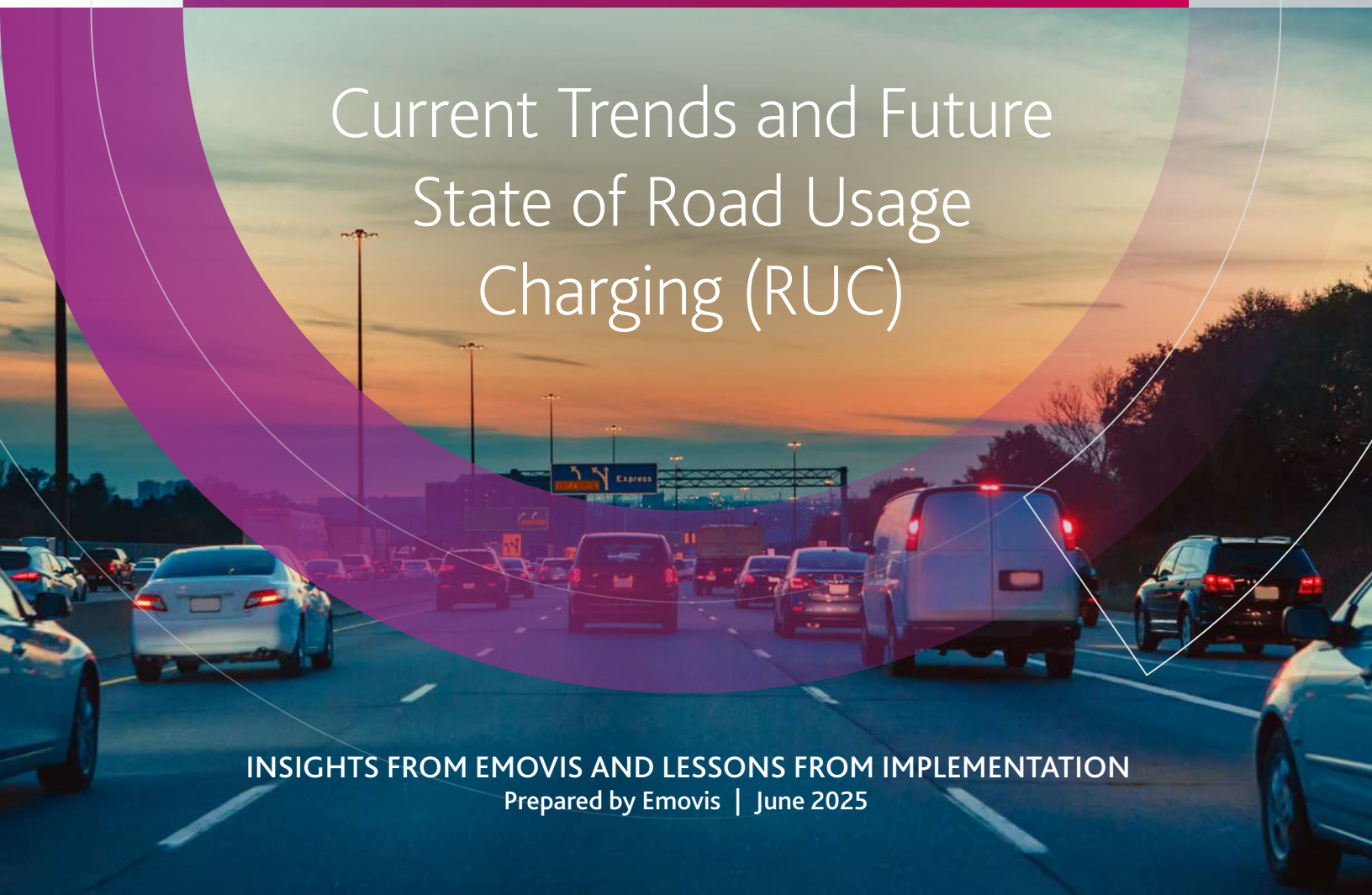
emovis
Abertis Mobility Services

# Driving **Smarter**

## Current Trends and Future State of Road Usage Charging (RUC)



INSIGHTS FROM EMOVIS AND LESSONS FROM IMPLEMENTATION

Prepared by Emovis | June 2025

# Executive **Summary**

As transportation leaders and legislators in the U.S. face challenges dealing with dwindling fuel tax revenue, transportation funding models are under more pressure than before. As such, Road Usage Charging (RUC) has emerged as a forward-looking alternative and mobility solutions companies, like Emovis and others, have been vital in assisting agencies with RUC implementations across the United States, providing them with multiple mileage reporting options, scalable solutions, and exceptional customer experiences.

