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# Exploring the Gas Tax and Mileage-based User Fee.

October 30, 2023

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# Introduction

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In 2020, the United States saw a significant increase in registered vehicles, totaling over 270 million. From 2017 to 2021, the number of vehicles registered in the US [increased by 3.6%](#). However, the increasing rate of vehicles registered in the US has outpaced the ability to maintain the conditions of roads and highways. The gas-tax or the motor-fuel tax has been used as a source of revenue to fix the conditions of the roads and highways since 1919. Despite the gas tax's historical significance, the gas tax as a policy option to generating revenue is eroding. This is due to the constantly evolving landscape of the transportation industry and the proliferation of fuel-efficient vehicles. This has caused a disparity between gas consumption and revenue generated, as more vehicles are able drive longer distances while requiring less motor fuel, resulting in less revenue being generated to maintain the conditions of roads.

This report will examine the viability of the gas tax as a source of revenue to fund the maintenance and conditions of Delaware's roads and highway systems. The examination will include analyzing Delaware's reliance on the gas tax as a share of total revenue compared to neighboring states which include Pennsylvania, Maryland, New Jersey, and New York. Furthermore, the report will assess the state of the federal Highway Trust Fund (HTF) and the dependence of the fund on the gas tax. This analysis is crucial to understanding the context of the mileage-based user fee (MBUF), a popular new alternative to the gas tax. The MBUF is currently being explored and tested throughout the nation, with only Oregon, Utah, and Virginia having launched the program to drivers. As such, it is important to note that the conclusions of this report regarding the feasibility of implementing the MBUF are constrained due to the limited scope of pilot programs that have yet to fully and comprehensively launch the program in the Northeast region. To thoroughly assess the MBUF's feasibility, this report also explores policy considerations, including equity issues, privacy concerns, and potential cross border conflicts.

## Background and Context

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The case for the gas tax begins with the State of Oregon in 1919, when Oregon became the first state to implement the motor fuel tax. Oregon's innovative move set a precedent, leading 35 states to adopt the gas tax. In [1919](#), only four states had a gas tax which generated \$553,987 and by 1925, 44 states began collecting the gas tax which generated \$139 million. The states reasoned that the collected revenue from the gas tax revenue was to be used for the repairs and damages done to highways and roads. However, by 1932, the federal government recognized the potential of the gas tax, but for different purposes. The year 1932 was in the early stages of the Great Depression, and the federal government was grappling with budget deficits. To close a gaping budget, a 1-cent gas tax under the Revenue Act of 1933 was imposed as an emergency tax. In its first year, \$124.9 million of tax was raised, prompting Congress to raise the tax to 1.5 cents and to permanently levy the gas tax in the Revenue Act of 1941.

The gas tax would later be increased 8 times to close budget gaps and meet revenue needs. By 1993, to decrease federal budget deficits, the gas tax was set at 18.4 cents. Three decades later, and the 18.4 cents gas tax has remained unchanged.<sup>1</sup>

The gas tax in its initial implementation was a reliable source of revenue that funded various road and highway projects. Under a gas tax system, the purchase of motor fuel per gallon is taxed. Currently, the federal gas tax is used to fund the HTF, which receives 84% of its revenue from motor fuel tax, and 16% from other sources like diesel, heavy trucks and trailers sales tax, tires, and heavy vehicles annual use tax (Figure 1). This reliance on the motor fuel tax has slowly eroded the purchasing power of the fund over time because the federal gas tax is not pegged on inflation. And with more vehicles becoming fuel efficient, resulting in decreased fuel purchase, but higher vehicle miles driven, revenue is likely to decrease.

The HTF, which is managed under two accounts, the highway account and the mass transit account, the former is used to fund construction and maintenance of highways and bridges, and the latter is used to make capital expenditures on buses, railways, subways, and ferries and other modes of transportation. Both accounts are undergoing excessive spending with cash inflows also decreasing (Figure 2). Since 2008, to make up for the funding shortfalls of the HTF, Congress has been transferring funds

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<sup>1</sup> [Federal Highway Administration: Highway History](#)

from the Treasury General fund to keep the HTF solvent. The recent legislation, the Infrastructure Investment and Jobs Act (IIJA) transferred \$118 billion to the HTF. In FY 2013 to FY 2014, \$215 billion was transferred to the HTF.<sup>2</sup>

This is alarming for both the national HTF and the several state transportation funds, as the federal government funds 25%, or \$51 billion, of highway and road maintenance, while states and local governments provide three-quarters of highway and road funding or \$154 billion (Figure 3). As the landscape of the transportation industry continues to evolve, various factors and trends are emerging that will impact both national and state transportation trust funds.

## Sale/Production of Alternative Fuel Vehicles is Increasing

Between April and June of [2023](#), 295,000 EVs were sold, 48% higher than 2022, and this figure does not include alternative fueled vehicles such as plug-in hybrid vehicles (PHV) or hybrid vehicles (HV). [EVs made up 8.5%](#) of all new vehicles sold or leased in February 2023. [Cox automotive](#) estimates that by the end of 2023, electric vehicles will make up 1 million of the total vehicles on the road in the US.

## EV Infrastructure

In terms of infrastructure for EVs, in the second quarter of 2023 there was a [4.0% increase](#) in the number of charging ports. The highest increase in the type of charging ports was in DC fast ports, 6.1%. The mid-Atlantic region had the largest increase in public charging, 7%.

The increase of EVs and alternative fuel vehicles are propelled by price cuts recently made by automakers ([Tesla](#), [Ford](#)), and the rate of production of EVs, as well as government policy incentives (such as tax credits) and investments. Government regulations are also pushing for more EVs on the road, eight states<sup>3</sup> are pushing for a zero-emissions future by banning the sale of new vehicles running on an internal combustion engine by a certain year. More recently, the Delaware Department of Natural Resources and Environmental Control (DNREC) finalized regulations to adopt the Advanced Clean Car II program, which aims to reduce pollution from gas powered vehicles by requiring automakers to deliver an increasing number of zero-emission vehicles to Delaware. Under this regulation, 43% of new cars and trucks sent to Delaware for sale will be zero-emission vehicles starting 2027 and 82% in 2032. This demonstrates that the Mid-Atlantic region is moving towards a zero-emission future.

## Heavier Vehicles on the Roads

According to a 2019 report prepared by the [Transportation Research Board](#), 9% of Delaware's interstates have pavements in poor condition, the second highest share in the US. Delaware's urban interstate highways are considered congested and the fourth highest share in the US, or 71%. Delaware's geographic location, and proximity to major US cities, are factors to consider when assessing why Delaware roads are congested and in poor conditions. Among other things, construction materials, temperature extremes, drainage, and erosion are also important factors that affect the conditions of roads. In addition, heavy vehicles also have an impact on public roads. Vehicle weights has [increased](#) since 1980, with the average car sold in the US weighing around 1,000 pounds more or 33% more than what it did then. Heavy vehicles – both gas and electric – will take a heavier toll on public roads, requiring more frequent road maintenance, and more funding. With more EVs on the road, and more Americans opting for light trucks, including pickups, SUVs, and minivans – roads are likely to experience more damage.

