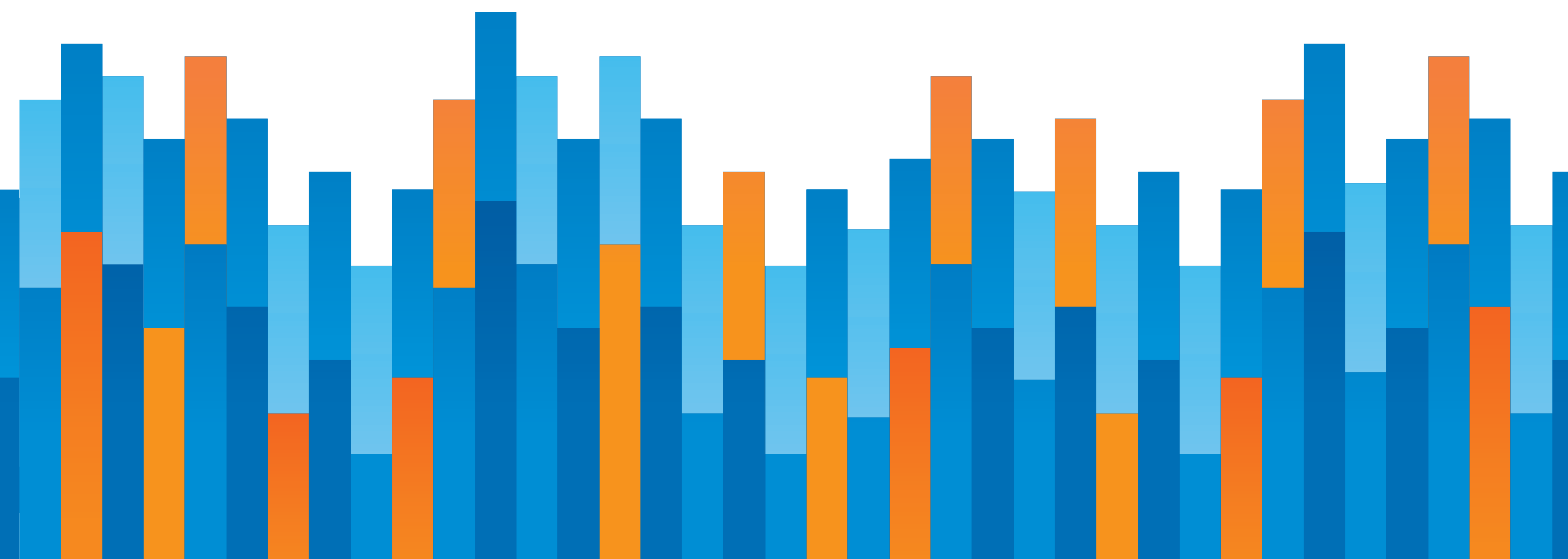




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MILEAGE-BASED USER FEES: LESSONS FROM STATE PROGRAMS

by Jay Derr
September 2026





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EXECUTIVE SUMMARY

The fuel tax remains an exceptionally efficient revenue stream, collected at the wholesale and the distributor level at a range of 1%-5% of revenue, but its base is eroding. Average new vehicle fuel economy in the United States has increased by nearly 19% in two decades, and states are starting to feel the impact on their transportation budgets. States that have indexed their fuel tax rates to inflation or other variables have slowed but not stopped that decline. EV adoption removes the relationship between road use and fuel tax payment entirely for a share of the fleet that is growing each year, allowing EVs to degrade roadways through use, without paying for road maintenance, repair, and construction.

A mileage-based user fee (MBUF) restores that users-pay/users-benefit relationship by charging drivers based on the miles they actually drive. The design challenge is no longer finding a replacement; it's making the replacement viable financially. The Congressional Research Service estimates current MBUF programs cost anywhere from 5% to 13% of collections. None of the four permanent programs evaluated in this study have demonstrated administrative cost parity with the fuel tax, but the patterns these programs have shown can help lower the costs still. Scale lowers per-vehicle administrative cost, simpler mileage reporting options (MROs) require less back-end administration and cost less to replace, and programs that leverage existing touchpoints rather than building new infrastructure start from a lower cost base. The next decade of operating data from Utah, Oregon, Virginia, and Hawaii will determine whether MBUFs can meet the standard the fuel tax has set, or whether collection costs remain the central obstacle to making them a viable replacement.

The four permanent MBUF programs in the United States have, collectively, just over two decades of operating data. Three of the four programs have been running for five years or fewer. That is a thin base to draw definitive policy conclusions from, but the patterns that have emerged over those years of operation are consistent enough to guide states that are designing their own permanent MBUF programs or looking to evaluate best practices for reforming existing ones.



EV adoption removes the relationship between road use and fuel tax payment entirely for a share of the fleet that is growing each year, allowing EVs to degrade roadways through use, without paying for road maintenance, repair, and construction.



An ideal MBUF program would combine Utah's cost discipline and annual cost-against-revenue reporting, Hawaii's use on an existing state-citizen touchpoint, Oregon's legislated path to mandatory enrollment, and Virginia's scale. No single program has all four.

Utah comes closest, having moved from a program that ran at a loss to one whose revenue exceeds expenses, with public reporting that makes the trajectory legible to lawmakers, researchers, and citizens.

Hawaii's use of the Periodic Motor Vehicle Inspection as the mileage-reporting touchpoint avoids the administrative overhead of building a new collection mechanism, though mainland states will not benefit as acutely as Hawaii due to its unique geography.

Oregon, despite a decade of voluntary operation that has served as a beta test for the concept, has failed to produce scale. In response, the state legislated a phased mandatory enrollment for EVs and hybrids—a prudent decision to ensure those road users are paying their fair share for road maintenance.

Virginia's scale comes from its innovative design with the highway user fee (HUF). Other states looking to scale an MBUF program like Virginia's Mileage Choice ought to look to the HUF to find ways to incentivize non-EV or hybrid participation. Beyond that, publishing

annual or biennial reports that include collection costs as a share of revenue is wise, so that lawmakers, researchers, and the public can evaluate the program rather than infer based on trends.

States looking to start their own MBUF programs should:

- Prioritize scalability and making enrollment mandatory. A successful MBUF program's per-vehicle administrative cost falls as enrollment grows;
- If payment caps are used, ensure they are at a relevant level to capture high-frequency use of highway infrastructure;
- Prioritize simplicity for MROs and use existing touchpoints where possible, like Hawaii's annual safety inspection;
- Ensure commercial account managers' contracts include per-vehicle cost provisions that decline with scale;
- Require annual public reporting of program costs and revenue in the enabling legislation; and
- Index any per-mile rate to inflation at enactment, before mandatory enrollment raises the political cost of adjustment.

Each program has strengths the others should learn from, and every state looking at MBUFs as a replacement for the fuel tax should examine and try to emulate those strengths where possible. The next five years of operating data are critical. Oregon's transition to mandatory enrollment, Utah's projected revenue growth, and Hawaii's first year post-HiRUC launch will tell us whether MBUFs can scale into a true replacement for the fuel tax.

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PART 1

INTRODUCTION

Declining highway revenue is a major problem in most U.S. states. Commensurate with their use, roads degrade over time and require maintenance and repair. As population grows, new roads need to be built. The main transportation revenue source across states is fuel taxes, which have not kept pace with inflation. For example, Oregon, the first state to implement a fuel tax, reported a \$297 million shortfall in the State Highway Fund driven by flat fuel tax revenue, fuel efficiency gains, and electric vehicle (EV) adoption.¹ Likewise, Hawaii's Statewide Federal-Aid Highways 2035 Transportation Plan identified \$30.2 billion in state transportation needs from 2014 to 2035 against \$7.0 billion in projected fuel tax revenue, a \$23.2 billion gap.² The fuel tax has worked well in the sense that it has been a relatively stable, predictable source of funding for the last 100 years, but states need to find a new revenue source.

Mileage-based user fees (MBUFs) are one promising alternative. Instead of taxing fuel, an MBUF charges drivers based on the miles that they drive, regardless of the powertrain. That would solve the current problem of vehicles powered by alternative fuels such as EVs contributing to roadway degradation without paying for repair, maintenance, and new construction.

¹ "Transportation Funding," Oregon Department of Transportation. www.oregon.gov/odot/about/pages/transportation-funding.aspx (18 June 2026).

² "Statewide Federal-Aid Highways 2035 Transportation Plan," Hawaii Department of Transportation, July 2014. https://hidot.hawaii.gov/highways/files/2014/09/Statewide-Federal-Aid-Highways-2035-Transportation-Plan_Yong.pdf (15 August 2026).



Instead of taxing fuel, an MBUF charges drivers based on the miles that they drive, regardless of the powertrain.



Four states—Hawaii, Oregon, Utah, and Virginia—now operate permanent MBUF programs focused on EVs, Plug-in Hybrid Electric Vehicles (PHEVs), and other highly fuel-efficient vehicles. More than 30 states have run pilot projects or simulations or participated in multi-state efforts to test the feasibility of an MBUF. One big unsolved challenge for state policymakers is reducing current MBUF collection costs, which are relatively high. The collection cost is the share of revenue consumed by administration, mileage reporting, vendor fees, payment processing, and enforcement. States are trying to decrease the collection costs enough to justify replacing the fuel tax with an MBUF. Currently, most states with MBUFs use them as a substitute revenue stream for some combination of EVs, highly fuel-efficient vehicles, and hybrids.

This analysis focuses on the collection cost challenge. It examines the collection costs of the four states with current, permanent MBUF programs. It also studies the factors that feed into collection costs. Each section examines one state's program design, enrollment scale, rate setting, mileage reporting options (MROs), and cost-to-revenue ratio where data are available. Utah is the only program of the four to publish a comparable cost ratio at the program level. For the others, this analysis examines trends from program design and external evaluators, where possible, to determine the numbers. For the sake of simplicity, this study uses the term mileage-based user fee (MBUF) in place of synonyms used by some states, such as road usage charge (RUC), road charge, or vehicle-miles traveled (VMT) fee.

PART 2

WHY COLLECTION COSTS MATTER

When evaluating a new revenue stream, the cost of collection is a key consideration for policymakers. A revenue stream that does not make a positive contribution may satisfy a public goal but may not be pragmatic.

Various collection mechanisms and program designs affect collection costs. Most significantly, the technological approach used can impact collection costs substantially. For example, in tolling, the shift from manual tolling to electronic toll collection reduced transaction costs by 50%-80%.³ That shift allowed the creation of priced managed lanes that would not have been feasible with toll booths and toll collectors. Technology changes fast, and a similar innovative approach or device could reduce costs of collection considerably.

³ “Technology Scan for Electronic Toll Collection,” Academia.edu.
www.academia.edu/12245599/Technology_Scan_for_Electronic_Toll_Collection (18 June 2026).

