

## CONSUMER PERCEPTION TOWARDS ELECTRIC VEHICLE INDUSTRY- A STUDY ON THE ROLE OF ELECTRICAL VEHICLES IN ENVIRONMENTAL SUSTAINABILITY

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Abstract- ‘Global warming’, ‘Greenpeace’ and ‘Ozone Layer Depletion’ are the terms almost everyone is quite familiar. As society becomes more concerned with the natural environment, businesses also have to adopt environmental concerns as their corporate social responsibility. Marketing environment-friendly products are called as green marketing. In recent era the automobile sector has been one of the major reasons behind global warming due to its high carbon emissions. So as a social responsibility, it is necessary to promote green vehicles in Indian market by the automobile industries to reduce its effect on environment. Green marketing can be considered to be contributing towards enhancing environmental performance of industry and an important element of the evolution of the Indian automobile industry as it responds to challenges of environmental regulations, increasing customer expectations and economic pressure. This report essentially, provides

an in-depth study of the consumer’s attitude and perceptions towards Green vehicles. It tries to answer fundamental questions that affect the awareness level and preference of the consumers to opt for an environment friendly car over a normal car.

### 1. INTRODUCTION

“Better late than never” is the English saying. With reference to the Environmental issues of late there is awareness among people. Continuous exploitation of nature for the past 200 or more years since industrialisation has started showing its consequences. Of late we see round the world unforeseen natural calamities like flood, famine, earthquake, tsunami etc. The best example for this is, recent flood in Kerala and landslide in Kodagu (Aug 2018). Some of the villages virtually disappeared; roads and building were just swallowed by nature at the wink of an eye. The reasons for these above havocs are nothing but environmental

pollution. It is well known that air, water, soil, is contaminated completely. If we trace the factors for this environmental pollution at the very outset we find two major factors, like industrialisation and motor vehicles. According to one of the study 75% of carbon monoxide emissions come from automobiles and in urban areas 50 to 80%. Indians are finding hard to breathe in metropolitan cities. Recently Delhi people suffered a lot because of smog. People could not breathe even. Schools were declared holiday. Lot if vehicles collided each other due to invisibility. People stewarded moving around with masks. Delhi Government restricted vehicles from entering the city. This incidence shows that even the CNG (compressed natural gas) is not a solution for pollution.

Knowing that automobiles are the root cause for major pollution we must find a solution, why vehicles lead to pollution? It's mainly when fuel burns in engines produces lot of smoke especially diesel vehicles. This smoke contains carbon dioxide (co<sub>2</sub>) and nitrogen (N<sub>2</sub>). The government had tried to control on this emission by making pollution free certificate compulsory in all vehicles. Later, making Euro IV series engines

compulsory. The above all experience compelled the Government to do something in this regard. Now government is thinking that electric vehicle (EV) is the best solution for pollution. Electric vehicle does not lead to pollution at all. So in a country if there is a 100% electric vehicle 50 to 75% of pollution is reduced. It would be great achievement. Hence government is slowly encouraging automobile industries to produce electric vehicles. Also giving incentives and subsidies for electric vehicles.

The present situation in India shows it is high time to go for electric vehicles. In international market Dollar value is going up, at the same time petrol price is shooting like a rocket. Common man with meagre income who has small vehicle are finding it very difficult to cope up. People are addicted to travel by own vehicle especially in cities now are not in a position to afford for petrol or diesel. Sometime ago people bought diesel vehicles when diesel price was considerably low. This has led to further deterioration of environment. But now the price has become almost equal. Our prime minister's concern is to reduce import of petroleum. It has many advantages. One of which is, we can reduce the dependence on

some countries who enjoy monopoly in petroleum products. Excessive dependence leads to economic slavery. This has to be curbed for the healthy growth of the country. Secondly, we can save lot of foreign exchange by cutting down petroleum imports. Major portion of our National income is spent on buying petroleum products. And when the price for this petroleum product increases in the international market increases the buying country will be the sufferer. Thirdly, and most importantly environmental pollution can be controlled. Our Prime Minister has shown this concern in the international forum as well. He has given a call to reduce global warming.

