

# EVs and Gen Z: **The Road Ahead**

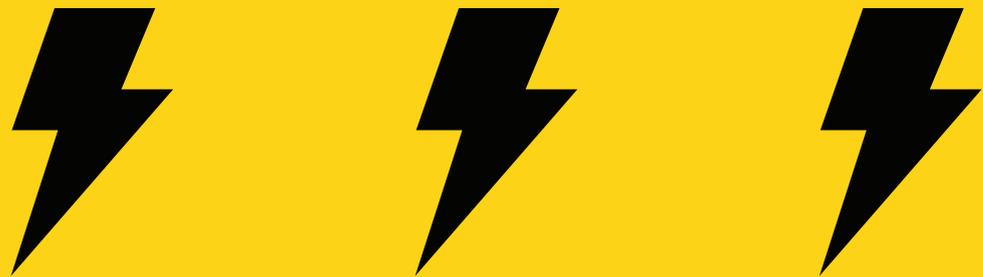
## Methodology

- Our fifteenth annual **Energy Pulse**<sup>™</sup> study is Shelton Group's annual exploration of consumer perceptions and behaviors regarding energy and the environment. The study contains a mix of new topics and tracking questions.
- **Online survey** was fielded in September of 2019, surveying a total of 2,028 U.S. respondents
- **Stratified sampling** mirrors the U.S. population, using quotas for geography, age, gender, education and race; data were weighted slightly to match U.S. population distributions. Margin of error is +/- 2.2%.
- An over-sample of 330 EV owners was also collected, creating a total of 423 EV owners with a margin of error of +/- 4.8%.

# Introduction

- We addressed issues surrounding EVs in our annual Energy Pulse study in order to figure out
  - Why people consider or don't consider owning EVs (motivations and barriers)
  - How these motivations and barriers have changed over time
  - What utilities can do right now to promote and support EV ownership
  - What the future of EVs might look like, especially as the demographic profile of those buying EVs starts to change
- This report delves into these findings, and explores what **the road ahead** might look like for EVs, utilities and others in the city planning realm

For Americans, the issue of charging EVs is coming to the forefront.



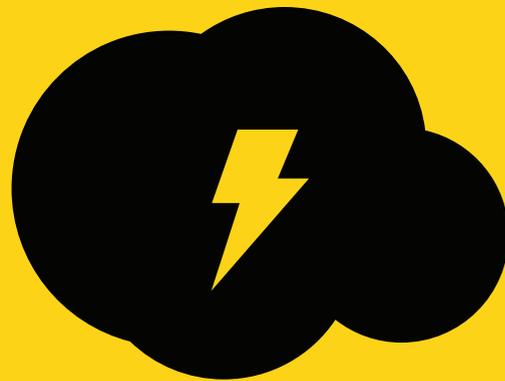
This barrier is growing,  
not shrinking.



**After cost, range anxiety and charging concerns are the biggest barriers to purchasing an electric vehicle**



**Concerns about charging are significantly greater in 2019 than they were in 2018.**



# Concerns like ...



**27%**  
in 2018

**vs.**

**36%**  
in 2019

**The number of charging stations**



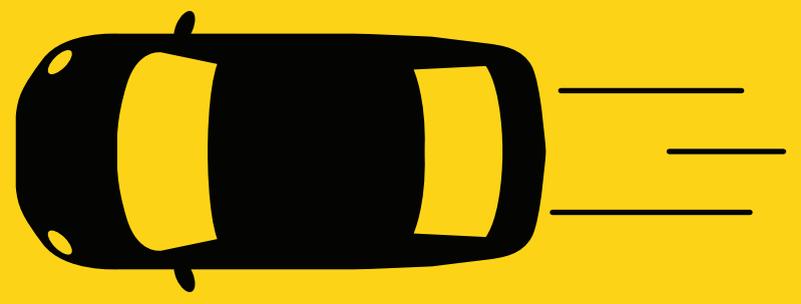
**25%**  
in 2018

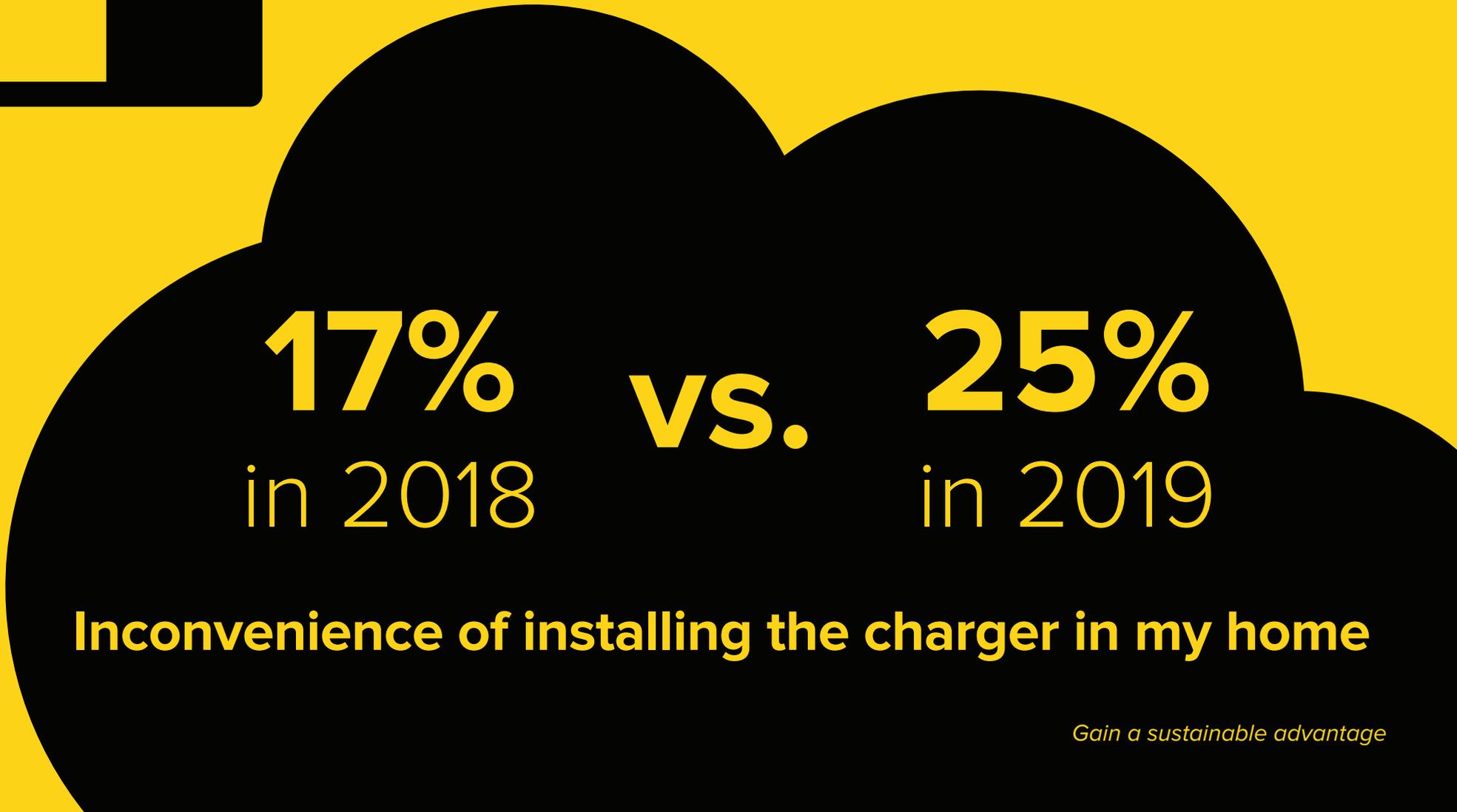
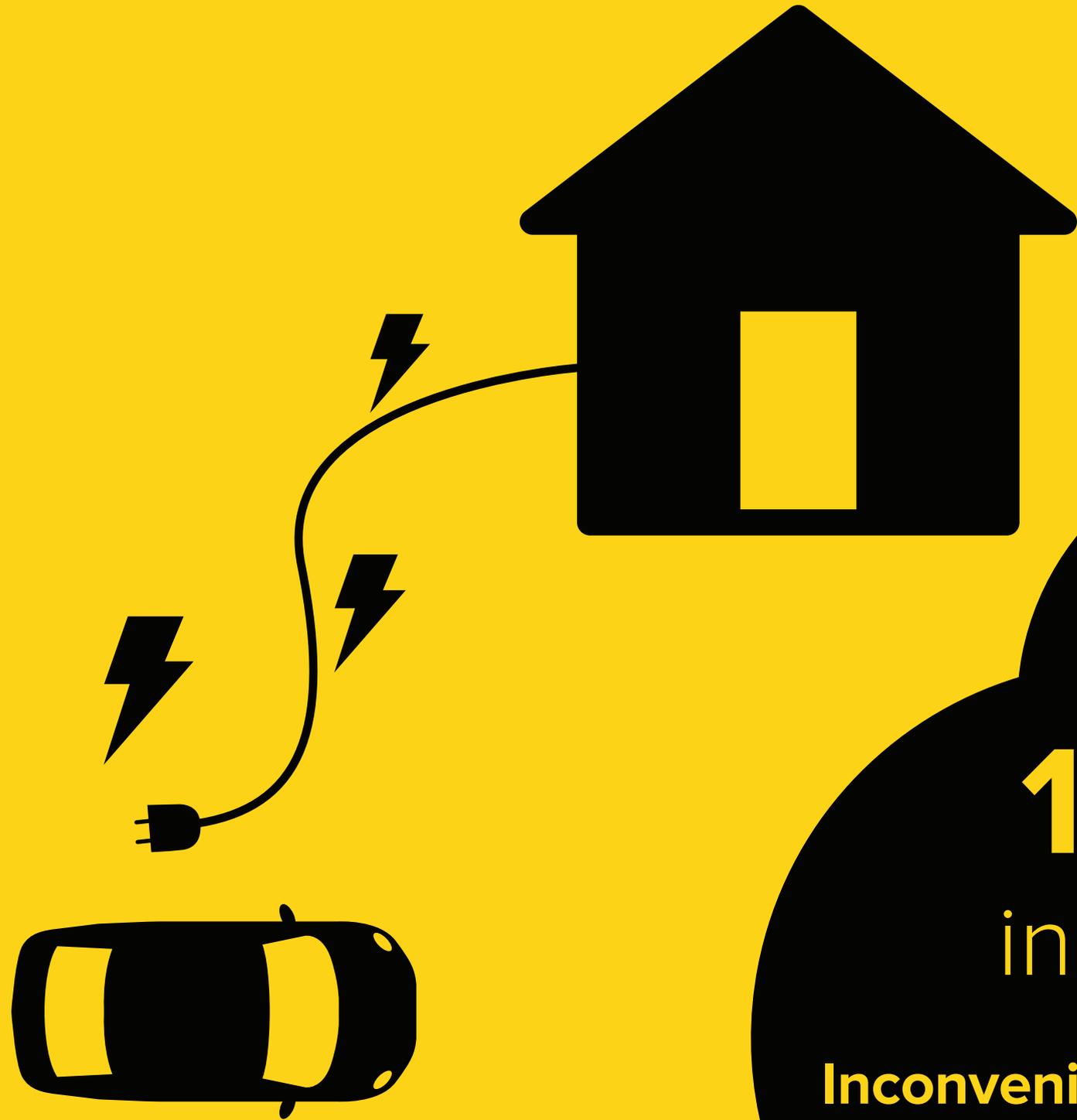
**vs.**

