

A Survey on Orientation of peoples towards Electric and Conventional Vehicles

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Abstract - *With the current depletion of the fossil fuels and its price hike, there is a need for another energy resource to run the vehicle. The automobile sector is considering Electric Vehicles as a solution to the industry and environment in India. However, the current market penetration of EV is relatively low in spite of governments implementing EV policies. Through this paper potential scope of Electric vehicles in India will be studied and Consumer perception for the same will be analyzed.*

Key Words: *Electric vehicles, Consumer perception, Choice of vehicle, Environment, Conventional vehicle.*

1. INTRODUCTION

India is a country with the third-largest road network in the world. Road travel seemed to be a preferred choice in India with over 60 % of the population using personal or shared vehicles to commute. (Statista, 2020) Conventional vehicles are a major cause of global warming and environmental air pollution. All types of vehicles produce dust from brakes, tires, and road wear. The average diesel vehicle has a worse effect on air quality than the average gasoline vehicle. But both gasoline and diesel vehicles pollute more than electric vehicles. (EEA, 2018) Governments started using fiscal policies, such as road tax, to discourage the purchase and use of more polluting cars. Green tax is imposed while re-registering the vehicle after 15 years of use to make people discontinue the use of polluting vehicles and encourage them for fuel-efficient and less polluting vehicles. Fuel taxes may act as an incentive for the production of more efficient, less polluting, vehicles and the development of alternative fuels. High fuel taxes or cultural change may provide a powerful incentive for consumers to buy lighter, smaller, fuel-efficient cars, or to not drive.

Electric cars offer a dramatically lower operating cost compared to conventional IC engines. On average, electric vehicles are 75-80% cheaper from fuel and maintenance perspective, which is an important consideration for many consumers who have high usage.

This reality holds true across form factors because it's materially cheaper to charge a battery compared to refueling a conventional liquid fuel tank.

Moreover, EVs have 75-80% fewer moving components and this ultimately translates to a much lower maintenance bill. Over and above the robust operating cost angle, EVs also possess an inherent advantage when it comes to performance and drivability.

2. OBJECTIVES

The objective of this paper is to understand consumer perception and the factors important for the purchase of EVs in India. Because the growing electric vehicles market seems to cover the indian market very soon. So we have to be sure about the people's mindset for the upcoming vehicle generation.

3. RESEARCH METHODOLOGY

Descriptive research methodology is used. Primary data of a sample population of 121 is collected using an online questionnaire.

1. We created the online form by studying various previously done surveys on different aspects of Electric vehicles vs Conventional vehicles. (**Link** - <https://docs.google.com/forms/d/1wZpGDoTW2ft0OfYN5HAQ6U08IP9yZTFtI6IWLE68gIc>)
2. After studying all the referred data we finalized some very basic questions so that it will be very easy to understand the idea of the questionnaire to the respondent.
3. After taking all the responses we sorted them in required categories.
4. We analyzed all the results by comparing one with another. It means by keeping one data constant we studied various responses in accordance with it. For ex. Suppose one of the respondents does not likes

EV so we kept his response on one side and compared others responses with his response.

- Then we have concluded the analysis by keeping in mind all the responses.

4. What Are the Challenges in Consumer Adoption of Electric Cars?

Breaking away the old norms and establishing a new consumer behavior is always a big challenge. It is common to find users anxious about the speed and range of EVs. Thus, a lot of sensitization and education is needed, in order to bust several myths and promote EVs within the Indian market.

Apart from this, there are a number of challenges in the adoption of electric vehicle cars in India in the near future. These include:

- Charging infrastructure
- Supply-demand gap
- Cost

5. Questions and their responses: -

1) Currently do you own any electric vehicle?

- Yes (2 wheeler)
- Yes (4 wheeler)
- Yes (both)
- None

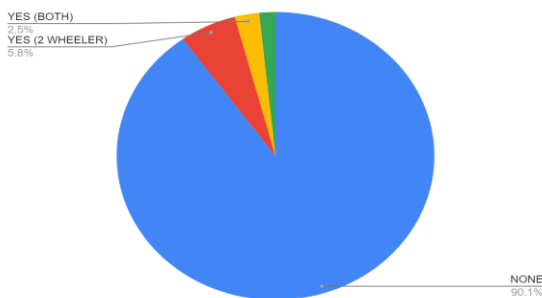


Fig -1: Question 1 Result

2) If your answer was yes for first question; what was your reason for buying electric vehicle?

- Even though high initial cost; long term savings.
- Better for the environment.
- Both.

