



# Fuel-Efficient & Electric Vehicles

Would a Road Usage Charge (RUC) program be a disincentive to purchasing a fuel efficient or electric vehicle?

## How would a RUC system work?

A Road Usage Charge (RUC) funds transportation based on a user-pays system, charging drivers by the mile instead of by the gallon. Ultimately, if legislators adopt a RUC, it could replace the state gas tax. The RUC West Regional Pilot is studying how one state's RUC system can accommodate other states' requirements, processes, systems, rates, and laws.

In the pilot, third party vendors will collect the miles driven and manage the data and payments. The vendor will offer pilot participants several choices for reporting their miles, including a mileage reporting device with GPS, mileage reporting device without GPS, or smartphone app. Once a month, the pilot participants will receive an invoice indicating miles driven (in their home state and between California and Oregon) and the fee charged. All RUC funds collected (beyond operating fees) are deposited to the state's transportation fund in the same way gas tax revenue is collected today.

## FACT

By 2025, the average fuel economy of all new passenger vehicles in the US must be 54.5 mpg.<sup>1</sup>

— US EPA

## How do fuel-efficient and electric vehicles affect transportation funding?

More people are, and will be, driving fuel-efficient vehicles, leading to less consumption of fuel and less collection of gas tax, which since 1932 has been the single largest contributor to transportation funding<sup>2</sup>. Transportation funding pays for services that drivers need no matter what kind of vehicle they use, such as paving roads, building bridges, and fixing potholes.

One reason for this is that the Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) have issued federal standards to help reduce greenhouse gas (GHG) emissions and improve fuel economy for cars in model years 2017 through 2025. NHTSA developed Corporate Average Fuel Economy (CAFE) standards and EPA established national GHG emissions standards under the Clean Air Act. EPA's standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, which make up about 60% of the U.S. gasoline use and GHG emissions.

## Would a RUC be fair to drivers of fuel efficient/electric vehicles (EV)?

Yes. When talking about a possible RUC system, people are naturally concerned about fairness. All vehicles, whether gasoline-powered, hybrid, or electric, cause wear and tear to our roads. Therefore, all types of vehicles should contribute a fair share. Fairness looks different to everyone. Will this be fair to me? Will it be fair to people who drive long distances? Will it be fair to owners of fuel-efficient vehicles? So far, RUC programs and pilots have shown electric vehicle (EV) drivers are intrigued and even supportive of a user fee for all drivers.

1. *Regulations for Emission from Vehicles and Engines* (<https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and#regulations>).
2. *Tax Foundation* ([taxfoundation.org](http://taxfoundation.org)).
3. See *Case Study Sources* inside.



Visit [rucwest.org](http://rucwest.org)  
for answers to  
frequently asked  
questions

RUC studies have shown — most people agree that everyone should pay their fair share.<sup>3</sup>



EV and hybrid vehicle drivers report their motivations for choosing to go green include convenient charging stations, a love for high tech, and environmental reasons. Financial savings were also a factor, but not the primary reason<sup>4</sup>. These drivers understand the need to pay their fair share and EV advocacy organizations like *Plug In America* support a RUC for all drivers.

## Why buy electric? It's more than saving money on gas

In one of the largest EV driver surveys in the world, clean-tech firm *Clean Technica* talked to over 2,000 EV drivers to determine why they bought their fuel-efficient vehicle. While cost savings were definitely a factor, they were not the only factor or motivation for EV drivers.

### Survey says: Top reasons to go electric<sup>5</sup>



**Environmental benefits:** 33-45% of respondents indicated this was their main reason for going electric



**Financial savings:** A factor for EV drivers, ranging from being the top incentive for 13% of respondents (North American plug-in hybrid drivers) to 23% of respondents (European plug-in hybrid drivers)



**Technology:** Love high tech and wanted to be early adopters



**Driving benefits:** Smooth, quiet ride — and Tesla drivers are drawn to the instant torque of these premium-class vehicles

**MYTH:** Hybrids cause less wear and tear on the road so they shouldn't have to pay.

**FACT:** While a Hummer with a V-8 engine weighs 6,500 lbs compared to only 2,500 lbs for a Prius-C hybrid, both of these light-duty vehicles essentially contribute the same wear and tear to our roads and bridges. Light-duty vehicles as a whole have only slight differences in impact.<sup>6</sup> On the other hand, heavy commercial vehicles like semi tractor trailers cause a significant amount of wear and tear on roadways.

