

**CONSUMER VIEWS ABOUT ELECTRIC VEHICLES 2019**  
**All This Torque And Still Stuck In Neutral**

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## Abstract

### Background

The global transition from ICE vehicles to EVs has been assisted by improvements on a variety of fronts (e.g., the technology, management, production, and cost of batteries, vehicle charging speeds and infrastructure). Despite this progress, actual consumer demand for these vehicles is lagging and growing very slowly (especially in the U.S.). Many consumers appear to lack a basic understanding about how these various alternative propulsion vehicles differ (e.g., what's the difference between hybrids, plug-in hybrid electric vehicles, extended-range electric vehicles, and fuel-cell electric vehicles?). In addition, a variety of controversies and conflicting claims have emerged in the discussion of ICE and EV vehicles, and these have further promoted confusion and erroneous beliefs about EVs. Most research on consumer attitudes toward EVs has failed to take the confusion into account or to identify the effects of these confusions and erroneous beliefs on EV consideration.

### Methods

An online survey of automotive vehicle owners was conducted by AutoThink Research in early 2019. The survey 1. explored views about EVs and 2. compared non-EV-owners' expectations about EV functionality – focusing on battery ranges, charging, and charging infrastructure – to what EV owners actually experience. The survey responses of 1,392 knowledgeable automotive owners – including 650 ICE vehicle owners, 59 Hybrid owners, 86 PHEV owners, 341 EV owners, 196 EREV owners, and 60 FCEV owners – are analyzed and compared.

### Results

There are big statistically significant differences between ICE owners and EV owners in how much they agreed or disagreed with thirteen different claims about EVs. EV owners are the most positive and optimistic about EVs, and ICE owners are the most negative or pessimistic. Hybrid and PHEV owners are more optimistic about EVs than ICE owners but not as positive as EV owners. EREV owners (e.g., Volt, BMW i3REx) are more similar in their views to EV owners than to the PHEV owners they are often lumped in with. Fuel-cell electric vehicle owners are positive and optimistic about FCEVs, but have experienced difficulties with the newly developing hydrogen refueling infrastructure.

The biggest differences in opinions between ICE owners and EV owners emerge on whether the environmental benefits of EVs have been greatly exaggerated, on whether EVs are really “ready for prime time,” and on whether they are too expensive or worth the cost. There are high levels of agreement across all vehicle owner groups that there is a widespread lack of public understanding about these vehicles and that the auto industry has done a poor job of explaining and promoting them.

When we analyzed views about EV battery ranges, charging, and charging infrastructure we found that ICE owners' expectations are consistently more inaccurate and negative than EV owners' experiences. ICE owners believe that EVs are much more limited in daily driving than EV owners have found them to be. ICE owners are especially concerned that finding and using public charging stations during road trips is difficult and that EV owners are often faced with the prospect of being stranded on an empty battery for lack of public charging stations. These concerns are contradicted by the actual experience of EV owners.

When we looked at the correlations among EV views and beliefs, we found that the more negative someone is about EVs, the more likely they are to hold inaccurate beliefs about the limitations of EVs, and the more likely they are to reject EV consideration. This also holds true for those working in the auto industry – most have negative views about EVs. This may help explain the industry's poor marketing efforts and promotional ambivalence to date.

### Conclusions

A lack of understanding about automotive propulsion systems and erroneous beliefs about EVs are unnecessarily impeding the adoption of EVs. The actual EV ownership experience is more positive than non-EV owners are imagining. EVs are better – much less restricted and limited, with much less “hassle” -- than most automotive enthusiasts are thinking. EVs are perfect for most people's daily driving needs – charging them at home is easy and convenient. The last psychological hurdle for EVs is long-distance road trips. EVs and the road-trip charging infrastructure are already better than most people realize. The current crop of longer range EVs and the existing charging infrastructure have made most out-of-town road trips easy and feasible (especially for Tesla owners). Millions more people could be enjoying and benefiting from owning and driving EVs now.

### Recommendations

At the end of the report we offer seven recommendations to speed up EV adoption by consumers. We also identify the most important negative views that need to be countered in order to increase EV consideration.

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