**36%**  
in 2019

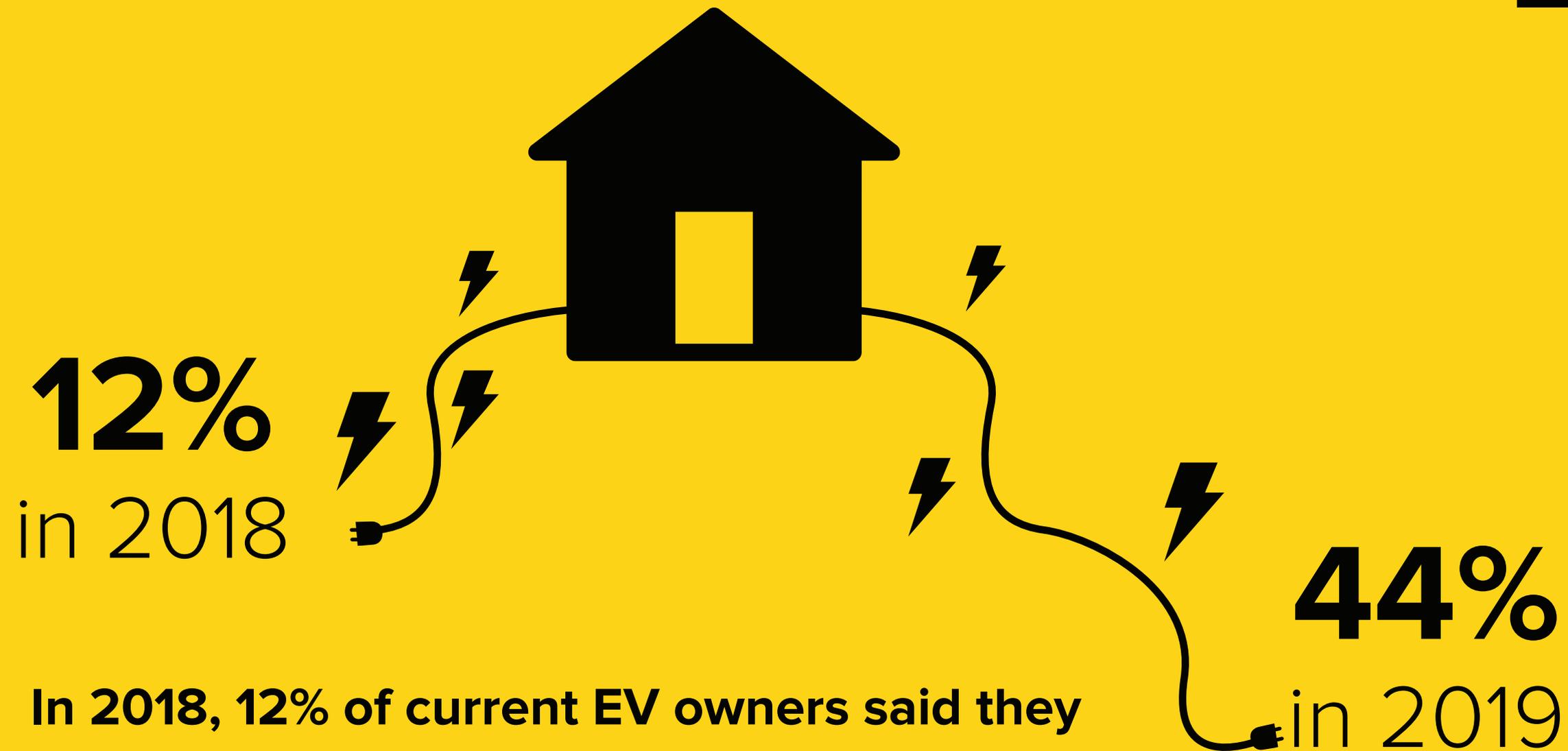
**Running out of a charge**

**21%** vs. **27%**  
in 2018 in 2019  
Time it takes to charge





**Current EV owners are  
taking charging matters  
into their own hands**



**In 2018, 12% of current EV owners said they had an EV charging station installed in their homes. That number rose to 44% in 2019.**

**Utilities can play a big  
role in overcoming this  
barrier to EV ownership**



**59%**

**of prospective EV owners' biggest expectation for their utility when it comes to EVs is for them to install charging stations at their home.**



**For now, charging is a  
great place for utilities  
to play in the EV world ...**

**... but the future of  
transportation may  
look very different.  
Let's dive into the  
Gen Z perspective**

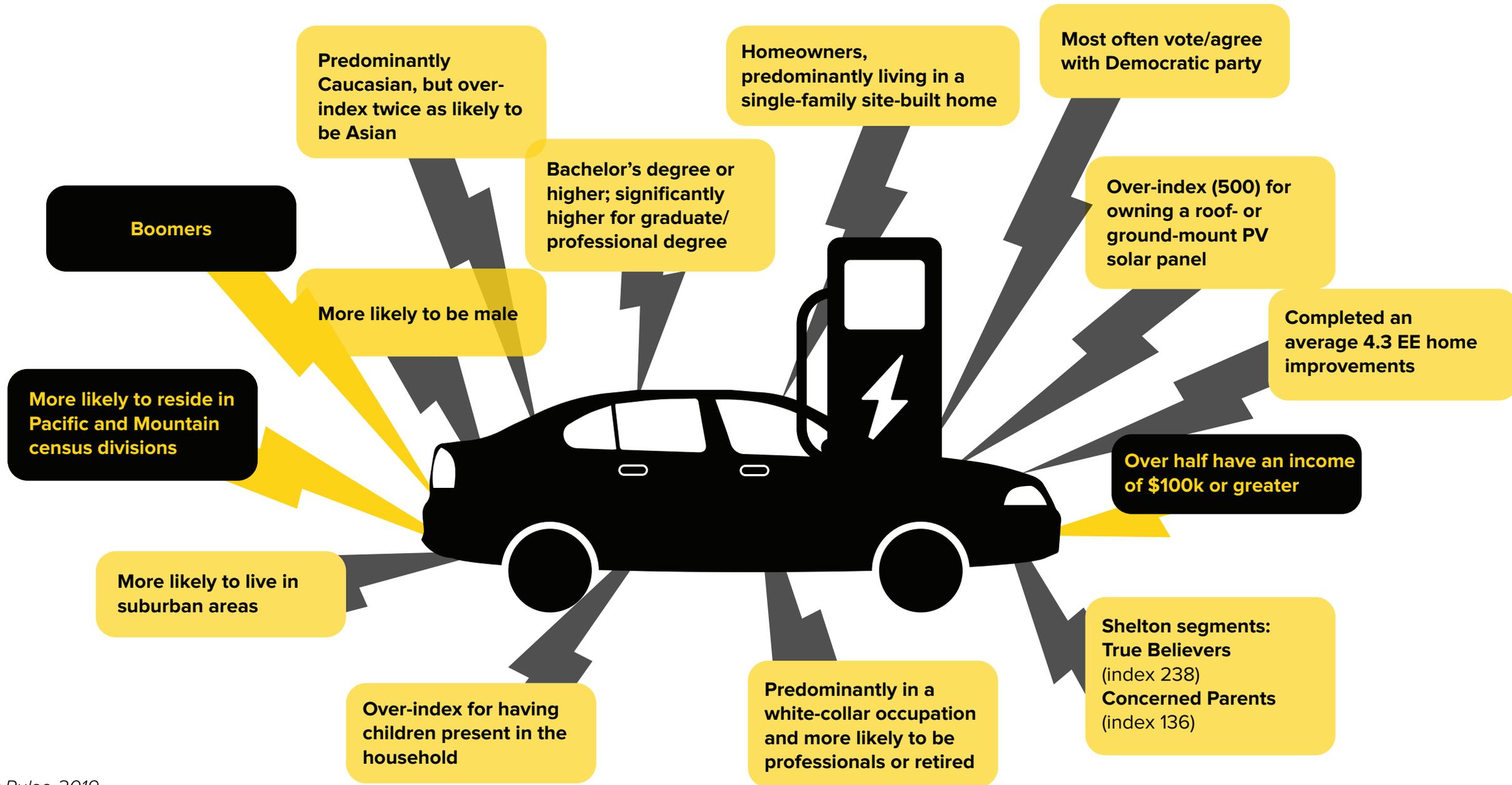
## Gen Z is comfortable with new technologies and doesn't value car ownership the way previous generations have