**MYTH:** EV drivers would have to pay a lot more in a RUC system.

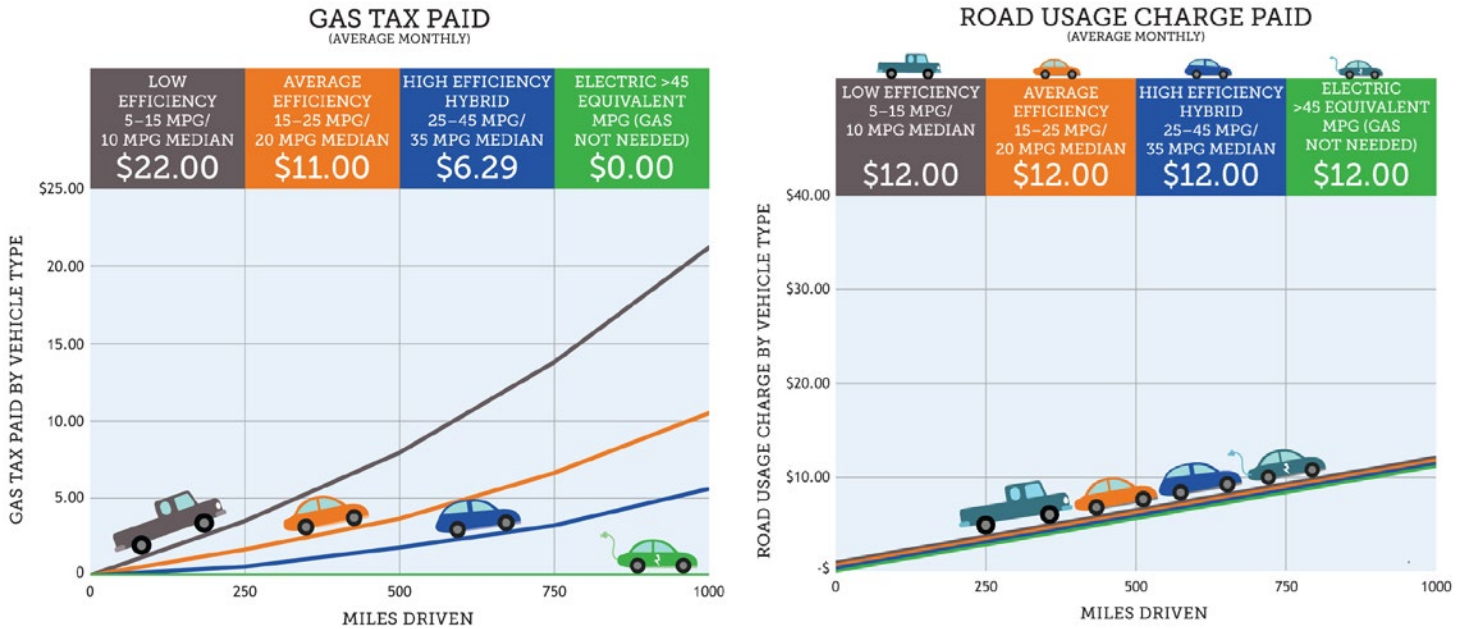
**FACT:** While it's true that EV drivers would pay more per month with RUC since they don't pay gas taxes, the increased cost would be a fraction of the cost savings from not purchasing gas at all. For example, in Oregon, the average EV driver would pay about \$16.20 per month in RUC.

There is definitely a movement to get EV drivers to pay their fair share for using the roads. Currently, 17 states charge an additional annual fee (averaging about \$100) for electric vehicles. Some people point out that state fees on EVs tax drivers for owning vehicles whether or not they drive them. In contrast, a RUC system does not charge a fee for owning an EV vehicle, only for miles driven.

4-5. Survey results from *Clean Technica's* new EV report. Responses came from more than 2,000 EV drivers across 26 European countries, 49 of 50 US states, and 9 Canadian provinces. Responses were segmented according to region – North America vs Europe – and type of electric car – plug-in hybrid vs Tesla vs non-Tesla fully electric car.

6. "How Much More Damage to Roads is Caused by a Hummer Than a Prius?" (*Planetizen*, June 5, 2015).

# A RUC means everyone pays for what they use



RUC is a way to address transportation tax fairness. The diagram on the left indicates how much drivers pay per month in state gas taxes. The diagram on the right shows how, in a RUC system, all drivers pay the same amount based on miles driven.<sup>7</sup>

7. Example is based on the Colorado gas tax rate and assumes 1.2 cents per mile for RUC. Source: Colorado Road Usage Pilot Program Final Report (December 2017).

## CASE STUDY

### EV drivers are interested in testing a RUC

States conducting RUC pilots have included specific recruitment goals related to participation of EVs, hybrids, and other fuel-efficient vehicles. A RUC system would impact owners of these vehicles by placing fees on mileage traveled instead of on fuel purchases, which today they make fewer of relative to their less fuel-efficient counterparts.

