# SURVEY SAYS:
# CONSIDERABLE INTEREST IN ELECTRIC VEHICLES ACROSS RACIAL, ETHNIC DEMOGRAPHICS

## SMARTER POLICIES CAN HELP OVERCOME BARRIERS


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# SURVEY SAYS: CONSIDERABLE INTEREST IN ELECTRIC VEHICLES ACROSS RACIAL, ETHNIC DEMOGRAPHICS

## SUMMARY

Transportation is the largest source of global warming emissions in the United States, with light-duty passenger cars and trucks as the largest contributor. These vehicles are a significant contributor to poor air quality, and pollution from on-road transportation disproportionately affects communities of color.

Electric vehicles (EVs) are a critical strategy to reduce transportation emissions, and yet the communities most harmed by the status quo currently adopt this key technology at disproportionately low rates. A recent, nationally representative survey of 8,027 Americans conducted by Consumer Reports with input from the Union of Concerned Scientists, GreenLatinos, and EVNoire, fielded from January 27 to February 18, 2022, helps shed light on some of the reasons for this disparity, which can help policymakers move the country forward—toward a more equitable, accessible, and electric future.[1]

### Overall interest in EVs is high

- Across all racial demographics, overall interest in purchasing EVs was high, with communities of color showing at least as great a level of interest in purchasing an electric vehicle as white consumers: 33 percent of white, 38 percent of Black, 43 percent of Latino, and 52 percent of Asian Americans say they would "definitely" or "seriously consider" purchasing or leasing an EV as their next vehicle.[2]
- For those individuals who identified charging as an issue limiting adoption, availability of publicly accessible charging remains a greater concern than convenience or long charging times.
- In terms of perceived cost barriers, more Black and Latino individuals identify maintenance and repair costs as a consideration holding them back from purchasing or leasing an EV (54 percent of Black and 48 percent of Hispanic respondents, compared with 37 percent of white respondents), while more white and Asian Americans for whom cost is an issue identify purchase price as the primary concern (60 and 66 percent, respectively, compared with 55 percent of Latino and 46 percent of Black respondents).

### Experience with EVs can help alleviate those concerns

- For all groups, experience with EVs strongly correlated to interest in purchasing or leasing an EV. However, since experience is contingent upon access to electric vehicles, community education and outreach may be needed to circumvent the current disparities observed in Black and Latino communities.

### Conclusions and policy recommendations

- Charging at home is the most affordable way to charge EVs today but is not an equally viable option for all communities, particularly where there may be a higher proportion of renters and/or multi-family dwellings. Support for additional charging alternatives is necessary.
- Increasing affordable, accessible, reliable public EV charging infrastructure situated in safe locations would address all of the groups' biggest concerns about EV charging.
- Improving access to financing and incentives for both new and used EVs is a critical policy needed to accelerate EV adoption. Increasing access to EVs provides a clear way to educate communities on the experience of driving an EV, giving consumers an opportunity to understand how an EV fits into their own, local context.
- Education and engagement initiatives aimed at Black and Latino consumers, targeting their specific needs and concerns, are crucial to address gaps and mitigate systemic barriers to adoption.

[1] Further detail of the comprehensive analysis can be found in Consumer Reports. 2022. Battery Electric Vehicles and Low Carbon Fuel Survey: A Nationally Representative Multi-Mode Survey. April, 2022. https://article.images.consumerreports.org/image/upload/v1657127210/prod/content/dam/CRO-Images-2022/Cars/07July/2022_Consumer_Reports_BEV_and_LCF_Survey_Report.pdf.

[2] The survey was given in Spanish and English, so Asian Americans who do not speak English were not included. While the survey asked respondents to identify as Hispanic (or not), throughout this document the descriptor Latino is used, with recognition that the terminology used to describe populations of Latin American origin varies, encompassing Hispanic, Latino, Latinx, Latin@, and more. In presenting the survey results, the authors have used white and Black to refer to white and Black respondents who did not identify as Hispanic/Latino/etc.