Innovations that increase the scale of deployment could improve cost recovery for a potential revenue stream. To establish a baseline of comparison, this analysis evaluates the collection costs of a traditional fuel tax and an MBUF.

2.1

FUEL TAX

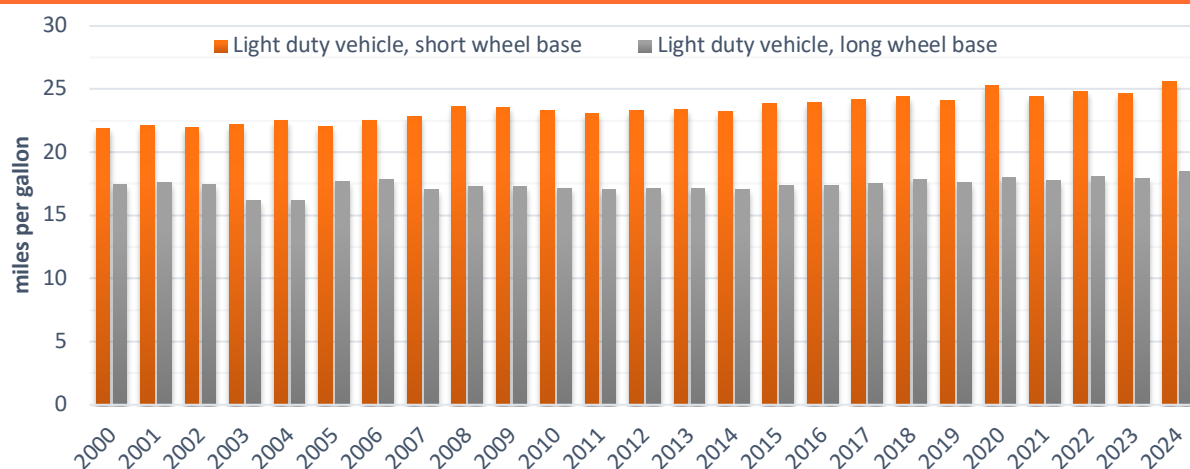
The fuel tax has been used to fund highway construction, road repair, and maintenance since its inception in 1919.⁴ One reason the fuel tax has been the largest state roadway revenue source for more than 100 years is its low collection costs, which range from 1% to 5% of the revenue it generates.⁵ The fuel tax structure is simple because it assesses the tax on a small number of fuel producers, suppliers, and distributors, drastically lowering the number of collection points. Drivers of internal combustion engine vehicles have to refill their tanks to keep driving, purchasing fuel that has already been taxed and the revenues collected. In terms of collection costs for a state government, the fuel tax is very efficient—at least today.

The shortfall is caused by increased fleet fuel efficiency, leading to less consumption, resulting in lower tax revenues. The average new vehicle's fuel efficiency increased 19% between model years 2004 and 2024, from roughly 19.6 mpg to a record 23.4 mpg according to the Bureau of Transportation Statistics.⁶ This trend, which is likely to continue, is illustrated in Figure 1.

⁴ "Fuels Tax Group: About Us," Oregon Department of Transportation. www.oregon.gov/odot/ftg/pages/about-us.aspx (18 June 2026).

⁵ Sonika Sethi et al., "Surface Transportation System Funding Alternatives Phase II Evaluation," FHWA-HOP-21-048, Federal Highway Administration, U.S. Department of Transportation, 2021. ops.fhwa.dot.gov/publications/fhwahop21048/fhwahop21048.pdf (18 June 2026).

⁶ "Average Fuel Efficiency of U.S. Light Duty Vehicles," Bureau of Transportation Statistics, U.S. Department of Transportation. www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles (18 June 2026).

FIGURE 1: AVERAGE FUEL EFFICIENCY OF U.S. LIGHT DUTY VEHICLES*

*Short-wheelbase vehicles have a wheel base of ≤ 121 inches (10 ft 1 in). Long-wheelbase vehicles have a wheelbase > 121 inches. Light-duty vehicles include passenger cars, SUVs, vans, and light trucks. The Bureau of Transportation Statistics classifies these vehicles as short- or long-wheelbase based on the 121-inch threshold. Source: "Average Fuel Efficiency of U.S. Light Duty Vehicles," Bureau of Transportation Statistics, U.S. Department of Transportation. www.bts.gov/content/average-fuel-efficiency-us-light-duty-vehicles (18 June 2026).

Figure 1 shows the average miles per gallon (mpg) of the U.S. on-road light-duty vehicle fleet. As fuel efficiency continues to increase and the fuel tax remains at the same rate, a cents-per-gallon fuel tax collects less revenue. This decreases funding for highway capital and maintenance needs and other forms of transport that are funded through the fuel tax.

Another challenge relates to fairness with alternative fueled vehicles, primarily electric vehicles and hybrids. While these vehicles are a small percentage of the fleet, they are growing quickly and make up a large share of new sales in some states such as California. EVs pay an electric vehicle fee in 41 states, and the average annual EV fee is \$156.67.⁷ Plug-in hybrids pay fees in only 33 states, and the average annual plug-in hybrid fee is \$84.50.⁸ But even where these vehicles pay a fee, it typically has no relationship to how much drivers degrade the roadway through use.

This has led policymakers and researchers to look for an alternative to the fuel tax, such as a mileage-based user fee.

⁷ "EV Registration Fees by State," *Cost to Charge*. costtocharge.com/guides/ev-registration-fees-by-state (18 June 2026).

⁸ Ibid.

2.2

MILEAGE-BASED USER FEES (MBUFS)

MBUFs, called Road User Charges (or RUCs) in many states, are a promising alternative to the fuel tax for a number of reasons. First, an MBUF links the amount of roadway used directly to the amount paid—if you drive more, you pay more. If you drive less, you pay less. If you don't drive at all, you don't pay. Second, it is propulsion-neutral—whether you're driving an electric vehicle (EV) or an internal combustion engine (IC-engine) vehicle, you're charged per mile, not per gallon. Put simply, it accounts for vehicles and gains in fuel efficiency that the fuel tax does not.

The collection costs for a fuel tax replacement ought to be competitive with the fuel tax's, ideally ranging somewhere between 1% and 10%.

The collection costs for a fuel tax replacement ought to be competitive with the fuel tax's, ideally ranging somewhere between 1% and 10%. The fuel tax costs less than 5% to collect, and while it may not be possible to duplicate those costs, exorbitant collection costs would make any fuel tax replacement a non-starter.⁹

MBUF data are limited. Few studies have examined collection costs because there are only four permanent programs, so most projections rely on pilot project data or baseline projections. But we still need data from permanent real-world programs. The fuel tax provides nearly a century of data, whereas MBUFs only have about a decade. The first permanent program, OReGO (Oregon's MBUF program), launched in July 2015.¹⁰ Currently, all MBUF programs except Hawaii's are voluntary for drivers of select vehicles, and typically determined by miles per gallon, or drivetrain (EVs or hybrids). Hawaii alone mandates participation for all EVs. In 2033, it's slated to become mandatory for all vehicles.

This means that while the fuel tax benefits from scale (since every person who drives an IC-engine vehicle pays for fuel that has already been taxed at a small number of collection points), a voluntary MBUF program, especially one limited to just EVs or hybrids, does not.

⁹ Sethi et al., "Surface Transportation System Funding Alternatives Phase II Evaluation."

¹⁰ "Oregon Road User Fee Task Force Report to the Legislature 2019," Oregon Department of Transportation, 2019. www.oregon.gov/odot/Programs/RUF/RUFTF_REPORT_2019.pdf (18 June 2026).

Economies of scale are expected to benefit MBUF programs too. Utah DOT projected that the collection cost of its MBUF program would be 56% of revenue with 17,000 customers but fall to 7.5% of revenue with 50,000.¹¹

The following sections examine MBUF collection costs across the four permanent MBUF programs in the country to see what policymakers should look to emulate in their own programs, whether pilot or permanent.

¹¹ Lyle McMillan, "Utah Road Usage Charge (RUC) Program," Vermont Senate Committee on Transportation, Montpelier. 15 Jan. 2026. Presentation. legislature.vermont.gov/Documents/2026/Workgroups/Senate%20Transportation/Transportation%20Issues/Mileage%20Based%20User%20Fee%20Programs/W~Lyle%20McMillan~Utah%20Road%20Usage%20Charge~1-15-2026.pdf (18 June 2026).

PART 3

PERMANENT PROGRAMS BY STATE

Utah, Oregon, Virginia, and Hawaii operate the only four permanent MBUF programs in the United States. Each was launched within the last decade. Each of the programs takes a different approach to enrollment eligibility, mileage reporting, rate structure, and integration with existing vehicle administration or infrastructure. Registration across all programs is limited and unevenly distributed. For instance, Oregon has routinely reported under 800 enrollees, and Virginia documented more than 30,000.¹²

The following examinations of state programs contain information about the authority, timeline, structure, enrollment figures, mileage reporting options (MROs), funding and cost data, and outcomes for each state. Some state programs make more details available than others. Utah is the only program that publishes administrative cost data against revenue on an annual basis. Virginia's Mileage Choice Program publishes enrollment figures but does not separately report collection costs. Oregon's OReGO program publishes participant counts but not a program-level collection cost ratio. Hawaii's HiRUC program is too new to have operational data, though the state's many pilots provide indicators as to future, broader implementation.

¹² Mallory Sofastaii, "Dueling Bills in Maryland: A Battle Over Mileage Fees and the Future of Transportation Funding," *WMAR-2 News*, Baltimore. www.wmar2news.com/matterformallory/dueling-bills-in-maryland-a-battle-over-mileage-fees-and-the-future-of-transportation-funding (18 June 2026).

These states' collection costs may be different in five years, or a decade. However, their data provide a useful snapshot and a baseline for policy recommendations.

3.1 UTAH'S ROAD USAGE CHARGE PROGRAM

3.1.1 OVERVIEW

In 2018 and 2019, Utah Senate Bills (SB) 136 and 72, respectively, directed the Utah DOT to implement an MBUF program by January 1, 2020.¹³ The first step was educating road users and Utah citizens on why the program was necessary and how it would work, using one-pagers, public meetings, and online public hearings.

The program went live in January 2020.¹⁴ Starting in 2023, the state made several changes. First, PHEVs and hybrids were no longer eligible to enter the program.¹⁵ Second, Utah DOT changed commercial account managers (CAMs) in 2024. These are third-party contractors who issue invoices; collect MBUFs from vehicle owners; send collected revenues to the state; and manage, process, and handle personal and vehicle data to tabulate how much a user owes per year.¹⁶ And third, the available mileage reporting options (MROs) for participants were reduced. These MRO changes were made to lower costs, improve system quality, and enable the program to scale more easily by not having physical devices.

