
EFFECTS OF A \$0.25 FEDERAL GAS TAX INCREASE ON U.S. ECONOMY, FUEL USE, FLEET COMPOSITION

BY ROBBIE ORVIS ● FEBRUARY 2018

The U.S. Chamber of Commerce's proposal to raise the United States federal fuel user fee (aka gas tax) \$0.25 per gallon has driven contentious debate over the future of U.S. transportation funding. The Chamber's proposal would increase the current \$0.18 per gallon gasoline tax five cents per year up to \$0.43 per gallon and the \$0.24 per gallon diesel tax five cents per year up to \$0.49 per gallon.

The U.S. gas tax has not been increased in 25 years losing [nearly 40 percent](#) of its value in real terms over that time as inflation has increased. The federal trust fund that pays for highways and transit projects through gas tax revenue is projected [to run a](#) \$138 billion deficit by 2027 unless it slashes funding or finds new sources of revenue. The gas tax could provide this much needed revenue, but doing so will create new direct consumer costs. Republican members of Congress [appear split](#) on the issue, and President Trump was quoted [as supporting](#) up to a \$0.50-per-gallon hike. Others are split on the issues as well. Groups affiliated with the Koch Brothers [oppose](#) any gas tax increase, while the American Petroleum Institute [may remain](#) neutral.

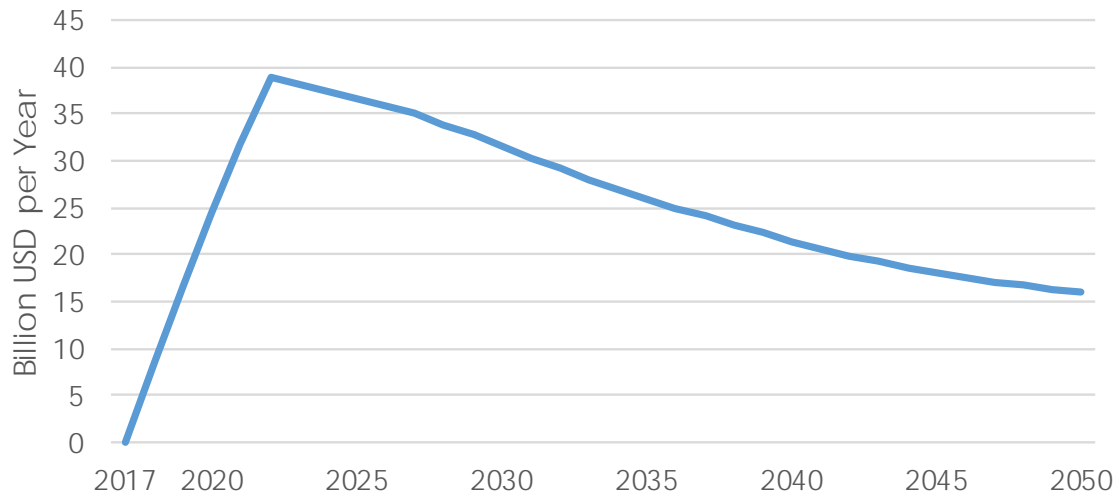
To evaluate the potential impacts of a gas tax increase on the U.S. economy, total energy demand, and transportation fleet composition, Energy Innovation ran a variety of simulations using the [Energy Policy Simulator](#) (EPS) computer model. The open-source and peer-reviewed EPS uses government data to assess the impacts of dozens of energy-related policies on emissions, costs and savings, and fuel consumption.

GAS TAX WOULD GENERATE \$840 BILLION IN REVENUE THROUGH 2050

Under the Chamber of Commerce proposal, the tax increase would phase in at \$0.05 per year until it reaches \$0.25 per gallon. Assuming it starts in 2018, the tax increase would create \$39 billion in government revenue per year by 2022, and about \$840 billion through 2050. While the Chamber of Commerce [estimates](#) a \$0.25 gas tax would raise just \$394 billion over the next 10 years¹, our modeling puts this number closer to \$303 billion.

¹ The Chamber does not specify if its modeling assumes \$0.05/year or \$0.25 at once, nor how it adjusts for inflation or vehicle efficiency gains. Our modeling assumes \$0.05/year and operates in inflation-adjusted currency. We do not adjust for vehicle efficiency gains.

