STRATEGIC VISION

January 2019

# BEVS: THE CUSTOMER STORY

Know Your Customer. Shape Your Future.™

Prepared For:

# BRIEF SUMMARY

Purpose and Main themes of BEV Customer Story Research

# PURPOSE

Using a systematic approach of who the BEV buyers are, what they need and desire and how their priorities have an impact on their experience is essential in making future decisions.

## What is the current relationship between a BEV owner experience and future actions?

To conduct analysis into who the BEV buyers are today, how they go about the process of purchasing a BEV along every stage of the Decision Path that ultimately leads to future BEV loyalty or abandonment of the BEV powertrain.

Recommendations for future study and analysis will be made as questions arise from the responses from the most recent BEV owners.

This presentation is the first review of the available data and it is expected that additional analysis and direction will be provided to focus on a couple of key issues that arise from this work.

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# KEY OBSERVATIONS

Currently the majority of people who are in BEVs are “better” than the rest of the population. They have more education, wealth and opportunities.

However many of these better people still have some difficulties remaining loyal to the BEV powertrain.

## BEV owners love the product, but there are many compromises that are made

BEVs are out of reach for most US buyers. While many aspire to own a BEV for reasons ranging from making a Green choice to best in class Performance, the barriers to get into and then stay with a BEV are still very difficult for most.

Range is still an issue. Even with more vehicles offering greater range, what is offered when compared to ICE range and refuel locations/duration is still significant and cause many to have to look elsewhere.

Price isn’t a reason to get into a BEV – but it can keep most US new vehicle buyers out of the category. It isn’t just the monthly payment but also includes a wide assortment of other things from new taxes to home charging system costs.

The key advantage of BEVs is the engine performance that ranges from quietness to powerful torque and acceleration. It is this advantage that will lead to future conquest and loyalty.

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# VALUECENTERED PSYCHOLOGY®

A model of consumer behavior and decision making

# NEW VEHICLE EXPERIENCE STUDY (NVES)

**New Vehicle Experience Study (NVES): An integrated, comprehensive study of both the customer and the vehicle experience, based on ValueCentered® Theory.**

8-page online and mail survey covering all parts of the purchase and ownership experience (delivery).

- Four-page additional follow-up questionnaire (consumer values, brand image, etc.)

Data surveyed continuously and year round.

- Model year study that begins in October and ends in September.

Average annual sample of 200,000+ new vehicle buyers (vehicles can be examined at the series or trim level).

- Customer vehicle ratings happen at 90 days in ownership.
- Over 250,000 annual customer verbatim statements on why they purchased and rejected the vehicles they shopped!

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# NEW VEHICLE EXPERIENCE STUDY (NVES)

**New Vehicle Experience Study (NVES): An integrated, comprehensive study of both the customer and the vehicle experience, based on ValueCentered® Theory.**

NVES Data used in the report cover 2014 - 2018.

This includes the following sample sizes:

| | |
|---|---|
| Battery Electric (BEV): | 12,000+ |
| Hybrid: | 25,000+ |
| Plug-In Hybrid: (PHEV): | 12,000+ |
| Hydrogen: | 250+ |

The full NVES sample size is over 850,000 new vehicle owners.

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# CUSTOMER STORY: BEYOND THE NUMBERS

NVES provides an opportunity for customers to talk about the things that truly matter to them – and they take advantage of this opportunity with important and often strategic insight.

““Re: My 2017 Chevrolet Volt: ***The EV Hybrid Powertrain Technology is EXCEPTIONAL***. The ***New Battery Technology, The Newly designed Internal Combustion Engine, and the Newly designed Transmission are Impressive !!*** They work extremely well. ***Very Happy with these***. ***Virtually all the other pieces of technology in this vehicle are utter disappointments***. The infotainment/Navigation system is extremely disappointing! (Way too many reasons to list here but it is obvious Chevrolet has decided not to invest resources in this accessory). As a category the ***"new" semi autonomous driving aides are a big disappointment***. For example the auto high beams feature has never worked properly, the side mirror warning system is ***untrustworthy*** (even the owners manual warns that it can err ... say what!), the Paddle Regen Feature (which I love) doesn't indicate when (or if) it applies the brake lights when engaged ( a ***safety issue*** for following vehicles since applying the Paddle Regen can decelerate the vehicle as quickly as applying the brakes) There is also the ***unexpected and frightening (and fortunately inaccurate)*** imminent collision warning light that is flashed onto the windscreen. ***I call it the 3 seconds till you die light***. This has activated 3 or 4 times in the last 3 months! And the ***very long list of disappointments, sadly, goes on and on***!”

*2017 Volt owner who Considered a Ford Fusion & Disposed a BMW 7-Series*

*Male, $300KHHI*

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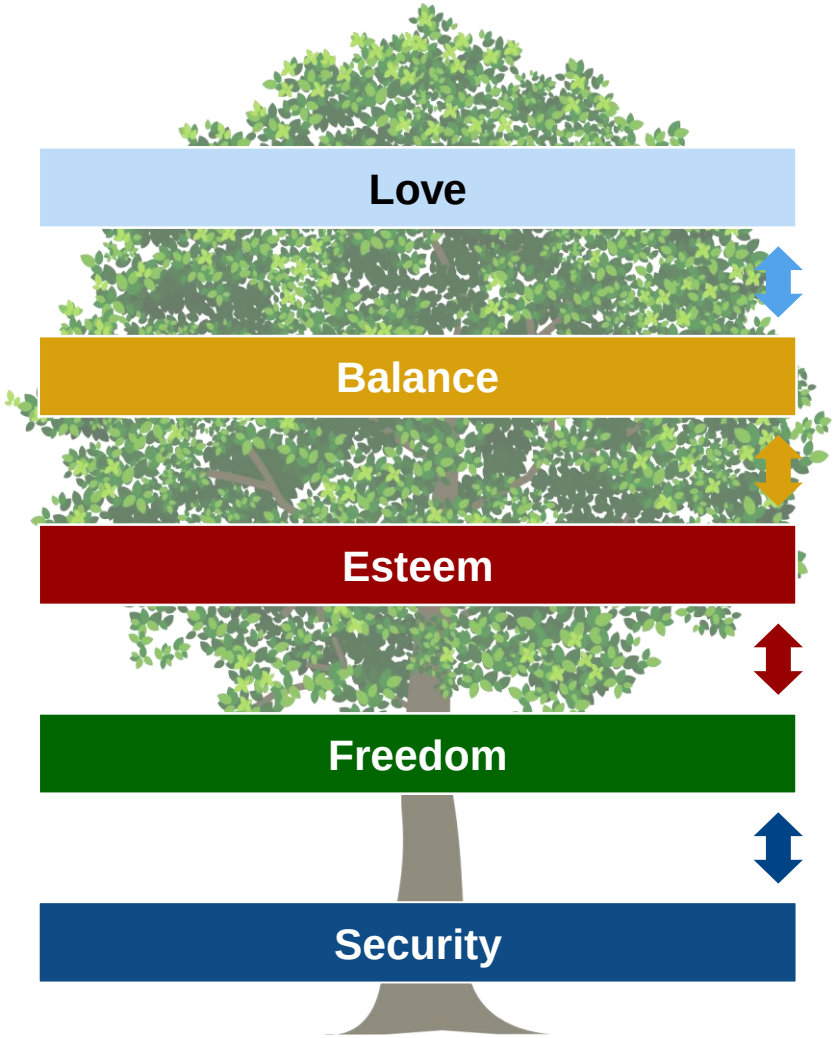
# VALUE/EMOTIONS – RULES FOR LIFE




**There are many ways that we talk about our Values and Feelings; however, there is an organization to those expressions.**

Our Autonomous Hierarchical Tandem Cluster procedures discovered four major groups that describe different but interrelated Values and Emotions interconnected by a fifth (Love).

1. First, there must be a sense of Security and Trust – this is the root of personal values.
2. If there is Security, we want to be Free to do what we want and be Free from hassles – giving us a sense of Freedom.
3. With Security and Freedom, we can then achieve Esteem (pride in our choice, fun and feelings of success).
4. And once we have achieved Esteem, we then strive to achieve Harmony or Balance among the various of aspects of our lives.
5. With adequate development you can identify which of the four baseline Value/Emotions is key and can see how completely programs are Loved.

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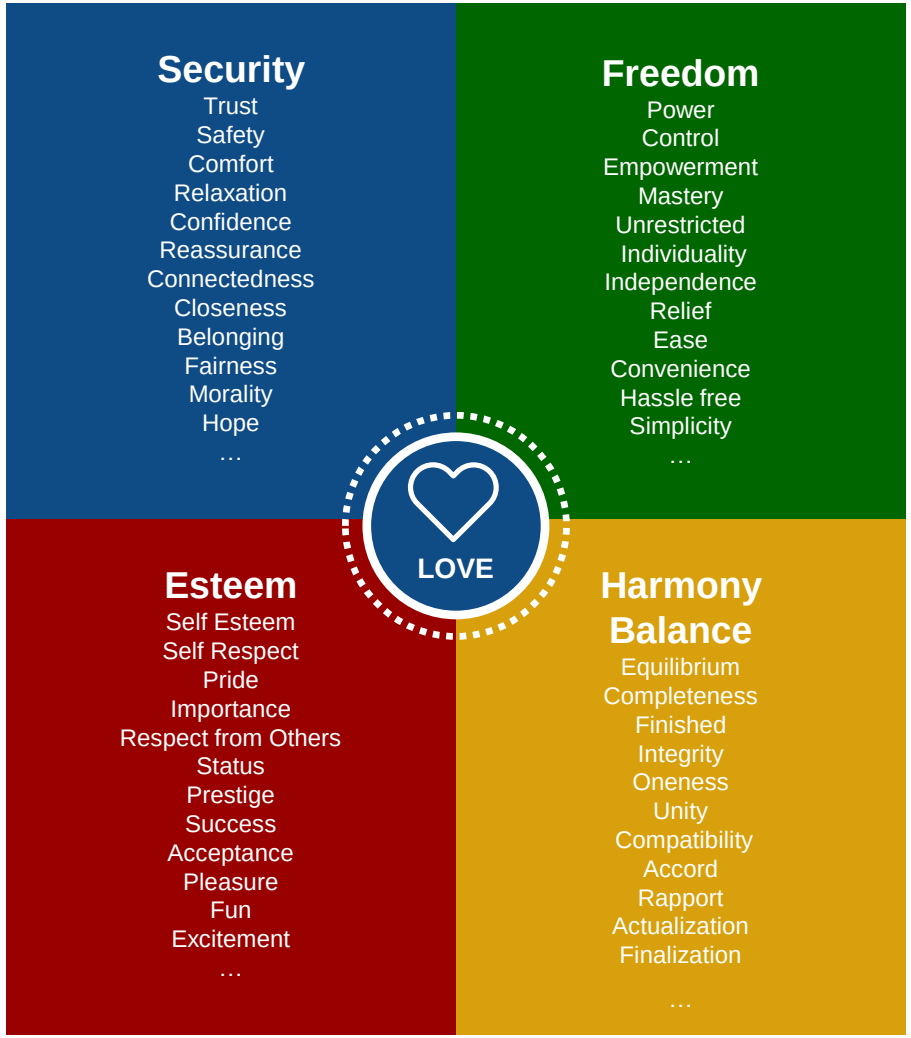
# THE VALUECENTERED MATRIX™




We have identified 276 common ways decision-makers worldwide express their Values and Emotions.

In addition, our Autonomous Hierarchical Tandem Cluster procedures identified five (5) key aspects of Values and Emotions that determine the importance of a decision:

- ✓ **Modality** – what exactly are the key elements in the decision?
- ✓ **Content** – are the right Values/Emotions expressed in the decision?
- ✓ **Structure** – are the Values/Emotions clearly connected to the decisions?
- ✓ **Priority** – how important are the associated Values/Emotions?
- ✓ **Intensity** – how strongly are the Values/Emotions expressed

Strategic Vision always measures these aspects of the decisions that are being made.

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# THE EDWARDS COMMITMENT SCALE

**In NVES, this seven-point super-ordinal scale uses words and phrases often expressed by consumers as they describe how they feel about an experience.**


**Proven in multiple categories (from automotive to health care to political voting) the Commitment Scale is the most accurate quantitative tool in predicting Advocacy (how consumers share), Sales (conquest) and Loyalty (actual future behavior).**

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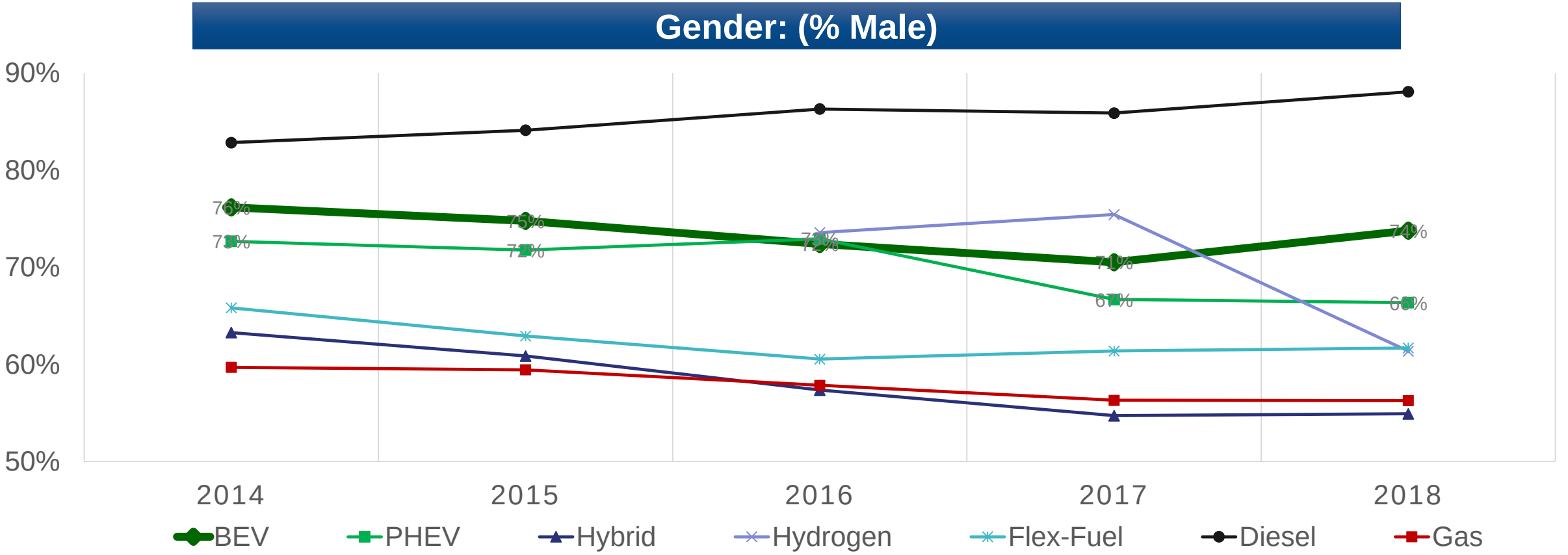
# BEV DEMOGRAPHICS

Who are the characters in the current EV story

# DEMOGRAPHICS: GENDER

**BEVs (as most all alternative powered vehicles) have a significantly higher incidence of male buyers/drivers.  Hybrids skew slightly toward more female buyers**

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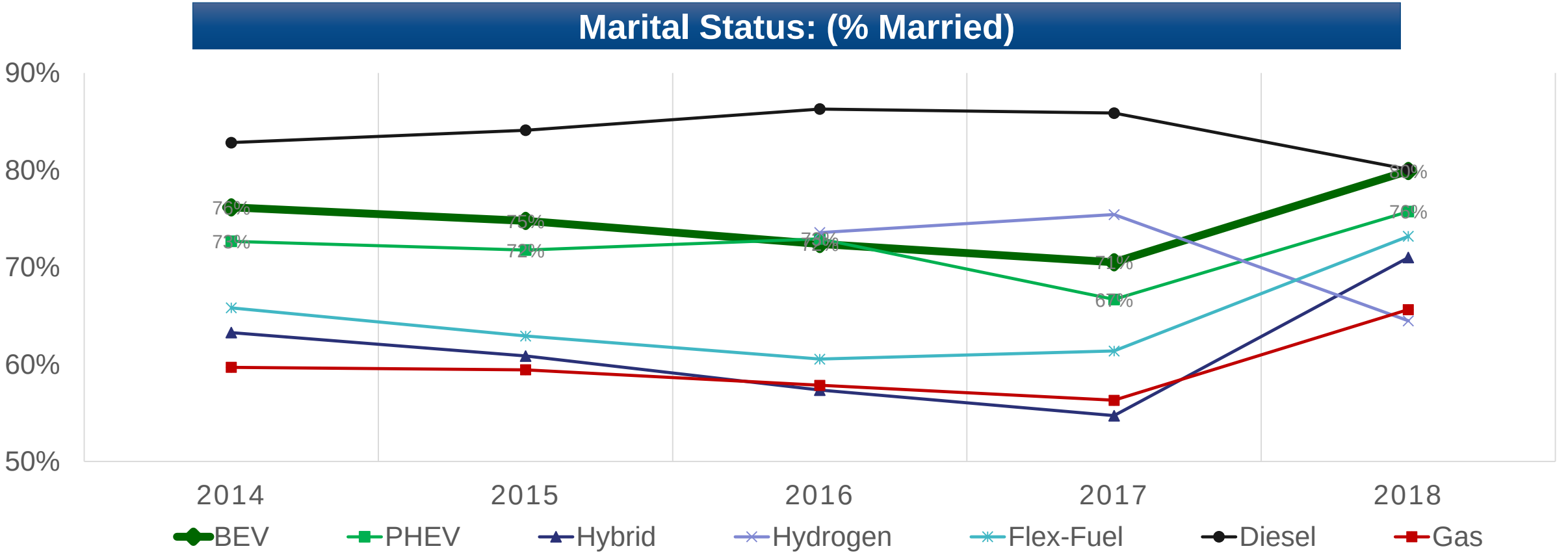
# DEMOGRAPHICS: MARITAL STATUS

**BEVs are more often purchased by married couples. In 2018 there was a significant increase with most new vehicle buyers being married.**

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# CUSTOMER STORY: MARRIED PEOPLE

Implications:

If you sell an EV to one spouse, you may set up a sale for the other.

"My wife and I each leased a BMW i3. It was a major victory for me to convert her to the BMW brand. I got her to switch from her previous brand of car to BMW because of the electric engine. Way to go BMW. Now when I have to drive her car, I get to drive a BMW just like mine!"

*2017 BMW i3 Base owner, Disposed a BMW 7-Series*

*Male, 66 years, $500K HHI*

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# CUSTOMER STORY: MARRIED PEOPLE

Implications:

Both spouses may be driving the same vehicle and features should allow for what is important to both drivers.

"I bought the hybrid for the 46-49 MPG and it delivers.  Both my wife and I love driving the car - even more than our 2006 Avalon. Except for the limited hauling ability, the Honda Accord Hybrid has exceeded our expectations."

*2017 Honda Accord Hybrid EX-L Sedan (4-Cylinder) Owner*

*Most Seriously Considered a Toyota Prius*

*Male, 72 years, $175K HHI*

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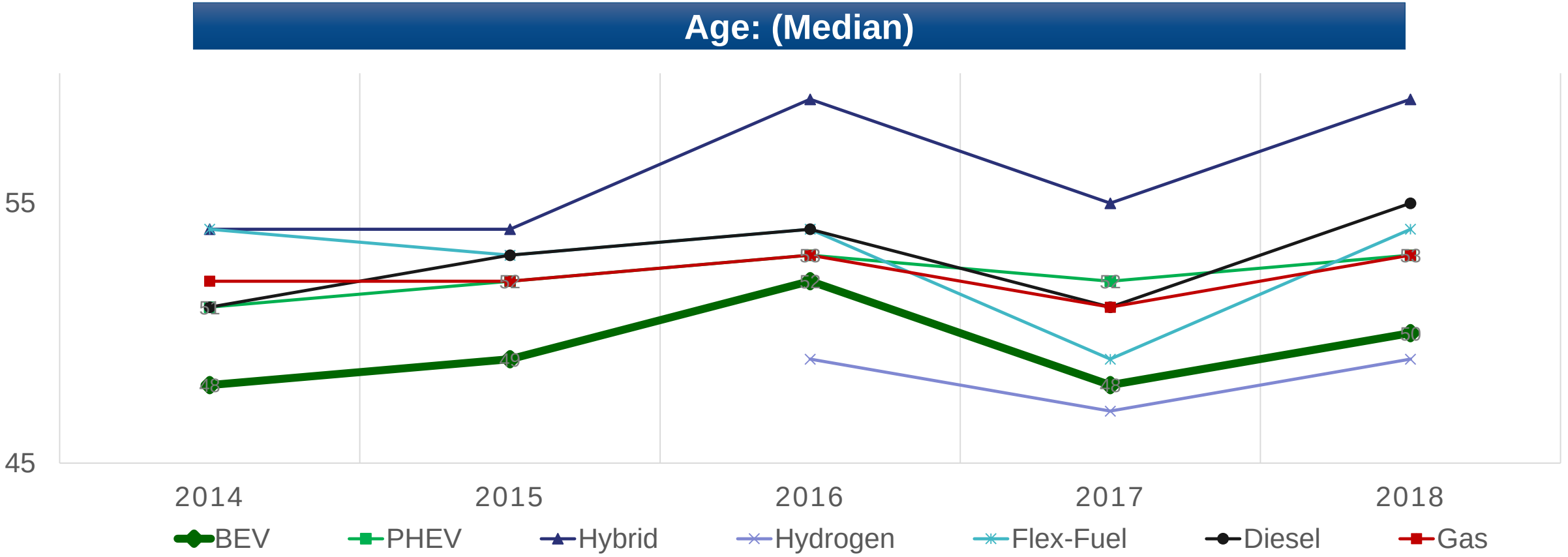
# DEMOGRAPHICS: AGE

**BEVs owners are younger than most other new vehicle buyers.**

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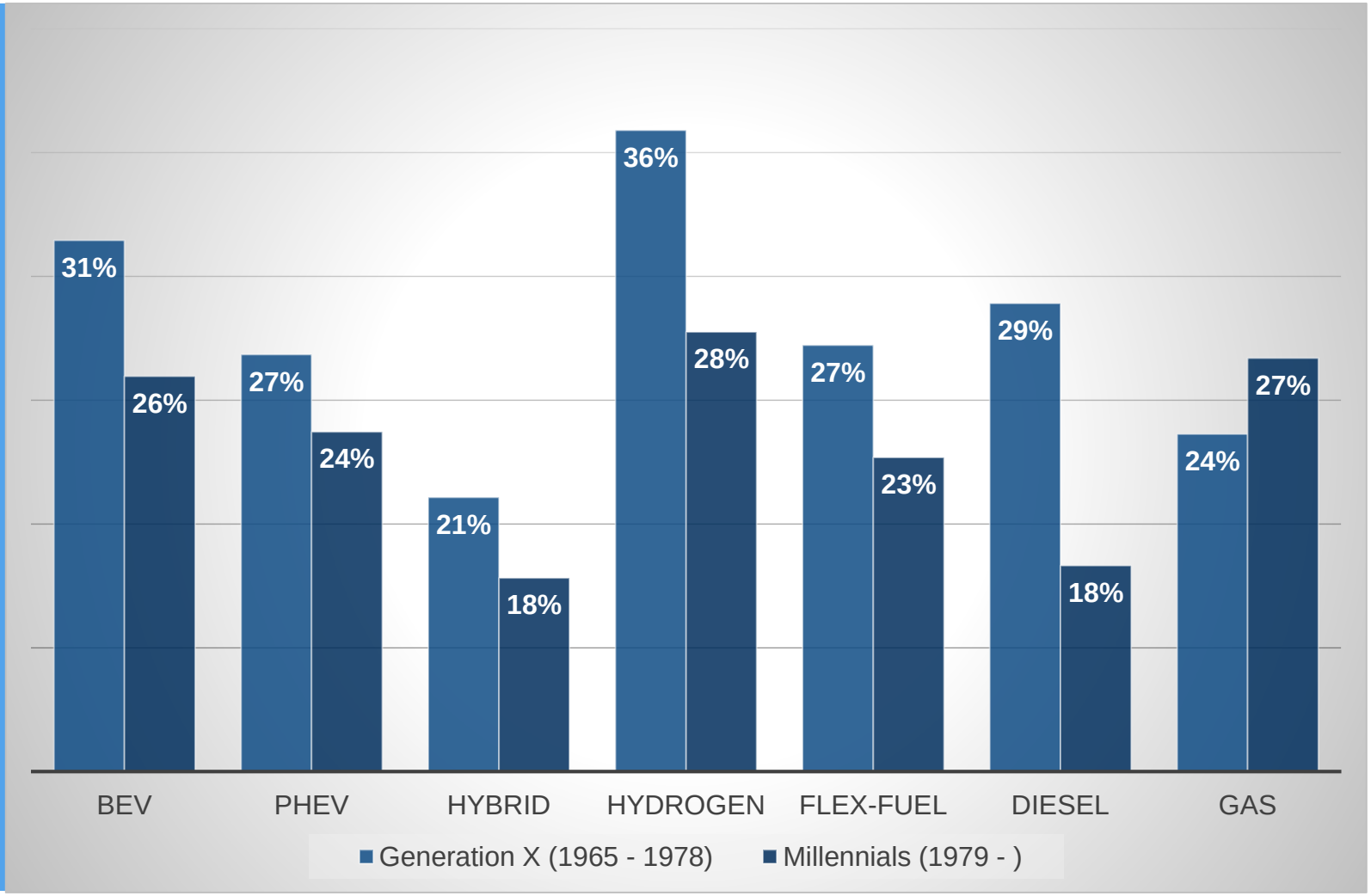
# DEMOGRAPHICS: AGE – GENERATIONS

It is Generation X that is purchasing BEVs and not an larger proportion of Millennials.

