

2024 EV DRIVER ANNUAL SURVEY REPORT





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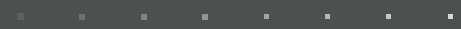
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EXECUTIVE SUMMARY

Plug In America, in partnership with EPRI's EVs2Scale2030 initiative, is proud to present our fourth annual EV driver survey. This survey builds on data collected over the past three years. It taps into our network of electric vehicle (EV) drivers, using Plug In America's longstanding reputation as a trusted source for both early and new adopters. This particular survey includes responses from over 4,200 respondents, with more than 3,300 of those respondents being EV drivers. The survey was fielded from January 2024 through March 2024. The intent of this survey was to get a full picture of the current EV experience in the United States, in particular:

- **What are the most important considerations drivers have when buying an EV?**
- **What is the likelihood that their next car will be an EV?**
- **What are some of the biggest concerns that drivers had when they bought an EV? What are some of the biggest concerns now?**
- **What is the purchasing journey for an EV like?**
- **What does the current EV driver profile look like?**

In general, we find that EV drivers are satisfied with their electric vehicles. **An astounding 89% said it is likely or very likely that their next car will be an EV, remaining in line with surveys from years past.** Furthermore, we once again see that about 40% of EV drivers indicated that their primary purchase consideration was clean air and environmental protection, which has remained the top priority for drivers since our survey's inception. These numbers vary based on a few different factors - such as age, gender, race and ethnicity, and year of EV adoption - but environmental protection and cost savings are consistently ranked as the most important purchase considerations across the board.

Overall, our survey - along with the EV market as a whole - skews towards people who have identified themselves as white. Throughout the report, we make references to drivers who self-reported as Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino, or Native American or Alaska Native as a point of differentiation from the population at large. This is not done to imply that white EV drivers are the norm, but rather to draw points of differentiation seen in underrepresented groups.



These groups are underrepresented in the survey, and our data on them is not as representative as our data on white EV drivers. We hope to increase the numbers in our survey moving forward and will continue to work to ensure the EV transition is inclusive.

Younger drivers, BIPOC, Asian/Asian American and Hispanic/Latino drivers, and later adopters have fundamentally different EV experiences than the sample of older and white drivers that makes up a large portion of the survey. The former groups are less likely to cite environmental protection as their main purchase consideration, they have different levels of concern with EVs, and they use different resources to research EVs.

Factors such as battery range, battery life, and public charging emerged as the biggest concerns for drivers when they first get an EV. However, almost every concern was alleviated after experience with an EV. The exception was concern about public charging, which didn't change much post-EV acquisition.

When it comes to the buying and leasing experiences, consumers are generally able to find the information they need, although there is room for improvement when it comes to how to apply for incentives. Consumers use a variety of different sources to gain information but are especially drawn to sources with EV-specific expertise, as opposed to general automobile expertise.

While dealership knowledge of EVs stands to grow, consumers feel that they are not often influenced by a dealer's recommendations and usually know what they want before going into a dealership. We found that consumer satisfaction with each step of the buying or leasing process remains generally high, although consumers who bought directly from a vehicle manufacturer - such as with Tesla, Rivian, and Lucid - reported higher satisfaction. ■

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01 THE EV MARKET

More than 5 million plug-in electric vehicles have been sold in the United States as of the end of March 2024.

STATE OF THE EV MARKET

Overall, 2023 was a year of continued growth in the EV market, setting global and national records in EV sales. More than 1.4 million plug-in electric vehicles were sold in 2023 in the U.S. - an increase of over 50% from 2022. More than 5 million plug-in electric vehicles have been sold in the United States as of the end of March 2024.¹

While over one million new EVs plugged into the U.S. electric grid for power, electricity generation actually went down by 1.1% through November of 2023.² As transportation energy shifts from fossil fuel to electricity, this demonstrates that energy efficiency and managed charging can offset additional load from EVs.

Across the world, EVs are making waves. The Tesla Model Y was the best-selling car on the planet in 2023, with 1.2 million Model Ys sold last year.³ Globally EV sales are expected to reach 17 million by the end of 2024.

Newer models of cars are among the most popular in our survey, with 63% of respondents saying their primary EV has a 2020 model or later. About 81% of respondents said they bought their primary EV new. This number is expected to change as more used vehicles enter the market over the coming years. For comparison, 84% of respondents in last year's survey said that they bought their primary EV new.

In our survey, we found that the most common vehicle is the Tesla Model 3. Of EV drivers, 15% of respondents said the Model 3 is their primary EV, while an additional 18% said that they drive either the Tesla Model Y or Tesla Model S. The Chevy Bolt (13%) and Nissan LEAF (5.6%) are also among the top five most commonly driven cars.

Tesla was the most popular manufacturer of vehicles as well - 38% of respondents said their primary vehicle is a Tesla, a jump from 33% last year. The next-closest manufacturer was Chevy, who moved up to an 18% share from 17% last year. Ford (7%), Nissan (6%), and Hyundai (5%) are also popular.

Not only is Tesla the most common EV, but it is also the champion of exclusivity for its consumers. As shown in **Figure 1**, almost 29% of Tesla drivers said that they would not consider an EV from a different manufacturer, almost twice the percentage of the next-highest manufacturer. Tesla drivers feel a sense of brand loyalty that drivers of other vehicles do not quite reach.

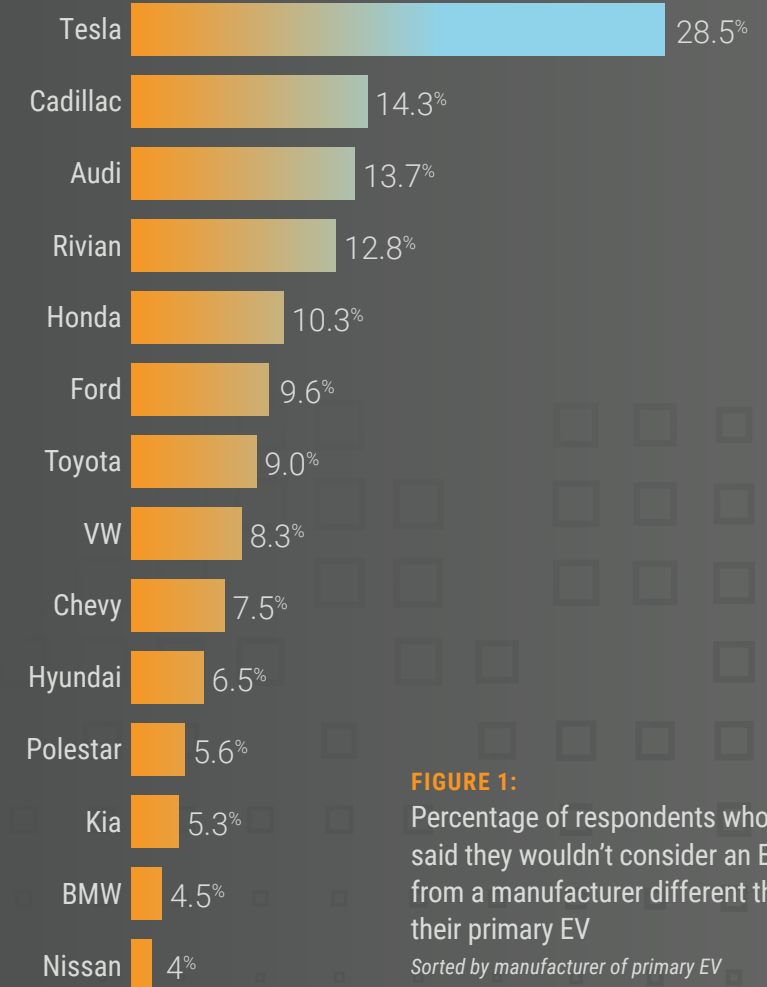


FIGURE 1:
Percentage of respondents who said they wouldn't consider an EV from a manufacturer different than their primary EV
Sorted by manufacturer of primary EV

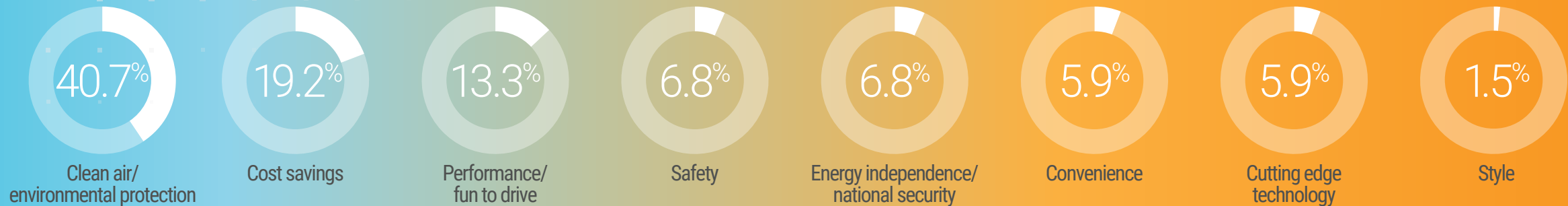
Top Cars in Each Category: (20+ respondents)	1 st	2 nd	3 rd
RANGE	Rivian R1T (40.4%)	Tesla Model Y (30.6%)	Tesla Model 3 (29.2%)
CHARGING SPEED	Hyundai Ioniq 5 (61.3%)	Kia EV6 (53.8%)	Tesla Model Y (42.5%)
PERFORMANCE	Rivian R1T (97.9%)	Polestar 2 (88.9%)	Rivian R1S (87.5%)
SAFETY FEATURES	Rivian R1T (97.9%)	Rivian R1S (93.8%)	Tesla Model X (85.1%)
COMFORT	Rivian R1T (100%)	Ford F-150 Lightning (87%)	BMW i4 (87%)
STYLING AND APPEARANCE	Rivian R1T (91.5%)	Rivian R1S (87.5%)	Polestar 2 (86.1%)
NAVIGATION SYSTEM	Tesla Model X (81.9%)	Polestar 2 (77.8%)	Tesla Model S (76.7%)
EASE OF CHARGING	Tesla Model 3 (85.1%)	Tesla Model Y (84.7%)	Tesla Model S (84.2%)
CARGO SPACE	Rivian R1S (96.9%)	Rivian R1T (93.6%)	Ford F-150 Lightning (87%)
RELIABILITY	Rivian R1T (80.9%)	Tesla Model Y (74.1%)	Toyota Rav4 Prime (74.1%)
VALUE FOR THE PRICE	Chevy Bolt EV/EUV (63.3%)	Rivian R1S (62.5%)	Honda Clarity (55.6%)
OVERALL:	Rivian R1T (89.4%)	Rivian R1S (84.4%)	Tesla Model S (76.2%)

We also asked respondents to rate how satisfied they are with their primary EV in a variety of categories, including range, charging, style, and overall. Both the Rivian R1T and Rivian R1S were the big winners, as shown in **Figure 2**. The Rivian R1T was rated the highest in 6 out of 11 categories, while the Rivian R1S was rated the highest in one category. Furthermore, the R1T and R1S were the two highest-rated EVs overall.

Even in rating individual EVs, we can see wider trends at play. Specifically, even the highest ratings for categories like range, charging speed, and value for the price were relatively low (40% to 65% of respondents who were satisfied). Meanwhile, in categories like reliability, comfort, safety, and performance 80% to 100% of respondents were satisfied. This provides valuable insight to automakers on areas to improve.

FIGURE 2: The top 3 cars in 12 different categories.
(parentheses indicate what percentage of drivers of vehicle said they were at least satisfied with that EV in each category)

FIGURE 3: Which purchase consideration is the most important to you today? (All EV drivers)



WHAT HAS INFLUENCED EV PURCHASES?

PURCHASE CONSIDERATIONS

As it has for the past few years of our EV driver survey, clean air and environmental protection remain the most popular purchase considerations for EV drivers. As shown in **Figure 3**, over 40% of respondents answered that clean air and environmental protection is their most important purchase consideration. 19.2% of respondents said cost savings is their most important purchase consideration, while 13.3% indicated that performance is most important.

