



General Studies-3; Topic: Science and Technology- developments and their applications and effects in everyday life

India's Progress Towards Electric Vehicles

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.

Need for EVs in India

- Climate change: India has committed to cutting its GHG emissions intensity by 33% to 35% percent below 2005 levels by 2030.
- According to a recent study by WHO, India is home to 14 out of 20 most polluted cities in the world. EVs will help in tackling this problem.
- Energy security: India imports oil to cover over 80 percent of its transport fuel.
- Innovation: EVs manufacturing capacity will promote global scale and competitiveness.
- Employment: Promotion of EVs will facilitate employment growth in a sun-rise sector.
- According to a research, 90 per cent of India's car owners would willingly switch to electric cars, with proper infrastructural support.
- Infrastructure need
 - There is a strong believe that electric infrastructure will have a massive scale going forward.
 - There are around 250 charging stations in the country and they mostly catering to three-wheelers. To make this transition viable, infrastructure is a key factor.
 - A longer-term policy priority has to be the setting up of lithium battery production and solar charging infrastructure of a scale that matches the ambition.

Government Initiatives

- Government has set a target of electric vehicles making up 30 % of new sales of cars and two-wheelers by 2030.
- To build a sustainable EV ecosystem initiative like – National Electric Mobility Mission Plan (NEMMP) and Faster Adoption and Manufacturing of (Hybrid &) Electric vehicles in India (FAME India) have been launched by India.
- NEMMP was launched with an aim to achieve national fuel security by promoting hybrid and electric vehicles in the country.
- FAME India Scheme was launched with the objective to support hybrid/electric vehicles market development and manufacturing ecosystem.
- The Union power ministry categorized charging of batteries as a service, which will help charging stations operate without licenses.
- Implementation of smart cities would also boost the growth of electric vehicle.

Concerns / Challenges

- India is technologically deficient in the production of electronics that form the backbone of EV industry, such as batteries, semiconductors, controllers, etc.
- The lack of clarity over AC versus DC charging stations, grid stability and range anxiety (fear that battery will soon run out of power) hinder the growth of EV industry.
- India is dependent on countries like Japan and China for the import of lithium-ion batteries.
- EVs have higher servicing costs and higher levels of skills is needed for servicing. India lacks dedicated training courses for such skill development.
- Affordability of e-vehicles (EVs) and the range they can cover on a single battery charge.

Way Forward

- 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.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed.
- 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.
- 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.