

Study shows tax on plug-in vehicles is not answer to road-funding woes

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Given declining revenues from gasoline and diesel fuel taxes and the need for new ways of funding road infrastructure, state and federal policymakers are considering or have enacted annual registration fees for plug-in vehicles. In a paper to be published in the August issue of *Energy Policy*, researchers at Indiana University-Purdue University Indianapolis say that approach is misguided.

According to the paper, the registration fees already adopted by at least eight states reflect concerns about how the growing number of electric vehicles may affect [road infrastructure](#) funding. Electric vehicles do not contribute through [fuel](#) taxes to road construction and maintenance.

Those concerns are reflected by a Washington state legislator who is quoted as saying, "electric cars will be driving on the highway right along with all the other cars ... we believe they should be paying their fair share."

In the paper, "Plug-in vehicles and the future of road infrastructure funding in the United States," Jerome Dumortier and Seth Payton, assistant professors in the School of Public and Environmental Affairs, and Matthew Kent, a former graduate student, assess the magnitude of the decline in federal tax revenue caused by plug-in vehicles and quantify the revenue that could be generated from a federal plug-in vehicle registration fee.

The primary revenue-related issue for transportation infrastructure is the extent to which transportation construction and maintenance are tied to gasoline and diesel consumption, Dumortier said.

Given the erosion of the gasoline and diesel tax base, the federal Highway Trust Fund has suffered a decline in its balance and experienced significant funding shortfalls, according to the paper. Over the

last seven years, lawmakers have had to transfer \$65 billion from the United States' general fund to the Highway Trust Fund to keep it solvent.

One reason that erosion occurred is an increase in [fuel efficiency](#), Dumortier said. Between 1980 and 2012, average fleet fuel efficiency increased from 15.97 to 23.31 miles per gallon, a 30 percent reduction in fuel consumption of the average vehicle.

Another reason is the non-adjustment for inflation of the fuel tax rate at the federal level and in most states, allowing the real tax rate to decline over time, Dumortier said.

On the other hand, the erosion in the tax base is only minimally attributable to plug-in vehicles, at most 1.6 percent, Dumortier said.

"The lesson for policymakers is that plug-in vehicles do not contribute significantly to the funding shortfall in the short- and medium run, and a supplemental tax on plug-in vehicles would generate only a small percentage of additional revenue," he said. "We show that the majority of the funding shortfall is due to the non-adjustment of fuel taxes and the increase in fuel efficiency. Thus a registration fee would not alleviate the funding shortfall."

Registration fees for plug-in vehicles also fly in the face of policies intended to promote their use due to concerns about energy independence, energy efficiency and greenhouse gas emissions, Dumortier said.

The researchers cite a federal income tax credit as high as \$7500 to incentivize the purchase of battery [electric vehicles](#) and state and local government credits or exemptions to sales taxes, excise taxes, registration fees and parking fees.

Even with those incentives, the Energy Information

Administration estimates the share of plug-in vehicles in 2040 will be 5.14 percent in its most optimistic scenario, according to the paper.

At least eight states have imposed a vehicle registration fee, ranging from \$50 to \$200, for alternative-fuel vehicles: Colorado, Georgia, Idaho, Nebraska, North Carolina, Virginia, Washington and Wyoming.

"We hypothesize that the impact of plug-in vehicles at the state level is as small as it is at the federal level in relative terms. Imposing an additional registration fee at the state level will likely have a very small impact on government finances coming from fuel tax revenue," the researchers said.

In the long run, the United States should shift its road infrastructure funding away from gasoline taxes to an alternative system that should be, as most research suggests, based on [vehicle](#) miles traveled, according to the paper.

More information: Jerome Dumortier et al. Plug-in vehicles and the future of road infrastructure funding in the United States, *Energy Policy* (2016). [DOI: 10.1016/j.enpol.2016.05.005](https://doi.org/10.1016/j.enpol.2016.05.005)

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