

To: Legislators and Policy Makers Engaged on LC2

From: Climate Solutions, Brett Morgan - Transportation Policy Direct

Date: 8.26.25

Re: Dispelling Myths on EVs, Weight, and Road Wear as it relates to Oregon's RUC.

Overview

Questions persist about whether electric vehicles (EVs) cause more road damage and tire wear than gasoline-powered cars. This memo addresses these concerns, clarifies the relative impacts of EVs compared to other vehicles on the road, and outlines how Oregon can structure transportation funding fairly while continuing to benefit from the climate and health advantages of cleaner cars.

Vehicle Weight and Road Wear

It is true that EVs can weigh more than comparable internal combustion engine (ICE) cars because of their batteries. However, the difference is usually modest for passenger cars. For small and mid-sized vehicles, the EV version is typically only **10–15% heavier** than the gasoline version—sometimes just a few hundred pounds ([ICCT, 2021](#)). While this difference may sound sizable, charging EVs exorbitant rates based on this fact misses a science and data-informed approach to understand how our roads wear.

Road Wear: The Fourth Power Rule, Hard to Scale

Pavement damage is not linear—it scales roughly with the **fourth power of axle weight** ([FHWA, 2021](#)). In practice, this means doubling the axle weight does **16 times more road damage**.

- A fully loaded 40-ton semi-truck can do about **2,500 times more damage** to pavement than a standard 4,000-pound passenger car ([ASCE, 2017](#); [GAO, 2011](#)).
- By contrast, the difference between a 4,000-pound gas SUV and a 4,500–5,000-pound EV is negligible in terms of road wear.

A study by highway officials confirmed that vehicles between **2,000–7,000 pounds** all impose roughly the **same level of road wear** on highways ([AASHTO, 2020](#)).

Key point: Even if EVs weigh a few hundred pounds more, that difference is inconsequential, and all passenger car wear is dwarfed by heavy trucks, which are the dominant source of road wear in Oregon.

A Fair Road Usage Charge

As Oregon shifts toward a road usage charge (RUC), fairness and accuracy matter. A **tiered RUC system** that accounts for vehicle weight or class with evidenced methodology would better

align payments with actual road impacts. Oregon already applies this logic through the **weight-mile tax for trucks**, where fees scale with vehicle weight and axles ([ODOT, 2022](#)).

The **current RUC proposal**, however, employs a flat per-mile rate for EVs, primarily chosen to replace lost gas tax revenue ([Oregon RUC Program, 2023](#)). It is not linked to real differences in road damage. In fact, our analysis suggests a rural EV driver could pay **\$100–\$200 more per year** than if they drove a similar gas car, despite negligible differences in road wear differences documented earlier.

Accounting for Public Health and Climate Benefits

Finally, EVs deliver major benefits that the gas tax or RUC doesn't capture. They produce **zero tailpipe emissions**, reducing smog-forming pollutants that worsen asthma and heart disease. Broad adoption of EVs and clean energy could significantly reduce harmful air pollutants ([American Lung Association, 2023](#)).

Transportation is Oregon's **largest source of greenhouse gas emissions (35%)** ([Oregon DEQ, 2021](#)). Cleaner cars are critical to meeting climate goals and avoiding climate-related damages. The public health benefits alone could save **tens of millions annually** in avoided healthcare costs in Oregon ([Oregon Health Authority, 2020](#)). These benefits are the reason we should be subsidizing and accelerating EV adoption, otherwise we all bear the cost of an unhealthy system.

Conclusion

Cleaner cars may have modest differences in weight and tire wear, but they are **not a major driver of road damage. Efforts to tax EVs at higher rates because of this misconception risks cooling EV adoption, and sending signals from the state that going electric is not the preferred option**. Oregon's policies should reflect the real data: heavy trucks dominate road wear, while EVs provide large climate and health benefits. By designing a **fair, weight-based RUC** and supporting options that reduce total driving, Oregon can ensure both sustainable road funding and healthier communities.