

## The Zero Emission Vehicle (ZEV) Regulation

### Introduction

The Zero-Emission Vehicle (ZEV) regulation is designed to achieve the state's long-term emission reduction goals by requiring manufacturers to offer for sale specific numbers of the very cleanest cars available. These vehicle technologies include full battery-electric, hydrogen fuel cell, and plug-in hybrid-electric vehicles. The ZEV regulation is part of a broader package of regulations called Advanced Clean Cars, a set of tailpipe regulations put in place to limit smog-forming and greenhouse gas (GHG) emissions.

### Background

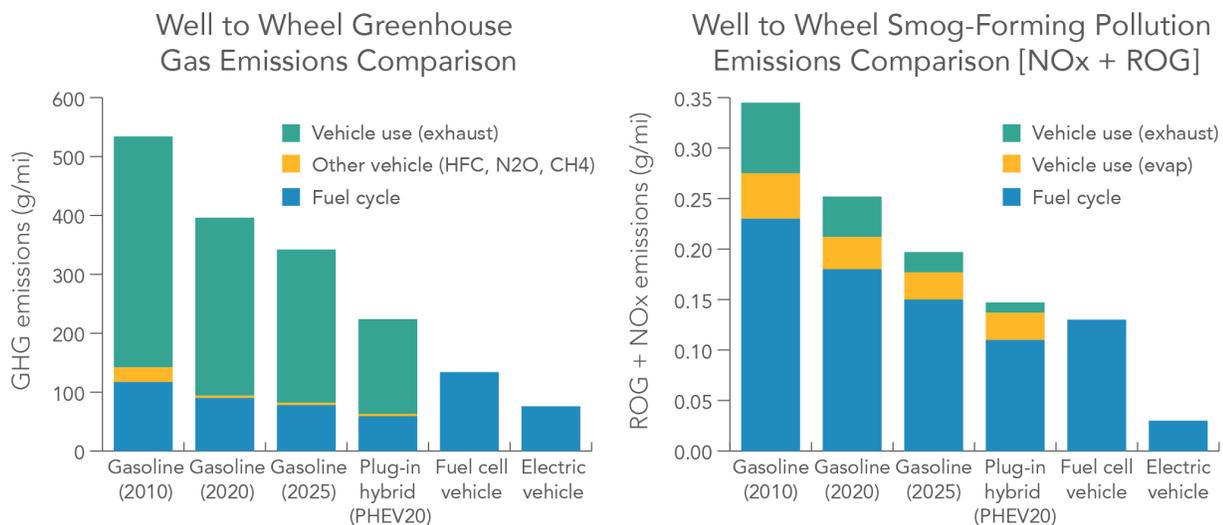
The California Air Resources Board (CARB) first adopted the ZEV requirement in 1990 as part of the Low-Emission Vehicle regulation. Over the last 30 years, the ZEV regulation has been modified to reflect the state of technology. Modifications adopted in 2012 along with the other two Advanced Clean Car Regulations, have set California on a path toward ZEV commercialization with the resurgence of battery technology enabling manufacturers to offer moderately priced zero emission vehicles to consumers. Since 2010, more than 400,000 zero-emission vehicles and plug-in hybrids have been registered in California.

### ZEVs are Critical in California

Vehicles and transportation fuels are the dominant sources of carbon emissions in California. While California has made substantial improvements in air quality, the greater Los Angeles region and the San Joaquin Valley are classified by the United States Environmental Protection Agency as "extreme" ozone non-attainment areas, meaning the regions do not meet health-based air quality standards. The ZEV regulation is an integral part of California's long-term requirements to improve air quality and reduce the state's impact on climate change.

### ZEVs Dramatically Lower Smog and Greenhouse Gas Emissions

Battery electric vehicles (like the Nissan Leaf), hydrogen fuel cell vehicles (like the Toyota Mirai), and plug-in hybrid electric vehicles (like the Chevrolet Volt) have ultra-low smog forming and GHG pollutants, even over the life of a vehicle, which includes the vehicle's fuel production emissions. Even compared to 2025 vehicles meeting the strictest smog and GHG fleet standards, ZEVs and plug-in hybrid electric vehicles are significantly lower emitting (see charts below), and will be essential in order for the light-duty vehicle fleet to achieve long term emission reduction goals.



