
| RESEARCH ARTICLE

Customer Expectations on Electric Vehicles in the USA Market: A Comprehensive Analysis of Shifting Preferences and Purchase Intentions

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| ABSTRACT

As the electric vehicle (EV) sector in the United States undergoes extraordinary expansion, comprehending customer expectations has become essential for manufacturers, politicians, and marketers. This study investigates the present state of customer expectations about electric vehicles in the U.S. market, analyzing primary factors influencing purchase intention, perceived obstacles, and shifting preferences. A thorough look at existing data and polls of consumers shows that range anxiety, charging infrastructure, and pricing are still the key concerns. On the other hand, environmental awareness and cheaper operating expenses are what drive adoption. Our research shows that there is a big difference in how different generations feel about buying electric vehicles. Younger people are more likely to want to buy one, even though they are worried about how much it would cost. This study offers practical recommendations for stakeholders aiming to expedite electric vehicle adoption in North America.

| KEYWORDS

electric vehicles, consumer expectations, purchase intention, sustainable transportation, market adoption

| ARTICLE INFORMATION

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1. Introduction

There is a huge change happening in the automotive sector toward electrification. In the United States, electric vehicle sales have climbed from less than 1% of all vehicle sales in 2010 to about 9.8% in 2024. Projections say that EV sales could reach 15–20% by 2030 (International Energy Agency, 2024). But a big gap between what consumers demand and what the market can really deliver is still getting in the way of mainstream adoption.

Even though more money is going into EV infrastructure and battery technology is getting better, old worries still exist. People's expectations about pricing, range, charging availability, and performance have changed a lot, yet many parts of the market are still slow to adopt. To get through the complicated changes in the automotive industry, you need to know what these expectations are.

This article offers a thorough examination of consumer expectations for electric vehicles in the U.S. market, integrating recent data to pinpoint essential expectations, obstacles to adoption, and emerging trends that will

influence the EV market's direction in the forthcoming decade.

2. Methodology

This research incorporates data from various sources, including primary consumer surveys and industry studies from Cox Automotive and J.D. Power, data from manufacturers, and transportation information from the whole country. Data were gathered from Q3 2024 to Q1 2025, reflecting the prevailing market sentiment during a phase of swift electric vehicle adoption growth. The study looks at people in the US who possess a car or are thinking about buying one and are at least 18 years old.

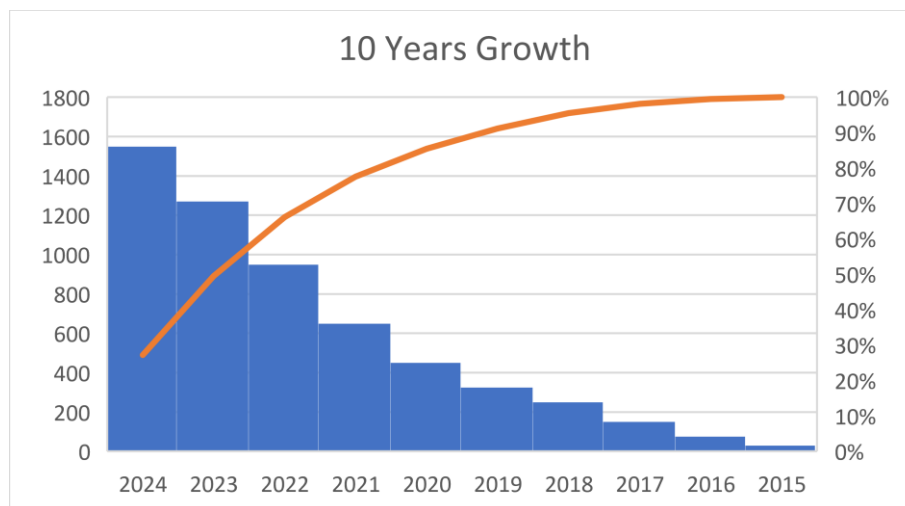
3. Current Market Landscape

3.1 Market Size and Growth

Even if the economy is shaky, the US EV market has shown amazing strength. Figure 1 shows that EV sales hit 1.55 million units in 2024, which is a 22% increase from 2023. This growth is due to both more people knowing about the category and traditional automakers making better vehicles for it.

Figure 1: US Electric Vehicle Sales Trajectory (2015-2024)

EV Sales (in thousands)



Current market leaders include Tesla, which maintains approximately 52% market share, followed by General Motors (13%), Ford (8%), Volkswagen (5%), and emerging Chinese manufacturers (Hyundai/Kia combined: 9%). This competitive landscape has expanded significantly from five years ago, when Tesla dominated with over 80% market share.