# INTRODUCTION

Widespread adoption of zero-emissions vehicles is necessary to achieve climate and air quality goals, including both the rapid reduction of global warming emissions needed to avoid the worst impacts of climate change and the emissions reductions required to achieve federally mandated levels of air quality.[3] Such reductions are critical for the current and future public health of Frontline, rural, and BIPOC (Black, Indigenous, and other people of color) communities that are disproportionately impacted by transportation emissions.

Empirical evidence has consistently found that, due to historic and systemic inequities (e.g., redlining, placement of transportation corridors near BIPOC communities), Black, Latino, and Indigenous communities are disproportionately impacted by air pollution and are often exposed to more pollution than they create.[4]

Transitioning from fossil fuel vehicles to zero-emissions technologies and multimodal, clean transportation provides the best opportunity to mitigate the negative impacts of transportation pollution. However, current EV adoption rates lag among Black and Latino consumers.[5]

To assess the reasons for this disparity, a survey was conducted by Consumer Reports with input from the Union of Concerned Scientists, GreenLatinos, and EVNoire to explore commonalities and differences in knowledge, attitudes, and beliefs toward electric vehicles among white, Black, Latino, and Asian American communities.[6] The nationally representative survey of 8,027 US adults was fielded from January 27 to February 18, 2022, by NORC at the University of Chicago, with data collected both by web and phone, as well as both in English and Spanish.[7] Some of the key findings of this survey are detailed below, as well as their implications for public policy to accelerate the equitable electrification of the light-duty vehicle fleet in the United States. Throughout this survey and report, we use the term EV to refer to vehicles exclusively powered by electricity.

# RESULTS

One of the goals of the survey work was to identify gaps and needs for different groups by taking into consideration the race and ethnicity of the respondents. However, many of the most important findings transcend racial and/or ethnic identity, frequently speaking to broader socioeconomic issues as a root cause. The main findings below are categorized in three main groups, representing three different levels of understanding that affect purchasing behavior: 1) overall interest in purchasing an EV, 2) barriers or concerns limiting that interest, and 3) experience with EVs.

[3] Even though the nationwide requirements for particulate pollution and smog-forming emissions may not be sufficiently protective of public health, an increasing number of counties around the country are falling short of achieving the level of emissions required by the Clean Air Act.

[4] Tessum, C.W., et al. 2021. "PM2.5 polluters disproportionately and systemically affect people of color in the United States," Science Advances 7 (18). https://www.science.org/doi/10.1126/sciadv.abf4491.

[5] For a short review, see Hardman, S., et al. 2021. "A perspective on equity in the transition to electric vehicles," MIT Science Policy Review, August 30, 2021. http://dx.doi.org/10.38105/spr.e10rdoaoup.

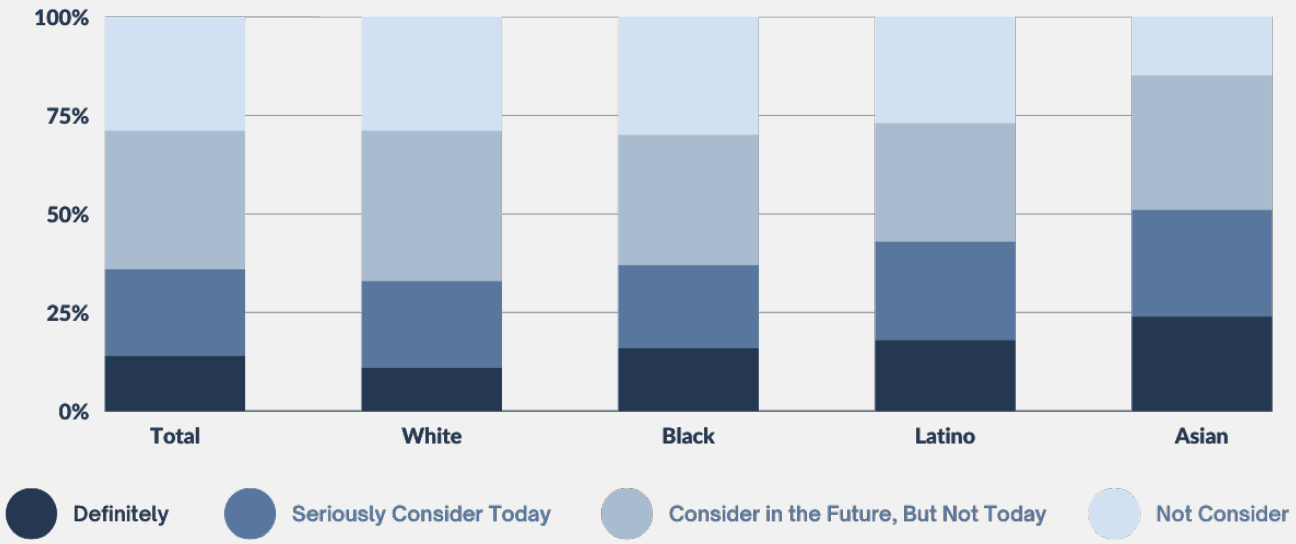
[6] The survey was given in Spanish and English, so Asian Americans who do not speak English were not included. While the survey asked respondents to identify as Hispanic (or not), throughout this document the descriptor Latino is used, with recognition that the terminology used to describe populations of Latin American origin varies, encompassing Hispanic, Latino, Latinx, Latin@, and more. In presenting the survey results, the authors have used white and Black to refer to white and Black respondents who did not identify as Hispanic/Latino/etc.

