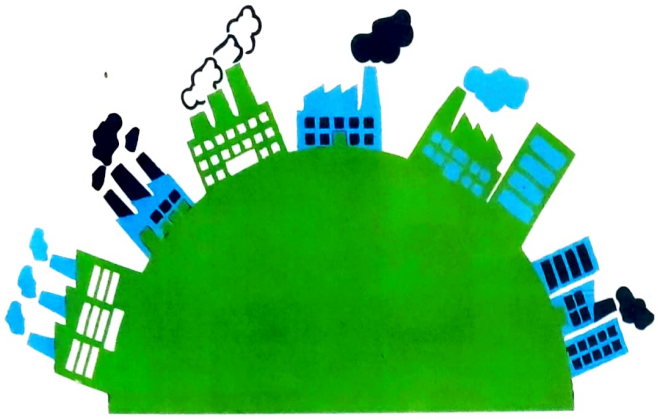

GREEN MOBILITY

Policy and Industry Drivers

India is viewing an all-electric car fleet by 2030, with no petrol or diesel cars sold in the country by that year. Here is a brief look at what the government and industry are doing, and will need to do, to make this possible.

As a nation, India is moving towards adopting electric vehicles (EV), and our government is committed towards the same goal. In a recent communique, Piyush Goyal, minister of state with independent charge for power, coal and renewable energy, as well as mines, has stated that officials under his ministries will start using electric cars to promote their use and highlight the benefits of doing so. That's a very strong statement from a leader of his stature, which shows the seriousness with which India is moving on the FAME (Faster Adoption and Manufacturing of Electric vehicles in India) path. Let's delve deeper into the map that will guide this journey, and look at how the different policies are going to impact the EV adoption cycle.

The policy initiatives

The National Electric Mobility Mission Plan (NEMMP) 2020 is a pioneering initiative launched by the UPA government in 2013. It has been reshaped and is being implemented very well by the new government to lead India towards total electric vehicle adoption by 2030. Some of the key drivers of this mission are the incentives to facilitate the acquisition of hybrid/electric cars; encouraging R&D in startups and new business entities in the areas of battery technology, power electronics, motors, systems integration, battery management systems and testing infrastructure; and industry-friendly government policies.

Another important initiative is the development of the battery charging infrastructure, and with public private partnership (PPP) models, this part of the EV ecosystem is sure to grow. The government is also trying to offer incentives to maximise supplies growth and build the on-road infrastructure to retrofitments, similar to the infrastructure that exists for fuelling stations in the country. The total investment planned for this scheme is ₹140 billion, which would include industry contributions.

When this project was envisaged, the idea was to make India self-reliant in fuel. The driver behind this was the National Fuel Security Policy, which was drafted to enhance the usage of non-fossil fuels, and reduce the use of fossil fuels, for which India is highly reliant on imports. Today, as we know, India is one of the fastest growing economies in the world and fuel plays a key role in driving the growth momentum. Once India becomes a truly electric vehicle driven country, we will finally enter an era of fuel security, enabling us to grow faster across all sectors, while saving foreign exchange.

Another policy initiative is the FAME India scheme which came into effect on April 1, 2015. In its bid to speed up EV manufacturing and adoption, the government has taken a number of important steps:

- Since the inception of the FAME India scheme on April 1, 2015 till February 2017, the Department of Heavy Industry has already extended demand incentives worth ₹1277.7 million for the purchase of 111,897 electric/hybrid vehicles.
- Budget 2017 has provisioned a 42 per cent increase in funding/incentives to aid and support the production of electric and hybrid cars with the intent to improve air quality in the country. India has some of the most polluted cities in the world. Industry is optimistic on the provisions made in the Budget and feels that these will increase the acceptance of e-vehicles, even if the current output remains low.