## Energy Source Displacement

On a global scale, EVs are expected to displace more than 5 million barrels per day in 2030, according to estimates by the [International Energy Agency](#). In a different estimate by [BloombergNEF](#), EVs are estimated to displace 21 million barrels per day in oil demand by 2050. The transportation sector accounts for [52% consumption of gasoline](#), and for the state of Delaware the transportation sector accounts for [68% of petroleum consumption](#).

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<sup>2</sup> [R47573.pdf \(fas.org\)](#)

<sup>3</sup> [California](#), [Maryland](#), [Massachusetts](#), [New Jersey](#) (in consideration), [New York](#), [Oregon](#), [Rhode Island](#) and [Washington](#)

## Highway Trust Fund

### Sources of Revenue

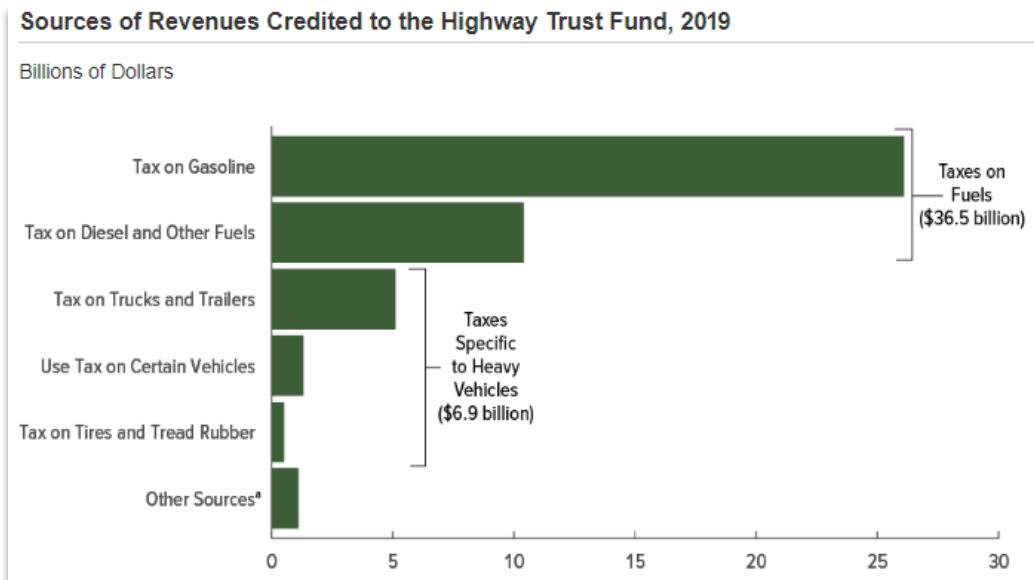


Figure 1. Source ([Congressional Budget Office](#))

## Operations

**Annual Revenues, Outlays, and Balance of the Highway Trust Fund in CBO's March 2020 Baseline Projections**

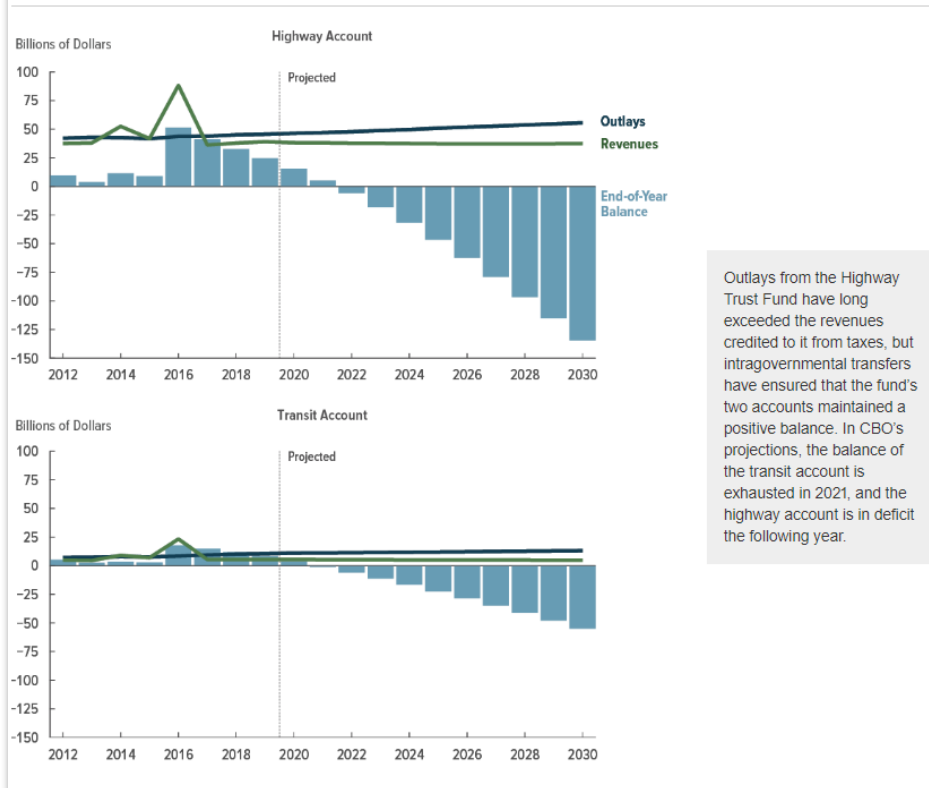
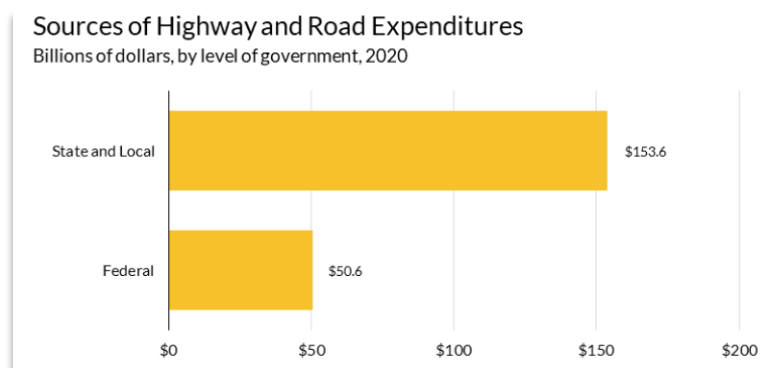


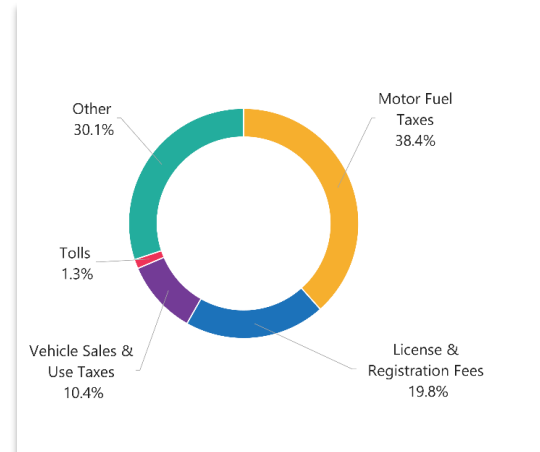
Figure 2. Source ([Congressional Budget Office](#))

## Share of spending on surface Transportation – Federal and State

**Figure 3.** Source ([Urban Institute](#)) The graph showcases the amount spent on highway and roads by level of government.