## 2. CONCEPTUAL FRAMEWORK

Electric vehicles are the vehicles which gets power from rechargeable batteries installed inside the vehicle instead of any fuel. These batteries are not only used to power the car engine but also for the functioning of lights and wipers. Electric cars have more batteries than normal gasoline car. The batteries are same as gasoline car but the difference is more batteries are used in it. The need for electric vehicles in today's world is clear.

Moreover, electric vehicles have many advantages also. They are:

However, if we weigh the merits and demerits on a weighing scale perhaps merits will weigh more, means to say electric vehicles are good compared to other vehicles. Understanding the uses of electric vehicle is decided to study the perception of electric vehicles and their needs. Once the need and perception of electric vehicles are studied, it will help the government to decide to introduce policies regarding whether electric vehicle's to be promoted or not. Because if people are not aware and not ready to buy electric vehicles, government cannot promote. Then other alternative has to think. Knowing all these advantages and disadvantages we must know whether the people of India are willing to buy Electrical vehicle (further it will be stated EV in the report). And whether there is any need for such vehicle need to Indian road condition and traffic problem. Badly there is a need for a detailed study in this regard. Unfortunately, no much studies are being conducted as far as Indian society is concerned. Shashank Modi, Auto Enthusiast, Auto Research Engineer states in 2015 that there is a huge difference between developed countries like US and

the developing countries especially south Asian countries like India when it comes to cars. In the first world cars are not a luxury, they are necessity mainly due to lack of public transport and expensive labour. Having said that, electric vehicle in India are very much possible and in fact more viable than countries like US due to following reasons:

### 3. METHODOLOGY

Data required for the study is obtained both from primary and secondary sources. Questionnaire consisting of 20 questions is prepared based on the objectives to collect the data from the respondents. In this study 100 respondents have been considered in and around Mangalore Taluk and who are been selected randomly. It has been undertaken during the month of January and February 2018. Journals and articles have been referred under the study. The relevant data are presented in appropriate tables in the report.

### 4. FINDINGS

1. It is interesting to find that the high income groups prefer more EV's than the low income group. 23% of the respondents in the survey who belong to income level over 5lakh per annum prefer to go for EVs. Only 1% of the respondents of this group

said no to EV. It is surprising that elite class perceive and show interest for EV. Means to say the high income group has concern for their pocket as well as environment.

2. The main reason why the EV has not become popular till date is the lack of choice. Till now only Mahindra is on the market. New brands are yet to come to market. Maruti planning to release EV by 2020. People are also aware of charging stations. 3. The research finding show people's expectation to buy EV is price. 35% of the respondents feel it must be affordable. Then 31% of the respondents need good performance of vehicle.

4. The finding in research clearly shows the people expectation in EV is mileage. Whatever is indicate in earlier researches and secondary data are seem to be true. In some of the articles it is said in foreign countries people think of luxury and convenience when they buy a vehicle. Price, mileage, pickup, etc are secondary. But in India in contrary to that people's expectation is first and foremost is mileage. In this research also 51.26% of the respondents opted for mileage and 32.77% for good pickup. Other factors like engine

capacity, braking, power delivery are rated very low that is 15.78% in total.

5. Regarding advertisement and information of electric vehicle to the respondents the outcome is rather balancing. Among the respondents 58% are aware of electric vehicle through advertisement but 42% are not aware of electric vehicles. This shows government has to concentrate more on advertisements and propaganda

6. As expected the respondents feel that government has to intervene and proper incentives to be given for electric vehicle. 92% feel the intervention is needed. Only 8% feel no intervention is needed. This shows if govt intervenes and announce lot of incentives like subsidy, loans with low interest, discount, tax reduction etc it market for electric vehicle will increase. Whatever dreams the govt has to make 1005 EV by 2030 will come true.

7. As expected before the research itself, it is found in the research as well 58% of respondents feel EV is eco-friendly and it is suitable for city limits. Perhaps people in cities are well aware of pollution by automobiles. Many are facing lot of health issues.

#### SUGGESTIONS

Based in the findings the following suggestions can be made:

1. Majority of the respondents suggested more intervention by the govt. The govt. should provide incentives, tax reduction, etc. to promote electrical vehicles so that our environmental pollution can be reduced by some extent. Just because govt. is not promoting the electrical vehicles companies are not showing much interest in it.