Owners of EVs could generally expect monthly increases to be in the range of \$10-20 per month, depending on the state's chosen RUC rate and the number of miles driven. Owners of hybrids and other non-EV fuel-efficient vehicles would be subject to smaller relative increases because they are currently paying some gas tax.

For some people, these increases may pose a financial disincentive to purchasing a fuel-efficient vehicle or EV. For others, the increase would not be a significant disincentive since they are still saving money by purchasing no gas or less gas, which far outweighs the RUC. Additionally, hybrid and EV owners are often motivated by more than saving money when making the decision to purchase their vehicle.



#### California Road Charge Pilot

The Toyota Prius was the #1 participating vehicle in California's pilot. 73% of pilot participants thought road charge was more fair than gas tax.



#### Colorado RUC Pilot

CDOT met their target mix of EVs and fuel efficient vehicles (6% EV participation).



#### Oregon RUC Program

The EV goal was not to limit enrollment of vehicles with 22+ mpg. Results show that the number of vehicles in the 22+ mpg category consistently exceed that of other categories. The Toyota Prius is among OReGO's two most commonly enrolled vehicles (the other is a Ford F-150).

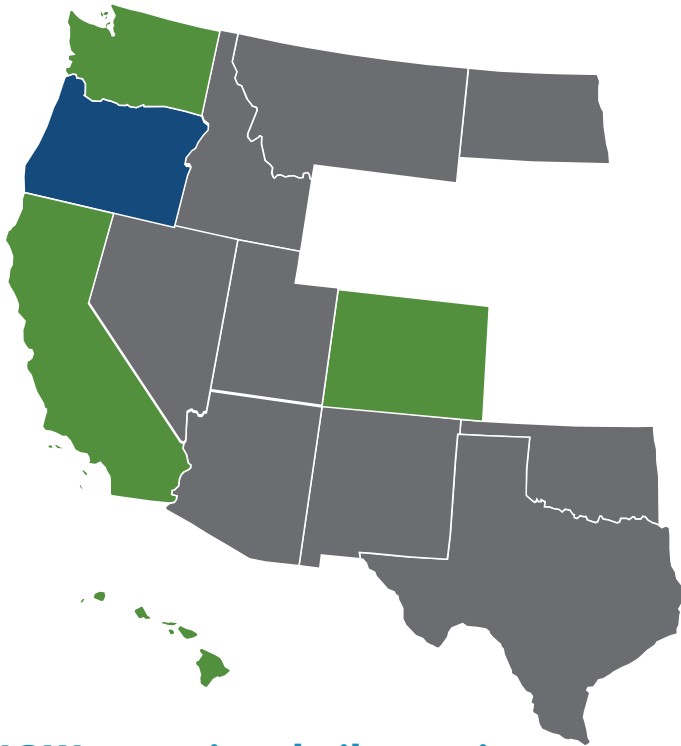


#### Washington RUC Pilot

9% highly-fuel efficient vehicles registered so far (as of November 2017) in Washington State.

### Study Sources

RUC West: Financial Impacts of Road User Charge on Urban and Rural Households, Oregon's Road Usage Charge: The OReGO Program | Final Report (April 2017), Washington State Transportation Commission: Financial and Equity Implications for Urban and Rural Drivers, Colorado Road Usage Pilot Program Final Report (December 2017)



## RUC West

RUC West brings together leaders from state transportation organizations to share best practices and research RUC. RUC West is the foremost authority on road usage charging in the United States, bringing together leaders from 14 state transportation organizations to share resources and explore innovative funding solutions for preserving the future of our transportation network. RUC West member states are organized into three tiers based on their current level of involvement in advancing RUC in their jurisdiction:

### Tier 1

States with Policy Enacted to Implement RUC Programs

- Oregon

### Tier 2

States Testing RUC Pilot Programs

- California
- Colorado
- Washington
- Hawaii

### Tier 3

States Researching RUC

- Arizona
- Idaho
- Montana
- Nevada
- New Mexico
- North Dakota
- Oklahoma
- Texas
- Utah

## RUC West regional pilot project

RUC West will begin a regional pilot project between member states Oregon and California, creating a system that other states may join throughout the process. The pilot is expected to go live with volunteer drivers in 2019.

California's road charge program launched July 1, 2016, and concluded March 31, 2017. Oregon's program (OReGO) launched July 1, 2015, and continues to operate. Testing interoperability of these two inaugural systems is the next step in developing RUC as a viable transportation funding alternative across the country.

The goal of the regional pilot project is to test whether the system can accommodate other states' requirements, processes, systems, rates, and laws. RUC could expand to include more states if the pilot is successful and others choose to join.

## RUC pilot projects