- Some 70% of Gen Z consumers do not have their driver's licenses, and while that makes sense considering the current age range of this cohort, 30% of this group has no intention or desire to get one\*
- Those who make up Gen Z do see autonomous vehicles as an eventual reality; some 60% of those we surveyed believe they will use autonomous vehicles by 2029\*

*\*\*How Gen Z Impacts Urban Mobility", Meeting of the Minds, By Marcus Gamo, Senior Vice President and Global Automotive Specialty Lead, Allison+Partners*

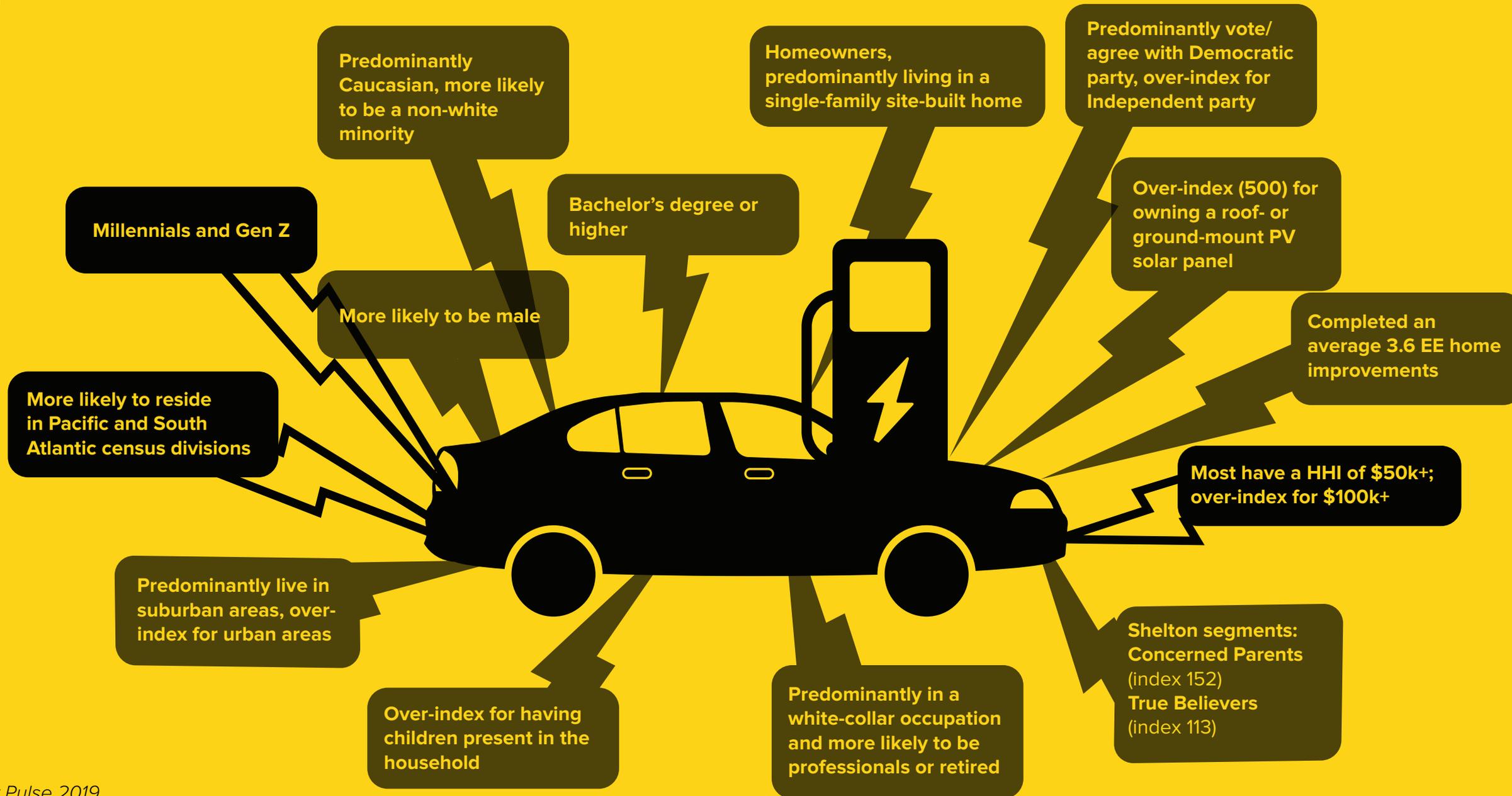


Current EV owners tend to be older and have higher incomes, and reside mostly in the west/NW ...



Source: Energy Pulse 2019

... while those currently considering owning an EV are from younger generations whose incomes are still growing and who live in a broader geographic area



Source: Energy Pulse 2019

So if a large number of potential EV owners are Gen Z, will they follow the same path to ownership as current owners (who are more likely to be Boomers)?

**Let's consider two  
"leapfrogging" trends that  
can shed some light ...**

# Leapfrog #1:

Veganism is the new vegetarianism (vegetarian is now just a step on the path to veganism)

↑ SmallKangaroo **vegan** 295 points · 4 months ago

↓ That's how I started. I went vegan as for the animals afterwards, but most people I know now are cutting their consumption down because of climate change

↑ themfbusinessbitch 92 points · 4 months ago

↓ I started vegetarian for the climate as well. I'm currently about halfway to vegan - I've cut out cheese, milk, honey, collagen. I'm weaning myself off of eggs right now and finishing off anything in my house that isn't vegan (so as not to waste)!

↑ 4thchaosemerald **mostly vegan** 5 points · 4 months ago

↓ Heck yeah, same here! I just have eggs left to wean off now. I think I'll keep honey in my diet (doctor recommended I actually *increase* my honey intake ((yikes))), but I'm only buying local now.

\*The rise of vegan teenagers: 'More people are into it because of Instagram', *The Guardian*, March 2017

\*\*Young people are driving the move towards meat-free dining, *Plant Based News*, MARIA CHIORANDO OCT 1, 2018

\*\*\*Gen Z is going all-in for vegan, *Gen Z Insights*, by John Wheeleron January 11, 2019

A recent article by **Food Revolution** pointed out that the number of vegans in the U.S. has increased by 600% in the last three years. Back in 2014, only 1% of Americans identified as vegan. However, statistics from last year showed that the figure had jumped to 6%.

The rise appears to be affecting markets throughout the nation. **Recent research** discovered that non-dairy milk sales had increased by 61% since 2012, with conventional cow milk seeing a decline.

Interestingly, an increasing amount of Americans (50%) now support a **ban on slaughterhouses** and a further 70% have **admitted** they are “uncomfortable with the way animals are treated for food”. Additionally, vegan diets have been recommended to help combat America’s increasing rates of **disease** and **obesity**.\*

\*Live Kindly, “VEGANISM IN AMERICA SOARS BY 600% IN JUST THREE YEARS”, Jemima Webber, 2018