## Transportation Fund Revenue Sources FY 2022



**Figure 4.** Source ([National Association of State Budget Officers](#))

## State – Transportation Trust Fund

Similar to the HTF, the source of revenue for states' transportation trust fund comes from excise tax and other sources like license and registration fees, vehicle sale and use taxes, tolls, and others. According to the US Energy Information Administration, the average state excise gas tax in 2023 was 27.1 cents / gallon of motor fuel. Since 2021, 10 states have gone two decades without a gas increase (includes Delaware), and 36 states have raised or reformed gas tax since 2010. The gas tax across states varies with some having the motor fuel tax as a big percent of overall revenue of the TTF, while others rely on other means of revenue. Figure 4 illustrates that on average, 38.4% of revenue generated to fund TTF of many states comes from motor fuel tax. This becomes a crucial factor when considering implementing other means of revenue like the MBUF.

## Delaware

### Transportation Trust Fund

This section outlines the sources of revenue for Delaware's Transportation Trust Fund (TTF) from FY2022-2023.

<b>Revenues</b>	<b>Fiscal 2022 (\$ millions)</b>	<b>Fiscal 2023 (\$ millions)</b>	<b>Percentage of Total Fiscal 2022 Revenue</b>	<b>Percentage of Total Fiscal 2023 Revenue</b>
Motor Fuel Taxes	136.7	136.1	22.8%	22%
Toll Roads (I95, Route 1, concessions)	206.4	195.4	34.5%	31.6%
Motor Vehicle Document Fees	146.2	164.5	24.4%	26.6%
Motor Vehicle Registration Fees	57.4	61.6	9.6%	9.9%
Other DMV Revenues	39.7	39.1	6.6%	6.3%
Other Transportations Revenue	9.6	9.0	1.6%	1.4%
Investment Income (Net)	1.3	12.0	0.2%	1.9%
<b>TOTAL</b>	<b>\$597.3</b>	<b>\$617.7</b>		

**Table 1.** Source ([Delaware Department of Transportation](#))

The funds in Delaware's TTF are used for four purposes: paying off bond debts, covering operating costs, servicing existing state-issued transportation bonds, and funding capital projects. Table 1 showcases the sources of revenue that fund Delaware's TTF.



As Table 1 showcases, the motor fuel tax is the third largest category that funds the TTF. In 2022, motor fuel tax revenue made up 22.8% of all TTF revenues, and 22% in 2023. Revenue from tolls made up the largest component of revenue, making up 22% of total TTF revenues in 2023, and 22.8% in 2022, however, from FY2022 to FY2023 total toll road revenues decreased by 5.3%. Based on forecasts from the Delaware Department of Transportation, the motor fuel tax is likely to increase from FY2024 to FY2025 by 8.9% and would increase between FY 2027-30 by 0.5% to 1%. The TTF's total percent change from FY2026-30 is likely to remain positive, increasing by an average of 1.2%.

## Motor Fuel Tax and Consumption

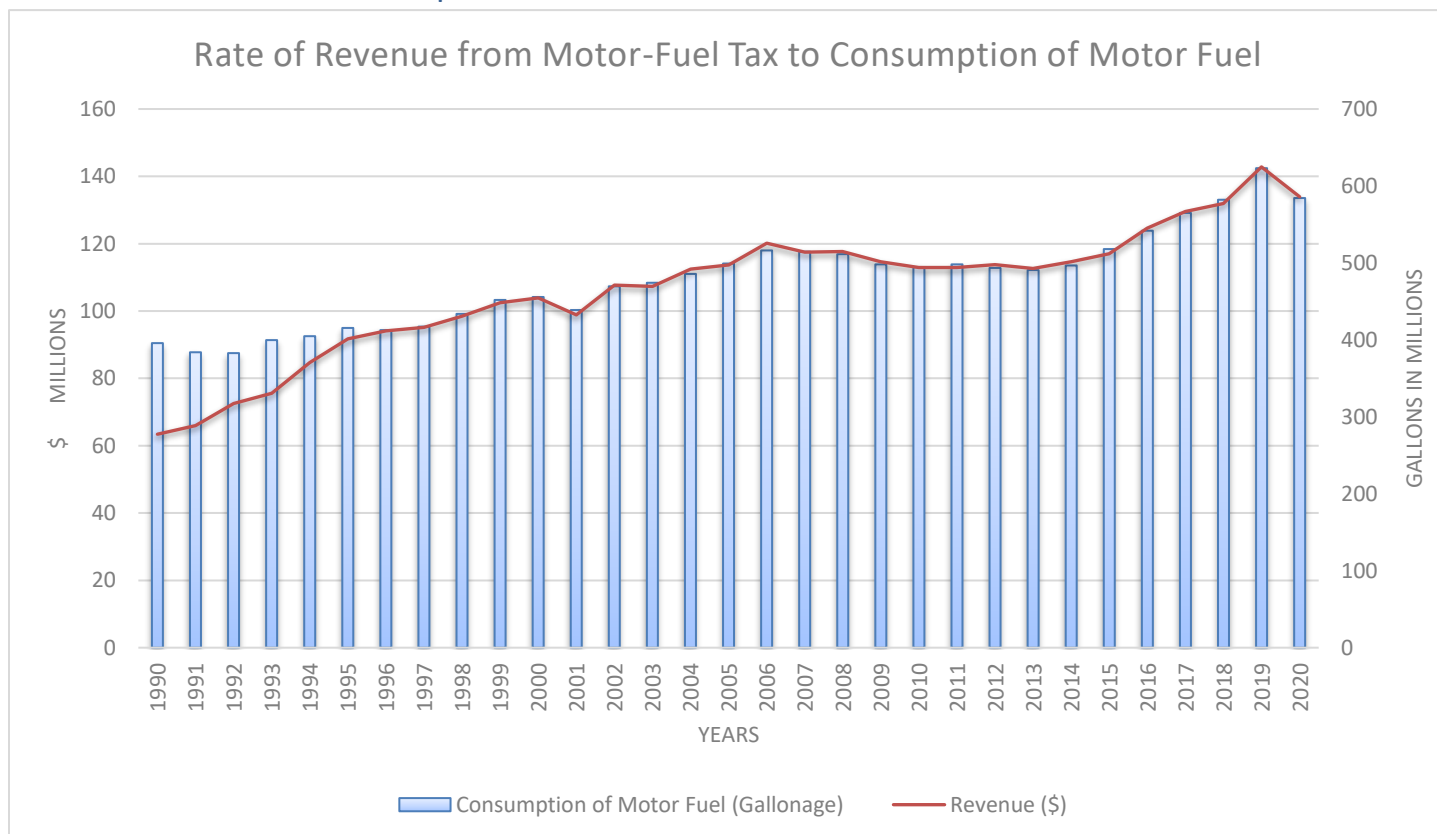


Figure 5. Source ([Delaware Transportation Authority](#))

