



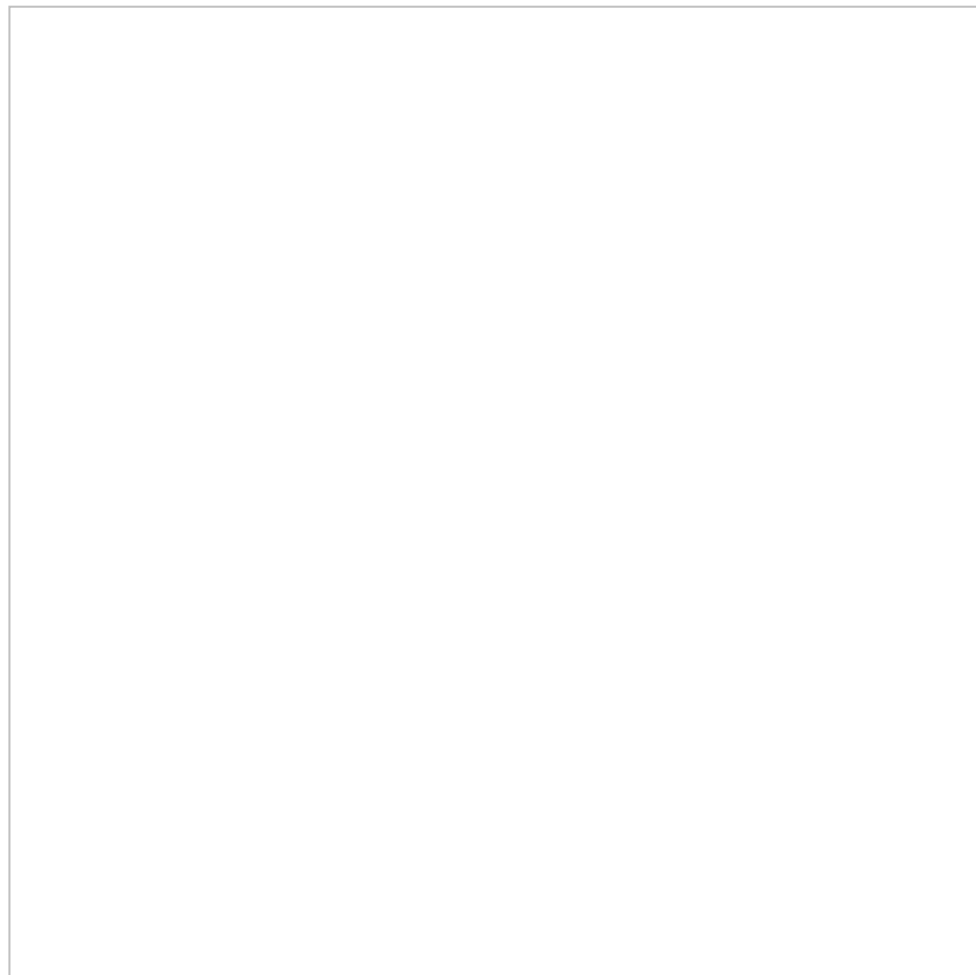
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Electric Mobility Rush: Concerns and Restraints

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This article is based on editorial Our premature push for electric vehicles which appeared in Livemint on 24th June 2019. It talks about, concerns and restraints in electric mobility in India.

In a bid to reduce oil imports and carbon emission, **NITI Aayog** has suggested that 40% of personal vehicles and public transportation in the country should go completely electric by 2030 (**Electronic Vehicle**).



By electrifying all the two-wheelers in use, India can avoid about 15% of the total transportation emission and more importantly, about 30% of particulate matter, curbing air pollution.

Facts

- A recent report by the **World Health Organization** revealed that 14 of the 20 most polluted cities in the world are in India.
- As per the estimates of **Union Ministry of Environment, Forest and Climate Change**, the automobile sector emitted about 188 MT of CO₂ till 2010; road transport alone contributed to **87%** of the emissions.
- India's current **oil import dependency** is about **80%**. According to the Petroleum Planning and Analysis Cell, diesel and petrol contribute to about 40% and 13% of oil consumption, respectively.

