



FUNDING OPTIONS FOR LOW-CARBON TRANSPORTATION

ALTERNATIVES TO THE FEDERAL GASOLINE TAX



TOPIC BRIEF
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Introduction

Transportation accounts for nearly 30% of U.S. greenhouse gas (GHG) emissions.¹ The United States cannot meet its emissions-reduction goals without investing in low-carbon transportation modes such as electric vehicles (EVs), public transit, scooters, and bike-sharing systems. However, our current mechanisms and levels of funding are inadequate for building forward-thinking transportation systems.

Public transit—the most energy-efficient form of transportation²—has long been underfunded³ and currently faces a \$90 billion backlog of projects (projected to grow to \$122 billion by 2032).⁴ Moreover, as the country increasingly looks toward electric vehicles as a means of GHG reduction—one projection indicates that by 2040, 57% of passenger vehicle sales globally will be electric⁵—transportation funding will need to support the charging infrastructure needed to achieve mass EV deployment. Today’s consumers rank lack of access to efficient charging stations as the third most serious barrier to EV purchase.⁶

Existing methods for transportation funding are insufficient for the investments in sustainable transportation required to reduce carbon emissions. Since 2008, for example, Highway Trust Fund (HTF) revenues—which provide the bulk of federal highway and transit investment—have been grossly inadequate for the surface transportation spending that Congress has authorized⁷ and may not be viable long term.⁸

This topic brief provides a concise overview of the problems with current mechanisms for funding sustainable transportation and explores other funding methods to support low-carbon transportation investment in the United States. As we assess alternate transportation funding methods, it is imperative to consider each mechanism’s equity impacts, with a specific eye on transportation access and curbing the impacts of transportation-related air pollution, which disproportionately burden low-income communities.⁹



The federal gas tax is a major source of transportation funding in the United States and has not been raised since 1993.



The unchanged federal gas tax, increases in fuel efficiency, and the shift to EVs collectively necessitate a change in our transportation funding mechanisms. Moreover, the United States has historically lacked funding for its most efficient form of transportation, public transit.