This white paper offers insights into current trends, challenges, regional variations, and an in-depth look at the road ahead for future developments and innovations in RUC.

01

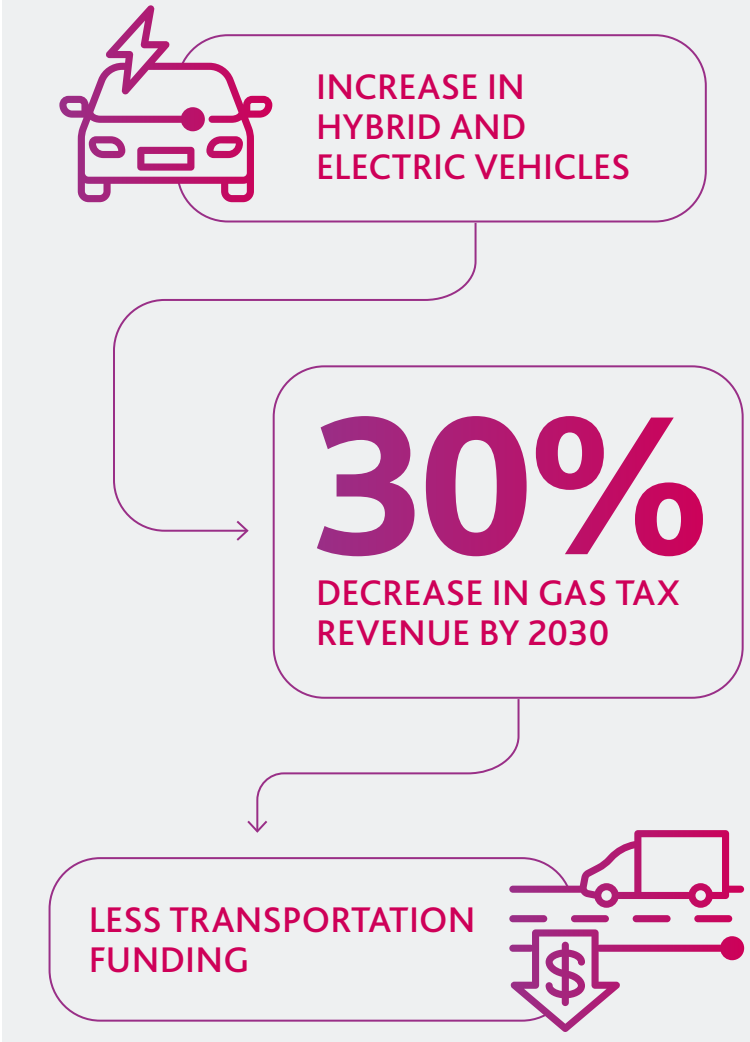
INTRODUCTION

# RUC's Role in Addressing **Declining Fuel Tax Revenues**

With more hybrid and electric vehicles (EV) on the roads, the shrinking demand for gasoline is projected to cause a 30% decrease in gas tax revenue by 2030, according to the Energy Information Administration (EIA). With 80% of road repairs funded by a gas tax, mileage-based road charge programs will become a viable alternative to keep road budgets intact as EV adoption becomes the norm[1].

As such, experts suggest the U.S. transportation infrastructure will continue to face growing pressures with funding gaps as more fuel-efficient and electric vehicles bypass traditional gas tax contributions and as more states will remain committed to making a full transition to electric vehicles by 2035 and light-duty transitions by 2027[2].

Road Usage Charging—and the technology that makes it happen—has become an industry staple solution that has evolved significantly since the days of tollbooth coin baskets and cash collectors. Today, RUC offers a more equitable way to charge all drivers—including those behind the wheels of electric vehicles—based on miles driven rather than fuel consumed. This practice ensures that all road users, regardless of their vehicle type, pay a per-mile fee to contribute fairly to transportation funding for costs associated with capital construction, maintenance, safety improvements, and long-term road rehabilitation.

