

INTERNATIONAL ELECTRIC-VEHICLE CONSUMER SURVEY

Are battery electric vehicles here to stay?



Battery electric vehicles (BEVs) are here to stay, and they're going to only increase in number. For original equipment manufacturers (OEMs), that's going to be a challenge, because they have to manage short-term profitability problems at the same time that they try to move forward with BEVs—and still keep their legacy products going. Understanding consumer sentiment around electric vehicles is critical to both serving OEMs' needs and furthering adoption of these new types of vehicles. The AlixPartners International Electric-Vehicle Consumer Survey¹ of 7,600 consumers in seven regions reveals a gap between consumer interest in BEVs and actual sales of such cars, indicating that there are hurdles to clear.

Consumers' interests and their concerns vary from one region to another, but we can see from our survey results that their concerns about the environmental effects caused by internal-combustion-engine (ICE) vehicles and the potential savings to be gained from BEVs are key drivers of those interests. Though consumers worry about price, many of them are willing to pay a healthy premium for a BEV over an ICE vehicle. That's especially the case with traditional brands.

Despite improvements, consumers' concerns about cost, range, and charging infrastructure remain considerable. For example, many consumers reported they worry about battery range, but their actual driving behavior indicates that they don't have to be.

First, they think they need more charging infrastructure than they actually do, and second, they may not know how widely available level 3 (high-speed) and level 2 (mid-speed) charging already are. Third, with regard to price, many consumers say they want BEVs to cost the same as ICE vehicles, yet they also say they're willing to pay a premium for BEVs. None of those concerns have been enough to dampen their overall interest, though, which indicates that perhaps they expect their concerns to be addressed soon. And all of those concerns present opportunities for consumer education.

1. Unless otherwise noted, all statistics in this article are from The 2019 AlixPartners International Electric-Vehicle Consumer Survey.

GLOBAL

According to our survey, consumers' interest in electric vehicles is high, with half saying they're interested in owning one, and more than a quarter saying they would purchase one as their next vehicle. Yet the gap between interest and sales remains significant: BEVs' market share today is only just over 2%. Many consumers surveyed cited multiple concerns that hold them back. Chief among them are cost, battery range, and charging infrastructure.

50%

are interested in owning a BEV

28%

would purchase a BEV as their next vehicle

2.3%

market share globally

Source: IHS Markit, AlixPartners analysis

CONSUMER CONCERNS



COST

Outside of China and Norway, where BEVs have been heavily subsidized, consumers cite as a concern the additional cost of purchasing BEVs. More than two-thirds say that if BEVs cost the same as traditional cars, they would purchase one. Yet a good number of consumers surveyed (16%) said they would pay a premium over an ICE vehicle.



67%

would purchase a BEV at the same price as an ICE vehicle



16%

would pay a 25% premium over an ICE vehicle



BATTERY RANGE

Consumers surveyed cited battery range as a concern, yet battery range is around 200 miles per charge now and increasing steadily, whereas the vast majority of consumers don't engage in driving patterns that would run up against that. People rarely travel more than 200 miles in a day, and they take less than six round-trip journeys of 200 miles or more in a year—on average.



4%

of the time people drive over 200 miles in a day



41%

require a high level of charging infrastructure



less than 6

Typical number of annual trips taken that would require recharging midway



CHARGING INFRASTRUCTURE

For most consumers, some level of charging infrastructure is available, but they may need more availability to feel comfortable. Almost half of consumers surveyed said they would consider a BEV only if charging stations were as common as gas stations are today. And nearly as many said they lack the ability to install a charger at home, which puts a large dent in their interest in buying a BEV. This is a sort of chicken-and-egg problem. Demand for charging stations drives such stations' proliferation, yet consumers cite perceived lack of charging infrastructure as a concern when it comes to purchasing a BEV. It's also an opportunity for further education: to teach consumers about the true need for a home charging hookup and how prevalent public charging stations are.



45%

of participants do not have access to charging at home



57%

drop in interest in BEVs due to lack of access to charging



46%

would consider buying a BEV only if charging stations were as common as gas stations



PURCHASE DRIVERS

VALUE OF BEV BENEFITS: Breaking down the way consumers value the various aspects of BEVs may yield deeper insight into why interest exceeds actual market share. Fuel-cost savings and environmental impact are primary drivers of consumer interest.

CONSUMER PURCHASE PREMIUM VALUE:

 **\$2,500**
fuel cost savings

 **\$1,500**
environmental impact

BRAND RECOGNITION: Also affecting consumers' perceptions of the likelihood to purchase is brand recognition. Consumers vigorously prefer BEVs from traditional brands, although just under half of consumers surveyed outside China said they would consider a Chinese vehicle that was considerably less expensive. (China is not, however, expected to export to developed markets, barring some battery breakthrough that puts them ahead of manufacturers elsewhere.)

