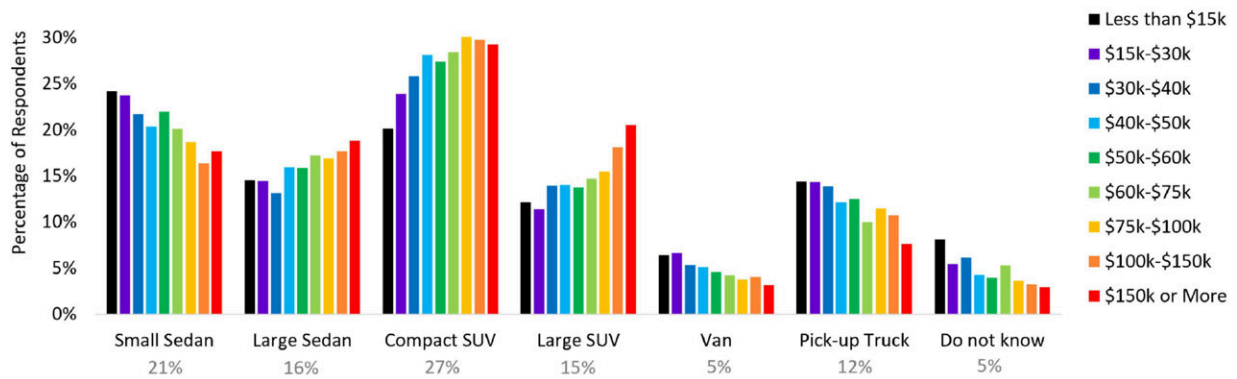


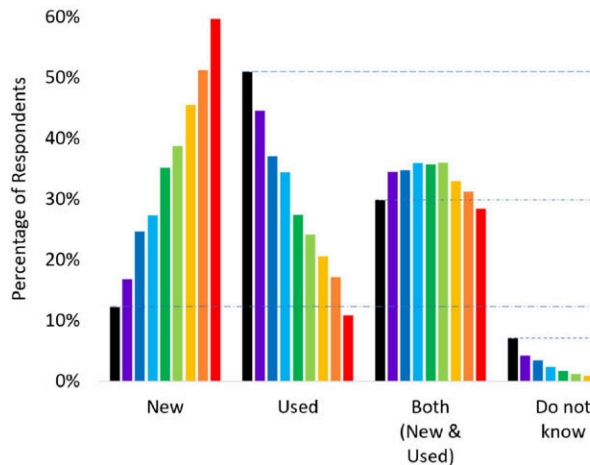
# Prioritize equity and justice to build a thriving electric vehicle market, say researchers

August 28 2024

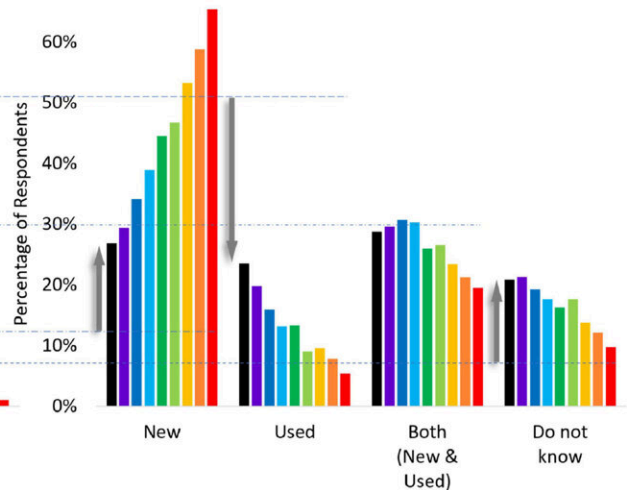
(a) If you were ever in the market for a PEV, and assuming there are a wide variety of options available in the market, which type of vehicles would you consider (select ALL that apply)?



(b) When you buy a car, in which market do you usually look for a vehicle?



(c) If you were ever in the market for a PEV, which vehicle market (new and/or used) would you consider?



