

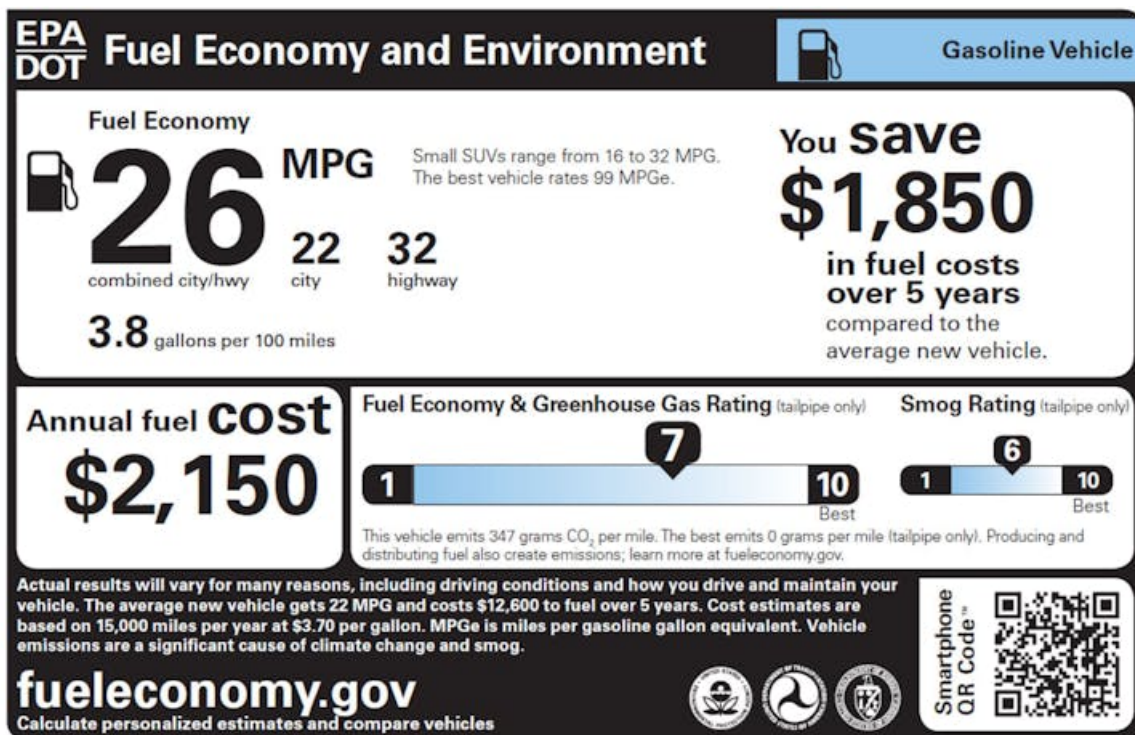
Can we design a better fuel economy label?

By [Camilleri, Weber, Johnson, and Larrick](#)

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Transportation contributes [approximately 26%](#) to greenhouse gas emissions. As a result, governments around the world are looking for ways to increase consumers' use of fuel-efficient vehicles. One of the most straightforward ways to provide this information is in the form of [labels](#).

In the United States, the so-called Monroney sticker – named after an Oklahoma senator who sponsored a law to disclose more vehicle information to consumers – is the label required to be displayed in all new automobiles, which describes various fuel economy metrics. The Monroney sticker was updated for all automobiles beginning in model year 2013.



Example of the Monroney sticker for a gasoline vehicle. EPA

Research has shown that people can be overwhelmed with too much information. Thus, a basic question arises when designing a label: What few pieces of information are most valuable to include?

Our recent [research](#) provides insights about these questions by testing how consumers reacted to different combinations of information taken from the Monroney sticker.

Signposting

The new Monroney sticker from 2013 describes gas consumption in terms of miles per gallon (MPG) over city, highway and combined. However, another metric has also been added. It describes gallons of gas consumed per 100 miles, which is the inverse of MPG.