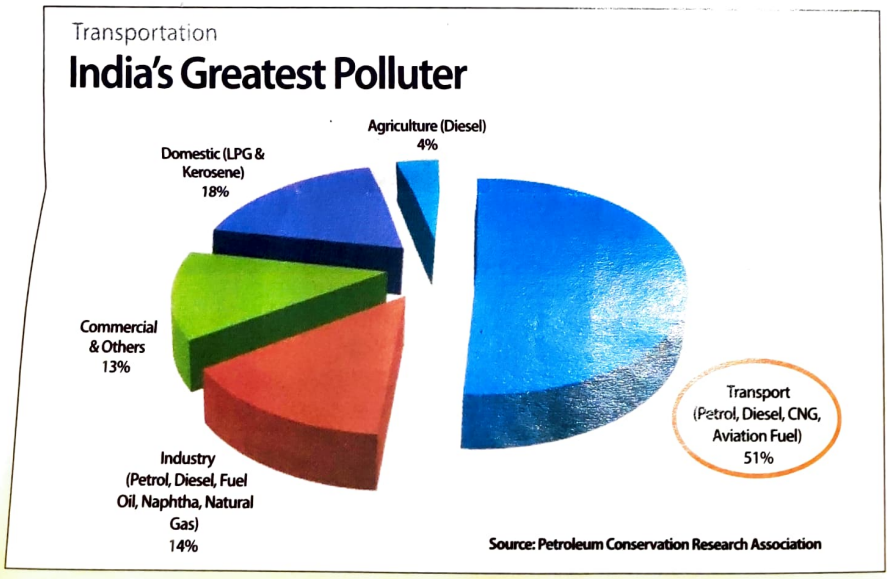

Figure 1: Transportation accounts for 51 per cent of air pollution in India; and in cities, that figure goes up to 75-80 per cent!

economies of scale.

Maruti Suzuki, the manufacturer with the highest market share in India, has already made an entry into this segment with the Ciaz hybrid model. The company intends to enter the EV segment as well, to benefit from the FAME scheme. The chairman of Softbank has stated that his organisation plans to donate 100,000 EVs to Ola, as a part of its investment in the organisation. Even if 25,000 EVs get onto Indian roads, it would lead to a better understanding of the new category, considering the wide presence of Ola. These are some of the leading indicators that augur well for the sector.

How companies are monetising the opportunities at hand is a question that needs deeper understanding. India has one of the highest import duties on finished goods. That's a huge deterrent for firms like Tesla. Unlike other cars in the EV segment, Tesla is one of the only firms to offer a driving experience very similar to petrol/diesel cars. Being able to zoom from 0 – 100km/hr in 3 – 4 seconds, is currently unheard of among electric cars, though Tesla promises this. Currently, the challenge before Elon Musk is to replicate such advanced engineering on Indian soil, since import duties will make importing a semi knocked down version from California too expensive for Indian consumers. Recent reports suggest that Musk's meetings with the government have gone positively and so, maybe the new EV policy will have some concessions for companies to initially import directly before they join the Make in India campaign.

The challenges prior to making the Big Leap

Unlike traditional vehicles, the EV market has to overcome different obstacles. *It needs a different value chain and the relevant infrastructure, such as charging stations, etc. The biggest challenge is consumer perception towards its practicality, functional advantages, cost/return on investment, convenience, travel range, and charging infrastructure. Any policy that the government makes must first try to address the consumer issues before it addresses the industry issues. To succeed in the current environment, OEMs will need to evolve and understand the value of the changing* mobility market. Another factor would be the convergence of technologies and technology providers -- gone are the days of single auto giants enjoying market hegemony; today, it's all about collaboration.

Accenture has recently come out with a very well drafted report, which offers a global perspective on the EV market, as well as a view on emerging markets like India where the potential to grow is enormous. According to this report, the key drivers for any plan to succeed are:

- Government regulations and subsidies
- Integration of EVs within the product portfolios of OEMs
- Collaboration within the e-mobility value chain
- Relevant charging infrastructure
- Raising customer awareness about the benefits of e-mobility
- Projecting the concept of e-mobility as 'leadership is innovation and environmental consciousness'
- Adjustment of core operations and processes

Another important aspect for India to consider would be our long-term electricity production capacity, which is currently not in a very reassuring state. That's why we need to look at other renewable sources to generate power, which can drive the creation of supporting infrastructure.

The future of e-mobility in India

India is the fifth largest passenger vehicle market in the world, and ranks No. 2 in terms of growth rate. That's a mouth-watering opportunity for most vehicle manufacturers. And with the commitment that is being shown by the government to promote the adoption of EVs, the time is ripe for the industry to respond to the changing dynamics. The government has proposed to get going by setting up infrastructural avenues which can propel the mission forward. It has plans for setting up battery charging units on a large scale, starting from 2018 -- some with private partnerships. Research findings from the RMI and Niti Aayog study reveal that the key drivers for India's EV mission can be split into three parts – systems integration, shared infrastructural development and scaled manufacturing (Figure 2). If all three work well, the future of India's e-mobility sector looks bright.

