

## Electronic Revolution in the Indian Automobile Industry

The electric vehicle market appears to be acquiring a grip over the automobile industry in India. The Indian EV market in 2020 is completely at a different level. In FY21 the market has grown by 128 per cent with 2955 units as compared to 1295 units in FY20. The market has begun its research not only for alternatives to lithium-ion batteries which are presently imported from China but states like Uttar Pradesh have started to manufacture electric scooters and bikes. Seeing the long-term attractiveness of the electric vehicle market segment in India, players like Tesla, Maruti Suzuki, Toshiba-Denso -Suzuki are routing money not only into research but on the possibility of starting their manufacturing in India. The proposed plan of Tata to establish a lithium-ion production facility in the state of Gujarat worth dollar 54 million is sturdy heed towards the electronic revolution.

Arguments in favour of a shift towards electric mobility under the ambitious scheme of Faster Adoption and Manufacturing of Hybrid and Electric Vehicles Phase II or FAME- II are straight forward arising as a response to the challenges of reducing carbon footprint and greenhouse gases, lower oil imports and road congestion. Government aim for at least 30 per cent of the vehicle in the country to be electric by 2030. The intent is focused on reducing vehicular pollution which accounts for 11 per cent of India's carbon emissions. This transition, apart from environmental reap, is likely to save crude oil imports worth Rs.107566 crores.

In countries like India creating an affordable and convenient infrastructure for charging and maintenance is required for the large scale adoption of EVs. Funds of rupees 1000 crore has been allocated by the Department of Heavy Industry for the development of charging infrastructure. To make an ambitious push for electric mobility about half of India's 31 states are providing a slew of subsidiaries for EV buyers in the form of exemption from road tax and registration fee besides, other incentives to push the exchange of old diesel and gas vehicles for new electric ones.

The rapid transition from diesel or petrol vehicles to electric ones also means an increase in the demand for rechargeable lithium-ion battery and their subsequent environmentally conducive disposal mechanism. The EV batteries are made up of crucial components of rare metals like lithium, manganese, nickel and cobalt making repurposing and recovery of batteries vital in the long run. Owing to the slant concentration of reserves of lithium, cobalt and nickel makes it a difficult proposition for

India. Around 58 per cent of the world's lithium reserves are in Chile and the Democratic Republic of Congo has the largest reserve of Cobalt in the world, which is estimated to be around 3.6 million metric tons. China has 43% reserves of the earth's rare mineral reserves. This unequal concentration is perhaps the main reason why India does not manufacture lithium-ion cells and batteries at a large scale and has to go for import of lithium batteries in huge quantities. 450 million units of lithium batteries worth Rs. 6600 crore was imported by India in 2019-20.

Lithium-ion batteries and their end-of-life management is a challenge, however, not new. These batteries are already used in mobile phones and other consumer electronics. With a policy push from the government for electric vehicles the subsequent increase in spent batteries, if not recycled will be an economic opportunity lost as well as an environmental threat. Repurposing, recovery and recycling of lithium-ion batteries will promote a circular economy and will lower the dependence on materials and resources used to make these batteries.



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