The importance of clean air and environmental protection is driven by a few consumer groups in particular. Older respondents were more likely to say that clean air and environmental protection is their most important purchase consideration, with about half of respondents ages 65 and older selecting this. Female respondents are similarly motivated by environmental protection, with 53.3% saying this is their most important consideration.

We also see early adopters of EVs are much more likely to be motivated by environmental protection. For instance, almost half of respondents who first bought an EV between 2011 and 2014 said that environmental protection is their most important purchase consideration. This percentage consistently remained in the 40% to 45% range among adopters from 2015 to 2019. However, this percentage falls into the 30% to 40% range for adopters in the 2020s, as respondents become more interested in factors such as cost savings and performance.

On the other hand, younger consumers are still motivated by environmental protection but are less likely to be motivated by it than older consumers. Less than 30% of respondents ages 18 through 44 said it is their main motivation. Factors like cost savings and convenience mattered more to younger respondents.

Secondly, we see that certain ethnicities are more likely to be motivated by other considerations. We found 29.3% of Asian/Asian American or Pacific Islander respondents cite cost savings as their most important purchase consideration, with another 29.3% saying clean air/environmental protection is. We also found that 31.6% of Black or African American EV drivers cited cost savings as their most important purchase consideration, compared to 21.6% of Black or African EV drivers who said that clean air/environmental protection is.

We also asked respondents to rate all of these purchase considerations as either “crucial,” “somewhat important,” or “not at all important.” Using this information, we can see what consumers deem as must-haves in their EVs, what they see as factors that are nice-to-have, and what factors are not important. Across all consumer groups, safety is seen as a crucial factor when buying an EV. Simply put, consumers are not interested in buying a car if they do not feel safe in it. Secondly, environmental protection is seen as a crucial factor for any EV. While younger consumers, new adopters, and other demographic groups were slightly less likely to cite environmental protection as a crucial factor, it is consistently seen as a motivating factor all around.

Factors such as cost savings, convenience, and performance are seen as somewhere in between a must-have and a nice-to-have. Younger consumers cite convenience and cost savings as crucial factors, while performance is seen as a more crucial factor for recent EV adopters.

Lastly, factors such as cutting-edge technology and style are notably seen as nice-to-have factors. Consumers would love to have these in their vehicle, but they will not be the make-or-break factor behind what consumers buy. People are willing to sacrifice these factors if it means they can get a car that is more environmentally friendly, is safer, or can help save them money.

LIKELIHOOD THE NEXT PURCHASE WILL BE AN EV

Overall, 89.4% of EV drivers answered that it is likely that their next vehicle purchase will be an EV. This is right in line with the 2023 survey, where 89.6% of respondents said the same. Certain groups of respondents love their electric vehicles, showing percentages over 90%.

Older consumers are especially happy with their EVs, as shown in **Figure 4** below. About 92% of respondents ages 65 and over said that it is likely their next purchase will be an EV, with over 80% saying it is very likely.

FIGURE 4: Percentage of respondents who said it is likely or very likely their next vehicle will be an EV sorted by age range (All EV drivers)

18-24	25-34	35-44	45-54	55-64	65-74	75+
66.7%	76.9%	85.8%	89.5%	89.2%	92.9%	92.2%

About 94% of Tesla drivers said it is likely that their next purchase will be an EV, with almost 84% saying that it is very likely. Tesla drivers have an elevated charging experience compared to many other drivers, with superior public charging infrastructure compared to other electric vehicles.⁴ All automakers selling EVs in the United States having committed to making their vehicles compatible with Tesla chargers, so this difference in charging experience is expected to narrow over the coming years.

Early adopters of EVs are also very happy with their purchases. For respondents who first bought an EV in 2019 or earlier, over 90% of them said it is likely that their next purchase will be an EV. However, later adopters were less convinced at the time of the survey.

Younger consumers find themselves less convinced than older consumers about their EVs, but they are overwhelmingly in support of the technology. Of respondents ages 25-34, 77% said it is likely their next purchase will be an EV. This is still a high number, with 3 out of every 4 respondents between the ages of 25 and 34 answering in the positive. However, the difference between the two is notable.

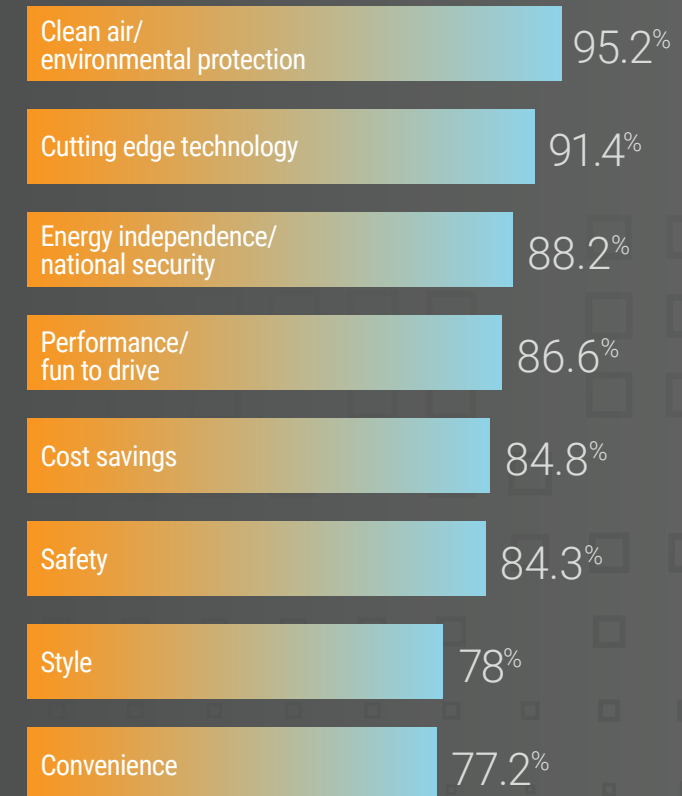
Furthermore, it is less likely Black or African American and Hispanic/Latino EV drivers will make their next purchase an EV in comparison to the respondents at large. Of Black or African American respondents, 74% said it would be likely, and about 78% of Hispanic/Latino respondents said the same.

We also were able to determine how likely it is for a respondent's next purchase to be an EV based on what their primary motivation was, as shown in **Figure 5**. Of respondents who indicated their primary motivation is clean air/environmental protection, 95% said it is likely their next purchase will be an EV, compared to 77% of those motivated by convenience who said the same. This indicates that consumers looking for factors like convenience, safety, and style are less likely to be satisfied with EVs than those with other motivations.

FIGURE 5:

Percentage of respondents who said it is likely or very likely their next vehicle will be an EV sorted by what each respondent chose as their most important purchase consideration

(All EV drivers)





EV CONCERNS

Respondents were also asked about the factors that concerned them when they first bought or leased an EV and which factors concern them now, as shown in **Figure 6** (next page). 69.8% of respondents indicated that battery range was a concern for them at the time they started driving an EV, and 51.9% said that price was a concern. Almost half of respondents said that public charging availability was a concern, and battery lifetime was also a notable concern.

Once consumers began driving an EV, they were less likely to report concern for almost every factor. Vehicle availability, home charging setup costs, price, and access to home charging were among the factors that decreased the most. However, consumers became more concerned with the impact of weather on their EV and public charging reliability.

The biggest concerns that last for consumers are focused on battery range and public charging. Battery range was by far the biggest concern at the time consumers got an EV and - despite a massive decrease - it still exists as one of the more prevalent concerns. Public charging saw the least amount of change, with public charging availability only dropping slightly.

The biggest concerns that last for consumers are focused on battery range and public charging.

This trend of consumer concerns lessening, except for public charging reliability and the impact of weather, was largely consistent amongst all consumer groups - with one notable exception. Tesla drivers saw their concerns drop across the board, with 37% of respondents saying they have no concerns at all now.

The two factors that saw an increase in concern, charging reliability and weather impacts, show room for improvement. However, the survey was fielded during the winter season and - even more importantly - during the winter weather woes that made national headlines in January.⁵ It's very possible this concern was front and center in the minds of respondents. A recent survey we completed in April showed that respondents feel confident in their EVs during cold weather periods.⁶

Furthermore, respondents who are between the ages of 18 and 34 - the respondents who were least likely to say their next purchase would be an EV - saw their concerns drop but to a much lesser extent. Less than 10% of respondents ages 18-34 said they have no concerns at all.

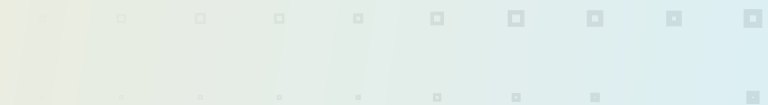


FIGURE 6: Percentage of respondents who said they were concerned about each factor when they got an EV compared to now (All EV drivers)

Which of the following were concerns for you...	At the time you bought or leased an EV	Now that you own or lease an EV
ACCESS TO HOME CHARGING	36.9%	11.6%
BATTERY RANGE	69.8%	35.4%
BATTERY LIFETIME	43.9%	31.8%
CONCERNS ABOUT NEW TECHNOLOGY	16.2%	9.3%
HOME CHARGING SET UPS OR WIRING COSTS	24.8%	6.5%
IMPACT OF WEATHER	17.3%	20.4%
PRICE	51.9%	15.7%
PUBLIC CHARGING AVAILABILITY	48.6%	42.7%
PUBLIC CHARGING RELIABILITY	36.0%	40.7%
VEHICLE AVAILABILITY/WAIT TIME	26.5%	5.8%
VEHICLE RELIABILITY	32.8%	17.8%

INCENTIVES

Lastly, we asked respondents about their experience with incentives - both to find out which incentives they use and learn how impactful incentives are in their decision to purchase or lease an EV.

As shown in **Figure 7**, the numbers that came out of these questions revealed an education gap that can be closed to increase adoption. The most popular incentive used was inexpensive home charging, with about 69% of respondents saying they have used it or do use it. It is worth noting that some of these incentives may be unavailable to consumers based on where they live or other eligibility criteria.

We see that even later adopters are not utilizing the federal EV tax credit as much as one might expect. Of respondents who first bought or leased an EV in 2023 or 2024, 64% said that they used the federal EV tax credit, while 53% of those who first bought or leased an EV since 2020 have used it. This may be due to changes in vehicle or driver eligibility under the current tax credit rules that have refocused tax credit eligibility to make EVs more affordable while building a domestic supply chain.

