

# New Vehicle Emissions Standards Are a Big Step Towards EVs—But We Need to Do More



**Ellen Hughes-Cromwick**  
Senior Resident Fellow for Climate and Energy Program  
[@EllenHughesCrom](https://twitter.com/EllenHughesCrom)



**Alexander Laska**  
Senior Policy Advisor for Transportation, Climate and Energy Program  
[@ThirdWayEnergy](https://twitter.com/ThirdWayEnergy)

## Key Takeaways

The EPA announcement on new greenhouse gas (GHG) emissions standards for passenger vehicles prompted some headlines last month – but not nearly enough given how good this will be for consumers and for climate. By the numbers, here are four key impacts from these standards, according to the EPA:

- Avoids 3.1 billion tons of CO<sub>2</sub> emissions through 2050.
- Reaches a projected industry-wide target of 161 grams CO<sub>2</sub> /mile, or 50 miles per gallon for fuel economy by 2026, about a 5-10% improvement each year.

- Achieves benefits that far outweigh the costs, to the tune of \$120 to \$190 billion through 2050.
- Saves consumers \$1,080 in fuel costs after netting out the initial increase in vehicle costs due to the new, more fuel-efficient technology.

The following FAQ explains what these standards are and why they're important. It also explains why the standards alone aren't enough to meet our EV goals and need to be paired with consumer incentives to ensure rapid adoption of the very cleanest vehicles.

## What are the new GHG emissions standards?

On December 20, 2021, the EPA released its [final rule](#) on GHG emissions standards for the passenger cars and light trucks manufacturers produce or sell in the U.S.<sup>1</sup> The rule establishes emissions reduction targets for model years 2023 through 2026. It replaces the prior SAFE Rule, which was established under the Trump Administration.

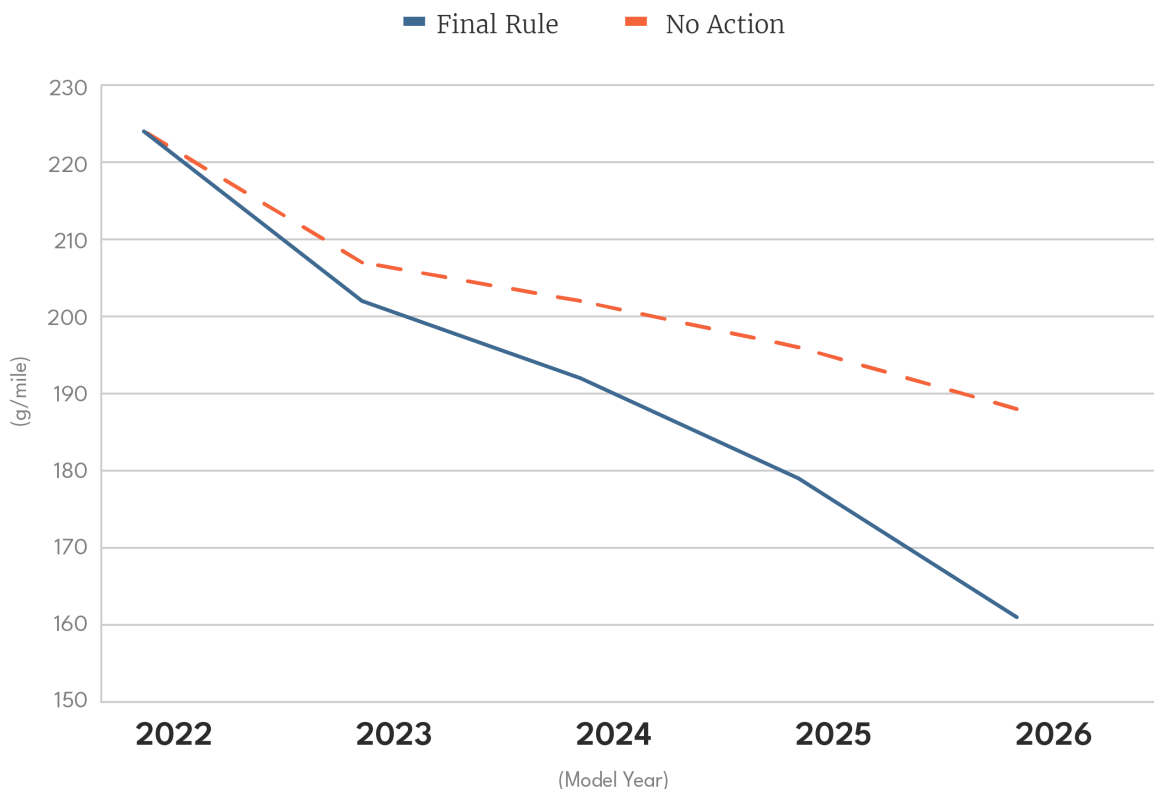
These standards work in tandem with the Department of Transportation's (DOT) regulations on fuel economy [proposed](#) last September. Fuel economy, or how many miles a vehicle can drive per gallon of fuel, is directly related to a vehicle's GHG emissions. As fuel economy improves, so too will emissions be reduced, resulting in significant net benefits all around.