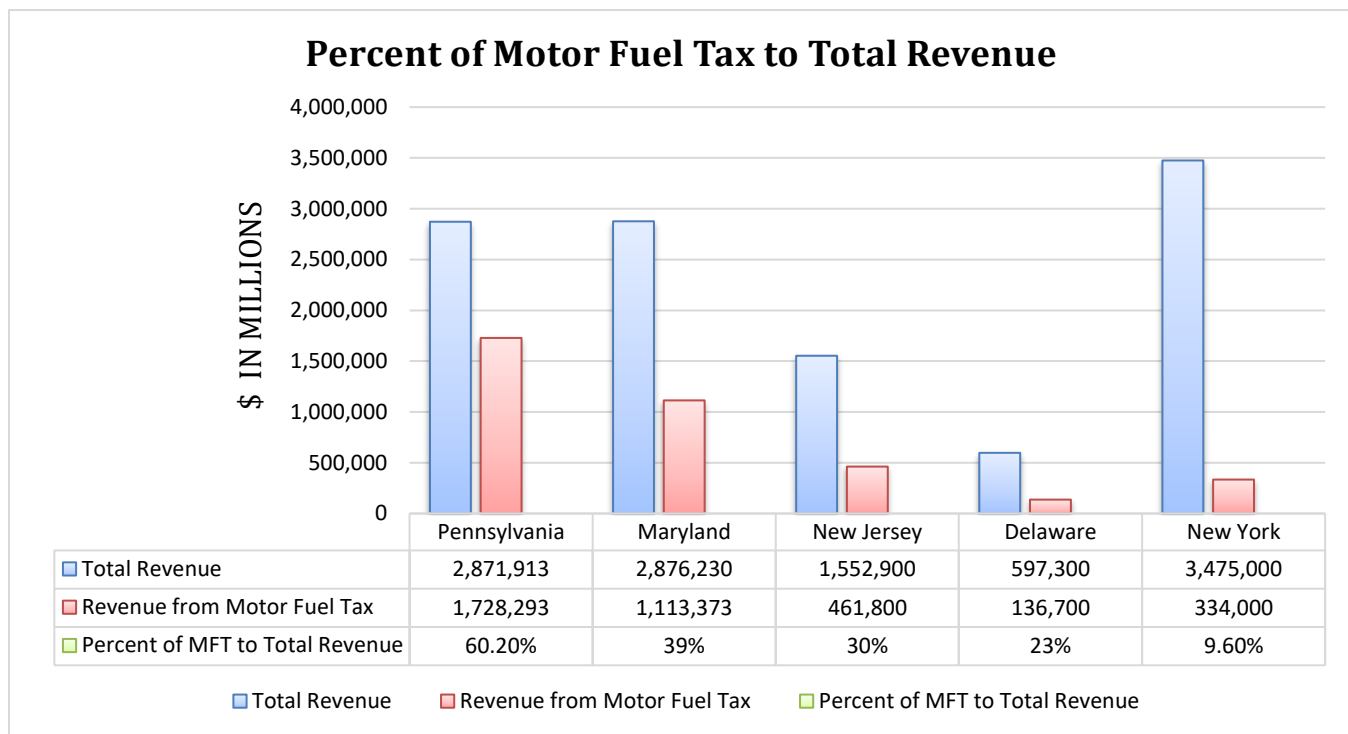
The consumption of motor fuel and revenue rates of motor fuel tax have relatively followed each other. In a thirty-five year period from 1985 to 2019, motor fuel consumption has nearly doubled, from a low 361.5 million gallons in 1985 to 623.1 million gallons in 2019. From 2007 to 2013, motor fuel consumption declined every year, with the exception of 2011. From 2014 onwards to FY 2019, motor fuel consumption has increased every year, this is attributed to lower fuel prices and increased vehicle miles traveled. In FY 2020, motor fuel consumption decreased due to the Covid-19 pandemic. Similarly, the revenue from motor fuel taxes decreased as less people purchased motor fuel to commute, and less commercial vehicles were on the roads.

The rate of motor fuel consumption with motor fuel revenues might decrease in the coming years, because of more fuel-efficient vehicles being produced, and more Americans opting for fuel-efficient cars, as fuel-efficient vehicles become more affordable. It's important to note however that the correlation between more people purchasing fuel-efficient vehicles to fuel consumption decreasing is not a linear one. Currently, Delaware has a fleet of [30,992 alternative fuel vehicles](#) (electric, hybrid), compared to 814,842 motor fuel powered vehicles, making up only 3.65% of all vehicles. However, state efforts to make fuel-efficient vehicles more affordable, and state efforts aimed at reducing gas emissions by phasing out the sale of gas-powered vehicles, may lead to increase in their number and have a more significant impact on reducing motor fuel consumption. In contrast, that the current market is shifting away from sedans and towards [sport utility vehicles \(SUVs\)](#) which are heavier and less fuel efficient, which can contribute to higher motor fuel consumption. In this evolving landscape, the future impact on motor fuel consumption – and by extension, revenue generated from the gas tax – remains blurred and will depend on the balance between these contrasting trends and the overall effectiveness of states' environmental policies.

# Neighboring States

## Motor Fuel Tax Dependence

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**Table 2.** Source ( Data was collected from each states respective Department for FY 2022, refer to footnote)

The data above illustrates each states' dependence on the motor fuel tax as a source of revenue to fund their respective TTF. Pennsylvania has many funds that allow for the state to maintain roads and highways. The data for [Pennsylvania](#) is relating to the Motor License Fund (MLF), which collects revenue from Pennsylvania's 61 cents / gallon motor fuel tax. The MLF contributes 52% of the total \$8.8 billion annual budget for Pennsylvania. Pennsylvania has the highest dependence on the MFT revenue, 60.2%. [Maryland](#) comes second at 39%, [New Jersey at 30%](#), Delaware at 23% , while [New York](#) is the least dependent, at 9.6%.