Utah's Road Usage Charge Program is voluntary; EV owners can opt in to the MBUF program at the time of their annual registration renewal as an alternative to the flat alternative fuel vehicle (AFV) they'd otherwise pay in addition to base registration fees.¹⁷ While it initially accepted EVs and hybrids, to reduce operating costs, Utah's program now only accepts EVs.

¹³ "Senate Bill 136," Utah State Legislature, 2018 General Session. [le.utah.gov/~2018/bills/static/SB0136.html](https://leg.utah.gov/~2018/bills/static/SB0136.html) (18 June 2026).

"Senate Bill 72," Utah State Legislature, 2019 General Session. [le.utah.gov/~2019/bills/static/SB0072.html](https://leg.utah.gov/~2019/bills/static/SB0072.html) (18 June 2026).

¹⁴ "Road Usage Charge History," Utah Department of Transportation, *Connect UDOT*. connect.udot.utah.gov/about-us/legislative/road-usage-charge-history/ (18 June 2026).

¹⁵ McMillan, "Utah Road Usage Charge (RUC) Program."

¹⁶ Ibid.

¹⁷ "Utah Road Usage Charge," Utah Department of Transportation. www.utahroadusagecharge.com/EN/ (18 June 2026).

To encourage participation in the program, Utah set a cap on annual MBUF charges to ensure it never collected more than the existing AFV. Utah advertises the program with the line “You’ll never pay more by joining the Road Usage Charge Program, but you may pay less.”¹⁸ Ensuring this cap is kept at an appropriate level is important, since it’s necessary to have some flat dollar amount to charge those that opt into the program but fail to comply. For example, if a driver opts into Utah’s program but does not submit any odometer photos, what is the state supposed to charge them? The problem is that miles driven over that cap are essentially free to the driver.



To encourage participation in the program, Utah set a cap on annual MBUF charges to ensure it never collected more than the existing AFV.



The MBUF rate is \$0.0125/mile in calendar year 2025, as an alternative to the annual flat fee of \$180 for an EV registered in 2025.¹⁹ However, the rate and the annual flat fee are set to increase significantly on January 1, 2027. The flat fee will increase to \$280, and the per-mile rate will go from \$0.0125/mile to \$0.015/mile.²⁰ Both the rate and the flat fee options are indexed for inflation.²¹ Daryl Ballantyne, the manager of Utah’s MBUF program, reported 12,848 vehicles enrolled as of April 2026.²² This makes Utah’s MBUF program the third largest permanent program.

Those users report their miles via two options, an odometer reading (taken by photo) or via an on-board telematic tool. Originally, the program allowed on-board diagnostic II (OBD-II) plug-ins as an MRO but discontinued it due to the cost to replace a broken OBD-II plug-in and the added administrative costs.²³

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Utah Transportation Code Section 213.1(12)(b)(ii)(A-B).

²¹ “Interim Document 00003272,” Utah State Legislature, 2025. [le.utah.gov/interim/2025/pdf/00003272.pdf](https://leg.utah.gov/interim/2025/pdf/00003272.pdf) (18 June 2026).

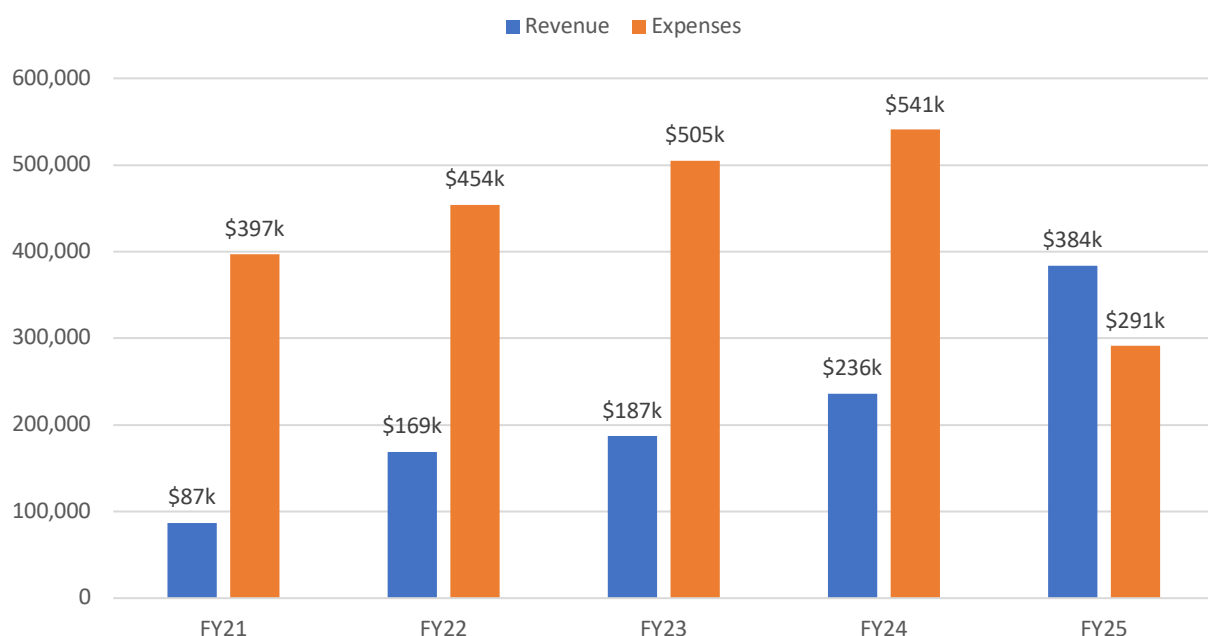
²² Daryl Ballantyne, “From Issues to Practical Solutions: Closing the Gaps in RUC Implementation,” IBTTA Finance, RUC & Managed Lanes Summit, Norfolk. 29 Mar. 2026. Presentation.

²³ Ibid.

3.1.2 COLLECTION COSTS

In FY 2025, Utah's program cost \$291,000 to administer and collected \$384,000 in revenue. Figure 2 shows how these numbers have changed since the program's inception.²⁴

FIGURE 2: UTAH MBUF PROGRAM REVENUES AND EXPENDITURES, FY21-25



Source: Rachel Brooks, "Utah's Road Usage Charge Program," Utah State Legislature, 2025.
https://le.utah.gov/interim/2025/pdf/Road_Usage_Charge_Program.pdf (18 June 2026).

The 2022 bill HB 186 closed enrollment to PHEVs and hybrid vehicles (going into effect in 2023), though those already enrolled were allowed to remain.²⁵ The fees show the rationale more clearly. In 2025, a hybrid's alternative fuel fee, which sets the MBUF revenue ceiling for each enrolled vehicle, was \$24.25 per year. A PHEV's cap was \$62.25 per year. An EV's cap was \$143.25 per year.²⁶ Essentially, each enrolled hybrid generated at most 1/6th of the revenue of an EV with about the same overhead, and each PHEV generated about 2/5^{ths}. Broken down further, Utah's FY25 report shows \$291,000 in expenses against 12,848

²⁴ Rachel Brooks, "Utah's Road Usage Charge Program," Utah State Legislature, 2025.
https://le.utah.gov/interim/2025/pdf/Road_Usage_Charge_Program.pdf (18 June 2026).

²⁵ "House Bill 186," Utah State Legislature, 2022 General Session.
le.utah.gov/~2022/bills/static/HB0186.html (18 June 2026).

²⁶ Ibid.

enrolled vehicles, equaling \$22.65 per enrolled vehicle per year in administrative costs.²⁷ That administrative cost is the same regardless of fuel type; what changes is the revenue ceiling. At full enrollment paying the maximum fee, an EV would have an annual revenue ceiling of \$143.25, versus a gas hybrid's revenue ceiling of \$24.25.

Lyle McMillan, Utah DOT's director of strategic technologies, identified that narrowed eligibility as one element of the optimized program that delivered a 66% administrative cost reduction from FY 2024 to FY 2025 as shown in Figure 2.²⁸ Altogether, this financial success can be attributed to three changes this study has already mentioned:

- First, the program's narrowed eligibility (dropping hybrids) contributed to lowered administrative costs.
- Second, changing the available MROs—removing the OBD-II plug-ins—was deemed necessary by Utah DOT because they determined the devices were fragile, expensive, and in frequent need of replacement. This logic is supported by external studies. The UC Davis Institute of Transportation Studies reviewed pilot programs across seven states and found manual odometer readings cost 7%-8% of program revenue generated, and electronic odometer readings cost 12%-13% at pilot scale—far lower than the price of OBD-IIs, based on Utah's data.²⁹
- Third, changing CAMs reduced costs as well. A report by the Utah State Legislature's Office of Legislative Research and General Counsel says it plainly: "Due to a vendor change in the third-party program manager vendor and scaling of the program, [Fiscal Year] 2025 marked the first time the [MBUF] program revenue exceeded expenditures."³⁰

Ballantyne said that projections for the next few fiscal years show revenue increasing, given the program's continued growth in participants and the growing share of EV purchases.³¹ Specifically, he said that revenues were projected to outpace expenses by two and four times in fiscal years 2026 and 2027 respectively.³² Utah DOT mirrored those numbers during a presentation to the Vermont Senate Transportation Committee,

²⁷ Ibid.

²⁸ McMillan, "Utah Road Usage Charge (RUC) Program."

²⁹ "Designing a Road-Usage Charge Program for California," Institute of Transportation Studies, University of California, Davis, May 2024. catc.ca.gov/-/media/ctc-media/documents/ctc-committees/road-charge/2024-05/tab-07-ucd-vmt-attachment.pdf (18 June 2026).

³⁰ Brooks, "Utah's Road Usage Charge Program."