Concerns

- **Charging Infrastructure:** one of the biggest challenges of electrification will be charging infrastructure, as installing charging facilities to serve such a vast and spread-out market will be a major concern.
 - **FAME II**, has proposed setting up of only 2,700 charging stations across the country.
 - Electric Grid (for facilitating charging infrastructure) failure could create chaos.
 - **Charging time** of lithium-ion batteries is longer and this could result in traffic congestion on roads with lengthy queues.
- **Expensive Batteries:** The energy source in all-electric vehicles is **lithium-ion** batteries because of their compact size and weight.
 - Price of lithium-ion battery is close to the average retail price of petrol two-wheelers.
 - The high cost of lithium-ion vehicles can be attributed to the absence of lithium-ion battery manufacturing unit in India, as most of the electronic vehicle makers assemble the battery packs.
- **High Cost:** Market penetration of the electronic vehicle is expected to be low as compared to petrol vehicles, because of their high cost.
- **Import Dependency:** Raw materials in the form of **rare earth materials** required for manufacturing of lithium-ion battery (like lithium and cobalt) are not found in India and will have to depend entirely on imports, particularly from China.
- **Electricity generation** would not be a clean process (i.e free from pollution) because most of our power plants are still coal-fired.
- Though, **battery swapping model can be used in place of charging stations**, the lithium-ion batteries because of their limited charging capacity will end up releasing lots of toxic material once they fizz out.

Under the **battery swapping model, charging stations**, supply fully charged new batteries.

- **Localization:** Most of the electric vehicle companies in India are operating with less than 50% localisation (adapting a product or service specific to local market) of their product hence are unable to avail the incentives and subsidies under FAME II (which requires companies to have products with more than 50% localisation).

India's Effort in Electric Mobility

- Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles under National electric mobility mission is an concerted effort towards building an EV market.
- The procurement of over **500 electric buses** by various state transport utilities is a testament to India's commitment.
- The department of heavy industry, Bureau of Indian Standards, and the Automotive Research Association of India are working towards establishing various technical standards for design and manufacturing of EVs and electric vehicle supply equipment (EVSE) or charging infrastructure.

Required Restraints

The International Energy Agency has said there will be a net increase in carbon emissions due to electric vehicles when considering life-cycle emissions in countries, like India and China, which have a **carbon-intensive power generation mix**. So, there is a need for some restraints before completely moving to an Electronic vehicle regime.

- **Uniform Survey:** actual **impact and implications** of alternative energy sources in the form of lithium-ion batteries should be surveyed independently by the country.
If electronic vehicles are not adversely affecting the environmental and economic health of the country, the government could come out with some kind of **tax incentives** in order to promote the wider use of electronic vehicles.
- Instead of going for **aggressive measures** to introduce electronic vehicles or putting restraint over the use of petrol vehicles, the market should be left to its own devices on electronic vehicle conversion.
- Shifting to new technology should be driven by consumer preferences. Forceful policies and implementations cannot lead to sustainable demand generation of EVs.
- Public transport in India is expected to double by 2030 (which is a major consumer of diesel and petrol and responsible for substantial polluting emissions). These vehicles should be electrified first.
- Enabling electronic vehicle ecosystem also requires policies that encourage domestic manufacturing of vehicles, batteries and vehicles.
In-house manufacturing is also key to building technological expertise and generating jobs for the young demographic.

Conclusion

In our haste to adopt electric mobility, we should not rush into a flawed policy and implementation framework. Critical analysis and a step-by-step approach are required. The ecosystem for electric vehicles should be allowed to develop gradually and organically. From job losses to manufacturing and marketing challenges, all the factors should be considered by the policymakers. Alternative models should be pursued while learning from the experience of implementation of a particular technology.

Drishti Input

NITI Aayog has suggested that 40% of personal vehicles and public transportation in the country should go completely electric by 2030. Discuss concerns and restraints in this context.