This metric was added in direct response to some of our [previous research](#) demonstrating that consumers fail to realise the

curvilinear relation between MPG and gas consumption. That is, not all increases in MPG are equal. For example, more gas is saved upgrading from an MPG 10 to 20 car than upgrading from an MPG 20 to 50 car.



Yet few consumers are aware of this “[MPG illusion](#).” As a result, consumers underestimate the gas savings that come from seemingly small improvements on inefficient vehicles.

In addition, the new Monroney sticker describes estimated cost information including annual fuel cost (assuming 15,000 miles per year at \$3.70 per gallon) and a comparison of fuel costs spent or saved over five years compared to the average new vehicle. The sticker provides a 1-to-10 greenhouse gas rating, where a higher rating corresponds to fewer carbon dioxide emissions released per mile, and a 1-to-10 smog rating, where a higher rating corresponds to fewer tailpipe pollutants.

Upon closer inspection of the new Monroney sticker, you may notice that all of the different metrics are simply different expressions of the same global attribute: the amount of gas consumed. These different expressions, which we term “translated attributes,” are indeed closely related to each other and highly correlated. Nevertheless, each translation also highlights different aspects and consequences of fuel economy.

Although translated attributes may seem unnecessary, we believe that they are valuable because they serve as “signposts” to consumers: They remind them of outcomes they care about, and point them in the right direction to achieve those outcomes.

Conscious consumerism

Inspired by the new Monroney sticker, we carried out a number of experiments to examine how different translations of fuel

economy were related to preference for more fuel-efficient cars. Rather than use the sticker itself, though, we took pieces of information from it and presented it to our respondents in a table.

In one set of online [studies](#), we asked 1,745 American adults to make a hypothetical choice between two different vehicles, one cheaper and the other more fuel-efficient. What we changed from person to person was how fuel efficiency information was presented: Some people were presented with either annual fuel cost or greenhouse gas rating alone, some with annual fuel cost together with gallons per 100 miles and some with annual fuel cost together with the greenhouse gas rating. We made two interesting observations.

Research results

First, people were more likely to prefer the fuel-efficient car when presented with two fuel-efficiency metrics compared to one. The more reasons one provides (such as cost and the environment), the more people prefer the efficient car.

Second, those who identified themselves as pro-environmental were more likely to choose the fuel-efficient car when presented with the greenhouse gas rating (but not in its absence). This is the signpost effect: Green-oriented consumers neglected the benefits of efficiency until reminded that they cared about it and that it could be achieved with the efficient vehicle.

We have also published [research](#) describing the most effective way to express fuel efficiency if you had to rely on just one piece of information and were trying to encourage consumers to choose greener options. Again, we asked 908 American adults to make a hypothetical choice between two different vehicles, one cheaper and the other more fuel-efficient.

This time, we changed how fuel efficiency information was presented: Some people were presented with the gas consumption over 100 miles (as is currently on the new Monroney sticker), some over 15,000 miles (approximately annual miles driven) and some over 100,000 miles (approximately lifetime miles driven). We did the same for costs.

We found that consumers were most likely to prefer the fuel-efficient car when presented with the “cost of gas consumed per 100,000 miles.” Therefore, the metric comparing fuel costs spent or saved over five years compared to the average new vehicle now on the Monroney sticker is a move in the right direction. We recommend that consumers use online calculators to make [similar calculations for themselves](#).

Easing decision-making

Overall, our research suggests that the updated [Monroney sticker is well-designed](#) to encourage consumers to purchase more fuel-efficient vehicles: Presentation of multiple “translated attributes” actually eases decision-making by better aligning consumer’s objectives and choices.

More generally, translated attributes could be used in many other contexts including online customization. For example, the website www.fueleconomy.gov allows a person to compare the fuel economy of different vehicles. The information is presented under different tabs, such as “Fuel Economy” and “Energy and Environment,” which the user is free to click on. We can easily imagine a more customizable interface that enabled the presentation of tailored information to specific users or user segments.

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