 **72%**
would prefer a BEV from a traditional brand

 **~45%**
would consider a Chinese vehicle that is 20% less expensive (excluding China)

DEALER INVOLVEMENT: On the other side of purchase drivers are dealers. The disconnect between consumer interest and dealers discussing them with potential buyers appears to be wide. Despite 50% consumer interest of those surveyed, dealers discussed them in only 20% of purchases, thereby indicating strong need for a better incentive structure. This is challenging though: BEVs offer dealers fewer opportunities for recurring revenue, given that BEVs require far less maintenance than ICE vehicles do. Beyond not needing oil changes, they have fewer moving parts, and so require less care.

 **20%**
of the time dealers offer BEVs to consumers, (except 58% in China), although 50% of consumers are interested in them

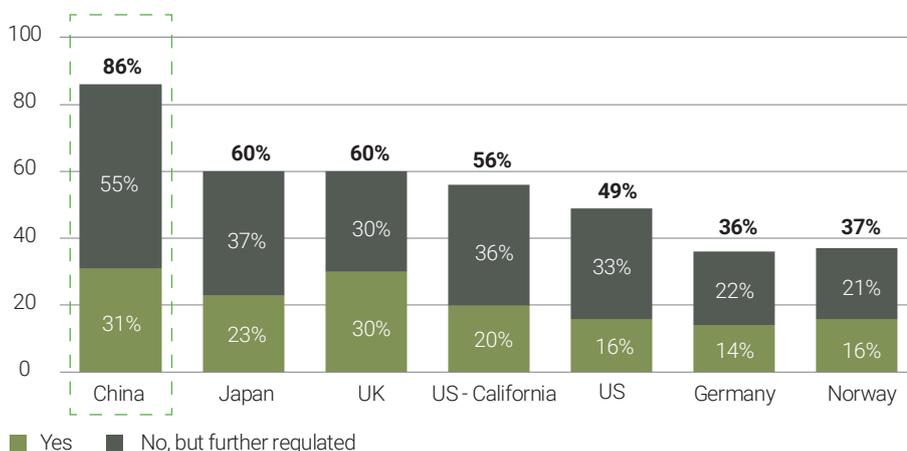
REGULATION: Consumer interest in BEVs extends also to support for further regulation of ICE vehicles. Consumers in China exhibited the strongest support for such regulation. The reasons behind such sentiments are beyond the scope of this survey, but it's worth noting that Norway already has very strong regulations, so it's possible that consumers there feel they have enough. China, on the other end of the scale, has seen the emergence of many BEV start-ups, which may promote consumer sentiment. Interest in environmental concerns there may also be affecting consumer support for regulation of ICE vehicles.

 **33%**
support further regulation of ICE vehicles

 **21%**
support outright bans of ICE vehicles globally

CONSUMERS ACROSS MANY COUNTRIES WANT AN OUTRIGHT BAN OR STRONG REGULATION, AND THAT NUMBER REACHES 86% OF CONSUMERS IN CHINA

Do you believe that internal-combustion-engine vehicles (for example, diesel) should be banned in the future? (%)



Source: AlixPartners 2019 EV Consumer Survey (May 2019)

OUR 2019 INTERNATIONAL ELECTRIC VEHICLE (EV) SURVEY SHOWS CONSUMERS ARE POSITIVE ABOUT EVS, WITH CHINESE CONSUMERS OVERWHELMINGLY POSITIVE

	US	US - California	China	UK	Norway	Japan	Germany
Buying next vehicle (expected likelihood)	19%	26%	55%	25%	29%	23%	22%
Adoption at price parity with ICE vehicle	61%	72%	81%	67%	53%	76%	59%
Would pay \$10,000 (25%) premium	17%	19%	21%	13%	14%	18%	13%
Concerns: battery (driving range)	59%	50%	67%	55%	58%	56%	55%
Concerns: costs	41%	40%	15%	43%	14%	41%	46%

■ Most positive about EV category among all countries
 ■ Most negative about EV category among all countries

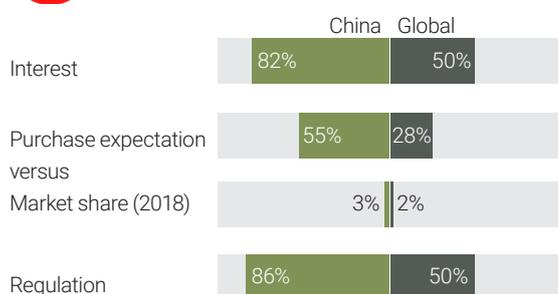
Source: AlixPartners 2019 EV Consumer Survey (May 2019)