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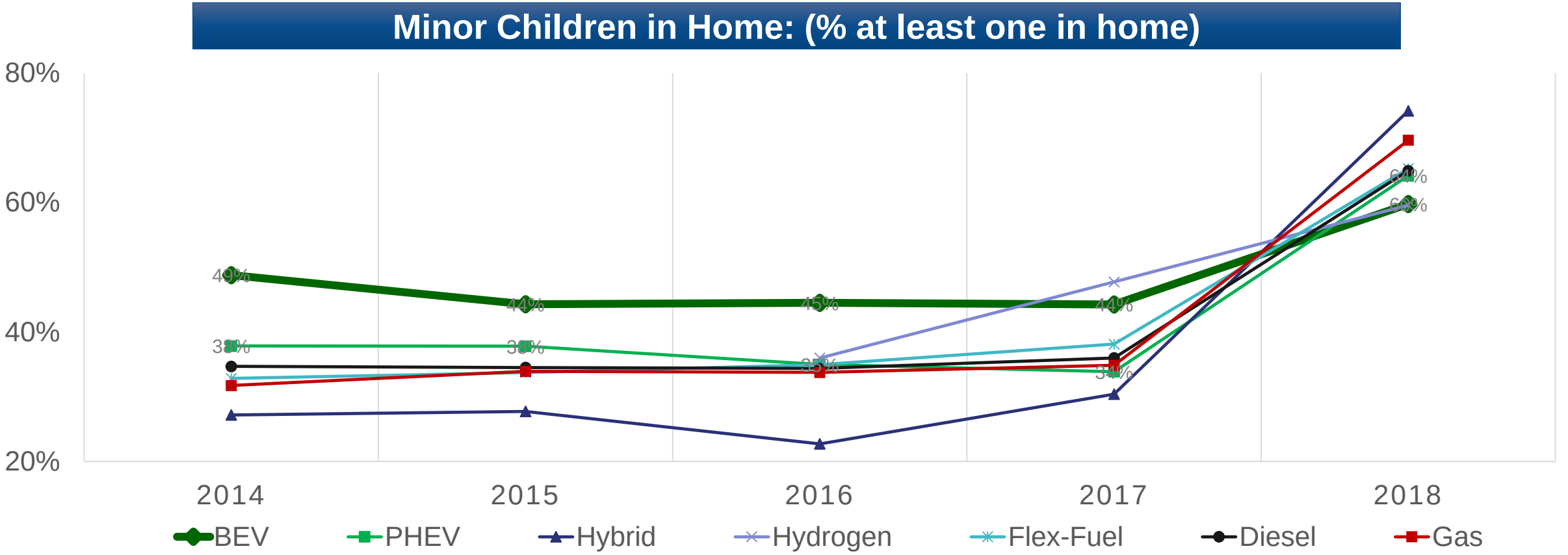
# DEMOGRAPHICS: MINOR CHILDREN IN HOME

**With the rise of married couples, it should come as no surprise that there is also a rise in homes with minor children in the home.**

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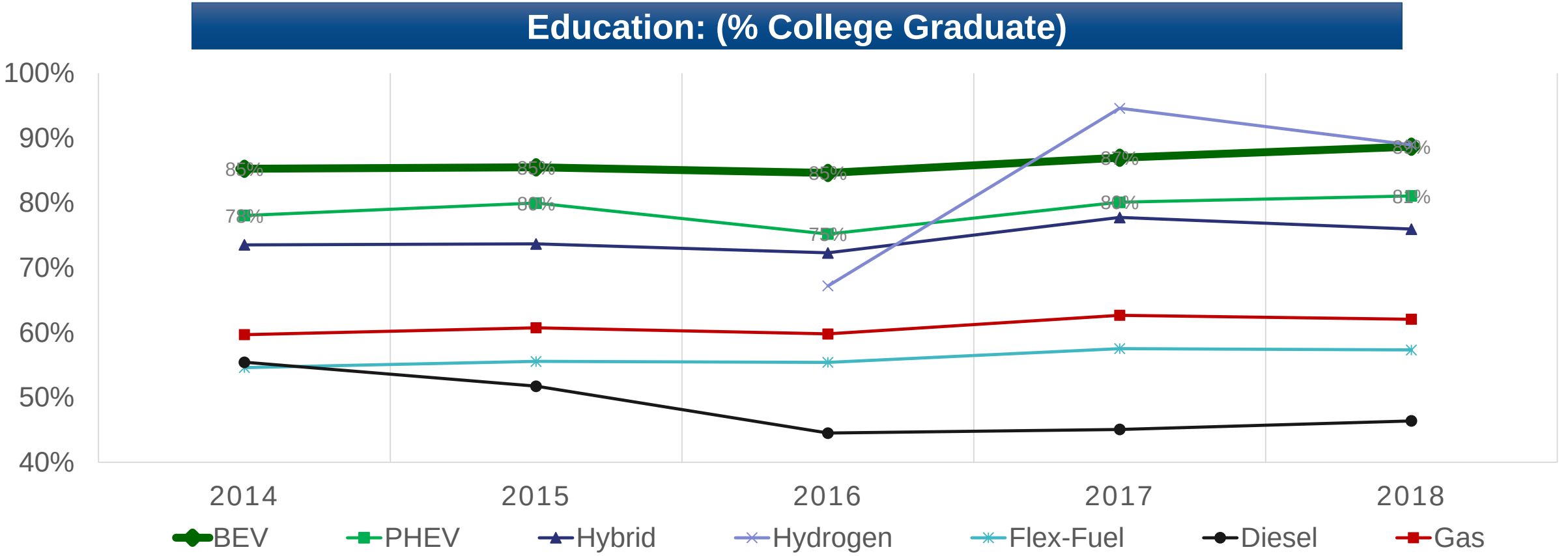
# DEMOGRAPHICS: EDUCATION

**Those driving alternative powertrain vehicles are clearly more likely to be educated. Does higher education leads to BEV purchase or does education lead to a lifestyle that allows a BEV purchase?**

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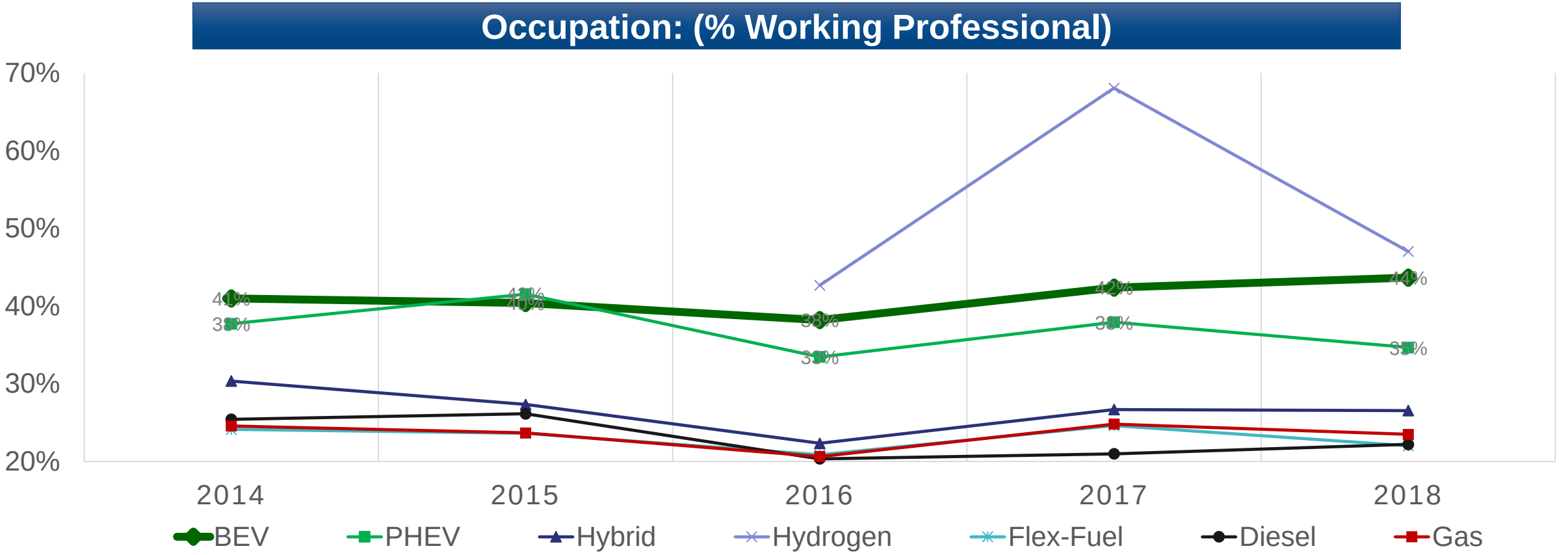
# DEMOGRAPHICS: OCCUPATION

**Those who purchase alternative powertrain vehicles such as BEVs or PHEVs (and especially Hydrogen vehicles) are working in a professional career. So far, Gas and standard Hybrid owners seem similar.**

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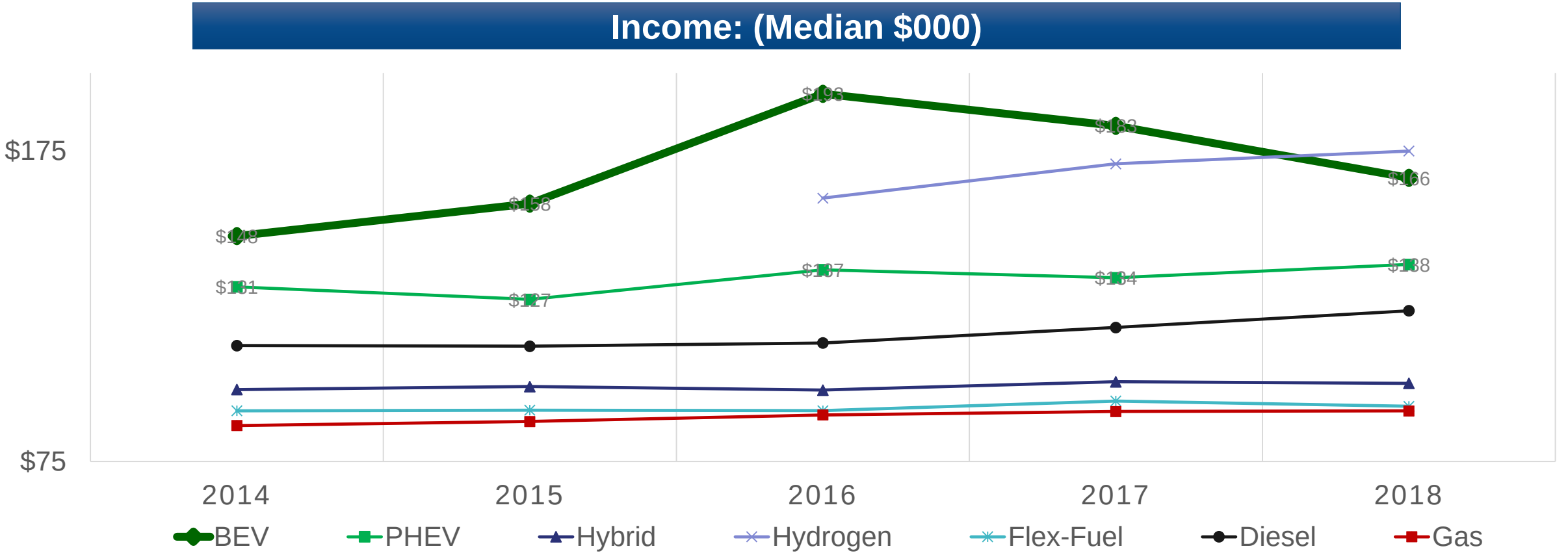
# DEMOGRAPHICS: INCOME

**BEVs owners earn significant more than most everyone else. This being said, the good news is that those earning $166,000 annually are now able to find an affordable BEV.**

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# CUSTOMER STORY: INCOME IMPACT

Implications:

If we don't address the affordability for EVs then, at best, we will only be able to sell partial Hybrids to a dwindling generation.

"We love it and since we are retired on a fixed income, this suits our budget. Cheap to operate with all the frills and whistles. Love it."

*2017 Toyota Prius Owner*

*Male, 77 years*

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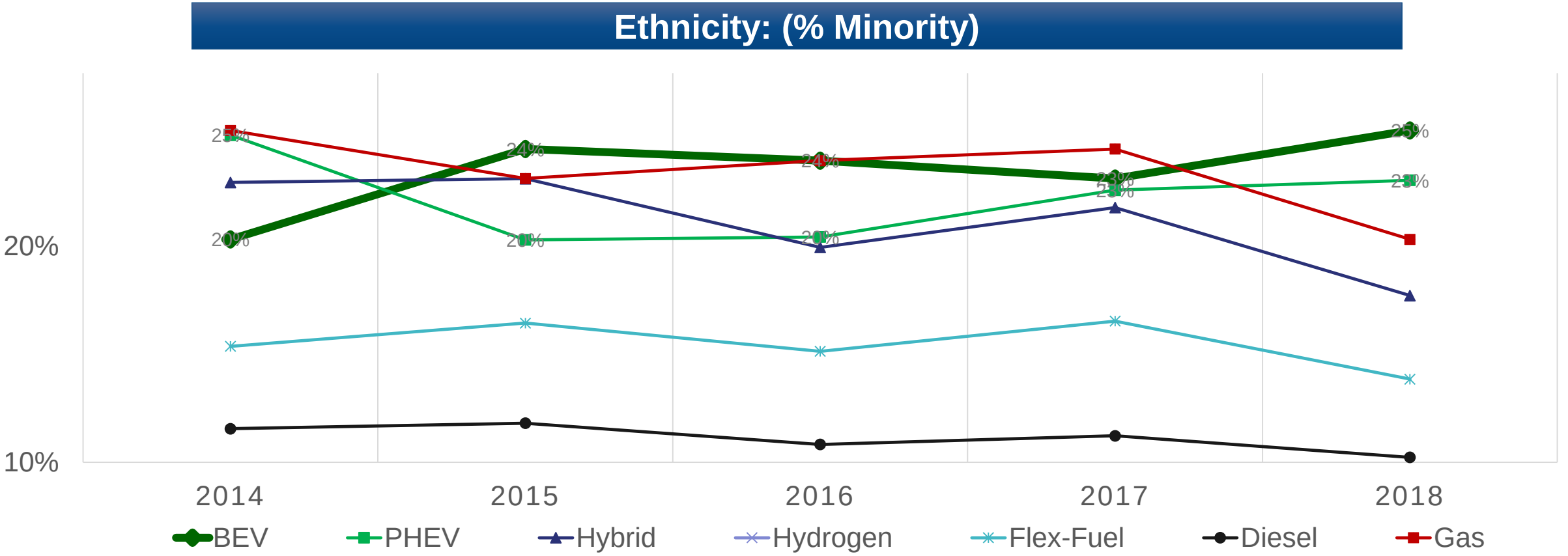
# DEMOGRAPHICS: ETHNICITY

**Those who purchase alternative powertrain vehicles have a greater proportion of minority buyers.**

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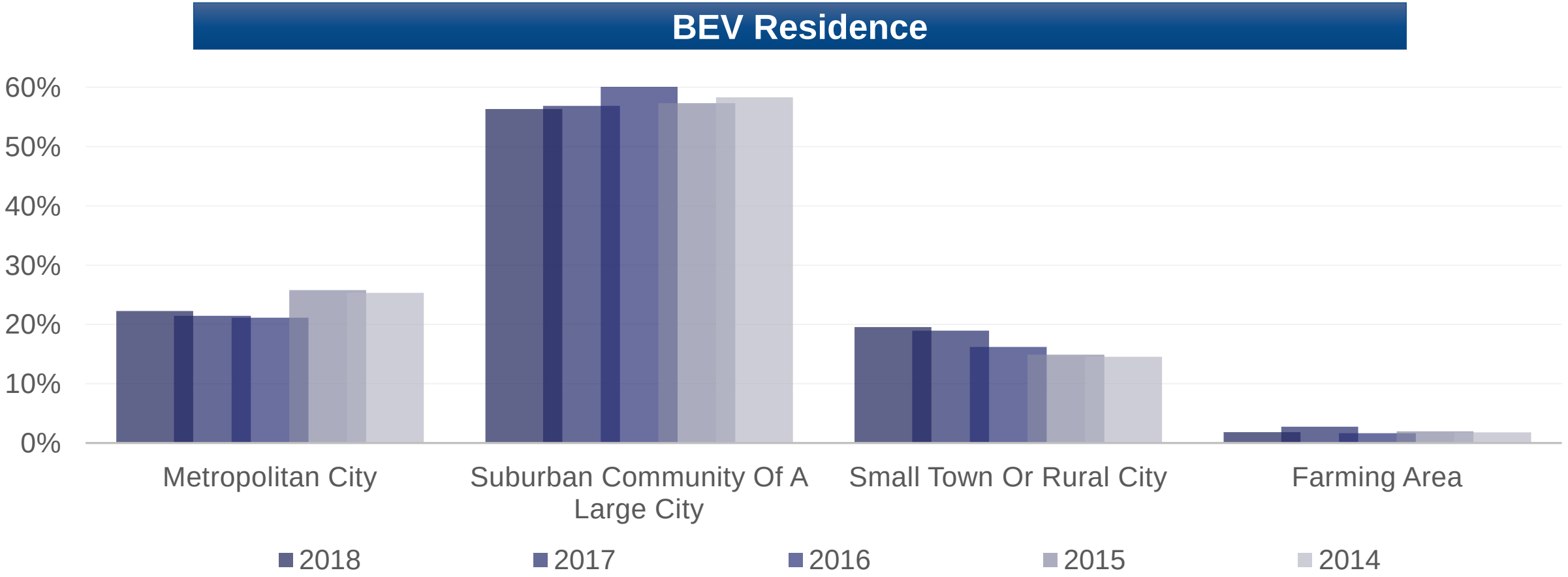
# DEMOGRAPHICS: LOCATION

**Over the past few years, there has been an increase in BEV purchases by those in smaller towns rather than big cities.**

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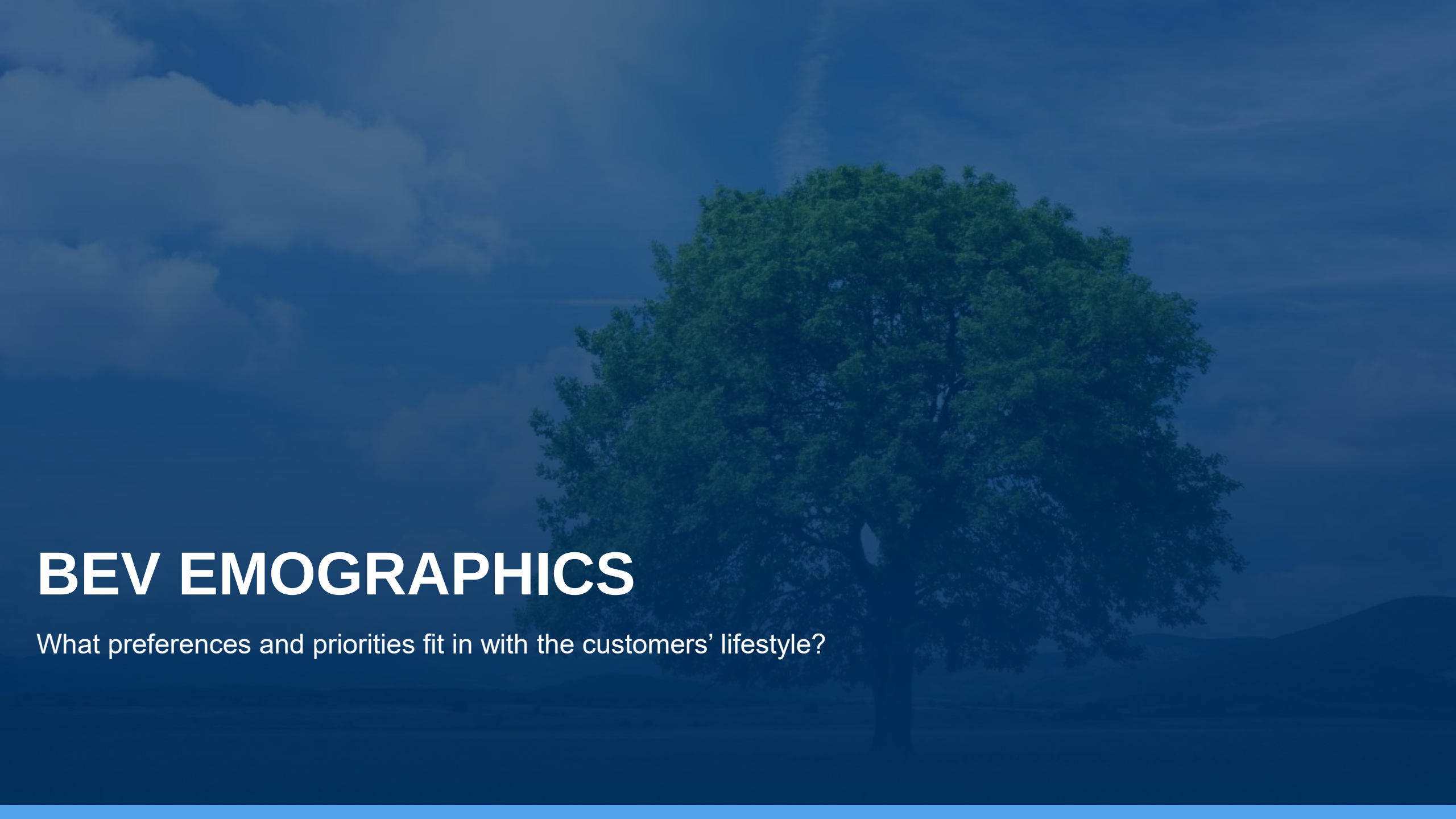


# BEV EMOGRAPHICS

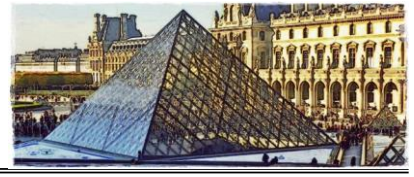
What preferences and priorities fit in with the customers’ lifestyle?

# EMOGRAPHICS: HOBBIES

**There are even some similarities between hobbies of BEV and Diesel owners. However, while BEV owners want to visit nature, Diesel owners seem to want to be eaten by nature.**

## Hobbies: (% Over Industry Average)

| BEV | |
|---|---|
| Hiking, backpacking | 12% |
| Cycling | 11% |
| Travel - foreign | 11% |
| Political activities | 7% |
| Camping trips | 7% |



| PHEV | |
|---|---|
| Travel - foreign | 13% |
| Hiking, backpacking | 10% |
| Cycling | 8% |
| Running, jogging, walking | 7% |
| Snow skiing | 7% |

| Hybrid | |
|---|---|
| Live theater | 6% |
| Reading | 6% |
| Going to the movies | 6% |
| Doing volunteer work | 5% |
| Political activities | 5% |

| Diesel | |
|---|---|
| Camping trips | 28% |
| Hunting | 23% |
| Fishing | 21% |
| Range/Skeet Shooting | 18% |
| Motorcycling | 10% |

Data from 2017 & 2018 NVES. Percentages are Powertrain indexed to Industry

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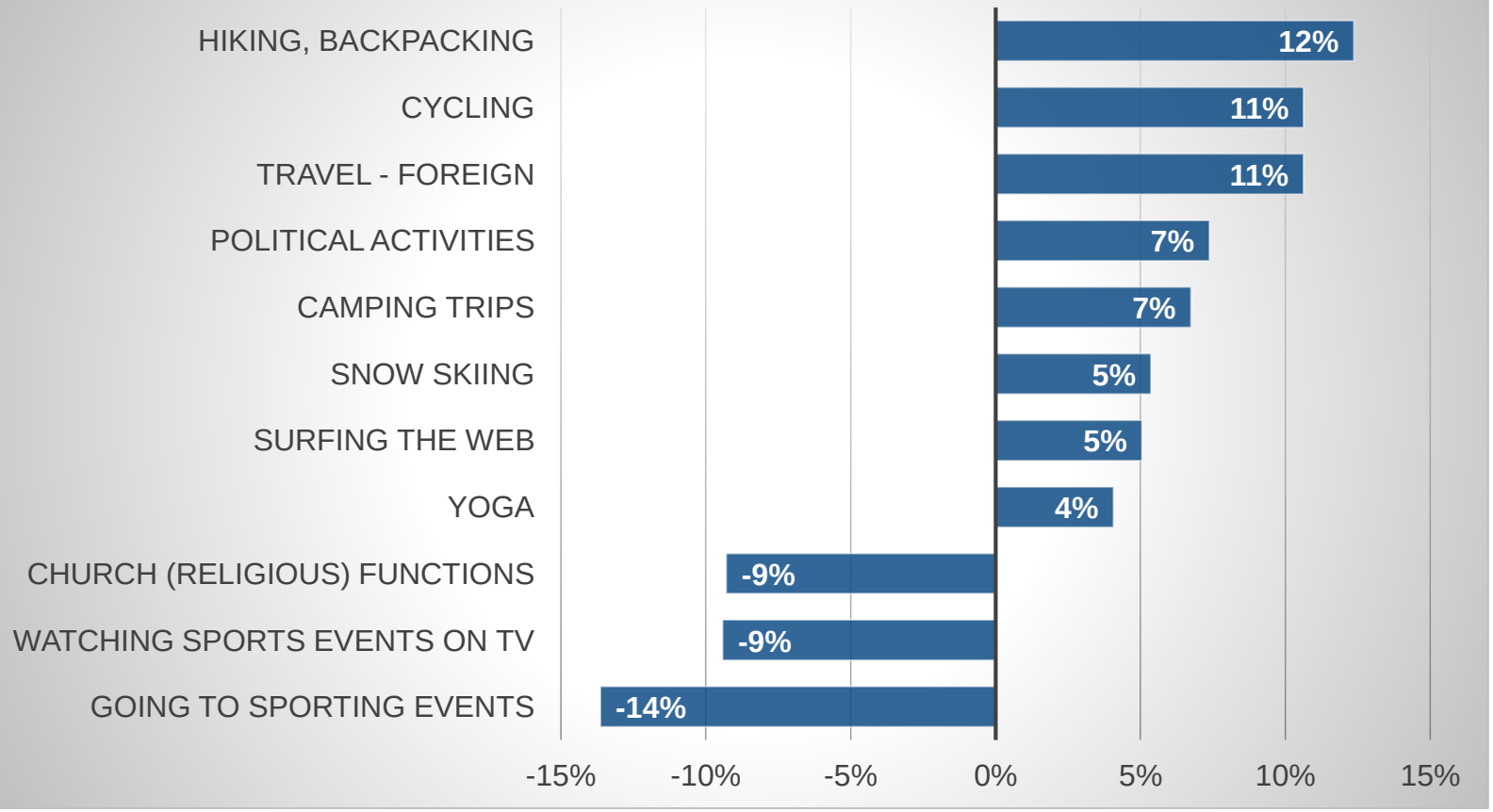
# HOBBIES: BEV OWNERS

BEV owners like to enjoy the outdoors, travel the world, be physically, socially and politically active and explore the internet. Watching sports or attending church is not as often a priority for BEV owners.

## HOBBIES
## BEVs % Over/Under Industry Average

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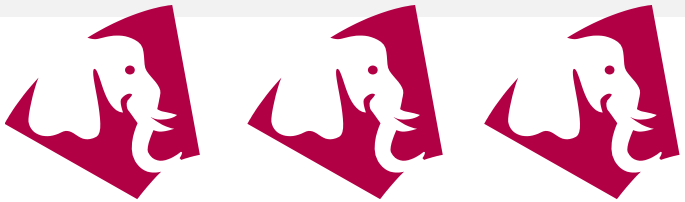
# EMOGRAPHICS: POLITICAL AFFILIATION

**There is clearly a political leaning that emerges depending on the powertrain that is purchased. It should also be appearing that many new vehicle buyers are denying any connection to either party.**

## Political Affiliation: (% Incidence)

| | BEV | PHEV | Hybrid | Flex-Fuel | Diesel | Gas |
|---|---|---|---|---|---|---|
| Democratic | 47% | 45% | 42% | 22% | 10% | 28% |
| Republican | 16% | 18% | 22% | 38% | 52% | 33% |



Data from 2017 & 2018 NVES. Percentages are self reported political party affiliation.

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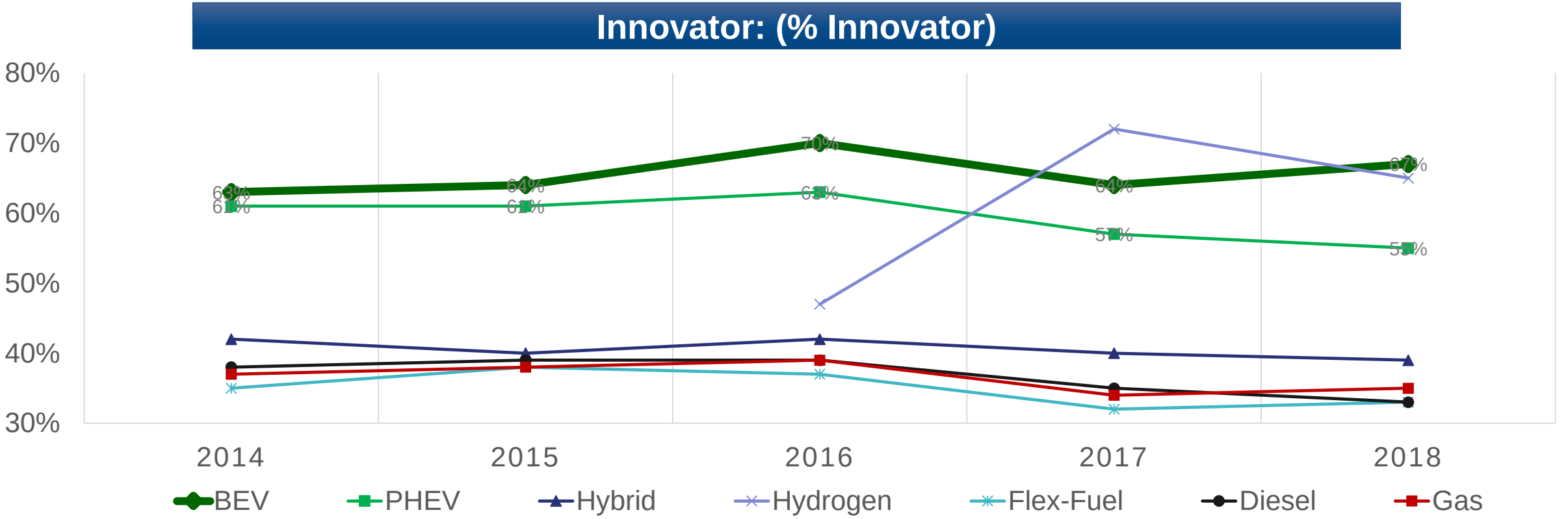
# EMOGRAPHICS: INNOVATOR / EARLY ADOPTERS

**Currently those who are buying EVs are still Innovators. Hybrid owners, however, are no longer listed as innovators as they were a decade ago.**




Innovator self-classify as either “I love to be the first one in my neighborhood with a new innovative product” or “With brands I trust, I like to buy and try new innovative products.”