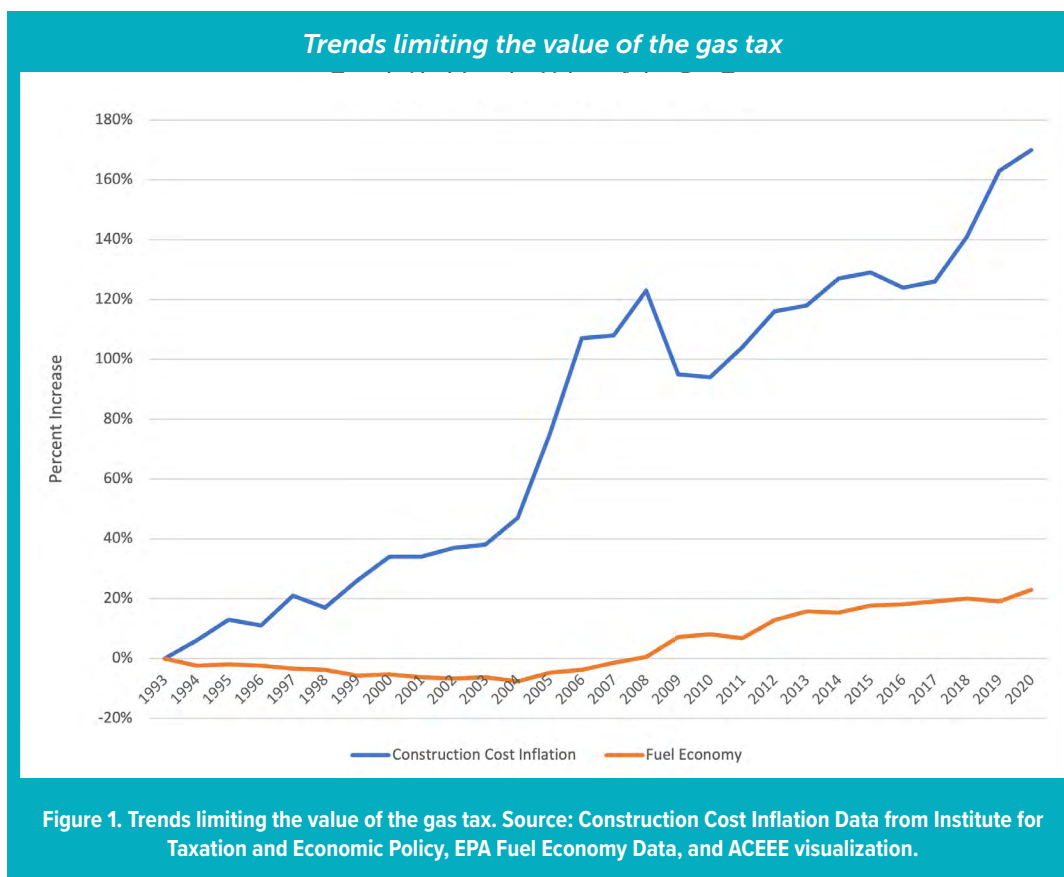


There are a number of other mechanisms to generate funding—such as cap-and-trade programs, vehicle miles traveled (VMT) fees, and value capture policies—that are being implemented at the city and state levels and provide a path forward in funding sustainable transportation.

The Limitations of the Gas Tax

The national fuel tax is the single most important federal source of transportation funding¹⁰—yet it has remained flat since 1993 (at 18.4 cents per gallon for unleaded and 24.4 cents per gallon for diesel).¹¹ Revenues from the national fuel tax account for 85–90% of the amount paid into the HTF in most years.¹²

Historically, fuel taxes have been a popular funding mechanism because of the “user pays” principle of transportation funding. However, users are not actually bearing the full cost of their travel.¹³ Because fuel efficiency has improved and the fuel tax has remained constant, on the average tank of gas, cars today do more damage to roads than cars in the past.¹⁴ As figure 1 indicates, construction costs have also increased significantly since 1993.¹⁵ Driven by inflation and increasing fuel efficiency, the federal gas tax lost 57% of its purchasing power from 1998 to 2017.¹⁶



Additionally, stagnating annual vehicle miles traveled (VMT) limit the value of the fuel tax. When the HTF was first developed, annual VMT was increasing rapidly. Now however, VMT is projected to increase at an average of just 1.1% per year over the next 20 years.¹⁷

The fuel tax’s declining value is evident in the HTF spending and revenue gap. Since 2008, the fund’s spending has exceeded its revenues by a total of \$115 billion,¹⁸ and HTF has relied on Congress for general revenue transfers to meet short-term spending obligations.

The HTF is also unlikely to be able to keep up with more pressing transportation needs. With recent declines in ridership due to COVID-19, transit systems nationwide need both emergency relief as well as long-term funding solutions. Moreover, proposed service cuts will disproportionately impact essential workers and low-income communities that are dependent on bus and rail services.¹⁹ While up to 20% of HTF monies are nominally dedicated to transit expenditures, between 2010 and 2019, an average of just 12.8% of the HTF was spent on public transportation.²⁰

Additionally, state motor fuel taxes face many of the same issues as the federal motor fuel tax. Every state has its own gas tax, which ranges from 13 to 63 cents per gallon.²¹ Similarly, most states devote the bulk of the revenue from their motor fuel taxes to highways; in 2018, states spent, on average, 48% of their motor fuel tax revenue on highways and just 13% on mass transit.²²

Just as gas taxes are regressive,²³ many of the options we discuss below to generate revenue and encourage reduced GHG emissions could have a regressive impact on low- and middle-income (LMI) communities. Therefore, policy design and implementation must prioritize equity from the start. To build the infrastructure necessary to decarbonize our transportation systems in an equitable way requires stable, adequate funding sources. The United States also needs to update its funding tools to reflect changing transportation needs and declining gas tax revenues.

Additional Sustainable Transportation Funding Options

In addition to the gasoline tax, several federal, state, and local funding sources are directed toward transportation expenditures. General fund appropriations and sales taxes make up the largest portion of state funding sources for mass transit, at roughly 27% each.²⁴ All states except Alaska have a state transportation fund,²⁵ and six states provided 100% of public transportation funding from their general fund.²⁶ In 2018, states collectively provided \$6.3 billion more funding for public transit than the federal government.²⁷

For localities, passenger fares were the major source of transit funding (41.9%) in 2014, followed by general fund appropriations (12.4%) and sales taxes (15.8%). Property taxes (1.3%), motor fuel taxes (0.5%), and income taxes (0.3%) made up a smaller portion of local funding.²⁸