Beyond the aforementioned perks, incentives used to help offload the costs of charging are the most popular among respondents. Inexpensive home charging is seen as the most influential incentive, with about 32% of respondents saying it was critical in their decision to drive an EV. Free charging at select public locations is also one of the more popular incentives, with almost half of respondents saying they've used it. ■

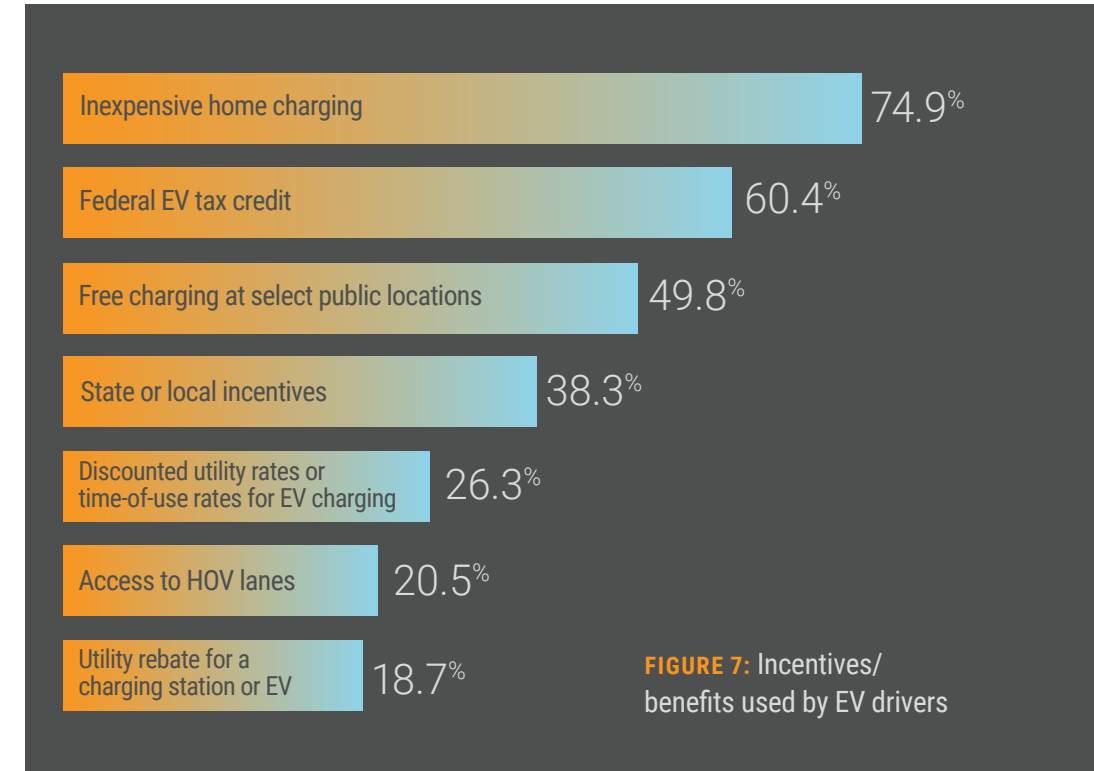


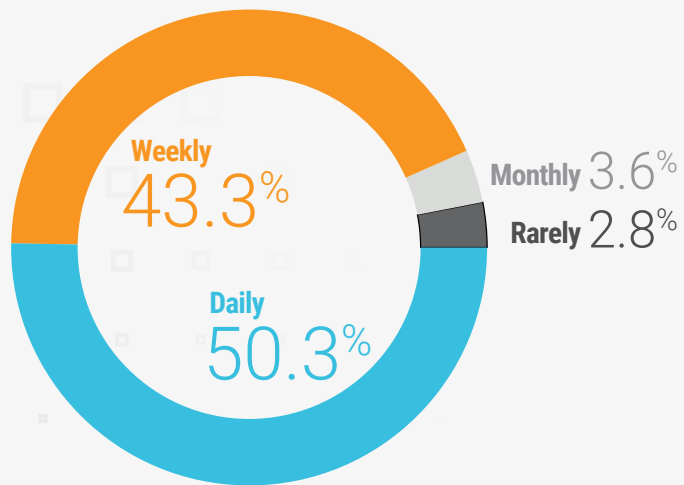
FIGURE 7: Incentives/benefits used by EV drivers

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02 CHARGING

FIGURE 8: How often do all EV drivers charge their EV at home?



HOME CHARGING

Home charging is often used as a primary form of charging for respondents - 50% of respondents said that they use home charging daily, and an additional 43% said that they use it weekly, as shown in **Figure 8**. This is driven by the fact that 91% of respondents have access to a private charger, making it easy for them to top up their cars when they are home.

Consumers are most likely to charge overnight - about 61% of respondents said they most frequently charge between 10 p.m. and 6 a.m. 15% of respondents said they charge when they can. However, **over 80% of respondents said they would be willing to change the hours in which they charge at home if they were to receive discounted electricity rates.** About 17% of respondents said they would “maybe” be willing to do so, presumably only if it wasn’t too much of a hassle given their daily routines.

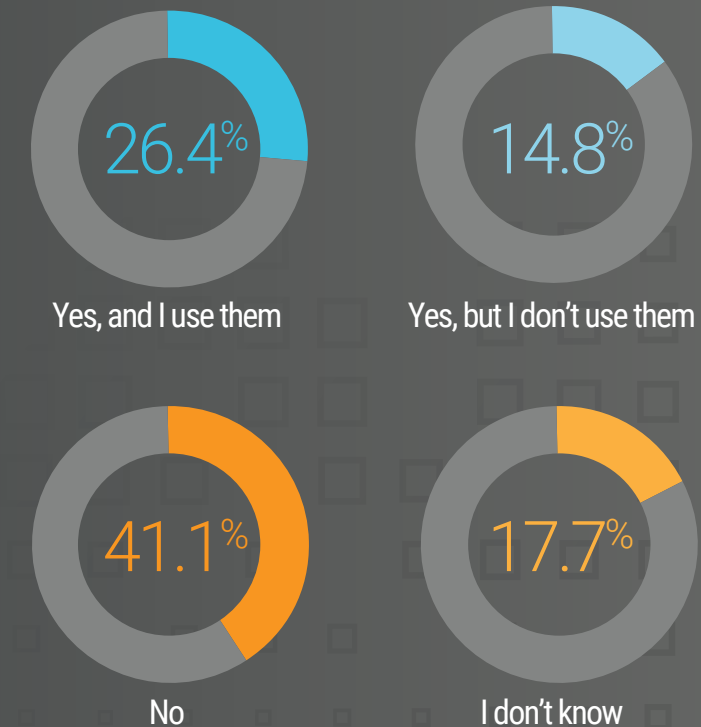
Only 5% of respondents in our survey said they do not have access to home charging, which is not necessarily reflective of the population at large. However, much like in our Q4 Quarterly Survey from 2023¹ on home charging, those with private home chargers found the home charger installation process to be simple. About 87% of respondents said the process was either “easy” or “very easy.”

The popularity of home charging is prevalent even though many are not utilizing special rates offered by utilities for home charging, as shown in **Figure 9**. Only 26% of respondents answered that they use special rates offered by their electric utility. About 15% said the rates are offered but they don’t use them, and 18% of respondents said they don’t even know if their utility offers them. There is an opportunity to help ease the electrification transition by bridging the information gap and increasing access to available special rates.

These findings are reflected in the findings on consumer concern from “What has influenced EV purchases?” While 37% of respondents said they had concerns over access to home charging when they first got an EV, only 12% of respondents said it was a concern for them now. Comparatively, 25% of respondents had concerns over home charging setup or wiring costs when they first got an EV. This has dropped to only 6% of respondents now, showing that the experience of setting up a home charging station is much better than it seemed before.

FIGURE 9:

Does your local electric utility offer special rates for home EV charging?



CHARGING AWAY FROM HOME

Charging away from home is more challenging for consumers. Work chargers can be an alternative to home chargers for those who don't have access to home charging. These are especially popular among younger consumers and those in multi-family housing.

Level 2 public chargers are typically used sparingly, with most people using them at most once a week. Younger consumers are most likely to use these on a weekly basis, while older consumers tend to use them on rare occasions.

A notable finding from our survey is that these away-from-home forms of charging (workplace charging and public charging) are more popular among respondents with access to a shared home charger than among those without access to any home charging.

Lastly, DC fast charging, which is ideally used as a supplementary form of charging and not a driver's primary form, is rarely used by people with access to a private home charger with the exception of Tesla drivers. Tesla drivers are much more likely to use DC fast charging, with only 5% of them saying they never use it. On the other hand, about 27% of respondents who drive cars from other manufacturers say they never use public fast charging.

This divide defines the fast-charging conversation. Tesla's network is a vertically integrated system, so the company has more control over the charging experience. This provides a fundamentally different experience for Tesla drivers than drivers of EVs from other manufacturers, so combining their opinions would prove to be misleading. As we examine public charging, we have divided the analysis into responses from Tesla drivers and responses from drivers of EVs manufactured by other automakers.

The Tesla Supercharger network is the most popular fast charger network in our survey, with 45% of EV drivers using it. Compared to the rest of the charging networks, it has received higher approval ratings from its users but still shows room for improvement.

Among the most notable concerns that consumers have are those such as amenities available at charging stations or not having enough chargers at each location. Tesla chargers tend to function reasonably well, as nonfunctional chargers and low charging speeds are among the lowest areas of concern. As **Figure 10** (next page) shows, however, this still leaves almost one out of every three Tesla users concerned about the reliability of their fast chargers.

Even more than that, one of the major trends identified in our 2023 EV Driver Survey was the decrease in satisfaction with public charging from the year before. This trend didn't continue for the Tesla Supercharger network, but numbers for 2024 were mostly in line with 2023 numbers. However, respondents were more likely to identify nonfunctional or broken chargers as a major concern.

FIGURE 10:

Percentage of Tesla fast charger users that labeled each fast charging experience as a 'major' or 'moderate' concern

AMENITIES AVAILABLE AT CHARGING STATIONS	57.1%
CHARGING COST IS TOO HIGH	44.8%
NOT ENOUGH CHARGERS AT EACH LOCATION	44.4%
CHARGERS ARE BLOCKED BY ICE VEHICLES OR NON-CHARGING EVs	40.9%
CHARGING LOCATIONS ARE TOO FAR APART	39.7%
CHARGING SPEED IS TOO SLOW	34.4%
CHARGERS ARE NON-FUNCTIONAL OR BROKEN	31.4%
CHARGING LOCATION FEELS UNSAFE	26.5%
STATIONS LACK CREDIT CARD READERS	12.6%

FIGURE 11:

Percentage of non-Tesla fast charger users that labeled each fast charging experience as a 'major' or 'moderate' concern

CHARGERS ARE NON-FUNCTIONAL OR BROKEN	91.8%
NOT ENOUGH CHARGERS AT EACH LOCATION	86.1%
CHARGING LOCATIONS ARE TOO FAR APART	79.7%
CHARGING SPEED IS TOO SLOW	71.7%
AMENITIES AVAILABLE AT CHARGING STATIONS	70.0%
CHARGING COST IS TOO HIGH	68.6%
CHARGERS ARE BLOCKED BY ICE VEHICLES OR NON-CHARGING EVs	60.4%
STATIONS LACK CREDIT CARD READERS	45.3%
CHARGING LOCATION FEELS UNSAFE	41.7%

Among the other fast charger networks, the most popular are Electrify America, ChargePoint, and EVgo. Users of these networks reported higher concern with reliability, availability, and more.

Overall, the reliability and availability numbers for other charging networks show room for improvement, as seen in **Figure 11** (previous page). While these numbers don't represent experience and instead measure perception of experience with fast chargers, that expectation can fundamentally change the experience for drivers, even if it is exaggerated. They could feel less able to depend on fast chargers if this is how they feel about any charging network.

Increasing dissatisfaction with public charging was one of the major findings from the 2023 EV Driver Survey. Levels of concern remained at similar levels for non-Tesla fast charger networks, with the exception of two areas of concern that increased. A higher percentage of respondents indicated that not having enough chargers at each location and nonfunctional or broken chargers are greater concerns than last year.

Tesla chargers will increasingly become available to non-Tesla vehicles over time, and we expect to see more use on the Supercharger network from non-Tesla vehicles. As this continues, we anticipate the fast charging experience for Tesla drivers and drivers of other vehicles will become more similar.

The data displayed here reflects the findings about consumers' concerns from "What has influenced EV purchases?" While almost every single concern dropped significantly once consumers had experience with an EV, concern over public charging reliability increased and concern over public charging availability only dropped slightly. For Tesla drivers, concern over public charging reliability and availability both decreased to a greater extent. ■



ENDNOTES

1 Plug In America, "2023.12 - Q4 Quarterly Survey - Home Charging," <https://pluginamerica.org/wp-content/uploads/2024/01/2023.12-Q4-Quarterly-Survey-Home-Charging.pdf>

03 THE BUYING EXPERIENCE

ONLINE RESOURCES

The buying journey starts with research. We asked respondents to identify online platforms they utilized when researching EVs (**Figure 12**) and which information sources they found most trustworthy and useful (**Figure 13**) (*next page*).