REGIONAL OUTLOOK: KEY POINTS



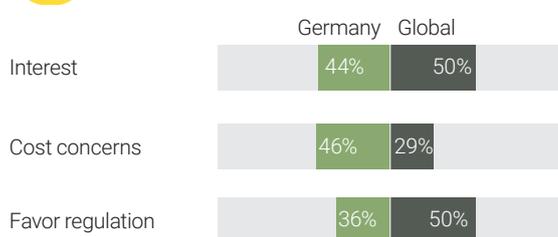
China: ready for more BEVs



- Strongest interest of any of the regions surveyed—especially among young consumers—in context of heavy official supports and high number of start-ups involved
- Avid support for further regulation; ban on ICE vehicles in development
- Higher sensitivity to battery range, charging time, and charging infrastructure—especially among urban consumers



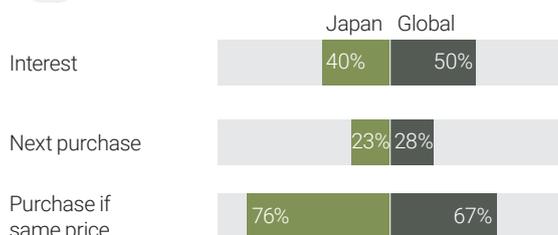
Germany: resistance to adoption, with cost concerns



- Interest fairly high but behind that of consumers globally
- Greater sensitivity to cost, less willingness to pay a premium to get a BEV over an ICE vehicle; resistance possible: 32.1% stating no interest in BEVs
- Age and income as significant factors: Young consumers more than twice as interested as middle-aged consumers; interest varies 26% across the three income groups surveyed
- Consumers less supportive of regulation but value the benefits of BEVs more than consumers in other regions do



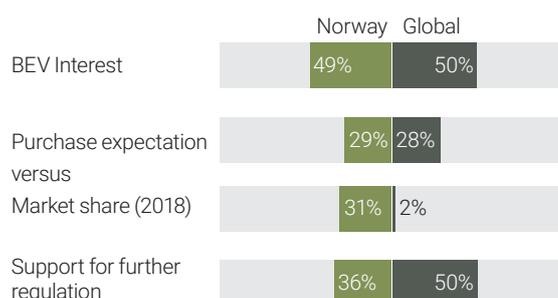
Japan: need for education and infrastructure



- Low next-purchase likelihood but interest strong if price parity with ICE vehicles
- Elevated need for consumer education: many respondents report lack of knowledge; major concerns about charging infrastructure despite extensive public charging networks
- Income and geography play significant roles: interest drops with lower income and distance from urban areas
- Higher sensitivity to brand: most consumers prefer traditional brands, and many would not buy a Chinese BEV even with a 25% discount



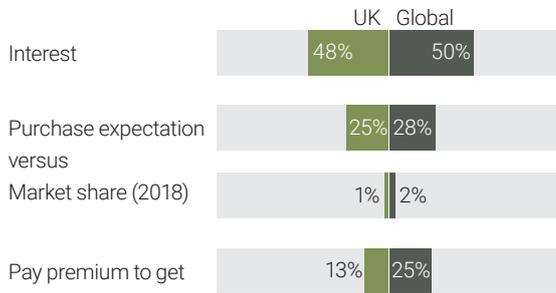
Norway: expectations aligned with purchases



- Consumers' expectations of buying a BEV in line with actual purchases
- World's most extensive regulation and policies, highest level of adoption, and most acceptable charging infrastructure
- Lowest concerns about cost
- Lowest support for further regulation; ban on ICE vehicles planned for 2025



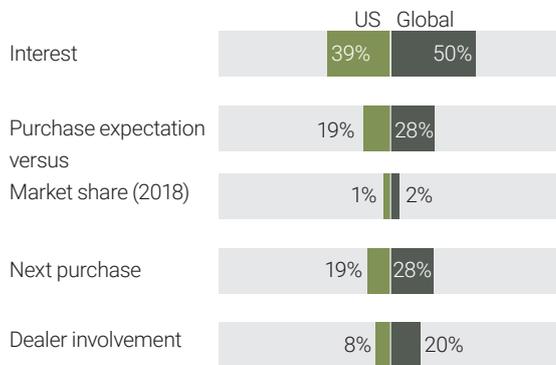
United Kingdom: battery range less of an issue



- Strong interest, with minor concerns about range and major concerns about cost
- High need for education, with many respondents citing interest but lack of knowledge
- Weakest appetite for paying a premium to get a BEV, yet strong interest in BEVs from traditional brands as well as less-expensive Chinese models
- Strong support for regulation, with ICE vehicle bans planned for some regions