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# CUSTOMER STORY: INNOVATORS

Implications:

If the EV experience isn’t as strong because of product or infrastructure, the Early Adopters may not lead others to purchase a future EV.

“Get some incentives for those that took a chance for the first car. It was a bit of a downer that there wasn't even a zero percent financing option. Think long term for your customers. A good experience in an EV will bring them back again. It will also minimize the sting if there are early adopter issues. Think long term...."

*2017 Chevrolet Bolt Owner*

*Most Seriously Considered Tesla Model S, Disposed a BMW i3*

*Male, 42 years, $300K HHI*

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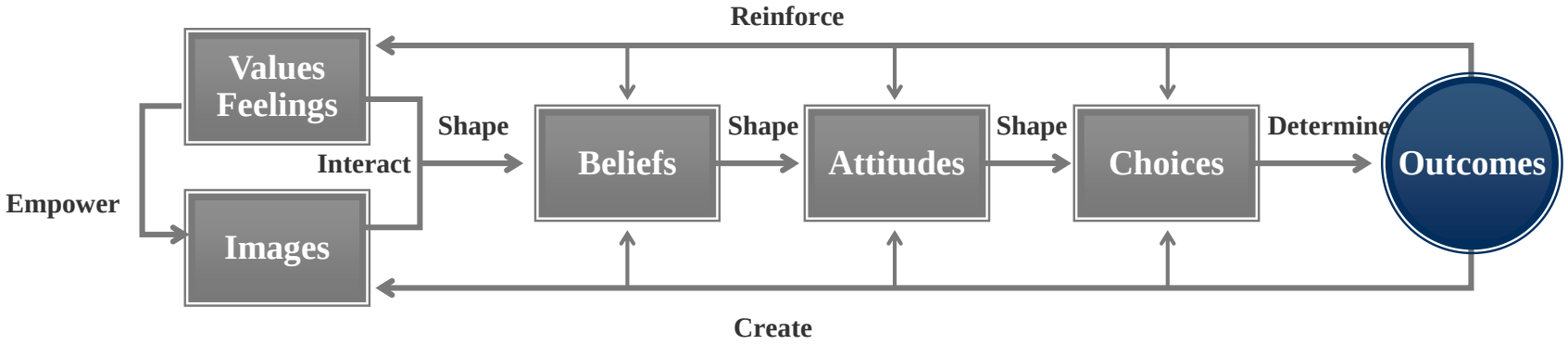
# ATTITUDES: THE BASICS

**Customers' Values lead to the creation of Attitudes. When Attitudes about Vehicle Priorities are understood, behavior predictions can be made with greater accuracy.**

- ✓ Attitudes are valanced beliefs about a product or service.
  - ✓ "My car is stylish" is a Belief.
  - ✓ "I like stylish cars" is an Attitude (+) capturing a rational and emotional aspect of the person's system: "Stylish car" = rational perception; "I like" = emotional aspect.
- ✓ Valanced statements (Values and Attitudes) help us create more discrete groups that are more alike internally and differ from other groups:
  - ✓ People for whom their love of stylish cars is their number one leverageable factor in buying a car are more alike than people who just believe that they own a stylish car.

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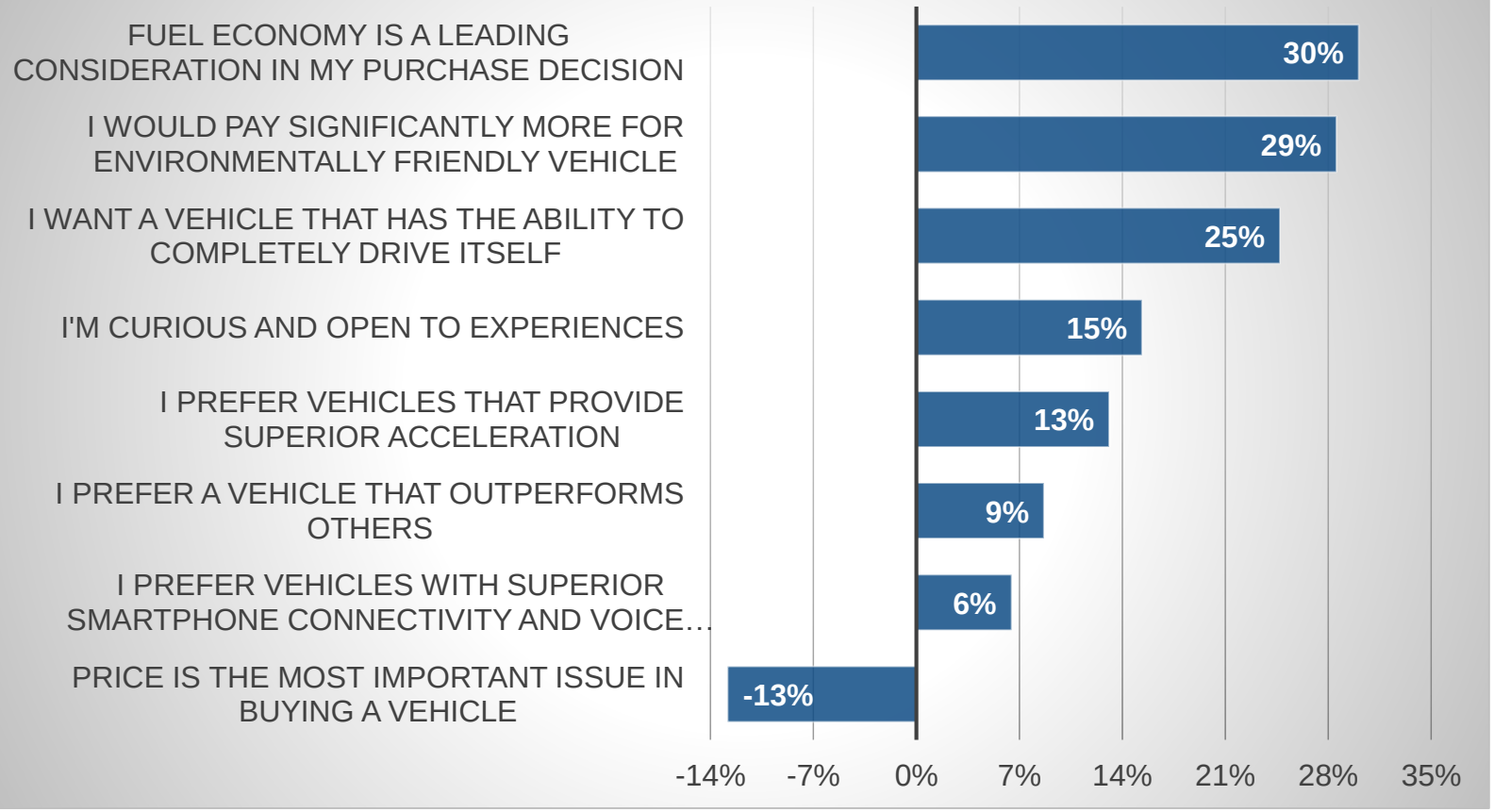
# ATTITUDES: BEV

BEV owners are looking for vehicles that are environmentally friendly, but they are also looking for superior technology and “fun” as seen through acceleration and performance. Current BEV owners are not as concerned with price – but for those who have yet to try an EV, price is an issue.

## ATTITUDES
## BEVs % Over/Under Industry Average




Data from 2017 & 2018 NVES

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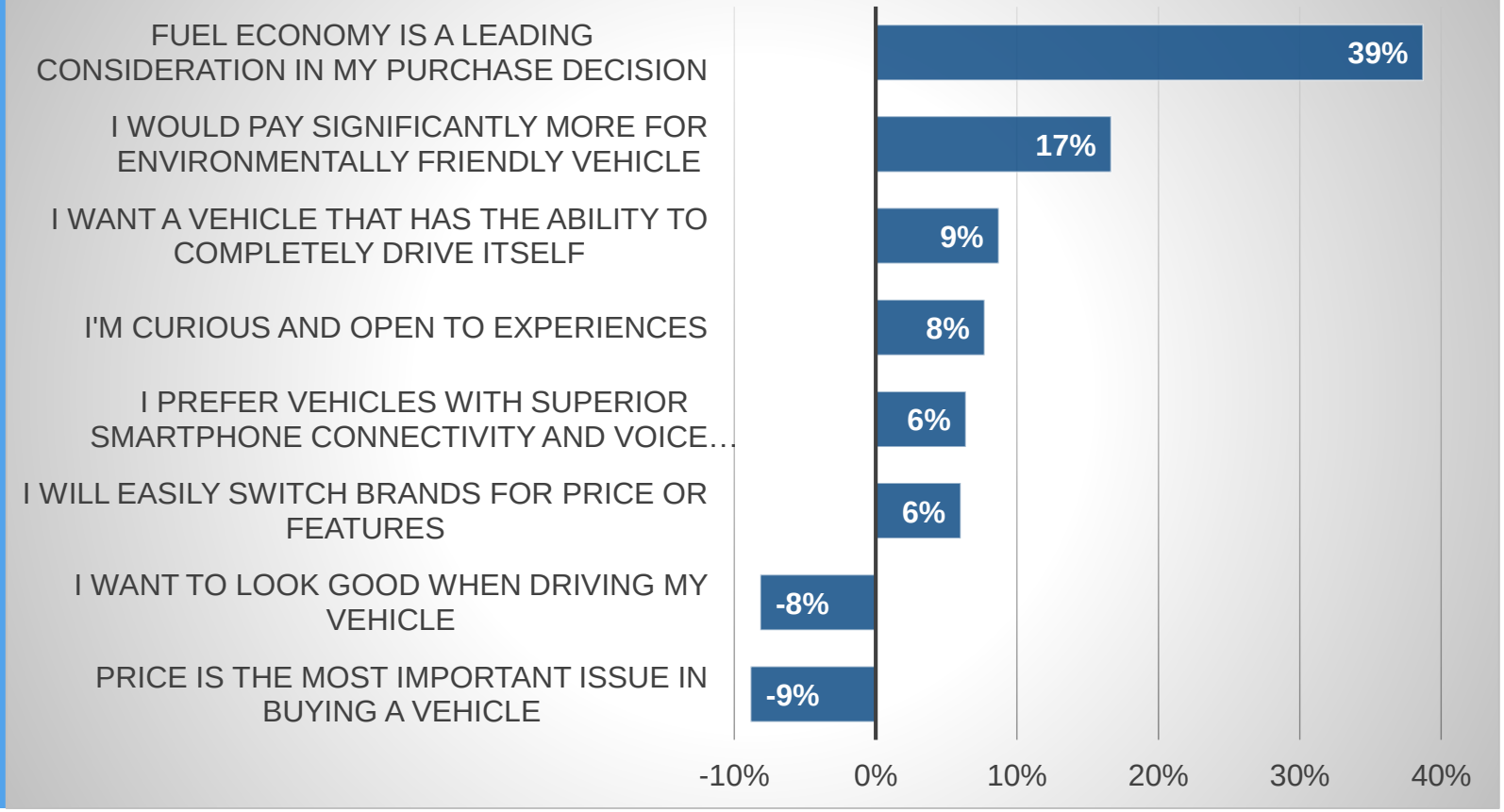
# ATTITUDES: PHEV

PHEV owners are similar to BEV owners in their personal priorities. However, the vehicle is more about making a statement about the environment and technology rather than being purchased for superior performance.

## ATTITUDES
## PHEV % Over/Under Industry Average




Data from 2017 & 2018 NVES

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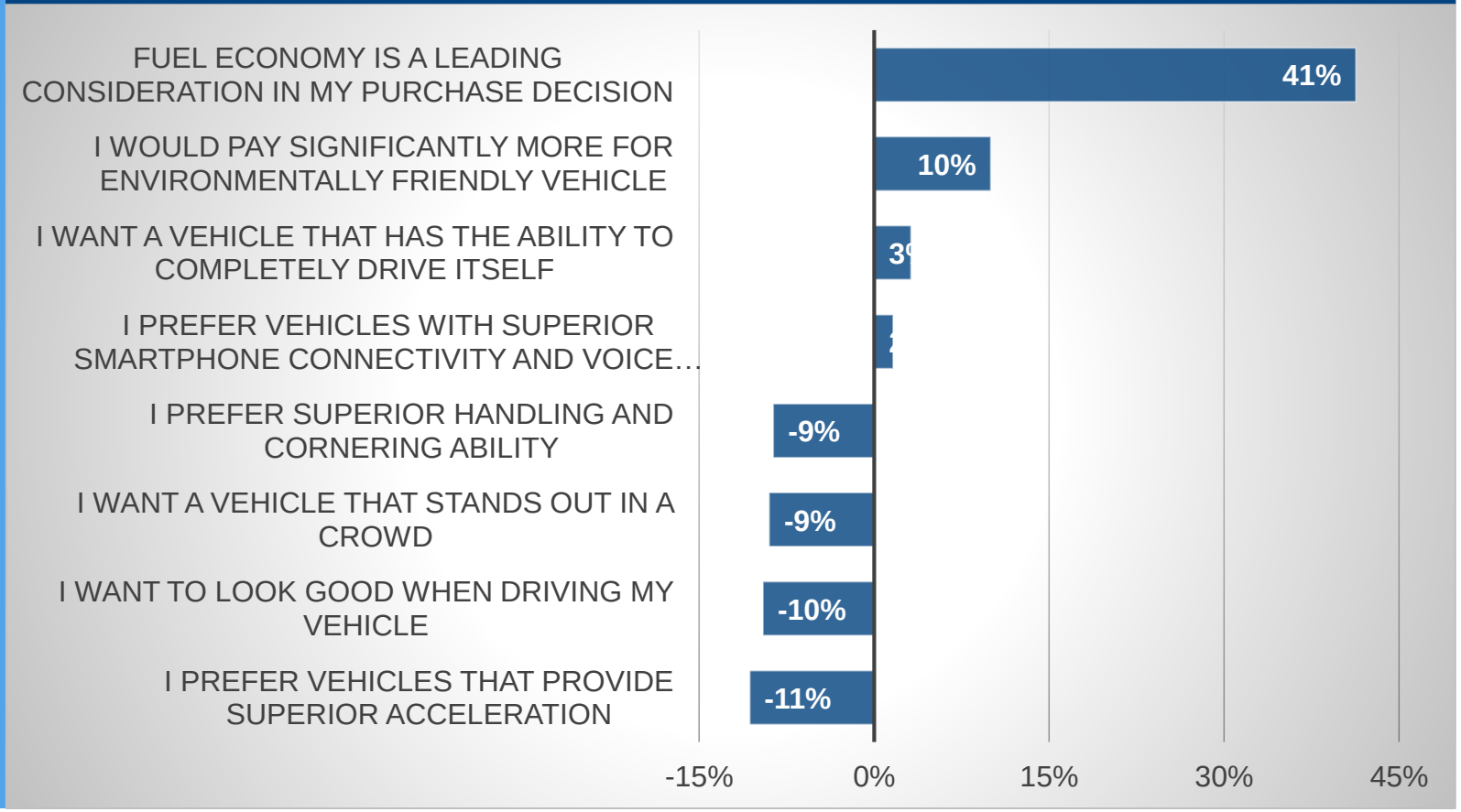
# ATTITUDES: HYBRID

For Hybrid buyers today, it is all about the price. For some, the Hybrid still makes a statement, but for many, the real “statement” vehicles are now BEVs.

Some OMEs try to get customers to believe that Hybrid can be performance. Customers seem not to believe these messages.

## ATTITUDES
## Hybrid % Over/Under Industry Average




Data from 2017 & 2018 NVES

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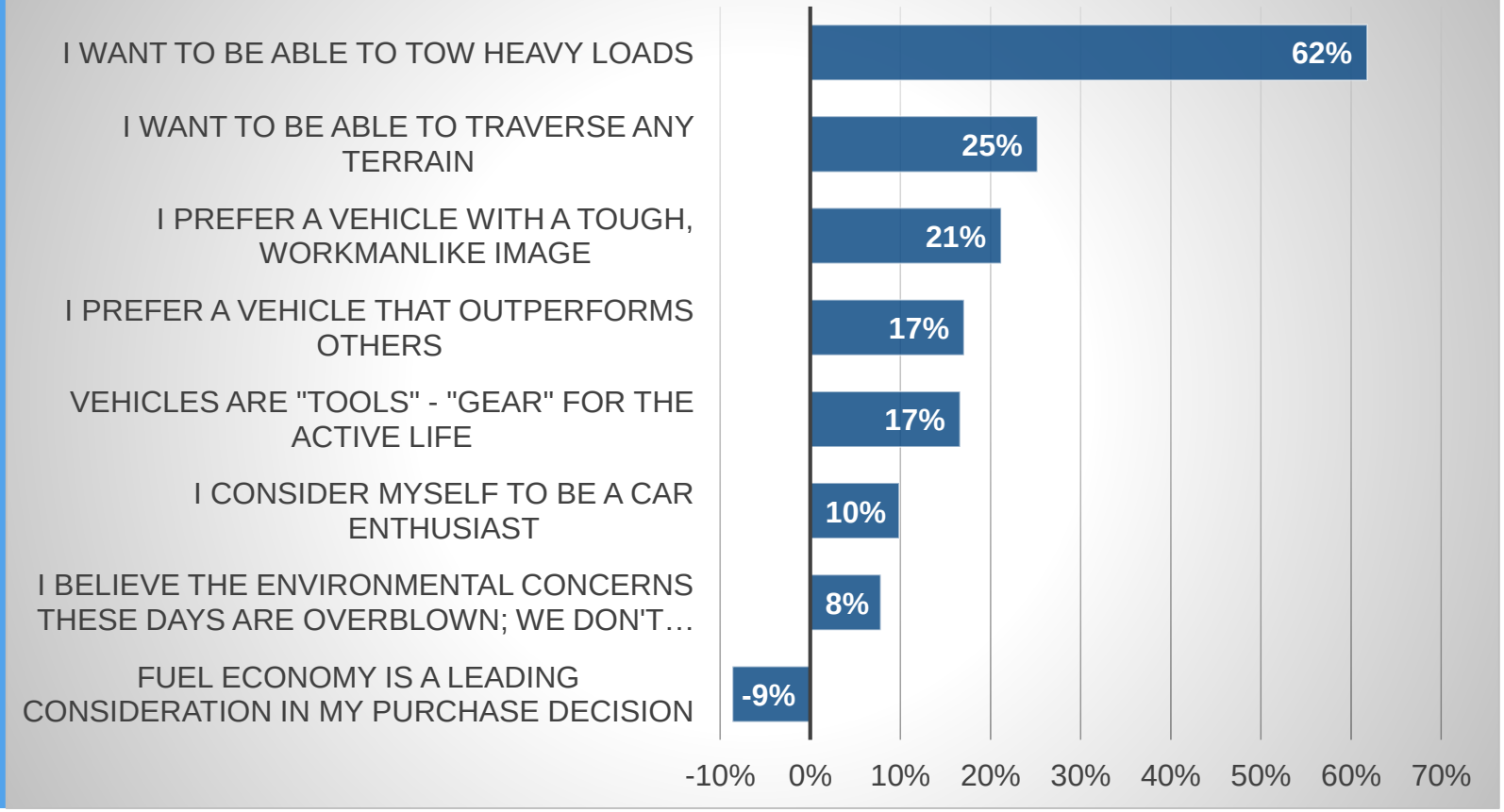
# ATTITUDES: DIESEL

For some owners, they have specific needs and requirements for a vehicle – and they do not buy into the belief that there is an environmental crisis.

These owners usually have purchased a vehicle with a Diesel powertrain.

## ATTITUDES
## Diesel % Over/Under Industry Average

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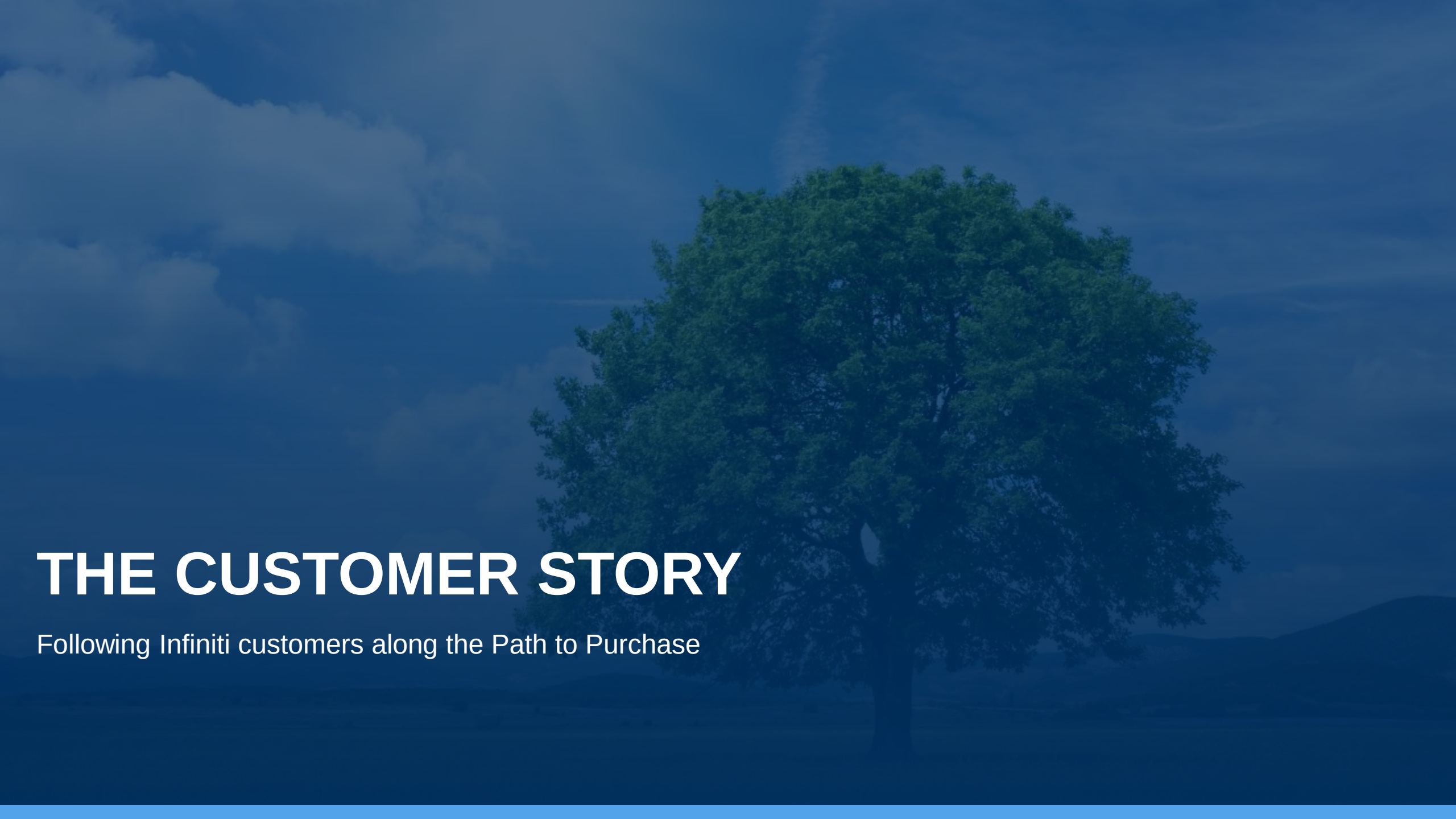


# THE CUSTOMER STORY

Following Infiniti customers along the Path to Purchase

# THE DECISION PATH: CUSTOMER CONVERSION

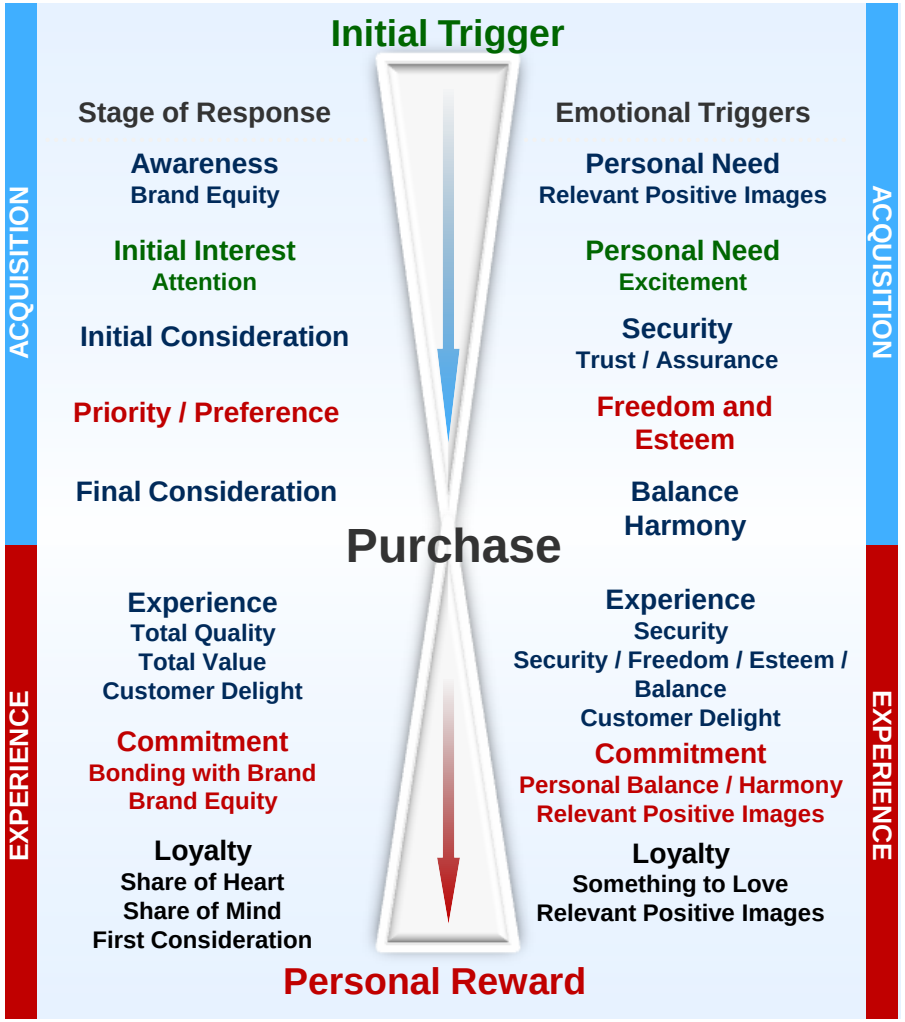
**Building ValueCentered© Brands: A Key to Success.**

1. The best way to understand how a customer converts from Interest to Purchase is through the Decision Path or Path to Loyalty.

2. Each stage of the path has different emotions, values and behavior that are prominent at each step.

   If you skip a step … or dismiss a part … you are likely to fail.