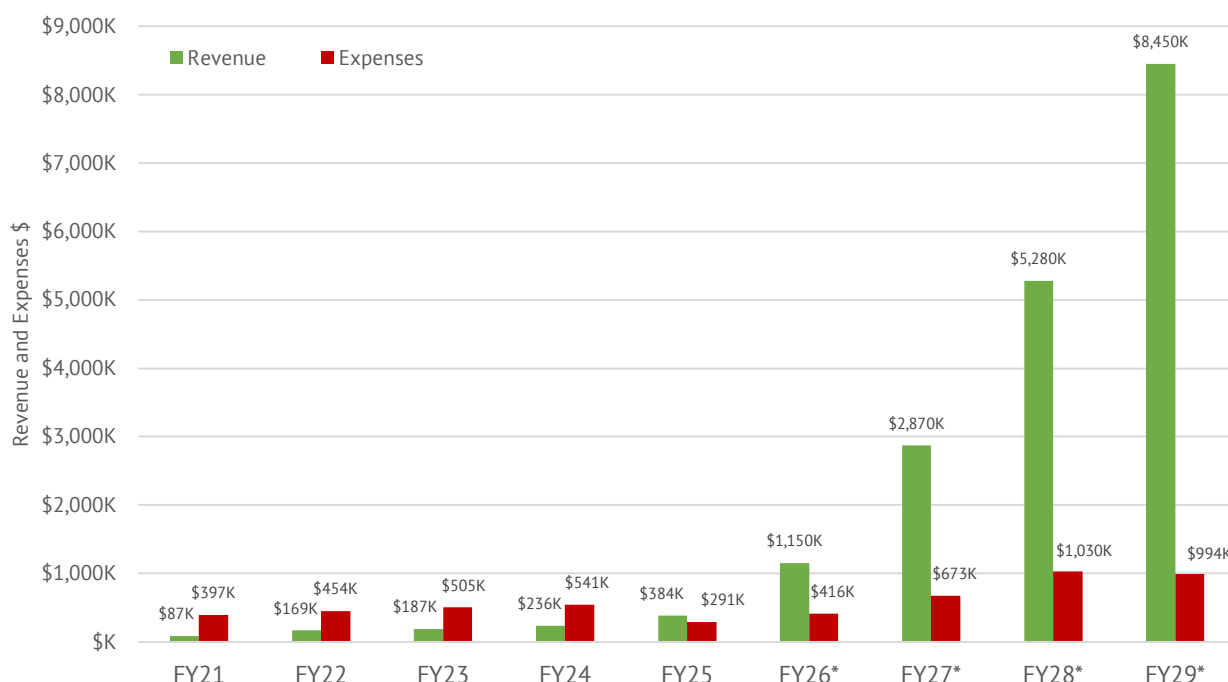
³¹ Ballantyne, "From Issues to Practical Solutions."

³² Ibid.

projecting that program costs with 17,000 customers would be around 56% of revenue, and drop to 7.5% with 50,000 customers.³³

Utah DOT projects continued year-over-year improvement in the program's financial position under 2026 legislation. Figure 3 below shows the cost-to-revenue ratio improving from 75.8% in FY25 to under 15% in FY28 as enrollment grows (which it reasonably will since the flat fee is being raised substantially) and per-vehicle admin costs decline.³⁴

FIGURE 3: UTAH MBUF FINANCIAL PROJECTIONS FY21-FY29: RUC REVENUE AND EXPENSES (2026 LEGISLATION)



* Projections

Source: Utah Department of Transportation, August 16, 2026. Email.

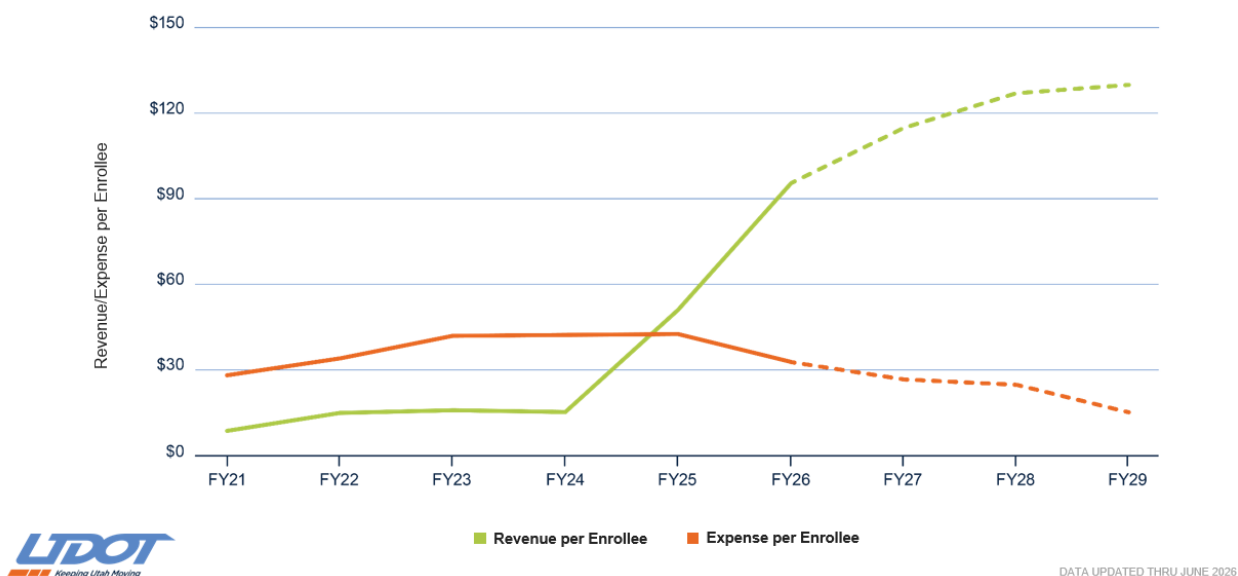
Utah's program achieved revenue-expense parity in FY25 and is on-pace to improve under 2026 legislation as shown in Figure 3, which increased the per-mile rate to \$0.0125/mile in 2026 and again to \$0.015/mile in 2027, as well as raising the flat fee from \$180 to \$280 in 2027. Utah DOT rightfully projects that the raised flat fee will lead to higher enrollment in the per-mile MBUF. As shown in Figure 3, the cost-to-revenue ratio declines from 75.8% in FY25 to as low as 11.8% in FY29. This trend reflects the impact of narrowed eligibility,

³³ McMillan, "Utah Road Usage Charge (RUC) Program."

³⁴ Utah Department of Transportation, August 16 2026. Email.

simplified MROs, and transitioning vendors. Scale also demonstrably drives cost efficiency in a program structured like Utah's, as shown in Figure 4.

FIGURE 4: UTAH MBUF REVENUE & EXPENSES PER ENROLLEE



Source: Utah Department of Transportation, August 16 2026. Email.

Ballantyne made a point in regards to vendor contracts, reinforced by the statistics on Utah's MBUF program: flexibility is key.³⁵ Vendors need to be given the flexibility to adapt and innovate where possible—but the same principle applies to administering a program altogether. Utah's program adapted through its history to date, and those adaptations have positioned it well for the future. Hopefully that adaptability will remain, and the program soon becomes mandatory for EVs.

3.1.3 LIMITATIONS

Utah's data are the most comprehensive of any of the four programs evaluated in this study. That said, even more granular data on what specific facets of the program accompanied the vendor change would be helpful for other states looking to emulate those cost savings. Utah DOT paints a very clear picture that costs went down when the vendor

³⁵ Ballantyne, "From Issues to Practical Solutions."

change happened, but what specific elements of that change led to those cost decreases? Barring the changes to MROs, it's hard to say.

3.2

OREGON'S OREGO PROGRAM

In 2001, the Oregon Legislature created the Road User Fee Task Force. The reasoning predates widespread EV purchases: “Increasingly efficient vehicles were becoming widespread.”³⁶ The task force examined 28 alternatives including a tire tax, a battery tax, and expanding other user fees such as the fuel tax and registration fees. The task force chose an MBUF as the most fair and accurate way to pay for roads and bridges in Oregon.³⁷ Two pilots ran between 2006-2007 and 2012-2013, giving the state time to refine its administration and what technologies would be offered to participants.³⁸ The pilots led to Oregon SB 810 in 2013, which established the permanent MBUF program OReGO.³⁹ The initial goal for the program was to have up to 5,000 vehicles paying \$0.015/mile instead of the fuel tax.⁴⁰

OReGO launched on July 1, 2015.⁴¹ Since then, the program has undergone a few changes. In 2019, House Bill (HB) 2881 changed what vehicles were eligible to participate and enroll in OReGO and added an incentive for fuel-efficient vehicles to enroll.⁴² The bill barred participation for fuel-inefficient vehicles (<20 mpg) because OReGO participants received a tax credit for fuel tax paid. Inefficient vehicles rarely had to pay anything as part of OReGO once that tax credit was applied.⁴³ On the other hand, the changes incentivized efficient vehicle participation by exempting any vehicle rated at 40+ mpg from enhanced registration surcharges authorized by HB 2017 in 2017.⁴⁴

³⁶ “Road User Fee Task Force,” Oregon Department of Transportation. www.oregon.gov/odot/programs/pages/road-user-fee-task-force.aspx (18 June 2026).

³⁷ Ibid.

³⁸ Ibid.

³⁹ “Senate Bill 810,” Oregon State Legislature, 2013 Regular Session. olis.oregonlegislature.gov/liz/2013R1/Measures/Overview/SB810 (18 June 2026).

⁴⁰ Ibid.

⁴¹ “Road User Fee Task Force,” Oregon Department of Transportation.

⁴² “House Bill 2881,” Oregon State Legislature, 2019 Regular Session. olis.oregonlegislature.gov/liz/2019R1/Measures/Overview/HB2881 (18 June 2026).

⁴³ Ibid.

⁴⁴ “Keep Oregon Moving Overview,” Oregon Department of Transportation. www.oregon.gov/odot/pages/kom-overview.aspx (18 June 2026).

The year 2025 brought additional OReGO reforms. HB 3991 went into effect December 31, 2025, and shifted OReGO from an opt-in, voluntary program to a phased-enrollment mandatory program for EVs and hybrids. The timeline for the change is detailed in Table 1 below.⁴⁵

TABLE 1: HB 3991 OREGO MANDATORY TIMELINES

Vehicle Type	Mandatory Phase-In
Used Electric Vehicles	July 1, 2027
New Electric Vehicles	January 1, 2028
PHEVs and Hybrid Electric Vehicles	July 1, 2028

Source: "House Bill 3991 Measure Analysis," Oregon State Legislature, 2025 First Special Session. olis.oregonlegislature.gov/liz/2025S1/Downloads/MeasureAnalysisDocument/93891 (18 June 2026).

The mandatory participation of fuel-efficient vehicles adds to the current optional program. Today, vehicles eligible for participation include EVs, PHEVs, hybrids, and light-duty passenger vehicles with a fuel efficiency rating of ≥ 20 mpg.⁴⁶

HB 3991 also caps the vendor share of MBUF revenue at 10% starting in 2030 as an effort to contain and lower current collection costs for the program.⁴⁷

Light-duty passenger vehicles rated for ≥ 40 mpg or EVs also receive a supplemental registration-fee waiver, one of OReGO's primary incentives. For example, a ≥ 40 mpg vehicle not enrolled in OReGO costs \$432 for a four-year registration; if it was enrolled in OReGO it would only cost \$172.⁴⁸ While the program does not currently have a statutory cap on how much it can cost participants per year in MBUF charges, it will soon offer a \$340 flat-fee alternative once per year, meaning participants who would pay more in MBUF could just opt for the fee as a means of soft capping their costs.⁴⁹ However, costs can exceed that flat fee, so some high-frequency use is still captured.

