

General Studies-2; Topic: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Electric Vehicles in India

1) Introduction

- The vision for the future of mobility in India is based on 7 Cs: common, connected, convenient, congestion-free, charged, clean, and cutting-edge.
- Electric vehicles are the future of India's transportation system and could save billions of dollars in fuel cost while also reducing pollution, a report released by NITI Aayog said.
- India wants to create a robust and affordable electric mobility ecosystem comprising production facilities and a large network of charging points.
- **This is to achieve three key strategic goals**
 - a. Cutting down carbon emissions
 - b. Creating new job opportunities
 - c. Reduce use of crude oil

2) Importance

- In India, the automobile industry is one of the key sectors driving economic growth.
- It is anticipated that the 2020s will be the decade of the electric car and a step forward towards a clean environment for the next generation.
- Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.
- Adoption of electric and shared vehicles could help country save \$60 billion in diesel and petrol along with cutting down as much as 1 gigatonne (GT) of carbon emissions by 2030.
- It will help in achieving the target of "Paris climate agreement".
- Electric vehicles operating cost per kilometre driven is lower and it contributes to cutting city pollution.
- According to a research, 90 per cent of India's car owners would willingly switch to electric cars, with proper infrastructural support.
- The government aims for 30 per cent electric mobility by 2030.

3) Government Initiatives

- The government aims to see 6 million electric and hybrid vehicles on the roads by 2020 under the National Electric Mobility Mission Plan 2020.
- Faster Adoption and Manufacturing of Electric Vehicles in India (FAME India Scheme) for improving electric mobility in India.
- The Union power ministry categorized charging of batteries as a service, which will help charging stations operate without licences.
- Implementation of smart cities would also boost the growth of electric vehicles.

4) International Practice

- In Norway one in three vehicles (33.1%) registered is plug-in electric.
- China and US account for more than half of electric cars in the world.
- China's auto industry is rapidly turning all-electric.
- China plans to have 500,000 public charging piles in place by the end of 2020.
- UK and France are targeting towards 100% electric cars by 2040.

5) Concerns / Challenges

- The Indian electric vehicle (EV) market currently has one of the lowest penetration rates in the world.
- Capital costs are high and the payoff is uncertain.
- Affordability of e-vehicles (EVs) and the range they can cover on a single battery charge.
- The Indian EV industry has been hit hard due to rupee's dramatic depreciation in recent months.
- Local production of inputs for EVs is at just about 35% of total input production.
- The production will be severely affected in terms of production costs.
- The Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (Fame) framework has been extended repeatedly.
- An uncertain policy environment and the lack of supporting infrastructure are major roadblocks.
- India's limited ability to manufacture cost effective batteries.
- India does not have any known reserves of lithium and cobalt, which makes it dependent on imports of lithium-ion batteries from Japan and China.
- High rate of GST on EVs when government is trying to promote EVs.
- Lack of attention on building charging infrastructure.

6) Way Forward

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.
- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking lots.
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.