[7] Further detail of the comprehensive analysis can be found in Consumer Reports. 2022. Battery Electric Vehicles and Low Carbon Fuel Survey: A Nationally Representative Multi-Mode Survey. April, 2022. https://article.images.consumerreports.org/image/upload/v1657127210/prod/content/dam/CRO-Images-2022/Cars/07July/2022_Consumer_Reports_BEV_and_LCF_Survey_Report.pdf.

## Interest

Across all racial demographics, overall interest in purchasing EVs is high (Figure 1). There is no statistically observable difference in the interest of Black, Latino, or Asian American consumers in the future purchase or lease of an electric vehicle compared with white consumers.

**FIGURE 1.** Survey respondents' interest in purchasing or leasing an electric vehicle, by race/ethnicity




**Nearly 40 percent of respondents would definitely or seriously consider purchasing or leasing an electric vehicle for their next vehicle, a number that transcends racial and ethnic groups.**

Given the similarly strong desire among Black and Latino consumers in the future purchase or lease of an EV, the observed lag in EV ownership[8] does not reflect a lack of innate interest in EVs. As discussed below, cross-cutting factors such as income and experience with EVs are among many of the factors that could instead explain the observed lag.

[8] Hardman, *et al.* 2021.

## Barriers

Among all groups, where, when, and how frequently to charge an EV is the greatest concern, followed by cost, which is consistent with a number of other surveys.[9] Within these broader categories, however, we see a number of distinct considerations that vary by race/ethnicity.

### Cost

The survey data show that, among respondents who are concerned about cost, about half of those in each group identify an EV's purchase price as an issue. However, purchase price is a greater concern for white (60 percent) and Asian American (66 percent) respondents than it is for Latino (55 percent) and Black (46 percent) respondents. On the other hand, a larger share of Black and Latino Americans concerned about EV costs identified maintenance and repair costs as an issue holding them back from purchasing or leasing an EV.

This disparity may reflect longstanding differences in vehicle ownership between the different groups. Research has long found that Black and Latino Americans are more likely to purchase used vehicles compared with white Americans (82 and 72 percent, respectively, compared with 68 percent).[10] While some of this is related to broader economic disparities, for Black consumers this holds true regardless of household income,[11] and could be partly due to longstanding discriminatory practices in automotive financing.[12]

