

# Federal policy reverses benefits of alternative fuel vehicles

March 9 2016, by Tara Moore

---



A Carnegie Mellon University study published in the journal *Environmental Science & Technology* finds that alternative fuel vehicles are triggering more--not less--emissions.

Alternative fuel vehicles (AFVs), such as electric vehicles, can reduce

U.S. petroleum consumption and can also potentially reduce emissions. However, a new Carnegie Mellon University study finds that under U.S. federal policy, AFV sales trigger the opposite effect.

U.S. federal policy limits the average fuel consumption and [greenhouse gas emissions](#) rate from each automaker's fleet of vehicles.

"Recent updates of federal policy for model years 2012 through 2025 include incentives that allow automakers to meet less stringent fleet efficiency targets when they sell AFVs—so the more [alternative fuel vehicles](#) an automaker sells, the dirtier its overall vehicle fleet is permitted to be," said Jeremy Michalek, professor of engineering and public policy and professor of mechanical engineering.

The paper, published in the journal *Environmental Science & Technology* by Michalek; Inês Azevedo, associate professor of engineering and public policy; and Alan Jenn, former engineering and [public policy](#) Ph.D. student, studies the U.S. federal corporate average fuel economy standards and light-duty greenhouse gas emission standards.

"With the binding federal policy in place," said Azevedo, "other federal and state policies that encourage or mandate alternative fuel vehicle sales as well as individuals who purchase AFVs in an effort to reduce petroleum use and gasoline consumption may be creating exactly the opposite effect—at least in the near term."

The study finds that each time an [alternative fuel](#) vehicle, such as an electric vehicle, is sold, U.S. fleet-wide emissions increase by 0 to 60 tons of carbon dioxide and gasoline consumption increases by 0 to 7,000 gallons, depending on the vehicle and year of sale.

"This effect peaks for [electric vehicles](#) in 2017, when the policy has its largest incentives," said Azevedo. "When one consumer buys an electric

vehicle, it enables other consumers to buy higher-emitting vehicles than they would have been able to otherwise. In total, we estimate about 30 to 70 million metric tons of extra carbon dioxide emitted."

The authors caution that their results, which estimate the effects of AFV adoption up until 2025, do not necessarily imply that these vehicles should be avoided.

"A transition of the [vehicle](#) fleet away from petroleum and toward low-emission energy alternatives could produce an enormous amount of good in the long run," explained Michalek. "So, depending on what you believe about how AFV adoption today will influence adoption patterns beyond 2025, it's possible that encouraging adoption now might be worthwhile in the long run despite the short term disadvantages."

Michalek and Azevedo are researchers in CMU's [Scott Institute for Energy Innovation](#), which is working to make energy more efficient, sustainable and affordable.

**More information:** *Environ. Sci. Technol.*, 2016, 50 (5), pp 2165–2174. [DOI: 10.1021/acs.est.5b02842](https://doi.org/10.1021/acs.est.5b02842)

Provided by Carnegie Mellon University Mechanical Engineering

Citation: Federal policy reverses benefits of alternative fuel vehicles (2016, March 9) retrieved 20 April 2024 from <https://phys.org/news/2016-03-federal-policy-reverses-benefits-alternative.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.