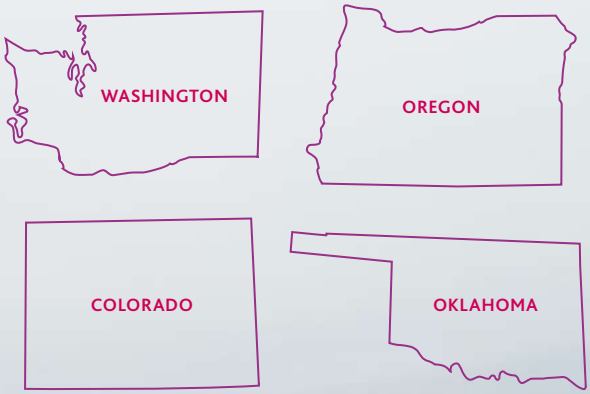


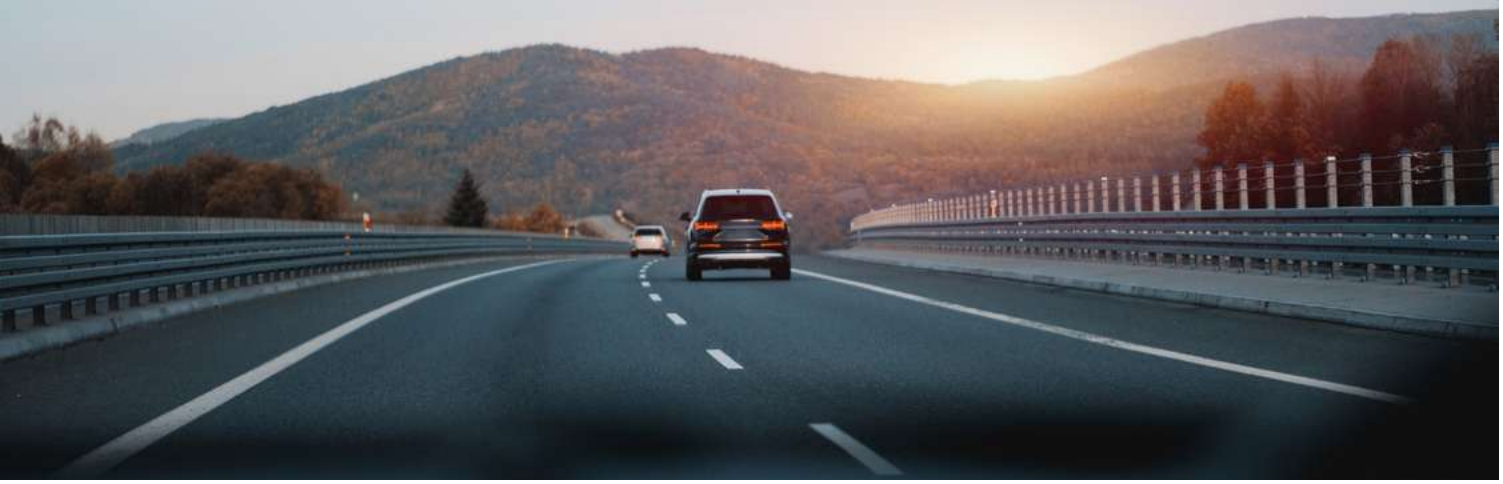

[1] U.S. Energy Information Administration, 2025.
[2] Council on Environmental Quality, n.d.

# 02
# Successful RUC Pilot Programs: Trending Considerations

Currently, nearly every state in the U.S. is implementing, legislating, or showing some form of interest in RUC. To date, several states have already jumped onto the bandwagon, including Washington, Oklahoma, Oregon, Colorado, and others throughout the RUC West/RUC America coalition. Those that have successfully conducted RUC pilot initiatives have served as use cases that demonstrate efficiency and profitability, while providing valuable insights that can be leveraged to address common misperceptions and enhance the understanding of RUC's potential benefits. Furthermore, when examining each of the pilots, they help to explore trending aspects of RUC, including privacy, user experience, equity, public perception, and its impact on different communities.

## STATES EMBRACING RUC



## EDUCATION AND PRIVACY

In today's climate, where toll payment scams, data breaches, and text phishing are at an all-time high, it is essential that user data remains private and is completely safeguarded so motorists feel comfortable with how their information is being handled. New data from the Federal Trade Commission shows that in 2024 alone, consumers reported losing $470 million to text message scams, a five-fold increase from 2020[3]. Phishing attacks, which often involve smishing, have also seen a significant rise, with millions of users falling victim and experiencing financial losses[4]. As more U.S. agencies explore RUC initiatives, states must prioritize privacy, education, and transparency in order for motorists to feel comfortable, build trust, and encourage wider adoption and participation.

