Boosting EV Manufacturing

This editorial is based on **"Jumpstarting Electric Vehicle Manufacturing in India"** which was published in Hindustan Times on 19/02/2022. It talks about the challenges of Electric Vehicle Manufacturing in India.

For Prelims: Electric Vehicles (EVs), Domestic EV Manufacturing, Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles Scheme-II (FAME-II), PLI schemes automobile, automotive components and Advanced Chemistry Cell (ACC).

For Mains: Electric Vehicles Manufacturing and Adoption - challenges and opportunities, EVs and Global Goals of Net Zero Emission.

Electric Vehicles (EVs) are the latest automotive trend and all developed and developing **nations are encouraging the switch to EVs** from **conventional Internal Combustion Engine (ICE) vehicles.**

The EV technology is attracting eyeballs worldwide for the simple reason of **reducing dependency on fossil fuels** and achieving the **global goal of zero carbon emission** and sustainable development.

India's growing market for EV mobility, particularly in the **two and three-wheeler segment**, offers a significant opportunity to transition India's road transport sector towards a low carbon pathway.

The sector has **potential to create more jobs**, reduce local **air pollution** and **crude dependence.** However, these opportunities can only materialise if policymakers and stakeholders in India's EV sector **recalibrate their focus towards building local and more resilient supply chains.**

Electric Vehicles in India

What is the Current Scenario of EVs in India?

- EVs currently **account for less than 3% of all vehicles sold** in India. This is despite EV registrations crossing 50,000 units for the first time in December 2021, the highest ever monthly sale recorded.
- Although **80% of the volume of EVs** sold is occupied by **low-cost and low-speed three-wheelers,** overall EV sales have picked up pace due to the rise of next-gen two-wheeler companies.
- As per the **Accelerated e-Mobility Revolution for India's Transportation (e-AMRIT) portal** in India, only 7,96,000 EVs have been registered till December 2021, and **just 1,800 public** EV charging stations **have been installed.**
- While there has been a **growth of 133% in the sales of EV** from FY 2015 to FY 2020, when compared to sales of conventional ICE vehicles, the numbers seem insignificant. In FY 2021-22, only 1.32% of the total vehicles sold in the country were electric.

What Recent Measures have been taken regarding EV Manufacturing?

- **FAME and PLI Schemes:** The Government of India has been pushing for greater localisation of EV manufacturing through multiple policy measures such as the **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles Scheme-II (FAME-II).**
    - It has also launched several **Production Linked Incentive (PLI) schemes for manufacturers in the automobile, automotive components** and **Advanced Chemistry Cell (ACC)** battery sector to develop indigenous supply chains for critical EV components.
- **Consumer-Centric Incentives:** To boost sales, the government has also launched several **consumer-centric incentives, such as tax exemptions**, subsidies and interest subvention schemes, intended to trigger a mass demand for EV mobility options.
- **Battery Manufacturing in Gigafactories:** Recently, it announced the receipt of bids from 10 companies to avail **PLI Scheme to manufacture Advanced Chemistry Cell (ACC)** batteries locally.
    - These next-generation batteries will be made in **'gigafactories',** which signifies end-to-end **battery manufacturing** and large-scale production.
- **Guidelines for Charging Infra:** The government has also **revised its guidelines for charging infrastructure,** which includes a revenue-sharing model for use of public land.
    - It capped off these announcements with a **promise to implement a battery swapping policy,** interoperability standards, and special mobility zones via the Union Budget.

What are the Challenges to EV Manufacturing?

- **Supply Chain Disruption:** The last two years of supply chain disruptions **due to the Covid-19 pandemic** and the **US-China trade war** have precipitated fundamental changes in global manufacturing strategies.
    - This is particularly true of high-tech industries that continue to face logistical headwinds, including **shortages of critical components like silicon chips and batteries.**
    - India's big automobile companies also had to stop production owing to shortages of chips, like those that power new multimedia features in the vehicles.
- **Expensive Materials**: The consequence of supply chain disruptions and the race to shorten supply chains, is that **critical components are becoming prohibitively expensive.**
    - In the case of EVs, Indian manufacturers are also **struggling to source** lithium-ion batteries**,** which are **largely imported from China, South Korea and Taiwan.**
        - Prices for battery-grade lithium carbonate, a key input, went up 400% year-on-year in November 2021.
- **Import Dependence for Raw Materials:** India **does not possess critical raw materials** such as lithium, cobalt and nickel, which are used to make lithium-ion (Li-ion) battery cells.
    - Consequently, Indian manufacturers must **rely heavily on imports of battery cells** from China, Japan, Korea, and Taiwan, and assemble them into battery packs.
    - Although India has received an encouraging response from investors under the PLI scheme to manufacture ACC batteries domestically, most bidders are expected to start manufacturing only from 2025.
        - So, India's import-driven strategy, for the domestic assembly of critical battery packs, will continue for a few more years.

What Can Be The Way Forward?

- **Increase Competitiveness:** Automobile industry majors must act fast to ensure the **future competitiveness of the Indian EV ecosystem,** which relies heavily on imports.
    - Indian automobile majors would do well to shore up **supply chains and upgrade capacities** within and between different manufacturing clusters.
- **Two-Wheelers for EV Headstart**: The two-wheelers offer a good opportunity to **localise EV component manufacturing.** This segment already accounts for nearly half of all new passenger EV registrations.
    - India is already the largest two-wheeler manufacturer in the world, and the bids to set up battery gigafactories indicate a healthy appetite for new-age technologies that can help shorten supply chains.

    - It’s time the bigger companies wake up and jump-start their EV ambitions.
- **Battery Manufacturing** - **Key Focus**: India needs to focus on building a **supply chain, primarily by manufacturing batteries domestically** and bringing down the cost of EVs in India.
    - Recently Tesla Inc. has incorporated an Indian subsidiary - Tesla India motors and Energy Private Limited with an aim to eventually set up a manufacturing unit in India wherein Tesla cars will be locally produced.
    - Similarly, India needs to **attract foreign battery manufacturers** as well as **domestic players to set up local production facilities**. Such measures would lower the cost of batteries and EVs, improving the cost competitiveness.
- **Mining Urban Waste**: Recent commitments by Indian industrial houses (Reliance Industries, Adani Group, and Tata Chemicals) to locally manufacture battery cells is reassuring.
    - However, there is an urgent need to calibrate strategies on battery development by working in a closed loop.
    - Manufacturers need to think about the life cycle of batteries and **formulate plans to mine urban waste** to ensure that **precious materials can be extracted from batteries.**
        - This strategy has the potential to **save up to 50% of materials required to produce new** batteries.

Drishti Mains Question

Discuss the steps that can be taken to boost the manufacturing of electric vehicles in India.