From these results, it is clear that consumers believe researching EVs requires a set of online sources that specialize in these vehicles, as opposed to the sites that have long appealed to gasoline-powered vehicles. When it comes to EVs, sources such as Edmunds, Kelly Blue Book, and Carmax are less important to EV shoppers than automaker websites, EV-specific news sites and forums, as well as YouTube channels that provide reviews or other specialized information.

Older respondents are largely driving some of the most popular online sources. In comparison to older drivers, younger respondents are more likely to look towards social media sites such as Facebook, Reddit, and Instagram.

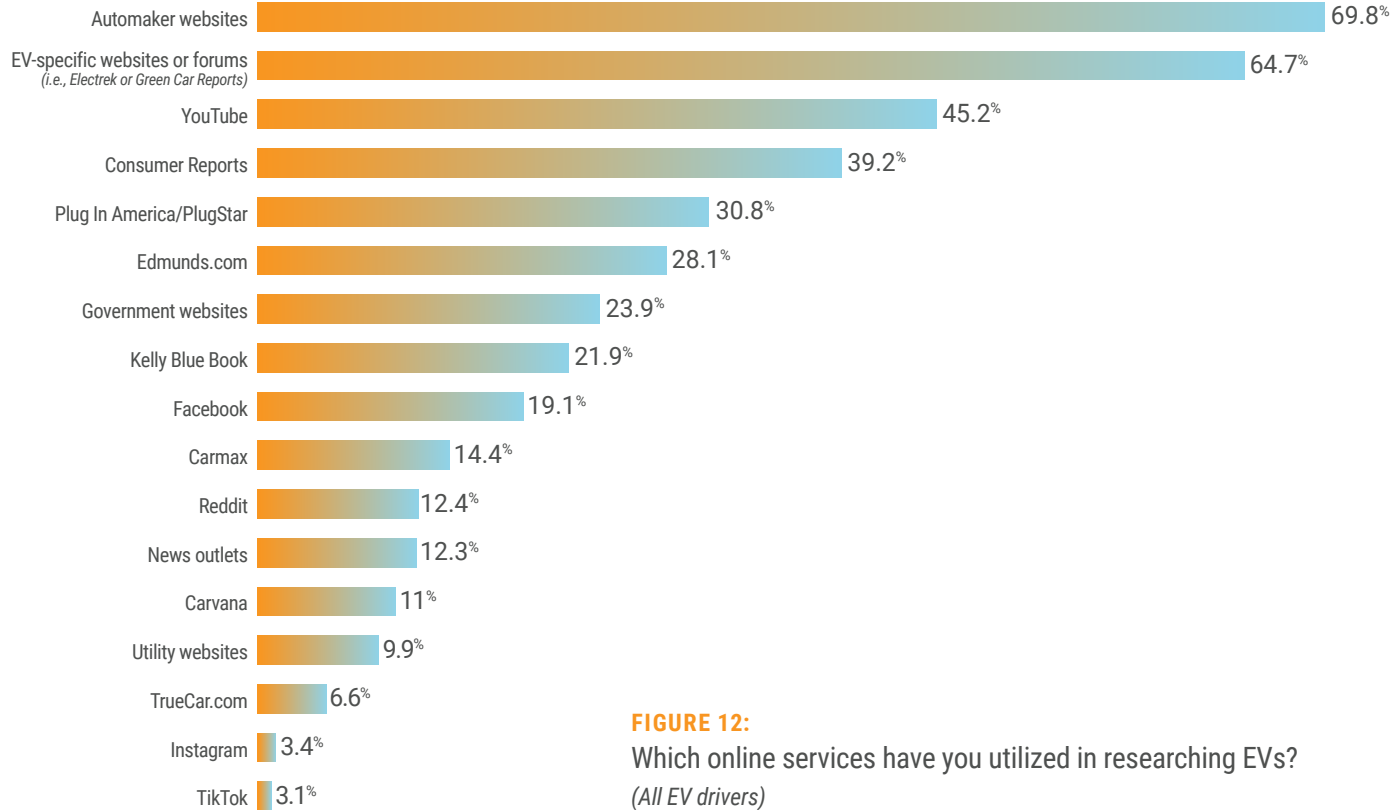
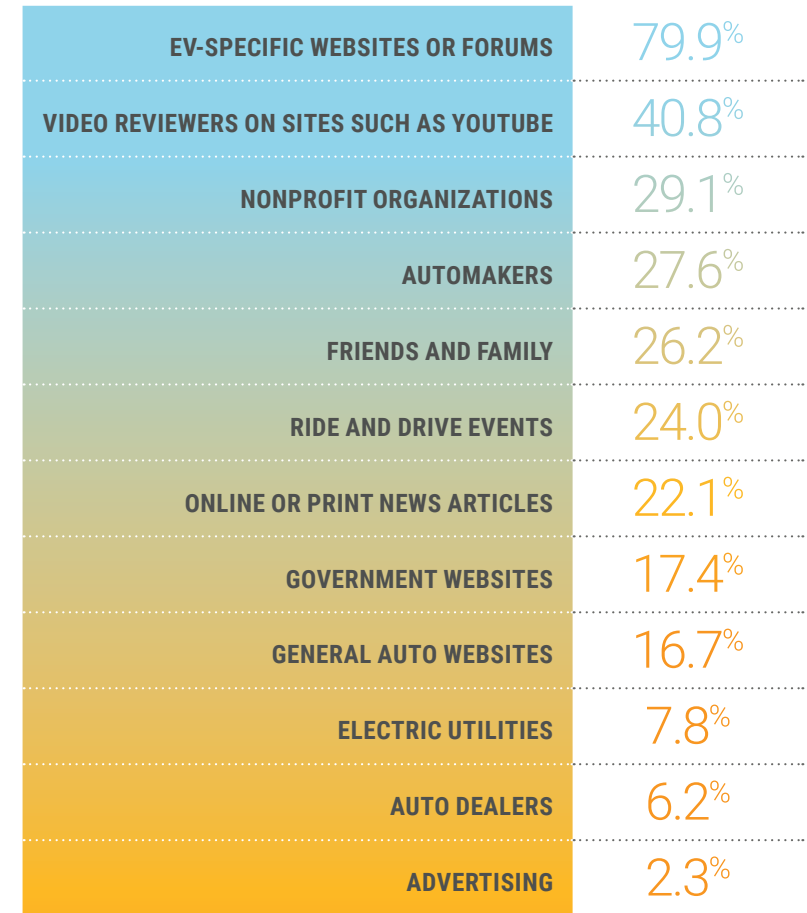


FIGURE 12:
Which online services have you utilized in researching EVs?
(All EV drivers)

FIGURE 13:
Information resources that responded identified as a top 3 most useful and trustworthy resource (All EV drivers)



When we asked respondents what sources they find most useful and trustworthy (as shown in Figure 13), a common theme appeared: 80% of consumers found the most value in EV-specific websites or forums, and 40% in video reviews from individuals. Since modern EV technology is relatively new, it's possible that respondents find the most value from specialists and people who have real-world experience with the vehicles. EV-specific websites or forums can give prospective EV drivers more specific and accurate information about EVs and help them connect with other EV shoppers and drivers. The plethora of reviewers on sites like YouTube allows consumers to get individual opinions and what consumers may see as the truth about an EV, rather than a sales pitch, to inform their purchasing decisions.

The next most useful and trustworthy sources were nonprofits like Plug In America, automakers, and people in a respondent's network. People may turn to auto manufacturers for accurate and useful data like vehicle specifications, but the other top sources of information for prospective EV drivers include people who aren't making money off a direct vehicle sale. To increase EV adoption, manufacturers should consider partnering or engaging with EV-specific platforms, EV drivers, online reviewers, and EV-focused nonprofits.

INFORMATION CONSUMERS SEEK

42% of respondents were able to find all the information they needed before deciding to buy or lease an EV. This is up slightly from 39.5% in last year's survey, and this is a number that we hope will increase as EV adoption increases. While not an insignificant number, the data shows there is more work to do to meet consumers where they are.

The most common information consumers needed help finding was how their vehicles would perform on the road, as shown in **Figure 14**. Consumers are aware that an advertised range is the maximum range for a vehicle driven in ideal circumstances. However, weather, driving style, and other factors determine how far a vehicle can be driven. Consistent with the information sources respondents find useful and trustworthy, respondents sought real-world experiences about range and cold-weather performance and had difficulty.

Some consumers said they had trouble finding information on incentives and rebates, which ties into the findings on incentives in "What has influenced EV purchases?" With 20% of consumers saying they had difficulty applying for incentives and rebates, this might explain why less than half of EV drivers surveyed have taken advantage of local or state incentives and special utility rates or rebates.

FIGURE 14: Information that EV drivers struggled to find

I WAS ABLE TO FIND ALL THE INFORMATION I NEEDED	41.8%
RELIABLE INFORMATION ON REAL-WORLD VEHICLE RANGE	27.1%
COLD-WEATHER PERFORMANCE	21.9%
HOW TO APPLY FOR INCENTIVES AND REBATES	19.6%
PUBLIC CHARGING OPTIONS	17.4%
VEHICLE BATTERY LIFETIME	17.2%
AVAILABLE VEHICLE MODELS AND CHARACTERISTICS	10.0%
HOME CHARGING REQUIREMENTS	5.6%

DEALERSHIP EV KNOWLEDGE

In our survey, 59% of respondents said they got their EV from a dealership. In comparison, about 37% said they got their EV directly from the manufacturer, which would apply to manufacturers like Tesla, Rivian, and Lucid.

In general, respondents found dealerships to have a decent knowledge of EVs, but only 26% of respondents said their salesperson had a high understanding of EVs, as shown in **Figure 15**. This could be troubling for buyers who go into a dealership undecided on the vehicle they want. However, our survey also found about 69% of respondents said their dealers did not influence their decision to buy or lease the vehicle with which they left. The lack of in-depth knowledge could be a problem in selling EVs to the 26% who said their dealer has some influence on their decision and the 5% who say their dealer has a lot of influence.

Furthermore, consumers indicate they typically know what they want when they enter a dealership. 79% of respondents said they know exactly what they want to buy or lease before entering a dealership, and only 3 out of almost 2,000 respondents said they rely on the dealer to guide them. In summary, dealership knowledge shows much room for improvement for mass EV adoption but that hasn't necessarily been a problem given the experience of consumers to date.