### Infrastructure

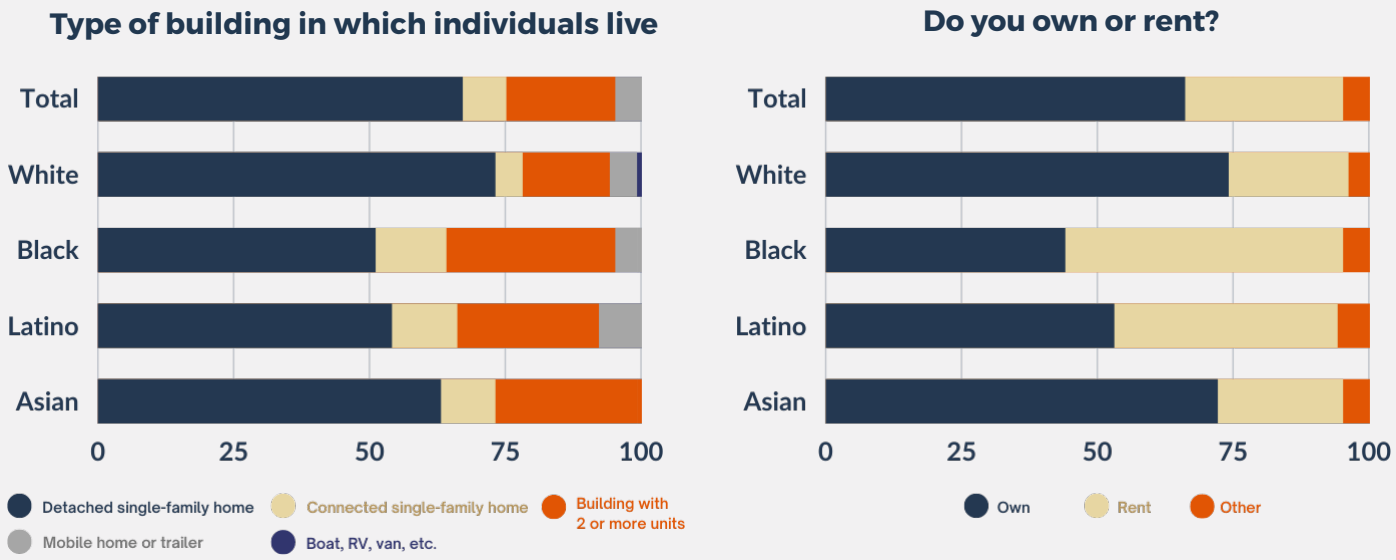
For those who weren't already committed to purchasing or leasing an electric-only vehicle, charging logistics were identified as a barrier by the most respondents in every category, with a greater share of white Americans (67 percent) identifying charging logistics as a barrier to purchasing an EV compared with Black (45 percent) and Latino (50 percent) Americans. A similar gap was also exhibited around how far a vehicle could go before needing to be charged (60 percent, compared with 37 and 44 percent for Black and Hispanic respondents, respectively). But for those who identified charging concerns as a potential barrier to purchasing an EV, a lack of charging infrastructure was the top concern for every racial/ethnic group.

While these data speak to the importance that charging infrastructure has as a barrier to broader EV deployment, the varied needs of different groups help speak to the diversity of solutions needed to overcome these challenges. For example, a larger share of white Americans (49 percent) than either Black (44 percent) or Latino (42 percent) Americans say "the ability to charge where I live" is one of the charging options that would most encourage adoption. In contrast, a greater share of Latino (16 percent) than white (9 percent) Americans identified "access to workplace charging stations" as a charging option that would encourage the purchase or lease of an EV.

[9] Here "how frequently" refers to range and/or range anxiety. Charging-related concerns (including range) and cost were listed as the top issues in past Consumer Reports surveys (2020, 2019, 2013) and industry surveys (e.g., Autolist, Cox).
[10] UCS analysis of NHTS 2017 data. This is consistent with prior evidence from the Bureau of Labor and Statistics, which showed in 1999–2000 a difference in used car purchases of 75.2 percent for Black consumers compared with 65.5 percent for white consumers (Paszkiewicz, L. 2003. "The Cost and Demographics of Vehicle Acquisition," in U.S. Department of Labor, Bureau of Labor Statistics. 2003. Consumer Expenditure Survey Anthology, 2003. https://www.bls.gov/cex/anthology/csxanth8.pdf).
[11] UCS analysis of NHTS 2017 data.
[12] Butler, Alexander W., Erik J. Mayer, and James Weston. 2020. "Racial Discrimination in the Auto Loan Market." SSRN. https://ssrn.com/abstract=3301009.