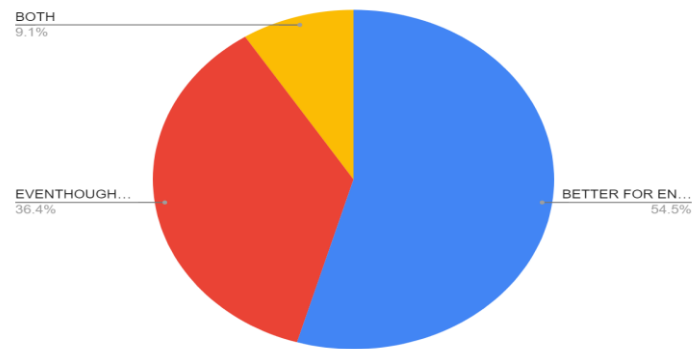


Fig -2: Question 2 Result

3) If your answer was yes for first question; was the product worth its value?

- Totally worth its price.
- Some improvements would make the product worth its price.
- Not worth

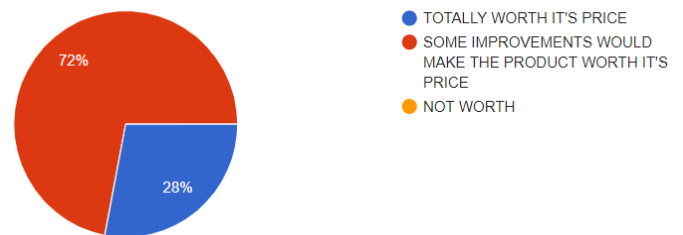


Fig -3: Question 3 Result

4) For all the people; what according to you is future mobility options?

- Battery electric vehicle
- Plug-in hybrid electric vehicle

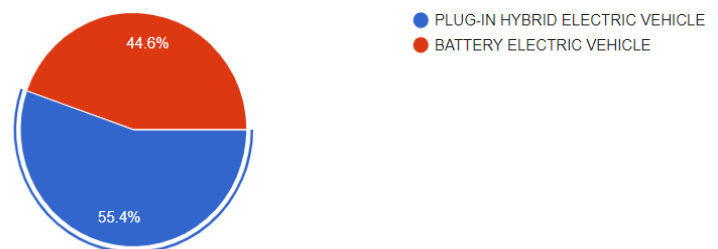


Fig -4: Question 4 Result

5) What are you looking for in an electric vehicle?

- Maximum range
- Maximum performance

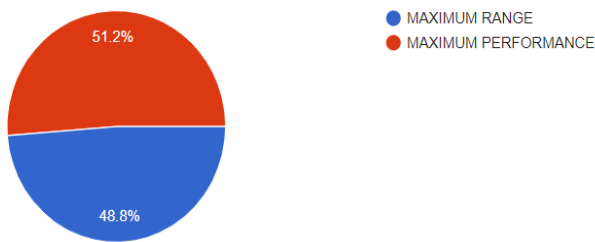


Fig -5: Question 5 Result

- 50,000 To 70,000 Inr
- 70,000 To 1,00,000 Inr
- Above 1,00,000 Inr

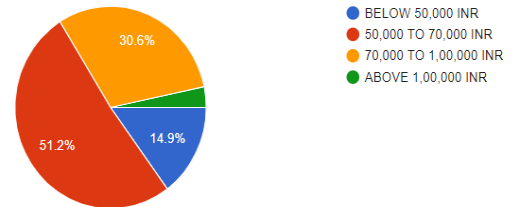


Fig -8: Question 8 Result

6) ACCORDING TO YOU; WHAT ARE DRAWBACKS OF ELECTRIC VEHICLE?

- Range Anxiety
- High Initial Cost
- Under-developed Ev Infra-structure
- All Of The Above

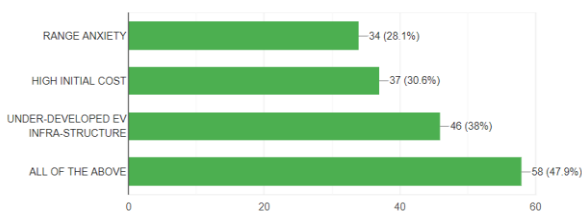


Fig -6: Question 6 Result

9) Select the manufacturing company of your desired electric 2-wheeler?

- ATHER
- AMPERE
- B-GAUSS
- BAJAJ
- BENLING
- EVOLET
- EeVee
- HERO ELECTRIC
- JOY E-BIKES
- KABIRA MOTORS
- OKINAWA
- ODYSSEY
- PURE EV
- REVOLT
- TVS
- TECHNO
- YO BYKES

7) Related to infra-structure; should government focus on developing public charging stations in order to boost electric vehicle sale?

