

Ranking Consumers' Reasons to Buy or not to Buy Electric Vehicles: A Descriptive Study

Maurisia Putri Permatasari^{1*}, Damar Kristanto² & Vivi Rodliyatuz Zulfa³

^{1,2,3}Department of Business, Faculty of Vocational Studies, Airlangga University, Surabaya Indonesia

Email: maurisiaputri@vokasi.unair.ac.id

Abstract

This study aims to determine the consumers' main reasons for buying or not buying electric vehicles (EVs), as well as the characteristics of customers based on their decision to purchase EVs. Convenience sampling is used to get data from the questionnaire given to 200 respondents who stay in Surabaya. Data transformation, rank cases, descriptive statistical analysis, and crosstab were used to process the results. The primary reason to buy an electric vehicle is that using an EV saves on fuel purchases. However, the primary reason for not buying an electric vehicle is that EVs require higher maintenance costs. The characteristics of people who have ever bought EVs are mostly earning more than 10 million rupiah per month. While consumers who never buy EVs are mostly students who are considered not to have their own income.

Keywords: purchase decision, buying decision reason, electric vehicle, descriptive study

1. Introduction

As pollution rises globally, the use of sustainable technologies, such as electric vehicles, becomes more crucial. CO₂ is one of the most important greenhouse gases and a key contributor to global warming. To curb emissions, economies need to shift toward decarbonizing energy generation and electrifying transport and heating (World Bank, 2026). Since the transportation industry is a significant source of these emissions, innovation and more sustainable transportation are crucial. This is why electric vehicles (EVs) intervene, because when electricity is pre-supplied from green energy sources, they can greatly reduce CO₂ emissions (Dutta & Hwang, 2021). Indonesia is in the process of fostering the adoption of electric vehicles (Hidayat et al., 2026). To reduce urban air pollution and reduce dependence on fossil fuels, the Indonesian government, through Peraturan Presiden No. 55 Tahun 2018 (Perpres No. 55/2018), officially supports EVs production and use by providing monetary incentives, building charging infrastructure, and establishing technical standards. In addition, the government has established a roadmap for the development of the battery-based electric vehicle industry (<https://kemenperin.go.id>, accessed 29 April 2026). Even though incentives and infrastructure have been provided by the government, the sales of electric vehicles only contribute 4.11% of total car sales (<https://kompaspedia.kompas.id>, accessed 20 May 2026). Research is needed to examine the reasons why people choose not to buy electric vehicles, in line with the reasons for buying EVs.

Battery electric vehicle owners highlight the importance of incentives to reduce the higher

purchase cost (Bjerkan et al., 2016). According to Mutavdzija et al. (2022), cost is less important for EV drivers than battery and everything related to battery charging. Therefore, the network of public charging stations is the most important influencing factor relevant to the purchase of an EV, and technical factors are more significant to users than cost.

This research emphasizes the sequence of the most significant factors in consumer purchases of EVs as a strategy for successful marketing. In addition, this study also displays the order of consumers' main reasons for not buying any EVs to provide an overview of marketing priority policy using demographic data as the basis of market segmentation.

2. Literature Review

Electric Vehicles (EV). An all-electric vehicle (often called a battery-electric vehicle, an electric vehicle, or an EV or AEV for short) is a vehicle that gets its energy for driving entirely from its battery, and it must be plugged in to be recharged. A plug-in electric vehicle (or PEV) is any vehicle that can be plugged in (either a plug-in hybrid or an all-electric vehicle). Whether it's a hybrid, plug-in hybrid, or all-electric, the demand for electric drive vehicles will continue to climb as prices drop and consumers look for ways to save money at the pump (<https://www.energy.gov/articles/history-electric-car>, accessed 14 February 2026)

Buying Decision of EV. Car purchase decisions are primarily driven by practical considerations, with convenience and safety emerging as the most influential factors. In general, people always feel uneasy about batteries and technology, particularly in cars. People's biggest concern is the battery's propensity to explode under a variety of circumstances, such as an accident where the battery increases the likelihood of an explosion or even situations where severe weather causes a fire. Today's EVs run on lithium-ion batteries, which produce a lot of heat and are more likely to explode (Shah & Shah, 2024). Furthermore, range anxiety can arise due to battery matter. The current battery range of the EV is not as high as that of Internal Combustion Engine Vehicles (ICEVs), and so the phenomenon of 'range anxiety' occurs among many individuals as they worry about the car's battery running out of the road (Li et al., 2017).