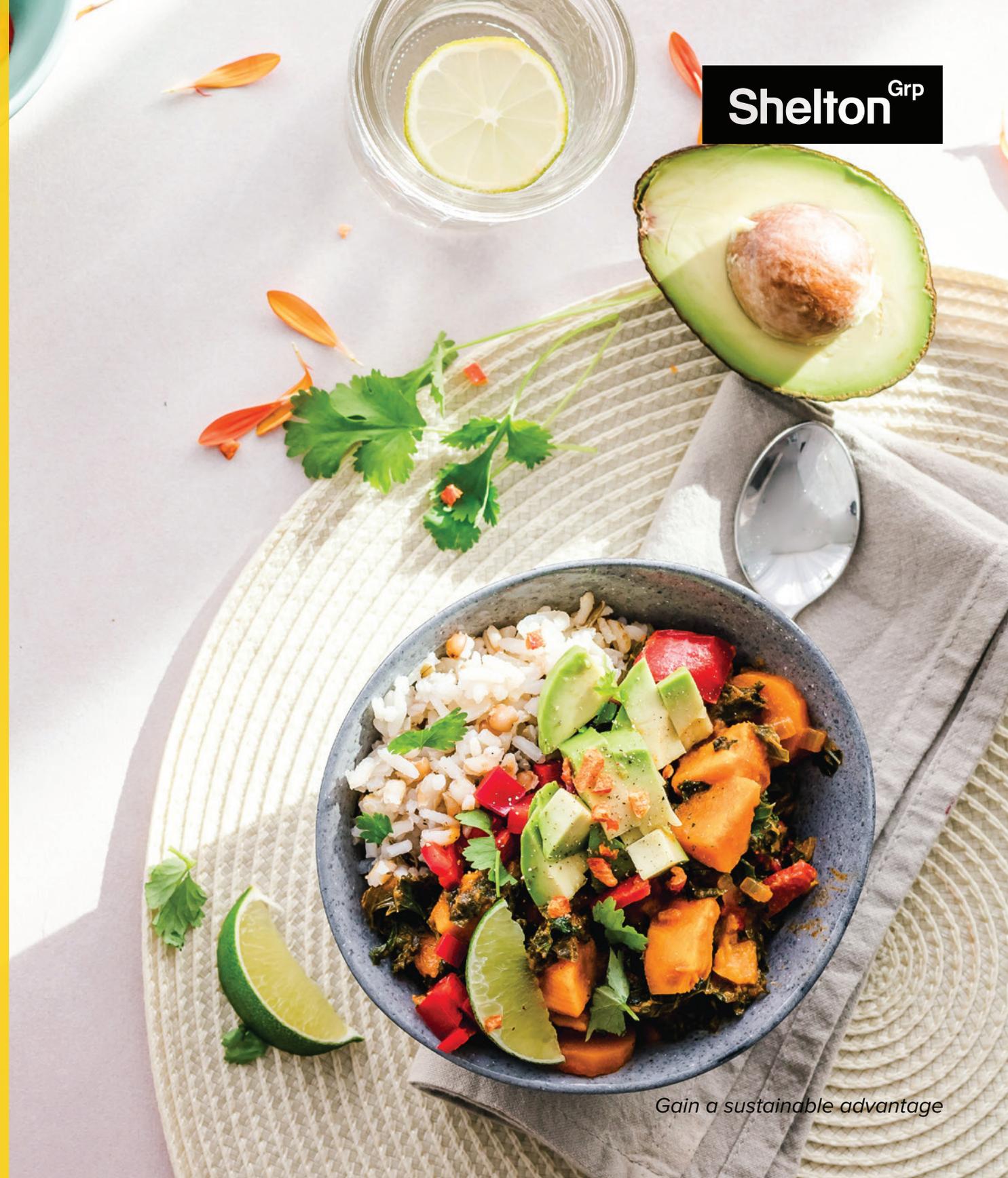


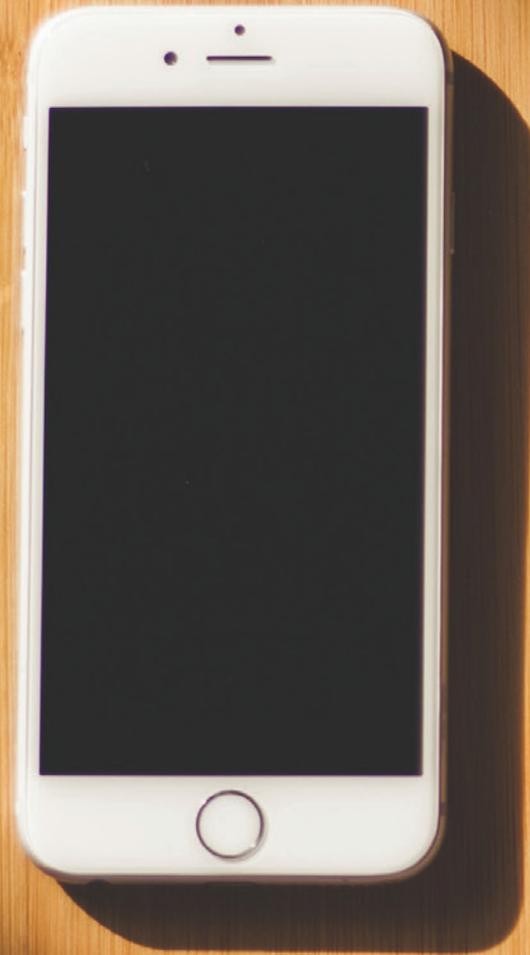
## Gen Z is displaying this attitude especially strongly

- “Almost half (44 percent) of Generation Zers say being vegan is cooler than smoking.”\*\*
- “Findings in the United States point to 79 percent of Gen Zers being “eager to go meatless” a few times a week, with 60 percent happily reporting they’re ready to make base their diets on more “plant-forward foods.”\*\*\*

\*\*Young people are driving the move towards meat-free dining, Plant Based News, MARIA CHIORANDO OCT 1, 2018

\*\*\*Gen Z is going all-in for vegan, Gen Z Insights, by John Wheeler on January 11, 2019





## Leapfrog #2:

**China skipped landlines in a form of technological leapfrog, which younger generations may do with hybrid and electric vehicles**

“A good example of this leapfrogging is cell phone technology in developing portions of Asia. Placing landlines all across China is time consuming and more financially burdensome than in somewhere like the US, so while Americans were using landlines, many Chinese folks didn’t have access to this type of communication tech. But, when the Chinese finally did start to get phones, they entirely skipped landlines and went straight to newer models of cell phones. Even though this tech leapfrogging has been viewed mostly in developing countries, I’d argue that it’s still happening on a lower level in developed countries.”\*

\*Inconveniently old, inconveniently new, The Foundation for a Better Economy Mar 20, 2019 | Emma Dahl Blog

**Hybrid and electric cars may suffer the same fate as vegetarianism (and landlines in China)... so the question is: will Gen Z leapfrog over EVs?**



**We're already  
seeing changing  
behaviors ...**



**Those considering an EV are already  
significantly more likely than current  
EV owners to have changed behaviors  
related to transportation**

## ... and shifting attitudes

Those considering an EV are even more focused on doing better for the environment than current EV owners are



**32%**

Considering EV



**28%**

EV Owners

**It seems like Gen Z  
will head down the  
path of EVs based on  
the current situation.**

**But ...**

**... could their path actually look quite different?**

**A couple of issues could derail them ...**

**What if we continue to hear that EVs may not be as good for the environment as we originally thought?**

# What if EVs don't actually reduce CO2?

“Autocar quotes Joachim Kunz, Mazda’s European head of product development, who said the solution [to make its first ever EV slow and low-range] was chosen in order to minimize the vehicle’s environmental impact (including the entire manufacturing process).

He expressed the company’s view that making and then running an EV with a large, 95 kWh battery pack, produces more CO2 than one of Mazda’s diesel cars across its lifetime (especially if its battery pack is replaced after 100,000 miles).”\*

\*InsideEVs, “Mazda’s MX-30 EV Is Deliberately Slow And Has Low Range On Purpose”, Jan 2020, By: Andrei Nedelea

# And what about the social impacts of cobalt mining?

## What's True

Child labor has been used in cobalt mines in the Democratic Republic of the Congo (DRC). Cobalt is a chemical element used to make rechargeable batteries.

## What's False

However, cobalt is not used exclusively for electric car batteries. This chemical element is also used to make the rechargeable batteries in phones, tablets, and laptops. Electric car manufacturers, such as Tesla and BMW, have started to use ethically sourced cobalt from areas outside of the DRC.\*

\*Snopes, *Are Child Miners Exploited to Manufacture Electric Car Batteries?*  
The use of child labor to extract cobalt from mines in the Democratic Republic of Congo is certainly a major problem.  
DAN EVON. PUBLISHED 27 NOVEMBER 2019



**Gen Z may shift from considering EVs to considering a whole new transportation paradigm that doesn't involve owning a vehicle ...**

# ...and take up new ways of thinking about transportation

- Autonomous Vehicles
- Walkable communities
- Telecommuting

# Utilities will need to innovate to be part of these new solutions going forward



## Utilities that can demonstrate how they're innovating to create meaningful, positive environmental change will be seen as partners on the road ahead for EV

As Gen Z rethinks transportation and car ownership, electric utilities will need to create and market electrification packages that help realize this new future. Utilities should:

- Make corporate commitments to decarbonize electricity through renewable generation and through programs like demand response
- Implement customer programs/rebates for going electric when possible (switching from natural gas to electric heat pumps, installing solar energy and/or energy storage, installing EV charging stations, etc.)
- Offer rate packages that bundle demand response, storage, and a special EV charging rate

**But the opportunity doesn't stop at utilities. Municipalities, city planners, and others with a stake in infrastructure will need to think big as well.**

If Gen Z rethinks transportation, and eschews car ownership, they'll also be thinking about where and how they live, work, and access services. Cities will need to build and market themselves around accessibility and sustainability (and mid-size cities, this means you too!). Some things to consider:

- Better public transportation systems, more bike lanes, and more walkability
- Spaces currently being used for parking and EV charging can be reallocated for other things
- Stores like pharmacies and groceries will need to be within walking distance of city residents
- Additional safety measures to protect those traveling by bike, on foot, on public transit, or using ride sharing