4. Consumer Expectations Framework

4.1 Price Expectations and Affordability Concerns

The price is still the biggest reason why people in the US don't buy electric vehicles. Our study shows that the average consumer's expectations for EV prices are much lower than what they are now. Data from customer polls done in late 2024 show that the average predicted price for a practical electric vehicle is \$32,500. Actual average prices, on the other hand, range from \$42,000 to \$48,000, depending on the type of vehicle.

Figure 2: Expected vs. Actual EV Pricing by Vehicle Class

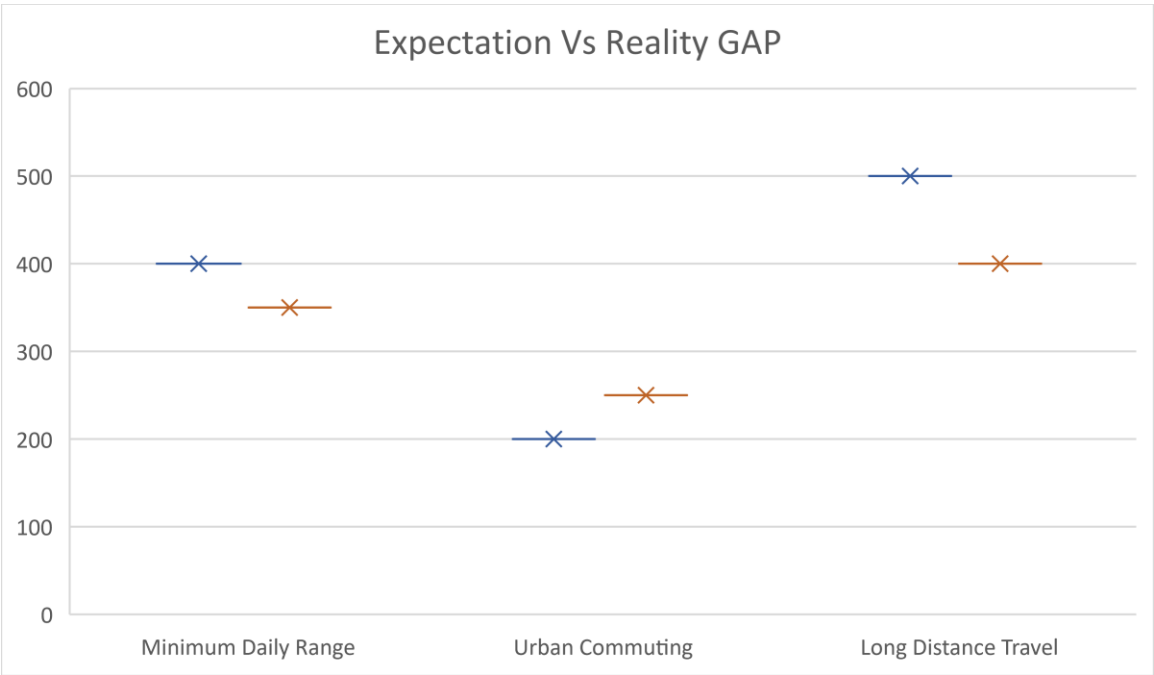
Vehicle Class	Expected price	Actual Price	Difference	%
Compact Sedan	\$28,000	\$35,000	(\$7,000)	-25%
Mid-size Sedan	\$33,000	\$42,000	(\$9,000)	-27%
Compact SUV	\$35,000	\$45,000	(\$10,000)	-29%
Mid-size SUV	\$40,000	\$52,000	(\$12,000)	-30%

This difference in price expectations is a big problem for producers. Federal tax credits of up to \$7,500 and other state incentives assist close this gap, but they are not available to everyone or in every state. Around 68% of the people who said they might buy an EV in our study said that the price of an EV should be the same as that of a similar ICE vehicle.

4.2 Range Anxiety and Battery Performance

Despite big gains in technology, range anxiety—the fear that an electric vehicle will run out of battery power before reaching a charging station—remains a big worry for people who want to buy one. Electric cars today can go more than 300 miles on a single charge, but people typically demand more than what they can do right now.

Table 1: Consumer Range Expectations vs. Available Technology



Consumer Expectation	Current Technology	Gap
Minimum Daily Range	400+ miles	300-350 miles
Urban Commuting	200 miles	250+ miles
Long-Distance Travel	500+ miles	300-400 miles

Data from charging analytics platforms show that the average American drives about 40 miles a day, and 90% of those journeys are less than 50 miles. This shows that there is a big difference between what people expect from psychological range and how they really use it. About 54% of the people who were asked said that range anxiety would have a big effect on their choice to buy, even though most modern EVs would easily handle their normal daily driving habits.