- Yes
- No

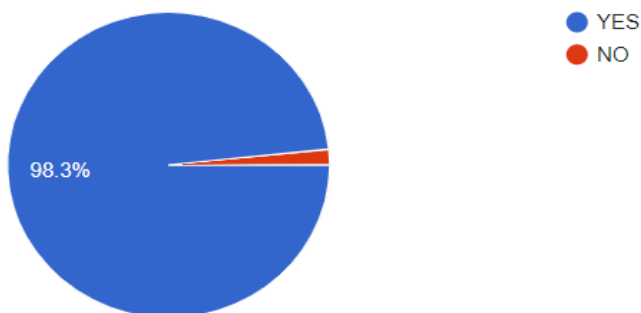


Fig -7: Question 7 Result

8) If you were to buy an electric 2-wheeler; how much are you willing to pay for your desired electric 2-wheeler

- Below 50,000 Inr

ATHER	
BAJAJ	
TVS	
HERO ELECTRIC	
REVOLT MOTORS	

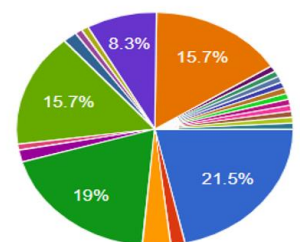


Fig -9: Question 9 Result

10) If you were to buy an electric 4-wheeler; how much are you willing to pay for your desired electric 4-wheeler

- Below 6 Lakh
- 6 To 15 Lakh

3. 15 To 25 Lakh

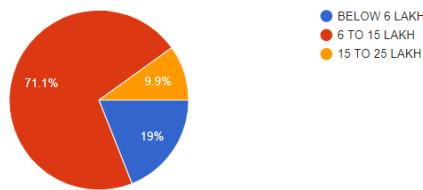


Fig -10: Question 10 Result

1. Battery electric vehicle
2. Plug-in hybrid electric vehicle
3. Petrol/diesel powered

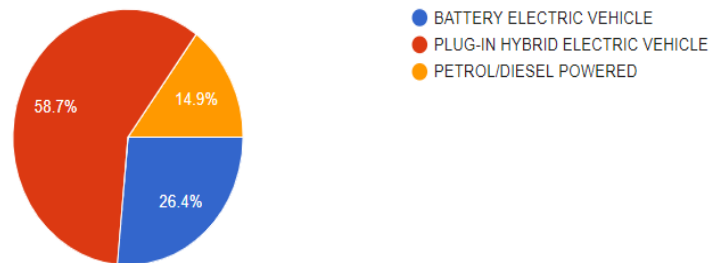


Fig -13: Question 13 Result

11) Select the manufacturing company of your desired electric 4-wheeler?

1. Strom Motor R3 (4.50 Lakh And Above)
2. Tata Tigor Ev (9.58 Lakh And Above)
3. Mahindra Vertigo (10.15 Lakh And Above)
4. Tata Nexon Ev (13.99 Lakh And Above)
5. Mg Zs Ev(21 Lakh And Above)
6. Hyundai Kona (23.75 Lakh And Above)

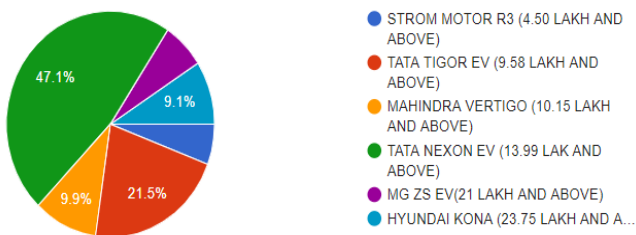


Fig -11: Question 11 Result

12) What will be choice of your next 2-wheeler; by taking current scenario into account?

1. Electric
2. Petrol Powered

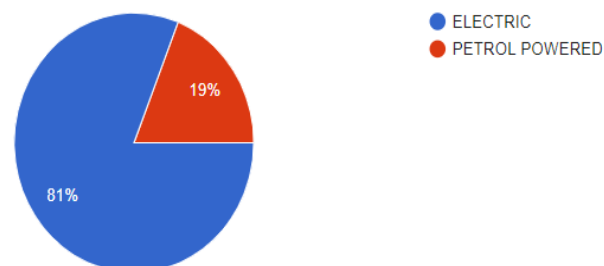


Fig -12: Question 12 Result

13) What will be choice of your next 4-wheeler; by taking current scenario into account?

6. CONCLUSIONS

With the depletion of fossil fuels and constant hike in fuel prices, there is a need for energy transition in vehicles in India. The Government has taken initiative to fight pollution levels by promoting EVs and giving subsidies on purchase. The Government and manufacturers should join their hands to build the infrastructure and create a positive environment for EVs.

The respondents are aware of global climate conditions and are ready to change their preference from conventional to eco-friendly vehicles. Cost is an important factor while considering the purchase of EV. Most of the respondents are willing to consider EVs as their future purchase option, if proper infrastructure is available. Initial cost of purchase, less number of charging stations and the time required to recharge the battery is creating limitations in boosting consumer confidence.

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