Apart from battery issues, consumers evaluate the price of EVs while making a purchase decision. The initial cost of EVs is high, and thus, for general consumers, it is a negative perception, but as a part of the future, they would be saving on fuel and emissions, which is the positive part of EVs (Shah & Shah, 2024). Price perception also depends on the demographic characteristics of each consumer. It is revealed that an individual's demographics, such as lifestyle, education level, and income, affect consumers' choice to accept electric vehicles (Izadikhah et al., 2022). Social status and employer requirements played only a minor role, indicating that car ownership in this context is largely a matter of necessity rather than prestige (Ballasa & Koteczki, 2026). The most significant factor influencing the purchasing of any goods is society, as well as the purchase of electric vehicles (Chu et al., 2019). Public opinion positively affects the intention to buy and use EVs; it may also create a good image among buyers (Bansal & Ansari, 2025)

It was seen from the results that environmental effects had a direct relationship with EV buying

(Okada et al., 2019). Pollution is getting worse, and people nowadays are starting to be concerned about the negative effects of pollution. People who buy EVs aim to help reduce pollution and support a better environment. Meanwhile, Enkel & Wintgens (2025) find there is no significant positive relationship between environmental concern and the intention to use EVs. This contradiction is possible due to differences in research locations, where the living place of respondents, along with culture and habits, can influence EV purchasing decisions.

3. Research Method

There is no hypothesis testing in this descriptive study. In order to help marketers understand the strategic priority, this study determined the reasons behind consumers' decisions to buy or not to buy EVs by ranking them from the most important reason to the least important reason. The researcher did not make any interventions throughout the field investigation.

The population sampling for this study is all the Surabaya citizens. Based on data from the Emission Database for Global Atmospheric Research (EDGAR), Indonesia is one of the countries with a large contribution to global emissions, and the transportation sector plays a significant role in this, both at the national level and in big cities such as Surabaya (Pratama et al., 2022). Surabaya is aggressively transforming into the center of the EV ecosystem in East Java, with significant EV population growth, Surabaya is considered to be the appropriate population in this study. Non-probability sampling was used for this study, where not every member of the population has the same opportunity of being included in the sample. This method was selected since the researcher lacks additional data regarding the size of the population frame. This type of method is less likely to generalize to the population.

Convenience sampling was used as the technique, where participants were selected based on their availability and accessibility to provide the information required by the researcher. In order to gather data, an online survey was conducted, 200 questionnaires were distributed by the researcher. Data analysis in this study uses a descriptive statistical approach known as Crosstab. A cross-tab that displays a union distribution, descriptive statistics, and the result of testing two or more variables is called a crosstab.

The consumers' reasons questions are taken from several sources, as follows:

Table 1. Questionnaire Sources

The Reason to Buy	The Reason to Not Buy	Source
Charging stations are widely available	Lack of a properly developed infrastructure	Ballasa & Koteczki (2026)
Using an EV during traffic jams is more comfortable	Worried about the range of EVs	
EVs sound smooth and not noisy	EVs require higher maintenance costs	
EV technologies are very advanced	I don't trust EVs' safety	Khrisnawamy & Deilami (2024)

Using an EV can reduce pollution	I'm not certain about EV technology	
I use an EV to support the government policies	I have less access to information about new technologies of EVs	
I use an EV because there are tax incentives		Singh et al. (2023)
	Worried about battery safety	Hidayat et al. (2026)
Using an EV creates a better driving experience	EVs have a higher price than ICEs	Stajic et al. (2023)
Using an EV saves on fuel purchases	The duration of charging is longer than filling at the petrol station	

The participants responded to questions on their decision to buy or not to buy, and scored each question based on the answer whether they bought it or not. The scores range from 1 to 9, with 1 representing the most important reason and 9 representing the least.

