



A Strong California ZEV Program Can Deliver the Future of Electric Cars

Battery, fuel cell, and plug-in hybrid electric cars are a key part of California’s efforts to protect public health, improve our energy security, and reach our long-term carbon reduction goals. California now has an opportunity to deliver on these goals as the Air Resources Board (ARB) works to set strong Zero Emissions Vehicle (ZEV) requirements through 2025. Updating these standards will drive advanced vehicle technologies not only in California, but around the nation.

California Can Lead the Electric-Drive Market Forward

California can help drive the successful commercialization of these vehicles by sending a strong signal to automakers to continue investing in electric-drive technology. To build a future where electric-drive cars are as readily available as air-bags and power steering, the California Air Resources Board must strengthen the ZEV standard beyond what is currently being proposed to help put at least 1.8 million new electric-drive cars on the road in California from 2018 through 2025. Together with the ten other states that have adopted California’s ZEV standards, this could result in at least 5 percent of the U.S. market being electric-drive by 2025. By requiring half or more of these vehicles to run exclusively on electricity or hydrogen, California will ensure that investments continue to be made in the technology solutions necessary to reach our climate and energy goals.

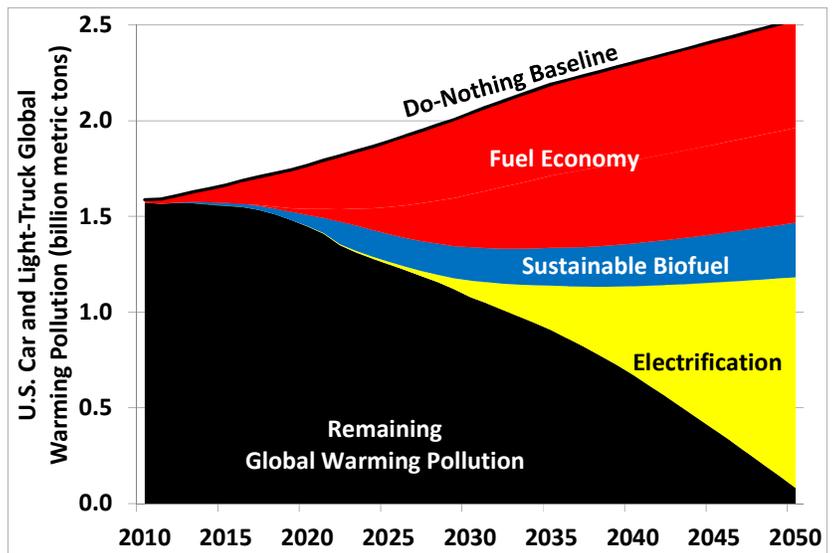
How the ZEV Program Can Be Strengthened: Cumulative Electric-Drive Sales, 2018-2025	
California	1.8 million
National	At least 5 million
New Electric-Drive Share in 2025	
California	18%
National	At least 5%
All-Electric	50% of ZEV program

A Strong ZEV Program Will Get Us on the Right Track

To avoid the worst consequences of global warming, cars in California and the U.S. must produce 80-90 percent less global warming pollution than they do today.¹ Nearly all stakeholders, including government agencies, energy and climate experts, and even automakers, agree that large-scale commercialization of electric-drive vehicles is necessary to achieve long-term CO₂ and oil reduction goals.

Electric-drive cars cannot achieve this goal alone, but analysis by ARB, automakers, the International Energy Agency, the Natural Resources Defense Council, and the Union of Concerned Scientists, all show that a large majority of vehicles by 2040 must have significant electric-drive capability.²

Given past rates of automotive technology progress, electric cars need to reach a national mass market level of about 5 percent of new car sales in 2025 at the very latest to have a chance of staying on track.³ With California’s annual sales, sales in other ZEV states, and their roles in the hybrid vehicle market as early adopters, that translates to about 18% of new vehicle market share by 2025 and cumulative sales of 1.8 million electric cars in CA and 5 million nationally from 2018 through 2025.



UCS analysis indicates that, even with proposed fuel economy standards and 50 billion gallons of low-carbon, sustainable biofuels, all-electric cars will still have to reach over 70% new vehicle market share in the U.S. by 2040 to achieve long term climate goals.