3. It is critically important to understand the relationship between each step and the dynamics operating at each level.




*The Decision Path ©*

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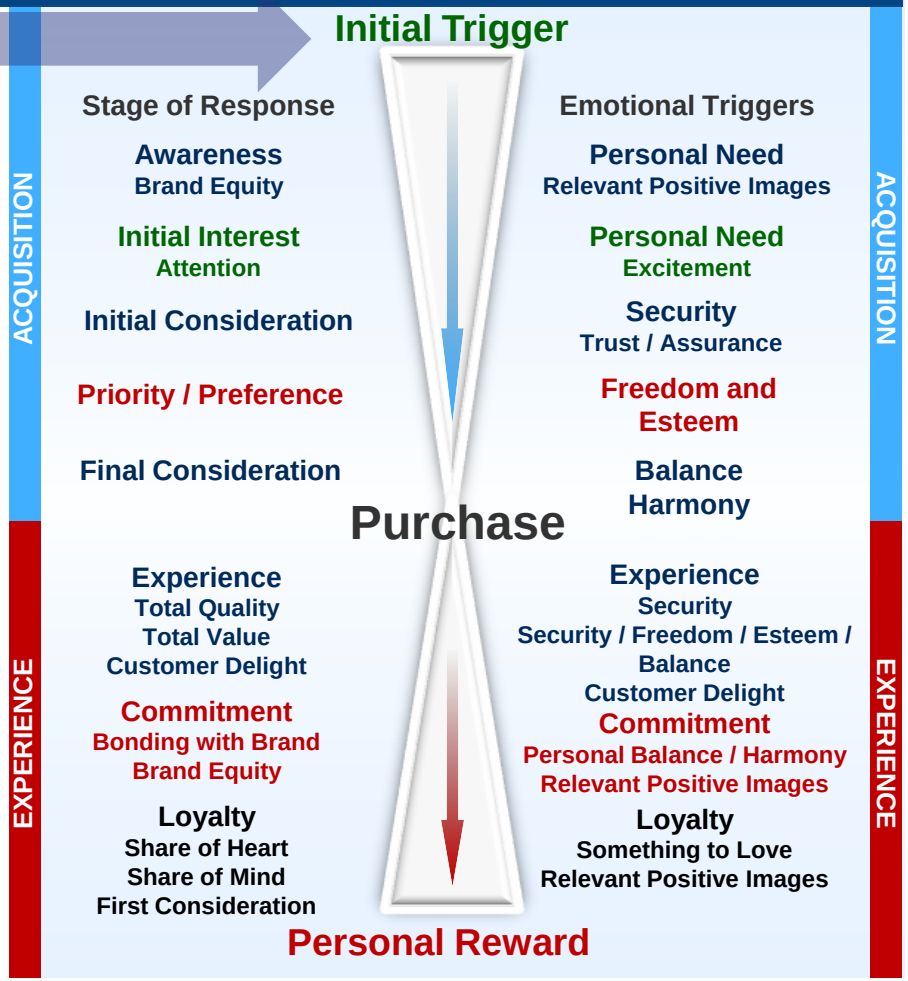
# PURCHASE TRIGGER

## What initiated the purchase of a new vehicle?

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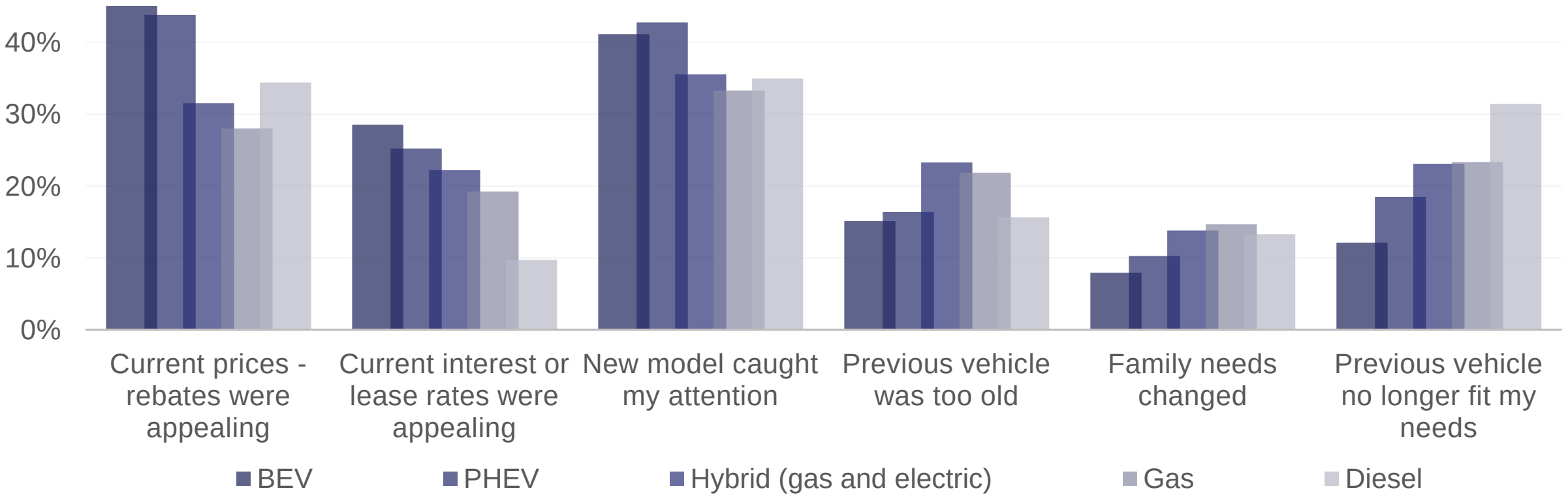
# PURCHASE TRIGGER

**BEV (and PHEV) buyers often start their purchase process after seeing that there was a financial reason to do so. This is interesting as price is not as often a priority – and yet is what starts consideration.**

## Purchase Trigger: Sorted by BEV over/under Industry




Data from 2017 & 2018 NVES

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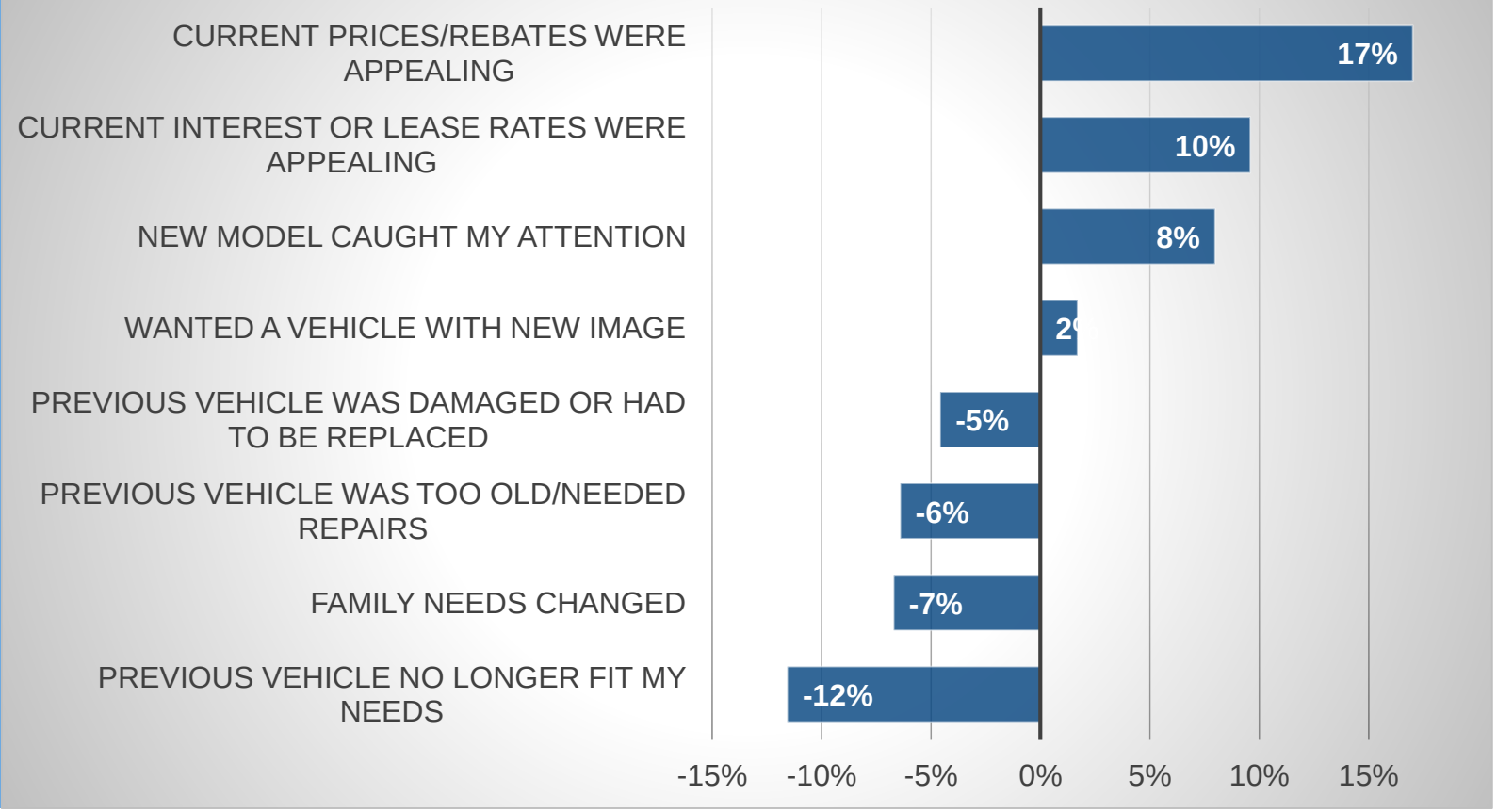
# PURCHASE TRIGGER: BEV

In addition to price, seeing an innovative, new vehicle that has a strong image can also spark the idea of purchase.

BEV owners are not shopping because the previous vehicle is too old and/or doesn't fit their current needs and lifestyle. This is an additional vehicle.

## ATTITUDES
## BEV % Over/Under Industry Average




Data from 2017 & 2018 NVES

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# CUSTOMER STORY: TRIGGER TO INTEREST

Implications:

While a BEV purchase isn’t just about Price – Incentives, payments, etc. can be (and often is) the catalyst for an EV purchase.

“I have always wanted an electric car since I was young. My biggest disappointment with Nissan is that they have not advertised how cheap the car is, once you factor in all incentives. ***When I tell friends and coworkers what my NET cost was, they are blown away***. This is barely mentioned in the advertising. ALSO, Nissan doesn't emphasize how fast the Nissan Leaf accelerates. I thought it was going to be slow like the Prius, so it was a happy surprise. VW advertises the torque of their EV, but Nissan doesn't. ***When people feel the torque of the Leaf, they are amazed. Nissan should emphasize PRICE and ACCELERATION***."

*Nissan Leaf S Owner.*

*Male, 48 years, $125K HHI*

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# AWARENESS

## Are BEVs at the top of mind of new vehicle buyers?


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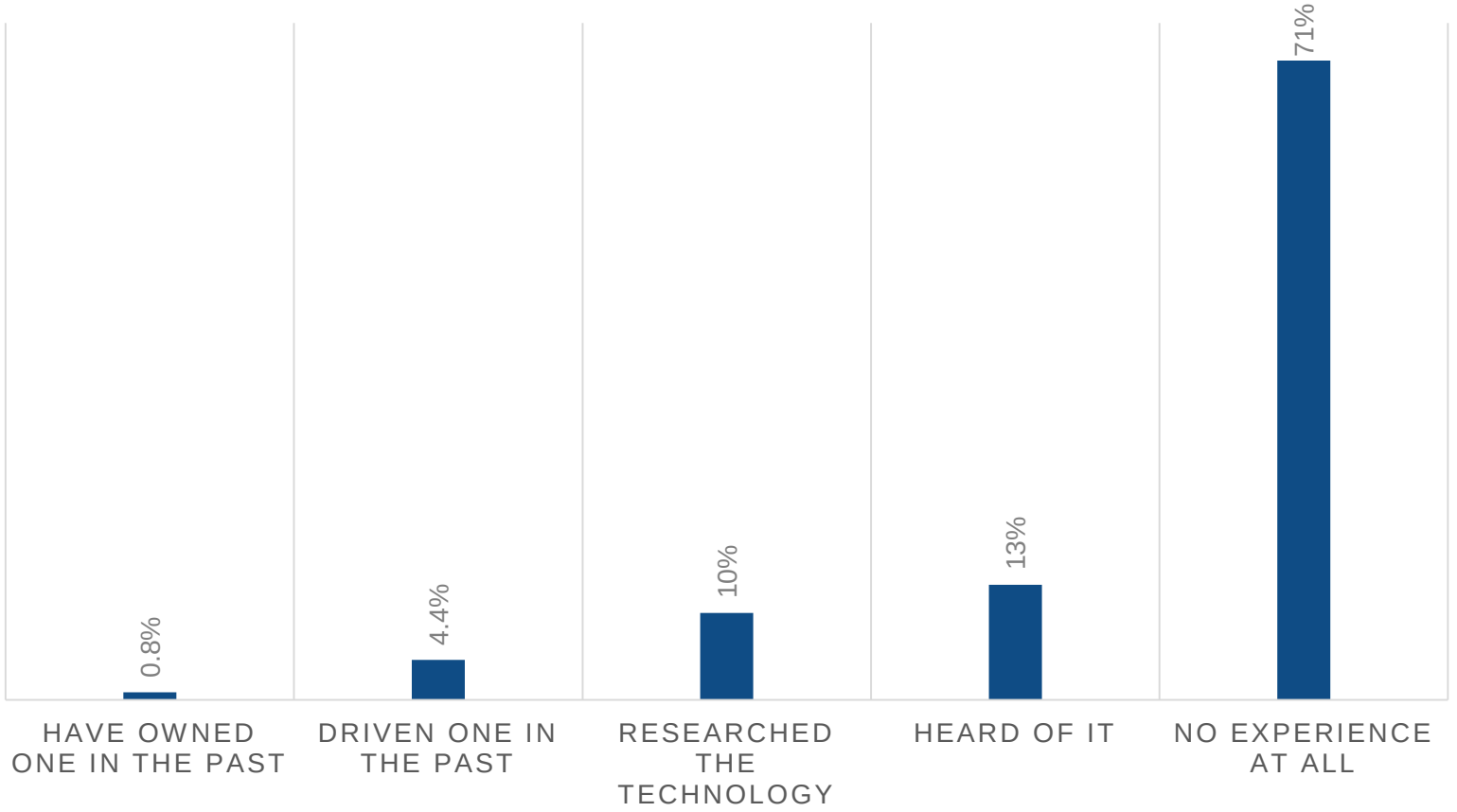
# AWARENESS

As difficult as it might be to understand, there still is a significant deficit in consumers understanding what they are.

While there are some regional differences (e.g. 400% increase in California of ownership) it is suggested that more should be done for “everyday” people.

## Battery Electric Vehicles (BEVs) Level of Experience and Awareness

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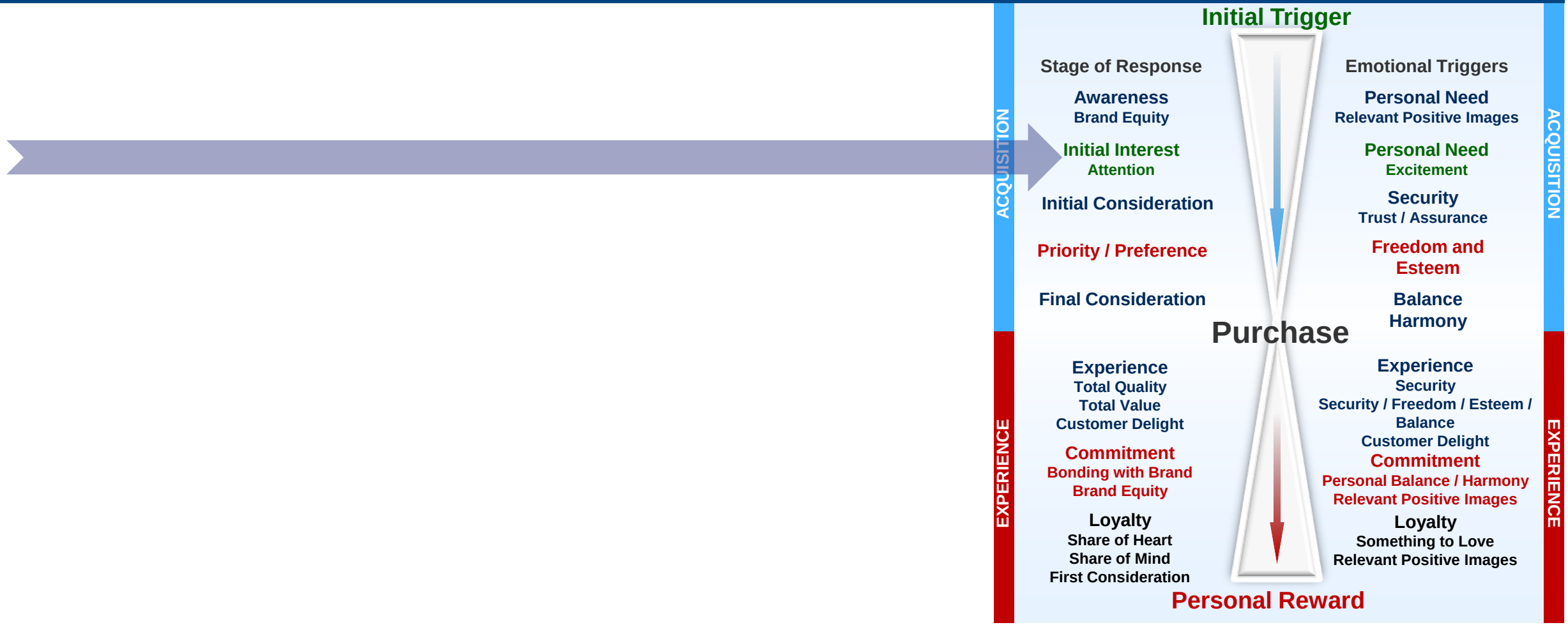
# INITIAL INTEREST

## What creates excitement about owning a BEV?

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# INITIAL INTEREST: VEHICLE IMAGERY

**BEV owners are excited by the Innovation that has the best (least) impact on the environment. Hybrid owners are additional excited about how "smart" their vehicles are. Diesel vehicles can wrestle bears.**

## Character Traits of Vehicle: (% Over Industry Average)

| BEV | | PHEV | | Hybrid | | Diesel | |
|---|---|---|---|---|---|---|---|
| Environmentally friendly | 59% | Environmentally friendly | 52% | Environmentally friendly | 48% | Powerful | 53% |
| Technologically advanced | 36% | Technologically advanced | 35% | Economical | 33% | Rugged | 45% |
| Progressive | 24% | Economical | 19% | Technologically advanced | 22% | Capable | 18% |
| Innovative | 23% | Smart/Intelligent | 18% | Smart/Intelligent | 12% | Aggressive | 11% |

Data from 2017 & 2018 NVES. Percentages are Powertrain indexed to Industry

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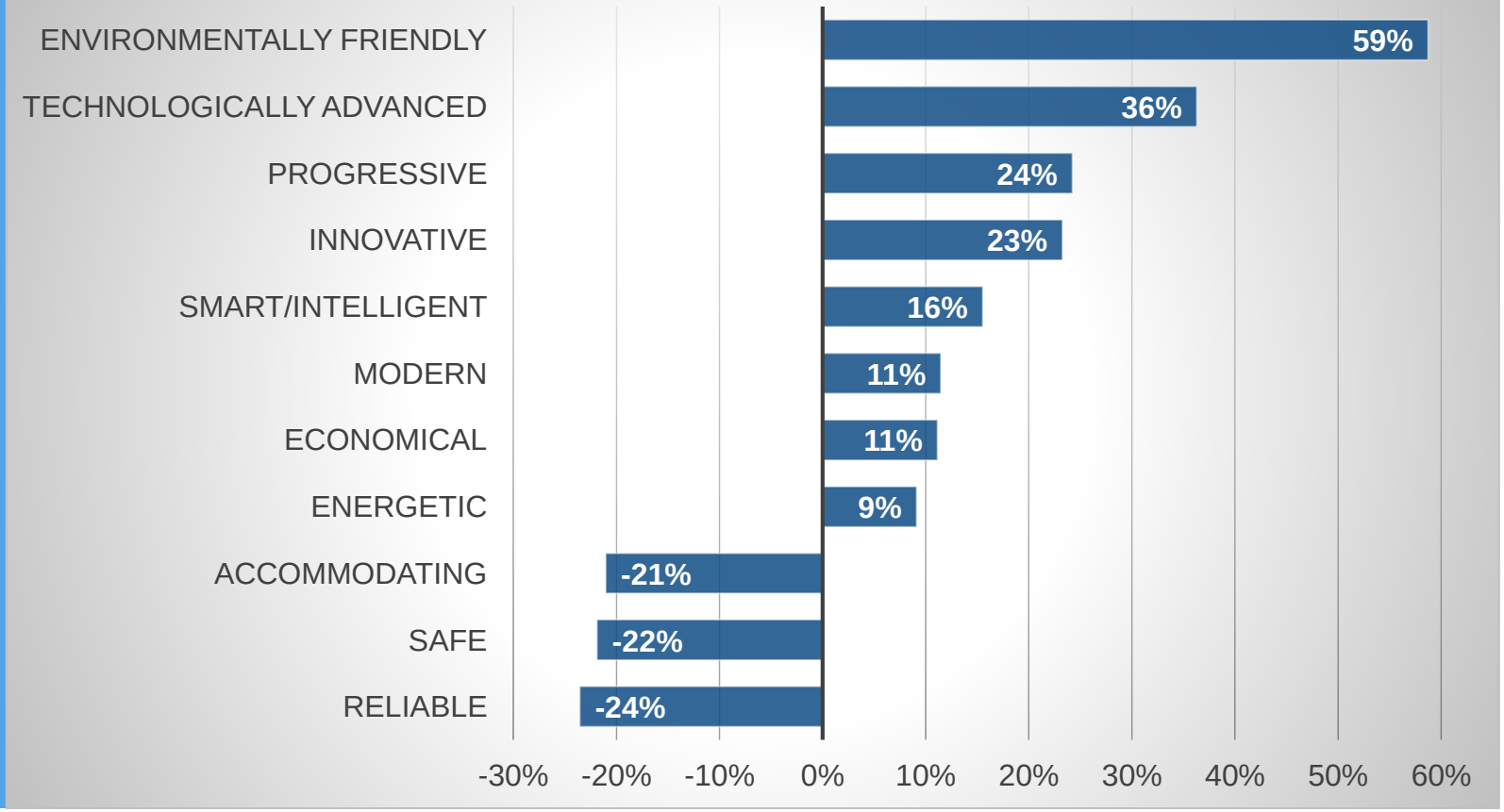
# INITIAL INTEREST: BEV IMAGERY

BEVs generate Initial Interest because of strong imagery. However, it is exceptionally difficult to convert this Interest into Initial Consideration since even BEV owners do not acknowledge the safety and reliability of their BEVs.

## HOBBIES
## BEVs % Over/Under Industry Average

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# CUSTOMER STORY: SAFETY & RELIABILITY CONCERNS

Implications:

BEV customers love the vehicle, but often put up with many other issues that create significant concern for future BEV purchases.

"While ***I love the car*** (***when it works***) I have had ***terrible reliability problems*** with it. It has ***left me and my family stranded several times*** waiting for a tow truck. To make matters worse, I receive almost no communication from BMW on its repair status, what's causing the problem, or what my options are. ***Extremely disappointed*** in what should be a premium and hassle-free vehicle."

*2017 BMW i3 Base.*

*Disposed a Prius, Considered a Prius Prime Plug-In*

*Male, 43 years, $125K HHI*

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# INITIAL INTEREST: TESLA IMAGERY

Tesla is seen as a technologically advanced performance vehicle. However, it isn't seen as Safe or Reliable as other luxury brands which creates additional barriers for purchase for many.

## Top 3 Image advantages of Tesla to Luxury

Environmentally friendly

Technologically advanced

Innovative

## Bottom 3 Image weaknesses of Tesla to Luxury

Prestigious

Safe

Reliable

## Top 3 Image advantages of Tesla to BEVs

Sophisticated

Powerful

Luxurious

## Bottom 3 Image weaknesses of Tesla to BEVs

Sensible

Functional

Economical

Data from 2017 & 2018 NVES

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# INITIAL INTEREST: LEAF & BOLT IMAGERY

Bolt is seen as a Fun BEV choice, even though it lacks prestige. Leaf is the "most" environmentally friendly, but lacks sportiness and safety vs. other BEVs. Lack of foundational security most always hurts sales.

## Top 3 Image advantages of Bolt to BEVs

Economical

Fun

Functional

## Bottom 3 Image weaknesses of Bolt to BEVs

Prestigious

Luxurious

Elegant

## Top 3 Image advantages of Leaf to BEVs

Environmentally Friendly

Modern

Smart / Intelligent

## Bottom 3 Image weaknesses of Leaf to BEVs

Sporty

Technologically Advanced

Safe

Data from 2017 & 2018 NVES

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# CUSTOMER STORY: INTEREST & EXCITEMENT

Implications:

The Leaf is seen as a strong Environmentally Friendly choice.

Is this a good thing?

"***When Nissan first announced the Leaf, I was quite interested***. Zero emission vehicles are very important to me. But the range of the original didn't meet my needs at that time. However, I continued investigating EVs, and after we had solar installed, I knew one would be my next car. When the 2018 Leaf was announced, ***I was excited by its range and its redesign***. After much investigation, I committed to the Leaf. Because I gave my previous car to my daughter to take to college, I went without a vehicle of my own for 6 months. It was that important to me to have that particular car as a statement of my environmental values. ***So please, continue to innovate and expand your zero emission offerings; it matters to a lot of us***."

