

Sensible driving saves more gas than drivers think

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ORNL researchers examined several previous studies, developed a new vehicle energy model and applied it to two similar mid-sized sedans: a hybrid electric vehicle and a conventional gasoline vehicle. Credit: Oak Ridge National Laboratory

It's common knowledge that driving aggressively can dent gas mileage,

but it's difficult to determine exactly how much gas drivers waste.

A new study by researchers at the Department of Energy's Oak Ridge National Laboratory has quantified the impact speeding and slamming on the brakes has on [fuel](#) economy and consumption.

They found that aggressive behavior behind the wheel can lower [gas mileage](#) in light-duty vehicles by about 10 to 40 percent in stop-and-go traffic and roughly 15 to 30 percent at highway speeds. This can equate to losing about \$0.25 to \$1 per gallon.

"Our findings added credence to the idea that an aggressive driving style does affect fuel economy probably more than people think," said ORNL's John Thomas, who led the study published by engineering professional organization *SAE International*.

To address this complex topic, ORNL researchers examined several previous studies, developed a new vehicle [energy](#) model and applied it to two similar mid-sized sedans: a hybrid electric vehicle and a conventional gasoline vehicle.

The researchers ran the two test vehicles through driving experiments at the lab's National Transportation Research Center to compare the differences in [fuel consumption](#). In particular, they evaluated the HEV's limitations when recapturing energy to replenish the battery during different levels of hard braking.

"The new vehicle energy model we created focused on the limitations of regenerative braking along with varying levels of driving-style aggressiveness to show that this could account for greater fuel economy variation in an HEV compared to a similar conventional [vehicle](#)," Thomas said.

The results confirmed a large dataset of gas mileage values self-reported by drivers on the government-maintained fuelconomy.gov, which helps consumers make informed fuel [economy](#) choices. This dataset also implied that HEVs are more sensitive to driving style than conventional gasoline vehicles, although HEVs almost always achieve much better [fuel economy](#).



ORNL researchers used a hybrid electric vehicle and a vehicle with a gasoline engine for the study. Credit: Oak Ridge National Laboratory

The study's findings appear on the website—which is maintained by ORNL for DOE's Office of Energy Efficiency and Renewable Energy

with data provided by the Environmental Protection Agency—along with other simple fuel-saving measures such as obeying posted speed limits, avoiding excessive idling or carrying too much weight, and using cruise control.

Understanding the impact of aggressive driving on fuel consumption is relevant to broader studies on improving traffic flow through "smart" traffic control systems and autonomous vehicles.

More information: John Thomas et al. Fuel Consumption Sensitivity of Conventional and Hybrid Electric Light-Duty Gasoline Vehicles to Driving Style, *SAE International Journal of Fuels and Lubricants* (2017). DOI: [10.4271/2017-01-9379](https://doi.org/10.4271/2017-01-9379)

Provided by Oak Ridge National Laboratory

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