⁴⁵ "House Bill 3991 Measure Analysis," Oregon State Legislature, 2025 First Special Session. olis.oregonlegislature.gov/liz/2025S1/Downloads/MeasureAnalysisDocument/93891 (18 June 2026).

⁴⁶ "OReGO," Oregon Department of Transportation. www.oregon.gov/odot/programs/pages/orego.aspx (18 June 2026).

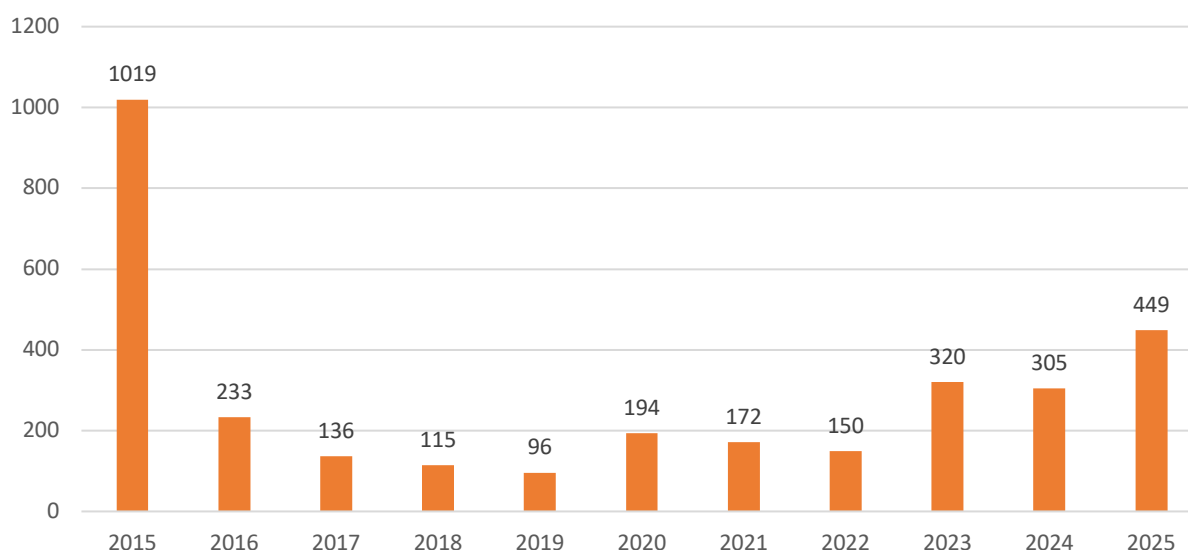
⁴⁷ Oregon Department of Transportation, July 20 2026. Email.

⁴⁸ Ibid.

⁴⁹ "House Bill 3991 Measure Analysis," Oregon State Legislature.

The current cost per mile for OReGO participants is \$0.020/mile.⁵⁰ That rate may increase in the near future as the state grapples with a transportation funding crisis due to a mix of high inflation and declining fuel tax revenue.⁵¹ Throughout OReGO's lifespan, the program has attracted 3,189 participants.⁵² This means OReGO ranks last for participants across the four permanent MBUF programs by participants in the United States.

FIGURE 5: NEW OREGO PARTICIPANTS BY YEAR



Source: Nigel Jaquiss, "ODOT's Alternative to the Gas Tax Is Stuck in Neutral," *Willamette Week*, 2 Apr. 2025. www.wweek.com/news/2025/04/02/odots-alternative-to-the-gas-tax-is-stuck-in-neutral/ (18 June 2026).

The program peaked at launch, with 2015 being the only year OReGO recorded greater than 1,000 new participants. As of 2026, the program only retained 1,076 participants.⁵³

OReGO currently supports three MROs: OBD-II plug-ins, a photo of the vehicle's odometer, or on-board telematics. All three options are supported by OReGO's two CAMs, GeoToll and

⁵⁰ "OReGO: Learn More," Oregon Department of Transportation. www.oregon.gov/odot/orego/Pages/Learn-More.aspx (18 June 2026).

⁵¹ "Funding fundamentals: Five things to know about ODOT's funding crisis," Oregon Department of Transportation. content.govdelivery.com/accounts/ORDOT/bulletins/3ee6d12 (18 June 2026).

⁵² Nigel Jaquiss, "ODOT's Alternative to the Gas Tax Is Stuck in Neutral," *Willamette Week*, 2 Apr. 2025. www.wweek.com/news/2025/04/02/odots-alternative-to-the-gas-tax-is-stuck-in-neutral/ (18 June 2026).

⁵³ Oregon Department of Transportation, 20 July 2026. Email.

NextPass Miles by Cintra.⁵⁴ GeoToll and NextMove essentially handle the customer-facing side of Oregon’s MBUF program on behalf of Oregon DOT.

3.2.2 COLLECTION COSTS

OReGO is the longest-running MBUF program, but given what information is available, its financial status looks weak. Thanks to a mix of the program’s limited participation and retaining the OBD-II option for a decade, the cost of collection is still around 40% in year 10.⁵⁵ More-detailed figures are not available, especially not at the granular level Utah’s program reports in, but that alone is a bad sign for OReGO’s fiscal health.

... eventually all hybrids and electric vehicles registered in Oregon will be required to participate in OReGO. Shoring up participation will mean that back-end administrative costs are more broadly spread across beneficiaries.

Per HB 3991, eventually all hybrids and electric vehicles registered in Oregon will be required to participate in OReGO. Shoring up participation will mean that back-end administrative costs are more broadly spread across beneficiaries. The phased-in change to a mandatory program would likely reduce costs per participant, but it is yet to be implemented.

The Road User Fee Task Force mirrored Utah’s observation on OBD-II plug-ins: “[OBD-II plug-ins] can easily be removed from the port, and they are comparatively expensive because they require installing a device in every car and entail data transmission costs.”⁵⁶ Accordingly, the 2025 biennial report by the Oregon Road User Fee Task Force has

⁵⁴ “OReGO Business Partners,” Oregon Department of Transportation. www.oregon.gov/odot/Programs/Pages/OReGO-Business-Partners.aspx (18 June 2026).

⁵⁵ Jaquiss, “ODOT’s Alternative to the Gas Tax Is Stuck in Neutral.”

⁵⁶ “Oregon Road User Fee Task Force Report to the Legislature 2025,” Oregon Department of Transportation, 2025. www.oregon.gov/odot/Programs/RUF/RUFTF%20Report%202025.pdf (18 June 2026).

suggested reducing the MROs down to two, a low-tech and high-tech option, to reduce back-end administrative costs, though the program has not yet made that shift.⁵⁷

Some bills in Oregon have tried to ensure the state automatically adjusts the MBOF rates based on the results of studies meant to determine what vehicles incur which costs to Oregon's roadways, though those bills have stalled in the legislative process at the time of writing.⁵⁸

3.2.3 LIMITATIONS

Oregon does not publish a program-level cost-to-revenue ratio for OReGO. The Road User Fee Task Force publishes biennial reports with cost commentary, but without direct figures.

3.3

VIRGINIA'S MILEAGE CHOICE PROGRAM

In 2019, Virginia's Appropriations Act item 433 K. directed the secretary of transportation and the Commonwealth Transportation Board to establish a working group through Virginia DOT to evaluate the impact of increased fuel efficiency and the increased use of EVs on transportation revenues. It also requested the working group recommend options to provide a sustainable funding stream for transportation infrastructure.⁵⁹

The report suggested near-term and long-term changes to Virginia's transportation revenue sources to ensure the commonwealth maintained stable revenue for transportation projects. In the near term, the working group recommended numerous changes, which included increasing the fuel tax to meet future funding requirements, indexing fuel tax rates to inflation, and introducing a new revenue mechanism based on vehicle fuel efficiency.⁶⁰ In the long term, the group recommended studying MBOFs further for future implementation. The Virginia General Assembly took the advice of the working group and moved to implement a permanent MBOF program. In 2020, HB 1414 and SB 890

⁵⁷ Ibid.

⁵⁸ "House Bill 4009," Oregon State Legislature, 2026 Regular Session. olis.oregonlegislature.gov/liz/2026R1/Downloads/MeasureDocument/HB4009/Introduced (18 June 2026).

⁵⁹ "2019 Appropriations Act, Item 433 K.," Virginia General Assembly. budget.lis.virginia.gov/item/2019/1/HB1700/Chapter/1/433/ (18 June 2026).

⁶⁰ "Report Document No. RD54," Virginia Department of Transportation, Dec. 2019. rga.lis.virginia.gov/Published/2020/RD54/PDF (18 June 2026).

established the Highway Use Fee (HUF), the voluntary Mileage-Based User Fee Program, as well as raising the statewide fuel tax, and indexing it to inflation.⁶¹

The Virginia General Assembly took the advice of the working group and moved to implement a permanent MBUF program.

The HUF is an annual registration-based fee assessed on fuel-efficient and electric vehicles to partially offset losses in fuel tax revenue—specifically, to make up 85% of the revenue expected to be paid for a vehicle with a combined fuel economy of 23.7 miles per gallon. The formula for the HUF is as follows: $HUF = [((11,600 \text{ average miles traveled} \times \text{fuel tax rate}) / 23.7) - ((11,600 \text{ average miles traveled} \times \text{fuel tax rate}) / \text{vehicle's MPG rating})] \times .85$.⁶² The number 11,600 will reappear frequently when evaluating the Mileage Choice program—it's the average miles driven per year in Virginia. Because the HUF does not scale for or factor in miles driven beyond the average, it by itself is not an MBUF, but more a means of stemming declining revenue in the near- and medium-term.

On July 1, 2022, the Virginia Mileage Choice program launched, pursuant to HB 1414 and SB 890.⁶³ The Mileage Choice program is an alternative to the HUF, for drivers who would rather pay only for the miles they drive. Mileage Choice is an opt-in program that converts a driver's HUF into a per-mile rate ($HUF \div 11,600$), so drivers traveling less than the statewide average pay less.

To sign up and opt in to the Mileage Choice program, a driver must enroll online before renewing their vehicle registration. The only eligible vehicles are those that are subject to the HUF: fuel-efficient (25+ mpg) vehicles, vehicles made in a year where the average combined mpg rating for all vehicles produced in that year is 25 mpg or greater, and

⁶¹ "House Bill 1414," Virginia General Assembly, 2020 Session. legacylis.virginia.gov/cgi-bin/legp604.exe?201+sum+HB1414 (18 June 2026).

⁶² "Highway Use Fee," Virginia Department of Motor Vehicles. www.dmv.virginia.gov/vehicles/taxes-fees/highway-use (18 June 2026).

