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# Electric Vehicles Impact on our World

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**ABSTRACT:**

IN todays world we have seen that the use of motor or fuel based cars are decreasing day by day, as it reduces the use of fossil fuels for oil production and makes an healthy approach to make our world a better place to breath in. Today's world is considered as a tipping start as all the countries are now adopting the use of electric vehicles , as of now 11% of the cars sold globally are now electric .

## 1.Introduction

To the start of 20th century the issue of global warming and environmental safety has been the foreground of international politics in order to find a better alternative for fossil fuels. According to

OECD/IEA(2017) , annual sales of electric vehicles has risen from 2 to over 753 thousands worldwide over the period of 2005-2016.This Electric Vehicle revolution has lead to inherit another benefits that are often overlooked that are-cleaner air and healthy environment. According to the report of the European Union, the transport sector is responsible for 28% of the air pollution, while the road transportation is accountable for 70% of the total transport pollutions, therefore more countries are encouraging each other to the development and deployment of electric vehicles to avoid concentration of $C0_2$ gases, air pollutants and other types of greenhouse gases. Electric Vehicles has following advantages over Fuel based cars:- Cost:-The maintenance cost of Electric vehicles is way less as compared to maintenance and fuel costs of Fuel based cars.

Comfort:-Electric Vehicles are way more comfortable than fuel based vehicles as it reduces the vibrations and engine noise.

Eco-Friendly:-As the electric vehicles operate on electricity rather than fuels there is no emission of harmful substances in the environment making it safe for environment.

Efficiency:-Electric Vehicles are more efficient than traditional vehicles. The total efficiency of gasoline vehicles ranges from 11% to 27% ,whereas diesel vehicles ranges from 25% to 37%,In contrast the Electric vehicles led by natural gas power plants ranges from 13% to 31% , whereas electric vehicles fed by renewable energy show an overall efficiency of 70%.

## 2. Literature Review

Electric Vehicles are increasingly known for their potential to transform transportation and mitigate several environmental issues.Their impact various dimensions including air quality, fuel consumptions and various economic matters.

Below are some key insights of electric vehicles impact on our world:

1:Environmental Benefits:-

Air Pollution Reduction:-As Electric Vehicles do not use any fossil fuels to run there is no matter of releasing harmful substances in the environment[1]. They work fully on battery which are connected to electricity through which the cars can run severely reducing the air pollution.[2][3] Lifecycle Emissions:-While the production of Electric Vehicles involves emission, its overall lifecycle for emissions is way less than that of Conventional Vehicles.[4]

2:Economic Implications:-

Cost Effectiveness:-Over the time, Electric vehicles offer way less cost than that of Conventional Vehicles due to reduced fuel as well as maintenance cost[5]. As in todays the world the cost of fuel is increasing day by day it does not effect people who use electric vehicles as it does not depend on fuel for its functioning.[6]

Market growth:-Policies that often incline in promoting electric vehicles are continuously,[7] leading to increased market share, in which some projections even suggests that half of the cars sold globally by 2035 will be of electric vehicles.[8]

3:Challenges And Considerations:-

Energy Source Dependency:- In todays world much of the generation of electricity is done by using fossil fuels. The electricity use of electric vehicles is contingent, but we still depend much on fossil fuels for generation of electricity[9].

Infrastructure Needs:-The transition from Conventional Vehicles to electric vehicles requires a high amount of investments in charging infrastructure[11], which still remains a barrier to widespread Electric Vehicle adoption.[12]

4:Technological Advancements:-

Advancements in Battery Technology:-

Advancements made in way of improved battery technology is crucial for improving the range, the cost-effectiveness and the charging time of the electric vehicle.[13][14]

5:Charging Infrastructure:-

The development of charging infrastructure is essential for adoption of electric vehicles, especially in the rural areas and for long distance travels.[15]

## 3.Design

Research Design

These method of assesment is carried based on the opinion of the customers using electric vehicles as well as commercial vehicles. It allows us to gain an insight based on what customers are thinking about the adoption of electric vehicles. By collecting data from the people experiences , opinions and concerns we can get rich insights into complex relationship between electric vehicles and its customers.