2. Publicity and advertisement to be increased. Till now the concept of EV has not reached the common man. So advertisement to be increased. It seem like govt itself is not interested in promoting EV's. May be for the reason that majority of the petrol and diesel bunks are owned by politicians. If 100% EV's come on the roads the bunk owners will suffer. So the lobby or petrol bunk owners seem to be strong. Therefore the EV has not become a national policy.

3. Many of the respondents felt shortage of re-charge stations to be increased. Like in foreign countries the re-charging structure is to be increased. Once upon a time there were no much petrol bunks. Then people had to travel miles together to fill the petrol or keep petrol in tins and bottles

ready. But electric charges can't be kept in tins and bottles.

4. Price reduction has to be made. The present price for EV is too high which is not affordable for a common man. Therefore in the findings the common man was not in favour of EV's.

5. Mileage of EV has to be increased. Just 180 to 200km per charge will not attract Indian customers because Indian customers are more conscious of mileage than safety.

6. For Indian road conditions unlike foreign countries the engine capacity to be increased. Otherwise in hilly areas it is difficult to travel.

7. Research is to be made for further improvement in the EV's. In foreign countries government is spending lot of money on research and development of EV's. But the govt. of India has not invested any amount on R& D. Therefore for EV's we have to depend on foreign countries. Domestically more EV models to be released.

8. More choice is to be given. So far in Indian market EV is the monopoly of one or two companies. It is as good as forcing the customer to buy a shirt of one company

in a readymade shop. There must be many choices as far as brand of vehicles concerned.

## 5. CONCLUSION

Car pollutants cause immediate and long-term effects on the environment. Car exhausts emit a wide range of gases and solid matter, causing global warming, acid rain, and harming the environment and human health. Engine noise and fuel spills also cause pollution. Cars, trucks and other forms of transportation are the single largest contributor to air pollution in India, but car owners can reduce their vehicle's effects on the environment. Car pollution is one of the major causes of global warming. Cars and trucks emit carbon dioxide and other greenhouse gases, which contribute one-fifth of the United States' total global warming pollution. Greenhouse gases trap heat in the atmosphere, which causes worldwide temperatures to rise. Without greenhouse gases, the Earth would be covered in ice, but burning excessive amounts of fossil fuels, such as gasoline and diesel, has caused an increase of 0.6 degrees Celsius, or 1 degree F, in global temperatures since pre-industrial times, and this will continue to rise over the coming decades. Warmer

global temperatures affect farming, wildlife, sea levels and natural landscapes. There are several ways that car and truck owners can reduce the effects of environmental pollutants. Old and poorly maintained vehicles cause most pollution from cars, but electric, hybrid and other clean, fuel-efficient cars have a reduced impact. When buying a new car, check the fuel economy and environment label. High ratings mean low pollution levels. Maximize fuel economy by removing all unneeded items, such as roof racks, and driving steadily, rather than accelerating quickly and braking hard. Keep your vehicle wellmaintained, with regular tune-ups and tire checks, and leave the car at home whenever you can. Walk, bike or use public transportation when possible.

The research shows it will take further years for EVs to come to Indian market. Govt. is aiming at 100% EV by 2030. But the achievement is not even halfway. Here the govt. lack of initiatives is clearly been seen. People in general are ready to go for EV's. That means to say they are conscious about environmental pollution. The present havocs are there in their mind. Perhaps it is the right time to push EV's. The field researches regarding EV to be backing in India. In foreign

countries the studies regarding EV has started long back in 80's. But in India only some articles are available. So far no much detailed studies are not available.

In conclusion we can say the concept of EV is ideal both theoretically and practically. Theoretically more studies are required. There are ample scopes for research studies in this field. So scholars have encouraged to do their doctoral work in this area. Practically the country needs substitute for petrol and diesel vehicles. So EV has to be pushed. It has been revealed in present research of mine as well. When we look into the facts we are very much sure about the consequence of vehicles on environment. And electrical vehicles will give solution to it by one extent. Then what are the problems in encouraging electrical vehicles.

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