



Uniform Safety Standards for EVs

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

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

Why in News?

To establish **uniform safety standards for electric vehicles (EVs)**, India will begin its first ever testing of EVs from April 1, 2023.

- This comes amid concerns over **multiple instances of fires in electric two-wheelers** and four-wheelers in recent months.

What are the Key Points about EV Testing?

- **Current Scenario:**
 - As of now, there are **no centralised testing facilities for EVs in India** and manufacturers have their own benchmarks.
 - In June 2022, the first major step towards standardisation of battery technology was taken when the [Bureau of Indian Standards](#) issued **performance norms for lithium-ion battery packs** and traction systems in line with broader ISO norms.
- **Latest Update:**
 - The task for procuring the infrastructure needed to test battery-powered vehicles has been vested in the Pune-based **Automotive Research Association of India (ARAI)**.
 - The Ministry of Heavy Industries has **allocated Rs 44 crore** to ARAI to set up the requisite **infrastructure for testing, certification, and development of electric and hybrid vehicles**.
- **Significance:**
 - The EV testing push compliments the government's redoubled focus on electric vehicles as well as on other forms of alternative fuel with a larger aim to reduce its crude import bill.
 - As per the Union Minister of Road Transport and Highways, the **government is targeting to go all-electric** in terms of **new car sales in the country by 2030**.
 - Adherence to the uniform standards would **enhance product reliability, performance, and safety**.
 - It would also **make the entry barrier slightly tougher for non-serious players** and ensure that only serious players get into production.

Note

- **Globally**, there is **no single EV standard**. Japan, China and countries in Europe and North America have safety standards that promote different norms in four key areas: **safety, charging**

connectors, charging topology and charging-related communications.

- **India is set to broadly follow the same philosophy** for its testing standards — updating them as technology evolves.

What are Electric Vehicles?

▪ About:

- An EV **operates on an electric motor** instead of an internal combustion engine and **has a battery instead of a fuel tank.**
- In general, EVs have **low running costs** as they have fewer moving parts and are also environmentally friendly.
 - In India, the fuel cost for an EV is approximately **80 paisa per kilometer.**

▪ Current Scenario of EVs in India:

- The **push for Electric Vehicles (EVs)** is driven by the **global climate agenda** established under the [Paris Agreement](#) to reduce carbon emissions in order to limit global warming.
- As of June 2022, India had **over 1.3 million electric vehicles — 50% of which are three-wheelers**, a bulk of the remaining vehicles being two-wheelers, with four-wheelers making up the rest.

▪ India's Initiatives to Support EVs:

- Localisation of EV manufacturing through [Faster Adoption and Manufacturing of \(Hybrid & Electric Vehicles Scheme-II \(FAME-II\)](#)
- [PLI schemes for manufacturers in the automobile, automotive components](#) and [Advanced Chemistry Cell \(ACC\)](#) to develop indigenous supply chains for critical EV components.
- The government also **revised its guidelines for charging infrastructure** by including a revenue-sharing model for use of public land.
- To boost sales, there also exist **consumer-centric incentives - tax exemptions, subsidies and interest subvention schemes** to trigger a mass demand for EV mobility options.
- In April 2022, the [NITI Aayog](#) released the [draft battery swapping policy for Electric Vehicles \(EVs\)](#) in the country.
- The Ministry of Road Transport and Highways recently extended the rollout of **amendments to EV battery testing standards-** Automotive Industry Standards-156 (or AIS-156) and AIS-038 to a staggered two-phased implementation (first from December 1, 2022 and second from March 31, 2023).
 - The **AIS-156** includes motor vehicles in the L category — those with less than four wheels and an electric powertrain.
 - The second amendment — AIS-038 — regulates vehicles with electric power trains for M category (those with four wheels and used to carry passengers) and N category (electric four-wheelers used to carry both goods and passengers).

▪ Recent Issues Related to EVs:

- There have been **increased instances of electric vehicles catching fire.** The reasons for fire may include:
 - Manufacturing defects
 - External damage
 - Faults in the deployment in the battery management system, and
 - Faulty charging in some cases
- The Covid-19 pandemic and the [US-China trade war](#) has **disrupted supply chains** thus making the **critical components of EV prohibitively expensive.**
 - Indian manufacturers are also struggling to source [lithium-ion batteries.](#)
- The [semiconductor shortage](#) which began at the end of 2021 has still not been resolved completely and has **hindered multiple industries.**
 - A similar challenge can adversely impact India's upcoming EV industry in terms of **high price volatility** and **supply disruptions** of these elements

Way Forward

- **Uniform guidelines and inspection systems** should be laid down **for the entire EV ecosystem** starting from conceptualization to prototype to production and finally end-of-life of the battery.
- Battery is the most important component of an EV, and with consumers concerned about EV safety, uniform production standards — **conformity of production (CoP) in industry parlance — should be laid down.**
- CoP should be implemented to ensure that the same quality is maintained throughout the manufacturing of EV batteries.
 - Further, **self-regulation should be maintained by battery manufacturers** until CoP is implemented.
 - **Each imported cell should be checked individually** and only those that fulfil the norms and quality standards should be used in battery pack manufacturing.

UPSC Civil Services Examination Previous Year Question (PYQ)

Mains

Q. How is efficient and affordable urban mass transport key to the rapid economic development in India? **(2019)**

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