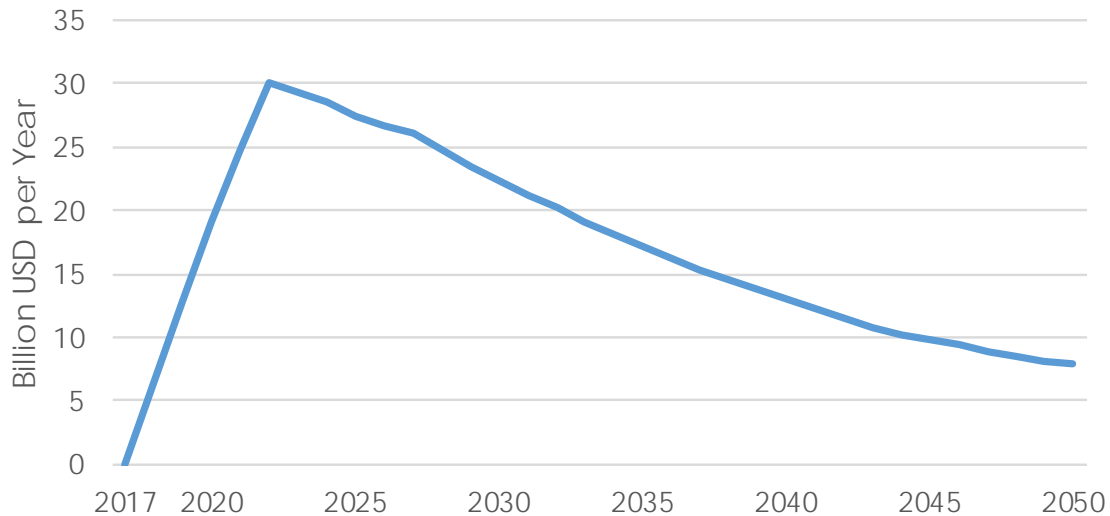
Increase in Government Revenue



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The cost of the gas tax to drivers would grow to about \$30 billion per year by 2022, with annual costs steadily decreasing over time (with rising gas prices in a business-as-usual scenario, drivers naturally drive less and purchase an increasing number of electrified vehicles, so a flat tax has falling revenue in out years). It is worth noting a \$0.25 tax increase is well within the historical variation in gas prices.

Change in Capital, Fuel, and Operating Costs

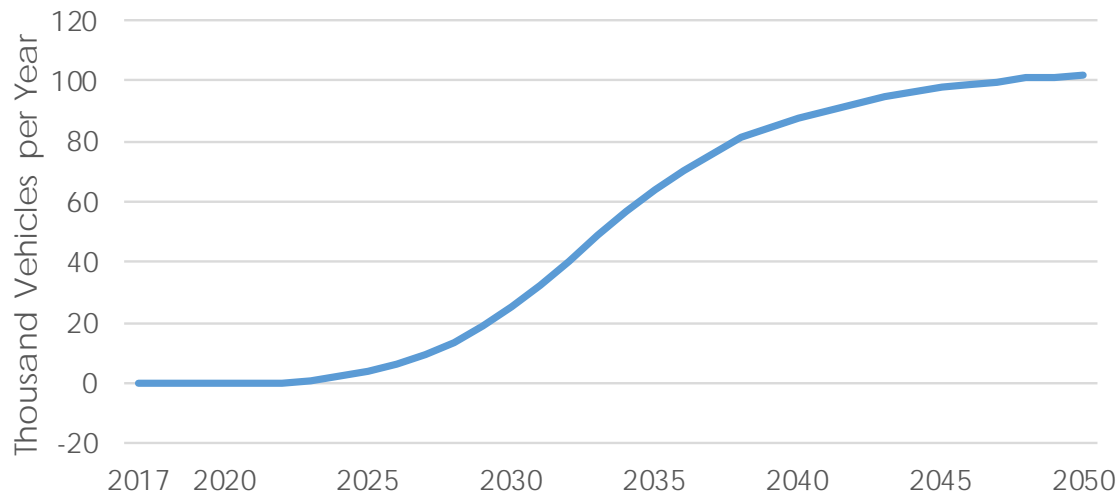


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GAS TAX WOULD ADD 1.2 MILLION ADDITIONAL ELECTRIC VEHICLES TO U.S. ROADS BY 2050

Rising gasoline costs would increase consumer interest in EVs, increasing annual EV sales by about 100,000 per year in 2050, resulting in around 1.2 million additional EVs on the road by 2050.

