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Policy reforms to drive future of EVs in India

Although the current rate of EV adoption (~5% of the annual vehicular sales) is commendable, the nation has a long road ahead to meet the pledged target of 30% EV sales by 2030. Learning from global policies, including exemptions, incentives, mandates (fleet electrification), and regulations (zero-emission zones), could help accelerate EV adoption in India. While these policies cannot be applied directly to the Indian scenario owing to its diverse and unique market dynamics, there is an opportunity for policy innovation and transformation.

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Updated On Dec 11, 2023 at 10:03 PM IST

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New Delhi: The Indian automobile industry is currently valued at USD 108 billion. The Government of India has undertaken considerable strides (through purchase subsidies and auto production-linked incentive scheme, among others) to facilitate the green transition of the well-established domestic automotive industry and promote EV uptake. As a result of such initiatives, more than 28 lakh EVs are plying on road as of July 2023. At this juncture, it is crucial to assess the impact of current EV policies and deliberate on their future.

Benefits of EV policies

EV policies and schemes have led to multi-dimensional second-order benefits (such as reduction in air pollution, greenhouse gas emissions, and quantity of fuel import). Based on data from the Ministry of Road Transport and Highways, the current penetration of EVs (though limited to just 1.5% of the vehicle stock) has helped India avoid nearly 1,100 million litres of fossil-fuel per annum, contributing to the energy independence target of 2047.

Further, it has helped the abatement of nearly 5 million tonnes of CO_2eq per annum and more than 1,000 tonnes of particulate matter (PM10). With the higher adoption of EVs, these impacts contribute towards the reduction of the emission intensity of India's gross domestic product by 45% below 2005 levels by 2030 and the goals of the National Clean Air Programme.

With the expected increase in the share of renewable energy in the mix, the grid will become cleaner, indicating lower CO_2 emissions for every unit of electricity produced. Thus, the actions needed to fulfil our climate pledges align with the increased uptake of EVs. Additionally, by supporting the uptake of green mobility options like e-buses, EV policies are helping cities achieve sustainable transport (Figure 1).

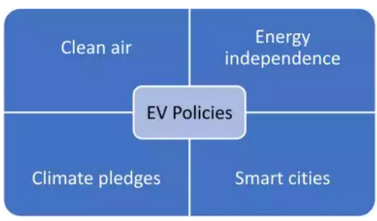

Figure 1: Role of EV policies in achieving national goals

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What should the future EV policies entail?

The key policy measures required are suggested here. (a) Incentives for light- and heavy-duty trucks and non-fiscal incentives like toll waivers and exemption on operational restrictions are essential to increase EV adoption across freight segments. (b) The current central testing and certification infrastructure for vehicles, retrofit kits, batteries, and components is insufficient, and these processes are time-consuming, resulting in heavy opportunity costs and delayed release of vehicles.

Decentralising and streamlining these processes are necessary to encourage manufacturers to develop more EV products. (c) Battery swapping as a complement to plug-in charging is gaining popularity, especially for two- and three-wheeler commercial applications, and is considered crucial to promote EV adoption in these segments. The notification of the Battery Swapping Policy in India has been stalled for over a year owing to reservations on interoperability mandates. This policy through deliberations with industry representatives could maintain EV growth. Further, notifying the Battery Swapping Policy and supporting charging infrastructure establishment, especially for commercial fleets, are key to sustaining EV growth.

Although these policy actions tackle immediate challenges at the grassroots level, a broader perspective is needed to identify long-term obstacles. One such concern involves sourcing critical raw materials used in batteries, which influence battery prices and hence the affordability of EVs.

Additionally, there are worries regarding regulations and standards governing battery management systems, crucial for vehicle safety. Furthermore, the management of replaced batteries throughout the lifespan of EVs is another point at issue.

While these complications might eventually be resolved as the domestic industry matures, it is necessary to adopt a holistic approach and develop integrated policies that can effectively address the current gaps and challenges.

(Disclaimer: Vivek V Gavimath and Spurthi Ravuri work in the area of Green Mobility at the Center for Study of Science, Technology and Policy (CSTEP), a research-based think tank. Views are their own).