At least some of the variance in emphasis placed on different types of charging options could stem from systemic differences in where people live, although the survey analysis did control for access to an outlet at home. The survey affirmed data that show white Americans are both more likely to own their own residence and reside in a single-family, detached home (Figure 2). Similarly, Black and Latino Americans who own cars were more likely to report using public or on-street parking, which again affects the potential for home charging access.

**FIGURE 2.** Residences for nationally representative survey, by race/ethnicity




**Consistent with other data sources on U.S. demographics, Black and Latino survey respondents were less likely to own their own home and more likely to live in a multi-unit dwelling, reducing the value that home charging has as an enabler for EV adoption.**

In addition to placing a reduced emphasis on home charging, there were aspects of public charging that proved significantly more important to communities of color. For example, a larger share of Black (11 percent), Latino (12 percent), and Asian (15 percent) Americans than white Americans (6 percent) identified personal safety at charging stations as a concern. This emphasizes that it is not just about having ubiquitous public charging but the need for a reliable and safe charging network in all communities in order to support broader EV adoption.

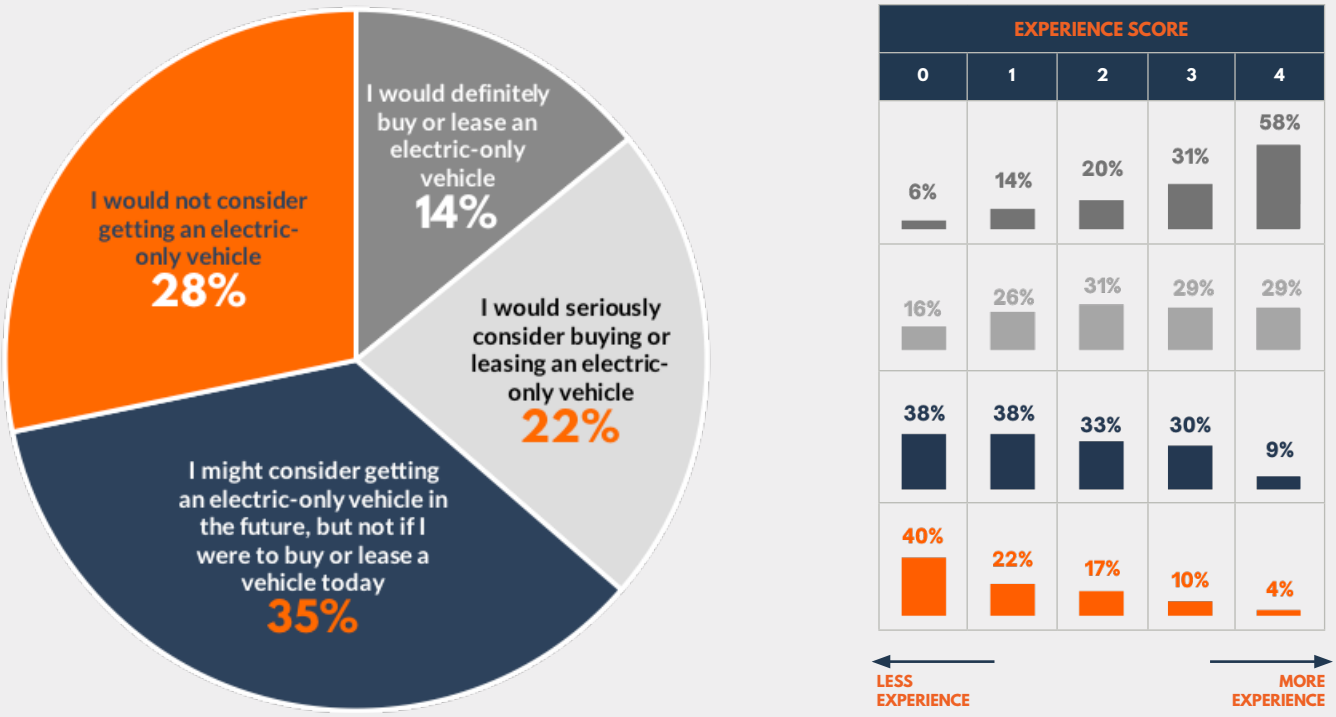
## Experience

Previous surveys have shown a strong relationship between firsthand experience with EVs and purchase consideration,[13] and these new survey results affirm this correlation, across all groups. Using an "EV Experience Index" to aggregate respondents' experience with EVs, the survey found that those with the greatest level of experience were nearly 10 times more likely to "definitely" consider purchasing or leasing an EV as their next vehicle compared with those who had the least experience (Figure 3).[14]

[13] Both industry-funded studies (e.g., J.D. Power) and community surveys (e.g., Johnson et al. 2017) have previously affirmed the impact of experience on breaking down barriers to EV ownership.

[14] EV experience is defined by scoring the answers to four questions: 1) In the past month, have you seen an electric-only vehicle in your neighborhood? (Yes = +1); 2) Do you have a friend, relative, or co-worker who owns an electric-only vehicle? (Yes = +1); 3) In the past 12 months, approximately how many times have you been a passenger in an electric-only vehicle? (Responses greater than zero = +1); and 4) In the past 12 months, approximately how many times have you driven an electric-only vehicle? (Responses greater than zero = +1).

**FIGURE 3.** Relationship between experience with an EV and purchase consideration




The more experience survey respondents had with EVs, the greater the likelihood that they would consider purchasing or leasing an EV.