Increase in New Electric Vehicle Sales



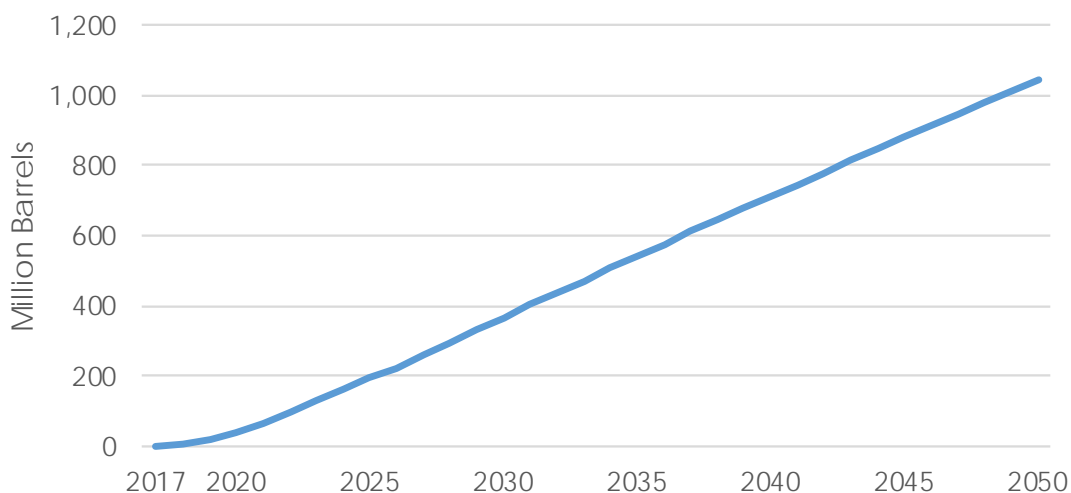
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This raises an interesting point: In a high-penetration EV future, a gas tax will face steadily-falling revenue. Policymakers considering a gas tax may also consider how they can raise infrastructure revenue in a future where many cars are EVs.

GAS TAX WOULD REDUCE TOTAL FUEL CONSUMPTION BY MORE THAN 1.3 BILLION BARRELS

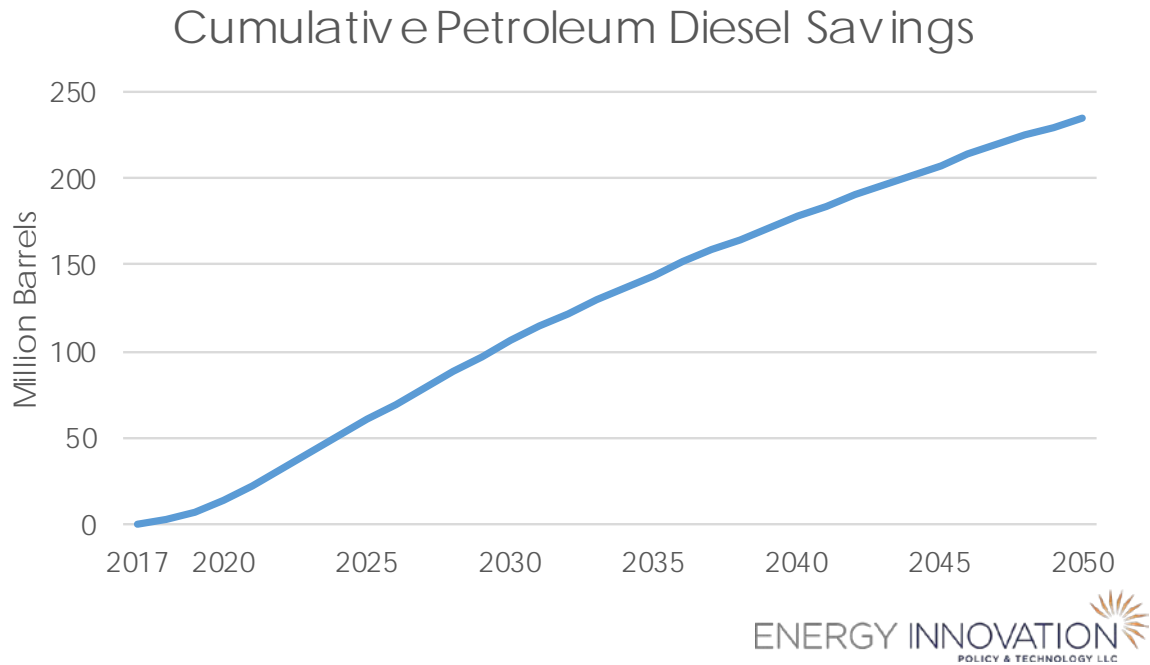
Higher costs and increased vehicle electrification would also reduce annual U.S. gasoline and diesel consumption. Annual gasoline consumption would be reduced by between 30 and 35 million barrels with the full \$0.25 tax, saving more than a billion barrels through 2050.

Cumulative Gasoline Savings



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Annual diesel consumption would be reduced by about 10 million barrels, saving about 235 million barrels through 2050.



GAS TAX WOULD EQUAL A NATIONAL CARBON TAX HIGHER THAN ANY EXISTING U.S. PRICING SCHEME

Interestingly, a \$0.25 gas tax is equivalent to a \$29 per ton carbon tax, based on the heat and carbon content of gasoline (this equivalency is slightly different when looking at diesel, dropping the carbon tax down to \$25 per ton). As a general rule of thumb, each dollar of a carbon tax is about the same as \$0.01 increase in the gas price.

That price compares to the California-Quebec cap-and-trade system's record high allowance auction price of \$15.06 per ton ([set in](#) November 2017) and the Regional Greenhouse Gas Initiative cap-and-trade system's record high allowance auction price of \$7.50 per ton ([set in](#) December 2015).