

“Study On The Impact Of Electric Vehicles On The Roads In India”

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Abstract

Electric vehicle are increasing their market share day by day and many brands like Tata, MG, Hyundai etc, presenting discounts on expenses of mobility. Many companies are switching their R&D higher from gasoline to electric segment. how automobile industry is changing the specific business modal which is used in order to acquire the market and sustain the differential between electric vehicle and carbon emission manufacturing assembly lines. Type of vehicle must be specific before getting one as they have different properties among them the positive approach towards the future of automobile market.it will become a necessity to have one. a lot of upgrade is required to make bit more efficient.

Introduction

The term "electric vehicle" (EV) implies that the vehicle is either partly or wholly powered by electricity. Since they are powered entirely by electricity, these vehicles have no need for, or usage of, fossil fuels like petrol or diesel. This aspect alone establishes the eco-friendliness of these automobiles.

Everyone is aware that pollution levels in the nation have reached an unsustainable height. Several Indian towns rank among the world's most polluted if such a research were conducted.

As the batteries in electric cars can be recharged from an electrical outlet, fossil fuels will soon be obsolete in the Indian auto industry. The introduction of electric cars into India's transportation system is driven by a desire to rid the nation of pollution. The valuable fossil fuel must be preserved for future generations, which is another goal. The introduction of electric automobiles to the Indian market was a watershed moment for the country's populace. When the country's population grows suddenly, so do the necessities of life for a populace of that size. So, the widespread adoption of electric vehicles is a boon for the economy and the nation as a whole. With the shifting landscape of the auto industry, the major players, miners, and automakers of all stripes are making plans to transition to electric vehicles. to maintain brand loyalty and not alienate any potential buyers. The widespread prevalence of global issues necessitates the development of the electric car as the optimal remedy. As the globe grows more technologically reliant, transportation systems need to evolve to keep up. plus superior. Nonetheless, it remains difficult for automakers and governments to educate the public about these vehicles' advantages and spur demand. 4044 The widespread adoption of electric vehicles is necessary to finally eliminate the use of fossil fuels in internal combustion engine vehicles and instead store them for the needs of future generations. Examples of electric vehicles might include electric bicycles, automobiles, trailers, etc.

Benefits of Electric Vehicles

As it has been shown that electric cars provide the greatest answer to pressing national issues, there is a growing desire to adopt them on a massive scale. Electric cars are useful in reducing the negative effects of pollution on the nation. The rising number of people living in the nation means there will soon be more drivers on the road than there are seats in cars. So, the usage of electric vehicles will aid in preventing the further spread of pollution caused by the combustion of fossil fuels in conventional automobiles.

Batteries may be utilised to power the automobiles, which means that crude oil and fossil fuels can be saved for the future. The elimination of these potentially destructive materials also benefits the environment.

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As a result, the government will be able to save money on the high cost of importing fuels like petrol and diesel. Most of India's oil consumption goes towards powering its vehicles, making it the country's fifth-largest oil importer from nations that produce the commodity. The government has also increased the price of gasoline and diesel in the nation as a result of this engine, with the hope that more people would choose electric cars instead of gas-powered ones. As a result, less of the country's economy will have to rely on oil from elsewhere. As autonomous cars become more common, there will be increased need for workers who are comfortable with cutting-edge technology in this industry. Electric cars have a distinct advantage over their internal combustion engine counterparts in that they use no power while parked. Since they generate less vibrations and noise, electric cars are more efficient than conventional automobiles. As a result, it contributes to lowering national noise levels, which has negative effects on human health and the natural world.

Concerns About Indian Electric Vehicles

Creating a nationwide charging infrastructure that meets the needs of Indian customers is the single largest obstacle standing in the way of India's full transition to electric automobiles. Electric vehicle batteries, which are typically lithium-ion cells, need to be recharged every 125 miles or so. Although there are already many petrol stations around the country, the construction of such charging stations is necessary.

There is currently a low level of consumer awareness and demand for electric cars throughout the country. That's why it's important to spread the word about how great electric cars are.

