gases (GHGs). (Health and Safety Code (HSC) Section 44258)
- 2) Establishes Clean Vehicle Rebate Project (CVRP) which provides qualified applicants with a rebate for the purchase of a ZEV. (HSC 44274)
- 3) Establishes the Zero-Emission Assurance Project (ZAP) which provides a qualified applicant with a rebate for the replacement of a battery, fuel cell, or related component or a vehicle service contract related to these components. (HSC 44274.9)

This bill:

- 1) Requires the ARB to establish the Zero-Emission Aftermarket Conversion Project (ZACP) and allocate up to \$2 million dollars annually from the CVRP to provide a qualified applicant with a rebate for an eligible vehicle that has been converted into a ZEV.
- 2) Requires the ARB to develop guidelines for the program, define qualifying conversion-types for used vehicles, define eligible replacement motors, power

systems, and parts, and establish minimum eligibility criteria for an applicant to be eligible for a rebate. The guidelines shall:

- a) Limit ZACP rebates to one per vehicle.
 - b) Require an eligible ZEV to have a range of at least 100 miles.
 - c) Ensure the value of the vehicle being converted plus the cost of the conversion do not exceed the manufacturer suggested retail price (MSRP) limit established for the CVRP. As of February 24, 2022, those limits are \$60,000 for minivans/pickups/SUVs and \$45,000 for hatchbacks/sedans/wagons/two-seaters.
 - d) Apply the income limits established for the CVRP to the program established by this bill. As of February 24, 2022, those income limits are \$135,000 for single filers, \$175,000 for head of household filers, and \$200,000 for joint filers.
 - e) Ensure the rebate provides cost-effective benefits to the state in reducing air pollution.
- 3) Caps the maximum rebate at \$2,000.
 - 4) Directs a minimum of 25% of the rebates issued pursuant to the program established by this bill to the Clean Cars 4 All program,
 - 5) Requires ARB to coordinate the ZACP with the enhanced fleet modernization program, the Charge Ahead California Initiative, and CVRP.

Background

- 1) *ZEV Climate Goals*. Transitioning California's transportation system away from gasoline to ZEVs is a fundamental part of the state's efforts to reduce GHG emissions and help meet the state's goals to reduce GHG emissions 40% below 1990 levels by 2030. Governor Newsom's Executive Order (EO) N-79-20, dated September 23, 2020, established the goal that 100% of in-state sales of new passenger cars and trucks will be zero-emission by 2035. The EO further requires that 100% of medium- and heavy-duty vehicles in the state be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks.

The state has tried to increase the sales of ZEVs by providing rebates to consumers through CVRP, Clean Cars 4 All Program (CC4A), and the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). These incentives have mainly been funded with cap-and-trade auction revenues. Revenues from the state's cap-and-trade allowance auction, authorized under

AB 32 (Núñez, Chapter 488, Statutes of 2006), and reauthorized by SB 32 (Pavley, Chapter 249, Statutes of 2016), are deposited in the Greenhouse Gas Reduction Fund and used for California Climate Investments. Roughly half of the passenger ZEVs sold in California have received incentives from these programs. Overall, the Legislature has appropriated \$2.2 billion for low carbon transportation investments.

- 2) *CVRP Successes.* Through January 2022, CVRP has provided rebates for over 450,000 vehicles totaling about \$1.04 billion since the project's launch in 2010. Since March 2016, over 30,000 increased rebates have been issued to low-income consumers totaling over \$128 million. About 65% of rebates issued went to battery electric vehicles (BEVs), 32% to plug-in electric hybrid vehicles (PHEVs), and about 2% to fuel cell electric vehicles (FCEVs) and zero-emission motorcycles (ZEMs).
- 3) *What Will That New ZEV Cost?* According to Kelley Blue Book, the average cost of a new ZEV is \$56,437, approximately \$10,000 more than the cost of the average new internal combustion engine (ICE) vehicle. Even with the monies available from the above mentioned incentive programs, this cost is prohibitive for many Californians. There are, of course, cheaper ZEV alternatives. The cost of a 2022 Nissan Leaf starts at about \$28,000 and a 2022 Chevy Bolt starts at \$31,500.
- 4) *What Do ZEV Conversions Cost?* An April 25, 2022, article in the *Los Angeles Times* looked at the market for converting classic cars to ZEVs. According to the article, some shops have a five-year waiting list for vehicle conversions. The cost, according to the article, “starts at around \$18,000,” but more expensive builds for high performance cars can run well past \$30,000.

