EVs: Dream Or Nightmare

This article is based on **"Powering up"** which was published in The Indian Express on 30/12/2020. It talks about the impact of the pros and cons of electric vehicle development in India.

Recently, India's government has allowed the **Electric Vehicle** (EV) significant Tesla to launch its India operations, which are expected to start early next year. This move could revolutionise India's automobile sector.

With Tesla entering into the Indian market, in due course of time, it will lead to more money flowing into research into EVs and India could emerge as the prominent manufacturer of electric vehicles like cars, bikes, and tractors.

The arguments favouring a shift towards electric vehicles are straightforward, arising mainly as a response to pollution and energy security challenges.

However, the shift in favour of EVs has its roadblocks, and therefore, the government's support will be needed to incentivise a change to electric vehicles.

Advantages of EVs

An analysis by TERI suggests that shifting towards EVs would reduce pollution, lower oil imports, and cut carbon emissions and road congestion.

- **Curbing Pollution:** India has 21 of the world's 30 cities with the worst air pollution as per data from IQAir AirVisual's 2019 **World Air Quality Report.** Much of the pollution load can be traced to vehicular emissions.
    In this context, electric vehicles' adoption will reduce overall emissions and meet the **Paris agreement targets.**

- **Energy Security:** Such a shift would also help lower the country's dependence on oil imports.
    - Moreover, the fuel cost has increased across households as the number of people with vehicles is rising.
    - As there is further up and down in petrol and diesel costs due to fluctuations in the international market price, the electric vehicles come across as a suitable way to save money.

Challenges Related to EVs

- **Lack of Charging Infrastructure:** Electric Vehicles are fixed for a specific range; they can't go beyond that. Thus, the biggest problem is the lack of an adequate number of recharge points.

    Moreover, the charging activity itself consumes a lot of time. So it poses a big question mark over the quick adoption by the buyers keeping in mind the convenience of fuel stations which can be found easily.
- **High Cost Associated With EVs:** The cost of EVs is still pretty high compared to conventional fuel vehicles. The primary reason behind it is the use of Li-ion batteries.
    - Further, most reserves are located in a few countries. For example, 65% of lithium reserves are in Bolivia and Chile, while 60% of cobalt reserves are in Congo.
    - The short supply of these essentials metals has made EVs expensive.
    - Moreover, the world's problem does not have enough lithium or cobalt reserves to replace current automobiles with EVs.
- **Dependence on China:** India imports 90% of electric scooter components from China. Currently, an Indian car uses 10-15% imported parts. EVs will increase import dependence to 70% or more.

    Moreover, setting up domestic battery manufacturing units would have its problems, as it would be difficult to match the prices of subsidised imported batteries.
- **Disruption to the Automobile Sector:** For switching to EVs, India first needs to prepare for the coming upheaval in the automobile industry.
    - EV has 20 moving parts, while regular petrol or diesel vehicles have more than 2,000.
    - For this reason, when fully adopted, EVs will kill most auto component firms.

Way Forward

- **Enabling Charging Infrastructure:** Government's intervention in creating the charging infrastructure is required to facilitate its large-scale adoption.

    Affordable and convenient charging will, after all, increase the segment's attractiveness for consumers.

- **Switching Batteries System:** There is a need to design interchangeable batteries and switching stations.
    Charging is one of the major concerns for batteries as it takes quite some time to get fully charged. Designing a system where empty batteries of electric cars will replace a fully charged battery in a few minutes, will solve the time and charging point constraint.
- **R & D in Breakthrough Battery Technology: Investment in** Research & development for quick-charging batteries is required.
    In this context, the use of fuel cells is another big idea. Fuel cell EVs powered by hydrogen emit only water vapour and warm air.
- **Securing Supply of Essential Metals:** India can sign various deals and ensure a supply of essential metals with purchases of mines in Congo, Bolivia, Chile and Australia so that it doesn't fall short of raw material in the EVs segment.
- **Need for Reskilling:** India would also need to reskill many motor mechanics in **Industry 4.0 technologies.** They need to learn how to repair EVs which have sophisticated electronics.

Conclusion

Future of electric cars looks bright as it certainly can reduce our dependence on oil and fossil fuel, which can significantly bring down global pollution and help control climate change.

The biggest challenge with electric cars is their energy (or electricity) storage capacity. This was one of the main reasons gasoline (or petrol) cars got prominence in the early 1900s.

Therefore, EVs are the future of mobility, but the end will happen only when an inexpensive next-gen battery is in the market.

Drishti Mains Question

EVs are the future of mobility, but the end will happen only when an inexpensive next-gen battery is in the market. Comment.

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This editorial is based on **"Air pollution: CAQM's role is still hazy"** which was published in The Hindustan Times on December 29th, 2020. Now watch this on our Youtube channel.