Data Collection Methods

The data for this research was collected through online survey. This survey was shared on various social media platforms.

Sampling

The sampling method used for this research is convenience sampling, it was chosen because of its ease of use for each survey. The target population was adults and children with varying levels of experience with environmentally friendly methods and remedies. Sample size was 15 respondents, even though the sample size is small it provides exploratory knowledge about the perception for adoption of electric vehicles.

Survey Contents

The survey asked the following to cover various aspects of people’s perception regarding the adoption of electric vehicles.

1:Do they themselves own an electric vehicle.

2:The reason for which they own an electric vehicle.

3:Are they really satisfied with the adoption of electric vehicles.

4:Are they really concerned about the climate change and its impact on our environment.

5:The wide barriers for wider electric vehicle adoption.

6:To what extent electric vehicles can help mitigate climate change.

7:Are they themselves going to buy an electric vehicle.

8:What factors would mostly influence their decision to purchase or lease an electric vehicle.

Ethical Considerations

Consent of different respondents were taken before the survey. Respondents chose to complete the survey voluntarily.

Limitations

Since the research was done using the convenience sampling and limited respondents of just 15, it may not be suitable as a representatives of all stakeholders involved in the green environment space. Also the responses are self reported by the respondents t may not reflect their actual behavior and market condition. Being a survey it restricts this research paper from digging deeper into the respondents responses.

## 4.Results

A. Do they own an electric vehicle.

As we can see from Fig.1 most of the respondents of the survey do not own an electric vehicle. Approximately 80% of the respondents do not own an electric vehicle.Respondents who currently own an electric vehicles is just 20%.

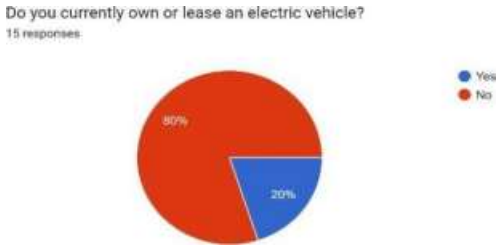



Fig1. Pie Chart showing the respondents who own electric vehicle.

Fig2 demonstrates why people would actually use an electric vehicle. In which 62.5% of the people prefer electric vehicle because of environmental concerns, 12.5% of the people prefer electric vehicle because of its low operating cost, 12.5% of the people prefer electric vehicle for its performance capabilities, last 12.5% of the people do not own electric vehicle.

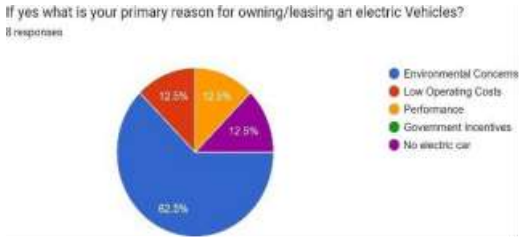



Fig2. Pie chart showing why they use electric vehicle and also people who do not own electric vehicles.

B. Satisfaction

Fig 3. Shows how satisfied the people are with electric vehicles. From a scale of 1-5, 37.5% of the people were moderately satisfied with electric vehicles. 25% of the people were less moderately satisfied. 25% of the people are moderately high satisfied with electric vehicles. Last 12.5% of the people were completely satisfied with the adoption of electric vehicles.