Another difficulty for India is that only the largest automakers can afford the high manufacturing costs of electric cars, which results in huge losses for the country's smaller and medium-sized automobile manufacturers.

As India cannot generate the raw ingredients it needs to manufacture electric vehicles locally, the country must pay a premium to import these components from elsewhere.

Lithium and cobalt are the primary components of EV batteries. Due to a lack of native deposits of lithium and cobalt, India must rely on imports from Japan and China to meet its need for cost-effective batteries.

Research Methodology

Cars by Tata - The Tigor EV, released early in 2019, put the firm in the driver's seat of the electric vehicle (EV) industry, and the company has plans to release 10 further EVs by 2026. All-new Tiago Electric Vehicles, Nexon Sport Utility Vehicles, and Altroz Hatchbacks are just a few of the affordable four-wheeled cars that Tata Motors has manufactured. Companies' share in the Indian electric vehicle market unexpectedly grew to 82% in 2021.

Hyundai has begun manufacturing Hyundai Kona units for clients in India and has future ambitions to expand into the electric vehicle industry by releasing other models. The range of a fully charged Hyundai Kona is up to 452 kilometres. Kia - In 2021, Kia debuted the EV6, which had twin batteries and a sleek body. The Kia Niro EV, an all-electric vehicle with advanced features, will debut in 2022.

The Porsche Taycan, the company's first fully electric sports car, was released a year ago with the intention of appealing to the most discriminating luxury vehicle purchasers. In India, you can purchase the vehicle for anywhere between Rs. 1.5 crore and Rs. 2.1 crore.

BMW - This manufacturer has offered a number of electric vehicle models, some of which include a dual-engine setup that provides them an edge in speed and power over the competition. Audi - In 2021, the business released three versions of the Audi e tron electric automobile, each of which featured cutting-edge styling inside and out. The firm is working on announcing new models as soon as possible.

Jaguar The company's lineup includes both all-electric and hybrid vehicles. And the company promises that it will only use electric power until 2025.

In 2020, Polestar—a subbrand of Volvo—will begin manufacturing fully electric automobiles in traditional Swedish design. The corporation has promised that from 2022, electric car buyers would have more choices.

Research Objectives

- ✓ Learn how consumers feel about and interact with electric cars.
- ✓ Find out why driving electric is so crucial.
- ✓ Find out what people's objections are to purchasing electric cars.

This study is a descriptive survey that gauges the feasibility of collecting data on a certain topic by surveying a representative cross-section of the community.

Approach to Research

Since it provides insights into how and why respondents arrived at their conclusions, this study employs a qualitative research approach.

Size of the sample

While doing research, a representative sample of the target population is gathered for data collection purposes. One hundred people made up the study's sample size.

How to Sample

To choose representative samples from the population, we use a convenience sampling strategy in which respondents are chosen at random. This strategy appealed to me since it is low-priced and straightforward.

Method of collection

There are two possible sources of information to include into the study:

First-hand information gathered largely by researchers is called "primary data." The core data for this research was gathered via a standardized questionnaire that the respondents filled out.

Data that is already out there regarding a subject is called secondary data. In this research, we use the internet as a supplementary data collection tool.

Literature Review

In a 2013 study (Praveen Kumar and Kalyan Dash), They looked at how critical careful preparation is for rolling out a countrywide strategy for electric vehicles. The government must be prepared with the necessary infrastructure for this, as well as the means to abandon the domestic approach.

as reported by (Franchao Liao, 2017) India's government is making great strides towards its goal of eliminating pollution by encouraging the usage of electric cars. Economic theories and consumer perspectives on EVs are often compared in this research. Using an electric car was determined to be the best option for reducing pollution.

(2017, Lingzhi Jin) The study concludes that more public education on the need of technological progress and innovative solutions is required to stay up with the evolving natural world. Consumers Electric car users must be educated on the advantages of these vehicles.

Reference: (Mohamed M. 2018, 2018). The research weighed the benefits and drawbacks of electrifying the transportation sector. Government incentives, a cleaner environment, and lower fuel costs are just a few of the possibilities. Yet, there are always outliers. Yet, there are certain obstacles, such as the lack of a well-developed infrastructure for electric cars. use on a massive scale, to attract lots of people's attention, etc.