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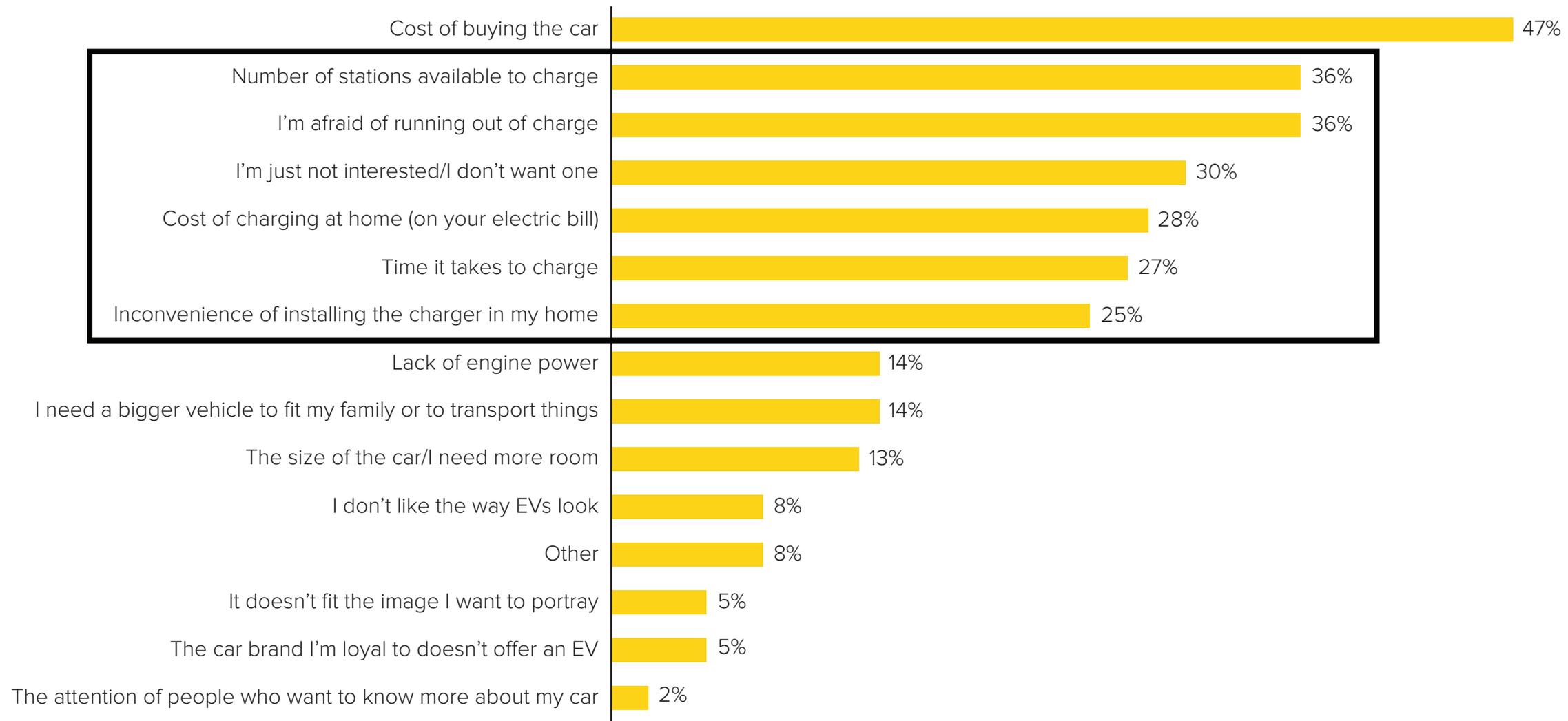
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# Appendix

For consumers who aren't considering purchasing an EV, range anxiety and charging concerns play a big part in the hesitancy toward purchasing an electric vehicle (only cost concerns are greater)

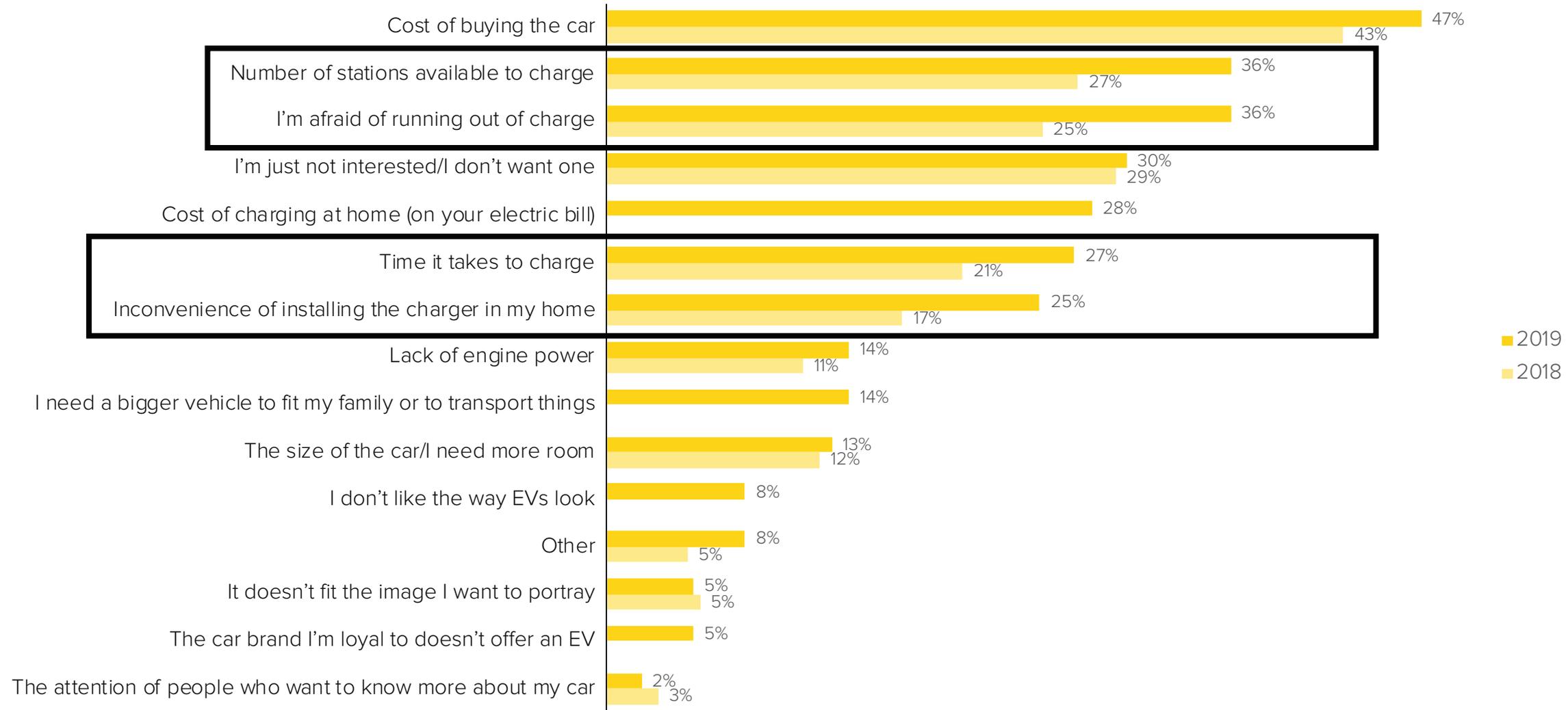


Source: Energy Pulse 2019

Why are you not interested in purchasing an electric vehicle?

n=1,679

And that's a growing concern from 2018 to 2019; it's likely consumers are more aware of EVs with each passing year, and are therefore more aware of these potential issues

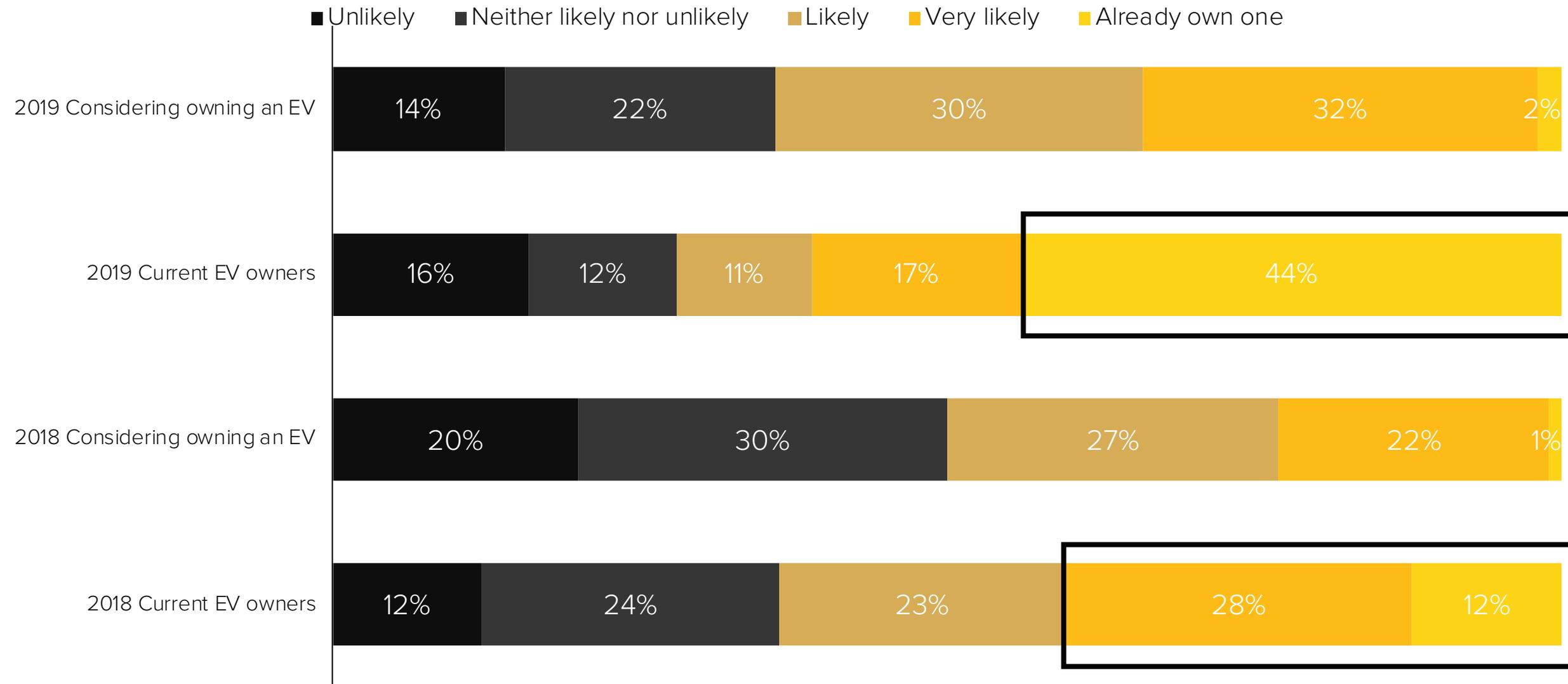


Source: Energy Pulse 2019

Why are you not interested in purchasing an electric vehicle?