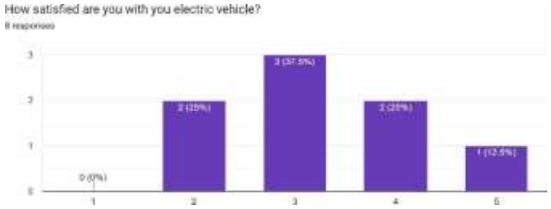
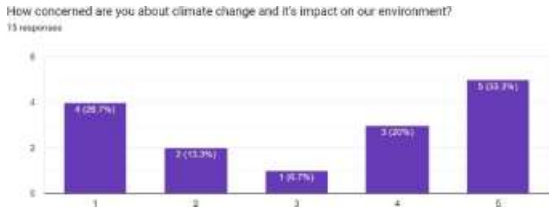



Fig 3. Graph chart shows the scale of satisfaction of people regarding the electric vehicles.

3. Concerns

Fig 4. Shows the level of concern people have regarding the climate change and its effect on or environment. From a scale of 1- 5 33.3% of the people are highly concerned about the climatic change and its effects. 26.7% of the people are not all concerned about the climatic change. 20% of the people are moderately high concerned about the climatic change and its impact.

13.3% moderately low concerned about the climatic change and its effects. Last 6.7% of the people are moderately concerned about the climatic change and its impacts.




4.Wide Barriers

Fig 5. Shows the wide range of barriers for wider adoption of electric vehicles. In which 46.7% consider the main barrier as lack of charging infrastructure. 40% of the people consider it as limited driving range. 6.7% of the people consider it as concerns regarding its battery life. Last 6.7% of the people consider it as they already own electric vehicles.

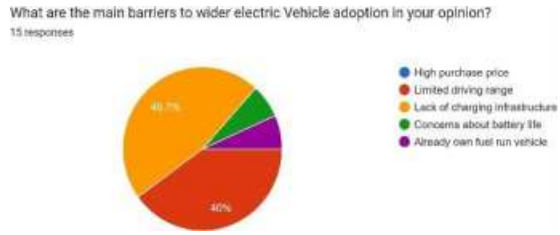



Fig 5. Pie charts show the main barriers for the widespread adoption of electric vehicles.

5.Usefulness

Fig 6. Shows the public opinion on upto what extent the electric vehicles can help mitigate the climatic change. In the scale of 1-5, 26.7% of the people think that electric vehicles will moderately help to mitigate climatic changes. Another 26.7% of the people think that electric vehicles moderately high will help to mitigate the climatic change. 13.3% of the people think electric vehicles will completely mitigate climatic change. 20% of the people think that electric vehicles will not help mitigate climatic change. Last 13.3% of the people think that electric vehicles will moderately low will help mitigate climatic change.

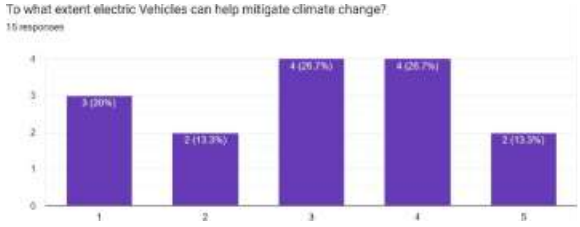



Fig 6. Graph chart shows the scale of upto what extent the electric vehicles help mitigate the climatic change.

## 5.Conclusion

In the conclusion we can state that electric vehicles are going to be a major boom in the upcoming years and a perfect option to replace conventional vehicles. Electric vehicles are a much safer option environmentally than the other types of vehicles as its completely based on battery and electricity rather than using Non- renewable sources of energy. Dependency on Non-renewable sources of energy must be minimized as soon as possible to safeguard our environment.

It allows us to reduce air pollution by completely abandoning the use of harmful substances like nitrogen oxides in the environment damaging the environment. Since the adoption of electric vehicles we have seen a clear and positive difference in the refurbishment of Ozone Layer which blocks the harmful UV rays of the sun, it is because the major contribution is given by the use vehicles in air pollution and is continuously reducing since then. It also allows us to reduce noise pollution as it uses battery instead of combustible engine to power the vehicles. Traditional Fuel vehicles make the use of engines which produces huge amount of noise. Electric vehicles operate completely on battery which does not produce any noise making as less noise as possible.

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