FIGURE 15: Dealership knowledge rated by all EV drivers who bought their primary EV from a dealership

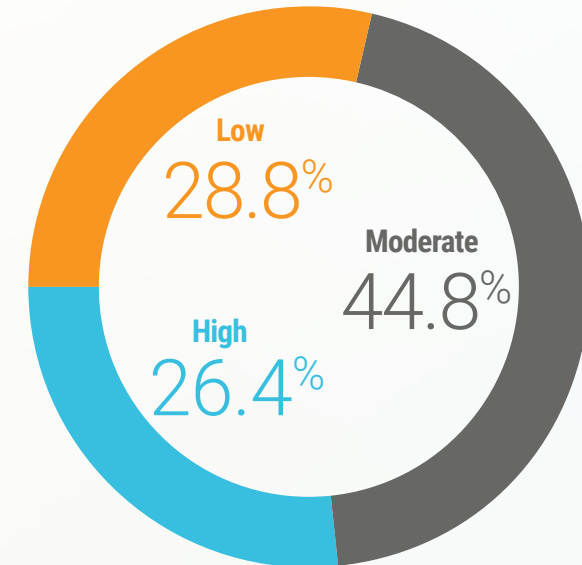
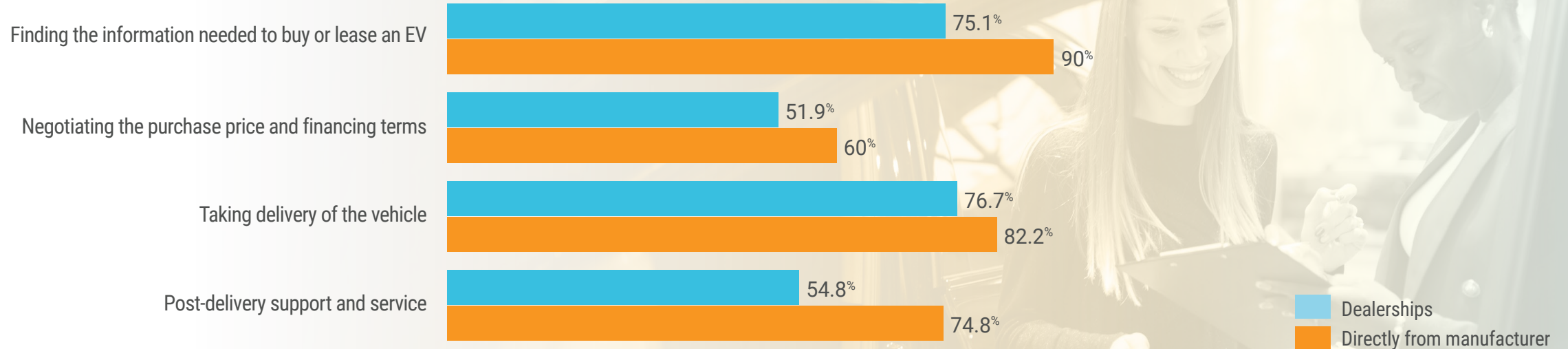


FIGURE 16: Percentage of respondents who said they were satisfied or very satisfied with each step of the EV purchasing process, broken out by whether they bought their primary EV from a dealership or directly from the manufacturer



EV PURCHASE PROCESS SATISFACTION

Lastly, we asked consumers to rate their satisfaction with each step of the EV purchase process - from finding the information they needed to post-delivery support and service. The results were generally more positive than negative. The high point was that 80% of all EV drivers indicated that they are satisfied or very satisfied with finding the information needed, and the low point was that 55% of EV drivers said they were satisfied or very satisfied with negotiating the price and financing terms.

When breaking apart the answers based on consumers who got their primary EV from a dealership and those who got their primary EV directly from the manufacturer - as shown in **Figure 16** - there is a noticeable difference. This is especially prevalent when finding the information needed to buy or lease an EV and in post-delivery support and service. Manufacturers who specialize in electric vehicles currently perform better in these areas over traditional OEMs. However, that could change as traditional OEMs or dealerships educate their workforce and invest more in selling EVs. ■

04 EV DRIVER PROFILES

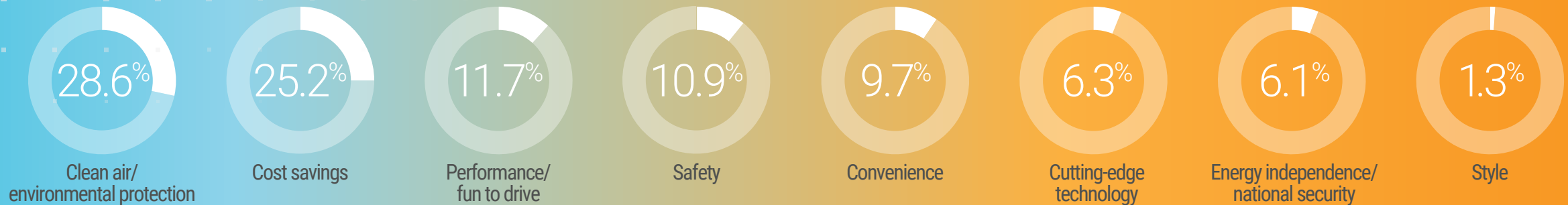
In our survey and within the EV-driving population, demographics are heavily skewed toward older drivers, male drivers, and white drivers. This means that these survey results are skewed toward the beliefs and tendencies of people who fall into those groups.

This section is designed to identify some of the lesser-represented groups of EV drivers and highlight their experiences and preferences. By identifying the experiences and preferences of diverse groups of people, we can accelerate EV adoption by reaching a broader market.

YOUNGER DRIVERS (EV DRIVERS BETWEEN THE AGES OF 18 AND 44)

Age was one of the biggest predictors of differences in motivation and overall EV driver behavior. We found younger consumers are different from their older counterparts in a multitude of ways. One of the most important differences is in their most important purchase consideration, as shown in **Figure 17**.

FIGURE 17: Which purchase consideration is the most important to you today? (Among all drivers between the ages of 18 and 44)



While clean air/environmental protection remains the most important purchase consideration, the difference from the general population is significant. About 29% of respondents between the ages of 18 and 44 said it is their most important purchase consideration, compared to 40.7% of total respondents who said the same. **Younger respondents were more likely to choose cost savings, safety, and convenience than the general population.** This brings one conclusion to mind - many younger consumers do not have the luxury to place environmental considerations above cost and convenience. Clean air is still important, but other considerations are competing to be the most important.

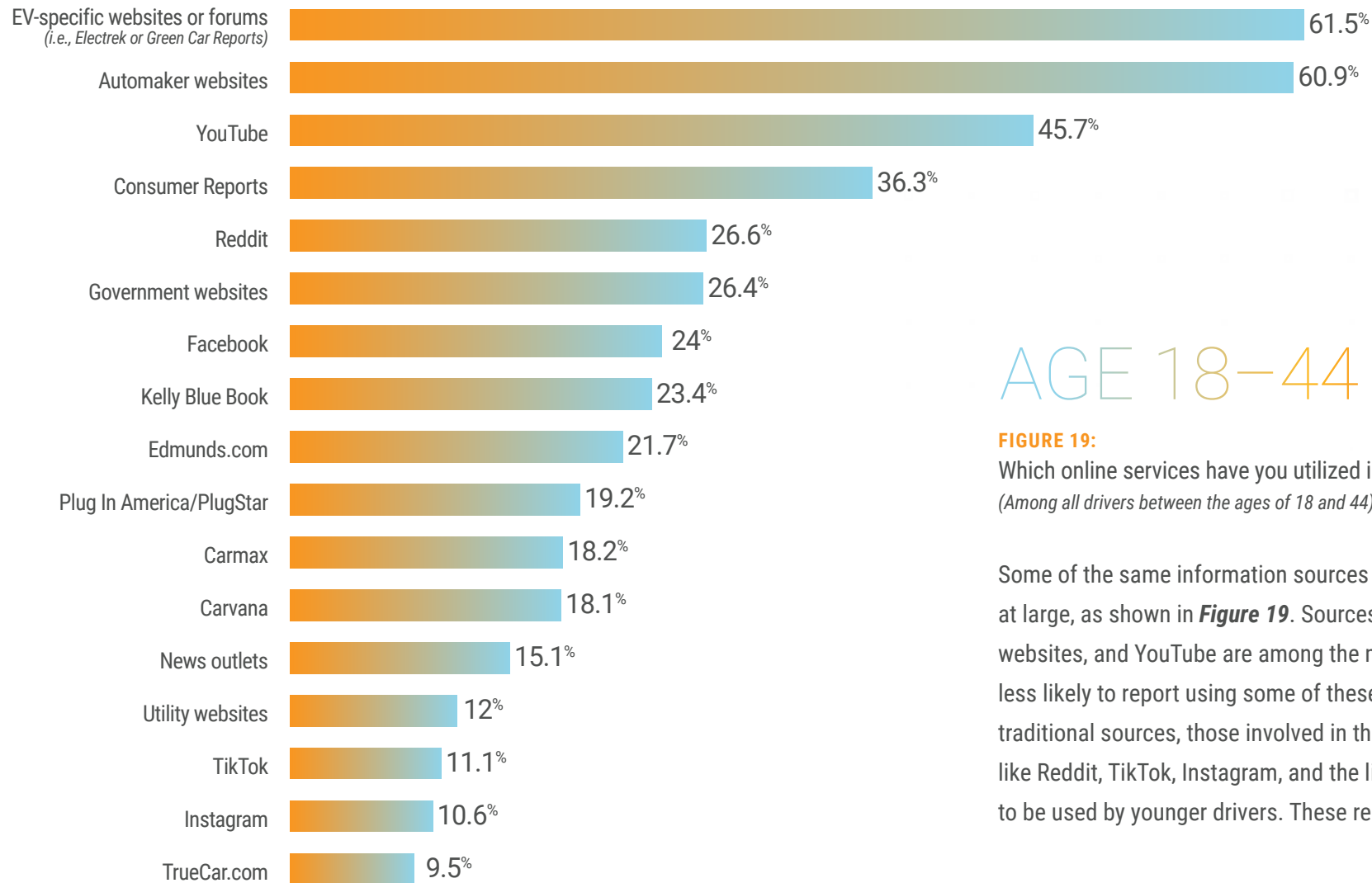
Much like the general population, concerns for younger drivers lessened after experience with an EV, as shown in **Figure 18** (next page). However, it is worth noting that these concerns dropped less than they did for the general population. This signals that experience with an EV can help younger drivers feel more confident in the EV experience, but challenges around public charging and battery lifetime still exist.

Younger drivers are less likely to make their next purchase an EV than the general population, as shown in Figure 4. This was especially true for drivers between the ages of 18 and 34, where less than 80% of respondents said they'd be likely to do so. However, the percentage of respondents likely to make their next purchase an EV still signals a high enthusiasm for EVs among younger drivers.

AGE 18–44

FIGURE 18: Percentage of respondents that labeled each as a concern when they first bought or leased an EV compared to now.
(Among all drivers between the ages of 18 and 44)

Which of the following were concerns for you...	At the time you bought or leased an EV	Now that you own or lease an EV
BATTERY RANGE	66.5%	35.9%
BATTERY LIFETIME	46.3%	42.8%
BATTERY WARRANTY	43.2%	31.6%
CONCERNS ABOUT NEW TECHNOLOGY	18.9%	14.0%
HOME CHARGING SETUP OR WIRING COSTS	26.5%	14.6%
IMPACT OF WEATHER	20.6%	26.2%
PRICE	54.2%	20.7%
PUBLIC CHARGING AVAILABILITY	43.8%	39.0%
PUBLIC CHARGING RELIABILITY	45.3%	42.5%
VEHICLE AVAILABILITY/WAIT TIME	26.1%	12.4%
VEHICLE RELIABILITY	36.5%	20.9%



AGE 18-44

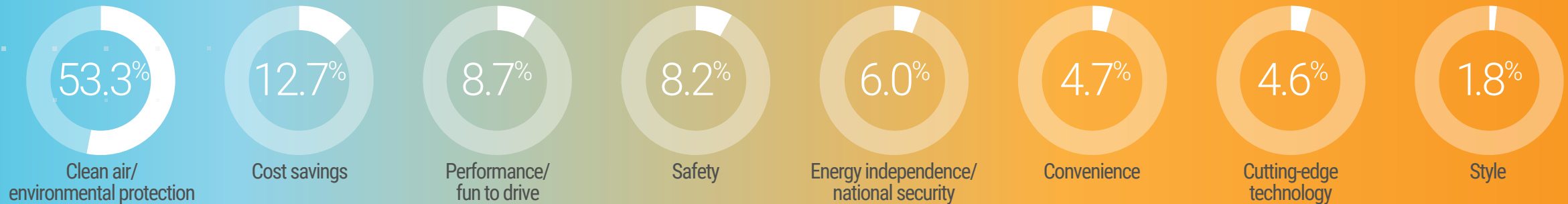
FIGURE 19:

Which online services have you utilized in researching EVs?

(Among all drivers between the ages of 18 and 44)

Some of the same information sources are popular with younger drivers as in the population at large, as shown in **Figure 19**. Sources like Electrek/Green Car Reports, automaker websites, and YouTube are among the most widely utilized. However, younger drivers were less likely to report using some of these sources than the general population. Instead of traditional sources, those involved in the EV industry must use and monitor online sources like Reddit, TikTok, Instagram, and the like, which are increasingly prevalent and more likely to be used by younger drivers. These resources stand to grow as EV adoption increases.

FIGURE 20: Which purchase consideration is the most important to you today? (Among all female drivers)



FEMALE DRIVERS

Just over 20% of our respondents identified themselves as female in our survey. These respondents hold some key differences from male drivers that are worth exploring.