Some websites talk about ZEV conversion kits being available at a minimum of \$8,000 – not including the cost of the batteries, other parts that are required to complete a conversion, or the labor – but the cost will vary depending on the car being converted. Other websites advertise conversion kits for classic VWs and Porsches at \$68,000-\$88,000 (none of which would be qualify for a rebate under the provisions of this bill).

How long a conversion will take to complete will also vary depending on the vehicle, but during a conversion, it isn't just the engine that is being replaced. It also – in many cases – involves removing the pipes and hoses used for a combustion engine, along with the transmission, gas tank, exhaust system and more to be replaced with and an electric motor, inverter, controller, and EV

battery. Plus, depending on the vehicle being converted, other modifications to the car may be necessary to accommodate the batteries.

- 5) *Who Approves A Conversion & How Common Are They?* According to the ARB, any vehicle registered in California may be converted to a 100% electric drive, as long as all power is supplied by on-board batteries. All combustion and fuel system components must be removed prior to inspection by a Bureau of Automotive (BAR) station. The vehicle must arrive at the inspection site under its own power, and the referee must also ensure the vehicle has adequate battery storage capacity for 100% electric operation. Once the inspection is complete, the referee will sign a Department of Motor Vehicle (DMV) form so the vehicle can be registered as an EV and removed from the periodic smog inspection program. It should be noted though that this examination only looks at the vehicle's emissions. There are no other exams or approvals required.

How many conversions have taken place is difficult to say given the limited data available. The *Los Angeles Times* article noted above focuses mainly on conversions done by car enthusiasts and classic car collectors.

As discussed above, after a conversion is completed, a person can re-register their car as an EV and be removed from the state's smog check program. The DMV does not have any data on how many vehicles fall into that category. However, according to the Department of Consumer Affairs, which oversees BAR, BAR has records on 49 vehicles that have been converted to ZEV since 2017. This is likely artificially low, since there is no way of knowing if a person has converted a vehicle on their own, not utilizing a BAR-approved facility, and any pre-1976 vehicle is exempt from the state's smog check program, so there is no requirement or incentive to register it as a ZEV.

According to ARB, it has received about 20 applications from the manufacturers to approve ZEV conversion kits, some for diesel engines, some for passenger cars, but most for medium duty, large vans and box trucks.

- 6) *Emissions Benefits and Target Markets.* Older vehicles already pollute more than newer vehicles partly because the BAR considers the vehicle's age when setting smog check emission standards. Older cars have less stringent standards than newer ones, as allowances are made for normal wear and tear in a vehicle's emission control system as it ages." Typically, older vehicles have the highest smog check failure rates and under HSC 44011, all pre-1976 model year vehicles are exempt from California's smog check laws. Therefore, the owners of these vehicles have little incentive to maintain emission control equipment or

any mechanism to assure that such equipment has not been modified or removed.

The sponsors of this bill, the Specialty Equipment Market Association (SEMA), conduct an annual trade show. On its website highlighting the November 2021 show, SEMA profiles seven vehicles that have been converted to ZEVs, focusing in large part on the vehicles' increased speed, performance, and acceleration of some of the sports cars that have been converted to ZEVs. In its letter in support of this bill, SEMA notes "a 1957 Chevy 210 hot rod that has been equipped with Chevrolet's e-Crate motor" and that "Converting older cars into ZEVs allows consumers to preserve California's rich car culture while eliminating carbon emissions."

Comments

- 1) *Purpose of Bill.* According to the author, "Reducing passenger vehicle emissions is essential to meeting the state's ambitious greenhouse gas reduction goals. However, many Californians still cite cost as a key barrier to obtaining a new ZEV. Additionally, the ZEV industry is relatively young, and there are few second-hand ZEVs available on the market for consumers in search of a more affordable option. To meet California consumers' demand for more affordable clean transportation options, the state needs new and creative ways to make ZEV ownership more accessible.