⁶³ "DMV Introduces New Mileage Choice Program," Virginia Department of Motor Vehicles. www.dmv.virginia.gov/news/dmv-introduces-new-mileage-choice-program (18 June 2026).

electric vehicles.⁶⁴ Enrolling requires that a user establish an account with Emovis, the CAM for Virginia's MBUF program.⁶⁵

Similar to other states with an MBUF program, Virginia looked to incentivize enrollment in the program from the outset.

Similar to other states with an MBUF program, Virginia looked to incentivize enrollment in the program from the outset. Given the alternative is the HUF, a driver who drives less than 11,600 miles annually in Virginia would pay less as an enrollee in the Mileage Choice program.⁶⁶ It also spreads a user's HUF payment across the year, rather than being paid as a lump sum.⁶⁷ Mileage Choice participants will never pay more than the HUF, which functions as a revenue cap.

Mileage Choice user's rates are set differently from other permanent programs. Mileage Choice users divide what their HUF would have been by 11,600 (again, the average number of miles driven per year by Virginians).⁶⁸ For example, if an EV would pay \$128/year in HUFs, that would mean they'd pay \$0.011/mile, a very low rate compared to Oregon and Utah. Figure 6 below shows how Mileage Choice calculates the per-mile rate for a user.

⁶⁴ "Mileage Choice," Virginia Department of Motor Vehicles. www.dmv.virginia.gov/vehicles/taxes-fees/mileage-choice (18 June 2026).

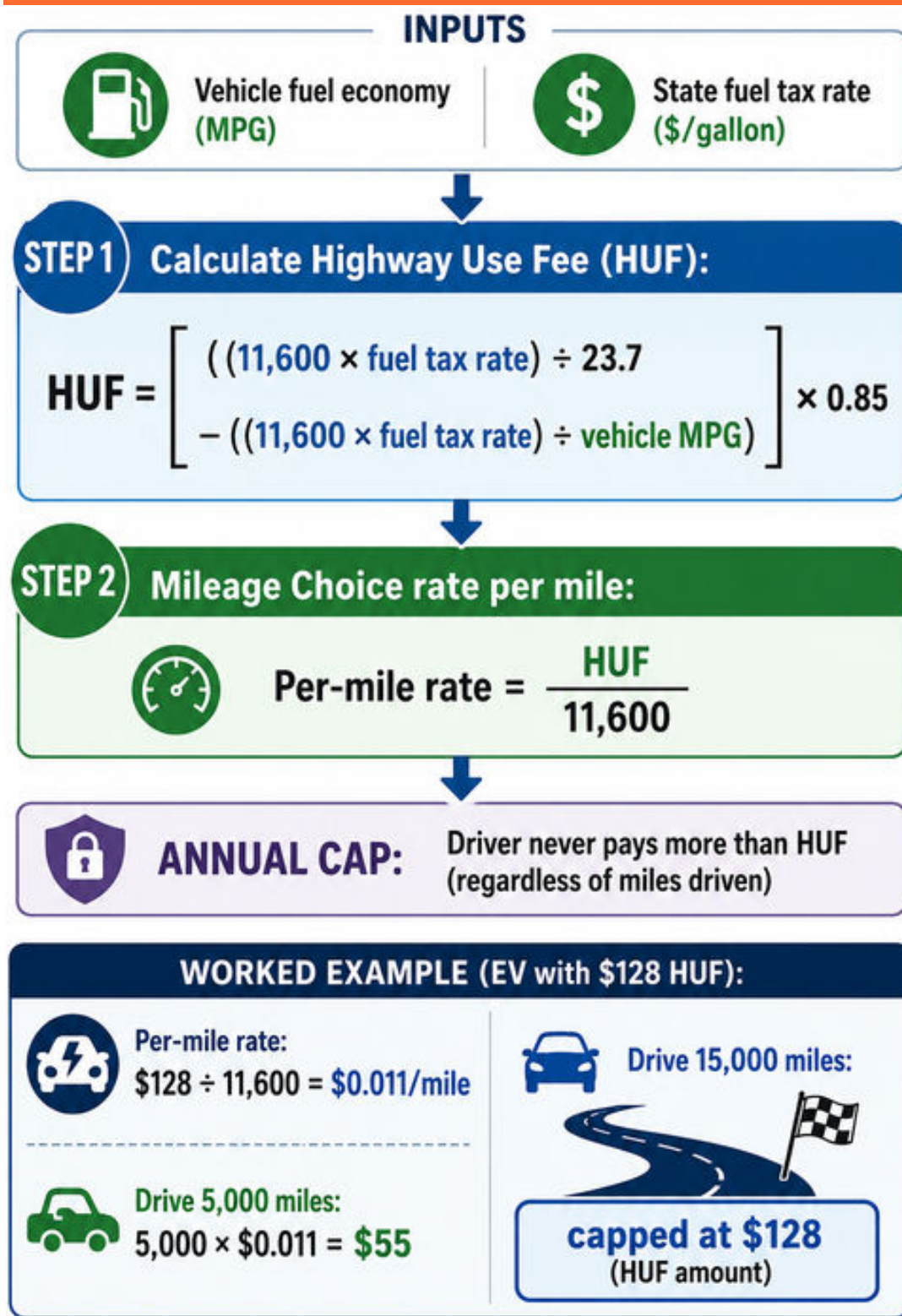
⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Ibid.

FIGURE 6: HOW MILEAGE CHOICE CALCULATES ITS PER-MILE RATE



Source: Figure generated using ChatGPT (OpenAI) with data from "Mileage Choice," Virginia Department of Motor Vehicles. www.dmv.virginia.gov/vehicles/taxes-fees/mileage-choice (18 June 2026).

Figure 6 shows the HUF formula used for fuel-efficient gasoline and hybrid vehicles, whereas an EV's HUF is simply 85% of the fuel tax that a hypothetical 23.7-MPG vehicle would pay over 11,600 miles, with no subtraction for the vehicle's own fuel-tax contributions because an EV pays none.

As of 2025, 30,000 drivers were enrolled in Virginia's Mileage Choice program, which means it's the largest MBUF program by enrollment in the United States at the time this study was written.⁶⁹ Its large enrollment is driven by the current program structure, in which users will only save money by enrolling, and in how the MBUF interacts with the HUF. The latter is a major part of how the program scales—because Mileage Choice incentivizes enrollment for non-EVs or hybrids, it can capture revenue from efficient IC-engine vehicles as well. As of December 2025, the program retained 81% of its initial enrollees as active participants.⁷⁰

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Virginia also handles MROs differently than Oregon or Utah. When a user is enrolled, Emovis (the commercial account manager for Virginia) will send the user an OBD-II device to install in the vehicle.⁷¹ That device records miles driven. For electric vehicles, in-vehicle telematics are used and will transfer information directly to Emovis.⁷² As of December 2025, 81% of vehicles participating in Mileage Choice use the OBD-II option, and 19% use in-vehicle telematics.

⁶⁹ Mallory Sofastaii, “Dueling Bills in Maryland: A Battle Over Mileage Fees and the Future of Transportation Funding,” *WMAR-2 News*, Baltimore. www.wmar2news.com/matterformallory/dueling-bills-in-maryland-a-battle-over-mileage-fees-and-the-future-of-transportation-funding (18 June 2026).

⁷⁰ “Virginia's Mileage Choice Program Case Study,” Emovis, Dec. 2025. emovis.com/wp-content/uploads/2025/12/Emovis_Virginia-Mileage-Choice-Program-Case-Study.pdf (18 June 2026).

⁷¹ “Mileage Choice,” Virginia Department of Motor Vehicles.

⁷² Ibid.

Users do have a choice between a global positioning system (GPS) enabled and a non-GPS-enabled OBD-II device, giving them the option of choosing a location-based service or a lower-tech option.⁷³ As of December 2025, 56% of total users chose to share GPS locational data for the Mileage Choice program.⁷⁴ However, the non-GPS option is available because of statute requiring an option without location tracking.⁷⁵ Whether an enrollee uses a location-based service or not, the program does not currently exempt users from paying for miles driven out of state.⁷⁶ Users are asked to submit odometer pictures to Emovis through a cellphone app, to verify that their mileage is being recorded accurately.⁷⁷

3.3.2 COLLECTION COSTS

The financials of Virginia's Mileage Choice program are hard to ascertain. Very little information is publicly available, but we do have a snapshot of revenue from an Emovis report from December 2025. According to Emovis, \$400,145 in mileage charges and \$282,000 in annual HUFs have been collected.⁷⁸

While that provides data on revenue, cost data are limited. Neither the Department of Motor Vehicles (DMV) nor Virginia DOT itemizes program expenses for Mileage Choice, and the DMV only mentions program features, not financials.

Contract information between Emovis and Virginia DOT is not publicly available. Emovis' releases have focused on revenue generated and enrollee retention. Based on the knowledge of the program and other programs evaluated in this study, a few assumptions can be made.

First, the OBD-II MRO is likely increasing program costs, especially with 81% of enrollees using that as their preferred MRO.⁷⁹ Given Utah's experience, removing that relatively expensive and fragile option should lower costs.

⁷³ Ibid.

⁷⁴ "Virginia's Mileage Choice Program Case Study," Emovis.

⁷⁵ "Acts of Assembly, 2022 Session, Chapter 446," Virginia General Assembly. legacylis.virginia.gov/cgi-bin/legp604.exe?221+ful+CHAP0446 (18 June 2026).

⁷⁶ "Mileage Choice," Virginia Department of Motor Vehicles.

⁷⁷ Ibid.

⁷⁸ "Virginia's Mileage Choice Program Case Study," Emovis.

⁷⁹ Ibid.

Second, enrollment in Virginia's Mileage Choice program is high. Virginia's program is massive, especially compared to Utah and Oregon. This is impressive, since the program is still opt-in.

Third, Virginia could choose a cheaper collection method. The state could collect an MBUF via odometer reading during the annual vehicle safety inspection.⁸⁰ This information collected by the State Police could be shared with the Department of Motor Vehicles.⁸¹ Since this inspection is conducted by a third party, its collection costs to VDOT are minimal, though the cost of developing a system by which those odometer readings can be transferred from the State Police to the Virginia Department of Motor Vehicles may not be trivial as an initial outlay.



... Virginia could choose a cheaper collection method. The state could collect an MBUF via odometer reading during the annual vehicle safety inspection.



Overall, it's hard to assess the financial health of Virginia's Mileage Choice program thanks to the lack of cost data. There is no publicly available Virginia report or audit that computes collection costs as a share of mileage revenue.

3.3.3 LIMITATIONS

Virginia Mileage Choice does not currently publish comprehensive financials for the program, making it difficult to project what the actual collection costs for the program are. That said, the size and scale of the program should benefit it—but it's impossible to say with certainty that Mileage Choice is operating in a cost-effective manner.