4. Finding and Discussion

Data was gathered anonymously. Every participant was requested to answer the questionnaire voluntarily; only those who consented were added to the study. 182 of the 200 questionnaires that were gathered for this study were deemed to have satisfactory answers. Thus, the response rate was 91%. The results of the data processed on consumers' buying decisions are as follows:

Table 2. Respondents' answers about buying decision

DECISION	TOTAL ANSWERS	
	Σ	%
Buy	53	29.1
Do not buy	129	70.9
Total	182	100

(references: primary data processed, 2026)

According to the analysis of respondents' decisions based on the data from table 2, 29,1% of total respondents had bought EVs, whilst 70,9% had never done so.

The following is a list of the processed data regarding consumers' reasons for purchasing EVs:

Table 3. Consumers' reasons for buying electric vehicles listed in order

ORDER	REASONS
1	Using an EV saves on fuel purchases
2	I use an EV because there are tax incentives
3	Using an EV during traffic jams is more comfortable
4	EVs sound smooth and not noisy
5	Using an EV creates a better driving experience
6	Using an EV can reduce pollution
7	EV technologies are very advanced
8	I use an EV to support the government policies
9	Charging stations are widely available

(references: primary data processed, 2026)

Table 3 shows that consumers' main reason to buy electric vehicles is that using electric vehicles saves on fuel purchases. The cost of buying fuel is more expensive than charging, so that the electric vehicle users can save money. The second reason of consumers buy electric vehicles is that there are tax incentives. According to Bansal & Ansari (2025), incentives are bound as positive variables persuading the buying intention of EVs. Annual taxes are considered burdensome and expensive, while electric vehicles have very cheap taxes, up to 10% of normal taxes, which can motivate people to buy electric vehicles. The third reason why people buy electric vehicles is that using an EV during traffic jams is more comfortable. Surabaya is one of the most crowded cities in Indonesia. People are searching for ways to feel comfortable in the midst of unavoidable traffic jams. Using electric vehicles can be comfortable because it doesn't require a lot of energy to drive; electric vehicles do not have a clutch pedal, only a gas pedal and a brake pedal, which is very light.

Charging stations are widely available, which is the last reason consumers choose to purchase. Actually, there are enough charging stations in Surabaya, but some people might think it will be difficult to find a charging station when they have to go out of town, considering there are not many charging stations available in smaller cities. This requires further investigation.

Table 4. Consumers' reasons for not buying electric vehicles listed in order

ORDER	REASONS
1	EVs require higher maintenance costs
2	Lack of a properly developed infrastructure
3	Worried about the range of EVs
4	The duration of charging is longer than filling at the petrol station
5	Worried about battery safety

6	I'm not certain about EV technology
7	I don't trust EVs' safety
8	I have less access to information about new technologies of EVs
9	EVs have a higher price than ICEs

(references: primary data processed, 2026)

Based on table 4, the main reason consumers do not buy electric vehicles is that electric vehicles require higher maintenance costs. Maintenance costs can be very expensive when the battery's lifetime is coming to an end and you should replace it. The price of a new battery could reach about 50% of electric vehicles price. This causes consumers to reconsider purchasing an electric vehicle. The second reason not to buy electric vehicles is the lack of properly developed infrastructure. The infrastructure needed to support EVs includes charging stations, grid power, connector standardization, and home charging. Consumers think that the infrastructure is not sufficient. The third reason people do not buy EVs is worried about the range of electric vehicles. In line with this finding, Mandys (2021) found that EVs in general have a lower maximum range compared to ICEVs, and potential buyers are worried that this range will not be enough to accommodate their needs, despite being enough to cover the vast majority of each individual's trips.