Beyond funding transportation projects through the gas tax, the federal government provides general funds toward transit, active transportation (biking or walking), and EV-charging infrastructure. In 2018, federal funding accounted for more than 50% of total transit funding in 37 states, totaling \$12.9 billion.²⁹ Federal funds also provide funding to states for bicycle and pedestrian infrastructure,³⁰ though active transit funds remain minimal relative to other forms of transportation; from 2000 to 2018, cumulative federal funding for pedestrian and cycling projects amounted to only 2% of federal roadway expenditures, although walking and cycling together accounted for 10–13% of all daily trips in the United States.³¹ Finally, the federal government provides tax credits for the purchase of an EV (up to \$7,500)³² and tax credits of up to \$1,000 for home charging infrastructure.³³

Alternative Policies and Mechanisms to Fund Sustainable Transportation

As the following discussion shows, there are a variety of policies and actions available to create sustainable long-term funding for low-carbon transportation.

REFORMING THE HIGHWAY TRUST FUND AND THE MOTOR FUEL TAX

Ending the 80/20 split for HTF (Federal)

The existing HTF split between highway and mass transit funding is more than 80/20, respectively. In December 2020, the Transit Parity Resolution was introduced, calling on the federal government to end the 80/20 HTF split and provide funding for public transit that is equal to the level of highway funding.³⁴ Changing the HTF funding split would quickly direct significantly more money toward transit, but would not address the underlying issues of the gas tax as the primary resource for transportation funding.

Increasing and Reorienting the Gas Tax to Fund Sustainable Transportation (Federal and State)

In addition to reforming the HTF split, the gas tax could be indexed for inflation. Had fuel taxes been adjusted in 2019 to reflect changes in the Consumer Price Index (CPI) since 1993, the gasoline tax would be roughly 33 cents per gallon today, and the diesel tax would be 43.8 cents per gallon.³⁵ However, increasing federal fuel taxes alone is not a long-term solution due to the projected declines in fuel consumption associated with more efficient vehicles and adoption of EVs.³⁶ Also, raising the national fuel tax may not be feasible amid the COVID-19-induced recession.³⁷

In addition to adjusting for inflation, the federal gas tax could move to a percentage-of-fuel-price model and thereby adjust to reflect inflation. If taxed as a percentage of the retail price rather than the fixed fee per gallon, tax revenue would increase should fuel prices rise in the future.³⁸

While every state has its own fuel tax,³⁹ only 20 states currently use state fuel tax revenue to fund public and active transportation.⁴⁰ Additionally, 15 states have not increased their gas tax rates for a decade or more.⁴¹ States should adjust their gas taxes to reflect the true cost of transportation projects and devote more funds to active and public transportation. As part of these changes, states should consider indexing their gas taxes to inflation in some fashion.

REFOCUSING GENERAL FUNDS TOWARD SUSTAINABLE TRANSPORTATION (FEDERAL)

While 80% of federal public transit has traditionally come from the HTF's mass transit account and the remaining percentage coming from the general fund, appropriations acts over the past few years have increased the general fund share to 28% in FY2018, 26% in FY2019, 21% in FY2020, and 22% in FY2021.⁴²

Transportation Authorization and Appropriations

Since 2008, general fund transfers to make the HTF solvent have totaled \$144 billion—\$70 billion of which was authorized through the 2015 Fixing America's Surface Transportation (FAST) Act.⁴³ The 2015 FAST Act authorized \$305 billion in transportation spending, with \$205 billion going to highways and \$48 billion to transit over five years.⁴⁴

Additionally, the FY2021 spending bill appropriated \$86.7 billion for the Department of Transportation, of which \$13 billion went to the Federal Transit Authority (FTA) and \$1 billion went to the Better Utilizing Investments to Leverage Development (BUILD) grant (previously known as Transportation Investment Generating Economic Recovery, or TIGER) to fund transportation (including transit)—compared to just over \$49 billion for the Federal Highway Administration.⁴⁵

Federal general spending from both general revenues and the HTF prioritizes highway projects. Reorienting federal general funds toward transit, active transportation, and EV-charging infrastructure will help lower transportation-related GHG emissions and reflect changing trends and our long-term transportation needs. However, while this is a short-term solution, it is not a sustainable source of transportation funding in the long run.