*2018 Nissan Leaf Owner who Considered a Chevrolet Bolt*

*Male, 54 years, $200K HHI*

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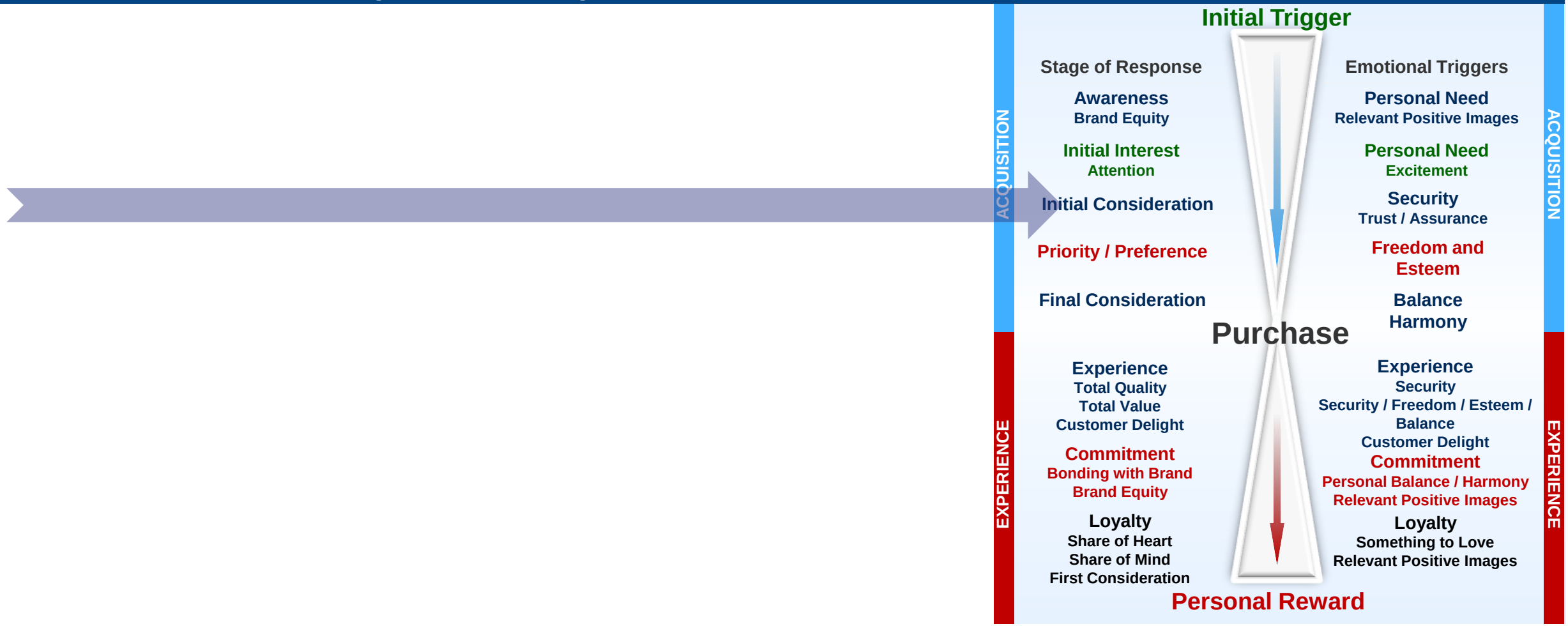
# INITIAL CONSIDERATION

## With Safety & Reliability Concerns, what is the real interest in a BEV?







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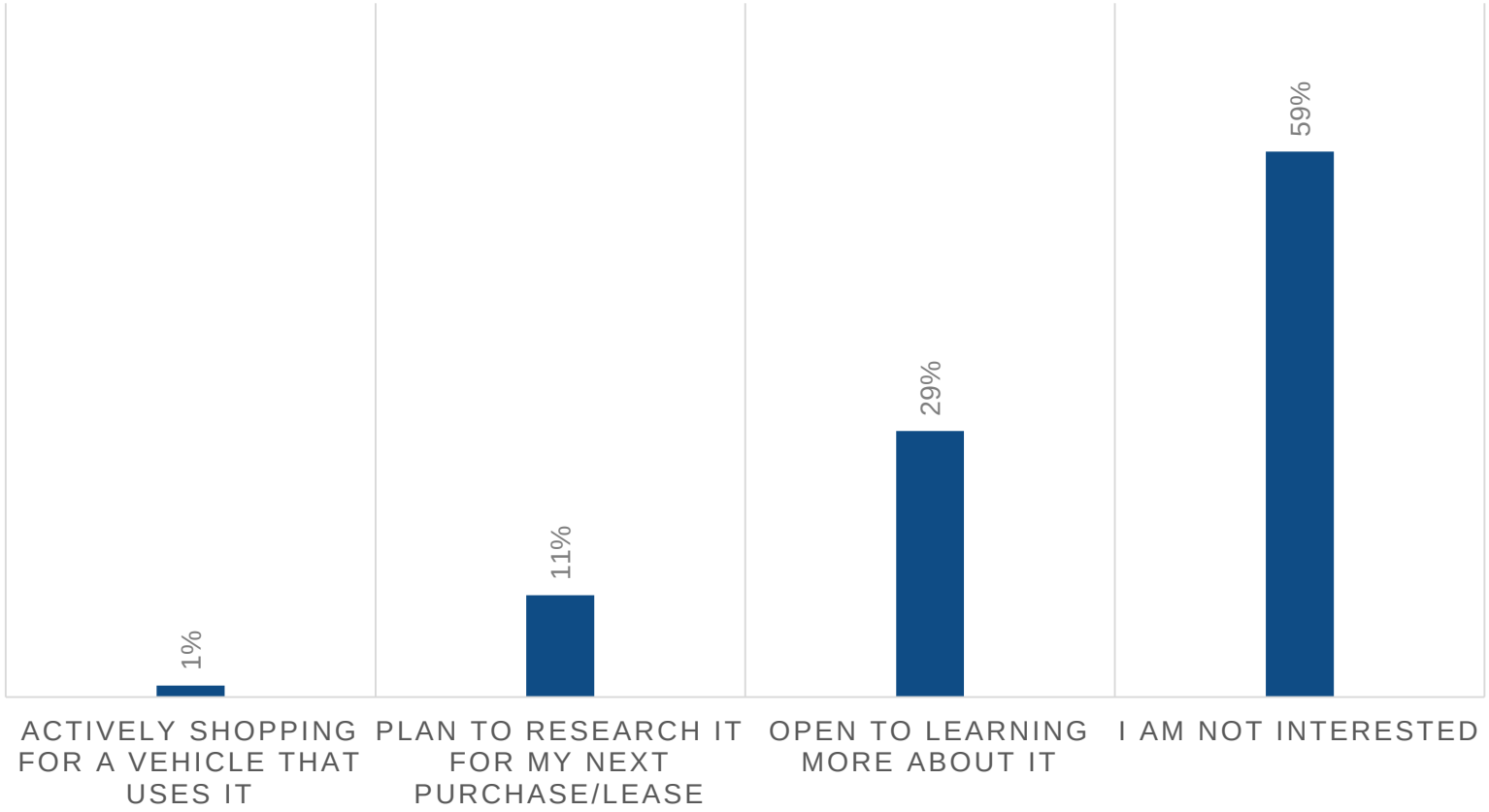
# INITIAL CONSIDERATION

Over the past few years, there has been an INCREASING number of people who are “not interested” in learning about BEVs. They have heard about compromises and struggles owners have had and they do not wish to “pay more” for a “potential problem.”

## Battery Electric Vehicles (BEVs) Level of Future Consideration

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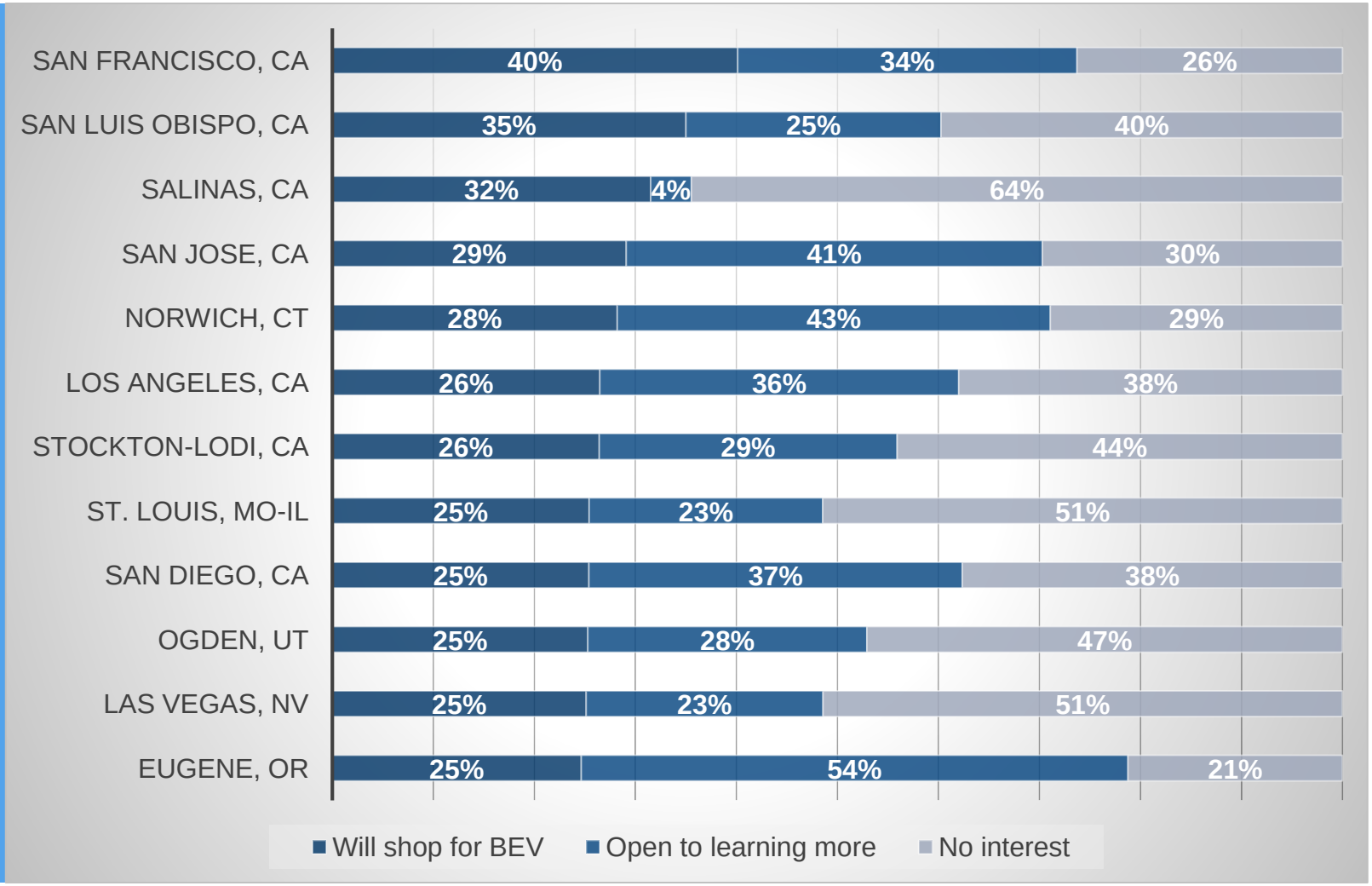
# INTEREST: BATTERY ELECTRIC VEHICLES (BEV)

Is it a surprise that the greatest BEV consideration comes from the state of California?

Tech-savy Ogden has a significant increase in consideration as does Environmentally Minded Eugene.

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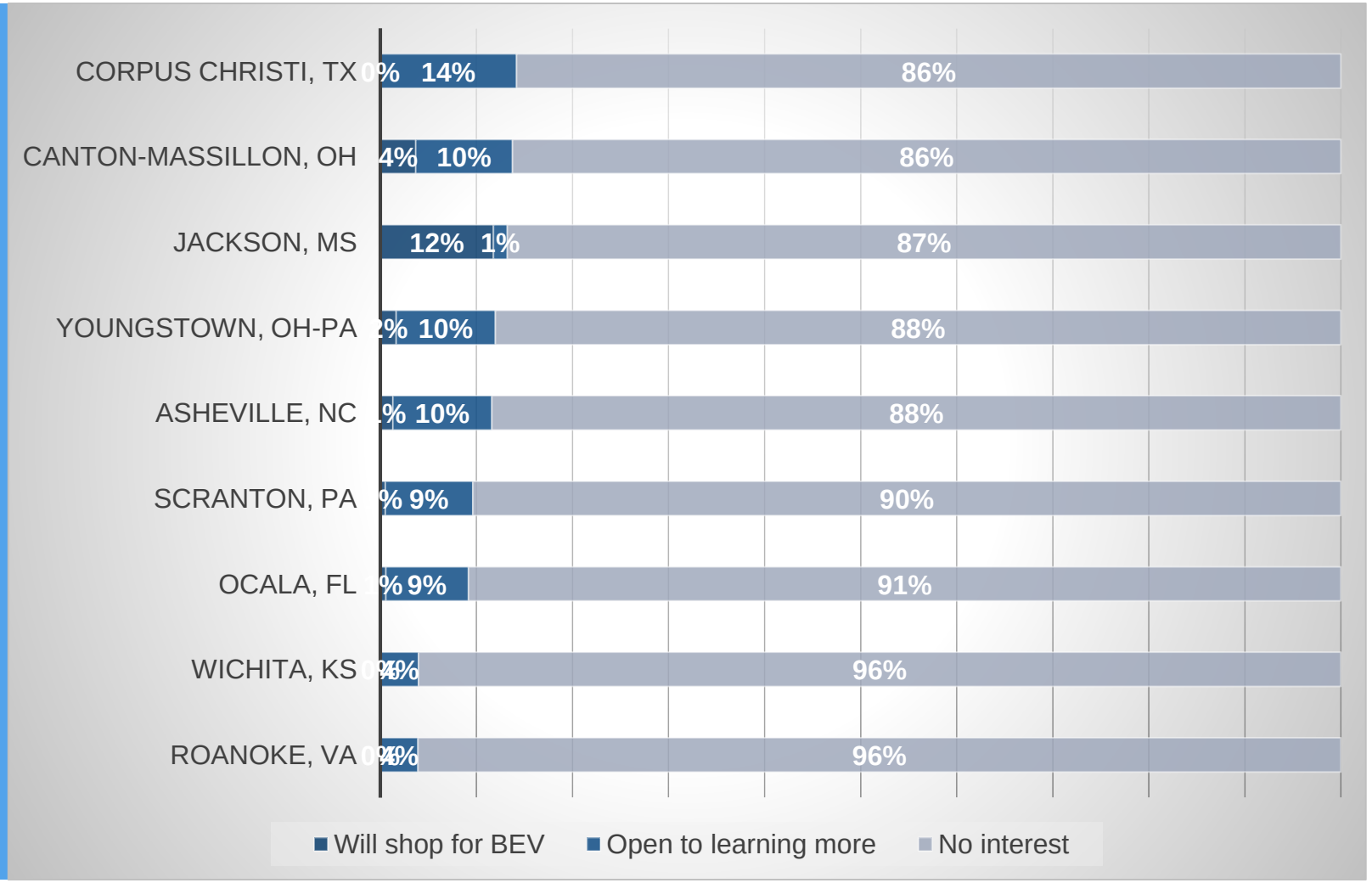
# INTEREST: BATTERY ELECTRIC VEHICLES (BEV)

There are some areas of the US where there is near ZERO future consideration.

Have any employees of Dunder Mifflin ever driven a Tesla?

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# INFLUENCE OF CLIMATE

EV performance in inclement weather is an occasional point of rejection.

"***Electric charge also didn't hold well enough in the winter for my longer days of regular driving.…***"

| | | | |
|---|---|---|---|
| *Owns:* | *Honda Clarity Plug-in Hybrid* | *Disposed:* | *Nissan Leaf* |
| | *Female* | *Age 51* | *$300,001 - $400,000* |

"***i3 terrible in snow - rear wheel regenerative braking bad.***

***would have bought T8 if more reasonable price and actually improved mileage. Toyota Highlander Hybrid significantly better hybrid performance than Volvo at similar price / power.***"

| | | | |
|---|---|---|---|
| *Owns:* | *Volvo XC90 T6 2.0T AWD* | *Disposed:* | *BMW i3* |
| | *Male* | *Age 46* | *$300,001 - $400,000* |

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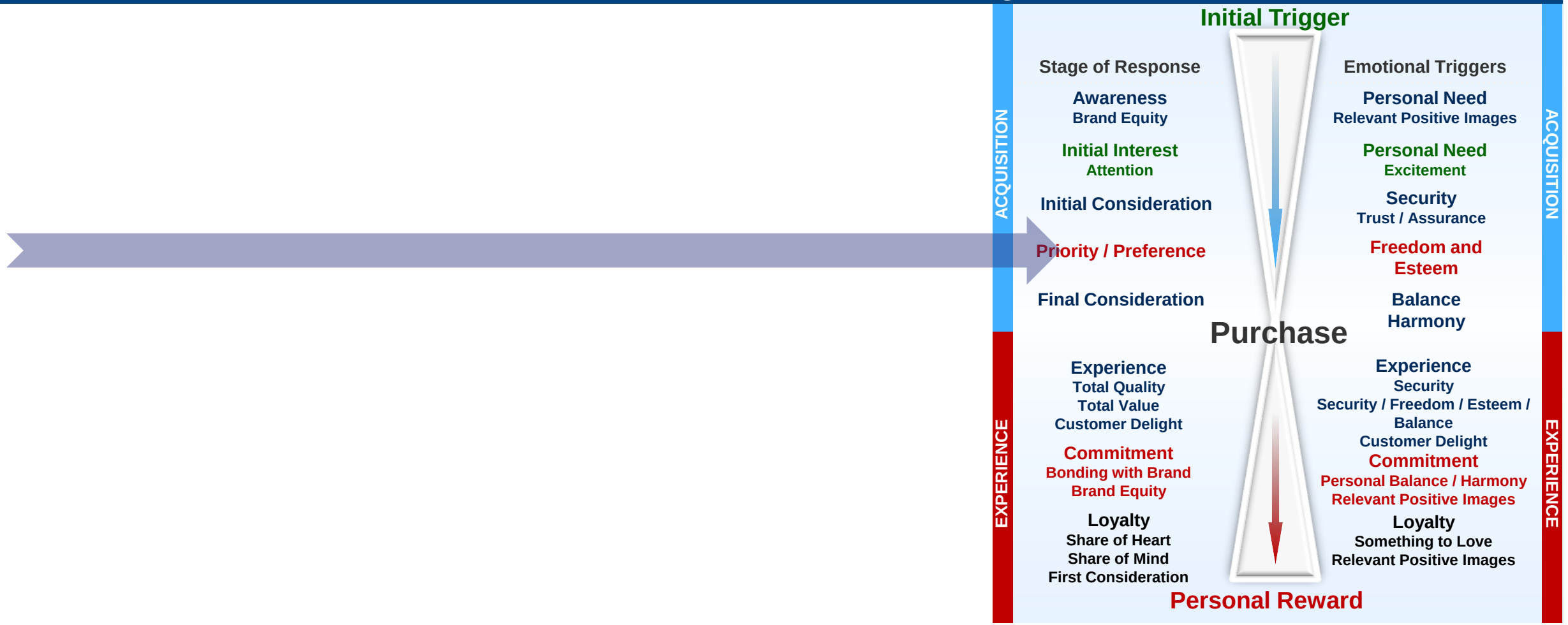
# PRIORITIES & PREFERENCE

## What creates excitement about owning a BEV?







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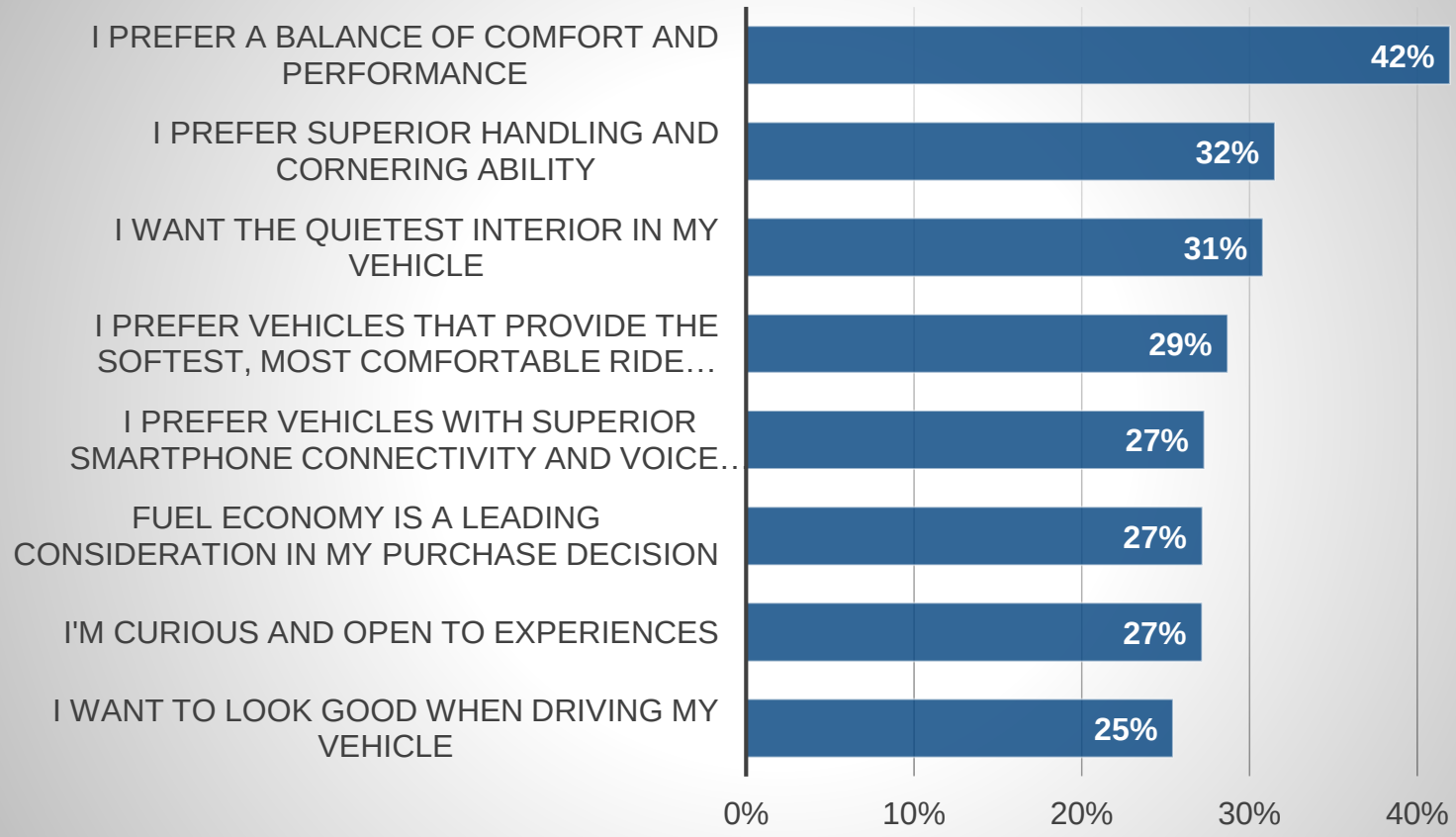
# CUSTOMER PRIORITIES: ATTITUDES

The greatest priority of new vehicle buyers is receiving a balance of comfort and performance. This is closely followed by handling.

Fuel economy is ranked 6 out of 32 in level of importance.

## ATTITUDES
## (% Extremely Important - Top Box ranked of 32)

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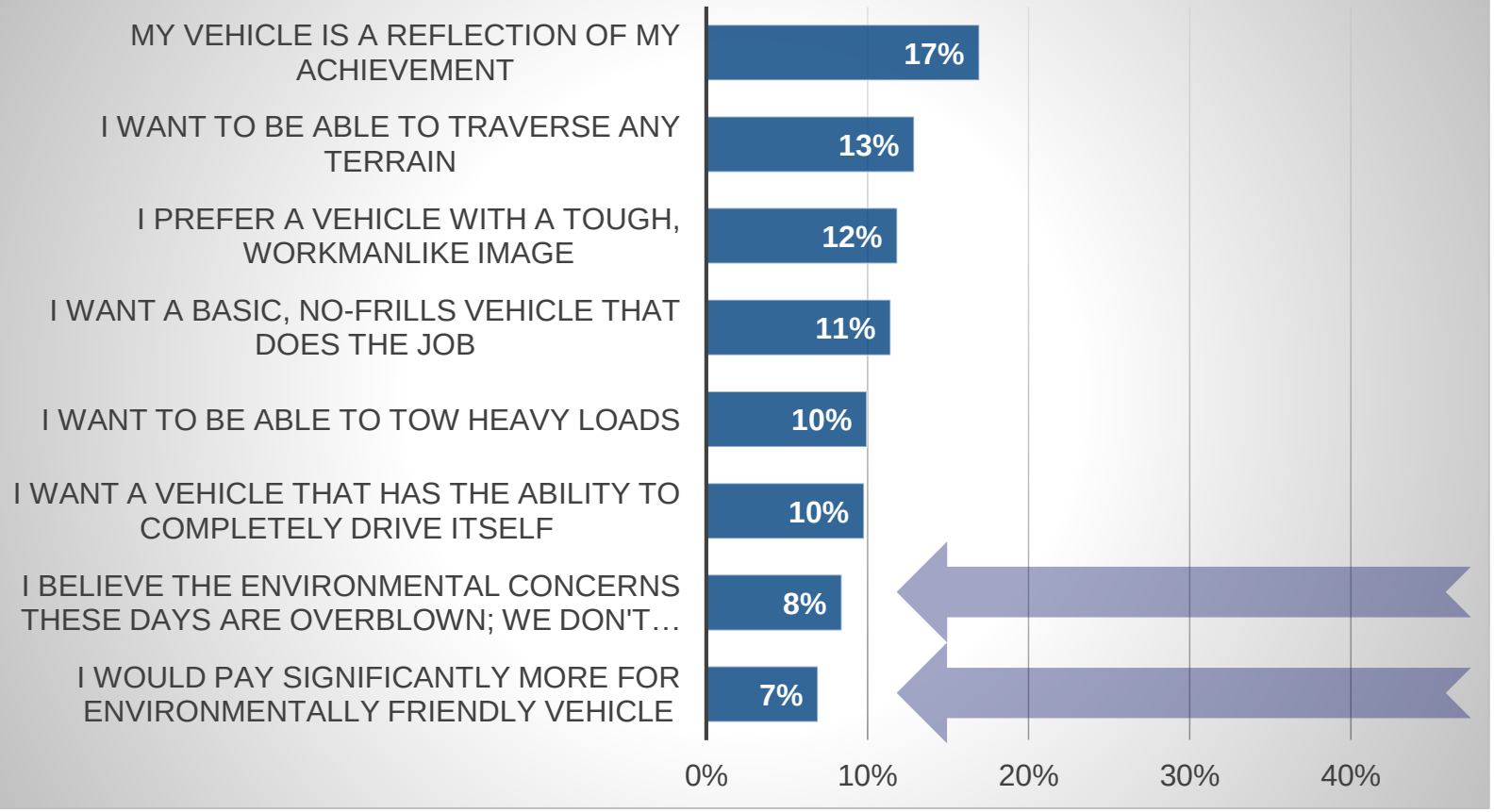
# CUSTOMER PRIORITIES: ATTITUDES

The bottom two priorities (31 & 32 out of 32) of new vehicle both are about environmental concerns (or lack thereof).

When people purchase a vehicle, the primary purpose is for transportation, not to reduce fossil fuel consumption.

## ATTITUDES
## (% Extremely Important - Top Box ranked of 32)

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# CUSTOMER STORY: PRIORITIES

## Implications:

It is the performance of the BEV that really makes the vehicle stand out and become so loved that owners will “chat with you for hours” about why they love the product.

“The ***Electric Vehicle experience is incredible*** compared to anything else I've driven. When ***trying to drive my wife to the hospital*** in my Mazda and trying to floor the vehicle/ pass other on the road, the ***passing ability and acceleration of the Mazda was not up to par with the Nissan Leaf***. My wife looked over at me and rolled her eyes and said "***you're trying to drive this like the Leaf aren't you***, but it's just not as quick." Acceleration is absolutely NOT an issue in the Leaf. It's fantastic! Also, depending on where you live, worrying about adding to your electric bill is not something that should be a concern either when comparing the vehicle to gas. Here is a recent post I made on facebook about my new Leaf. "For those who didn't know, about a month ago I got a lease on a 2018 Nissan Leaf, all electric car. While it's not a looker like a Tesla, it's been really ***fun to drive with instant torque***, ***quick and smooth acceleration and insane MPGs*** (has ranged from 100-150 MPGe, depending on driving style). I am attaching a screenshot of our electric bill which just came in. For anyone scared of switching to an electric vehicle because your electric bill might skyrocket, here is the evidence that we did not even feel it at all this month vs last. There wasn't a huge spike in our bill. Basically, we didn't even notice a difference. This bill comes at having driven the car 800 miles in that time frame. The cost to drive 800 miles I have estimated at $11.20. The cost to have driven 800 miles in our previous car assuming it got 30mpg would have been $59.20 with current gas price. That is 5.3 times more cost/energy efficient. ***If anyone has any questions about driving electric, let me know and I'd be happy to chat with you (for hours...just ask my coworkers***)."

*2018 Nissan Leaf Owner who Considered a Tesla Model 3.*

*Male, 29 years, $90K HHI*

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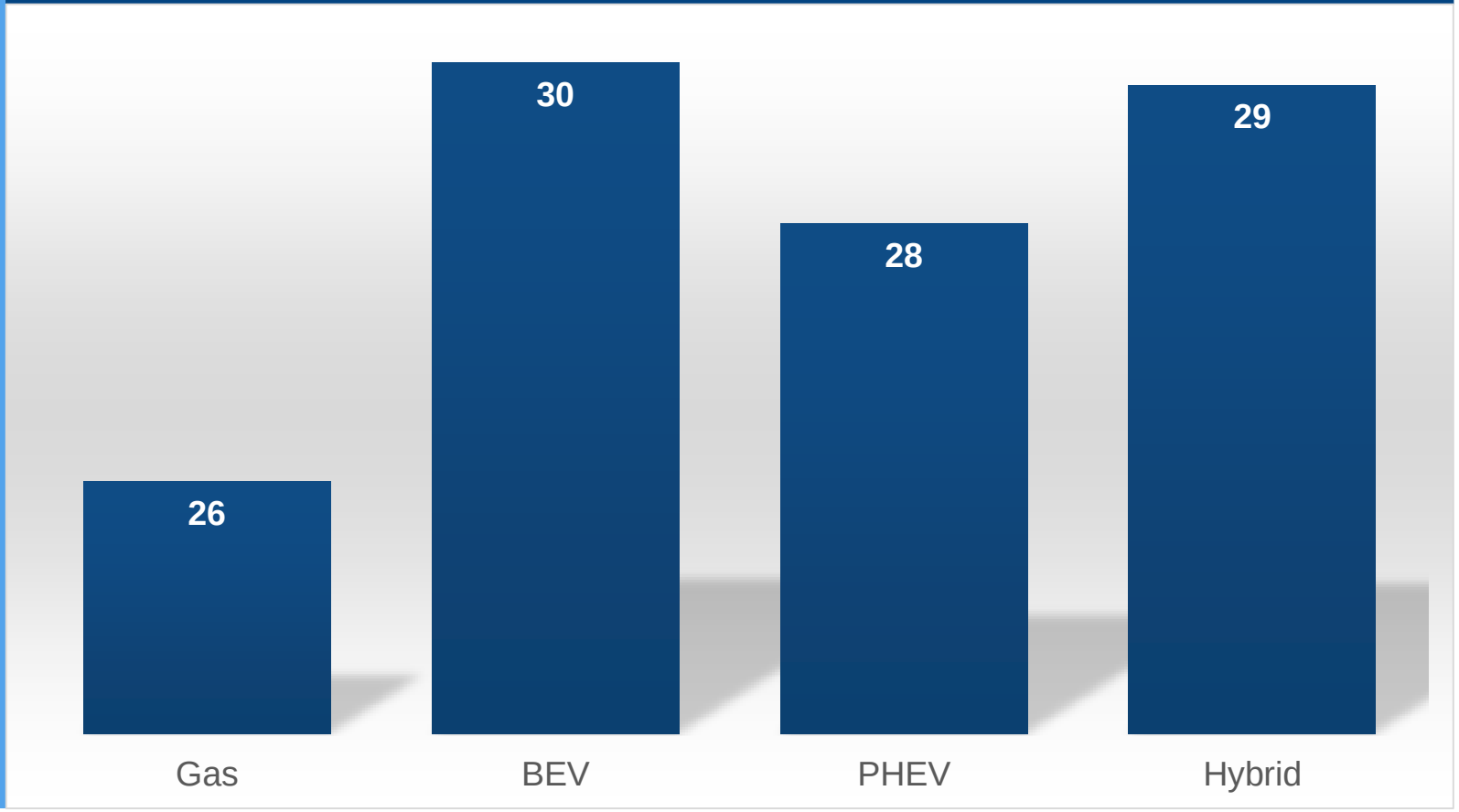
# CUSTOMER PRIORITIES: VEHICLE NEEDS

There are very “rational” reasons why consumers believe they have a need of a BEV or Hybrid.