n=1,679

# Current owners/those considering are more and more likely to install vehicle charging at home

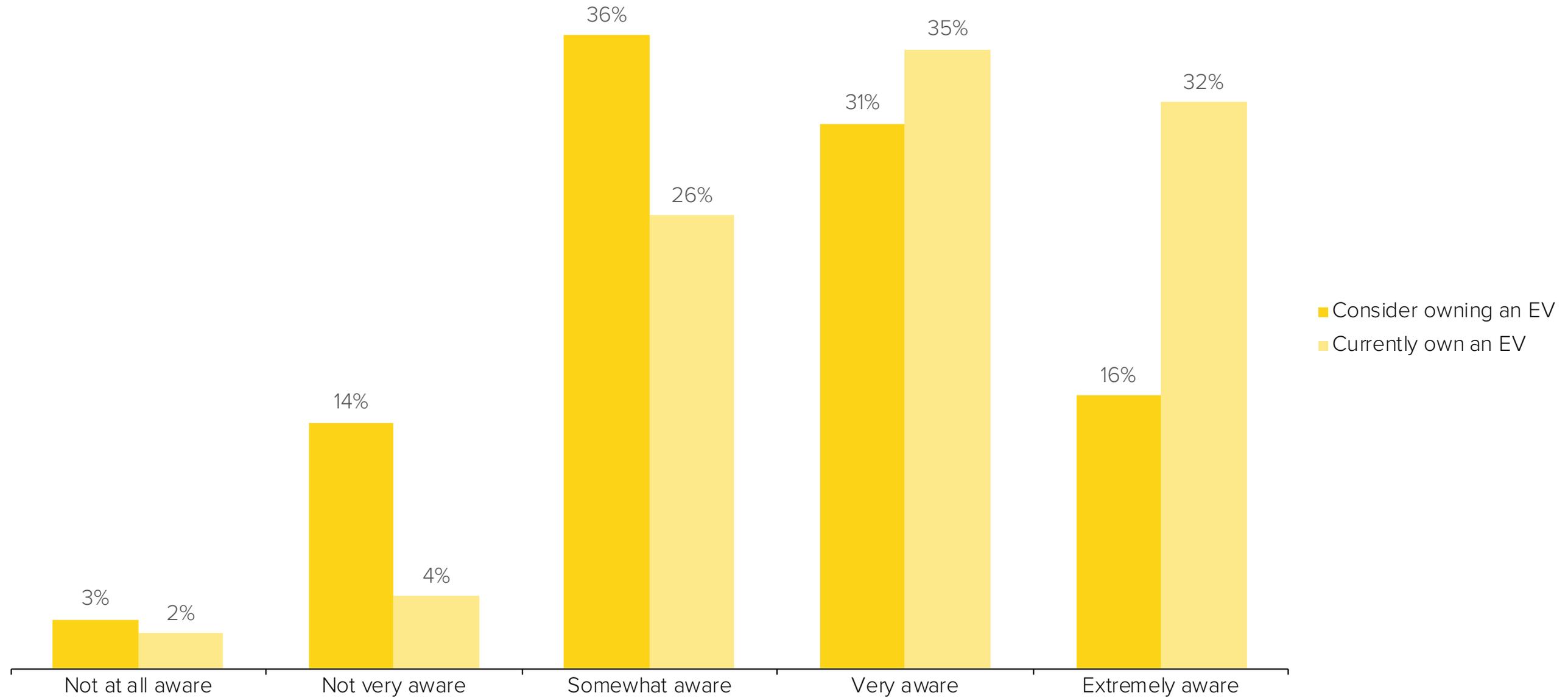


How likely will you be to have an electric vehicle charging station installed at your home in the next year?  
 (Asked of those who currently own or are considering owning an EV)