## Variable-Rate Gasoline Taxes

**Table 3.** Source ([National Conference of State Legislatures](#))

2023 Gas Tax (cents/gallon)		Year of Last Increase	Gas Tax Structure
Delaware	.23	1995	N/A
Maryland	.478	2013	Tax varies with gas price and CPI
Pennsylvania	.61	2015	Tax varies with gas prices
New Jersey	.423	2016	Tax varies with gas prices and revenue collections
New York	.181	2013	Tax varies with gas prices

Thirty-six states have raised or reformed gas taxes since 2010. In [24 states and Washington, D.C.](#), the gas tax/motor fuel tax is adjusted or fixed to inflation or average gasoline prices. **Delaware's motor fuel tax is not pegged on gas prices or the consumer price index (CPI) and was last increased in 1995.**<sup>5</sup>

<sup>4</sup> Pennsylvania ([Monthly Revenue Reports](#)), Maryland ([MDOT Annual Comprehensive Financial Report](#)), New Jersey ([NJ TTF Authority](#)), Delaware ([Delaware Department of Transportation TTF](#)), New York ([Office of the New York State Comptroller](#))

<sup>5</sup> [1993 Del. HB 350](#)



## Recent Fuel Tax Legislation

**Maryland** recently increased the gas tax from 43.5 cents/gallon to 47.8 cents/gallon. Since 2014, Maryland has indexed motor fuel tax rates, except for aviation and turbine fuel, to inflation. On June 1 of each year, the comptroller's office sets a new state gas tax based on the annual rate of inflation and average cost of a gallon of gas over a year.<sup>6</sup>

**New Jersey** in 2016, increased the per gallon tax from 14.5 cents to 37.5 cents. Currently, New Jersey's Petroleum Products Gross Receipts (PPGR) tax is adjusted yearly to meet the Highway Fuels Revenue Target. The motor fuel tax, which is fixed at 10.5 cents / gallon for gasoline, combined with the change in the PPGR, equals the current tax of 43.2 cents / gallon.<sup>7</sup>

**Utah** decreased the motor fuel tax rate from .364 cents/gallon on January 1, 2023, to .345 cents/gallon on July 1, 2023. In addition, Utah increased vehicle registration fees and imposed a tax on the sale of electricity for electric vehicle charging.<sup>8</sup>

**Minnesota** is set to index the current .25 cents/gallon motor fuel tax to the Minnesota Highway Construction Cost Index, rounded to the nearest tenth of a cent, beginning January 1, 2024. Starting January 1, 2024, the motor fuel tax will be .285 cents/gallon.<sup>9</sup>

**Missouri** increased the motor fuel tax of 17 cents/gallon by 2.5 cents / gallon of each year for five years beginning in October 2021 until reaching 29.5 cents/gallon on July 1, 2025. Additionally, Missouri exempts certain motor vehicles that are below a certain weight threshold, but taxpayers must apply annually for the exemption.<sup>10</sup>

**Virginia** modified the fuel tax formula that annually adjusts to changes in the Consumer Price Index (CPI). Virginia's gas tax increased from .162 cents/ gallon to 21.2 cents/gallon on July 1, 2020. Currently, Virginia charges a .298 cents/gallon.<sup>11</sup>

**Colorado** implemented a road usage fee<sup>12</sup>, which adds 2 cents/gallon to the motor fuel tax, currently at 22 cents/gallon, beginning in FY 2022-2023. The fee is set to increase by 1 cent each FY until reaching 8 cents in FY 2028-2029. By FY2032-2033 the road usage fee is set to be indexed to the Highway Construction Cost Index Inflation.<sup>13</sup>

## Mileage-Based User Fee (MBUF)

The passage of the Infrastructure Investment and Jobs Act (IIJA) directed the US Department of Transportation to establish a national road usage fee pilot program while also supporting state-pilot programs through grants. The MBUF generates revenue from all vehicles through charging drivers a fee based on the number of miles driven as opposed to gallons motor fuel purchased. The MBUF needs to be explored as a policy option considering that the HTF is experiencing deficits, as well as many states' transportation trust funds. The implementation for a mile-based user fee requires a gradual shift from the current method of taxing motor fuel, and a shift into an advanced technology driven system that collects data on miles driven. Data is collected from a device that would be provided by the state during registration of vehicles and the device would be attached to the vehicle, much like an EZ-pass transponder.

Since 2016, 13 individual state pilot programs, and two coalitions (The Eastern Transportation Coalition (TETC) and Western Road Usage Charge Consortium (RUC West)), have used Surface Transportation System Funding Alternatives (STSFA) funds, now replaced by the IIJA. The aim for these pilot programs is to test the feasibility of a regional MBUF system and to also address any nuances of the policy. Delaware is a member of the TETC, which makes up 17 states and D.C. Delaware has

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<sup>6</sup> [HB 1515](#)

<sup>7</sup> [Bill A12 ScaSa\(2R\)](#)

<sup>8</sup> [HB 301](#)

<sup>9</sup> [HB 2887](#)

<sup>10</sup> [SB 262](#)

<sup>11</sup> [Virginia SB 890](#)

<sup>12</sup> Colorado faced a lawsuit in Denver District Court, plaintiffs argued that the charges were illegally imposed and that the Colorado's Taxpayer's Bill of Rights requires voters' approval of all tax increases, however fees are allowed to be imposed by the legislature without voter approval.

<sup>13</sup> [SB21-260](#)

received more than [\\$700 million](#) of federal funding, with \$11 million dedicated to clean school bus programs and EV infrastructure.

## Mechanism of MBUF

### Subject Vehicles

The ideal MBUF system would apply to all types of vehicles. However, some voluntary MBUF programs apply only to highly-fuel efficient vehicles (EVs, Plug-in-hybrid, Gas-hybrid).

### Mileage Reporting Options

There are two types of options that participants in the MBUF programs are given. The first is through a device, which can be attached to the on-board diagnostics port with GPS or a plug-in device without GPS. In electric vehicles, or vehicles that do not have an on-board diagnostics port, the vehicle's telematics system will track the miles driven and transmit the information. The second option is through a smartphone app which would require participants to capture odometer images. Participants who opted for the device with enabled GPS are given value-added features including driver safety scoring, vehicle health reports, and trip reports.

Per-Mile Rate Approach	MBUF Costs Relative to Gas Tax			Comments / Potential Issues
	Higher	Little Change	Lower	
Single rate ("revenue neutral")	Highly fuel-efficient vehicles (BEVs); Typically, urban drivers	Vehicles that get average MPG (+ / -)	Low-efficiency vehicles ("gas guzzlers"); Typically, rural drivers	Concern that "clean" vehicles (BEVs) pay more; while high-polluting vehicles pay less than current.
Variable rate based on fuel efficiency (higher MPG = lower MBUF rate)	Highly fuel-efficient vehicles (BEVs); but not as high as single rate approach	Low-efficiency vehicles ("gas guzzlers"); Vehicles that get average MPG (+ / -)	None	MBUF rates are set to be revenue neutral for low-to-average fuel efficiency vehicles. MBUF for highly fuel-efficient vehicles (BEVs) will be the lowest, reflecting that these vehicles help the environment (if BEVs are not charged by a coal-based electrical grid).
Variable rate based on roadway type and location (urban/rural)	Urban drivers		Rural drivers	Requires GPS in vehicles to differentiate mileage by route/cordon and time-of-day. Mandating GPS will likely cause significant privacy concerns.
All of the above – concerns with income equity			Provide payment assistance to low-income households	Another possibility is to provide a lower MBUF rate for low-income drivers. Adds complexity to MBUF administration.