For example, on a daily basis, those who purchase EVs have a greater daily commute than Gas owners in distance.

## Average Daily Commute (Round trip – Miles: Median)

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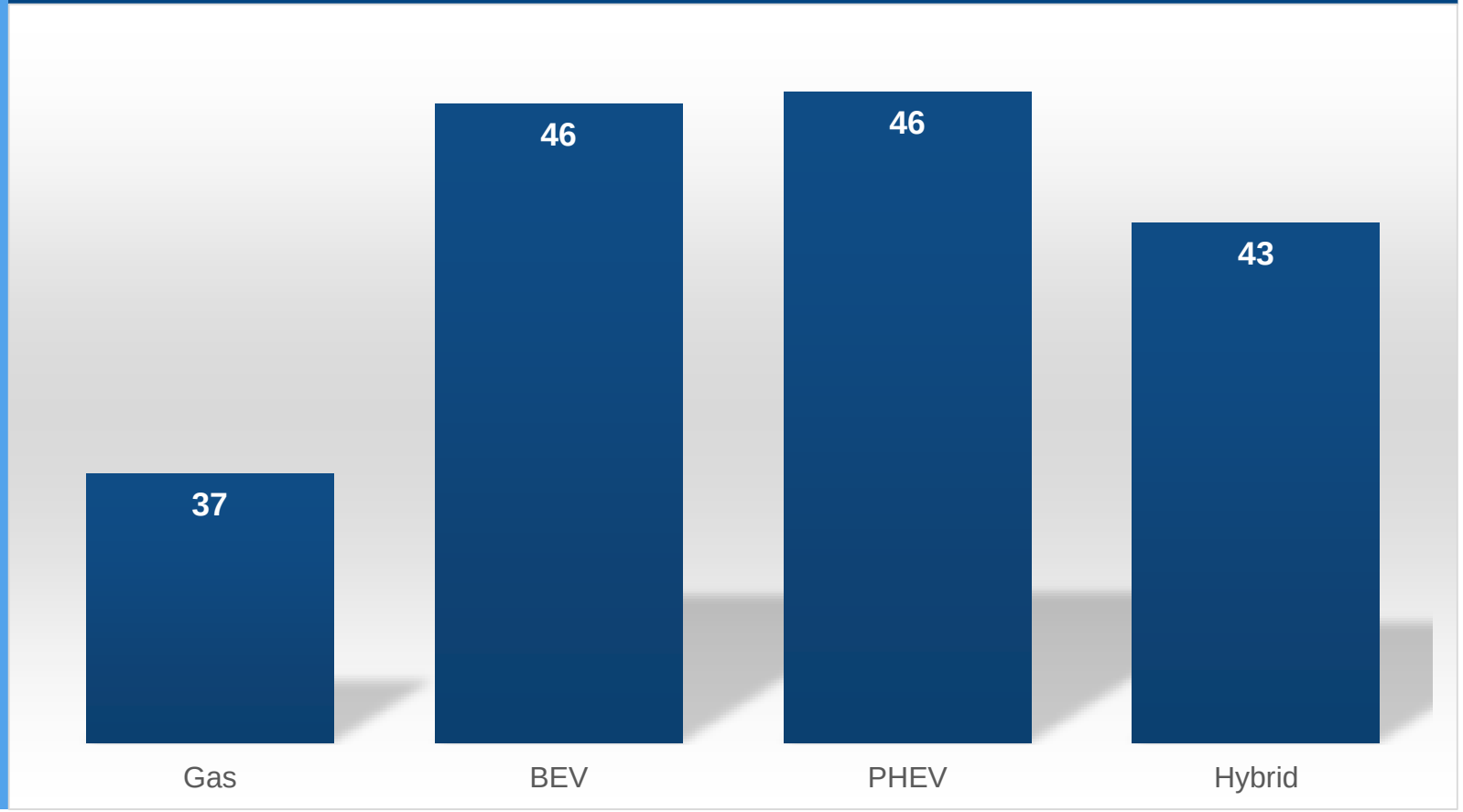
# CUSTOMER PRIORITIES: VEHICLE NEEDS

This also includes the time spent owners spend in traffic.

Essentially the increased commute in both distance and time appear to be factors that initially cause an EV owner to consider an EV purchase.

## Average Daily Commute (Round trip – Minutes: Median)

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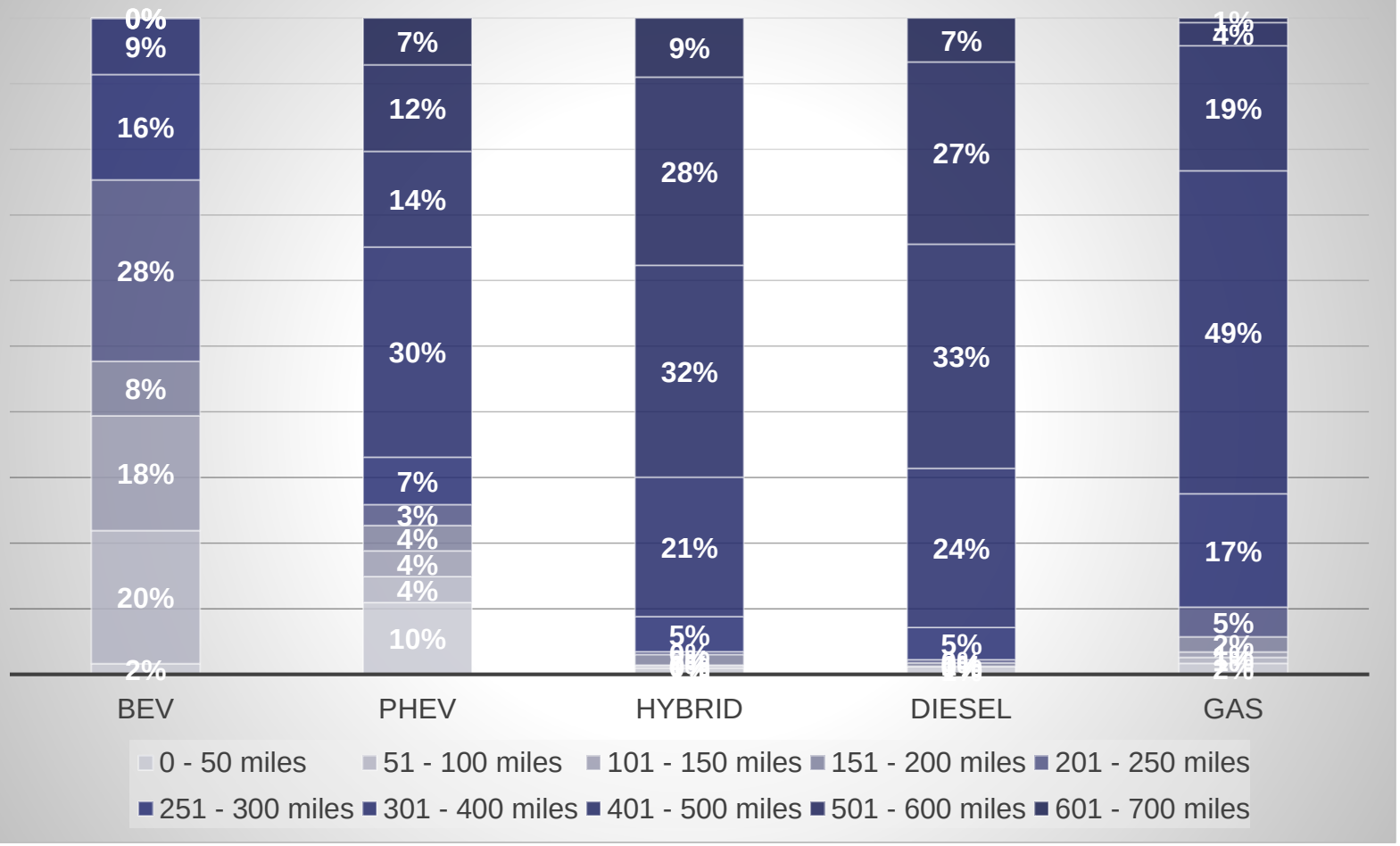
# CUSTOMER PRIORITIES: CURRENT RANGE

75% of all ICE vehicles have a range of over 300 miles per full tank. BEVs and PHEVs simply do not have the capability that other powertrains have available to consumers

## Current Vehicle Range

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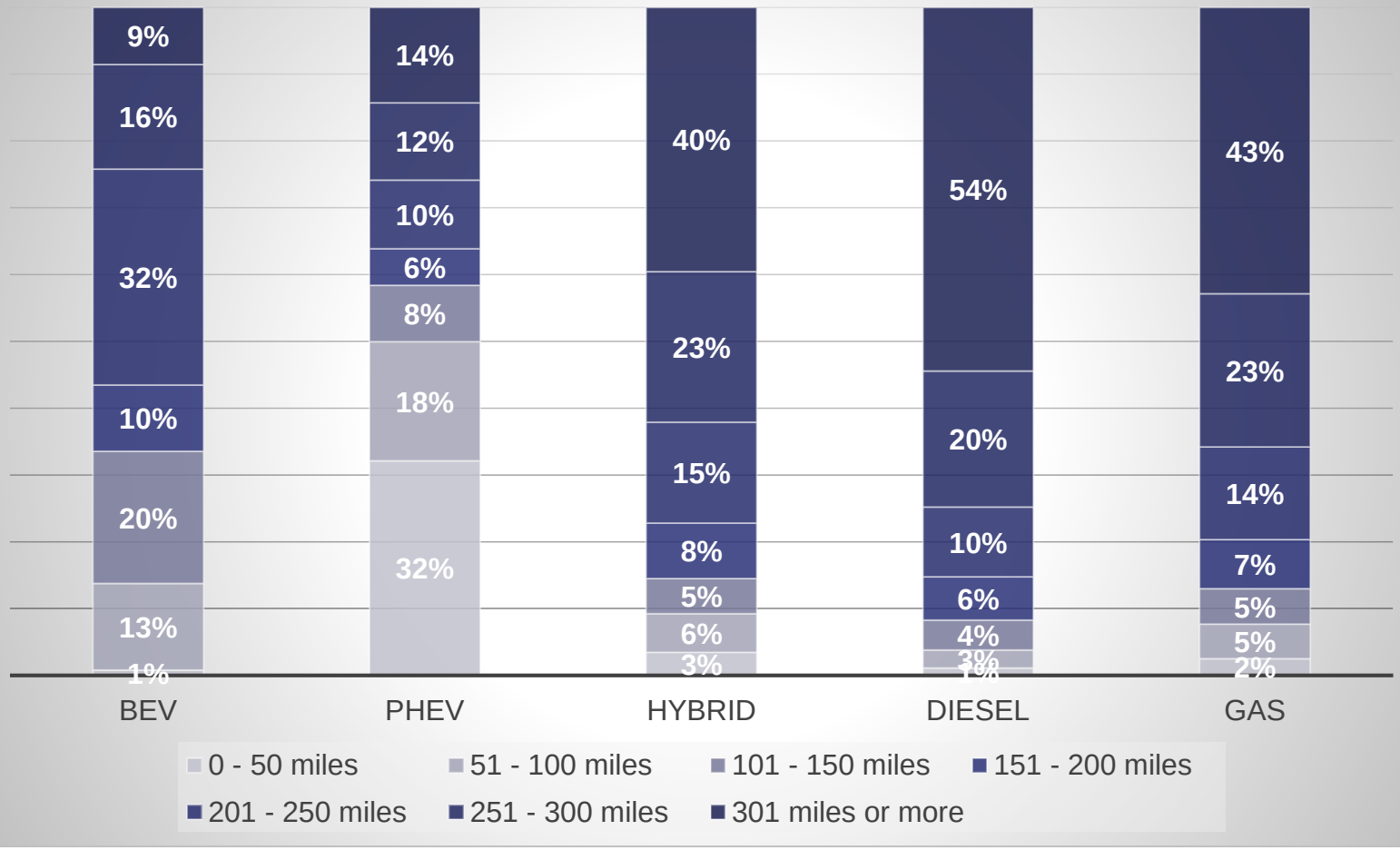
# CUSTOMER PRIORITIES: NEEDED RANGE

Only 20% of the US new vehicle buying population who would consider a BEV would consider one that offered less than a 200 mile range.

Only 43% of those who own a BEV today would be willing to continue with a BEV with a range under 200 miles per charge.

## Minimum Required Vehicle Range for BEV




Data from 2017 & 2018 NVES
Among those who would consider a BEV

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# CUSTOMER STORY: REQUIRED RANGE

## Implications:

If charging infrastructure, including public, home and work opportunities, are not enhanced, BEV acceptance, consideration and purchase will continue to be small.

"This was ***purchased as a commute vehicle for a 90+ mile commute per day***. It has ***worked out perfectly*** this far, has become our go to vehicle for weekends as well, short of our camping trips which I use our SUV. It fits our 2 forward facing and 1 rear facing car seats for our 3 kids in the back (although it's a pretty tight fit even with one seat being a narrow Diono RadianXT). ***It's comfortably made the 120mile drive to grandmas house*** (***where i installed another charging outlet so we could get home***). With the included EVSE charge cable on a 240V/40A circuit it charges at about 16% of battery capacity per hour, up to about 80% when it starts to slow down the closer to full charge you get. The ProPilot Assist is not as good as Tesla's at high-speeds or dead-stopped traffic. But I have used it for commute traffic many times, and long trips to grandmas house, and in both situations it is quite ***nice having the steering and speed controlled by the car so I can think about other things***. Certainly a great bit of tech that I will continue to use a lot. I have had 2 Model 3 reservations for over 2 yrs, anxiously waiting to own a Tesla. But for less than ***half of what a currently offered Tesla costs***, this vehicle has ***turned out to be a great commute car*** and I have been pleasantly surprised by how much I like it."

*2018 Nissan Leaf Owner, Considered a VW e-Golf disposed a Nissan Altima.*

*37, Male, $250,000 HHI.*



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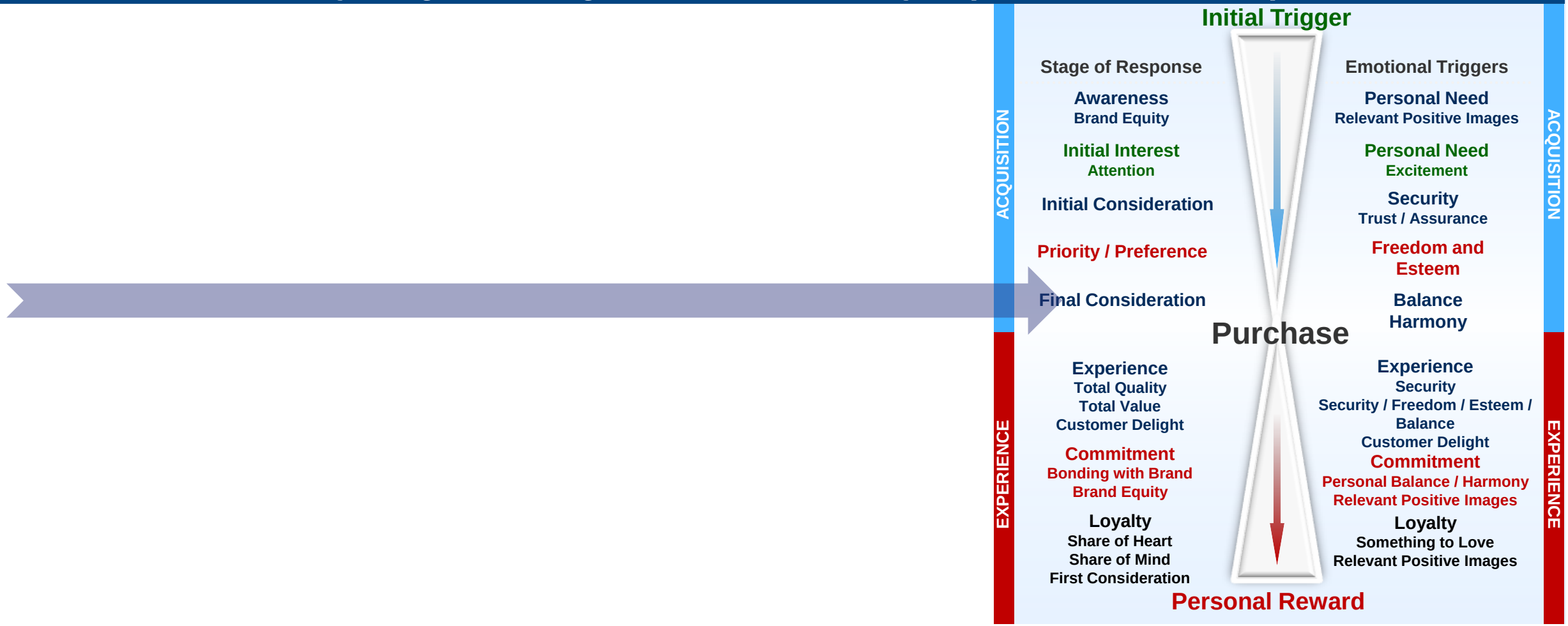
# FINAL CONSIDERATION

## How does everything come together and ultimately impact a consumers purchase?

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# FINAL CONSIDERATION: PURCHASE REASONS

**Alternative powertrains have similar purchase reasons over gas powered vehicles. Distance vehicle can travel before required refueling has a significant impact on BEV, PHEVs and Hybrids purchases.**

## Purchase Reasons: (% Over Industry Average)

| BEV | | PHEV | | Hybrid | | Diesel | |
|---|---|---|---|---|---|---|---|
| Overall environmental friendliness | 34% | Gas or electric mileage/fuel economy | 34% | Gas or electric mileage/fuel economy | 36% | Towing capability | 54% |
| Gas or electric mileage/fuel economy | 29% | Overall environmental friendliness | 27% | Overall environmental friendliness | 25% | Haul cargo in bed (pickup only) | 53% |
| Technical innovations | 22% | Driving distance on full tank/charge | 13% | Driving distance on full tank/charge | 18% | 4WD/AWD availability | 28% |
| Driving distance on full tank/charge | 17% | Technical innovations | 8% | Overall value for the money | 4% | Overall power and pickup | 27% |

Data from 2017 & 2018 NVES. Percentages are Powertrain indexed to Industry

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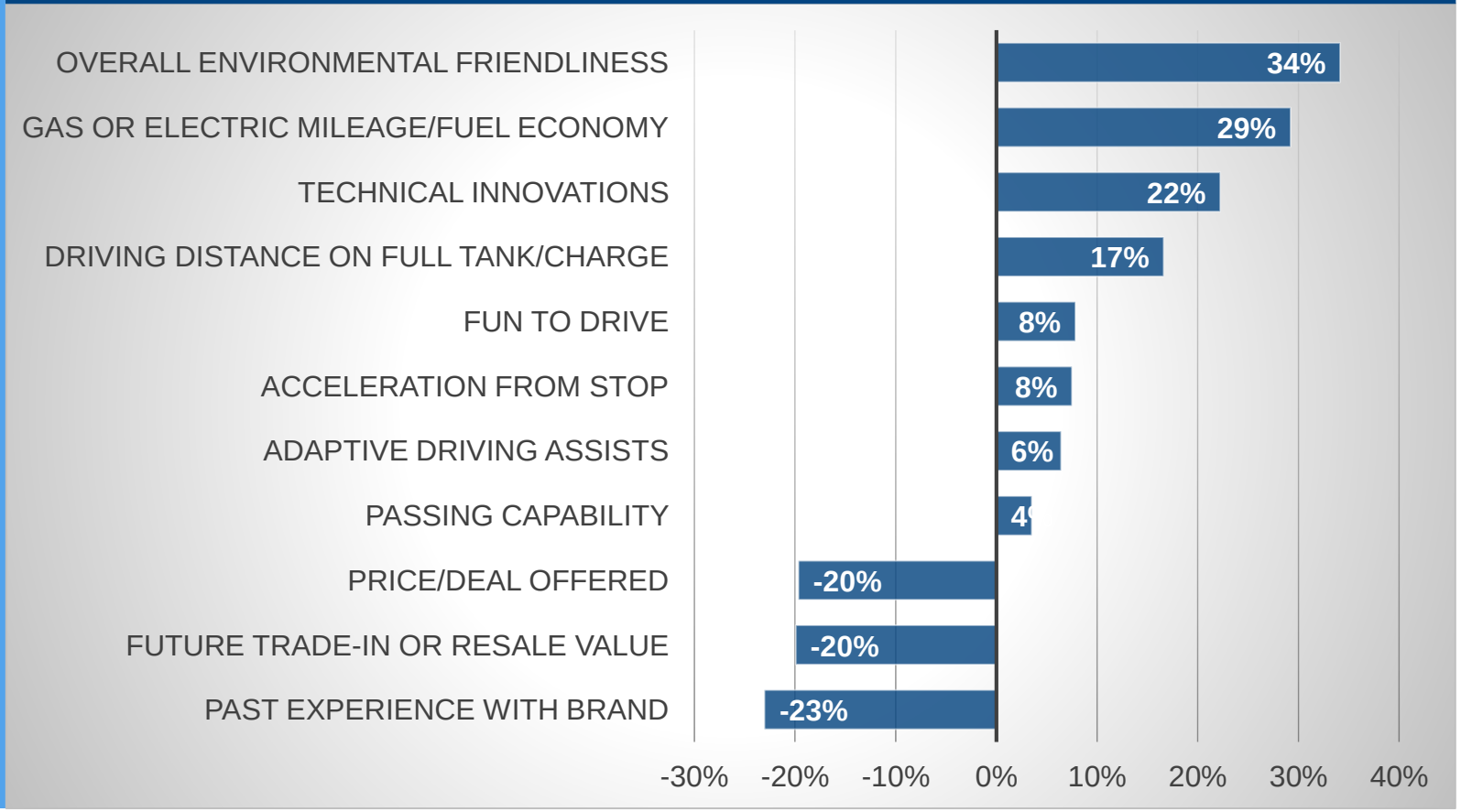
# FINAL CONSIDERATION: BEV PURCHASE REASONS

In addition to already mentioned reasons for purchase, BEVs are Fun and purchased for performance characteristics.

Price, future resale and past experience with brand are not why the customer purchased.

## Purchase Reasons
## BEVs % Over/Under Industry Average

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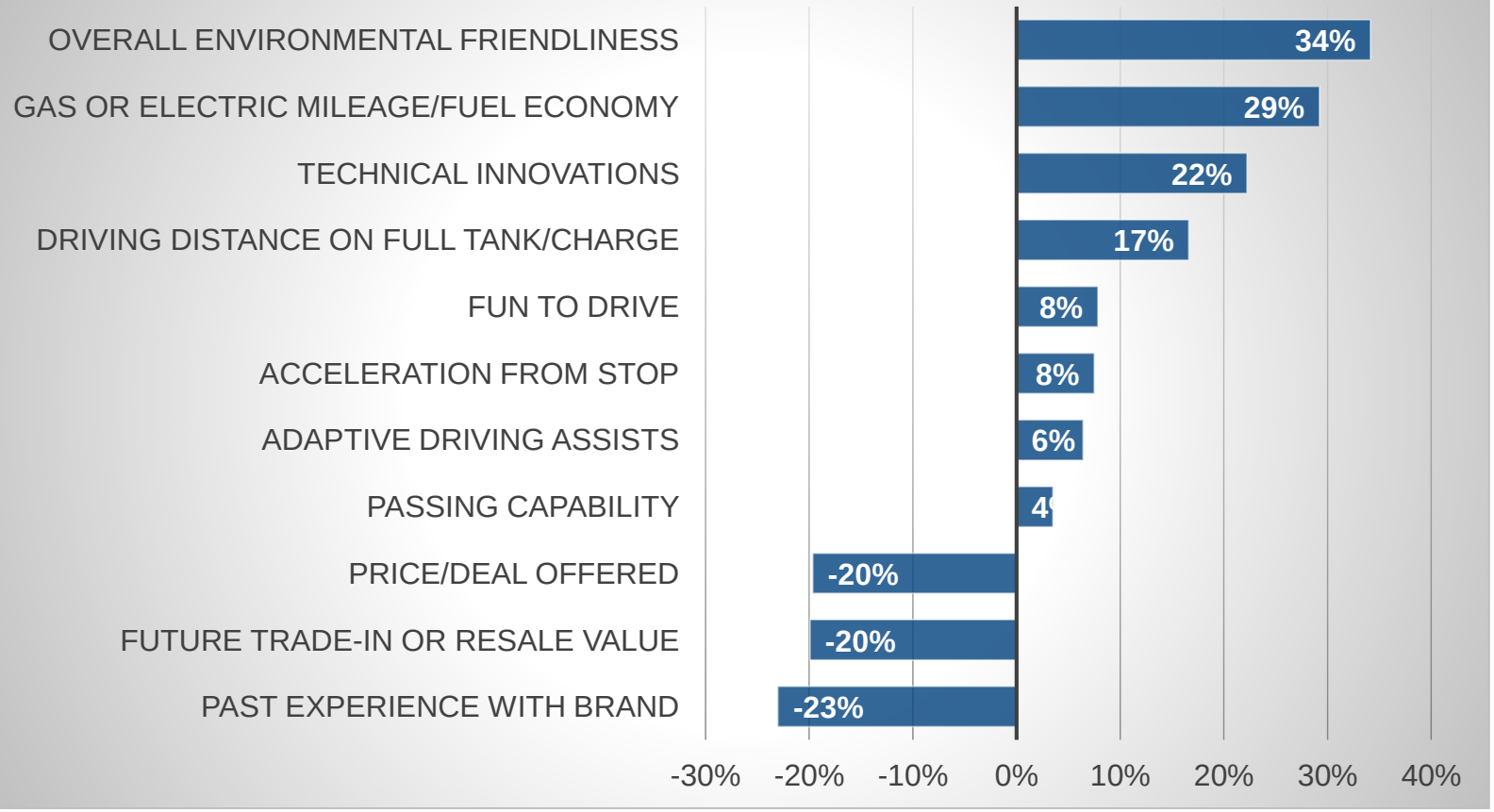
# FINAL CONSIDERATION: BEV PURCHASE REASONS

NOTE: While price was not a factor in purchase, it can be a significant barrier to purchase.

Essentially someone either gets an amazing deal (so price isn't an issue) or they simply buy what they want.