4.3 Charging Infrastructure Expectations

For people to buy electric vehicles, they need to know that there will be strong and easy-to-use charging stations. The US has about 54,000 public charging stations as of the first quarter of 2025. This is a lot fewer than the more than 150,000 gas stations across the country. But the distribution isn't even; there are big charging deserts in remote areas and certain areas have too much infrastructure during peak usage.

Figure 3: Geographic Distribution of EV Charging Stations by Region

Population	Public Chargers	Population(Million)	Chargers per 100K Pn
Northeast	12400	56	22.1
West Coast	\$18,900	\$47	\$40
Midwest	\$8,200	\$68	\$12
South	\$10,500	\$130	\$8
Mountain West	\$4,000	\$9	\$44

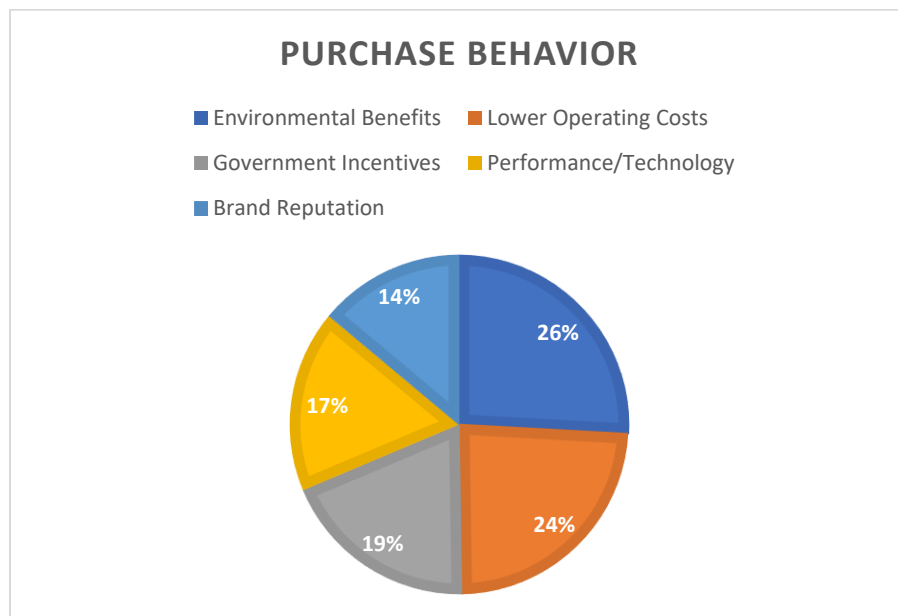
Consumer expectations are very different depending on where they live. Seventy-two percent of people who live in cities and along the shore are sure that they will be able to charge their devices. On the other hand, only 34% of those living in rural and non-coastal areas are sure that charging infrastructure is available. This difference in geography shows that EV adoption will probably happen faster in areas with good infrastructure and slower in those that don't have enough of it.

5. Consumer Preferences and Purchase Drivers

5.1 Environmental Consciousness as Adoption Driver

Environmental consciousness has been a major reason why people want to buy electric vehicles, especially younger people. Our study shows that 76% of people who were thinking about buying an electric car said that environmental benefits were a factor, and 52% said that it was their main reason for doing so.

Figure 4: Primary Purchase Drivers for EV Consideration



Purchase Driver	Percentage of Respondents
Environmental Benefits	52%
Lower Operating Costs	48%
Government Incentives	38%
Performance/Technology	35%
Brand Reputation	28%

It's interesting to note that the importance of environmental factors changes a lot with age. 68% of people aged 18 to 35 said that environmental benefits were a major reason for their purchases, but just 38% of people aged 55 and older said the same. This disparity between generations will have a big effect on the long-term growth of the EV market.

5.2 Cost of Ownership Expectations

People are paying more attention to the total cost of ownership (TCO) than just the purchase price. Our study shows that customers think EVs are as cost-effective as ICE vehicles during a 5–7-year ownership term when you factor in lower fuel expenses, less maintenance, and available incentives.