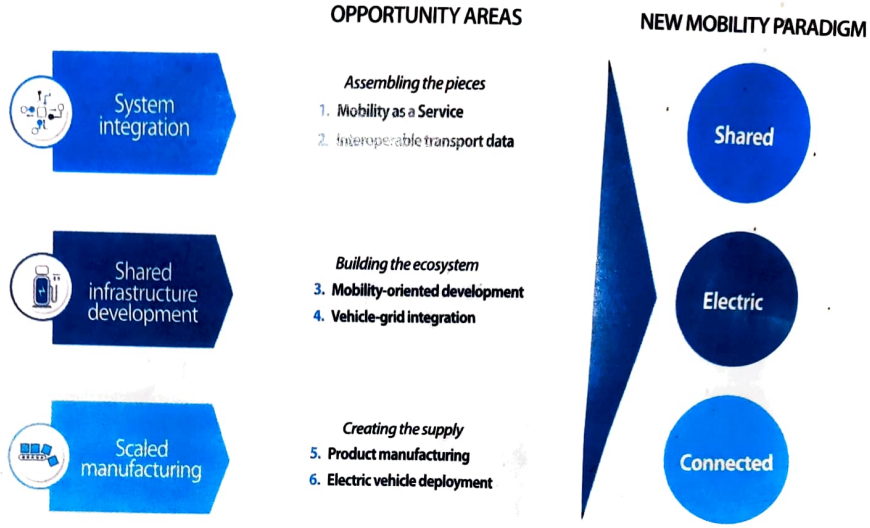

Figure 2: Elements of India's mobility transformation **Source: RMI Report for Niti Aayog on eMobility**

The question I would like to put to business leaders who aspire to grow faster is: Isn't e-mobility a segment that you can look at investing in now? Or will you still wait before taking the plunge. Think and decide, as brands today can be built faster than they could 25 years back. Maybe this is the right time to invest and claim your share of the market.

I look forward to reading your comments/feedback at editsec@efy.in.

By Sanjay Banerjee

The author is passionate about how businesses can benefit from technology. He is a tech enthusiast and a senior business leader at EFY.

A study conducted by the Niti Aayog, along with Rocky Mountain Institute (USA), says that by India adopting more of electric and hybrid vehicles, it can save up to US$ 60 billion (per year) in fossil fuel costs by the year 2030 and cut down on carbon emissions by 1 giga tonne between 2017 - 2030. Therefore, looking at the opportunities ahead, a framework is being worked upon which can drive this growth and move the country towards sustainable mobility options. If all goes as planned, this policy should be out in the public domain on or before the next fiscal year. Of course, for the plans to succeed, state governments will need to play an active role in creating the right environment for FAME. That's the reason why a central body is being created to work directly with the states, and collaborate to create the frameworks that will lead to success. The approach would be to create nodal bodies across cities, based on the population and demographics, which will work with a central agency and create channels of communication with the masses, in order to make them understand the value and benefits of adopting EVs.

What are the automobile companies doing?

In light of the increasing consumption of fossil fuels and the rise in global CO_2 emissions, sustainable mobility has assumed greater importance in recent years, and research dollars are being spent to understand how the transportation sector can help mitigate the looming crisis. Faster adoption of EV and hybrid vehicles is a clear necessity since the transport sector is the second largest emitter of CO_2 globally and the highest in India (refer to Figure 1). Therefore, governments, climate change activists and industry bodies are all suggesting a move towards alternate and greener technologies.

Global brands like Tesla, Suzuki and Honda, as well as Indian auto multinationals like M&M are increasingly aware of the huge opportunities in this new field. And India could prove to be the ideal location to set up a manufacturing base. True, Maruti Suzuki's stronghold on the Indian market might deter some, and the concerns raised by some global brands like General Motors and Skoda regarding Indian consumption, might lead potential entrants to question whether India is the right market. I am certain that the EV space offers global auto giants the ideal entry point to enter the Indian market and carve a niche for themselves. This is because of the promise it holds and the policies that are being drafted to promote growth. Some trends in this direction are heartening. Tesla Motors, the world's most successful electric car manufacturer, is planning an Indian entry with its upcoming sedan that is expected to be priced between ₹1.8 – 2.4 million (₹18 – 24 lakh) which is half the price of what other companies are charging for such sedans in India. The company is also working on budget editions of other models as a part of its strategy to lure India's growing middle class, while being aware of its actual spending power.

M&M, one of the pioneers in the Indian EV segment, is currently working on making the cheapest electric SUV in the world, and it has been christened S 107. It's an electric version of the now famous KUV that's already in the market. In addition, it is also ramping up production of the Verito Electric model to reach

Submitted by
B. Deepa 11/09/17
Ch. Padmasree 11/09/17

11/9/17