## Purchase Reasons
## BEVs % Over/Under Industry Average

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# FINAL CONSIDERATION: REJECTION REASONS

**Charging stations and infrastructure are key factors in BEV rejection. Unaffordability also plays a role in some BEV rejection.**

## Rejection Reasons: (% Over Industry Average)

| BEV | | PHEV | | Hybrid | | Diesel | |
|---|---|---|---|---|---|---|---|
| Out of charge, lack of charging stations | 10% | Out of charge, lack of charging stations | 8% | Driving distance on full tank or charge | 1% | Overall impression of durability / reliability | 4% |
| Driving distance on full tank or charge | 7% | Driving distance on full tank or charge | 4% | Fuel economy / mileage | 1% | Type of fuel used (premium, ethanol) | 3% |
| Discontinued model / used/not available | 5% | Overall environmental friendliness | 2% | Fuel efficiency | 1% | Trailer towing capability | 3% |
| Unaffordable to buy | 4% | Fuel efficiency | 2% | Overall safety of the vehicle | 1% | Price/deal offered | 3% |

Data from 2017 & 2018 NVES. Percentages are Powertrain indexed to Industry

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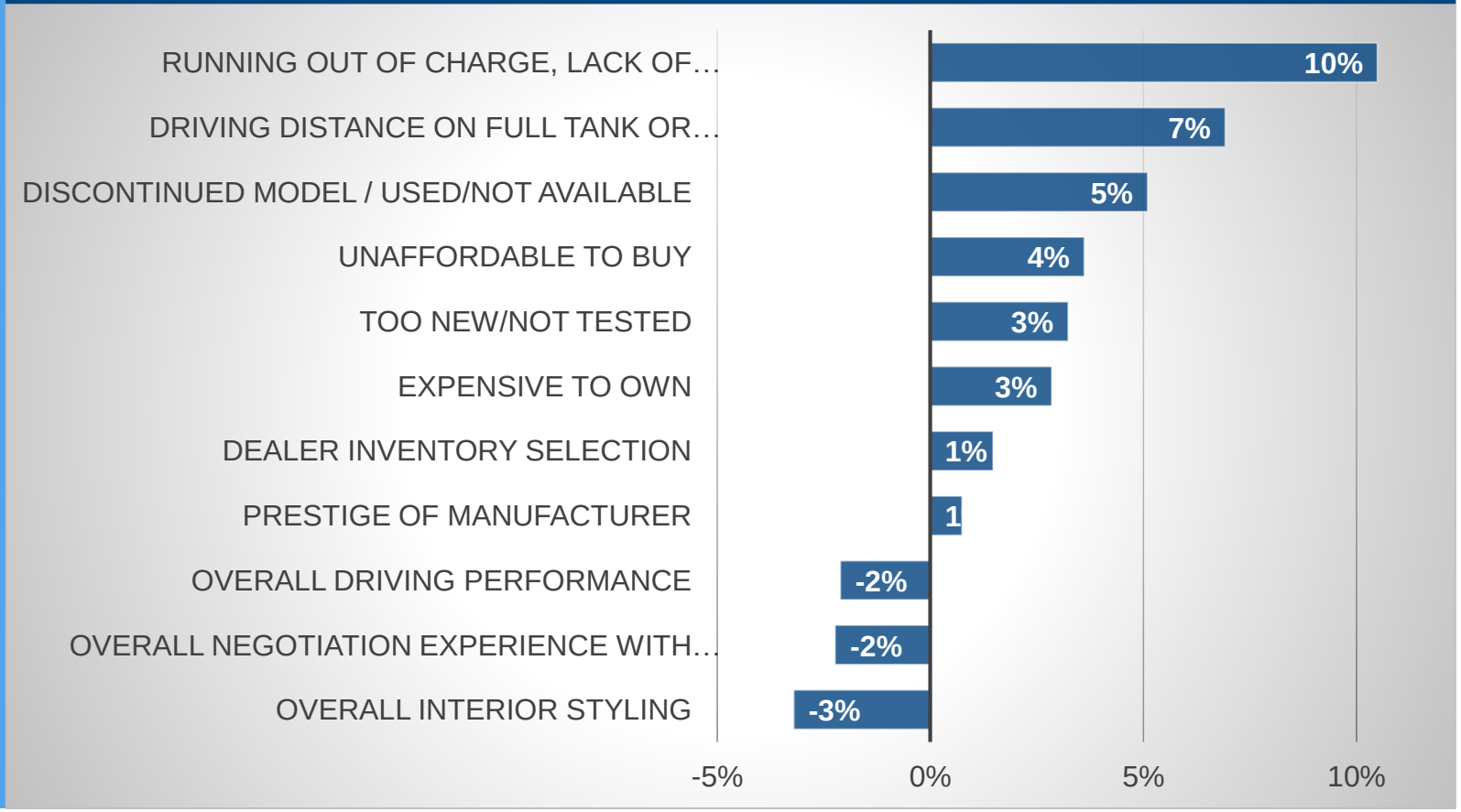
# FINAL CONSIDERATION: BEV PURCHASE REASONS

BEVs are essentially rejected for charging infrastructure and price.

They are not being rejected for performance or styling product attributes.

## Purchase Reasons
## BEVs % Over/Under Industry Average




Data from 2017 & 2018 NVES

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# CUSTOMER STORY: REQUIRED RANGE

## Implications:

If charging infrastructure, including public, home and work opportunities, are not enhanced, BEV acceptance, consideration and purchase will continue to be small.

"***I LOVE this car***. Every day I appreciate that I am able to travel around and get to where I need to go without burning gasoline…

Also I live in an apartment and although I am lucky enough to have my room right above where I park my car (***and then I throw a heavy duty extension cord out the window to charge at night***), most people in condos or apartments have no place to charge their car. - I ***hope that the infrastructure will fill out more*** and serve more people as time goes on."

*Nissan Leaf Owner.*

*Most Seriously Considered a Chevrolet Volt.*

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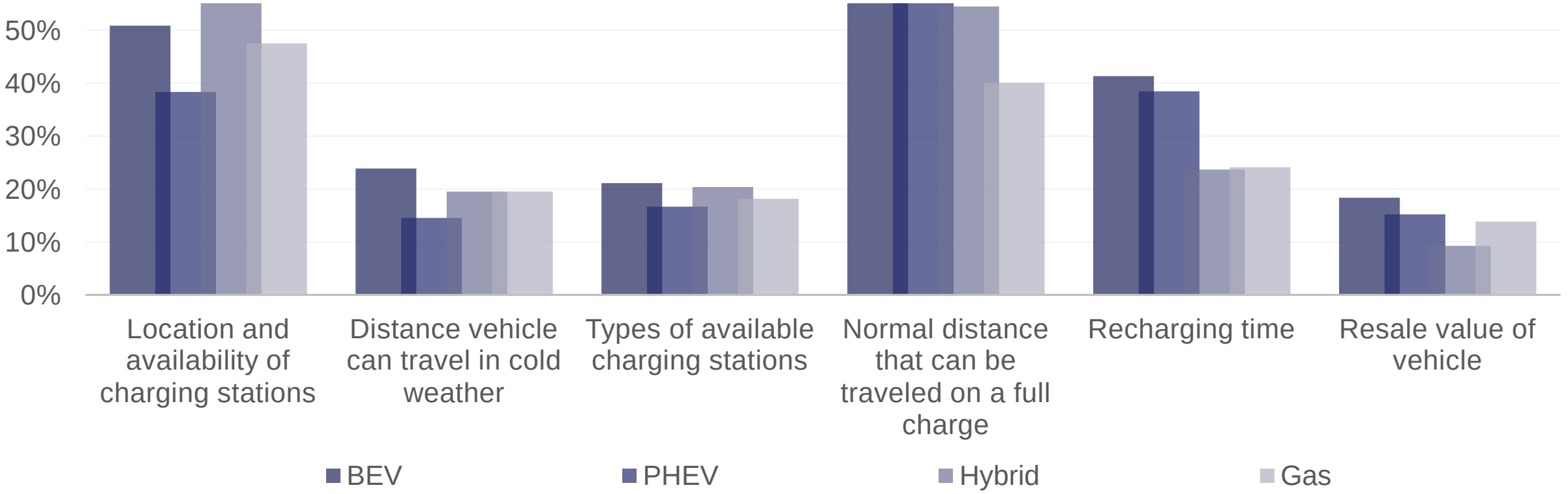
# FINAL CONSIDERATION: PURCHASE BARRIERS

**Infrastructure is a major factor preventing potential BEV owners to becoming new owners.**

**Which (if any) of the following have been/would be significant concerns in purchasing an Electric Vehicle?**




Data from 2017 & 2018 NVES
Sorted by BEV difference to Industry

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# EV REJECTERS: WHY THEY PASSED

Rejection Reasons

***"I was really torn between the Bolt and the Malibu. Loved them both for completely different reasons. I wasn't crazy about the exterior of the Bolt like I was with the Malibu but I loved that it was electric. I test drove both. I loved them both. But when I came down to buying, I wanted to know all the facts for both cars. My salesman was giving me all the information, but the manager put a lot of pressure towards the purchase of the Malibu. He also gave a lot of incentives towards the purchase of the Malibu I couldn't really say no."***

| | | | |
|---|---|---|---|
| *Owns:* | *Chevrolet Malibu LT* | *Rejected:* | *Chevrolet Bolt EV* |
| | *Female* | *Age 28* | *$55,001 - $60,000* |

***"I really wanted to buy an EV, but driving distance and price were very important to me. The Nissan Leaf was in my price range but has terrible range. The Chevy EV has a great range, and a (relatively) affordable price but even that was too high for me. Also, my perception of Chevrolet is that it is a low-quality brand. I might have bought it if it was ~ $10,000 cheaper. "***

| | | | |
|---|---|---|---|
| *Owns:* | *Honda Fit EX* | *Rejected:* | *Chevrolet Bolt EV* |
| | *Male* | *Age 34* | *$80,001 - $90,000* |

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# EV REJECTERS: WHY THEY PASSED

Rejection Reasons

***"I really wanted one, but unfortunately there were none that were located within an 8 hour drive of my home. I was concerned that there wouldn't be enough charging stations to get it to other cities when I eventually move. If the infrastructure had been in place and had an i3 been available at my dealership, I definitely would have purchased it over my 2 Series.…"***

| | | | |
|---|---|---|---|
| *Owns:* | *BMW M240i Coupe* | *Rejected:* | *BMW i3* |
| | *Male* | *Age 28* | *$300,001 - $400,000* |

***"local residential charge stations very often occupied. having to wait to recharge on road trip not ideal & some destinations (resorts) do not have adequate charging stations. unknown how much model 3 sales would impact charge station availability despite growth of charge network is a large concern. "***

| | | | |
|---|---|---|---|
| *Owns:* | *BMW 530e Sedan* | *Disposed:* | *Tesla Model S* |
| | *Female* | *Age 48* | *$200,001 - $300,000* |

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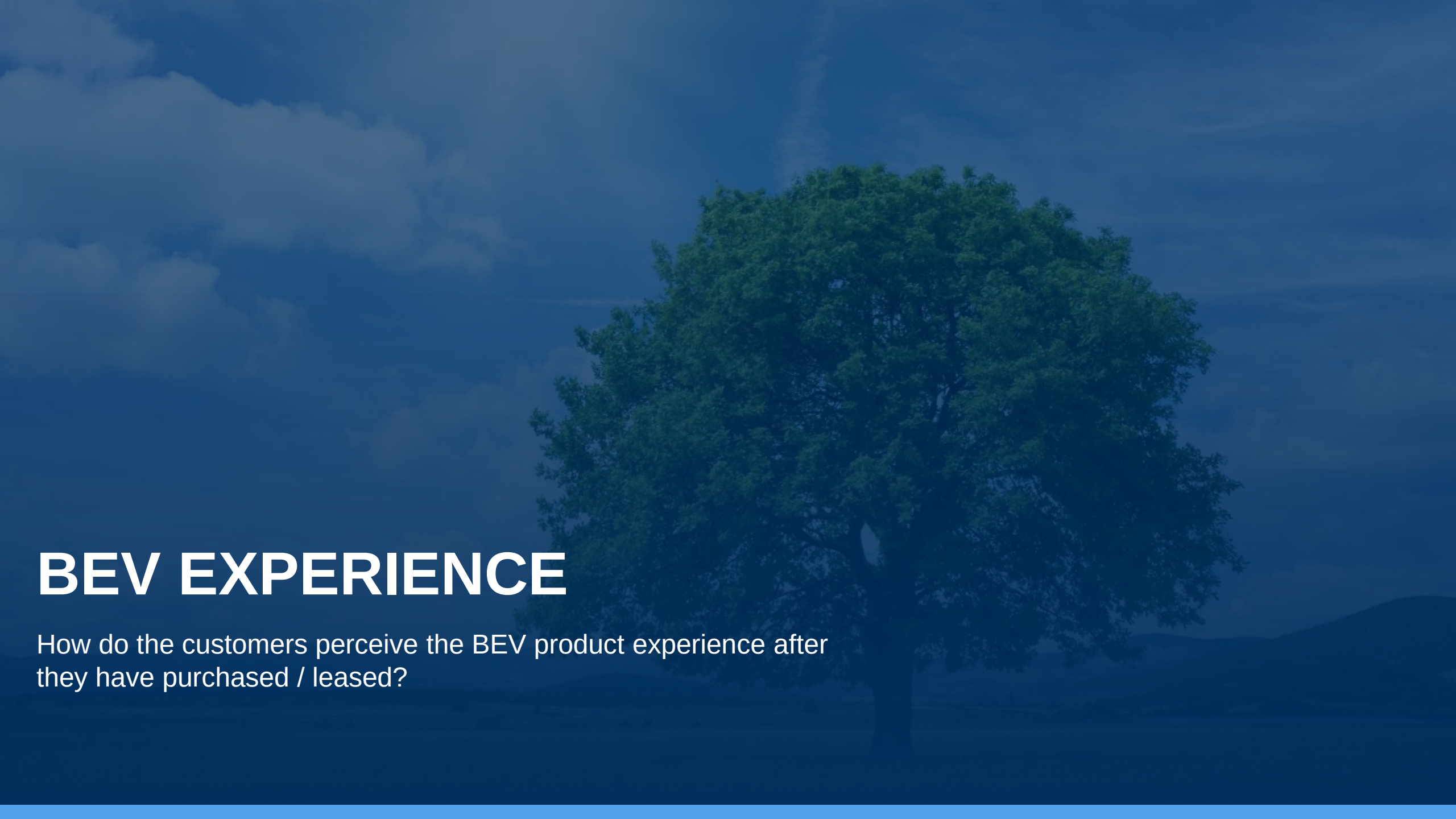
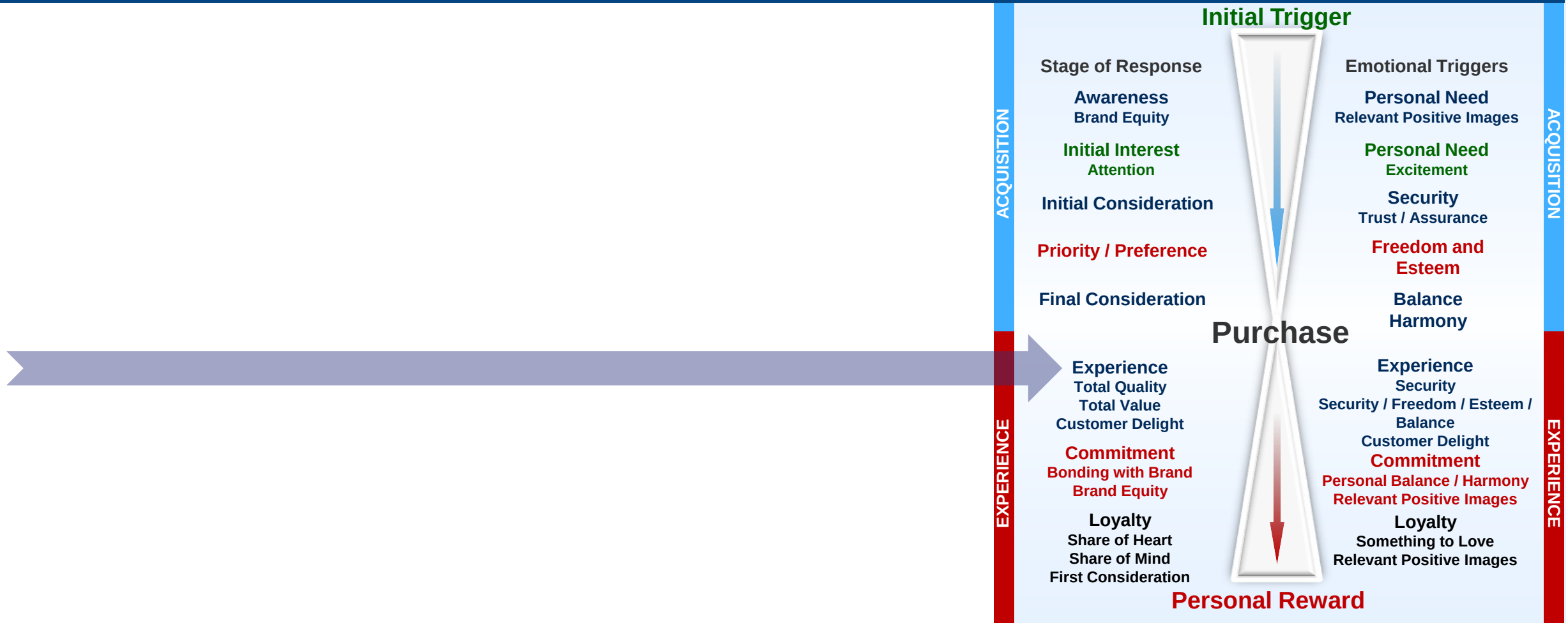


# BEV EXPERIENCE

How do the customers perceive the BEV product experience after they have purchased / leased?

# EXPERIENCE

## How does the ownership experience impact future loyalty?



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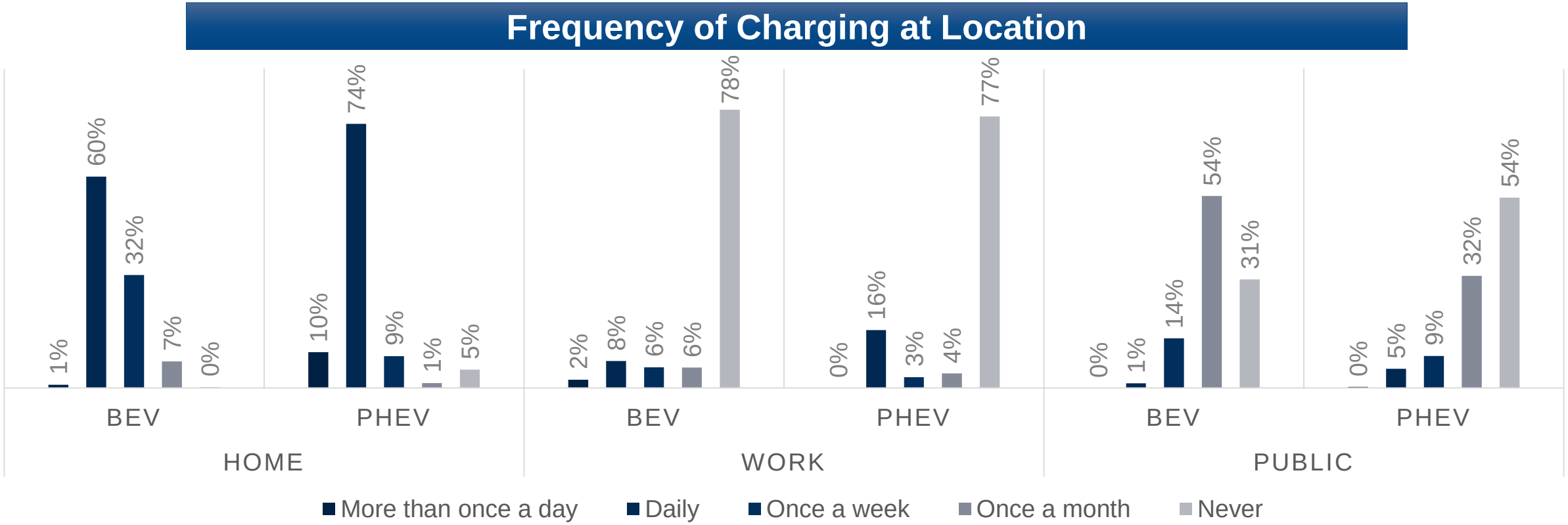
# EXPERIENCE: CHARGING LOCATION FREQUENCY

**Home charging is the norm for most BEV & PHEV owners. Work and public stations are not use as often.**

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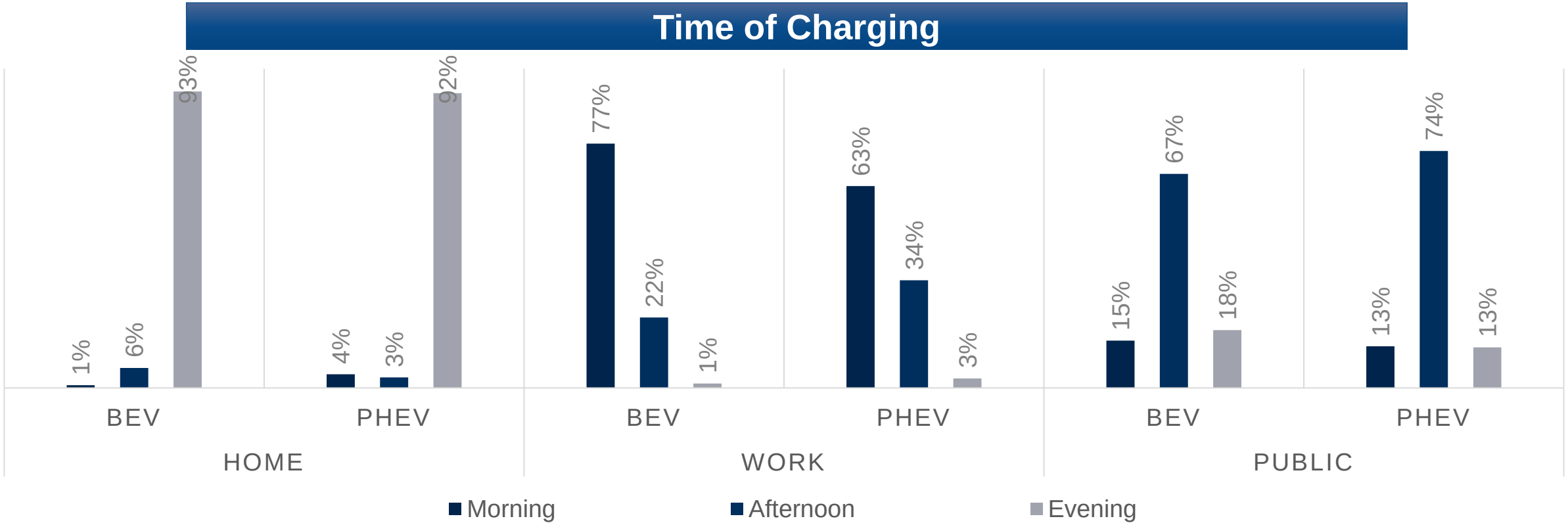
# EXPERIENCE: CHARGING TIMES

**It should be expected that those who charge at home do so in the evening, those charging at work begin in the morning and public stations are most often used in the afternoon.**

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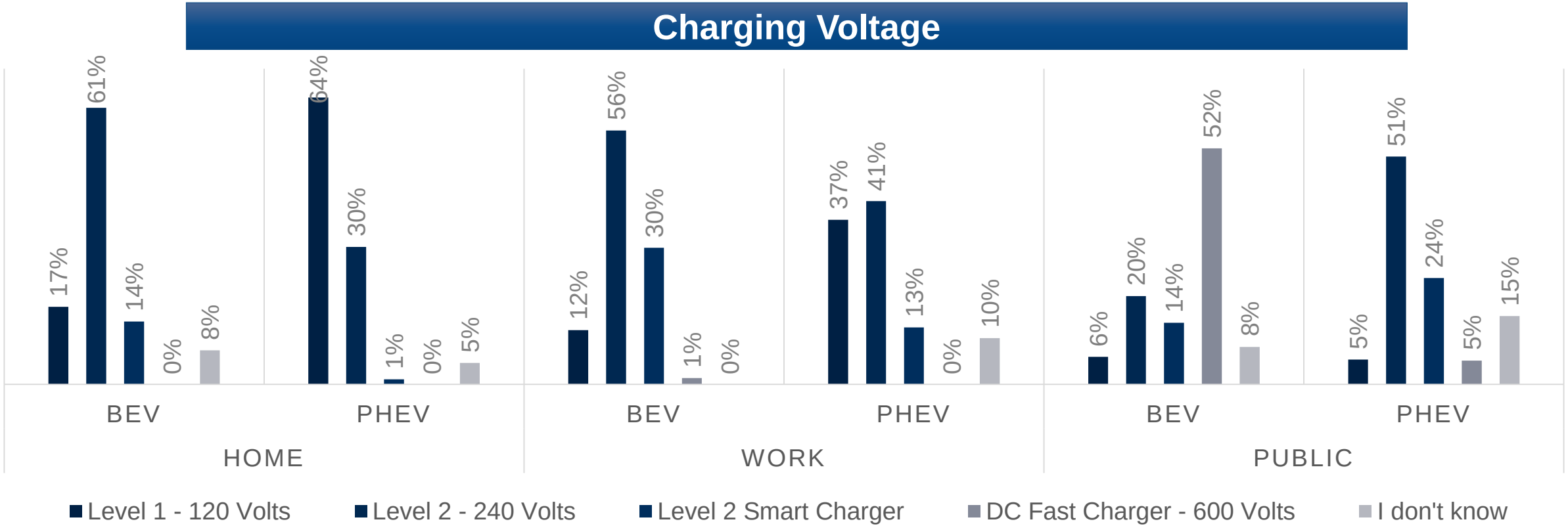
# EXPERIENCE: CHARGING VOLTAGE

**The most charging happens at home, and it is most often with a Level 1 charger. With limited number of people using Work and/or Public options, do current owners believe this is their new normal?**

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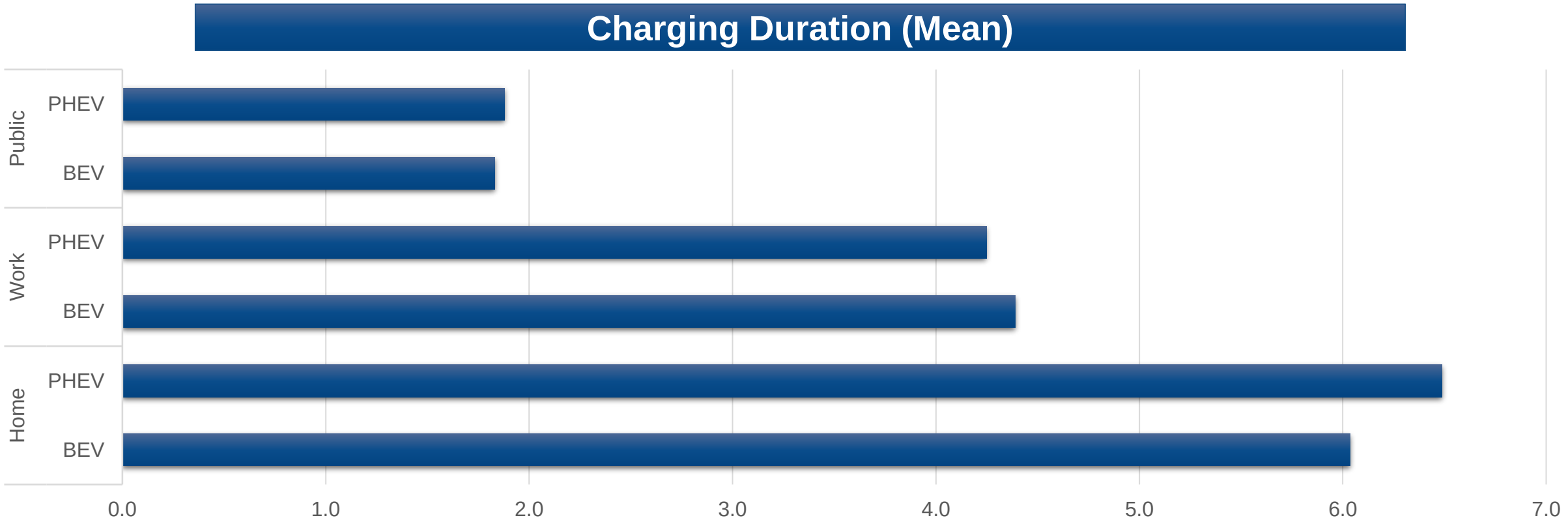
# EXPERIENCE: CHARGING DURATION

**The charging times match the voltage capabilities available of each type of location. Are Level 1 charging at home sufficient to keep customers loyal to BEVs?**

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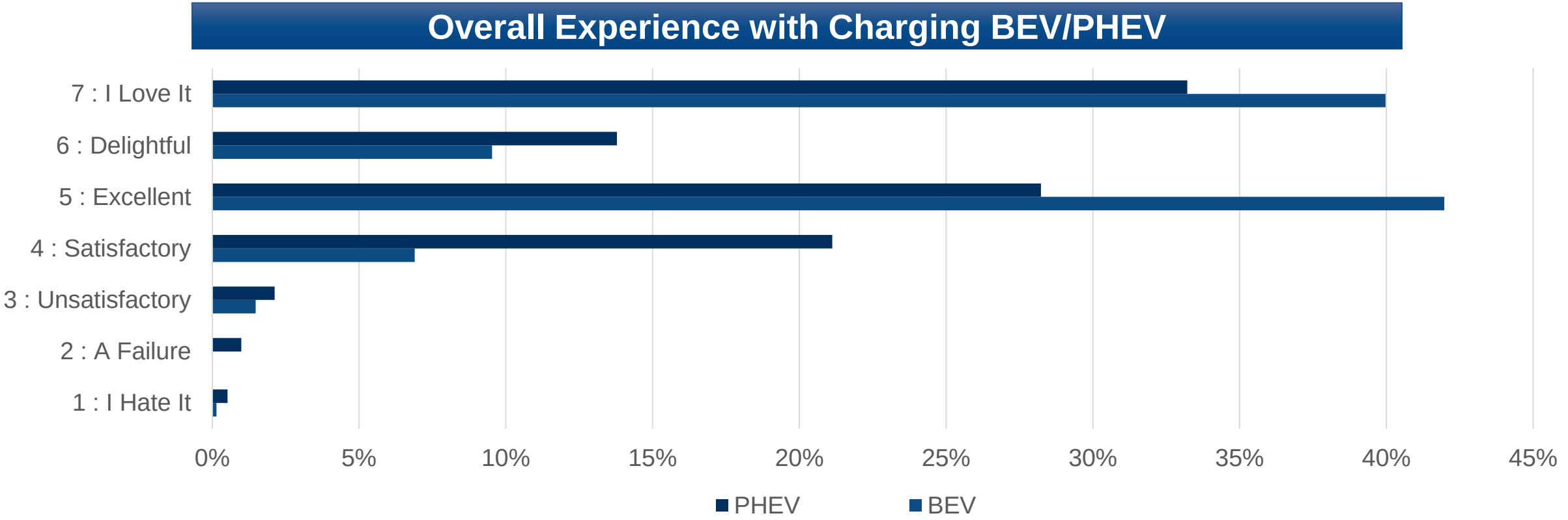
# EXPERIENCE: CHARGING EXPERIENCE

**A majority of owners state that they find charging their vehicles to be a positive experience. However, a third of PHEV owners state they are Satisfied or worse and more often defect back to ICE.**

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# CUSTOMER STORY: CHARGING LOCATION

What They Love…?