Source: Energy Pulse 2019

n=679

# Awareness of charging station locations is strong – especially among those who already own an EV

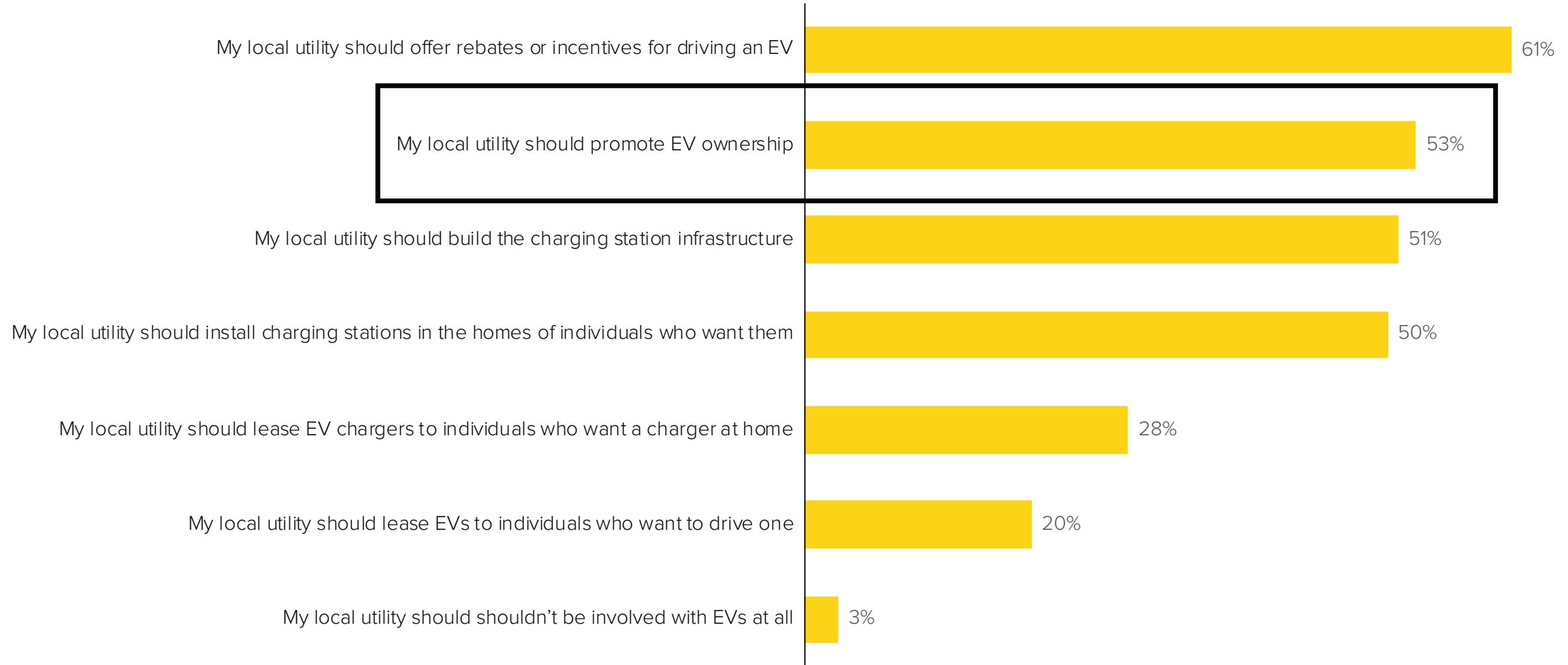


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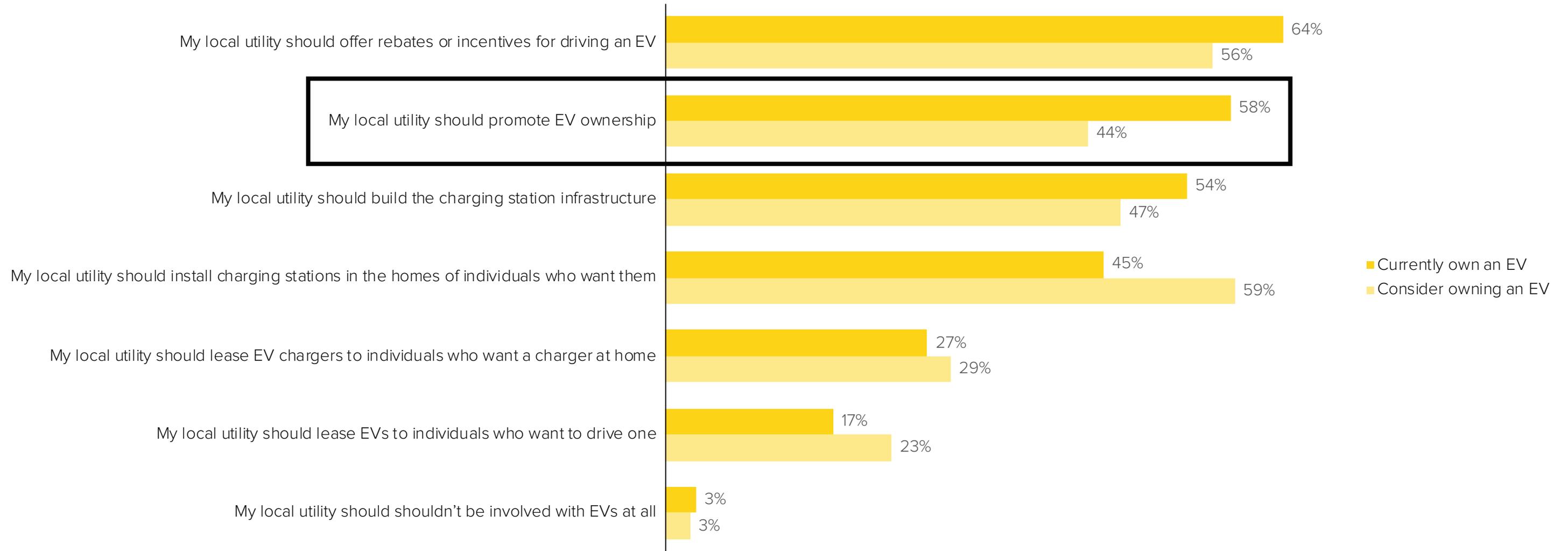
Source: Energy Pulse 2019

n=679

# Overall, those who own/are considering owning EVs have high expectations for how local utilities should be involved



# And while current EV owners want their utility to promote EV ownership ...

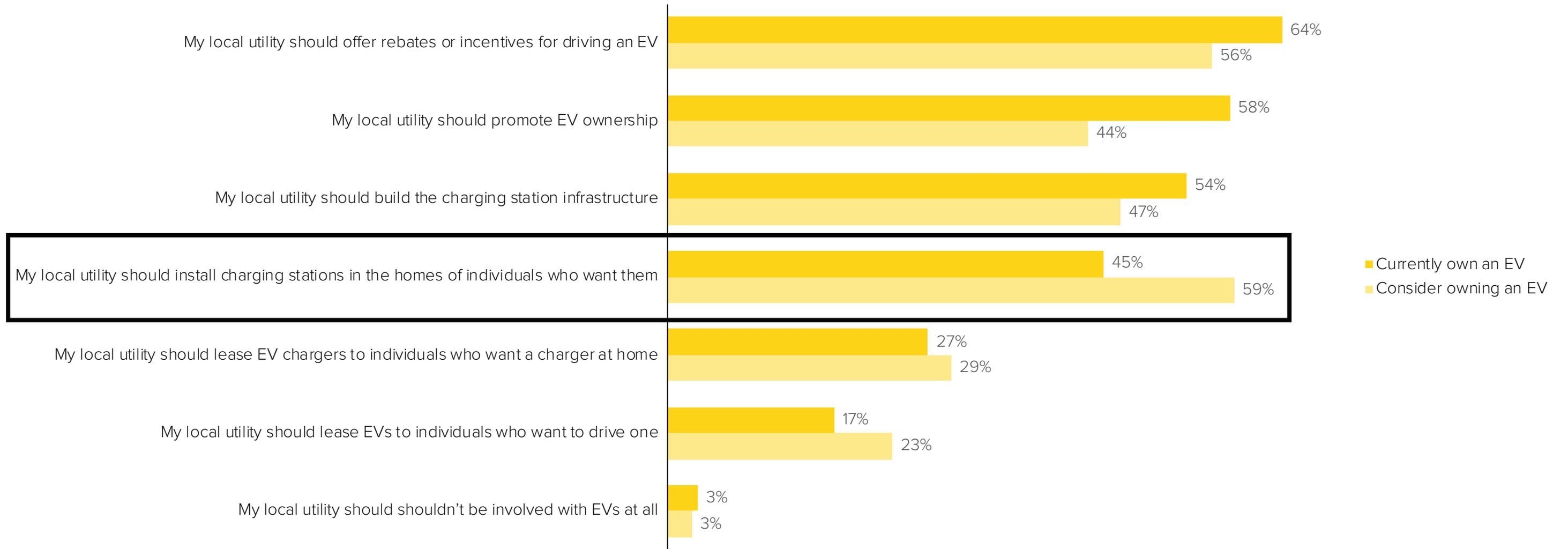


How should your local utility interact with EVs?  
 (Asked of those who currently own or are considering owning an EV)

Source: Energy Pulse 2019

n=679

# ... prospective owners' biggest expectation for their utility is for them to install charging stations at their home

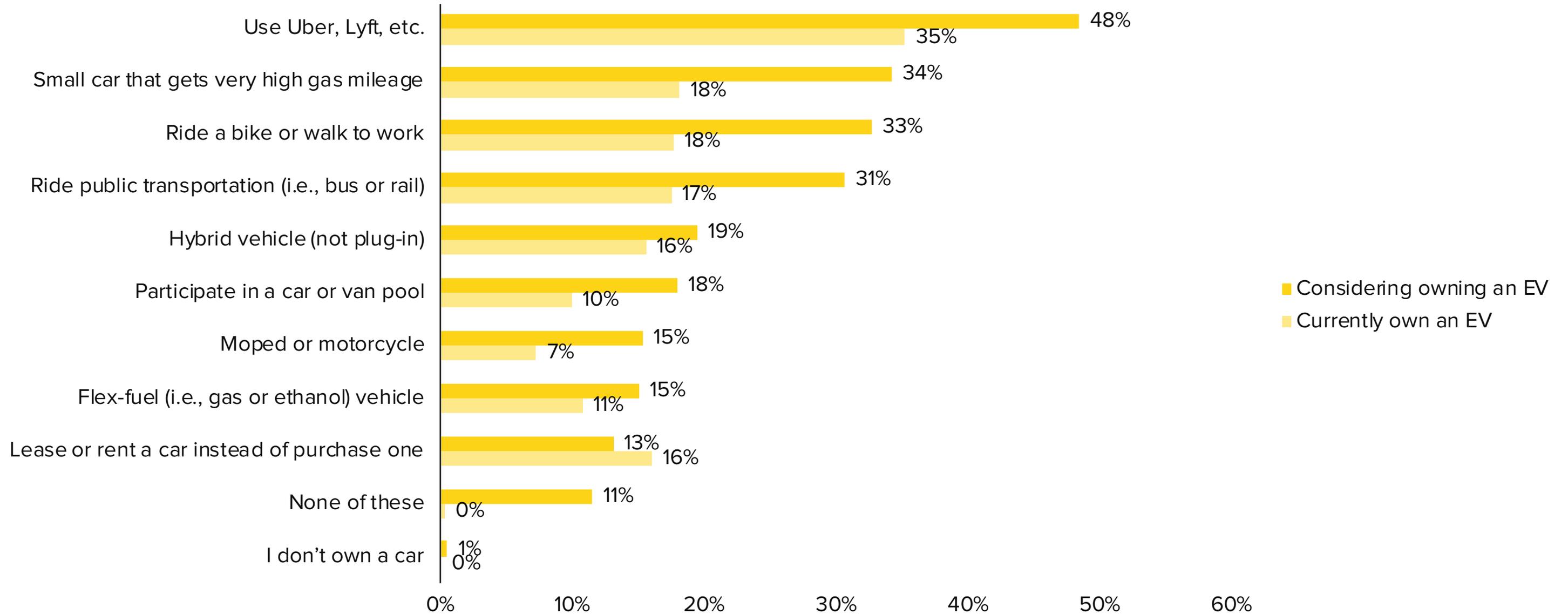


How should your local utility interact with EVs?  
 (Asked of those who currently own or are considering owning an EV)