A staggering 53.3% of female EV drivers said clean air/environmental protection is their most important purchase consideration, as shown in Figure 20. Over four times as many female respondents indicated clean air/environmental protection was their most important purchase consideration than the next closest choice. This percentage was the highest among any demographic group. To draw a comparison, 38.1% of male EV drivers said the same.

While this means that female drivers were less likely to identify other considerations as the most important, it doesn't necessarily mean that those other considerations do not matter. When it comes to factors like **cost savings, performance and others, female EV drivers and male EV drivers reported similarly identifying them as crucial factors.** And when it comes to factors like convenience and safety, female EV drivers were more likely to identify them as crucial factors.

All this goes to say that other messages and considerations shouldn't be overlooked when reaching female EV drivers, but rather that clean air/environmental protection is most important to them. Only 3.2% of female EV drivers said that it is not at all important to them, meaning that this consideration is at least somewhat important for almost all female respondents.

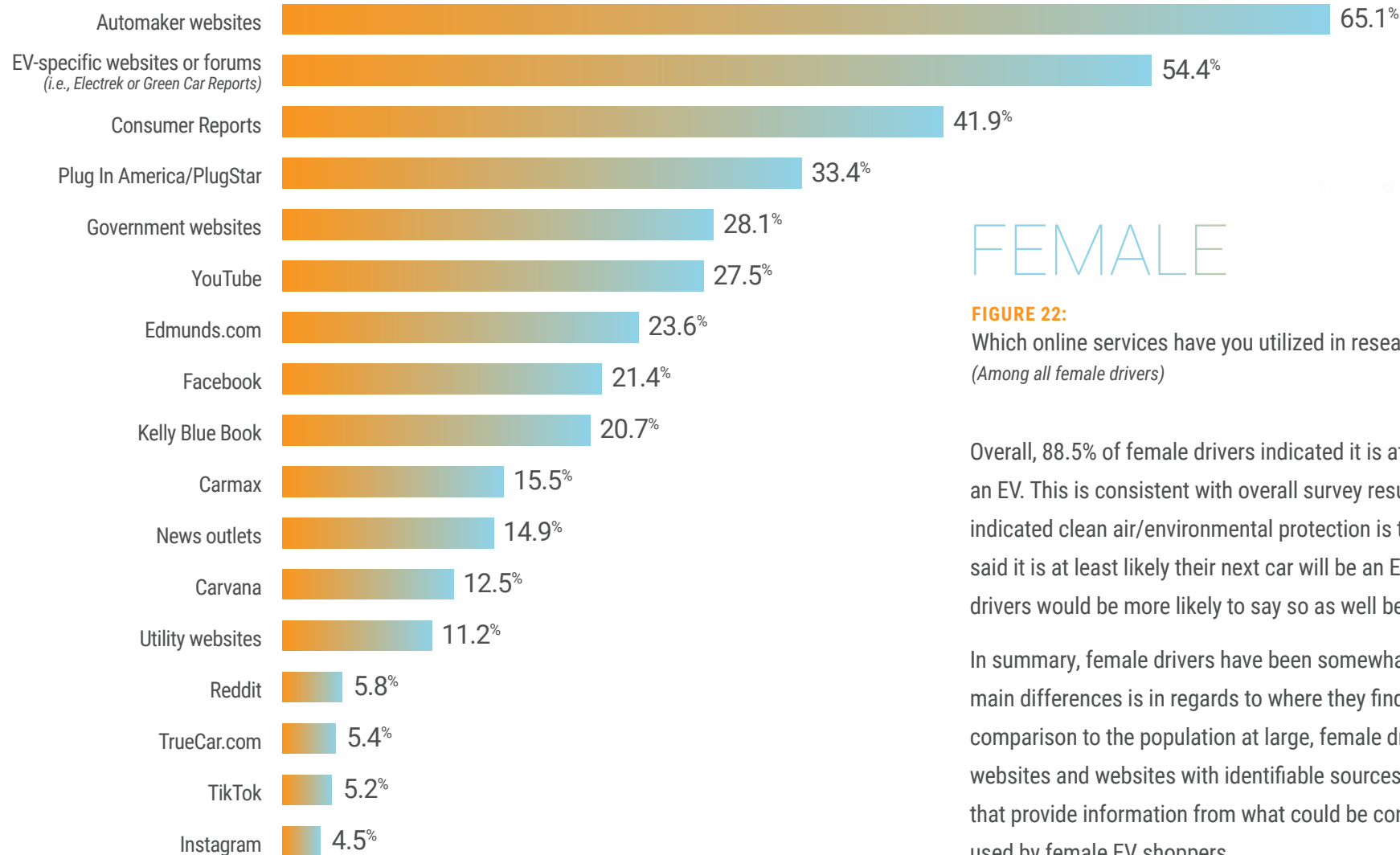


FEMALE

FIGURE 21: Percentage of respondents that labeled each as a concern when they first bought or leased an EV compared to now. (Among all female drivers)

Female drivers share the same concerns before becoming an EV driver, but to a greater extent than the general population, as shown in **Figure 21**. They are slightly more likely to be concerned about access to home charging, battery range, and public charging but they saw their concerns lessened after experience with an EV.

Which of the following were concerns for you...	At the time you bought or leased an EV	Now that you own or lease an EV
ACCESS TO HOME CHARGING	40.3%	10.2%
BATTERY RANGE	45.2%	31.8%
BATTERY LIFETIME	75.6%	37.1%
BATTERY WARRANTY	40.8%	20.3%
HOME CHARGING SETUP OR WIRING COSTS	28.2%	6.3%
IMPACT OF WEATHER	19.2%	20.8%
PRICE	51.0%	10.5%
PUBLIC CHARGING AVAILABILITY	52.2%	41.2%
PUBLIC CHARGING RELIABILITY	37.9%	35.6%
VEHICLE AVAILABILITY/WAIT TIME	26.9%	5.3%
VEHICLE RELIABILITY	33.6%	11.9%



FEMALE

FIGURE 22:

Which online services have you utilized in researching EVs?

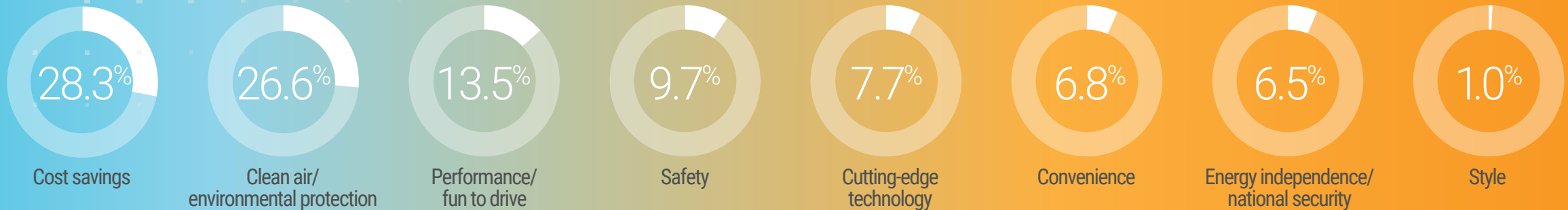
(Among all female drivers)

Overall, 88.5% of female drivers indicated it is at least likely that their next purchase will be an EV. This is consistent with overall survey results. Overall, over 95% of respondents who indicated clean air/environmental protection is their most important purchase consideration said it is at least likely their next car will be an EV. So, it would have been expected that female drivers would be more likely to say so as well because of how many indicated the same.

In summary, female drivers have been somewhat in line with male drivers. However, one of the main differences is in regards to where they find their information, as shown in **Figure 22**. In comparison to the population at large, female drivers turn to vetted sources, such as automaker websites and websites with identifiable sources or reporters. Platforms like YouTube and Reddit that provide information from what could be considered unverified sources are less likely to be used by female EV shoppers.

FIGURE 23: Which purchase consideration is the most important to you today?

(All Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino, or Native American or Alaska Native EV drivers)



ASIAN/ASIAN AMERICAN OR PACIFIC ISLANDER, BLACK OR AFRICAN AMERICAN, HISPANIC/LATINO, AND NATIVE AMERICAN OR ALASKA NATIVE EV DRIVERS

This section will encompass drivers of the following races and ethnicities, which are also used in the U.S. Census: Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino, and Native American or Alaska Native.

These drivers are most motivated by cost savings, with almost 30% of respondents reporting this as their most important purchase consideration, as shown in **Figure 23**. They were also more likely to be motivated by safety than the general population, with almost 10% of respondents saying it was the most important purchase consideration.

In particular, Black or African American respondents were motivated by cost savings. 31.6% of respondents said it is their most important purchase consideration, while only 21.4% said clean/air environmental protection is. 29% of Asian/Asian American respondents said cost savings is their most important purchase consideration, and 26.6% of Hispanic/Latino respondents said the same.

In general, there are a few considerations more likely to be cited as crucial for drivers in this category—cost savings, convenience, and performance. Clean air and environmental protection are important factors, but they cannot come at the cost of too much money, too much time or mental energy, or a functioning vehicle.

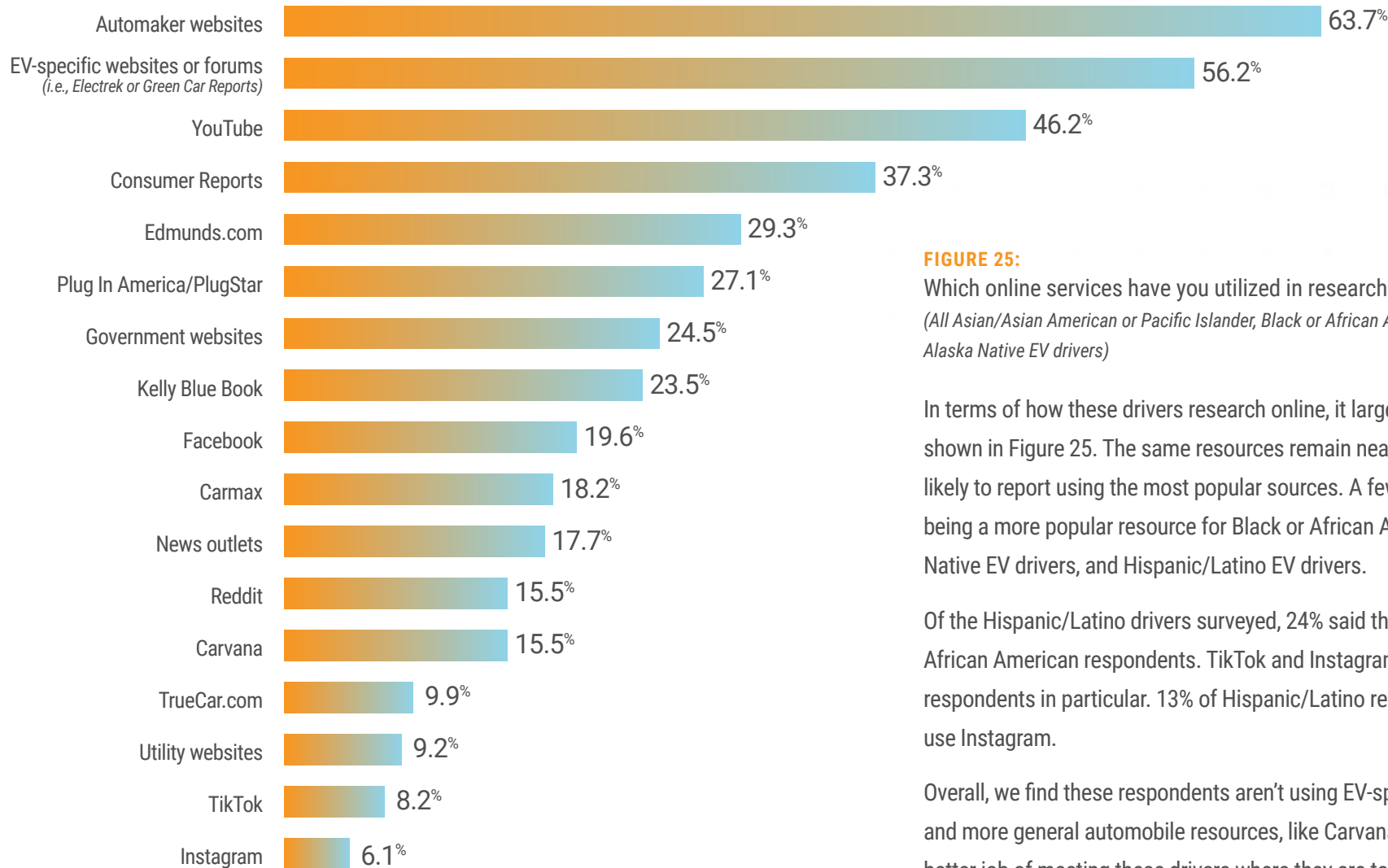
FIGURE 24: Percentage of respondents that labeled each as a concern when they first bought or leased an EV compared to now. (All Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino, or Native American or Alaska Native EV drivers)

When looking at the concerns of these drivers when they got an EV and now, the same trend of concerns lessening over time persists. However, the level of concern that exists now for consumers in many areas is greater than it is for the general population. In particular, we find that Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino, and Native American or Alaska Native drivers find themselves more likely to be concerned with issues around their battery, home charging, and others.