Although members of the Black community surveyed were at least as likely as white and Latino Americans to be exposed to an EV, either through interactions or observations within their community or directly through riding or driving a vehicle, they reported being less familiar with the fundamentals of owning an EV than any other group. This is consistent with a recent study of Black Ohioans, which found "a clear pattern of low community engagement around EVs."[15] Here, both our survey and the qualitative Ohio study show that there may be a subtle distinction between experience and awareness—in the Ohio focus groups, even in cases where a participant may have had experience with EVs, they noted a lack of awareness among their social circle.

This may point to the need to distinguish between types of experience more closely. The strongest predictor among the four EV experience variables in predicting the likelihood of purchasing an EV is seeing an EV in one's neighborhood. This is followed by having a friend or relative who owns an EV, or having driven an EV; these variables have the same predictive strength. The variable with the least predictive power is having been a passenger in an EV, although it is still a significant predictor.

While Asian Americans surveyed were found to have greater experience than all other groups in every assessment, this difference was perhaps most pronounced in the case of whether the respondent knew an EV owner: Asian Americans were nearly twice as likely as other groups to have a friend, relative, or co-worker who owns an electric

[15] Blomqvist, A.D. 2021. Transforming Transportation in Communities of Opportunity: The Cleveland Study. Prepared on behalf of EV Hybrid Noire and Clean Fuels Ohio, January 2021. https://cleanfuelsohio.org/wp-content/uploads/2021/03/2.2-Transforming-Transportation-.pdf.

vehicle. Previous studies of EV ownership have shown the impact that higher awareness of EVs within social circles can have,[16] as well as the spatial clustering evident in EV adoption, indicating the role local ownership can play in affecting purchasing decisions.[17] Therefore, it may be that *quality* of experience—in this case, EV ownership by a trusted source—is particularly important for improving familiarity and, thus, increasing the likelihood of future ownership.

# POLICY RECOMMENDATIONS

The survey results affirm strong interest in a future EV purchase or lease for all groups. However, a number of perceived barriers remain. Below we identify some policy options to respond to the survey findings and help close the current demographic gaps in EV ownership.

## Increasing access to EVs

The survey findings affirm the importance of local EV ownership in catalyzing future EV sales. Given the current gap in EV ownership faced by communities disproportionately affected by transportation pollution, this further stresses the need to prioritize increasing sales in these communities, both to address environmental injustices and to help improve community awareness of the technology.