Table 4. Source ([Eastern Transportation Coalition](#))

### Rate Setting

In states where MBUF has been implemented or tested, a tiered system based on fuel efficiency of each vehicle is used to calculate how much each participant would pay. This means that the more fuel-efficient a vehicle is, the less rate they would have to pay. In other rate settings, a fixed rate is applied equally to all vehicles regardless of fuel-efficiency. In a fixed or single rate system, EV owners are incentivized to join in the program, in exchange for paying additional registration fees. Other rate settings include charging highly-fuel-efficient vehicles a separate "user fee" based on the average state vehicle MPG and the average annual vehicle miles in that state (Utah).

### Exemptions

In the states where the MBUF has launched, no exemptions from the MBUF have been clearly stated. However, pilot programs are researching the impact of MBUF on low-income households and are making suggestions this group receive a reduced fee. There are also considerations to apply a different rate system for commercial vehicles, considering the high commercial vehicle presence in the Northeast region. Generally, however, the MBUF system is a policy initiative based on the principles of 'user fee'. This means that roads and highways function in the same way that public utilities do; the more one uses, the more they will be charged.

### Authorized Agency

The MBUF system involves close collaborations among various stakeholders. The Department of Transportation plays a central role in enforcing the implementation, overseeing the system, and collecting of fees. Private vendors will also be engaged by

providing the necessary technology needed to track mileage and transmit data to the Department of Transportation. Additionally, account managers play a critical role in the managing participant accounts and transactions. This collaboration is fundamentally crucial to ensuring the smooth operation of the MBUF system.

## Policy Considerations

### Privacy

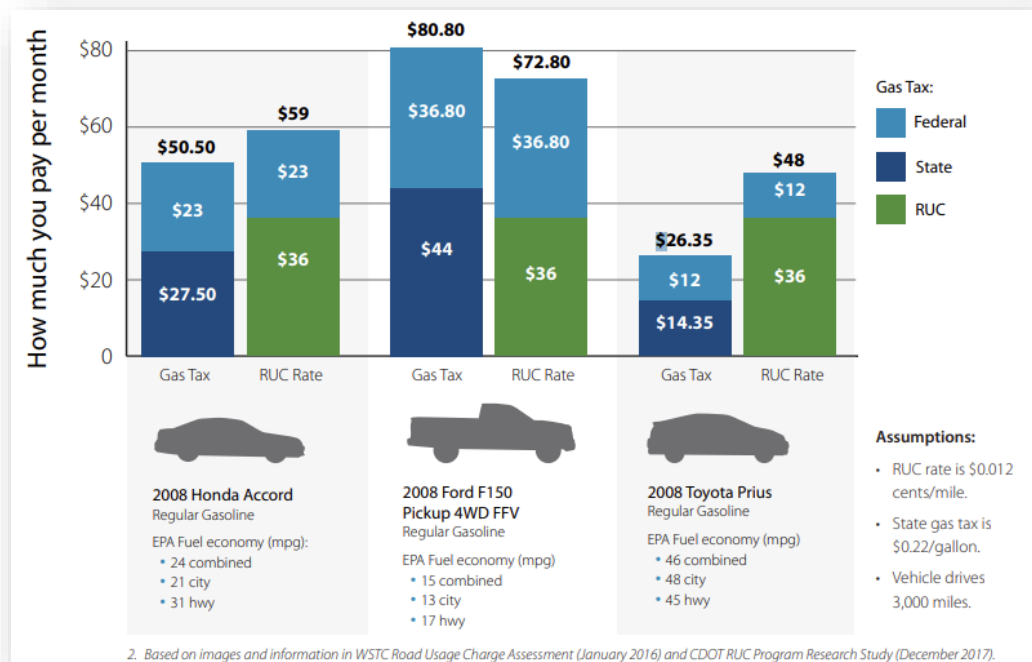
Privacy stands as the most cited issue for participants in the pilot programs. As a result, many state pilot projects have taken measures to address these concerns, including providing alternative reporting options, utilizing third-party vendors, and establishing safeguard and retention policies relating to personal data.

- Reporting Options.** To address this issue, MBUF programs are offering participants the option to receive a device with enabled GPS or a device without GPS. To incentivize participants to opt for GPS enabled devices, valued features are added. These features include tracking the location of the car in a parking lot, receiving diagnostic report of vehicles’ condition, setting safe zones, and receiving alerts when a family member leaves the zone.
- Using Third Party Vendors.** Other MBUF programs used third-party vendors to collect and report drivers’ mileage data, this implementation was based on a survey of participants who indicated that they felt more comfortable with third-party vendor collecting data than a government agency.
- Data Safeguards.** States also took steps to limit the retention of personal information and safeguard data. For example, some states anonymized driver data.
- Data Retention Limits.** In other state pilot projects, a retention limit was established, which limited how long personal data would be kept. TETC, for example, required that third party vendors delete all personal driver data collected for the pilot project within 30 days of the pilot’s competition.

### Equity

Participants in the road usage pilot programs voiced concerns that under a MBUF [rural drivers](#) who drive low-fuel efficient vehicles and tend to drive longer distances will pay more in MBUFs than motor fuel tax. Based on the findings of the TETC and [RUC](#), rural drivers end up paying less under a single-rate MBUF program than fuel tax. In addition, under a MBUF system rural drivers end up paying less than their urban counterparts. This is due to the following reasons:

- Rural drivers do not drive more miles than urban drivers. Rural drivers tend to make longer trips, but they also make fewer of them.
- Because a single-rate MBUF would apply to all vehicles regardless of MPG, rural drivers will be paying less under a MBUF.



## Fairness to EV Owners

Another concern is that under a MBUF EV owners would pay more than they would under a fuel tax, therefore disincentivizing the purchase of high-fuel efficient vehicles. Under a MBUF, fees would increase for drivers with electric vehicles, but will remain lower when compared to low-fuel efficient vehicles.

Figure 3. Source ([RUC West: Rural Drivers & Community](#))