States have been successful in addressing privacy concerns of its road users through clear participant agreements and frequently asked questions documents, for example, Oklahoma's implementation of the Fair Miles Oklahoma pilot program. By placing a high priority on educating motorists and ensuring road users understand the program's benefits, from what mileage data would be collected and who would have access, to how the data would be used and discarded at the end of the pilot, Oklahoma further developed trust with participants who, in turn, shared favorable feedback on the pay-per-mile model.

**$470 million**

AMOUNT CONSUMERS REPORTED LOSING TO TEXT MESSAGE SCAMS IN 2024

## EQUITY

While RUC aims to promote fairness in transportation funding, there are growing concerns about potential inequities in certain communities and how it can disproportionately affect individuals based on different demographics, income levels, and geographic areas. Factors, including vehicle location, type, size, owner's income and occupation, or fuel efficiency, could be used to better determine variable pricing, similar to tolling systems[5].

There are conflicting conversations surrounding the road to equity as it pertains to RUC. On one hand, a pay-per-mile model could disproportionately burden low-income commuters, particularly those who already lack affordable housing options and depend on driving extensive commutes for their livelihoods or everyday tasks. On the other hand, these same low-income communities, whose residents traditionally pay more at the pump due to the use of older, less fuel-efficient, vehicles, could also benefit significantly from not being charged by fuel consumption.

By defining what fairness means to the people they serve, transportation leaders and states considering RUC can create policies that are equitable to all drivers. California, for instance, did this by using data from a household travel survey to explore discounted per-mile rates based on geography and income. This approach allowed the state to seamlessly determine an appropriate fee structure for its pilot program, ensuring that underserved communities pay the same, or even less, than they do under the current gas tax model.

[3] Federal Trade Commission, 2025.
[4] AAG IT Support, 2025.
[5] RUC America & California Department of Transportation, 2024.

## ENHANCING THE USER EXPERIENCE WITH MOBILITY SOLUTIONS

Unlike the gas tax, which is incorporated into the fuel price and remains "invisible" to many drivers, RUC necessitates active driver involvement through enrollment, reporting, and payment. This creates more opportunities for tailored mobility solutions that are designed from the user's perspective and allow for seamless click-to-pay experiences that meet road users where they are.

After all, a quality customer experience is one of the key factors in public acceptance of any RUC program. It is essential now more than ever before, that states explore opportunities to streamline systems and ensure they are tailored to road users' needs. This includes dedicated customer websites or smartphone apps where customer service, mileage reporting, payment processing, and account management are easy to navigate.

Transportation agencies can improve their road usage charge (RUC) programs by embracing new transportation technologies and business models, facilitating a gradual shift from reliance on gas taxes. Furthermore, focusing on user-centric design improvements, such as simplifying enrollment and making RUC invoices clearer and easier to understand, can enhance customer satisfaction and encourage greater program participation.

To date, Emovis has played a critical role in several pilot and operational RUC projects, including the implementation of the highest revenue-generating RUC initiative for the Virginia Department of Motor Vehicles (VADMV). This program—which focused on user-centered design, outreach, and operational scalability—boasted successful adoption rates due to its marketing integration of seamlessly tying enrollment messaging to registration renewals, and highlighting user benefits that allowed participants to save money, make distributed payments, and avoid overpaying on existing flat fees.

Additionally, Emovis's Mileage-Based User Solution employs recognized open standards, cloud analytics, and mobile technology to provide a tailored solution for clients. Since its first deployment in Oregon in 2015, the solution has evolved to provide a streamlined experience for both its users and clients.

## TECHNOLOGY & INNOVATION TRENDS IN RUC

Road user charging systems should be designed for smooth integration with emerging smart city technologies like connected infrastructure and autonomous vehicles. This future-proof approach ensures funding mechanisms remain relevant and effective alongside advancements in mobility services and technologies, while also addressing current transportation needs.

For example, the Washington State RUC Pilot Project—which was conducted over the course of 12 months—simulated a real RUC system with 2,000 geographically diverse drivers representing the state's census. The pilot evaluated five technological methods for mileage collection to assess how effective each would be:

### Mileage Permit

This was a "pre-pay" approach in which road users each obtained a block of miles (1,000, 5,000, or 10,000) and reported their odometer readings either electronically or in person every three months. They obtained additional miles as needed to keep their permit valid.

### Odometer Reading

This "post-pay" approach enabled drivers with the flexibility to report their miles quarterly, either electronically or in person.

### MileMapper Smartphone App

Miles were recorded using the app on the driver's smartphone, a flexible and easy-to-use option where GPS could be turned on and off.

