

UC Office of the President

Policy Briefs

Title

Electrifying Ridehailing: Characteristics and Experiences of Transportation Network Company Drivers Who Adopted Electric Vehicles Ahead of the Curve

Permalink

<https://escholarship.org/uc/item/1x85q7tj>

Authors

Sanguinetti, Angela
Kurani, Ken

Publication Date

2022-05-01

DOI

10.7922/G2HM56RD

Electrifying Ridehailing: Characteristics and Experiences of Transportation Network Company Drivers Who Adopted Electric Vehicles Ahead of the Curve

Angela Sanguinetti and Ken Kurani
University of California, Davis, Institute of Transportation Studies

May 2022

Issue

Electrifying ridehailing services provided by transportation network companies (TNCs) such as Uber and Lyft can reduce greenhouse gas emissions and air pollution and provide cost savings on fuel and maintenance to TNC drivers. Policy levers have emerged to nudge the industry in this direction. California's Senate Bill 1014 establishes a "clean miles standard" requiring that an increasing percentage of ridehailing services be provided by zero-emissions vehicles such as plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs)—together referred to as plug-in electric vehicles (PEVs). Because TNC drivers operate their personal vehicles, government and industry must accelerate PEV adoption among TNC drivers to achieve this goal.

In spring 2019, researchers at UC Davis surveyed 732 TNC drivers in the US who already drive a PEV, to better understand their experiences, charging practices, and use of their PEV. This is the first in a series of briefs highlighting the results of the survey. To inform the development of incentive programs, this brief describes the demographic characteristics, motivations, and experiences of TNC drivers who have already chosen to drive a PEV (Figure 1).

Key Research Findings

Programs encouraging TNC drivers to adopt PEVs might begin by targeting drivers similar to those who have already done so and by promoting vehicles that have been popular among early adopters. TNC-PEV drivers are more likely to be male, homeowners, living in single-family homes, 30-60 years old, and college-educated, with a median household income of \$88,000 (although few are likely to be all of these). Most own their PEV, and it is their first PEV. More drive a PHEV than a BEV, but either is most likely the only car drivers use to provide ride-hailing services.

Such programs could also leverage the motivations of TNC drivers who have adopted PEVs already. TNC-PEV drivers were mainly attracted by the benefits of fuel and maintenance savings, which, when combined with purchase incentives, increased net earnings compared to a conventional internal combustion engine vehicle (ICEV) (Figure 2). Although fuel and maintenance savings are greater with BEVs than PHEVs, some PHEV drivers noted they chose a PHEV rather than a BEV because upfront costs were too high for desirable BEVs. These findings highlight the importance of making

PEVs available at a purchase price competitive with ICEVs, and, in the case of BEVs, clearly communicating total costs of ownership.

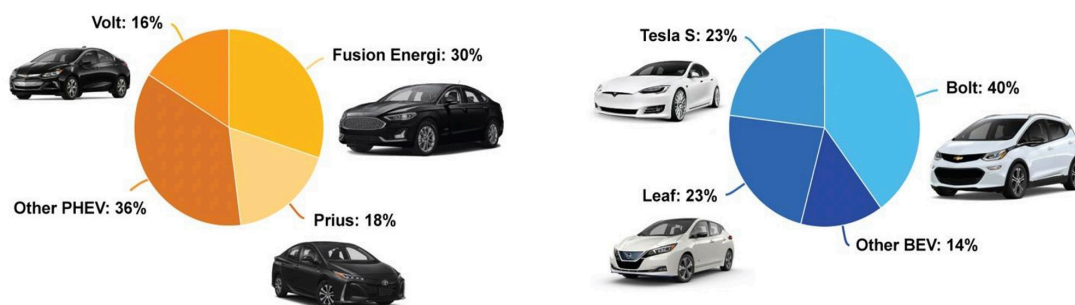


Figure 1. The most common PHEVs (left) and BEVs (right) used by TNC drivers (percent of each type)