EV sales requirements for manufacturers help ensure a minimum level of availability.[18] However, such requirements have thus far been insufficient to drive EV sales much beyond the "early adopter" market, which tends to be wealthier and whiter than the average new car buyer.[19] Increasing the stringency of state EV sales requirements and federal vehicle emissions and fuel economy standards can help incentivize manufacturers to produce and sell new EVs to a broader slice of the market—however, this does not mean that such vehicles will end up in the communities that most need them to address air pollution.

Ensuring that purchase incentives for new EVs, which help bring down the up-front cost, are more accessible and equitable is critical to putting EVs within reach for more people. For example, tax credits could be made refundable, allowing people without sufficient tax liability to still take advantage of the credit, or incentives could be made available at the point of sale.

Because the new car market does not reflect the demographics of the communities most affected by pollution, additional considerations around policy design are necessary to target such communities. This could include scrap-and-replace programs targeted at low-income communities (e.g., Clean Cars 4 All[20]), which eliminate the most polluting vehicles in the community and replace them with zero-emissions vehicles, or tiered incentive programs that reflect different economic barriers.

[16] Johnson, C., et al. 2017. The Clean Vehicle Rebate Project: Summary Documentation of the Electric Vehicle Consumer Survey, 2013-2015 edition. Center for Sustainable Energy, San Diego, CA, June 2017. https://cleanvehiclerebate.org/sites/default/files/attachments/CVRPConsumerSurvey2013-15Reference.pdf.

[17] Liu, X., et al. 2017. "Spatial effects on hybrid electric vehicle adoption," Transportation Research Part D: Transport and Environment 52A, pp. 85-97 (May 2017). https://doi.org/10.1016/j.trd.2017.02.014.

[18] Bui, A, P. Slowik, and N. Lutsey. 2021. Evaluating electric market growth across U.S. cities. Briefing of the International Council on Clean Transportation, September 2021. https://theicct.org/wp-content/uploads/2021/12/ev-us-market-growth-cities-sept21_0.pdf.

[19] Cooke, D.W. 2021. Amping Up EV Incentives. Fact sheet, Union of Concerned Scientists, March 2021. https://www.ucsusa.org/sites/default/files/2021-03/amping-up-ev-incentives.pdf.

[20] https://ww2.arb.ca.gov/sites/default/files/movingca/vehiclescrap.html.

Since communities of color are more likely to purchase vehicles on the secondary market, expanding or creating separate incentive programs for used vehicles could also improve EV adoption in these communities.

Regardless of the vehicle, it is critical that communities be able to access such incentives. The survey results showed a low awareness of many incentives widely available today, including the federal tax incentive. Automakers and auto dealers, as well as government actors, should be doing more to ensure all communities are made aware of the breadth of incentives at the local, federal, and state levels.

Of course, because of long-standing discriminatory practices in the financial markets, including lending discrimination, incentives alone do not ensure that EVs are affordable to communities of color.[21] Additional strategies for improving affordability, including loan guarantees or requiring the availability of low- or no-interest loans, could help open up lower-interest car loans to qualifying low-income households. Additionally, an incentive program that works with financial institutions directly could help ensure that affordable financing options are available and that rebates directly target reducing the up-front costs of an EV.

## Increasing access to EV infrastructure

The vast majority of EV charging today takes place at home. However, Black and Latino Americans are substantially less likely to live in a single-family home and/or own their residence, making it more difficult to access the cheapest and most utilized form of charging today. While increasing public EV infrastructure was identified as a need across all respondents, ensuring that public charging infrastructure is affordable, accessible, reliable, and situated in safe locations is a matter of equity.

Creating policies that aid and incentivize apartments and condos to provide access to EV charging can help equalize the gap in charging access, since Black and Latino Americans are substantially more likely than white Americans to live in a multi-unit dwelling.[22] At the same time, Black and Latino Americans are also more likely to utilize public or on-street parking, so incentives that support the buildout of publicly accessible charging infrastructure in residential as well as commercial areas will be critical to helping these families charge overnight when their vehicle is parked on a street.

