

Motobahn

The route to full electric, via hybrid

Adopting a gradual approach towards electric mobility that is inclusive of hybrid technology could help stem job losses and help OEMs and suppliers in India leverage their prowess in engine manufacturing

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RECENT STATEMENTS by the government talk of achieving 100% electric vehicle (EV) sales by 2030. While this calls for initiatives to ensure faster adoption of pure EVs in the run up to the 2030 target, there shall also be implications for stakeholders across the automotive value chain—suppliers, OEMs, service stations/mechanics, oil refineries and discoms. The effects would entail change in forex transactions amounts, tax collections, employment levels, waste generation/management, energy mix and, of course, pollution levels.

What's the plan?

In order to incentivise manufacturers, the government had launched FAME—Faster Adoption and Manufacturing of (Hybrid & Electric Vehicles in India—in 2015 to boost hybrid and electric technology adoption. This is being envisaged by offering demand incentives to customers and incentives on research and infrastructure development to OEMs and other stakeholders for making EVs cost-competitive with conventional options on the market. As of May 2016, Rs 190 crore has been spent as demand incentive under FAME. Around Rs 90 crore additional has been spent on research and infrastructure development incentives to OEMs and other stakeholders.

In addition, in the upcoming GST regulation, the government is providing tax incentives (excise duty of 12% for battery EVs versus 28% for all other types of vehicles with an additional cess ranging from 1% to 15%) that treat hybrids and EVs preferentially over conventional technologies.

The government has a three-pronged approach to foster EV ecosystem growth:

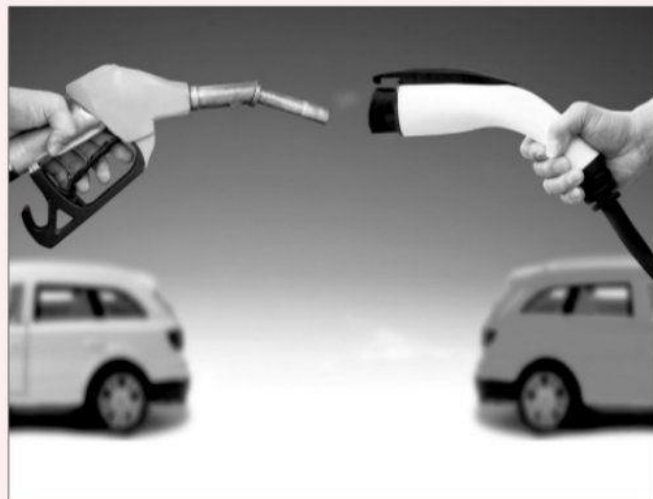
1. Notching the arrow: Nascent stage from 2017 to 2019, aimed at hand-holding the industry and active incentives by the government;

2. Drawing the bow: Growth stage, requiring steps to allow consolidation in the industry, 2020-23;

3. Letting the arrowfly: Self-sustaining EV industry with no need for government intervention, 2024-32.

Impact on OEMs and suppliers

OEMs: Traditional business models



How India plans to move towards electric mobility

	Phase 1 (2017-19): Notching the arrow	Phase 2 (2020-23): Drawing the bow	Phase 3 (2024-32): Letting the arrow fly
Overview and objectives	Capture opportunities that are already economic and capable of rapid scaling, while cultivating actions that are nearly economic	Scale up actions introduced in phase 1. Simultaneously, public and private sector actions continue to enhance the economics and feasibility of future actions	All segments are market-ready for electrification and deployment is under way nationally

could change, with proposals such as selling vehicles without batteries being mooted. This could lead to a 60-70% reduction in the price of a new small car. Investments/skills in engine assembly, testing and R&D would become redundant. Instead, capabilities will need to be developed to manufacture batteries and EV components (even for hybrid adoption). OEMs will

need to reconfigure their products and manufacturing facilities to cater to EVs (both hybrids and EVs).

Suppliers: The most affected suppliers would be the erstwhile engine (including components) and after-treatment system manufacturers.

New entrants

Battery manufacturers: India lacks the capabilities to develop lithium-ion batteries. The global frontrunners are LG Chem, Samsung SDI, SK Innovation and Panasonic, with Chinese suppliers catching up. For now, China lags behind Koreans. While the Japanese had a first-mover advantage, the Chinese are positioning themselves to dominate this market. The

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greatest advantage for Chinese battery manufacturers over rivals such as Tesla is access to raw materials. Chinese companies have been securing lithium reserves by buying mining assets in order to reduce costs.

The other option is to build in-house capabilities rather than importing complete batteries, which would involve significant capital and R&D costs. Though R&D capa-

bility can be built via licensing/alliances, acquisitions, JVs, etc, companies can take a three-phased approach to develop the capabilities:

Phase 1: Importing electrodes, electrolytes, separators and manufacturing tabs, foils, bus bar, battery container;

Phase 2: Importing electrodes and manufacturing rest of the components;

Phase 3: Importing just the raw materials for electrodes and processing them domestically.

Entry of new OEMs

While the Tesla story is well known, we could see Chinese OEMs entering India. Currently, the powertrain, after-treatment and associated technologies are the forte

of Indian OEMs, but for pure battery powered vehicles Chinese OEMs may be able to offer competitive options.

Impact on OMCs and fuel stations

Oil marketing companies (OMCs) would face direct impact due to lower fuel consumption by 2030, decreasing viable revenue streams and requiring reconfiguration of refineries towards higher output for other sectors such as aviation turbine fuel and marine fuel oil. There is some talk around OMCs looking at manufacturing electric batteries to remain relevant in the automotive sector. A delicate balance has to be struck between meeting the growing demand in the current scenario and the diminished oil consumption in the future. OMCs also face an uphill task of dealing with BS-VI implementation by 2020, requiring high capital expenditure in the mid-term.

In case of fuel stations, fewer vehicles on the road requiring fossil fuel will eliminate the need for conventional fuel stations. These shall have to transform into battery charging stations. However, the battery charging time being significantly more than the fuel filling time, some people at fuel stations may become redundant.

Power discoms

Incremental burden of 1.12 TWh (terawatt-hours) is expected on account of electric mobility. A major burden will be felt by discoms for realising an effective distribution network for nationwide acceptance of electric mobility.

Impact on vehicle servicing

EVs require low maintenance. Potential loss in jobs on account of this is expected to be to the tune of 30 lakh, growing from the current employment level of 30-35 lakh to just 40-45 lakh as against about 70 lakh jobs in 2030 if we stick to internal combustion engines.

Air pollution

The estimated reduction in carbon dioxide emissions for 100% hybrid EVs vis-à-vis business-as-usual is estimated to be 10%, while for 100% battery EVs vis-à-vis business-as-usual the expected reduction in carbon dioxide emissions is 37% by 2030.

While there are clearly environmental and forex benefits associated with a 100% battery EV by 2030, there are a few aspects that warrant due consideration. Adopting a more gradual approach that is inclusive towards hybrid technology could help in stemming job losses and help OEMs and suppliers in India leverage their prowess in engine manufacturing. Lastly, such an approach will enable our industry better gear up for the Chinese EV OEMs' and suppliers' onslaught via imports.

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