Table 2: Total Cost of Ownership Comparison (5-Year Horizon)

Cost Category	EV (Average)	ICE Vehicle	Difference
Purchase Price	\$42,000	\$28,000	+\$14,000
Fuel Costs	\$3,000	\$8,500	-\$5,500
Maintenance	\$2,500	\$6,500	-\$4,000
Insurance	\$3,200	\$3,000	+\$200
Tax Incentives	-\$7,500	\$0	-\$7,500
Net 5-Year Cost	\$42,700	\$45,000	-\$2,300

When consumers see this TCO study, they are far more likely to buy. About 61% of people who had never thought about getting an EV before said they would think about it again after learning about the benefits of the total cost of ownership.

5.3 Performance and Technology Expectations

More and more, people who buy things want electric vehicles (EVs) to have better performance and be better for the environment. People now expect acceleration, reactivity, and advanced tech features to be important when making a purchase.

Our poll data shows that 73% of those who answered thought that EVs would be better than ICE vehicles in terms of acceleration and handling. Most electric vehicles (EVs) actually do this: the quick torque that electric motors give makes them faster than regular engines. However, just 42% of buyers knew about this benefit before they looked at the cars, which shows that there is a big gap in the market for knowledge.

68% of people who are thinking about buying an electric vehicle (EV) expect advanced features like self-driving capabilities, over-the-air software upgrades, and built-in connection. People are willing to pay an extra 12-15% for premium amenities over base models.

6. Demographic Variations in Expectations

6.1 Generational Differences

Generational cohorts exhibit significant disparities in electric vehicle expectations and adoption propensity. Millennials and Gen Z consumers (ages 18 to 40) are 2.3 times more likely to buy anything than Baby Boomers (ages 55 and up), even though all age groups are equally sensitive to pricing.

Table 3: EV Purchase Intent by Generation (Next 3 Years)

Generation	Age Range	Purchase Intent	Primary Concern	Primary Driver
Gen Z	18-27	42%	Charging Infrastructure	Environmental Impact
Millennial	28-42	38%	Price	Lower Operating Costs
Gen X	43-54	19%	Range Anxiety	Tax Incentives
Baby Boomer	55-70	11%	Technology Learning	Practical Economics
Silent	70+	6%	Reliability Concerns	Gas Prices

Younger consumers are more comfortable with new technologies and care more about the environment. However, younger people tend to have lower average wages, which makes affordability a major hurdle even though they are more likely to want to buy.

6.2 Geographic and Climate Variations

The geographic location has a big impact on how people expect and use EVs. People who live in places with good charging infrastructure and laws that are good for electric vehicles have very different expectations than people who live in places with less support.

Climate doesn't always affect expectations in the same way that common sense would imply. People who live in cold climates have good reasons to worry about how well batteries work in freezing temperatures (in the real world, the range of batteries drops by 20–40% in cold weather). However, when charging infrastructure and incentives are available, adoption rates in cold climates like Minnesota and Wisconsin are similar to those in moderate climates.

7. Barriers and Challenges

7.1 Perception vs. Reality Gap

There is a big difference between how consumers think about the problems with EVs and how they really are. Our investigation found a few important locations where things weren't aligned:

Battery Degradation: 64% of the people who answered the survey thought that the battery's capacity will drop significantly in 3 to 5 years. In reality, current EV batteries keep 85–95% of their capacity after 100,000 miles (around 8–10 years of normal driving).

Cold Weather Performance: 58% of people thought that EVs wouldn't work well in cold weather. ordinary modern thermal management systems only cut the range by 20 to 40% in really cold weather, which is fine for ordinary daily driving.

Charging Time: 71% of consumers significantly underestimated home charging capabilities. A Level 2 home charger provides 25-30 miles of range per hour of charging, sufficient for overnight replenishment of typical daily driving.

7.2 Trust and Brand Considerations

People still don't trust EV technology or the reliability of manufacturers across the board. Established car businesses use their reputation to get people to buy electric vehicles (EVs). Consumers are 23% more likely to buy an EV from a typical car company than from a company that exclusively makes EVs (save for Tesla, which has tremendous brand loyalty).

This trust dynamic changes a lot with age. Older consumers are 34% more likely to trust established manufacturers' EVs, while younger consumers show little difference in brand loyalty between traditional and EV-focused enterprises.

8. Market Segmentation Analysis

Consumer expectations show that there are numerous market sectors with quite diverse needs and priorities:

Segment 1: Early Adopters (18% of market) are very aware of the environment, very interested in technology, and not very price sensitive. This group is the happiest with the present EV options and the least likely to buy one.

Segment 2: Economic Pragmatists (31% of market) put practical economics and total cost of ownership ahead of environmental considerations. This group needs a detailed TCO analysis and is very open to incentive programs.

Segment 3: Convenience-Focused (28% of market) want things to fit in with their current driving habits and don't want to have to change how they act. This group has the highest expectations for infrastructure and worries about range and charging ease.