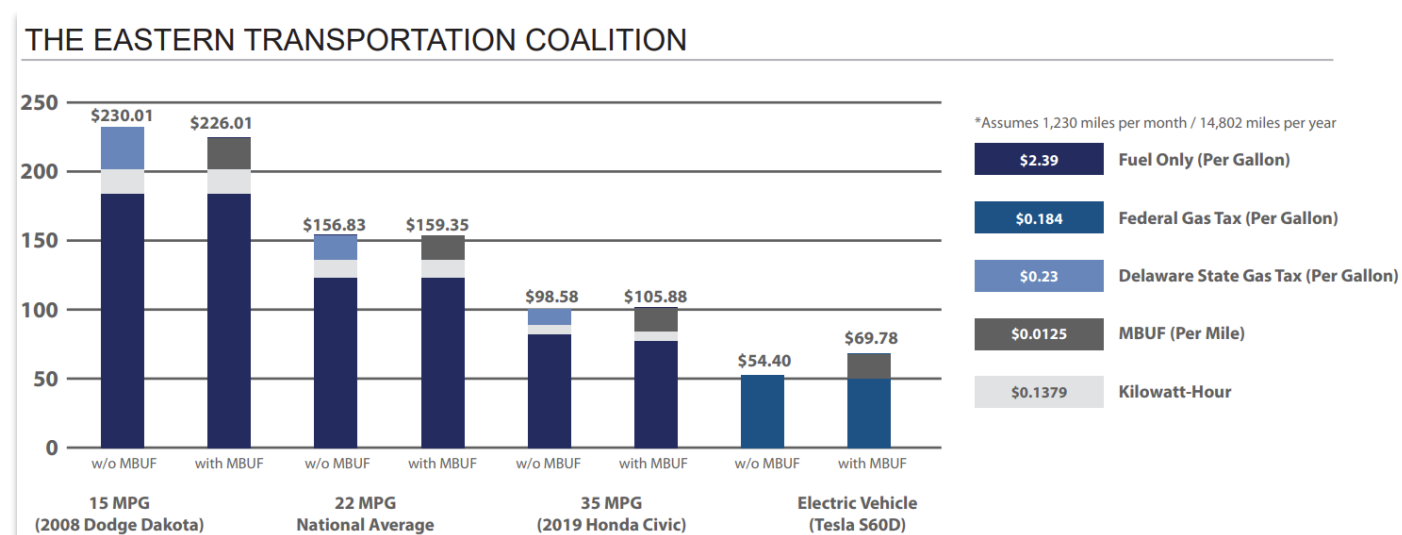


Figure 4. Source ([Eastern Transportation Coalition: Mileage-Based User Fee Exploration 2019 Passenger Vehicle Pilot](#))

## Developing Research

### MBUF is Regressive

An equity concern amongst pilot programs is that the MBUF system would place a cost-burden on low-income households. Low-income households drive less fuel-efficient vehicles and drive more miles than affluent drivers. In addition, low-income households are not able to afford high-fuel efficient vehicles. As a result of these factors, low-income households would be paying more under a MBUF than a fuel tax. [The Eastern Transportation Coalition](#) is currently researching ways to reduce the costs for low-income households and have proposed some suggestions. One suggestion is that like government assistance for food, water, and housing, the MBUF can be tailored so that low-income households pay a lower per-mile rate based on income. Government assistance can come in the form of discounts based on actual reported income, household size, or location of their residence.

The first launched road usage program in Oregon, OReGO, uses a single rate “revenue neutral” system in charging drivers. This means that all vehicles regardless of fuel efficiency are charged one single rate (*see appendix 1*). This would mean that low-income households who drive less fuel-efficient vehicles would be lower under a MBUF system. The issue however arises that “clean” vehicles would be paying more in MBUF than they currently pay under a fuel tax system. To address this issue OReGO incentivized the purchase of EVs by exempting drivers of EVs from additional registration fees when enrolling for the program.

### Cross Border Conflicts

Travel across state boundaries is a particular issue found mainly in the east coast/mid-Atlantic northeast of the country, due to the geographical size of the states in that location, and influx of traffic along the I-95 corridor. According to [2015 Northeast Corridor Intercity Travel study](#), more than 4 million person-trips are made annually by car between Washington, D.C./Baltimore, Maryland area and Philadelphia, and Pennsylvania area. With many of those trips going through Maryland, Delaware, and Pennsylvania.

The [Eastern Transportation Coalition](#) tested ways in which to implement the MBUF when vehicles cross borders. During phase 1 of the pilot program, the miles traveled in state and out-of-state would be tracked (requires GPS enabled device), and the state’s rate would be applied to the number of miles traveled. For example, a vehicle registered in Delaware, with an average MPG of 30 that was driven 1500 miles in 1 month, with 1000 of those miles driven in Delaware (MBUF rate of 1.05 cents / mile and a 23 cents / gallon state gas tax), and the remaining 500 miles driven in Pennsylvania (MBUF rate of 2.65 cents/ mile and a

58.2 cents / gallon state gas tax). The total MBUF charge that month for Delaware registered vehicle would be \$23.75 under a MBUF system. From here, all mileage driven in a particular state, is charged that state's MBUF pilot rate, with the net MBUF for all drivers accruing mileage in that state going to that state.<sup>14</sup>

Findings of the TETC:

- Delaware would gain additional revenue by charging out-of-state residents, because Delaware would receive more MBUFs from out-of-state residents than Delaware drivers pay to other states.
- Pennsylvania would lose revenue as more Pennsylvania residents drive more miles out-of-state as compared to the miles driven in Pennsylvania by out-of-state residents.

It is important to note that there are limitations to this method of evaluating out-of-state travels. This method is only possible if participants opt for GPS enabled devices, but many participants have voiced concerns about their locations being collected. Second, there were only 155 participants across 12 states in phase 1 of the MBUF pilot, which [ETC noted](#) and further stated that the figures of out-of-state travels vs. in state-travels might change when a bigger pool of participants enroll in the program.

## Considerations in Implementation

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### MBUF as a Supplement to Gas Tax

#### Gradual Implementation

- The mileage-based user fee is a relatively new policy and should be implemented gradually. Ideally the MBUF should replace the gas tax, however, incremental changes would yield better results, giving the public more time to adapt to these new changes.

#### MBUF as an Option not a Requirement

- As of 2023, no state is completely divorced of the gas tax. In the states where the MBUF programs have fully launched, the MBUF is offered as an alternative option to the gas tax. Delaware should follow, as this gives drivers more flexibility to choose which option is best for their driving behavior, and mode of commute.

### Setting a Rate Based on Delaware's Needs

Setting the rate for the MBUF is the foundation of the MBUF. To set the rate effectively, Delaware needs to consider several factors:

- **Infrastructure conditions.** A comprehensive assessment of the conditions of road and highway infrastructure in the state should be conducted. This will provide an understanding in determining the revenue needed for maintenance and improvements.
- **Costs/Expenses.** Data collected relating to maintenance costs and expenses will ensure that the revenue generated from the MBUF aligns with the actual costs and expenses.
- **Revenue Needs.** Delaware should outline its specific revenue needs for transportation projects. This includes long-term transportation projects, expansions, or innovations. With a clear outline of revenue needs, the MBUF rate should be set to a level that can meet these funding requirements.

### Incentivize the Purchase of Fuel-efficient Vehicles

Promoting the adoption of fuel-efficient vehicles aligns with Delaware's broader environmental and sustainable mission. To incentivize this under a MBUF program, Delaware can:

- **Provide government incentives** for drivers with fuel-efficient vehicles by waving the additional registration fees for highly-fuel efficient vehicles.

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<sup>14</sup> For all calculations refer to the report published by the [TETC page 53-56](#)

- **Implement the rate-based on fuel-efficiency**, which will encourage more people to purchase fuel-efficient vehicles. (As noted before, this will put a cost burden on low income households who drive low-fuel efficient vehicles. Consider providing low-income households subsidies based on level of income, household, residence).