Since these concerns did drop, it indicates that these problems can be solved. However, all players involved in EV success must make greater efforts to provide more resources and tools to Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino, and Native American or Alaska Native drivers.

Overall, 76% of these respondents said they would be likely or very likely to make their next vehicle an EV. This is a notable drop from the population-wide percentage of 89%. In particular, 74% of Asian/Asian American or Pacific Islander respondents said they would be at least likely to do so, and 74% of Black or African American respondents said the same. 78% of Hispanic/Latino respondents also said it was likely.

Which of the following were concerns for you...	At the time you bought or leased an EV	Now that you own or lease an EV
ACCESS TO HOME CHARGING	49.7%	19.6%
BATTERY LIFETIME	53.9%	44.5%
BATTERY RANGE	71.8%	45.0%
BATTERY WARRANTY	48.6%	34.5%
IMPACT OF WEATHER	22.1%	26.8%
PRICE	57.7%	23.2%
PUBLIC CHARGING AVAILABILITY	52.5%	44.8%
PUBLIC CHARGING RELIABILITY	43.1%	40.1%
VEHICLE RELIABILITY	45.0%	26.5%
NONE	2.2%	11.3%

**FIGURE 25:**

Which online services have you utilized in researching EVs?

(All Asian/Asian American or Pacific Islander, Black or African American, Hispanic/Latino or Native American or Alaska Native EV drivers)

In terms of how these drivers research online, it largely falls in line with the population at large, as shown in Figure 25. The same resources remain near the top, although these EV drivers are slightly less likely to report using the most popular sources. A few minor differences existed, including Facebook being a more popular resource for Black or African American EV drivers, Native American or Alaska Native EV drivers, and Hispanic/Latino EV drivers.

Of the Hispanic/Latino drivers surveyed, 24% said they use Facebook, along with 21% of Black/African American respondents. TikTok and Instagram are also popular resources for Hispanic/Latino respondents in particular. 13% of Hispanic/Latino respondents said they use TikTok, while 9% said they use Instagram.

Overall, we find these respondents aren't using EV-specific websites but are using social media sites and more general automobile resources, like Carvana. This indicates that the EV market needs to do a better job of meeting these drivers where they are to increase visibility and adoption. ■

05 NON-EV DRIVERS

77% of non-EV driver respondents considering buying or leasing a car in the next 12 months are considering a battery electric vehicle (BEV) or plug-in hybrid electric vehicle (PHEV).

Despite conducting an EV driver survey, we were still able to gather responses from hundreds of people who do not currently drive EVs to understand their perceptions of and concerns about EVs better.

Of the almost 700 non-EV driver respondents surveyed, 47% indicated they are considering buying or leasing an EV in the next 12 months. However, nearly 40% of those respondents said they are not considering an EV in the next 12 months because they are not considering buying or leasing a car. When respondents not in the car market are removed, 77% of non-EV driver respondents considering buying or leasing a car in the next 12 months are considering a battery electric vehicle (BEV) or plug-in hybrid electric vehicle (PHEV).

Of those considering a BEV or PHEV, about 77% said they are very familiar or moderately familiar with EVs.

For these drivers, the EV industry should identify concerning factors so we can better address barriers to EV adoption. Concerns are shown in **Figure 26** (next page).

FIGURE 26:

Do any of the following factors cause concern for you about buying or leasing an EV? (All non-EV drivers)

		Very Familiar with EVs	Moderately Familiar with EVs	Slightly Familiar with EVs
BATTERY RANGE	70.7%	64.0%	72.8%	75.4%
PURCHASE PRICE	64.5%	61.4%	66.9%	63.8%
CHARGING SPEED	56.5%	48.2%	61.8%	58.0%
BATTERY LIFETIME/WARRANTY	56.5%	50.9%	54.4%	66.7%
PUBLIC CHARGING AVAILABILITY	55.9%	50.0%	60.3%	56.5%
AVAILABILITY OF TAX CREDITS	51.9%	52.6%	55.9%	43.5%
HOME CHARGING SETUP OR WIRING COSTS	42.3%	31.6%	44.1%	53.6%
AVAILABILITY OF VEHICLES/WAIT TIME	29.9%	32.5%	26.5%	31.9%
RELIABILITY	26.5%	17.5%	28.7%	36.2%
IMPACTS OF BATTERY PRODUCTION	26.5%	26.5%	26.5%	26.5%
ALL-WHEEL DRIVE CAPACITY	22.5%	16.7%	27.9%	21.7%
LACK OF OPTIONS IN VEHICLE CLASS	18.8%	18.8%	18.8%	18.8%
CONCERNS ABOUT NEW TECHNOLOGY	15.7%	9.6%	15.4%	24.6%
TOWING CAPACITY	8.3%	13.2%	5.1%	7.2%
LACK OF INFORMATION	6.2%	2.6%	3.7%	14.5%
NONE OF THESE	1.5%	5.3%	0%	0%

FIGURE 27:

Do any of the following factors cause concern for you about buying or leasing an EV?

(All non-EV drivers, broken out by how familiar they say they are with EVs)

For non-EV drivers, the main concerns may come as no surprise. They are concerned about battery range and battery lifetime, charging speed and public charging availability, and purchase price and availability of tax credits. Another concern is home charging setup or wiring costs. It may come as no surprise that many of these can be addressed through education, as shown by **Figure 27** (previous page).

Almost across the board, those who reported being more familiar with EVs were less likely to be concerned about each factor. This speaks to the power of education for both EV drivers and non-EV drivers.

While those who are very familiar with EVs report lower levels of concern, they still worry about range and charging. Still, one interesting factor was how those more familiar with EVs were more likely to report concern with the availability of tax credits.

To support American auto manufacturers and create U.S. jobs, the current federal tax credit limits eligible EVs based on where battery parts are made and where vehicles are assembled. As most auto manufacturers build out their domestic supply chains (including recycling facilities), more vehicles will be eligible for the federal tax credit.

State tax incentives can also be limited by funding constraints, which means they are not always available. Policymakers have an opportunity to create popular, well-funded policies to continue the electric transportation transition.

We also asked non-EV drivers about their concerns about used cars. Pre-owned vehicles represent a more affordable way for drivers to access the EV market. The top concern is battery degradation, with range coming in second, as shown in **Figure 28**.

FIGURE 28:

Do any of the following factors cause concern for you about buying or leasing a used EV?

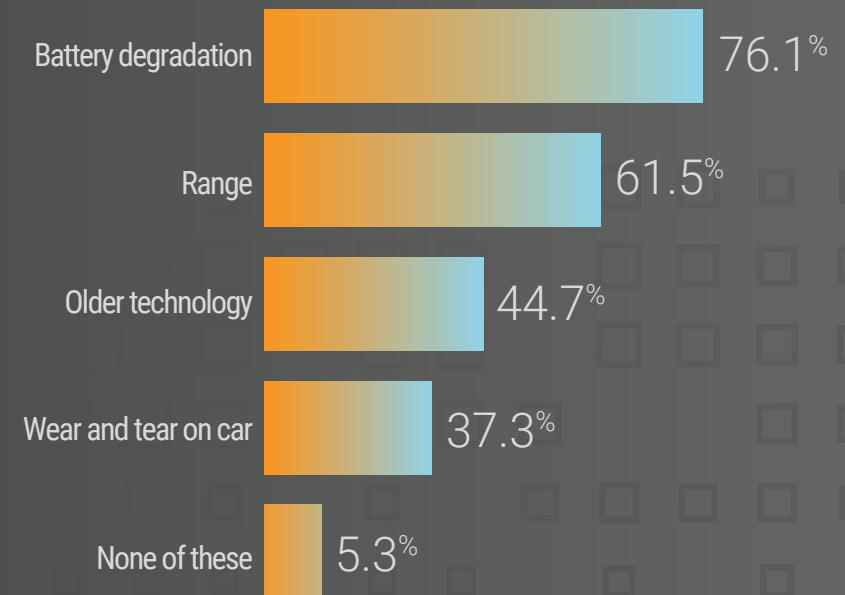
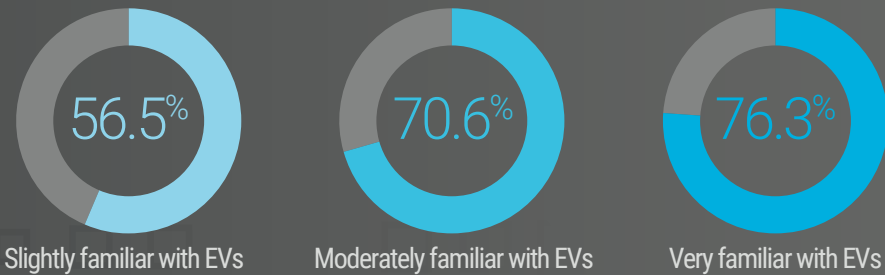
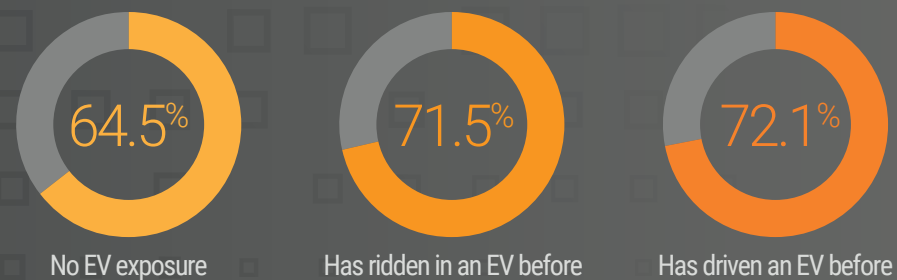


FIGURE 29:

Percentage of non-EV drivers who said it would be likely or very likely that their next vehicle will be an EV (Broken out by how familiar they say they are with EVs)

**FIGURE 30:**

Percentage of non-EV drivers who said it would be likely or very likely that their next vehicle will be an EV (Broken out by how much experience they have had with an EV before)



Overall, about 70% of non-EV drivers said it is likely or very likely that their next car will be an EV. This is another factor that varies based on one's exposure to an EV and familiarity with an EV. Those who report as more familiar with an EV are more likely to say their next car will be an EV. However, even 65% of non-EV drivers with no EV exposure report it is likely their next car will be an EV. Likewise, those who have ridden in or driven an EV say the same. These findings are shown in **Figure 29** and **Figure 30**.