Segment 4: Skeptics and Detractors (23% of market) have serious questions about EV technology, see big performance problems, and are still very attached to traditional cars. This group needs a lot of tactics to create trust and better demonstrations of technology.

9. Discussion and Implications

9.1 Market Maturation Indicators

The current situation of the EV market shows that it is moving from the early adoption phase to the phase of widespread acceptance. The following signs point to faster maturation:

1. **Price trajectory convergence:** EV prices are going down 8–12% a year, while ICE car costs stay very stable. This means that by 2026–2027, prices will be equal for volume sectors.
2. **Expanded model availability:** In 2015, there were only 20 EV models accessible. By 2025, there will be more than 150 models available. This gives customers a lot more options and makes it easier to fit their preferences.
3. **Infrastructure acceleration:** The number of public charging stations is expanding by 25% each year, while the amount of money spent on private charging stations is rising by 35% each year. This shows that people are confident in the market's potential.
4. **Established manufacturer commitment:** Traditional automakers are expected to invest more than \$500 billion in EVs by 2030. This shows that they are committed to electrification for good.

9.2 Policy and Infrastructure Implications

Our findings show what policies and infrastructure are most important for speeding up the adoption of electric vehicles:

1. **Rural Infrastructure Development:** The differences in charging infrastructure in different parts of the country create both opportunities and problems. Investing in rural infrastructure would help underserved groups adopt the technology and reach more people in the market.
2. **Incentive Redesign:** The current federal tax credit scheme helps higher-income people who can afford to buy cars. Incentives that change based on income or refunds at the point of sale would make it easier for middle- and lower-income people to buy things.
3. **Consumer Education:** There are big gaps between what people think and what is true, which means there is a lot of room for consumer education programs that deal with range anxiety, battery life, and charging infrastructure. Education programs backed by manufacturers and the government could speed up adoption by 15–20%.

9.3 Manufacturer Strategy Implications

Manufacturers should put the following first when responding to what customers want:

1. **Affordability and Accessibility:** Making electric vehicles that cost less than \$30,000 would meet the main needs of customers and open up a lot of new markets for middle-class and first-time consumers.
2. **Transparent Communication:** Clearly explaining the capabilities of EVs, making reasonable statements about their range, and listing all the benefits of owning one would help close the gap between what people think and what is true and boost customer confidence.
3. **Experience-Based Marketing:** Test drives and immersive EV experience centers that address specific customer concerns (such range anxiety, charging processes, and performance) show substantial increases in purchase intent of 18–22%.

10. Future Outlook and Trends

Several new trends will change what consumers expect and how the EV market will grow:

1. **Battery Technology Advancement:** Next-generation solid-state batteries could change what people anticipate from electric vehicles by giving them 50% more range and faster charging.

2. **Autonomous Driving Integration:** More and more consumers want cars with autonomous characteristics. For example, 62% of people aged 25 to 40 expect Level 3+ autonomous capabilities in cars they buy in the next five years.
3. **Subscription Models:** More people are interested in vehicle subscription services and battery-as-a-service models, which implies that people's expectations about owning a car are changing, especially among younger people who aren't as tied to owning a car.
4. **Integration with Renewable Energy:** More and more people expect residential energy systems to work together. In fact, 54% of those who responded said they would install solar panels at the same time as buying an electric vehicle to get the most environmental and financial benefits.

11. Conclusion

In the US market for electric vehicles, consumers have high hopes for the environmental and economic benefits, but they also have practical worries about the cost, range, and infrastructure. There are still big differences between what consumers want and what is now available on the market, but these differences are getting less as technology becomes better, infrastructure gets bigger, and costs get closer to what consumers want.

The difference in how different generations feel about EV adoption means that the market will keep growing among younger customers, but it will be harder to promote and educate older consumers about EV adoption. Infrastructure and incentives that are different in different places make adoption opportunities unequal, which creates both equality difficulties and chances for market growth.

The combination of lower prices, better technology, and better infrastructure with changing customer expectations shows that the EV market has reached a turning point, moving from early adoption to widespread acceptance. Manufacturers, politicians, and infrastructure developers who align their strategy with these customer expectations and aggressively inform consumers about new capabilities will be well-positioned for the electric future of the car industry.

Future research should persist in tracking customer expectations as the market evolves, including nascent categories such as commercial electric vehicle adoption and innovative technology like autonomous vehicles coupled with electrification.

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- [11]. *The authors declare no conflicts of interest. Correspondence concerning this article should be addressed to [Author Contact Information].*