⁸⁰ "Vehicle Inspection FAQs," Virginia State Police. vsp.virginia.gov/safety-and-enforcement/vehicle-inspection-faqs/ (18 June 2026).

⁸¹ Ibid.

3.4

HAWAII'S HIRUC PROGRAM

Hawaii's Road Usage Charge program (HiRUC) is the newest permanent MBUF program in the United States, but Hawaii DOT began planning the program in 2016.⁸² In March 2019, the state conducted comprehensive community meetings. The HiRUC Demonstration Project's final output was a 125-page report.⁸³ The report's final recommendation was to establish the MBUF as a replacement for the state's annual EV registration surcharge of \$50.⁸⁴

For the initial MBUF rate, it recommended Hawaii follow the examples of Utah and Oregon and set the rate to be roughly equivalent to what the average vehicle pays in state fuel tax, approximately \$0.008/mile. It also recommended a final HiRUC program leverage the existing touchpoint between Hawaii DOT's existing annual safety inspections, where inspectors collect and record odometer readings from all vehicles. The legislature followed the report's recommendations. SB 1534 was signed into law as Act 222 on July 5, 2023.⁸⁵

The bill set July 1, 2025 as the launch date for the HiRUC Program, and provided that EV owners could pay a \$50 flat MBUF or a per-mile MBUF until June 30, 2028.⁸⁶ Essentially, the program is mandatory but gives drivers the option of an opt-out via the flat fee. So, while it's technically mandatory for EVs today, it will be truly mandatory in 2028 when the flat fee is no longer an option and all EV owners will be assessed the per-mile MBUF.⁸⁷

The bill also required that Hawaii DOT provide a plan to have the program extend to all light-duty passenger vehicles by 2033.⁸⁸ Hawaii DOT detailed that plan to the legislature at the end of 2025.⁸⁹ Between the HiRUC technology test drive and the launch of the HiRUC Program, Hawaii simplified acceptable MROs.

⁸² "How Did We Get Here," Hawaii Department of Transportation, *HiRUC*. hiruc.org/how-did-we-get-here/ (18 June 2026).

⁸³ "Final Report," Hawaii Road Usage Charge Demonstration Project, Hawaii Department of Transportation. hiruc.org/final-report/ (18 June 2026).

⁸⁴ *Ibid*, 124.

⁸⁵ "Senate Bill 1534," Hawaii State Legislature, 2023 Regular Session. www.capitol.hawaii.gov/session/archives/measure_indiv_Archives.aspx?billtype=SB&billnumber=1534&year=2023 (18 June 2026).

⁸⁶ *Ibid*.

⁸⁷ *Ibid*.

⁸⁸ *Ibid*.

⁸⁹ "How Did We Get Here," Hawaii Department of Transportation.

Today, the HiRUC Program is the newest operational permanent program in the United States. Eligibility is currently limited to EVs; hybrids or high mpg vehicles are the next targets for program but cannot enroll today.⁹⁰ Enrollment for EVs is automatic and happens when drivers register their vehicles and have them inspected.

“
Enrollment for EVs is automatic and happens when drivers register their vehicles and have them inspected.
”

Hawaii caps a HiRUC participant's annual payment at \$50, the lowest of any of the programs analyzed, mirroring the flat MBUF option.⁹¹ It is also not indexed for inflation. A cap like this makes sense in a voluntary program, where guaranteeing drivers will never pay more than the flat fee encourages enrollment and it can be used as the cost for non-compliant participants.

The current rate charged is \$0.008/mile, based on the amount an average vehicle pays in fuel tax in the state.⁹² This rate is disproportionately low compared to other states like Virginia (73% of Virginia's rate), Utah (64% of Utah's rate), and Oregon (35% of Oregon's rate). It equals a fuel tax of \$0.187 per gallon, roughly equivalent to what the average vehicle pays into the state's fuel tax system. The rate is not indexed to inflation or any other metric, meaning the \$0.008/mile rate will stay fixed unless provisions to index it to inflation are laid out by the Hawaii State Legislature.

According to HDOT, approximately 27,000 vehicle registration renewal notices included HiRUC.⁹³ Of that, 40% of drivers did not receive the choice between the flat fee and the mileage fee due to lack of data to calculate their annual mileage (i.e., there were not two odometer readings available from safety inspections at the time of registration renewal, a symptom of the program being new).⁹⁴ Of those drivers that were given the choice between

⁹⁰ “HiRUC FAQ,” Hawaii Department of Transportation. hiruc.org/faq/ (18 June 2026).

⁹¹ “Hawaii Road Usage Charge (HiRUC),” Hawaii Department of Transportation. hiruc.org (18 June 2026).

⁹² Ibid.

⁹³ Hawaii Department of Transportation, 27 May 2026. Email.

⁹⁴ Ibid.

the per-mile MBUF and the flat MBUF, 59% selected the per-mile option.⁹⁵ Additionally, 52% of those drivers are hitting the \$50/year cap and 12% of flat fee users are driving less than the cap-equivalent mileage.⁹⁶



Currently, HiRUC participants have their odometer data recorded and sent to the county DMVs, and they pay based on the miles accrued over the time since their last safety inspection.



Currently, HiRUC participants have their odometer data recorded and sent to the county DMVs, and they pay based on the miles accrued over the time since their last safety inspection. The safety inspection program has existed since 1987, which means users are familiar with it, and data on the cost of collecting those odometer readings are abundant.⁹⁷ This approach also makes sense thanks to Hawaii's unique geography. Given the state is entirely comprised of islands, all miles driven can be assumed to have been driven on roads in Hawaii. This means charging for every mile on an odometer makes sense, and the lack of a GPS-enabled option isn't as impactful for a Hawaii resident as it would be for a Virginia resident who routinely commutes into Maryland.

3.4.2 COLLECTION COSTS

A typical odometer reading takes 15 minutes or less, per HiRUC.⁹⁸ Inspectors note the miles on the odometer and record it on an iPad or a physical notepad as part of their routine safety inspection. Given salaries for inspectors and overheads, the actual cost of collecting odometer data is about \$0.10 per year per vehicle.⁹⁹ However, when factoring in the overall costs of the Periodic Motor Vehicle Inspection (PMVI) safety inspection including

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ "Hawaii Administrative Rules, Title 19, Subtitle 5, Chapter 133-2," Legal Information Institute, Cornell Law School. www.law.cornell.edu/regulations/hawaii/title-19/subtitle-5/chapter-133.2 (18 June 2026).

⁹⁸ "Cost of Odometer Mileage Collection," Hawaii Road Usage Charge Demonstration Project, Hawaii Department of Transportation, Aug. 2022. hiruc.org/wp-content/uploads/2022/08/E-4-HiRUC-Cost-of-Odometer-Mileage-Collection.pdf (18 June 2026).

⁹⁹ Ibid.

information technology, hardware including the iPad, software, database, and cloud hosting, the pass-through costs are instead \$3.40 per vehicle per year, but that includes much more data than just the odometer reading.¹⁰⁰ If we assume the odometer reading is 5% of the cost of data collection, transmission, the additional program, and IT costs, we can add another \$0.17 per vehicle per year onto the initial \$0.10 per vehicle per year for a total of \$0.27 per vehicle per year to collect odometer readings.¹⁰¹

Hawaii's costs are likely low, given the state's decision to leverage the existing annual safety inspection and odometer readings that the state already performed. Of all four programs this study has analyzed, Hawaii has the lowest number of MROs—but it works the best for the state's unique situation. This simplification could be HiRUC's greatest strength, given the increased costs associated with multiple MROs, especially OBD-II plug-in devices. But it is worth noting that with the current lack of data due to the program being so new, it's impossible to definitively say whether Hawaii's cost of collection is near parity with the fuel tax.



The program's path forward is simple, with the per-mile MBUF becoming mandatory for EVs in 2028, and then required for all light-duty vehicles by 2033—pending potential legislation.



The program's path forward is simple, with the per-mile MBUF becoming mandatory for EVs in 2028, and then required for all light-duty vehicles by 2033—pending potential legislation. The enrollment base, because of that timeline, should be broad enough to benefit from scale as much as an MBUF program can in Hawaii. However, with the rate set at \$0.008 per mile with no indexing mechanism, HiRUC charges less than any other permanent program and will lose purchasing power each year the legislature does not act.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

3.4.3 LIMITATIONS

Hawaii's HiRUC Program is the newest of the programs, and as such lacks much of the underlying data necessary to see whether it's delivering on the low cost of collection that the technology demonstrations pointed to. Hawaii's Department of Transportation provided data on enrollment, and it's already scaling well since it's mandatory—but whether the state properly leverages its existing safety reading infrastructure or not remains to be seen.

PART 4

KEY VARIABLES AND RECOMMENDATIONS

Part 3 examined each permanent MBUF program on its own terms. Part 4 will take a step back, identify where the four programs align, compare where they contrast, and analyze which variables appear to drive collection costs and cost savings outcomes. Table 2 below summarizes the four programs explored in Part 3 along some of the dimensions analyzed in Part 3.

TABLE 2: SUMMARY OF PERMANENT MBUF PROGRAMS

Program	Year Launched	Participants	MROs	Eligible Vehicles	Structure
Utah Road Usage Charge Program	2020	12,848	-Telematics -Odometer Photo	EVs	Voluntary
Oregon OReGO Program	2015	<800	-OBD-II Plug-In -GPS-Enabled Telematics -Odometer Photo	EVs and vehicles rated 20 MPG or higher	Voluntary, becoming mandatory for all EVs/hybrids in July 2028
Virginia Mileage Choice Program	2022	~30,000	-OBD-II Plug-In -GPS-Enabled Telematics -GPS-Disabled Telematics -Odometer Photo	EVs and vehicles rated 25 MPG or higher	Voluntary
Hawaii HiRUC Program	2025	~27,000	-Odometer Reading	EVs	Mandatory

All four permanent programs offer important lessons for both other states and their own future development.

Utah's program is strong financially. It's also one of the only states that provides a granular analysis of program financials each year. The program's strong start financially still requires higher scale.

Caps are currently used as a means of simplifying compliance, as explained, but they do limit the upward effectiveness of an MBUF program in some ways. For example, for an MBUF program to be a viable replacement of the fuel tax, it needs to capture high-frequency use. A driver should pay for every mile of roadway they use, since miles driven even after reaching an annual cap still cause wear and tear on the roads. The state will eventually have to make the program mandatory for EV drivers, since high-frequency use of an EV is not adequately captured by the annual fee or the fuel tax, but the state still may need to retain a cap to charge non-compliance program participants. The more critical consideration is ensuring the cap is high enough to capture high-frequency use, which will also encourage more users to opt for a per-mile rate.