"Consumers and the car industry have developed increasing interest in the after-market conversion of gasoline-powered vehicles into hydrogen or electric ZEVs. AB 2350 will create the Zero-Emission After Market Conversion Project (ZACP) to provide consumer rebates for the conversion of gasoline- and diesel-powered cars to zero-emission vehicles. This will help the state meet its ambitious climate goals by providing California consumers with one more pathway towards ownership of a climate-friendly vehicle."

- 2) *"No, No, No, This Sucker's Electrical!"* The bill's sponsor, SEMA, notes in its support letter that Ford recently introduced an electric crate motor (a fully assembled automobile engine shipped to the installer, originally in a crate) for \$3,900 – much less than the cost of a new ZEV.

However, the \$3,900 motor cost does not include any of the other parts necessary to convert a vehicle – the control system, batteries, inverter or many others – nor does it include the cost of labor for someone not taking this on as a do-it-yourself project. The costs of the additional parts are likely to be substantially more than the cost of the motor itself. At least one company,

Electric GT, advertises “plug-and-play” kits that include all of the parts necessary to convert a car to an EV with prices ranging from \$34,500-\$65,000, while EV West advertises some kits in the \$8,000-\$18,000 range. Neither includes the cost of labor.

- 3) *Diverting Money From Successful CVRP.* The existing CVRP program is oversubscribed, placing thousands of people on waiting lists nearly every year. Those applicants on the waitlist have historically received their rebate from the following year’s funding, which in turn has contributed to the next year’s wait list being even longer.

Historic CVRP Waitlist Data

Waitlist Year	Start Date	End Date	Length in Days	Total # of Apps on Waitlist	Total Funding Amount of Waitlist Apps
2011	6/20	9/30	102	1,622	\$3,958,828
2013	5/1	6/30	60	4,545	\$9,277,479
2014	3/28	7/22	116	16,310	\$33,220,445
2016	6/11	9/28	109	13,618	\$32,301,003
2017	6/30	11/20	143	17,161	\$39,432,853
2019	6/5	9/23	110	19,935	\$46,182,717
2021	4/23	9/15	145	20,178	\$53,060,250

By taking up to \$2 million away from the CVRP, as this bill directs ARB to do, it ensures a minimum of 1,000 people will not be able to receive a CVRP rebate and will be placed on a waiting list.

Given the demand for a ZACP rebate is unknown and that the ZACP appears – at least initially – to be aimed at a niche classic car collector and hobbyist market, *the author and committee may wish to consider* amending the bill to require any money set aside for the ZACP that is not spent each year to automatically revert to the CVRP.

This could be accomplished by adding at the end of Page 2, Line 28:

“If any of the moneys allocated for this purpose are not expended by the end of each fiscal year, those monies shall be repaid to the Clean Vehicle Rebate Project.”

- 4) *ZACP Rebate Decisions Would Have To Be Made Case By Case.* Under the CVRP, determining whether a person and a vehicle qualifies for a rebate is a fairly turn-key operation. The ARB lists vehicles that are eligible based on the

MSRP, which is capped at \$60,000 for minivans/pickups/SUVs and \$45,000 for hatchbacks/sedans/wagons/two-seaters, and a person's income. As of February 24, 2022, the income limits are \$135,000 for single filers, \$175,000 for head of household filers, and \$200,000 for joint filers.

Under the proposed ZACP, the same MSRP dollar figures would apply, but with a ZEV conversion, there is no MSRP because these are used vehicles. So instead of an MSRP, this bill requires adding together (1) the value of the used vehicle, (2) the cost of the conversion, and (3) the cost of any new vehicle frame that is installed to accommodate a ZEV conversion (though technical amendments noted in Comment 7 are needed to make that clear). If that cost is higher than the MSRP limits set under the CVRP, then a person would not qualify for a rebate under the ZACP.

While the ARB can determine eligible conversion parts and kits – and the cost of those parts and kits – determining the labor costs associated with a conversion is not so easy given that labor rates and the time to convert a vehicle is likely to vary widely by vehicle and by area of the state. Furthermore, as with any used car, establishing the value of the vehicle to be converted will be a unique calculation based on make, model, vehicle condition, mileage, zip code, and more.