Source: Energy Pulse 2019

n=679

# Those considering an EV are already significantly more likely to change behaviors related to transportation

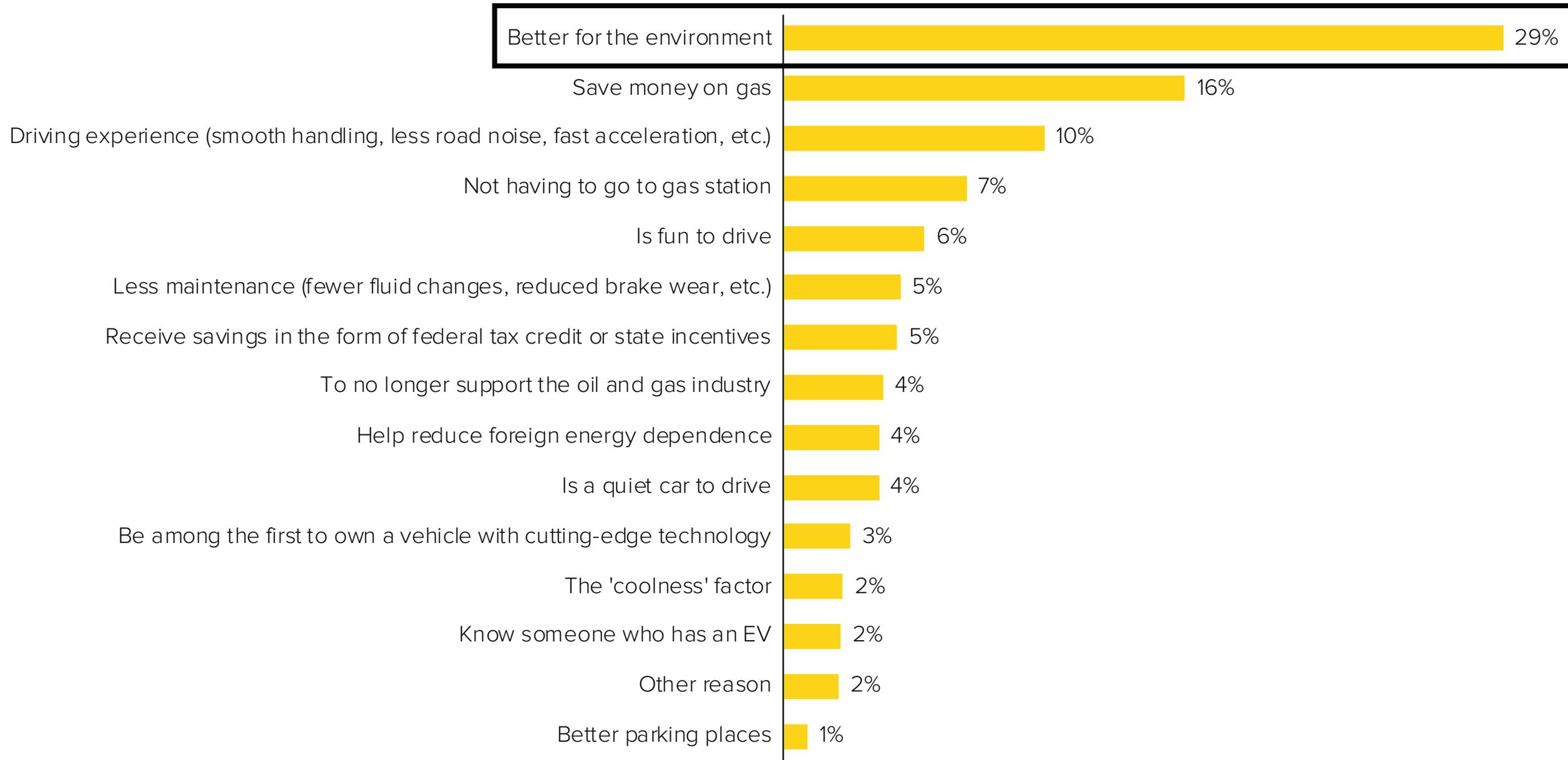


Source: Energy Pulse 2019

Please check any of the following that you already own/do regularly.

n=423 (own)  
n=256 (considering)

# Electric vehicle owners want a better environment

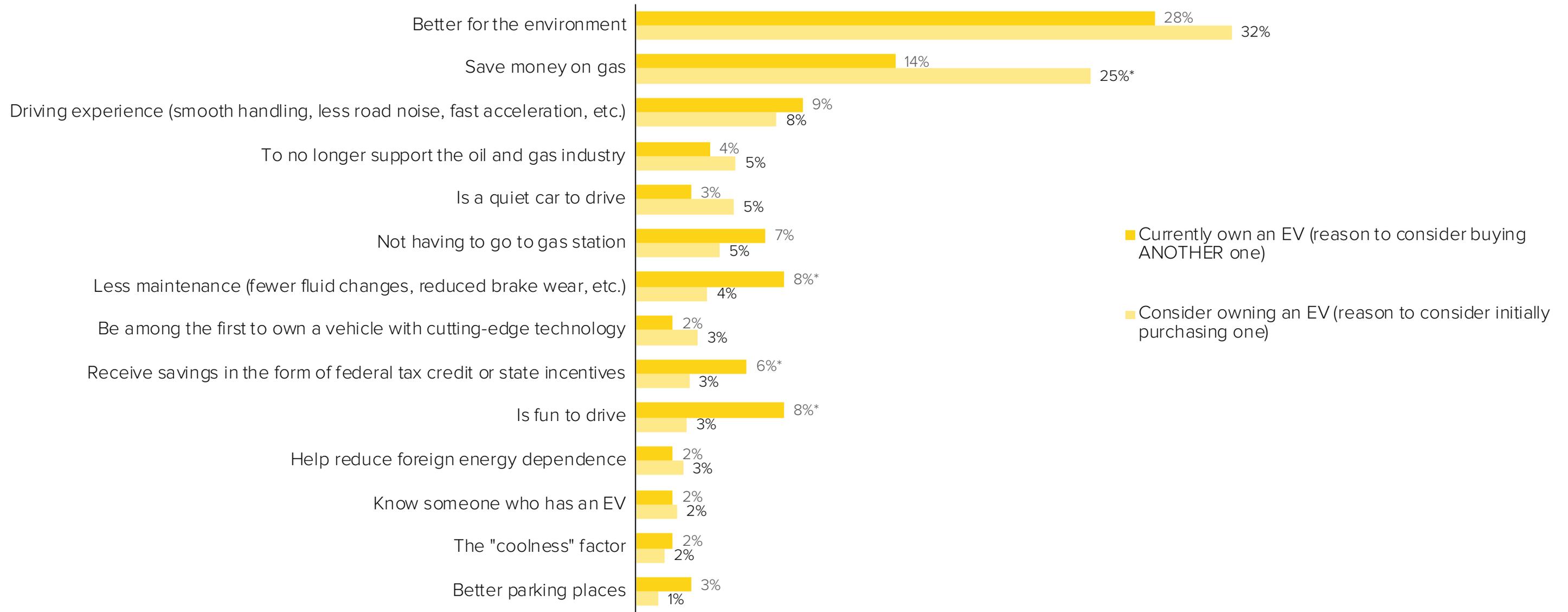


Please rank the top three (3) reasons why you currently own an electric vehicle? - Ranked Number One  
(Asked only of EV owners)

Source: Energy Pulse 2019

n=423

# Those considering an EV are even more focused on doing better for the environment than current EV owners are

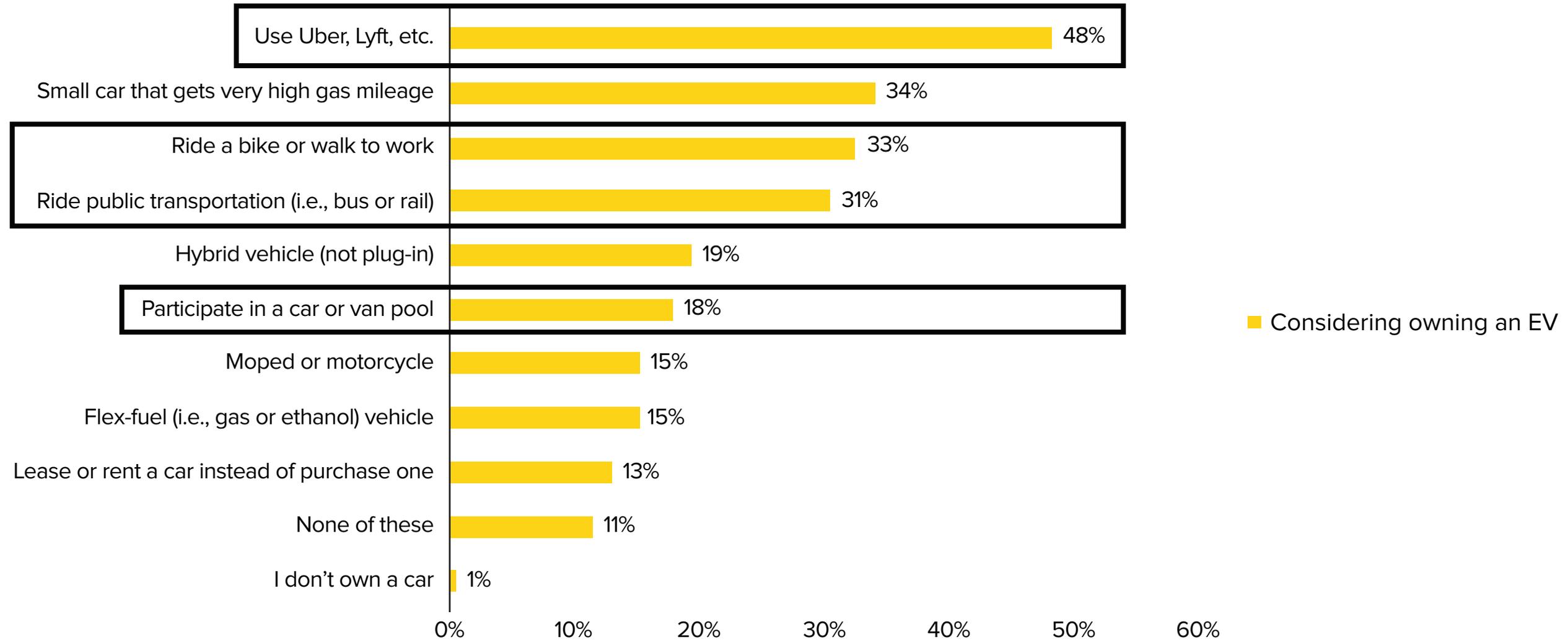


Source: Energy Pulse 2019  
 \*p<=.05 statistically significant

What are the top three (3) reasons you are considering owning/buying another electric vehicle? - Ranked Number One

n=679

# Younger generations might choose ways to abandon car ownership/driving altogether ...



Source: Energy Pulse 2019

Please check any of the following that you already own/do regularly.

n=423 (own)  
n=256 (considering)