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# Current Global Scenario of Electric Vehicles

Dear Readers,

The biggest challenge that the world stands across in the 21<sup>st</sup> century is environmental degradation. Terms like 'climate change' and 'energy crisis' have never been more familiar. One of the main reasons behind this are the conventional vehicles that work only on an internal combustion engine by consuming fossil fuels and emit harmful gases like nitrogen oxides, carbon oxides, and the hydrocarbons. With every passing day, the environmental issues are becoming more and more serious. Especially in the densely populated areas, the gas emissions from the conventional vehicles have become the main source of air pollution. These gas emissions are also the main contributor to the outdoor air pollution that eventually leads to as many as 6.5 million deaths around the world every year. In fact, the transportation sector is also the main contributor to GHG emissions that cause Global Warming. According to the International Energy Agency, the transportation sector contributes as much as 25% of the total CO<sub>2</sub> emissions annually.

In order to tackle with this growing energy crisis, Hybrid Electric Vehicles (HEVs) have been developed and applied in the recent years. The technologies used in HEVs help to improve the fuel economy and also ensures that they emit less emissions as compared to the conventional vehicles. Most of these HEVs work on a battery that converts chemical energy into electrical energy and help the vehicle run. Lead-acid batteries have always been the primary rechargeable electrochemical device for domestic as well as household applications. But in the transport sector, especially for the Electric vehicles, the Li-based batteries have been gaining prominence in the recent years because of their advantages such as light weight, high energy density, and zero environmental problems. Other electric vehicles that work on Fuel Cells, Photovoltaic cells, and the Plug-in Hybrid Electric Vehicles are also on the rise in terms of popularity and acceptance.

## Global scenario

Over the last half decade, electric vehicles have seen a steady development and growth. Thanks to the modern technologies like Artificial Intelligence and Machine Learning, there have been many advancements in the lives and durability of batteries and their efficiency. With each passing year, electric mobility is seeing new heights. According to the International Energy Agency (IEA), in the year 2018, more than 2 million electric vehicles started running on the road which is a record for a calendar year. With these vehicles, the total of Electric Vehicles on road reached 5 million. According to the agency, if the current trends continue, the number of electric vehicles that would be sold in the year 2030 could be as high as 43 million. By the end of last year, there were as many as 460,000 electric buses on the road. According to the forecasts made by the IEA, the number of electric vehicles on the road, including the two-wheelers and three-wheelers, could reach as high as 250 million by the year 2030. Politics also plays a huge role in this adoption of the electric vehicles. Countries like China, United States of America, members of European Union, and India, are leading in the adoption and production of these vehicles for a reason. These countries use a range of measures such as incentives for low- and zero- emission



vehicles, fuel economy standards, and much more to reduce the difference in costs of electric and conventional vehicles.

The technology developments are also helping reduce the costs associated with EVs and this reduction is expected to continue. The developments in battery chemistry and the increase in the capacity of manufacturing plants is making the progress easier. The number of chargers has also shown a trend of growth. In the year 2018, this number rose to 5.2 million globally for light-duty vehicles that are complemented by almost 540,000 publicly accessible fast chargers.

## Obstacles and future prospects

Despite all the advancements related to the electric vehicles, there are still many obstacles in the path of EV technology. One of the biggest obstacles is the short warranty of an electric car battery, which is, at times, way shorter than the other car equipment. Another factor that prevents the wide acceptance of electric vehicles is the extremely small number of charging stations coupled with the long time that the electric vehicles take to charge. The lack of charging stations limits the use of electric vehicles drastically. Moreover, in most of the countries, the electric vehicles run on the electricity that is produced by consuming fossil fuels, which in turn produces a lot of emissions.

Although this high dependence on fossil fuels to produce electricity in many countries is an issue, as the countries decarbonise electricity generation to achieve their environmental targets, the emissions will decrease for both the new and existing electric vehicles. This decrease coupled with the advancement in electric vehicle technology and the existing infrastructure will surely result in a huge increase in the adoption of EVs. The number of charging stations is quite low but the fact is that there are many countries working on expanding this number. Many research have also shown that in future, it would be possible to increase the efficiency of batteries and decrease the production costs. Thus, the vehicle costs will obviously decrease and the range of these vehicles will increase. Therefore, it can be said that it's only a matter of time until Electric Vehicles become the major source of transport.

With kindest regards

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