It is not clear how this process is supposed to take place. Will ARB be required to inspect each applicant's vehicle to determine its value and to review – and verify – quoted labor rates to determine the cost of conversion and whether someone will qualify for a rebate?

- 5) *Bang For The Incentive Buck.* Beyond the emissions benefit that come with every ZEV placed on the road, the other significant goal and benefit of the CVRP is to grow the ZEV market, ideally increasing the supply of cars and driving down the cost of future ZEVs, thus making them more affordable each year, regardless of whether a person receives a rebate incentive. Diverting up to \$2 million away from the CVRP to the program established by this bill will have a negative impact on that goal.
- 6) *"We Will Sell No Wine Before Its Time."* In a sense, this bill may be ahead of its time. Even with the financial assistance provided by the CVRP, Clean Cars 4 All, and other state and federal programs, there are likely hundreds of thousands of Californians who cannot afford a new ZEV. If the ZEV conversion marketplace gets to a point where a person could convert their everyday workhorse 5- to 10-year-old gasoline-powered vehicle into a ZEV at

a truly affordable cost, one might expect that California would see exponentially more ZEVs on the road.

- 7) *Technically Speaking*. The bill permits a new vehicle frame to be installed during the conversion process if doing so is necessary to the conversion. However, that cost is not clearly included in the bill's other cost provisions that are used to determine if the total conversion costs fall under the CVRP's MSRP caps. To ensure that all costs are captured, *the author and committee may wish to consider* adopting the following amendments:
- a) On Page 3, strike lines 18-20 that read "A new vehicle frame may be installed on an eligible vehicle so long as it is installed to accommodate a zero-emission vehicle conversion."
 - b) On Page 3, amend Line 9 to read "at the time of the conversion, ~~and~~ the cost of the conversion, and the cost of any new vehicle frame that is installed to accommodate a vehicle conversion."
 - c) On Page 3, Line 21, strike "(d)", on Page 3, Line 24, change "(e)" to "(d)", and on Page 3, Line 28, change "(f)" to "(e)".

DOUBLE REFERRAL:

If this measure is approved by the Senate Environmental Quality Committee, the do pass motion must include the action to re-refer the bill to the Senate Transportation Committee.

Related/Prior Legislation

AB 745 (Gipson) of 2021 would have required ARB to take specified action by January 1, 2024 to meet the goals of Clean Cars 4 All Program. This bill was held in the Assembly Appropriations Committee.

AB 220 (Voepel) of 2021 would have expanded smog check exemptions from pre-1976 vehicles to pre-1983 vehicles. This bill was held in the Assembly Appropriations Committee.

AB 193 (Cervantes, Chapter 363, Statutes of 2018), requires ARB to establish the Zero-Emission Assurance Project (ZAP) to help encourage purchases of used zero-emission vehicles (ZEVs) and near-ZEVs. This program has not been established because the bill stated it would only take effect upon appropriation of funds from the Legislature and no funds have been appropriated to establish the program.

AB 118 (Nunez, Chapter 750, Statutes of 2007) established the Fleet Modernization Program, the Alternative and Renewable Fuel and Vehicle Technology Program, and the Air Quality Improvement Program.

SOURCE: Specialty Equipment Market Association (SEMA)

SUPPORT:

Electric Gt, LLC
Specialty Equipment Market Association (SEMA)

OPPOSITION:

None received

ARGUMENTS IN SUPPORT:

According to the bill’s sponsor, the Specialty Equipment Market Association (SEMA), “ Converting older cars into ZEVs allows consumers to preserve California’s rich car culture while eliminating carbon emissions. However, there is currently no state-supported program to incentivize converting a gasoline or diesel-powered vehicle to run on hydrogen or electricity.

“While existing ZEV rebate programs have helped make such vehicles more affordable, cost is still the primary factor limiting adoption. Furthermore, the used ZEV market remains limited given the nascent nature of the technology. To meet California consumers’ demand for more affordable clean transportation options, the state needs new and creative ways to make ZEV ownership more accessible. AB 2350 helps accomplish this goal and would allow CARB to explore, in concert with existing programs, alternative options to incentivize consumers to shift to cleaner vehicles. Californian’s appreciation for their classic or older vehicles will surely continue for many years to come and AB 2350 would help concert those cars to clean power systems.”

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