It seems that price is not an issue to buy EVs, since EVs have a higher price than ICEVs is the last thing on people's minds to not buy EVs. People are less concerned about price when the item's performance matches the price. In general, EVs are used as second vehicles, so the consumers are considered to be well-off people.

Table 5. Respondents characteristics based on purchasing decision

CHARACTERISTICS	BUYING DECISION	
	BOUGHT	NEVER BOUGHT
Gender	Male	Female
Age	36-45 years old	17-25 years old
Job	Employees	Students
Income	More than Rp 10.000.000	Rp 2.500.000-Rp 5.000.000

(references: primary data processed, 2026)

Table 5 illustrates the characteristics of EV buyers and non-buyers. Most respondents who purchased EVs were earning more than 10 million rupiah per month. In addition, the majority of consumers are between the ages of 36 and 45. Consumers in this age and income range are expected to have a stable job and already own other vehicles besides EVs. Under these circumstances, people are considered capable of purchasing EVs.

Researchers studied consumer preference in Australia and found that the younger generation showed a higher propensity to adopt EVs (Maurya et al., 2025). This is contrary to the results

of this study, where consumers aged 17-25 years have never purchased an EV. This is probably due to the character of Indonesians, who are not yet able to make their own decisions about vehicles. Since they are still in college, the ones who make the purchasing decisions are their parents. This assumption needs further investigation.

5. Conclusion

This study uncovers consumer purchase reasons along with their characteristics. These reasons will guide marketing strategies for both existing markets and new ones. The main reason why consumers buy EVs is that using EVs saves on fuel purchases. This reason can be used as an input for marketers to educate potential consumers about the benefits of using EVs, especially in fuel savings. Simulation can be presented to consumers to show how much savings are made by buying an EV. Meanwhile, EVs require higher maintenance costs become the main reason consumers do not buy EVs. The EV industry needs to consider finding new, more affordable technologies. Furthermore, consumers need to be informed that the cost of maintenance is necessary to ensure their safety and comfort. The availability of charging stations is the last reason consumers choose to purchase EVs. This finding can be useful to government decision-making regarding the number of charging stations. Policies are already being taken to reduce pollution by switching to EVs, but this should also be balanced with the availability of charging stations across regions.

Further research is expected to be able to explore potential consumers aged between 17 and 25 and their purchasing decisions, so that a new market can be created to increase the number of EV users. Consumer opinions regarding the availability of charging stations also need to be explored further, because consumers listed this reason as the last reason to buy EVs.

Acknowledgement

The authors acknowledge the Faculty of Vocational Studies, Airlangga University Surabaya for supporting this study.

References

- Ballasa, B. E., & Koteczki, R. (2026). Attitudes towards sustainable mobility technologies: Insights from electric vehicle adoption. *Social Sciences & Humanities Open*, 13, Article 102379. <https://doi.org/10.1016/j.ssaho.102379>
- Bansal, R., & Ansari, Y. (2025). The role of drivers for sustainable development in electric vehicle adoption: A two-staged structural equation modelling–artificial neural network technique. *Resources, Conservation & Recycling Advances*. <https://doi.org/10.1016/j.rcradv.2025.200255>
- Bjerkan, K. Y., Norbech, T. E., & Nordtømme, M. E. (2016). Incentives for promoting battery electric vehicle (BEV) adoption in Norway. *Transportation Research Part D: Transport and Environment*, 43, 169–180. <https://doi.org/10.1016/j.trd.2015.12.002>
- Chu, W., Im, M., Song, M. R., & Park, J. (2019). Psychological and behavioral factors affecting electric vehicle adoption and satisfaction: A comparative study of early adopters in China and

Korea. *Transportation Research Part D: Transport and Environment*, 76, 1–18. <https://doi.org/10.1016/j.trd.2019.09.009>

Dutta, B., & Hwang, H. G. (2021). Consumers' purchase intentions of green electric vehicles: The influence of consumers' technological and environmental considerations. *Sustainability*, 13(21), Article 12025. <https://doi.org/10.3390/su132112025>

Enkel, E., & Wintgens, S. (2025). Understanding mass-market electric vehicle adoption: Integrating diffusion of innovation theory with risk mitigation strategy in Germany. *Technological Forecasting and Social Change*. <https://doi.org/10.1016/j.techfore.2025.124329>

Hidayat, R., Cowie, J., & Fonzone, A. (2026). Can convenience policy measures act as a catalyst for battery electric vehicle adoption in Indonesia? A structural equation modeling approach. *Transportation Research Procedia*, 95, 776–783.