## How the ZEV Regulation Works

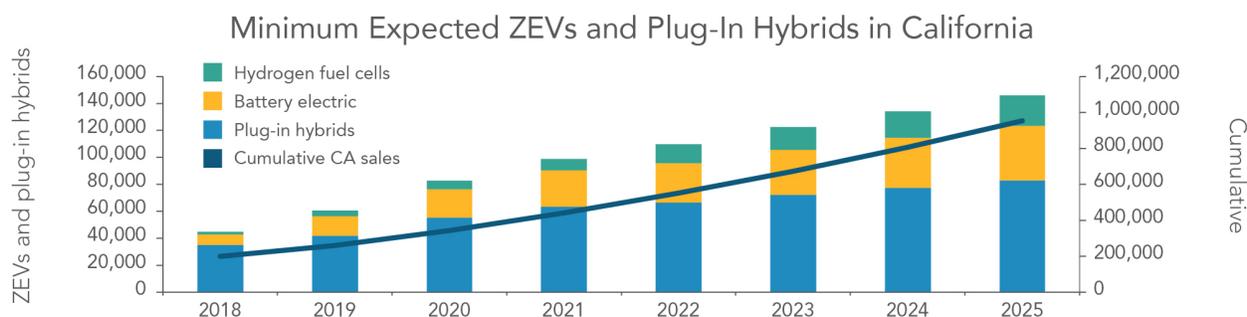
Manufacturers are required to produce a number of ZEVs and plug-in hybrids each year, based on the total number of cars sold in California by the manufacturer. Manufacturers with higher overall sales of all vehicles are required to make more ZEVs. Requirements are in terms of percent credits, ranging from 4.5% in 2018 to 22% by 2025. Manufacturers are to produce vehicles, and each vehicle receives credits based on its electric driving range. The more range a vehicle has, the more credit it receives. Credits not needed for compliance in any given year can be banked for future use, traded or sold to other manufacturers. CARB releases annual credit bank balances each year, as well as the total number of vehicles produced for that model year, as well as the total number of ZEVs and plug-in hybrids. These annual credit postings can be found on our website: [arb.ca.gov/msprog/zevprog/zevprog.htm](http://arb.ca.gov/msprog/zevprog/zevprog.htm).

## Manufacturers Subject to the ZEV Requirements

BMW, Fiat Chrysler, Ford, General Motors, Honda, Hyundai, Kia, Mercedes, Nissan, Toyota, and Volkswagen must comply with the new requirements. Five smaller manufacturers (Jaguar Land Rover, Mitsubishi, Mazda, Subaru, and Volvo) are also required to comply with the ZEV requirements, but may meet their obligation with plug-in hybrids.

## Minimum number of ZEVs

Because the ZEV regulation is a credit requirement, it is difficult to precisely predict the number of vehicles that will result from the regulation. Updated estimates using publicly available information show about 8 percent of California new vehicle sales in 2025 will be ZEVs and plug-in hybrids.



## Other States Have Adopted the ZEV Regulation

Other states have the ability to adopt California's standards through Section 177 of the Clean Air Act, hence why they are often called the Section 177 States. Currently there are nine states that have adopted California's ZEV regulations (as well as low-emission vehicle regulations): Connecticut, Maine, Maryland, Massachusetts, New York, New Jersey, Oregon, Rhode Island, and Vermont.<sup>1</sup> Together with California, these states represent nearly 30 percent of new car sales in the United States.

## For More Information

For more information regarding the ZEV regulation, please visit the ZEV regulation web site at [arb.ca.gov/msprog/zevprog/zevprog.htm](http://arb.ca.gov/msprog/zevprog/zevprog.htm). For more information about the mechanics of the regulation, you can watch the ZEV tutorial recording at [arb.ca.gov/msprog/zevprog/zevtutorial/zevtutorial.htm](http://arb.ca.gov/msprog/zevprog/zevtutorial/zevtutorial.htm). To learn more about clean, advanced technology cars and to compare scores between different makes and models, visit CARB's Drive Clean web site at [DriveClean.ca.gov](http://DriveClean.ca.gov). To obtain this document in an alternative format or language, please contact the CARB's Helpline at (800) 242-4450 or at [helpline@arb.ca.gov](mailto:helpline@arb.ca.gov). TTY/TDD/ Speech to Speech users may dial 711 for the California Relay Service.

<sup>1</sup> Additional states have adopted just California's Low Emission Vehicle (LEV) standards: Pennsylvania, Washington, and Delaware.