Budget Reconciliation

Congress can use a budget reconciliation bill to fund transit. Budget reconciliation is a process by which legislation surrounding spending or taxes that impact the federal budget can be passed with a simple majority. Reconciliation bills cannot be filibustered,⁴⁶ and while the Senate's rules do not allow general funds to be transferred directly to the HTF,⁴⁷ funds may be used to create new general spending for infrastructure. This may include a specification that money be spent on transit, EV infrastructure, and active infrastructure.⁴⁸ Through the reconciliation process, Congress recently provided \$30 billion in COVID-19 emergency funding for public transit agencies.⁴⁹

CARBON PRICING (STATE AND FEDERAL)

Carbon pricing—either in a cap-and-trade system or a carbon tax—could generate revenue for sustainable transportation projects. A carbon tax could be levied on carbon dioxide emissions from industrial polluters, and a portion of revenues could be used to fund investments in low-carbon transportation (among other GHG-reducing actions), though specific impacts would depend on the policy design and implementation. Carbon taxes have long been discussed as a method to internalize the environmental and health costs of carbon dioxide emissions, though there is concern that the carbon tax costs for industrial polluters could be passed down to consumers.⁵⁰ Carbon taxes have not been implemented on the state or federal level in the United States.

A cap-and-trade program sets the quantity of emissions reductions and lets the market determine the price, while revenues from emission permits can be reinvested in sustainable transportation projects.⁵¹ The cap-and-trade approach may be more politically popular than a tax because it allows the market to determine the cost of permits,⁵² though similar to a tax approach, there is concern over whether the increased energy costs are

equitably passed down to consumers.⁵³ Any increase in commuting expenses will contribute to the already disproportionate cost burden low-income individuals experience.⁵⁴ One way to mitigate the cost's burden is by returning program revenue to consumers.⁵⁵ Since 2015, California's program has generated roughly \$9 billion for investments in cleaner vehicles, public transit, energy efficiency, and affordable housing.⁵⁶

Another option is exemplified by the Transportation and Climate Initiative, a coalition of Northeast and Mid-Atlantic states⁵⁷ that is considering a regional cap-and-invest program for transportation fuels. The program is designed to generate revenue for sustainable transportation, such as investment in public transit, electrification of buses, and expanding bike lanes and pedestrian infrastructure.⁵⁸ While many states have signaled interest in the program—and collaborated throughout the development process—Massachusetts, Connecticut, Rhode Island, and D.C. have formally committed to it. Importantly, participating jurisdictions will have to work to ensure that gas price increases associated with the program do not pose an undue burden on low-income communities. The current participants have pledged roughly \$100 million each year to invest in communities with limited transportation access that have been overburdened by pollution, though more work can be done to involve communities in the implementation process.⁵⁹

VEHICLE MILES TRAVELED FEES (CITY, STATE, FEDERAL)

An innovative approach to solving the long-term funding issue for sustainable transportation is to replace the federal fuel tax with a national VMT fee. A VMT system would levy fees based on distance driven and might incorporate other variables such as fuel efficiency. The system could also charge users based on the type, location, and congestion of the road on which the vehicle travels. A VMT fare structure offers flexibility in the ways in which drivers are charged, though more complex fee structures—which require more data—pose greater privacy issues. Currently, Kentucky, New Mexico, New York, and Oregon impose a state-level VMT tax on commercial trucks. Estimates show that in 2017, a nationwide 1-cent-per-mile VMT tax on commercial trucks would have generated only \$2.6 billion in revenue.⁶⁰ A federal VMT on all vehicles could provide significant revenue to the HTF, though the administrative and enforcement costs are estimated at 5–13% of collections.⁶¹

As with the gas tax, VMT systems mean that those living in suburban or rural communities with less access to transportation alternatives pay more than their urban counterparts. Additionally, since low-income populations already spend a higher proportion of their income on commuting,⁶² those who drive could be overburdened by a VMT fee. While the flat fee structure is the easiest VMT model to implement, it also offers the fewest opportunities to address equity.⁶³ Further, administering Road User Charge (RUC) fees electronically will be challenging for individuals without bank accounts; also, low-income drivers, who tend to drive older, less fuel-efficient vehicles, would be disproportionately affected by fees based on fuel economy.⁶⁴ There are methods to mitigate these inequities—such as by separating the fee structure into rural versus urban roads, making the fees progressive by income, or even eliminating fees for drivers in households under a certain income level. Importantly, an RUC system should direct revenues toward transit development in low-income communities.⁶⁵

CONGESTION PRICING (CITY)