Under the new rule, all companies producing or selling passenger vehicles (anything weighing under 10,000 lbs.) in the U.S. must comply and meet the GHG emissions targets for each model year between 2023 and 2026. New rules are now being developed for model year 2027 and beyond and are expected to be finalized [within the next few years](#).

## What do the new standards mean for emissions reduction?

The new standards will result in a cumulative reduction of 112 million metric tons of GHG emissions compared to 2020. In terms of emissions avoidance, this is the equivalent of taking over 24.3 million cars—nearly 10% of our national fleet—off the road for one year.<sup>2</sup> The new standards are significantly more ambitious than what was already on the books, achieving a reduction of 59 million metric tons of emissions more than if no action was taken. According to the EPA, "no action" accounts for the Trump-era SAFE rule that these standards are replacing, as well as the expected emissions reductions among the [five automakers](#) that were abiding by California's stronger emissions standards.

## EPA Estimated Impacts on GHG Emissions Final Rule v. No Action



**Source:** EPA and Third Way. Data for this chart are included in the EPA document entitled “Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards.” Table 34. <https://www.epa.gov/system/files/documents/2021-12/ld-ghg-stdnds-fr-2021-12-20.pdf>. Accessed 5 Jan. 2022.

## What type of fuel economy improvements are consistent with this new rule?

To be clear, DOT regulates fuel economy for auto manufacturers while the EPA regulates emissions for auto manufacturers. Technically, the law says they do not have to “coordinate” their rulemakings. But since 2010, these agencies have undertaken joint rulemaking. Translation: The fuel economy improvement targets laid out by DOT are consistent with the GHG emissions reductions that are part of this new EPA rule.

DOT issued its proposed fuel economy regulations last September. It targeted 48 miles per gallon by 2026 for the average of all passenger vehicles. This compares to the 2020 average fuel economy of 25.7 miles per gallon, as estimated by EPA.

Bottom line: The DOT corporate average fuel economy targets are projected to yield an 87% improvement between 2020 and 2026. The DOT will issue its final rule on fuel economy this year.

## How do they develop these projections and targets? Sounds complicated.

Indeed. But bear in mind that EPA has significant expertise, scientific models, and years of data and feedback to stick the landing on these targets. Here are some key ingredients EPA used in developing this rule:

One calculation they include is estimate for CO<sub>2</sub> emissions per gallon of gasoline or diesel. For example, there are 8,887 grams of CO<sub>2</sub> per gallon of gasoline. And yes, they also calculate the difference in emissions for ethanol-blended gasoline.

They also look at tailpipe emissions, as well as upstream emissions from a couple of things like electricity for plug-in hybrid and battery electric vehicles. They also count emissions from fuel refineries.

Auto manufacturers can get reductions in CO<sub>2</sub> emissions by adding other features to passenger vehicles. For example, if they can improve the efficiency of air conditioning, that can reduce emissions. Manufacturers can earn credits for these improvements which they can “bank” against their overall requirements under these standards.

EPA uses a time-tested model to generate these projections. To determine the emissions estimates, the model considers the mix of vehicles – cars, SUVs, and light trucks – that are being produced and sold, what types of technology are likely to be in these vehicles, how long they remain on the road, and what road-tested tailpipe emissions are likely.

Deep, technical, and extensive EPA research can be found by checking out their website [here](#).

## Are the GHG emissions standards weaker for large SUVs and trucks compared to cars?

Yes, they are. In 2012, EPA began implementing separate emissions standards for cars and light trucks segments as defined by their [footprint](#), or the square feet of the space between the four tires.<sup>3</sup> Since light trucks are heavier than cars, the EPA implemented less stringent emissions standards for these vehicles. These compliance targets are in the table below. For example, car emissions compliance targets fall to 132 g/mi by MY 2026, while light trucks emissions fall to 187 g/mi.