A driver should pay for every mile of roadway they use, since miles driven even after reaching an annual cap still cause wear and tear on the road.

Oregon's OReGO, likewise, has plenty of room for improvement, especially if collection costs are at the 40% of revenue generated level reported by *Willamette Week*.¹⁰² The Oregon Road User Fee Task Force has recommended two types of actions to push OReGO toward financial viability.

Since the state has taken the first step of shifting the program from voluntary to mandatory, now it's just a matter of seeing the shift in real-time as EVs, PHEVs, and hybrids are required to enroll in OReGO starting in 2027. Since program participant numbers matter, its options are to shore up a larger base of voluntary support if somehow it remains

¹⁰² Jaquiss, "ODOT's Alternative to the Gas Tax Is Stuck in Neutral."

voluntary, or it needs to stay on course to be mandatory for EVs, PHEVs, and hybrids, and potentially every vehicle if it's meant as a replacement for the fuel tax itself.

The second step is reducing the number of MROs and ending support for OBD-II plug ins. OBD-II plug ins require an additional, physical touchpoint for replacement. A better alternative is using original equipment manufacturer (OEM) telematics or odometer photos as the only two MROs. More research and sample data are necessary to see the impact of OEM telematics on an MBUF program, since the original equipment manufacturers own the data they collect. Paying for that data would add to costs, but telematics are already built into vehicles, and odometers are also already present. Odometer photos could be logged and sent to the relevant state agency via a smartphone app. Reducing the necessary touchpoints by getting rid of the OBD-II plug-in could greatly reduce the administration costs for the OReGO program.

Virginia's Mileage Choice could also benefit from reform focused on MROs. Utah's experience suggests that an OBD-II plug-in-based system can lead to higher replacement costs and hardware expenses compared to telematics or odometer-photo reporting. Virginia should evaluate whether similar alternatives could reduce collection costs within the context of its own program. Currently, the OBD-II plug-in is so widely spread already across Mileage Choice, with 81% of users choosing it, it would be hard to replace, but if costs are a concern that might be the most sensible route.

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Additionally, Mileage Choice, as explained above, does permit a GPS-enabled or non-GPS option. But the program doesn't take into account miles driven out of state, removing a crucial advantage of a GPS-enabled option. This loses the incentive benefit to drivers who frequently drive out of state. If the barrier is the state's lack of county-by-county road inventories that can flag whether a road is public or private, then Virginia DOT should evaluate whether a detailed road inventory makes sense for the state.

Without the details of Virginia DOT's contract with Emovis, the CAM for Mileage Choice, it's hard to say whether the contract is helping the program's costs or not. In 2025, Virginia DOT extended the Emovis contract for another three years, possibly to maintain consistency to program users.¹⁰³ Utah's experience showed a change in vendor led to major cost savings (alongside changing available MROs), but just because an approach worked in Utah does not guarantee its success in Virginia.

Virginia's Mileage Choice program counts more participants than any other permanent MBUF program in the country, and that scale is its greatest asset, driven by its interaction with the HUF. But scale alone cannot make a program viable, and Mileage Choice currently runs without published cost data. Neither lawmakers, researchers, nor the public can judge what the program delivers per dollar spent. An annual (or biennial, like Oregon) report to the General Assembly that lays out key program performance indicators like enrollment, costs as a percentage of revenue generated, and possible recommendations for the General Assembly to implement to help the program in the future would be a first step, and would help with research on MBUFs in Virginia and in other states studying this alternative to the fuel tax. Most importantly, it will help inform the General Assembly: How are lawmakers supposed to reform Mileage Choice tomorrow without knowing how it performs today?

If the General Assembly wants Mileage Choice to outgrow its current role as a HUF supplement and replace the fuel tax, it must mandate annual (or biennial) reporting on costs and revenue, retire the OBD-II option and stop billing users for miles driven out of state. Until then, the program's scale is its only proof of potential, not proof of its ability to scale into the future.

And lastly, Hawaii's HiRUC program is off to what seems like a strong launch, but more data will be necessary to evaluate it comprehensively in the future. HiRUC's design choice to leverage the safety inspection as its mileage-reporting touchpoint sets it apart from the other three permanent programs and likely keeps collection costs down. That simplicity is the program's greatest asset, and Hawaii's geography makes it work in a way that may not translate to a mainland state.

¹⁰³ "Emovis Extended the Road User Charging Program in Virginia," Emovis.com, <https://emovis.com/2025/12/11/emovis-extended-the-road-user-charging-program-in-virginia/> (18 July 2026).

Hawaii does need to reevaluate the rate the state set for HiRUC. The \$0.008/mile rate is the lowest of any of the four programs and currently is not set to index to inflation automatically. Because of these factors, HiRUC will lose purchasing power each year. If Hawaii wants its MBUF program to replace the fuel tax rather than supplement it, or be limited to just EVs, the legislature should index the rate for inflation before mandatory enrollment begins and the political cost of any adjustment rises.

PART 5

CONCLUSIONS AND MBUF DESIGN RECOMMENDATIONS

Comparing the data available across all of the case studies, several conclusions become clear.

The choice of MROs matters. Three of four programs offered OBD-II plug-ins. Utah dropped them to save on program costs, and the Oregon Road User Fee Task Force has recommended dropping support for them, though OReGO hasn't done that yet. The OBD-II devices are fragile, expensive to replace, and replacement requires a physical touchpoint that only Hawaii supports at the frequency required to levy a mileage fee consistently.

Collection method also drives billing frequency, which is its own tradeoff. Annual odometer readings, like Hawaii's Periodic Motor Vehicle Inspection, are the cheapest and most passive to collect, but they produce a single lump-sum annual charge that functions like a registration surcharge. That structure is generally less accommodating to drivers who budget around smaller, more-frequent payments. More-frequent odometer-photo capture can spread the cost across more billing cycles, but doing so sacrifices the passivity that made the annual reading cheap, adding transaction and collection costs each cycle. Telematics is the one mileage reporting option that could resolve this tradeoff, since

collection is passive and bills can be sent monthly, similar to utility charges. Minnesota's latest MBUF pilot, conducted with Via and Stellantis, was designed to test exactly this question—looking to see whether new cars' built-in telematics can automatically measure miles driven.¹⁰⁴

Existing touchpoints, when available, should be leveraged to lower costs. Hawaii's annual safety inspection has existed for over four decades. Users know how the process works, and the costs are slim at an estimated \$0.27 per year per vehicle.¹⁰⁵ Programs that can build around existing touchpoints incur lower marginal administrative cost than programs that create new ones. For example, 15 states currently require an in-person vehicle inspection, typically for the purposes of monitoring emissions, checking safety, or for registration renewal.¹⁰⁶ Those states should look to leverage that existing interaction with users in any future MBUF programs.



The choice between capping MBUF charges per year has a major impact on enrollment.



The choice between capping MBUF charges per year has a major impact on enrollment. OReGO is the only program that does not offer a soft cap on fees per year—drivers can choose to pay the \$340 annual fee instead, but if they choose the MBUF route and drive enough, they can pay more. This can help explain the program's anemic enrollment, especially compared to Utah and Virginia, two programs that are half as old as OReGO with far higher participation, but it may not explain it all.

Capping fees, especially in a voluntary program, seems necessary to some level thanks to compliance concerns. It guarantees some baseline of enrollment since it can only ever save users money while it's in place. But it still hinders the financial viability of the revenue stream MBUFs are meant to replace. There are policy tradeoffs and considerations for

¹⁰⁴ "Minnesota RUC Demo," Minnesota Department of Transportation. <https://mnruc.com/welcome> (25 June 2026).

¹⁰⁵ "Cost of Odometer Mileage Collection," Hawaii Department of Transportation.

¹⁰⁶ "What States Have Vehicle Inspections: Safety & Emissions," LegalClarity.com <https://legalclarity.org/what-states-have-vehicle-inspections/> (17 July 2026).

policymakers there. Ultimately, those who use infrastructure more should pay for it. And those who pay for it should benefit from it.

Vendor relationships shape costs, as Utah's vendor change shows. That vendor change coincided with the first year revenue exceeding costs, though the available data do not clearly differentiate between savings incurred by the vendor change or the MRO change. Oregon's task force has flagged vendor costs as a structural issue, and HB 3991 even went as far as to cap the vendor share of MBUF revenue at 10% starting in 2030.

The vendor contract is a critical cost variable, and Utah found room for improvement upon further examination. Contracts should include provisions that make scaling these programs up easier, for example, paying vendors a lower rate as more people are enrolled.



Data transparency across programs will be priceless going forward.



Data transparency across programs will be priceless going forward. Utah publishes administrative cost data against revenue annually. Oregon's task force publishes biennial reports with cost commentary, but without direct figures. Virginia and Hawaii publish neither at the program level, though Hawaii's lack of data is likely due to lack of time since the program launched—HiRUC's performance at publishing data from the 2016-2022 period when the MBUF program was being studied shows they clearly have the right ideas when it comes to data transparency. Virginia's lack of numbers, given the program is nearly four years old, is troubling. States adopting or looking to adopt MBUF programs should mandate standardized cost-of-collection reporting and look at what parts of an MBUF program raise costs disproportionately compared to the revenue generated. Without those data being published, policymakers are left to legislate based off inferences rather than information, and the public is left blind as to what their taxes are going toward.

Rates vary heavily from program to program. The rates span nearly three times the lowest value, from Hawaii's \$0.008/mile to Oregon's \$0.020/mile. Only Utah indexes its rate to inflation. Oregon had bills that looked to tie OReGO's MBUF rate to highway cost studies, though the bill has stalled and may not be taken up again. Hawaii and Virginia ought to look to index their rates for inflation in the future, to ensure that one of the original

reasons the states looked towards MBUFs—inflation—doesn't continue to erode the state's transportation revenues.

Above all else, it's worth noting that permanent MBUF programs are still in their infancy. While data can point to a possible trend, it may be premature to prescribe solutions based on the experiences of one program. Utah's cost savings, for example, may not be as easily replicable as MBUF proponents hope they will be. But the level of cost savings the state has predicted makes it worth evaluating, regardless.

States looking to start their own MBUF programs should:

- Prioritize scalability and making enrollment mandatory. A successful MBUF program's per-vehicle administrative cost falls as enrollment grows;
- If payment caps are used, ensure they are at a relevant level to capture high-frequency use of highway infrastructure;
- Prioritize simplicity for MROs and use existing touchpoints where possible, like Hawaii's annual safety inspection;
- Ensure commercial account managers' contracts include per-vehicle cost provisions that decline with scale;
- Require annual public reporting of program costs and revenue in the enabling legislation; and
- Index any per-mile rate to inflation at enactment, before mandatory enrollment raises the political cost of adjustment.

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