

# TITLE: Future innovations in the field of electric vehicles

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**ABSTRACT:** As electric vehicle manufacturing is becoming popular every day, its market share is also expected to rise greatly. India's GDP is expected to grow by an amazing 25% by 2022. The best part is that, apart from reducing environmental pollution, EVs can lower oil import by about \$60 Billion by 2030. The big picture: It estimates there will be 875 million electric passenger vehicles and 70 million electric commercial vehicles on the roads by 2050.

## INTRODUCTION

Due to the increasing population, the demand for energy consumption also increases. This rise in their demand results in accumulating prices of coal and petroleum. So, there is a need to replace these natural resources with some alternatives to meet the needs of future generations. In the present era every single person has their own private vehicle. It has been estimated that the country like India with the third largest road network in the world, has 295.8 million private vehicles. There are 60% of Indian people who prefer using their own private vehicle and with this about 261 tons of carbon dioxide is emitted in the environment which pollutes the atmosphere and results in the depletion of ozone layer. So, in a country where most of the people use their own private vehicle for the reason of privacy, safety and other measures there is a need to replace such toxic resources with environment friendly things.

EVs are emerging as an achiever to achieve this goal. Countries like the UK, France and Norway have made an effort to save the environment by completely banning non-electric cars by the year 2025. This makes the electric vehicle industry in the field of automobiles the

most necessary area of innovation these days. In the year 2021, it is estimated that there will be 4093 thousand units of electric vehicles which is expected to increase to 34756 thousand units by the year 2031. The country like India where most but also of the people prior to their own private vehicle has also shown a keen interest in electric vehicles. These vehicles not only help in protecting the environment but also have much more to offer. These vehicles in comparison to ice engine cars are cheaper and also can accelerate at a faster rate. The maintenance cost of EVs is also low as it is easy to charge a battery rather than to refill the whole fuel of the car.

On the other hand, if we look economically, by the use of electric vehicles the owner of the car can save approximately Rs 4000 per 1000Km. Also, the price of petrol is touching the high. According to the latest data the price of petrol in oct 2021 in India is Rs 104.79/liter. The major side of concern for EVs is the charging stations. Nobody wants to stand in the middle of the road and search for the charging station. At present there are only 1000 charging stations in India. To charge this car completely it may take a few hours. One more challenge in the spread of EVs is their batteries. These batteries are a compound unit of Li-ion and are not manufactured in India, so need to be imported from Japan, Korea and China.

Tesla, the fatly growing company has brought a change on a diverse platform in the field of automotive industry and is now also spreading its roots in Karnataka, India. It is quite obvious to say that India will become the future hub for electric vehicles. According to the ministry of road transport and highway both non electric and

electric vehicles will be issued a green license. Also, no special license would be required for charging stations of electric vehicles. Though charging stations are a matter of concern and are acting as a hurdle in the progress path of EVs in India, this problem may be solved in future as the technology is growing and expanding rapidly. Home stations, mobile charging batteries, battery replacement can be used as an alternative to this problem.

The availability of raw material used to produce batteries of electric vehicles is also not abundant in India. The material like lithium which is the important unit needs to be imported from other countries like Japan and China. The government of India is making continual efforts to replace all the fuel combustion vehicles to electric vehicles. They bring a PLI scheme which results in a less dependency on imports and will automatically reduce the cost of electric vehicles. Many leading battery producers have invested into green technologies, like lithium – ion batteries. The future of electric vehicles in India would be a big turn to make the environment ecofriendly. It has been aimed that EVs would account for 100% of light duty vehicle sales before 2050.