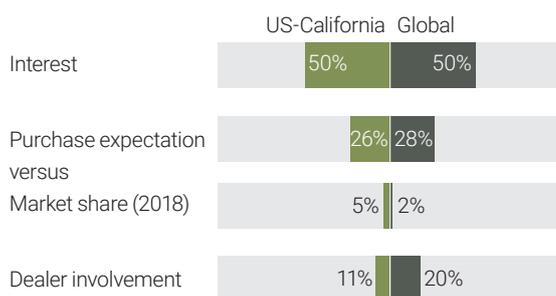
United States: tepid adoption



- Low interest, with lowest likelihood of next-car purchase being a BEV
- Consumer resistance possible: a third of survey respondents report no interest in BEVs
- Moderately high support for regulation; strong sensitivity to price, yet high value for fuel savings
- Age a significant factor: younger consumers more than twice as interested in BEVs as middle-aged consumers



US - California: the outlier state



- High interest compared with the United States as a whole: 11 points higher, tempered by concerns about charging infrastructure and cost
- In California, nearly double the global market share but wide gap between interest and actual sales, with low dealer involvement
- Age a factor, with twice as many young adults interested as middle-aged consumers
- Interest in regulation high

CONCLUSION: WHAT AUTOMAKERS CAN DO

BEVs are here to stay: the tipping point for BEV adoption is near, in what will likely be an irreversible shift

1. Develop the appropriate business case

- **Navigate profitability concerns.** Automakers must carefully navigate their profitability concerns when it comes to managing more than two vehicle-propulsion platforms, such as the BEV, the plug-in hybrid electric vehicle, and the ICE. A balancing act involving optimization of legacy cost while funding BEV-related development is required—and it becomes even more challenging in the face of potential market headwinds.
- **Evaluate make-versus-buy decisions under several BEV-adoption scenarios.** With rapidly changing technology, it's important to know where your company's core capabilities fit into the component value chain and to then adjust the company's product portfolio to more accurately reflect the source of future value creation. Conduct analyses on all major technologies, and ramp up investments in a flexible way—especially investments in such items as batteries, e-motors, and electronics.
- **Stay abreast of strategic and targeted vehicle launches.** More than 300 BEV models are expected to be launched by 2021², but some questions arise: will the new models lower the hurdles that now prevent consumer purchases? Will the new models be geared toward fleets (taxi/ride-hailing or home health, for example) where fuel savings are significant?

2. Tailor marketing approaches to consumers

- **Market BEVs to consumers.** More can be done to educate consumers about the benefits of BEVs and thereby dispel prevailing myths. This requires aggressive marketing campaigns rooted in compelling vehicle-use cases.
- **Develop creative solutions to alleviate consumers' concerns.** Automakers must find ways to help consumers get over the purchase hurdle. That includes offering consumers incentives such as a home-charging installation assessment, a trial of the vehicle for an extended time—say, two or three days—and reduced-price ICE rentals for trips outside the battery range.

3. Enhance enablers

- **Reevaluate the dealer incentive structure.** Dealers are not discussing BEVs at the rate of consumer interest. The incentive model for dealers must be reevaluated to correct for a future in which there will be less reoccurring revenue because of lowered maintenance requirements.
- **For infrastructure providers, find public/private solutions.** Charging-station infrastructure is a major deterrent to BEV purchases—especially in denser, urban areas where consumers do not own the area where they primarily park their vehicles.

ABOUT THE RESEARCH AND THE METHODOLOGY

The AlixPartners International Electric-Vehicle Consumer Survey of 7,600 individuals was conducted online May 1–17, 2019, in China, Germany, Japan, Norway, the United Kingdom, the United States, and, separate from other American consumers, California. Consumers surveyed were age 18 and above, with valid driver's licenses across all regions, demographics, and income levels. The survey sought to gain insights into consumers' interest in battery electric vehicles.

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These are the moments when everything is on the line – a sudden shift in the market, an unexpected performance decline, a time-sensitive deal, a fork-in-the-road decision. But it's not what we do that makes a difference, it's how we do it.

Tackling situations when time is of the essence is part of our DNA – so we adopt an action-oriented approach at all times. We work in small, highly qualified teams with specific industry and functional expertise, and we operate at pace, moving quickly from analysis to implementation. We stand shoulder to shoulder with our clients until the job is done, and only measure our success in terms of the results we deliver.

Our approach enables us to help our clients confront and overcome truly future-defining challenges. We partner with you to make the right decisions and take the right actions. And we are right by your side. When it really matters.

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