Benefits of a Strong ZEV Program

Market Certainty: Through an aggressive but achievable ZEV standard, California can provide the market certainty needed to continue and grow investments being made by automakers, component suppliers, start-up companies, and venture capitalists in the electric-drive industry. With 30 models planned over the next several years, automakers have shown they have the technical know-how. The ZEV program ensures they have the will to deliver.

Consumer Choice: Sustained investment will drive down cost, spur further innovation, and make zero-emission and oil-free transportation an option for all consumers. By 2025, at least one in six new-car buyers in ZEV states will have the chance to buy a vehicle with electric-drive capability, insulating them from vulnerability to oil price spikes and cutting lifetime fuel bills by thousands of dollars.

Global Leadership: The rest of the world is moving forward on battery and fuel cell technologies. Without a strong ZEV program, California and the nation could be left behind. If we don't aggressively accelerate the electric car market here in the U.S. we will be purchasing clean car technology from Asia and Europe in the same way we are importing oil today.

The Auto Industry is Trying to Weaken the ZEV Standards

Some members of the industry have spoken out publically against the ZEV program as California held workshops highlighting the potential to require electric cars to reach as high as 20% of sales in CA by 2025. And as part of the price for signing on to a deal to set national automobile greenhouse gas standards through 2025, some automakers demanded a provision that could cut their obligations under ZEV by up to 40 percent between 2018 and 2021.⁴ Even further cuts are being proposed by some automakers that would put the brakes on the only program in the nation that ensures long-term, continued investments in these advanced electric-drive technologies.

States Must Shift Electric Cars into High Gear

The ZEV program was established in 1990 to protect public health by speeding up the mass commercialization of advanced technologies. It has succeeded in pushing gasoline cars to clean up their act over the past 20 years, delivering ultra-clean gasoline and hybrid-electric vehicles to the market. Now it is time for the program to deliver on its original mission—ensuring that Californians have access to vehicles with the potential to eliminate the harmful emissions that threaten their health and the climate, while delivering technology that can move the state and the nation beyond oil.

Now is no time to delay. The next 10 to 15 years are critical to the success of electric-drive vehicles, and a strong ZEV program will ensure that automakers continue to innovate and successfully move from today's early electric-drive launch to mass market success.

¹ CA has adopted an economy-wide target of an 80 percent reduction below 1990 levels by 2050 (EXECUTIVE ORDER S-3-05, <http://gov38.ca.gov/index.php?/print-version/executive-order/1861/>). A recent McKinsey study for the European Union (www.roadmap2050.eu/attachments/files/Volume1_fullreport_PressPack.pdf) points to a need for a 95% reduction from on-road vehicles due to the difficulty of achieving reductions in industry (Exhibit 9 from *Roadmap 2050: A Practical Guide to a Prosperous, Low-Carbon Europe*, April 2010).

² For example, see Figure 13 in the ARB analysis, *2050 Greenhouse Gas Emissions Analysis: Staff Modeling in Support of the Zero Emission Vehicle Regulation*, 2009 (www.arb.ca.gov/msprog/zevprog/2009zevreview/attachment_b_2050ghg.pdf). Also, see Exhibit 6 from the 2010 McKinsey study, *A Portfolio of Power-Trains for Europe, a Fact-Based Analysis: The Role of Battery Electric Vehicles, Plug-In Hybrids and Fuel Cell Electric Vehicles*, that included participation from a wide variety of automakers and other industries (www.iphe.net/docs/Resources/Power_trains_for_Europe.pdf). And, see the International Energy Agency's 2011 report, *Technology Roadmap Electric and Plug-In Hybrid Electric Vehicles*, www.iea.org/papers/2011/EV_PHEV_Roadmap.pdf.

³ According to data in the EPA report, *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2010* (www.epa.gov/oms/cert/mpg/fetrends/420r10023.pdf), even for simpler tech such as front-wheel drive, port fuel injection, and variable valve timing, it took 15-20 years to move from about 5 percent to 80 percent of the market (Figure 28). Given the higher price premium and differences in the changes required by consumers, 20 years is aggressive.

⁴ As shown in the ARB commitment letter (www.epa.gov/otaq/climate/letters/carb-commitment-ltr.pdf) and our analysis of the likely system.