Lastly, we asked non-EV drivers for their perception of who EV drivers are and what their motivations are for driving an EV. Unsurprisingly, non-EV drivers have an impression that EV drivers are doing so for environmental reasons. This is one of the main benefits associated with EVs, but that perception can work to exclude certain people from considering an EV. Suppose a person doesn't consider themselves an environmentalist and they perceive EV drivers to be environmentalists. In that case, they may never even bother to learn about other ways EVs can benefit them.

All in all, information and first-hand experience is needed to convince non-EV drivers to adopt. Concerns need to be addressed, questions need to be answered, and experience has to be had. While the focus of this survey is about the EV driver experience, the perceptions and experiences of non-EV drivers can help us learn how to accelerate adoption for all. ■

06 KEY TAKEAWAYS & BREAKDOWNS

KEY TAKEAWAYS

- Clean air/environmental concern remains the most important purchase consideration for consumers. However, we see that this differs among different groups of consumers. Clean air/environmental protection is almost always cited as an important consideration, but factors such as cost savings, performance, and safety may be just as impactful for some.
- Overall, once consumers own or lease an EV, the concerns they had before becoming an EV driver diminish. Factors such as battery range, home charging, and vehicle reliability ease once drivers experience an EV firsthand. An opportunity to improve the overall experience by improving public charging availability and reliability will address remaining concerns.
- Nearly 90% of EV drivers said it is likely their next vehicle will be an EV. This was especially true for older consumers and early adopters of EVs. While some groups - including younger consumers and later adopters - were less likely to indicate the same, EV drivers across the board are still likely to make their next vehicle an EV. There is an opportunity for education and outreach to these groups, which will require the EV market to meet these drivers where they are.

RESPONDENT BREAKDOWN

RESPONDENT DEMOGRAPHICS:

FIGURE 31:

Respondents by age range

18-24	25-34	35-44	45-54	55-64	65-74	75+
1.2%	9.1%	13.4%	15.5%	21.6%	26.8%	12.4%

FIGURE 32:

Respondents by their race/ethnicity (*respondents were allowed to choose more than one, so percentages add up to over 100%*)

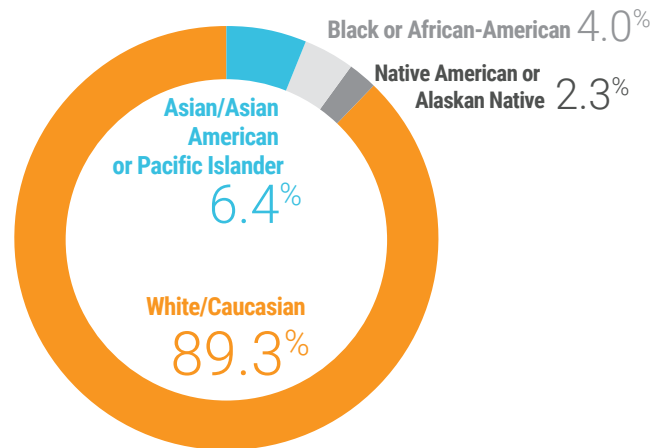


FIGURE 33:

Respondents broken out by whether they are of Hispanic and/or Latino descent

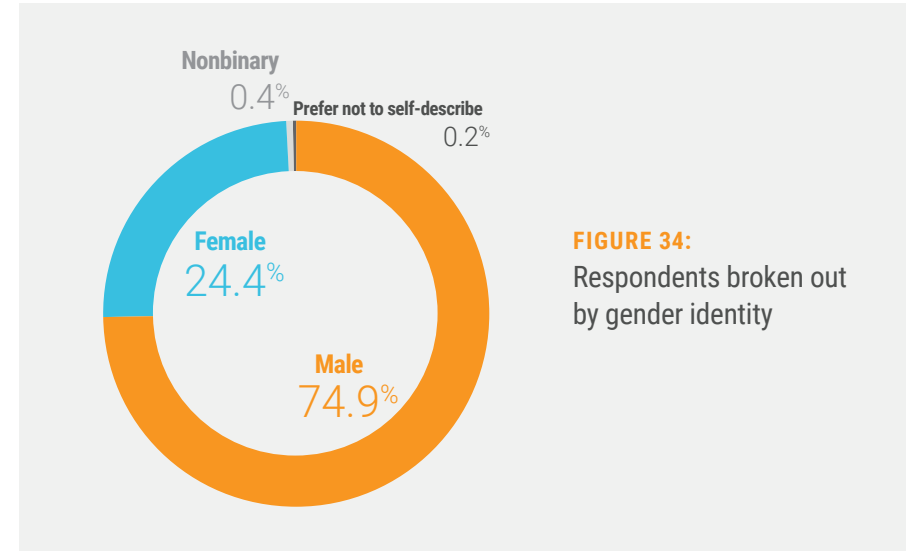
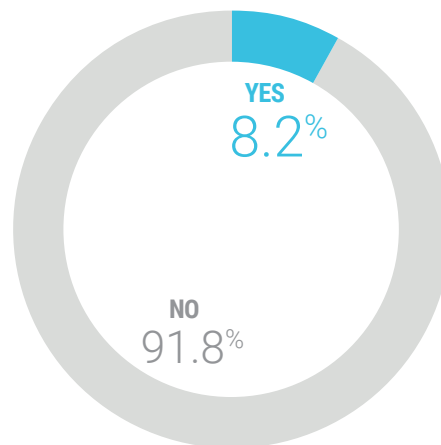


FIGURE 34:

Respondents broken out by gender identity

FIGURE 35: Respondents broken out by annual household income

Up to \$36,000	27.1%
\$36,001 to \$50,000	21.9%
\$50,001 to \$75,000	19.6%
\$75,001 to \$100,000	17.4%
\$100,001 to \$250,000	17.2%
\$250,001 or more	10.0%

WHERE DO THEY LIVE?

FIGURE 36: Respondents based on state
(Delaware: 19 respondents, Rhode Island: 5 respondents)

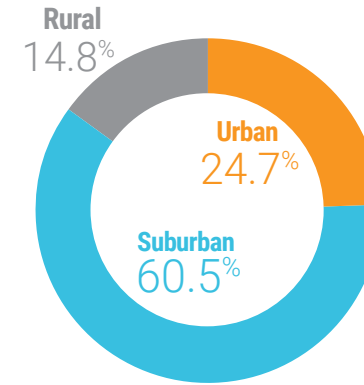
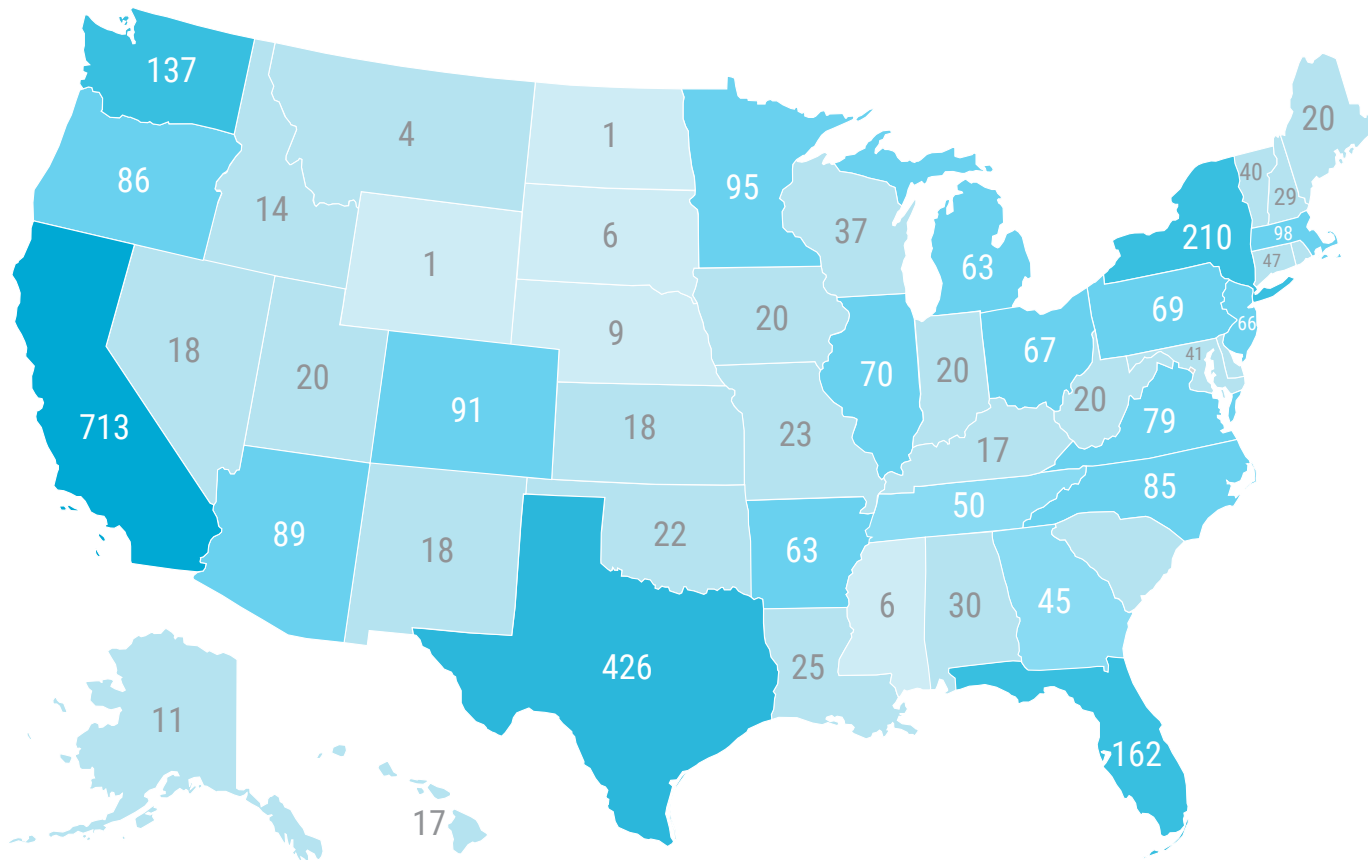


FIGURE 37: Respondents broken out by whether they live in an urban, suburban, or rural locale

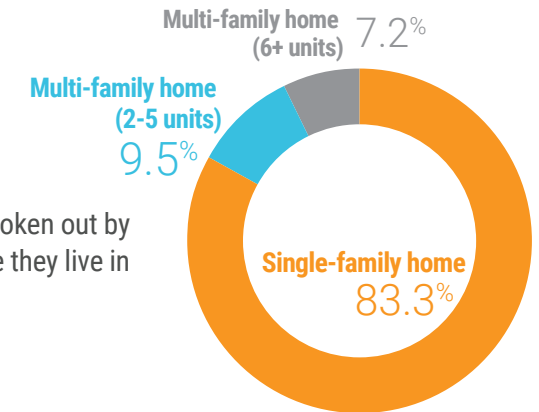


FIGURE 38: Respondents broken out by what type of residence they live in

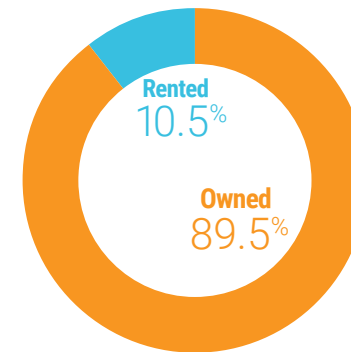


FIGURE 39: Respondents broken out by whether or not their home residence is owned or rented

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- Eastern Electric Vehicle Club
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- North Texas Tesla Owners Group
- Oregon Electric Vehicle Association
- Phoenix Electric Auto Association
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ABOUT PLUG IN AMERICA

Plug In America is the nation's leading nonprofit organization dedicated to the transition to affordable and accessible plug-in vehicles and charging through education, advocacy, and research. Formed in 2008, the organization provides practical, objective information to consumers and dealerships about EVs through various programs, including National Drive Electric Week, Drive Electric Earth Month, PlugStar.com, and other public outreach events. Learn more at PlugInAmerica.org.