Izadikhah, M., Saen, R. F., Zare, R., Shamsi, M., & Hezaveh, M. K. (2022). Assessing the stability of suppliers using a multi-objective fuzzy voting data envelopment analysis model. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-022-02376-6>

Khrisnawamy, A., & Deilami, S. (2024). Psychological hesitations of electric vehicle adoption: A systematic review. *Research: Ideas for Today's Investors*, 1(2). <https://doi.org/10.1016/j.nexres.2024.100056>

Kompas Pedia. (n.d.). *Kompas Pedia*. Retrieved May 20, 2026, from <https://kompaspedia.kompas.id>

Li, W., Long, R., Chen, H., & Geng, J. (2017). A review of factors influencing consumer intentions to adopt battery electric vehicles. *Renewable and Sustainable Energy Reviews*, 78, 318–328. <https://doi.org/10.1016/j.rser.2017.04.076>

Mandys, F. (2021). Electric vehicles and consumer choices. *Renewable and Sustainable Energy Reviews*, 142, Article 110874. <https://doi.org/10.1016/j.rser.2021.110874>

Maurya, P. K., Bansal, R., & Mishra, A. K. (2025). Investor sentiment and its implication on global financial markets: A systematic review of literature. *Qualitative Research in Financial Markets*, 18(1), 209–248. <https://doi.org/10.1108/QRFM-04-2024-0087>

Ministry of Industry of the Republic of Indonesia. (n.d.). *Kementerian Perindustrian Republik Indonesia*. Retrieved April 29, 2026, from <https://kemenperin.go.id>

Mutavdzija, M., Kovacic, M., & Buntak, K. (2022). Assessment of selected factors influencing the purchase of electric vehicles: A case study of the Republic of Croatia. *Energies*, 15, Article 5987. <https://doi.org/10.3390/en15165987>

Okada, T., Tamaki, T., & Managi, S. (2019). Effect of environmental awareness on purchase intention and satisfaction pertaining to electric vehicles in Japan. *Transportation Research Part D: Transport and Environment*, 67, 503–513.

Pratama, B. A., Ramadhani, M. A., Lubis, P. M., & Firmansyah, A. (2022). Implementasi pajak

karbon di Indonesia: Potensi penerimaan negara dan penurunan jumlah emisi karbon. *Jurnal Pajak Indonesia (Indonesian Tax Review)*, 6(2), 368–374.
<https://doi.org/10.31092/jpi.v6i2.1827>

Shah, T., & Shah, M. (2024). Electrifying the future: Understanding consumer trends in the adoption of electric vehicles in developing nations. *Green Technologies and Sustainability*.
<https://doi.org/10.1016/j.grets.2024.100101>

Singh, V., Singh, T., Higuera-Castillo, E., & Liébana-Cabanillas, F. J. (2023). Sustainable road transportation adoption research: A meta-analysis, weight analysis, and moderation analysis. *Journal of Cleaner Production*, 392, Article 136276.
<https://doi.org/10.1016/j.jclepro.2023.136276>

Stajic, D., Pfeifer, A., Herc, L., & Logender, M. (2023). Early adoption of battery electric vehicles and owners' motivation. *Cleaner Engineering and Technology*, 15, Article 100658.
<https://doi.org/10.1016/j.clet.2023.100658>

U.S. Department of Energy. (n.d.). *The history of the electric car*. Retrieved February 14, 2026, from <https://www.energy.gov/articles/history-electric-car>

World Bank. (2026). *Global economic prospects, January 2026*. World Bank.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>)