## Index MBUF to CPI

Delaware is amongst 10 states which have not raised their gas tax in two decades. Thirty-six states have the gas tax pegged on the price of motor fuel or inflation. In the state of Colorado, a road usage fee is set to be indexed to the highway construction index. Oregon indexed its road usage fee on the price of motor fuel (*see appendix 1*). Similarly, Delaware should follow and ensure that the MBUF keeps up with inflation. In addition, indexing the MBUF to CPI helps provide a predictable stream of revenue for Delaware's TTF and prevents the fund from losing purchasing power over time.

## Communicate to the Public Effectively

A continuous cited concern from participants in the pilot program run by TETCT is how complex the MBUF system is from the gas tax. Therefore, engaging and informing the public, clearly, about the transition to MBUF is crucial for its acceptance and success. This can include:

- **Public Input.** Involve communities and seek public inputs through organizing workshops and involve the public in the decision-making process.
- **Transparency.** Share regular updates on the progress of the MBUF program with the public as well as easy to digest messages that explain how the MBUF will work and how revenue will be collected, and its purposes.

## Research Other nuances

As this report highlights, the MBUF is in its early stages. The majority of states remain in the process of researching the best methods for implementation. Like these states, Delaware must conduct more research on:

- **Collaboration with Neighboring States.** Delaware should collaborate with neighboring states, given each state's out-of-state travels are relatively high compared to other regions in the country.
- **Rural-Urban Makeup.** The unique size of Delaware and its rural-urban makeup should be further researched to assess the implications of MBUF on those areas.
- **Commercial Vehicle Operations.** Delaware has unique activities of commercial vehicle operations on its roads. Further research is needed to assess the impact of the MBUF on this industry.



# APPENDIX 1 (MILEAGE TRACKING/REPORTING OF PILOT PROGRAMS)

## The Eastern Transportation Coalition<sup>15</sup>

### Mileage Tracking/Reporting

In its 2020-2021 report, TETC explored two options for how mileage would be tracked. Participants had the option to choose between a plug-in device that inserts into the vehicle's on-board diagnostics port with GPS or a plug-in device without GPS. TETC found that 80% of participants opted for the device with GPS, which allowed tracking of miles driven in each state and applied a state-specific-per-mile rate. Participants that opted for the device with GPS received, "value-added features," which allowed participants to access various data and features on their car. For example, participants were able to access the location of their vehicle in a parking lot through an app, set up safe zone areas and receive alerts when a family member enters the zone, and access trip logs.

### Pricing Structure

In its 2020-2021 report, TETC implemented a tiered rate MBUF. The tiered rate is based on fuel efficiency of each vehicle. The most fuel-efficient vehicle (+30 mpg) would pay the least MBUF, and the least fuel-efficient vehicle (0-19 mpg) would pay a higher MBUF. The MBUF is calculated by:

$$\text{MBUF} = \text{State Fuel Tax} / \text{National Fuel Economy Average of 23 MPG}$$

Vehicle Category	MPG Range	MBUF RATES (cents / mile)				Single Rate Approach (cents / mile)			
		DE	NJ	NC	PA	DE	NJ	NC	PA
EV and PHEV	N/A	0.40	1.00	1.00	1.00	1.00	2.20	1.60	2.55
High MPG	+30	0.70	1.60	1.30	1.78				
Average MPG	20-29	1.00	2.20	1.60	2.55				
Low MPG	0-19	1.44	3.17	2.27	3.67				

TETC has noted that the tiered rate is challenging to communicate to drivers. In addition, TETC stated that a tiered rate based on MPG would burden lower income households and rural drivers into paying more in MBUF than they do in fuel taxes.

## Oregon<sup>16</sup>

### Mileage Tracking/Reporting

OReGO provides participants in the program the option to sign up with an account manager, which can be with a private account manager or the Oregon Department of Transportation (ODOT). Participants who choose ODOT as their account manager receive a device with no GPS enabled. However, participants who choose a private account manager receive a device with GPS enabled as well as value-added services.

### Pricing Structure

OReGO is the first fully operational road usage fee program in the nation, launched in 2015. OReGO sets similar MBUF to the rates set by the TETC, however, the MPG ranges differ. OReGO argues that the motor fuel tax is drifting away from its purpose of providing revenue based on road usage, due to fuel efficiency. Thus, OReGO establishes an equal rate for the same miles traveled for all vehicles. Currently Oregon charges a 1.8 cents / mile which is indexed to the rate of fuel tax, fuel taxes paid when refueling are credited against the assessed amount. To incentivize EV owners to join in the program, OReGO allows EV owners to be exempted for paying additional registration fees.

<sup>15</sup> The Eastern Transportation Coalition ([link](#))

<sup>16</sup> OReGO ([link](#))



*Miles driven x 1.8 cents = MBUF*

MPG Range	Assuming 1,000 miles traveled per month at a rate of 1.5 cents / mile	Assuming 1,000 miles traveled per month
	Road Usage Charge Paid	State Gas Tax Paid
10 MPG Median	\$15.00	\$30.00
20 MPG Median		\$15.00
35 MPG Median		\$8.57
EVs		\$0.00

## Utah<sup>17</sup>

### Mileage Tracking/Reporting

Utah's Road Usage Charge Program only allows fully electric vehicles, plug-in-electric hybrid vehicles, and gas hybrid vehicles to participate in the program.<sup>18</sup> Participants in the program are required to sign up with a third-party account manager, which selects the type of reporting device. There are three options for participants, embedded telematics, on-board diagnostic, or smartphone app.

### Pricing Structure

Utah's Road Usage Charge Program is a voluntary program for electric and highly fuel-efficient vehicle owners. Owners of highly fuel-efficient vehicles are required to remit an alternative fuel flat fee at the time of annual registration. Drivers of these vehicles are provided with the option to enroll in the Utah Road Usage Program and pay a 1.5 cents / mile in place of the annual flat fee. These charges are capped to the equivalent amount of the annual flat fee.

*State fuel tax / Average MPG of Utah vehicles (20 MPG) = 1.5 cents / mile*

## Virginia<sup>19</sup>

### Mileage Tracking/Reporting

Participants in the program are provided a device by a vendor, Emovis. The device can be installed to an on-board diagnostic port, and for electric vehicles, the vehicle's telematics system will track the miles driven and transmit the information to Emovis. Participants also have the option of enabling GPS or non-GPS, however, all participants are required to take a picture of their odometer through an app once a year.

### Pricing Structure

Virginia has established two types of fees. The first is the highway use fee, which charges highly efficient and electric vehicles. The highway use fee is calculated by taking 85% of the amount of taxes paid on gasoline by a vehicle with a MPG of 23.7 driven 11,600 miles per year. An alternative to the highway use fee is the MBUF, which allows participants to pay actual miles traveled rather than the assumed 11,600 annual mileage average.

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<sup>17</sup> Utah ([link](#))

<sup>18</sup> In 2020 Utah passed SB 150 which directed the Utah Department of Transportation to develop a plan for enrolling all vehicles in the program by December 31, 2031.

<sup>19</sup> Virginia ([link](#))