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'Lovebird', the first electric vehicle (EV) in India, was launched in 1993 by Eddy Current Controls. Equipped with a lead-acid battery, which took eight hours to charge fully, the two-seater car had a driving range of 60 km per charge. Zero subsidies, lack of electric power and networks, and inability of the car to climb a gradient above 15 degrees were some major drawbacks back then. The technology, infrastructure, and policy support for EVs is much better today, but the price is still higher when compared to internal combustion engine (ICE) vehicles.

EV Policy Landscape in India

Almost two decades later, India started framing policies—such as the Ministry of New and Renewable Energy (MNRE), National Electric Mobility Mission Plan (NEMMP), and Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) schemes—for promoting EVs. Given their high upfront cost, most of the policies focus on purchase-price subsidies, but have been unable to bridge the price gap between EVs and their ICE equivalents. The FAME-2 scheme, however, focusses on charging infrastructure along with subsidy. This encourages private players to set up public charging stations. As a result, we see a network of public chargers (government and private) in major Indian cities today. We need more such pragmatic policies to encourage EV adoption in India.

Current Market Scenario

According to a Society of Manufacturers of Electric Vehicles (SMEV) report, though the share of EVs in the Indian market is still 1%–2%, the last financial year (2019–20) saw a 20% increase in sales when compared to 2018–19. This includes sales of 3,400 cars and 1.52 lakh e-scooters. In addition to this, there was an estimated sale of 90,000 e-rickshaws as well.

Challenges

Upfront cost, range anxiety, and inconvenience of charging are some of the issues that make people shy away from EVs. Though their upfront-cost is higher, the lifetime cost of EVs is lesser than ICEs. A study by Datalabs revealed that in a span of 6–8 years, the cost of ownership of e-scooters, e-cars, and e-buses would be lesser than their ICE equivalents. E-rickshaws are projected to achieve this within a couple of years. When it comes to range, the current battery capacity (Table 1) is sufficient for intra-city travel in most cities in India, but intercity travel remains a challenge.

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Table 1: Category-wise battery range for EVs

Sl. No.	Vehicle Category	Range (km)
1	Two-wheelers	60–100
2	Three-wheelers	100–150
3	Cars	120–300
4	Buses	100–300

(Based on technical specifications of EVs in India)

Charging infrastructure issues can be solved by introducing one universal charger and battery type for one vehicle category. This would ensure that people can recharge or replace batteries during their inter-city travels according to their need and availability, thereby achieving the ease of refuelling associated with ICE vehicles.

As the world recovers slowly from the pandemic, people have become more aware of the negative effects of greenhouse gas emissions. With the right initiatives, this could be the moment when EVs take-off in India.