"With a ***charger at home it is very convenient***. The 240v charger will completely charge the car overnight and the car ***range is adequate for all but long trips***. It is very ***nice to both save money and not buy gas***."

*Chevy Bolt EV, Disposed Toyota Prius*

*Male, 66 years, $125K HHI*

---

"***Once set up, it takes only a few seconds to plug in or unplug***. I have a timer on the power source so that I charge the car at the lowest electrical rate (10pm to 8am). ***It would be better if the car's software could be programmed to charge at specified times***."

*Volvo XC60*

*Male, 75 years, $400K HHI*

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# CUSTOMER STORY: CHARGING LOCATION

What They Love…?

"***The Clarity's large built-in charger enables fast charging, which is important when we make more than one excursion in the same day***. Also, we ***can precondition the interior*** using the heater or air-conditioner while plugged in to start every journey in comfort."

*Honda Clarity*

*Male, 69 years, $40K*

"A typical day for me is running errands, lunch with friends, etc. I get home mid afternoon and the first thing I do is plug in the car. ***Within a couple of hours I have a full charge allowing my wife and I to go out again (the same day) to dinner or visit family or friends etc***. ***I want to try a public charging station but they seem awkward to use, mainly because you have to join a charging station company, link Blink, and get a card issued so you can scan their reader***. I assume all charging companies have a similar system. I think they should all just have a credit card swipe like a gas station. ***I don't want to carry around a bunch of different cards for charging stations***."

*Honda Clarity, Most Seriously Considered Nissan Leaf*

*Male, 73 years, $125K HHI*

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# CUSTOMER STORY: CHARGING LOCATION

What They Hate

"It works well. I just ***takes 12+ hours with the Level 1 charger so I have to plug it in fairly early in the evening to get it charged***. I plan to install a Level 2 charger this year."

*BMW 330e Sedan, Disposed BMW 5 Series, Considered BMW 5 Series*

*Male, 48 years, $750K HHI*

"It works very well with my home Clipper Creek level 2 evse. It also worked well the four times that I have used CCS level 3 quick charging at the Tacoma mall. ***The quick charging could be and should be quicker with a less aggressive tapering. The charging infrastructure needs to significantly more robust with planned for redundancy and reliability rivaling Tesla and conventional gas car infrastructure*****."**

*Chevy Bolt EV, Most Seriously Considered: Nissan Leaf*

*Male, 53 years, $90K HHI*

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# CUSTOMER STORY: CHARGING LOCATION

What They Hate

I have found that there ***are too few public charging station in my area. Because I live in a condo The charging cable does not reach my out so I cannot charge at home***."

*Toyota Prius Plug-In, Disposed Toyota Prius C, Considered Chevy Bolt*
*Female, 59 years, $70K HHI*

"***Battery is small. Charging is slow. Cables can be messy in bad weather. Doesn't always work. I am looking forward to wireless charging options***."

*Volvo XC60, Disposed: Ford Taurus X*

*Male, 43 years, $300K HHI*

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# BEV MAINTENANCE

## What They Love

***"It's all electric, free of standard car maintenance, except for wipers & maybe tires. No more paying high gas prices. State & federal rebates are extremely helpful. PG&E discounts & rebate are welcome savings. Accessible public chargers all over California. Beautiful exterior design & luxurious interior. Very smooth ride & extremely responsive. Bar none Clarity EV is the best electric car value & it's a HONDA!"***

| | | | |
|---|---|---|---|
| *Owns:* | *Honda Clarity Touring BEV* | *Disposed:* | *(unknown)* |
| | *Female* | *Age 54* | *Income Unknown* |

***"Worth it. Drives like no other car in a good way. Electric is better in pretty much every way. Car will ruin the driving experience of other cars. It is affordable when you take into account lower maintenance requirements and no gas. Every day you can start with a full tank. There are places to charge, but planning will be needed if you see driving more than a few hundred miles in a day..."***

| | | | |
|---|---|---|---|
| *Owns:* | *Tesla Model 3* | *Disposed:* | *(unknown)* |
| | *Male* | *Age 48* | *$60,001 - $65,000* |

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# BEV INFRASTRUCTURE: POSITIVE

What They Love

***"There are many factors to mileage such as city driving vs highway driving. For example, the car is far more efficient in cities where you are frequently braking and regenerating energy. Additionally freeway speeds of 70mph are far more economical than 80+mph. Charging stations are much easier to find than expected and there are numerous no charge to charge stations which are fairly efficient. You still get a HOV pass which lets you avoid commuter traffic."***

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf SL* | *Disposed:* | *Volkswagen Jetta Sedan / Jetta SportWagen* |
| | *Female* | *Age 36* | *$175,001 - $200,000* |

***"Drive the Leaf, you will love it! If charging is an issue, look up charging stations in your area and see what is available. L2 stations (8 hours) are more available than the DC charges (30 minutes = 90 miles). Nissan is the only brand I know that offers "no charge to charge". Nissan dealerships have charging stations available, free of charge and they give you a two year free subscription to one of the charger subscriptions (I haven't tried it yet)."***

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf SL* | *Disposed:* | *Nissan Altima* |
| | *Female* | *Age 44* | *$175,001 - $200,000* |

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# BEV INFRASTRUCTURE: NEGATIVE

What They Hate

***"My only critical point is that we were not given much in the way of the use of the charging stations and that each company has its own rules, it seems. We were given a card for free charging for 2 years; however, one company states that their rule is that you can only charge for 30 minutes without being billed. We were not told that beforehand. The buyer should be given a list of the companies participating and their rules as far as the free 2 year charging card. Instead, we had to look each one up as we went along, sort of a learning curve, one which we didn't expect. The dealerships should have this information for their customers."***

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf SV* | *Disposed:* | *None* |
| | *Female* | *Age 71* | *$70,001 - $75,000* |

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# BEV INFRASTRUCTURE: NEGATIVE

What They Hate

***"The dealer claimed that the I would get NO Charge to Charge at EV-GO for one year. but EV-GO said that many dealers were not signed up for that. None in New jersey or Connecticut . There is a total ignorance off this car with almost all staff at all dealerships i have visited. The charging stations at the dealerships are serviced by only one company that can take over two months to respond to a broken charger. The car uses less power when off ECO mode when traveling over 55mph. At no time was i informed of this. I fear how long it will take to get knowledgeable service if I need it.***

***Even if not all dealerships can have parts and staff on hand for these cars you should designate some dealerships to have qualified staff to deal withe these cars."***

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf S* | *Disposed:* | *(unknown)* |
| | *Male* | *Age 50* | *$75,001 - $80,000* |

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# EXPERIENCE

**The sound (or lack thereof) of the engine and the smooth ride are some of the reasons that BEV owners Love their vehicles. Hybrid owners love the efficiency while Diesel owners love available power.**

## Vehicle Experience Ratings Over Industry: (% Love – Top Box)

| BEV | | PHEV | | Hybrid | | Diesel | |
|---|---|---|---|---|---|---|---|
| Fuel Efficiency | 59% | Environmental Friendliness | 37% | Fuel Efficiency | 26% | Trailer Towing Capability | 35% |
| Environmental Friendliness | 58% | Gas or Electric Mileage (fuel economy) | 35% | Gas or Electric Mileage (fuel economy) | 22% | OVERALL Power And Pickup | 18% |
| Sound of Engine | 44% | Fuel Efficiency | 28% | Environmental Friendliness | 20% | Passing Capability | 15% |
| Smoothness Of Transmission | 43% | Economical to Own | 21% | Economical to Own | 13% | Acceleration From Stop | 14% |

Data from 2017 & 2018 NVES. Percentages are Powertrain percentage advantage over Industry



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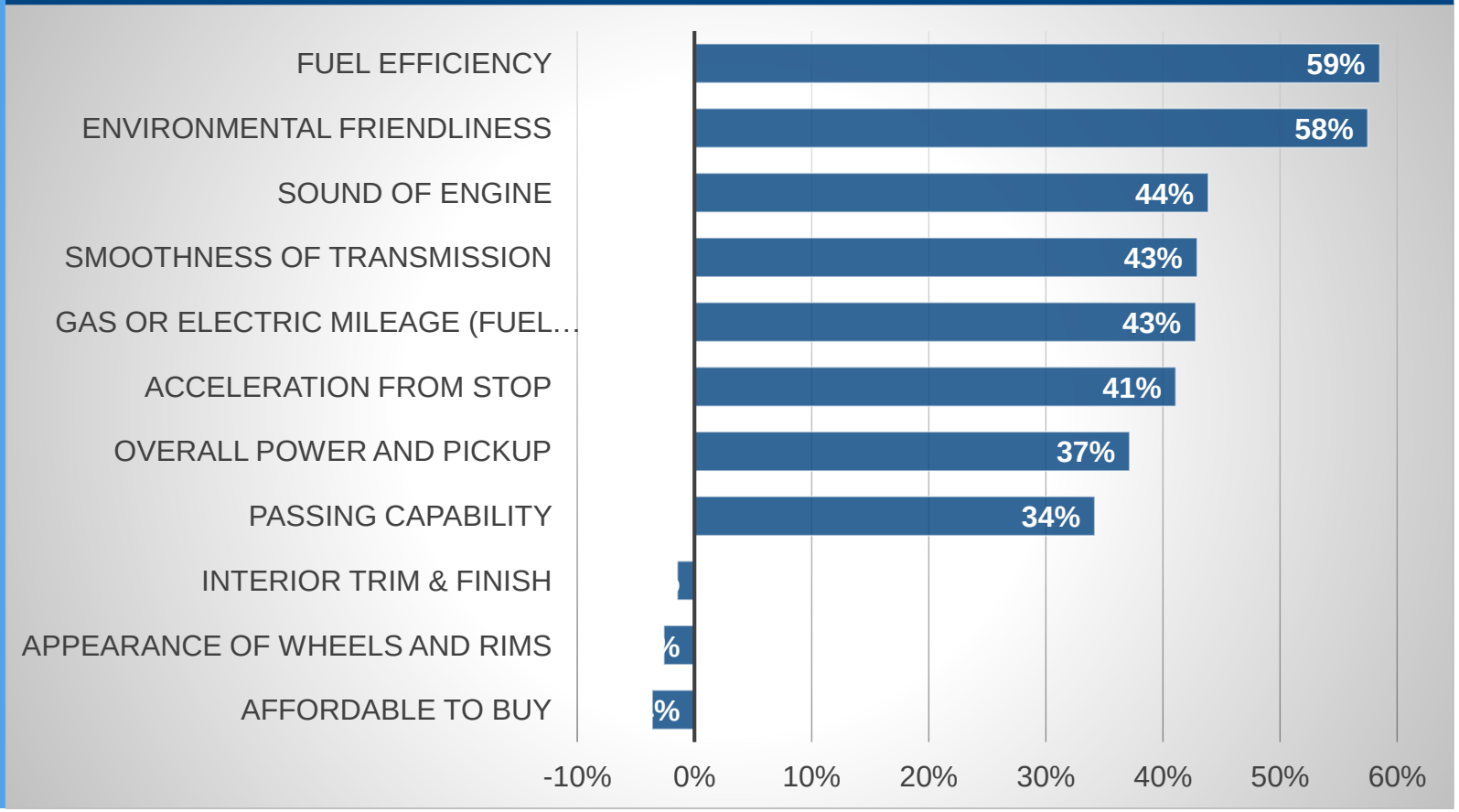
# EXPERIENCE

In addition to fuel efficiency and engine smoothness, the power capability is also more loved than even the power offered to Diesel vehicles.

It is performance that has the best chance to keep customers loyal.

## Vehicle Experience (% Love – Top Box)
## BEVs % Over/Under Industry Average




Data from 2017 & 2018 NVES

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# BEV OWNERS: WHAT THEY LOVE

What They Love

"***Bolt is fairly utilitarian- not a car to fall in love with in terms of being "fun" to drive or sleek or sporty, instead I feel like I'm doing something really good for my little corner of the planet and that's hugely rewarding. I appreciate the economy of driving without petroleum and regenerative braking feature and the Bolt is super in terms of range when compared to other EVs.***"

| | | | |
|---|---|---|---|
| *Owns:* | *Chevrolet Bolt EV* | *Disposed:* | *Mazda 3 / Mazda3* |
| | *Female* | *Age 56* | *$200,001 - $300,000* |

"***Environmentally friendly and saves money in fuel and maintenance. Good performance and rapid acceleration. Excellent styling inside and out. Cool "techy" feel with vehicle interface, connectivity options, entertainment/nav system and safety features. I love this car!***"

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf S* | *Disposed:* | *(unknown)* |
| | *Male* | *Age 59* | *$125,001 - $150,000* |

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# BEV OWNERS: WHAT THEY LOVE

What They Love

***"It's a VERY fun car to drive, and I love that it's quiet. It is a smooth ride, with a lot of zip, and it's so great to be able to plug it in at night, and not worry about going to get gas.."***

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf SL* | *Disposed:* | *Hyundai Santa Fe* |
| | *Female* | *Age 38* | *$200,001 - $300,000* |

***"I love that I don't need to go to the gas station, I am able to received rebates from state and local programs, and the positive impact my vehicle has on the environment."***

| | | | |
|---|---|---|---|
| *Owns:* | *Honda Clarity Touring BEV* | *Disposed:* | *(unknown)* |
| | *Male* | *Age 30* | *$125,001 - $150,000* |

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# BEV OWNERS: WHAT THEY HATE

What They Hate

***"We like the Kia Soul EV, but we have had many problems with the car, we have had to have it towed twice back to the dealership and we have had to take it back to the dealership 2 other times, so 4 times in total and we have only had the car 6 months. We had problems with it charging up and the brakes are grabbing and the emergency brake won't release, the back up camera wasn't working right.…"***

| | | | |
|---|---|---|---|
| *Owns:* | *Kia Soul EV* | *Disposed:* | *Nissan Pathfinder* |
| | *Male* | *Age 70* | *$20,001 - $25,000* |

***"Sit in the passengers seat to see that the space is reduced there because of the bad console design. Inform yourself about the very limited rapid charging capabilities, because the car has no active thermal management, so you can't take the car on longer trips, even if Level 3 charging is available. Note that the car doesn't have an 80% charge limit setting so that you always have a chance to protect the battery and opportunity charge at free chargers around town. "***

| | | | |
|---|---|---|---|
| *Owns:* | *Nissan Leaf SL* | *Disposed:* | *BMW 5 Series* |
| | *Male* | *Age 40* | *$100,001 - $125,000* |

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# CUSTOMER STORY: EXPERIENCE

## Implications:

There are *many* things to love about BEV ownership – not just the Environmental Friendliness and Energy Consumption.  These need to be better communicated to the customer.

"I have owned 55 cars in my life; all makes but Bentley, Rolls and Maserati. ***Tesla is the first car & car experience that was and is exciting***. The entire experience is thought out. They NEVER slip. The site makes it easy to understand the car. Sales staff are excited and know the car. They follow-up and stay in touch often enough, button too much. ***The purchase took 10 minutes*** not 4 hours like every other manufacturer. The ***car was delivered ahead of schedule***. ***Service is immediate and friendly***. Feedback from ***Tesla via Email is frequent enough and succinct***. NOT one other manufacturer has an "Apple or Amazon" like experience. Tesla under promises and over delivers. The whole experience sneaks up on you until you are in awe; ***enjoying the WHOLE experience***. Last night I was alerted the car would receive a ***software upgrade overnight...How cool is that***? No trip to the dealership. No nonsense. Just done!"

*2017 Tesla Model S, Most Seriously Considered a Mercedes CLS*

*Male, 60 years, $500K HHI*

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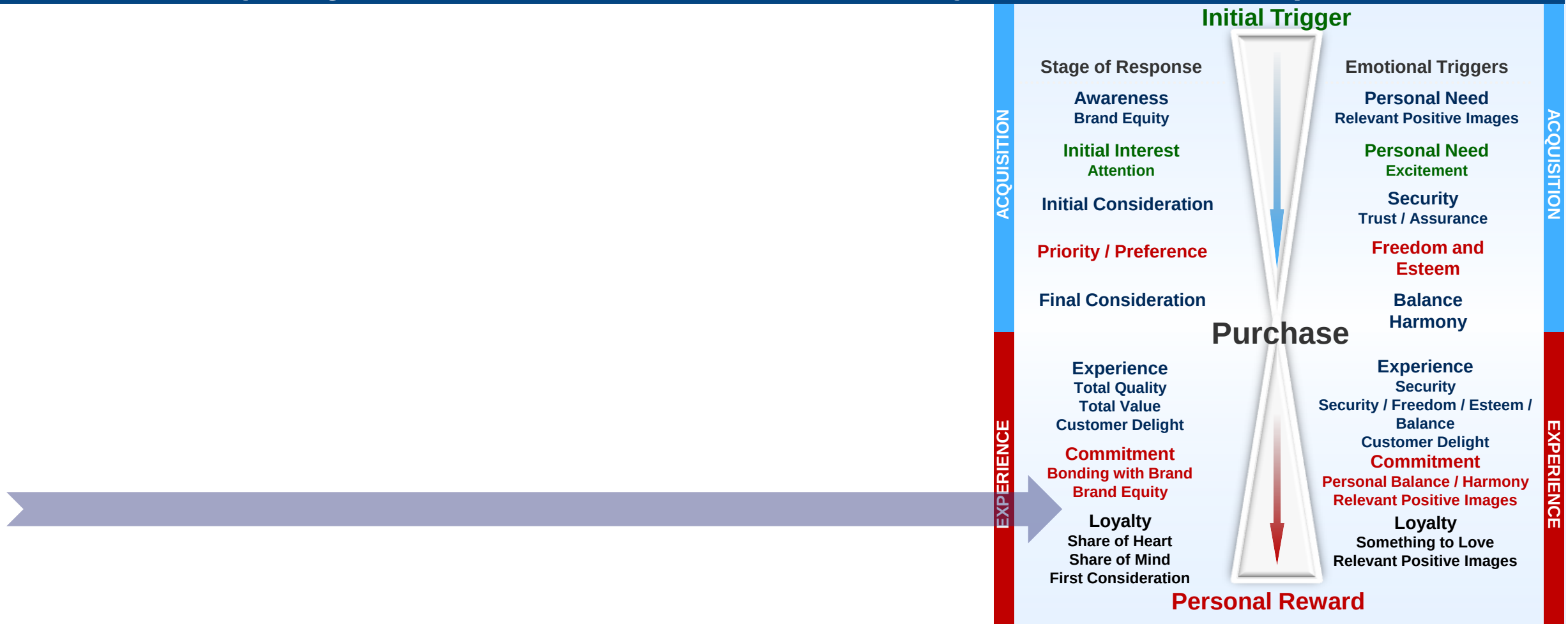
# EXPERIENCE

## After everything is said and done, are customers ready for their 2nd BEV experience?

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# COMMITMENT: FUTURE CONSIDERATION

**Those who purchase a Car generally state that their next vehicle will be another car rather than a Truck or SVU. There are many reasons why one might change such as family needs, job, lifestage changing.**

## Segment Owned by *Stated* Next Future Purchase

| | Car | Truck | SUV/CUV | Minivan\Van |
|---|---|---|---|---|
| Car | 65% | 21% | 19% | 21% |
| Truck | 7% | 46% | 9% | 12% |
| SUV/CUV | 23% | 27% | 68% | 27% |
| Minivan\Van | 1% | 2% | 1% | 37% |

Data from 2017 & 2018 NVES.

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# LOYALTY: REPURCHASE BEHAVIOR

**Generally, the "stated" future loyalty and Actual loyalty are very similar for product segments. The only difference is that Minivan owners are not defecting into Cars as they stated, but going into SUV/CUVs.**

## Segment Owned by ACUTAL Repurchase Loyalty

| | Car | Truck | SUV/CUV | Minivan\Van |
|---|---|---|---|---|
| Car | **61%** | 6% | 12% | 10% |
| Truck | 3% | **77%** | 6% | 7% |
| SUV/CUV | 35% | 16% | **81%** | **51%** |
| Minivan\Van | 1% | 1% | 2% | **32%** |

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# COMMITMENT: FUTURE CONSIDERATION

**Generally, the "stated" future loyalty and Actual loyalty are very similar for product segments. The only difference is that Minivan owners are not defecting into Cars as they stated, but going into SUV/CUVs.**

## Powertrain Owned by *Stated* Next Future Purchase

| | BEV | PHEV | Hybrid | Diesel | Gas |
|---|---|---|---|---|---|
| BEV | 65% | 27% | 9% | 5% | 4% |
| PHEV | 13% | 48% | 14% | 4% | 5% |
| Hybrid | 11% | 15% | 64% | 7% | 16% |
| Diesel | 1% | 2% | 1% | 47% | 3% |
| Gas | 8% | 6% | 10% | 34% | 71% |

Data from 2017 & 2018 NVES.

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# LOYALTY: REPURCHASE BEHAVIOR

**About 1/3rd of all BEV disposers return to a Gas powered vehicle (which is 3x more than what they stated they believed they would do). Roughly half of PHEV and Hybrid owners return to an ICE vehicle.**

**Segment Owned by ACUTAL Repurchase Loyalty**

| | BEV | PHEV | Hybrid | Diesel | Gas |
|---|---|---|---|---|---|
| BEV | 54% | 9% | 3% | 1% | 1% |
| PHEV | 11% | 31% | 7% | 1% | 0% |
| Hybrid | 4% | 10% | 33% | 2% | 2% |
| Diesel | 0% | 1% | 0% | 34% | 1% |
| Gas | 31% | 47% | 55% | 57% | 89% |

Data from 2017 & 2018 NVES. Red square symbolize "wrong" behavior.

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# EV DISPOSERS: WHY THEY LEFT

Disposal Reasons

***"When I purchased the BMW i3, I was told that the battery range was 81 miles. It turned out to be 61 miles for me. My daily one-way commute to work is 60 miles, which resulted in range anxiety on my part every morning and night. I made several attempts to have BMW fix the issue with software upgrades but was told in the end that it's my driving rather than a degradation of the battery or false promises. I was also told that only the BMW technicians (vs. the dealership's technicians) would be knowledgeable enough to look into the issue. At my Mercedes-Benz dealership (Fletcher Jones in Newport Beach), where I have bought 4 cars by now, everybody was always extremely knowledgeable and I always felt extremely well taken care of."***

| | | | |
|---|---|---|---|
| *Owns:* | *Mercedes C350e Sedan RWD* | *Disposed:* | *BMW i3* |
| | *Female* | *Age 54* | *$200,001 - $300,000* |

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# EV DISPOSERS: WHY THEY LEFT

Disposal Reasons

***"I had a first generation Leaf. There were too many sacrifices in regards to range and utility. I was frustrated that the new Leaf lacked the range I required so I leased a Pilot and I hope in 3 years that there is an electric vehicle that can meet my range needs."***

| | | | |
|---|---|---|---|
| *Owns:* | *Honda Pilot EX-L 2WD* | *Disposed:* | *Nissan Leaf* |
| | *Gender Unknown* | *Age Unknown* | *Income Unknown* |

***"Tesla the most fun car I've ever leased. However, the inconvenience of planning road trips around charging stations and the length of time to charge the car (even at a super charger station) prevented me from getting another. Charging at home doubled my electric bill"***

| | | | |
|---|---|---|---|
| *Owns:* | *BMW 530e Sedan* | *Disposed:* | *Tesla Model S* |
| | *Female* | *Age 66* | *$200,001 - $300,000* |

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# CUSTOMER STORY: WHY SOME DON'T COME BACK

## Implications:

There are *many* things to love about BEV ownership – not just the Environmental Friendliness and Energy Consumption. These need to be better communicated to the customer.

"***Do not buy the 2018 Nissan Leaf!*** My new one month old Nissan Leaf ***lost power while I was driving***. The screen showed "Warning Service EV System No power". The car just lost power while I was driving. I could not put the car in gear. I ***had it towed*** it to Walnut Creek Nissan. I got my car back 10 days later. They said they replaced the LBC. I picked up my car around 8 AM went to work and drove home around 5 PM. Around 5:30 PM that same day, my ***car lost power again***, same message "***Warning Service EV System*** No power". ***I was pissed!*** I can't believe this happened again. Luckily I was ***able to drift to the right side of the freeway***. I had the car towed to Premier Nissan of Fremont. After a couple of days, the service person said that they will order and install a new power inverter. A few days later, the service person texted me and said this part is back ordered and there's ***no ETA of when the part will arrive***. I am ***very disappointed in the reliability of this car***. I've owned this car for about 2 months and has been at the shop for more than 3 weeks. Loosing power while driving is the ***most dangerous and frustrating thing*** that I've ever had to deal with. As of today, about 2 months after buying it, my car is still at the service department with no estimate time of when I can get it back. Even if/when I get the car back, ***I will always be afraid that it will loose power again. I have contact "Nissan LEAF Owner Services 1-800-647-7261" and filed a complaint***."

*2018 Nissan Leaf Owner who Considered a Chevrolet Bolt EV*

*Male, 47 years, $100K HHI*

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# THANK YOU

For your kind attention!