(a) Survey respondents' preferences for vehicle type (e.g., small sedan, pickup truck) when considering the purchase of PEVs; (b) preferences for new vs. used

vehicle market, regardless of vehicle technology; and (c) preferences for new vs. used vehicle market for PEVs, differentiated by annual income. For each income group, the total sums to 100%. Credit: *Energy and Climate Change* (2024). DOI: 10.1016/j.egycc.2024.100146

When it comes to purchasing and using electric vehicles (EVs), housing- and income-related factors significantly shape perceptions and preferences among potential buyers, finds a [new study](#) in *Energy and Climate Change*.

This research, a collaboration between the Boston University Institute for Global Sustainability (IGS) and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL), is among the first to examine both EV adoption and charging infrastructure through an equity lens coupled with state-of-the-art original survey data.

Understanding the barriers to widespread EV adoption is crucial for ensuring equitable access to fossil-fuel-free transportation. Through a joint research appointment with NREL, IGS Director Benjamin K. Sovacool co-authored the study led by NREL to advance a just transition to [clean energy](#).

"So far, high-income homeowners comprise a disproportionate share of the electric vehicle market. However, we have a responsibility to ensure that all communities can enjoy the many benefits of vehicle electrification, such as cleaner air," said Sovacool.

"As we rapidly develop new technologies to mitigate the climate crisis, we must devote ample attention to understanding the needs and constraints of the people who put those innovations to use in their daily lives. In doing so, we position ourselves for broader and more lasting

change in terms of decarbonizing passenger transport."

## **An original nationwide survey**

To understand how socioeconomic and demographic factors influence EV adoption, Sovacool and his co-authors conducted an extensive online survey of more than 7,000 adults across the United States. Survey questions gathered comprehensive data on vehicle purchase history and preferences, desired charging locations, perceived benefits of and barriers to EV use, homeownership, income level, basic demographic information, and more.

"The electrification of our transportation systems is an important component of the energy transition," said Adam Warren, director of the Accelerated Deployment and Decision Support Center at NREL and a senior fellow at IGS. "As this work shows, to-date the policies and incentives supporting EV adoption have not been equitably shared by all communities. We hope this analysis and the sharing of the complete survey instrument will help those planning for the transition with a focus on energy justice."

## **Expanding purchasing and charging options**

EV adoption and charging are deeply intertwined with housing and other aspects of daily life. By examining these variables in a single study, the authors were able to identify relevant patterns and offer recommendations for increasing access.

- **Greater variety:** The need for more variety in EV sales is one potential area of improvement. Survey respondents with lower incomes were more likely to prefer a pre-owned sedan, van, or pick-up truck. The authors recommend that manufacturers

introduce more diverse EV types and classes, and that policymakers enact measures to strengthen the used EV market.

- **Reliable and convenient charging:** Survey respondents with lower incomes were more likely to rent their property and live in multi-family homes, where they may be unable to install charging equipment. Study findings highlight key equity concerns in the current model for EV charging, which centers on the home and workplace. To ensure equitable charging, the authors suggest targeted policies such as rebates and modified building codes. They also recommend placing charging stations at grocery stores, commercial districts, and gas stations, where people can charge while completing errands.

Finally, many individuals and households in the United States do not own a personal car. The authors emphasize the importance of e-bikes, electric buses, and EV car-sharing programs for allowing more people to directly enjoy the benefits of vehicle electrification.

## **Rapid and effective electrification**

Vehicle electrification is critical to slowing greenhouse gas emissions. According to the Environmental Protection Agency, transportation accounts for about 28% of emissions in the United States. More than half of transportation sector emissions stem from cars and other light-duty vehicles.

Expanding access to EVs and charging infrastructure will help increase demand, market size, and support for relevant investments and policies. All these factors are key to rapidly scaling up a thriving electrified transportation system.

"In order to implement effective strategies and policies to meet the

varying needs of different households, we must first understand those needs," Sovacool said. "When we center justice and equity, we are better able to care for people and the planet."

**More information:** Dong-Yeon Lee et al, Toward just and equitable mobility: Socioeconomic and perceptual barriers for electric vehicles and charging infrastructure in the United States, *Energy and Climate Change* (2024). [DOI: 10.1016/j.egycc.2024.100146](https://doi.org/10.1016/j.egycc.2024.100146)

Provided by Boston University

Citation: Prioritize equity and justice to build a thriving electric vehicle market, say researchers (2024, August 28) retrieved 28 August 2024 from <https://phys.org/news/2024-08-prioritize-equity-justice-electric-vehicle.html>

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