Although not yet implemented nationally in the United States due to the federal approval requirement for federally funded roads,⁶⁶ congestion pricing is a system in which vehicles are charged either a flat or variable rate when they drive in a specific area within a city.⁶⁷ Stockholm, Milan, San Diego, Singapore, and London have been leading the way in implementing congestion pricing systems.⁶⁸ London's city-center congestion zone was introduced in 2003; between 2002 and 2014, the city experienced a 39% reduction in the number of private cars entering the pricing zone. Meanwhile, bicycling trips in central London increased 210% between 2000 and 2016.⁶⁹ The decrease in personal vehicle trips and shift to more sustainable transportation modes resulted in a drop of more than one-third in transportation-related air pollution in the congestion zone.⁷⁰

New York City has current plans to implement a system that would charge drivers to enter Manhattan's central business district, and it is expected to generate \$15 billion for the New York City Metropolitan Transit Authority's capital plan.⁷¹

In addition to serving as a funding source for nonpersonal-vehicle mobility options, congestion pricing also could increase livability in communities plagued by congestion and localized transportation air pollution. This is particularly important when considering equity-related impacts of transportation policies.⁷²

OTHER TAXES FOR SUSTAINABLE TRANSPORTATION (CITY AND STATE)

Sales and Property Taxes

Despite being regressive, sales taxes are a common form of transit funding across the United States, and they are relatively easy to implement.⁷³ Even during COVID-19, in April 2020 Cincinnati voters passed a 0.8% sales tax increase that is expected to provide an additional \$100 million annually for public transit improvements over the next 25 years.⁷⁴

Property taxes offer a stable and administratively feasible source of funding for transit. Though large increases in property taxes may not be palatable for residents, property taxes are less regressive than many other tax forms.⁷⁵ Overall, property taxes make up a small portion of total local funding for transportation, but a number of cities are turning to property taxes for transit projects. Austin, Texas recently passed two propositions—one to develop active transportation infrastructure (such as sidewalks and bike lanes) and the other for a massive public transit expansion. The transportation plan, Project Connect, includes new rail and bus service, an all-electric bus fleet, and new park and ride lots.⁷⁶ Roughly 20% of Project Connect's \$7 billion price tag will be funded through property tax increases while 45% is expected to come from the FTA Capital Investment Grants Program⁷⁷ (with the remaining funds coming from other local funding sources).⁷⁸ Notably, Project Connect will “prevent 109 million vehicle miles of travel annually, keeping an estimated 30 tons of nitrogen oxide and 43,000 tons of carbon dioxide out of Austin's air every year.”⁷⁹

Value Capture

Value capture is another option for funding sustainable transportation at the city and state level. Broadly, value capture is an attempt to recoup the costs of transportation improvements from either landowners or commercial developers who benefit from the project's increase in property value, and it has recently been used for public transit.⁸⁰ Value capture for transportation projects can take various forms, including development impact fees, transportation reinvestment zones, and joint development.⁸¹ Development impact fees are a one-time fee on developers of new projects to help recover infrastructure costs.⁸² Transportation reinvestment zones are designated areas surrounding transportation projects that use rising property taxes (tax increment financing) to fund transportation development projects.⁸³ The Government Accountability Office found that the most common form of value capture for public transit is joint development, in which real estate projects near transit stations are developed jointly by the public and private sectors.⁸⁴ The Washington Metropolitan Area Transit Authority (WMATA) has been using joint development since the 1970s, and it is part of WMATA's strategy for promoting transit-oriented development, encouraging mixed-use development with housing, and increasing ridership.⁸⁵ In 2005, WMATA completed a joint development project with a private developer to build an apartment complex and retail space at DC's Rhode Island Metrorail Station to promote mixed-used development and transit usage.⁸⁶ However, in 2019, the approved budget included only \$9.8 million from joint development, making up just over 1% of operating revenue.⁸⁷

Conclusion

There are many policy options to increase sustainable transportation funding at the state, local, and federal levels. However, especially given the COVID-19 pandemic, federal policymakers appear reluctant to enact new tax systems and have signaled a continuation of general fund transfers. Yet as the economy recovers, as EV adoption becomes more popular, and as the purchasing power of the gas tax declines further, legislators may be more motivated to transform transportation funding to improve sustainability. In the meantime, states and localities are embarking on more ambitious projects, including VMT pilots, carbon pricing, congestion pricing, and value capture. In the future, lessons from these policy experiments can be scaled to the national level to generate revenue and provide sufficient funding to create forward-thinking transportation systems.





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