P. K. Gujarathi (2018) The poll results indicate a critical need for housekeeping. More widespread adoption of electric vehicles would be great for the health of the planet and the economy of the nation. Although this is a commendable effort, the majority of Indians still use gasoline-powered vehicles despite their negative impact on the environment. The damage to the ecosystem has caused health issues.

“Study On The Impact Of Electric Vehicles On The Roads In India”

(Khurana, Anil, 2019) The research investigates why good intentions from the public sector aren't enough to have individuals buy EVs. People must be totally content with the benefits of electric automobiles and unconcerned about the potential dangers of driving one.

If you're searching for a (Sonali Goel, 2021) this study delves into the problems plaguing India's electric vehicle distribution infrastructure and the possible technological fixes.

Data Analysis and Explanation

It is important to find a way to reduce the price of electric vehicles so that average people can afford to buy them. Some individuals may find it unaffordable to buy and maintain electric vehicles. The nation imports ion lithium batteries since it cannot produce them domestically. These batteries are needed for electric vehicles. Hence, the distribution system should be improved, reducing the cost of producing electric cars, and the necessary infrastructure and policies should be in place to allow domestic production with little emissions.

The government has to be ready for skill development and awareness efforts to make sure the right information about e-mobility gets out to the public. In the present atmosphere of increasing temperatures, it is especially important to highlight the features of electric cars to ensure customer satisfaction.

Electric vehicle batteries are stored for lengthy periods of time before being utilised, therefore it's important to have a method for properly disposing of them when they're no longer used in order to protect the environment. So that people don't worry about the safety of driving long distances in electric cars, there has to be a well-thought-out plan and implementation of charging stations around the nation in line with the massive population number.

Findings

The following is the study's conclusion based on responses from a structured questionnaire sent to 100 respondents.

1. More over half of those polled think electric cars are superior to other types of vehicles.
2. There is a segment of the Indian public that is unaware of the many advantages that adopting electric cars may bring to the nation. Companies have a hard time seizing a significant portion of the market due to consumers' reluctance to switch to alternative fuel cars. Although Indians follow the trend of adopting new technologies only after widespread acceptance, the country has yet to see widespread adoption of electric automobiles.
3. The respondent's response indicated that, despite the country's enormous population, there are already enough petrol stations in India to meet demand. As long-distance driving in an electric car is challenging, they weigh in the associated risk and decide against making the purchase.
4. The future, according to some respondents, may lay with electric automobiles. They advocate for the widespread production of electric cars by all automakers as a means of environmental protection.
5. The success of the mobility transition depends on the individual's ability to modify their behaviour and make the most of their current level of mobility knowledge. Here are some ideas on how to make electric cars more popular and raise their demand in the United States.
6. There has to be a breakthrough in electric car technology that makes them affordable for the average person. Buying and maintaining an electric car might be costly for some individuals.
7. The nation relies on imports since it lacks the infrastructure to manufacture lithium ion batteries for use in electric cars. Thus, infrastructure and plans are required to allow for domestic production with little environmental impact.
8. For long-distance electric driving to be risk-free, charging stations must be strategically placed around the nation in accordance with population density.

Conclusion

It has been determined via research on the effects of EVs on the Indian market that barely 40% of the population either now owns or intends to purchase an EV. As a result, the population is shifting towards a future in which the automobile industry produces only electric cars. First, we need to get everyone on board and used to the idea of driving a gas-powered car or truck. And for this, there should be proper rules for driving, maintaining, and recycling EVs and their components. It is possible, given sufficient time and effort, for India to become wholly reliant on electric cars by 2030, as the Indian government has previously pledged to do. by the state and companies making electric cars to produce it. For widespread adoption of electric vehicles, they must be affordable to the average consumer. The elimination of fuel-powered vehicles would cut annual oil and petrol imports by 4,444 barrels, preserve the environment from pollutants caused by the transportation sector, and mark a significant step towards the widespread adoption of electric vehicles in India. As a result, American automakers will have an easier time competing with their international counterparts.

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