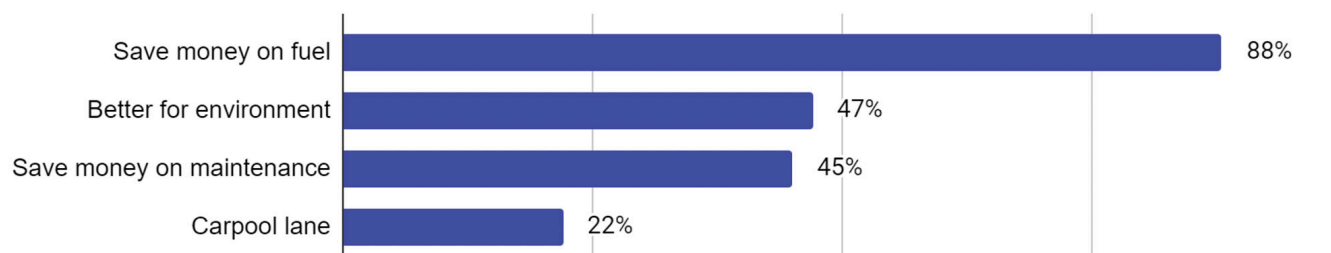


Figure 2. Percentage of TNC drivers who cited selected motivations for driving a PEV

Some TNC drivers have found PEVs worthwhile to adopt even with today's limited PEV models and charging infrastructure. Most TNC-PEV drivers drive more than 20 hours per week on ridehailing services and charge their PEV every day, even PHEV drivers who have the option to not charge. Furthermore, most drivers who reported charging during ridehailing “shifts” said they don’t miss out on earning fares due to charging time. These findings suggest that informational campaigns to promote PEV adoption among TNC drivers could be worthwhile.

However, improvements in charging infrastructure and electric vehicle range, as well as incentives, would likely increase PEV adoption and electric miles traveled by TNC-PEV drivers. Many TNC-PEV drivers do most of their charging at home overnight, which isn’t feasible and/or efficient for TNC drivers who do not own their home or have a garage. On the other hand, most drivers with a BEV capable of fast charging do at least half their charging at public DC fast chargers. This suggests that more charging infrastructure at multifamily housing and more DC fast chargers would likely facilitate uptake of PEVs among more TNC drivers. Increased range topped the list of drivers’ wishes to better support PEVs on TNCs (Figure 3), and range limitations topped the list of reasons why PHEV

drivers did not opt for a BEV. Increasing electric driving range for a variety of PEV models to suit the preferences of more drivers, provided they achieve cost parity or near-term lower total costs of ownership compared to similar ICEVs, could increase PEV uptake among TNC drivers. Finally, drivers’ second- and third-ranked wishes were financial bonuses for achieving certain numbers of trips and more pre-trip information (e.g., the trip’s destination), which are exclusively under the control of TNCs and could be further leveraged to reward drivers for adopting PEVs.

More Information

This policy brief and the others in this series are drawn from “Characteristics and Experiences of Ride-Hailing Drivers with Electric Vehicles,” and the forthcoming paper “Driving and Charging Electric Vehicles on Ride-hailing in the United States,” both authored by Angela Sanguinetti and Ken Kurani of the University of California, Davis. The papers and additional policy briefs can be found here: <https://www.ucits.org/research-project/2021-35/>.

For more information about the findings presented in this brief, contact Angela Sanguinetti at asanguinetti@ucdavis.edu.



Figure 3. Percentage of TNC drivers who selected various strategies as the top strategy they thought would improve their experience driving PEVs

Research presented in this policy brief was made possible through funding received by the University of California Institute of Transportation Studies (UC ITS) from the State of California through the Public Transportation Account and the Road Repair and Accountability Act of 2017 (Senate Bill 1). The UC ITS is a network of faculty, research and administrative staff, and students dedicated to advancing the state of the art in transportation engineering, planning, and policy for the people of California. Established by the Legislature in 1947, the UC ITS has branches at UC Berkeley, UC Davis, UC Irvine, and UCLA. Research presented in this policy brief was also made possible through funding from Uber Technologies, LLC.

Project ID UC-ITS-2021-35 | DOI: 10.7922/G2HM56RD