It is encouraging to see that the total *change* in emissions targeted for light trucks is 72 g/mile, 50% more than the reduction targeted for cars between MY 2022 and 2026 (see bottom row of table below). EPA clearly recognizes that an additional nudge is needed to move manufacturers toward electrified models of these SUVs and pickup trucks. These vehicles are particularly popular among American consumers, and some manufacturers have moved to produce only SUVs and trucks in the U.S. Unfortunately, gasoline-powered models in these segments of the market are also more

detrimental to the environment than others. Reducing compliance targets at a faster pace during this period will provide a greater incentive for manufacturers to expand production and sales of EV SUV and pickup truck models.

## Projected Industry Fleet-wide CO<sub>2</sub> Compliance Targets for MYs 2023-2026 (g/mile)

Model Year	Cars CO <sub>2</sub> (g/mile)	Light Trucks CO <sub>2</sub> (g/mile)	Fleet CO <sub>2</sub> (g/mile)
2022 (SAFE reference)	181	261	224
2023	166	234	202
2024	158	222	192
2025	149	207	179
2026 and later	132	187	161
<b>Total change 2022-2026</b>	<b>-49</b>	<b>-74</b>	<b>-63</b>

**Source:** EPA. “Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards.” Table 1. p. 22. <https://www.epa.gov/system/files/documents/2021-12/ld-ghg-stdnds-fr-2021-12-20.pdf>. Accessed 5 Jan. 2022.



## Overall, what does this EPA rule mean for EV sales?

The rule will drive additional investment in, and sales of, EVs—both plug-in hybrid and pure battery electric vehicles—because it will be very hard for manufacturers to meet these targets otherwise. EPA estimates that, consistent with these emissions targets, about 17% of sales by 2026 will be EVs. That’s a big jump up from 2% of sales in 2020, the most recent year for which full-year data is available.

**The Biden Administration has targeted 50% EV sales by 2030. Can we get there with this rule? What more is needed?**

The Biden Administration’s target—which is shared by automakers like Ford and GM—is feasible, but it’s unlikely we can get all the way there with this emissions standard alone. More likely, we’ll need a combination of standards and consumer incentives to accelerate our transition to EVs if we’re going to meet this goal.

Consumer incentives will be important not only for helping people afford EVs now, but also for helping our automakers bring down costs to keep EVs affordable in the future. This is because manufacturing at large scale is part of the way the auto industry can bring costs down for making EVs. Battery costs are already declining which will help, but the cost of making 10,000 EVs in a factory that can really make 200,000 means that there is equipment that is underutilized. EV purchase incentives can “fill up the plant,” reduce costs with higher scale, create jobs, and make the transition proceed as fast as possible.

The Build Back Better Act (BBBA) passed by the House of Representatives included an extension and expansion of the \$7,500 tax credit for the purchase of a new EV and would have created a new \$2,500 credit for the purchase of a used EV. Each of these credits would be “up front” so that the credit could be taken off the sticker price, and they were also capped to the price of the vehicle and to the buyer’s income level. These credits, combined with EPA’s rule, are very likely to put the U.S. within reach of 50% EV sales by 2030.

## **Here’s our bottom line.**

This rule is beneficial in getting GHG emissions down from where they are today. Combined with the DOT’s fuel economy standards, they are more stringent than any prior regulations on the books. But these standards aren’t enough on their own to meet our EV goals. An accelerated transition to EVs will require purchase incentives to help people afford these vehicles so we can get more of them on the road, more quickly. The tax credits proposed in the BBBA give us the best opportunity to reach President Biden’s 50% sales target.

### TOPICS

**CLEAN TRANSPORTATION 85**

## ENDNOTES

- 1.** These calculations are included in an EPA file located [here](#). Retrieve the last item on this list of links on this page and you will have the model details used to derive these estimates.
- 2.** This is based on EPA's estimate that the average passenger vehicle emits 4.6 metric tons of CO<sub>2</sub> per year. See: <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle#typical-passenger>
- 3.** Passenger cars include cars and smaller cross-overs and SUVs, while the truck category includes larger cross-overs and SUVs, minivans, and pickup trucks.