In the survey, an interest in increased availability of fast-charging stations coincided with increased experience with EVs, and all groups expressed a strong interest in fast-charging stations. Subsidizing public charging for low-income consumers outside of the home, through state or utility programs for example, can help equalize costs, since prices for charging for charging are typically higher at public stations than at home. One strategy for accomplishing this would be subsidizing low-income public charging cards, as California's Clean Vehicle Assistance Program does, which could also increase accessibility for consumers who do not have a bank account.[23]

In addition to public EV infrastructure, the survey results showing higher interest in workplace charging among Latino Americans suggest that incentives for this type of charging could help compensate for the gap in access to at-home charging.

[21] For a more extensive discussion of the financial challenges and possible remedies, see The Greenlining Institute, "Electric Vehicles for All: An Equity Toolkit" (https://greenlining.org/resources/electric-vehicles-for-all/).
[22] Houston, S. 2021. "Federal Support for EV Charging." Fact sheet, Union of Concerned Scientists, March 2021. https://www.ucsusa.org/sites/default/files/2021-03/federal-ev-charging-policy_1.pdf.
[23] California Air Resources Board. 2022. "Clean Vehicle Assistance Program: Charging Grant Guidelines." April 2022. https://409x7yggc5ekrbd32lf9ajv2-wpengine.netdna-ssl.com/wp-content/uploads/2022/06/CVAP-Charging-Grant-Guidelines-April-2022.pdf.

## Increasing community awareness

The gap in EV ownership for communities most affected by transportation pollution can hinder community awareness of EVs. Given the established role community awareness can play in overcoming potential barriers to the adoption of new technologies, it's critical that policies be put in place to compensate for the gap in EV awareness, while the policies listed above help close the gap in access.

EV loaner and/or test drive programs as well as EV carshare programs can help increase the quality and quantity of experience with EVs.[24] Similarly, given the importance of trusted messengers, focusing on partnerships with community organizations that can educate their local communities on commonly raised issues such as charging access, maintenance costs, and financial incentives can help inform the community broadly by taking advantage of established networks.

Survey results show that while there is some overlap in concerns among demographic groups, there are also some notable differences that suggest a need to tailor messages to the specific community of interest and focus educational and outreach efforts on expanding understanding in communities of color. Providing culturally relevant and appropriate outreach and engagement is critical to normalizing EV adoption, particularly in Black and Latino communities. Not only do consumers need to see EV owners and experts who are reflective of their communities and speak their language, but informational materials should also reflect the languages that are reflective of the target communities.

Lack of information is clearly a barrier for Black and Latino communities. Among those who did not say they were definitely going to purchase an EV, a larger percentage of Black (13 percent) and Latino (10 percent) than white (5 percent) and Asian (2 percent) Americans said they don't feel they know enough about electric-only vehicles to buy one.

As the EV market broadens to include a wider demographic, particularly in terms of more affordable new EVs as well as used EVs, there may be less spatial clustering in the market.[25] In light of the current market conditions, however, improving education and awareness should be seen as a critical piece in the path to broader adoption.

[24] For example, programs from the Gunnison County Electric Association and Sacramento Metropolitan Air Quality Management District.
[25] University of California, Los Angeles. 2017. Factors Affecting Plug-in Electric Vehicle Sales in California: Final Report. Report prepared for California Air Resources Board, May 23, under Contract No. 13-303. https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/13-303.pdf.

## CONCLUSIONS

Socioeconomic barriers shape the vehicle market, perpetuating systemic biases that harm communities of color, including environmental injustices like the disproportionate impacts of transportation pollution. Currently, there is a gap in access to and use of electric vehicles, which are a critical part of the solution to the harms wrought by our transportation system. While targeted EV policies cannot eliminate the structural challenges facing these communities, data from our survey—which was focused on understanding the interest in, and barriers to, EV adoption within these communities—can help circumvent the barriers and drive EV adoption where it is needed most.

Increasing the affordability and availability of EVs through updated or new incentive programs, supporting EV drivers with safe and broadly accessible charging infrastructure, and providing communities with the resources needed to understand these programs and the benefits they can provide will help accelerate EV adoption in the communities that stand to gain the most from the electrification of our transportation sector.

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