### Plug-in Device with or without GPS

The last two options involved using a plug-in device that came either with GPS, or without GPS. The device was plugged into the On-Board Diagnostics II (OBD-II) Port of the participant's vehicle.

The Washington State Road Usage Charge (RUC) pilot provided participants with monthly or quarterly email invoices detailing in-state and out-of-state miles driven, gas taxes paid, and RUC charges. At the conclusion of the 12-month pilot, over 15 million miles were accurately reported and charged at a rate of 2.4 cents per mile. The RUC help desk received over 1,900 inquiries via email and phone, with 62% originating from test drivers and 38% from the general public. Key concerns identified during the pilot included privacy and data collection, compliance and administrative expenses, fairness and equity, interstate travel, and the operational practicality of the system[6].

[6] Federal Highway Administration, 2020.

# 03
# Current State of RUC and the Role of OEM Telematics

Many states experience political opposition to RUC due to the perception of an additional tax and its lower priority for lawmakers. That is because currently, RUC collection costs are considerably higher than fuel tax collection. As a result, Departments of Transportation (DOTs) are investigating the use of original equipment manufacturer (OEM) telematics data as a means to decrease these collection expenses.

Today, the majority of new vehicles sold come equipped with OEM integration and can provide a wealth of data for RUC calculations, including location, speed, and other relevant information. But like many other smart technology methods, OEM presents privacy and security concerns leading to data-sharing constraints. Companies like Emovis have tested several other innovative approaches to combat this:

**SMARTPHONE-BASED REPORTING**
Challenges include reliability and the need for manual photo validation.

**STATE-BASED INSPECTIONS**
A low-cost, low-tech alternative requiring no additional equipment.

**INTEGRATED PAYMENTS**
Real-time trip-based billing and unified accounts across tolling, parking, EV charging, and transit services[7].

[7] Efstathopoulos, 2024.

# 04

## IN CONCLUSION

# Planning & Considerations for a RUC-Friendly Future

As fuel tax revenue continues to decline and alternative funding becomes increasingly urgent, road usage charging offers a promising—though currently complex—path forward. Specifically, the future of RUC depends not just on technology or legislation, but on building trust with drivers and delivering tangible value. The above use cases prove how agencies looking to pilot or scale RUC programs can work with transit authorities, auto dealers, and advocacy groups on strong educational campaigns, while leveraging user-centric tools and technology to integrate seamlessly into the broader mobility ecosystem.

Emovis's experience with RUC in multiple states underscores the importance of designing programs that prioritize user experience, cost-efficiency, and transparency—all essential considerations given today's evolving transportation landscape. Lastly, today's RUC trends show how beneficial these pilot systems can be in providing valuable data and insights on travel patterns and road usage, which, at some point in the future, can be used to better inform transportation planning and investment decisions.

## REFERENCES

AAG IT Support. (2025, April). The latest phishing statistics. https://aag-it.com/the-latest-phishing-statistics/

Council on Environmental Quality. (n.d.). Federal Sustainability Plan: Fleet. https://www.sustainability.gov/federalsustainabilityplan/fleet.html:contentReference[oaicite:0]{index=0}

Efstathopoulos, N. (2024, June 10). RUC and tolling use cases for data collected by native OEM vehicle telematics and their relevant risks and opportunities [Conference presentation]. IBTTA Finance and Road Usage Charging Summit, Baltimore, MD. https://www.ibtta.org/sites/default/files/documents/2024/Baltimore/Efstathopoulos_Nikolaos.pdf

Federal Highway Administration. (2020, July). Bridging the communications gap in understanding road usage charges (FHWA-HOP-20-008). U.S. Department of Transportation. https://ops.fhwa.dot.gov/publications/fhwahop20008/fhwahop20008.pdf

Federal Trade Commission. (2025, April 16). New FTC data show top text message scams of 2024; overall losses to text scams hit $470 million. https://www.ftc.gov/news-events/news/press-releases/2025/04/new-ftc-data-show-top-text-message-scams-2024-overall-losses-text-scams-hit-470-million

RUC America & California Department of Transportation. (2024, January). Financial impacts of RUC on super-commuters study: Final report. https://www.caroadcharge.com/media/h3hjgdse/caltransrucamerica_supercommuters_finalreport_2024-01-11_ada-a11y.pdf

U.S. Energy Information Administration. (2025). Annual Energy Outlook 2025. U.S. Department of Energy. https://www.eia.gov/outlooks/aeo/