

Fuel economy standards cheaper, more beneficial than previously believed

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The regulations that set fuel-economy and greenhouse-gas emission goals for cars and trucks have lower costs and higher benefits than previous analyses report, a new Carnegie Mellon University study shows.

The study is published in *Environmental Science & Technology*.

According to EPP Assistant Professor Kate Whitefoot who co-authored

the report, the current standards are not nearly as difficult to hit—and can have even greater positive effects—once you account for the ability of automakers to make tradeoffs with other vehicle attributes. Under the current regulations, the National Highway and Traffic Safety Administration is required to set efficiency standards based on the available technology and economic practicability at the time. They meet this requirement by evaluating the costs and benefits of various [fuel](#) efficiency technologies. They do this, however, by restricting the considered technologies to those that either maintain or improve other aspects of the vehicle's performance—particularly when it comes to acceleration time.

In her paper, "Compliance by Design: Influence of Acceleration Tradeoffs on CO2 Emissions and Costs of Fuel Economy and Greenhouse Gas Regulations," Whitefoot analyses the role that design tradeoffs, such as compromising acceleration, can play in cost-effectively bringing vehicles into compliance with regulations.

"The costs of the regulations to consumers and automakers are lower than other policy analyses imply," Whitefoot says, "because they don't consider tradeoffs between [fuel economy](#) and acceleration performance. Once we consider these design tradeoffs, our research finds that the regulatory [costs](#) are considerably lower, and fuel savings are much higher."

In other words, car manufacturers can redesign future models with slightly slower acceleration times and higher fuel economy for consumers. When manufacturers produce these vehicles for consumers who value lower prices over acceleration, it becomes much easier to meet emissions standards at much lower cost to the company. "This is a win-win for both consumers and automakers," Whitefoot says. "What's more, consumers that are willing to pay for better acceleration can still buy fast cars, because the regulations only set a goal for the average level

of fuel economy and emissions instead of a mandate for every vehicle."

Additionally, Whitefoot's analysis has revealed that a slight decrease in acceleration can significantly reduce the overall emissions of the US fleet, as it will mitigate incentives to shift sales toward larger vehicles and light trucks relative to passenger cars.

The US government has been working with automakers for decades to make cars and trucks more fuel-efficient. Though the Corporate Average Fuel Economy (CAFE) standards have been in effect since 1975, they have recently entered more greatly into the public conversation, as the Trump Administration has called for review and re-write of these regulations, in hopes of making them less stringent. As such, the Environmental Protection Agency and the Department of Transportation have opened a public comment period, allowing the general public to weigh in on the proposed changes.

"To the extent that the federal agencies are setting the standards so that the public gets the biggest bang for their buck, the research supports that the standards should be more, not less stringent."

More information: Kate S Whitefoot et al, Compliance by Design: Influence of Acceleration Tradeoffs on CO₂ Emissions and Costs of Fuel Economy and Greenhouse Gas Regulations, *Environmental Science & Technology* (2017). [DOI: 10.1021/acs.est.7b03743](https://doi.org/10.1021/acs.est.7b03743)

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