

## **EVs: Driving towards a sustainable environment**

Source: India Business Law Journal

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Automaker Mercedes Benz may have sold 600 units during Diwali, but the automobile sector as a whole is at a low point, forcing the government to assist the massive employment creating sector that contributes 7.2% of GDP.

Following environmental concerns, the National Mission for Electric Mobility was launched in 2011 by the Department of Heavy Industry (DHI) to promote electric vehicles (EVs). The DHI then unveiled the National Electric Mobility Mission Plan 2020 in 2013, under which the flagship scheme, FAME India (Faster Adoption and Manufacture of Hybrid and EVs) was launched in 2015. Although sales were a mere 280,995, the target of 15 million EVs in India by 2020 requires greater resources.

FAME II was launched in March 2019, with a substantially higher outlay of the equivalent of US\$1.41 billion over three years compared to the equivalent of US\$126.5 million over four years for FAME India. The equivalent of USD 1.27 billion is reserved for demand incentives to boost sales and investment in EVs. The government think tank, NITI Aayog, considers that 30% of private cars, 70% of commercial vehicles, 40% of buses and 80% of two- and three-wheelers will be EVs by 2030. By August 2019, DHI had already permitted, under FAME II, 5,595 electric buses of the targeted 7,000.

### **Domestic manufacturing of EVs**

The battery pack forms the core of an EV. In March 2019, the DHI laid down technical eligibility criteria for EVs to receive demand incentives under FAME II. EVs must be equipped with lithium-ion (li-ion) batteries. Up to September 2018, 90% of FAME beneficiaries were e-scooters powered by lead-acid batteries. There will thus be little benefit under FAME II until EVs are powered by li-ion batteries. While FAME II does not incentivize independent manufacturing of li-ion batteries, the government intends to establish a subsidy plan worth the equivalent of USD 9.9 million in December 2019, and to invite bids for the local manufacture of batteries, thereby promoting the flagship Make in India initiative.

A major challenge is that there are no domestic lithium mines. Li-ion cells have to be imported, thus hindering domestic manufacturing. To ensure an adequate supply of batteries in the market, the DHI in April 2019 required battery packs to be assembled locally although it allowed the import of battery cells and associated thermal and battery management systems. The government's Phased Manufacturing Programme aims to boost domestic manufacturing of EVs and in March 2019 the DHI imposed a basic customs duty of 5% on the import of li-ion cells and battery packs, individually. This will further be raised to 10% and 15% for li-ion cells and battery packs, respectively, in 2021. This provides an excellent opportunity to invest in India and Make in India. BYD, a Chinese industrial giant, has already invested USD 150 million in manufacturing li-ion batteries, EVs and so on. The Indian Oil Corporation is likely to set up a 1-gigawatt plant to manufacture non-li-ion batteries.

Recycling of used li-ion batteries is another sizeable market, estimated to be worth about US\$1 billion by 2030, and will offer lucrative investments in the coming decade.

## **Charging infrastructure**

A robust EV plan depends upon charging stations. Rightly, the Ministry of Power revised the Charging Infrastructure Guidelines in October 2019, and to ease investment the choice of infrastructure technology for public charging stations has been left open. In February 2019 the government amended the Model Building Bylaws to permit charging at residences and offices. Proposals have been put forward for incentives under FAME II to provide charging infrastructure. Although not making it mandatory the DHI has advised developers to connect charging stations to grid-connected solar power plants.

Swappable batteries, which are not covered under FAME II, are viable options considering the costs involved in the development of charging stations. Companies like Sun Mobility, Ola, Smart-E, Mitsui Japan and DMRC are building swappable battery charging stations.

## **Policy push**

Nine states have issued specific EV policies, indicating an improving market. Government actions such as reducing Goods and Services Tax rates on EVs from 12% to 5%, inserting section 80 EEB into the Income Tax Act, 1961, which allows a tax deduction of up to the equivalent of USD 2,000 on interest on EV loans, and discounting premium rates by 15% for private EV third-party liability insurance in 2019-20 are boosting EV sales and investor sentiment. A clean environment coupled with positive investor sentiment towards EVs will clearly expand the market.