

News monitored for: Greaves Cotton

TECHNOLOGY SPECIAL | EVs



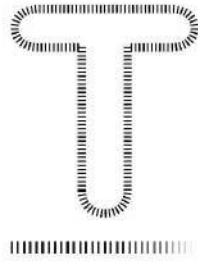
The Future is Electric

THE PANDEMIC HAS NOT IMPACTED THE ELECTRIC VEHICLE STORY ADVERSELY. IN FACT, IT MAY HAVE ACCELERATED THE SHIFT

BY SUMANT BANERJI

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he pandemic may have come as a rude shock for doubting Thomases who believed that the future of mobility is something else. While sale of conventional passenger vehicles and two-wheelers in the country declined over 9 per cent and 13 per cent, respectively, in FY21, electric two- and four-wheelers bucked the trend and posted impressive growth.

Sales of electric two-wheelers surged over 64 per cent, while four-wheelers grew over 68 per cent. Yes, this is on a small base, but encouraging. In a year where nearly two months were lost due to lockdown, it is the clearest indication yet that after sputtering for years, the electric mobility story is on track towards an inflection point when it will



\$206

BILLION

The market opportunity for EVs in India by FY2030. Cumulative sales may top 100 million by then



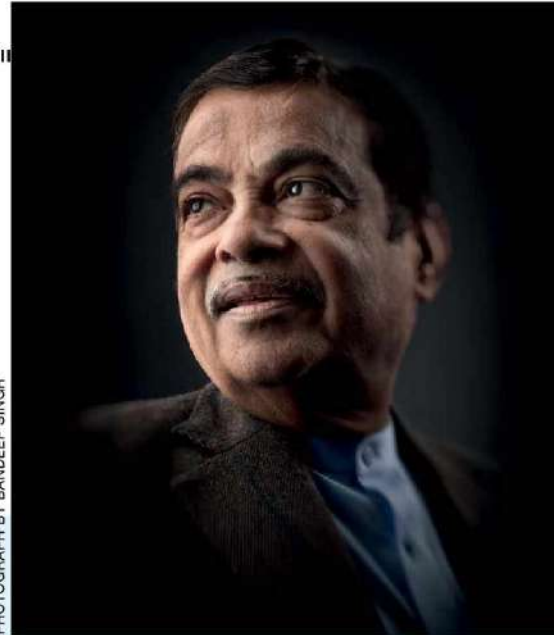
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become mainstream.

“Covid did us a favour as sustainability and people’s preference for greener vehicles increased, as did the slant towards private mobility. We believe the industry is just getting started and there are exciting times ahead of us,” says Nagesh Basavanahalli, Group CEO and Managing Director, Greaves Cotton, which acquired electric two-wheeler company Ampere Vehicles in 2018. “We are beginning to see traction. We surpassed the full-year performance of FY2020 in just nine months of FY2021 despite Covid.”

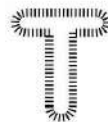


PHOTOGRAPH BY BANDEEP SINGH



India is moving ahead towards making electric vehicles. In due course, we will be the number one EV maker in the world. E-mobility will be an important tool to develop pollution-free transport”

Nitin Gadkari, Union Minister for Road Transport, Highways and MSMEs



The strong growth for the segment prompted Nitin Gadkari, the Union Minister of Road Transport and Highways and one of the earliest advocates of electric mobility in the country, to say India would become the global leader in this technology. “India is moving ahead towards making electric vehicles (EVs). In due course, we will be the number one EV maker in the world. All reputed brands are present in India,” Gadkari said while addressing the Amazon Smbhav summit on April 18. “We have tremendous capability for making green power. Within six months, I am confident we will be

THE EV MATHEMATICS

\$180
BILLION

Investment needed in vehicle production and charging infrastructure

158
GIGAWATT HOUR

Annual battery capacity required. \$6.1 billion investment needed for 50% localisation

₹18,100
CRORE

Allocation by government under the Production Linked Incentive Scheme for advanced cell chemistry battery storage

\$6
BILLION

Investment needed to set up at least 5 million charging stations across the country



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PHOTOGRAPH BY YASIR IQBAL



in a position to make 100 per cent lithium-ion battery in India. E-mobility will be an important tool to develop pollution-free transport.”

One-stop Solution
EVs are touted as a one-stop solution to many problems in India. These include those related to air pollution and steep oil import bill that depletes our foreign exchange reserves. India consumes 29.4 per cent of the world’s oil and crude oil accounts for more than a quarter of its imports. It spent over \$100 billion on oil imports in FY20. According to a report by Niti Aayog and Rocky Mountain Institute, a reduction of 156 million tonnes of oil equivalent worth ₹3.9 lakh crore is possible by 2030 if EVs account for 40 per cent two-wheelers, cars and SUVs and 100 per cent commercial vehicles and three-wheelers.

India is also the world’s third-largest emitter of carbon dioxide (CO₂) at two million kilotons behind the US and China. In the national capital of Delhi, pollution due to particulate matter regularly exceeds the World Health Organization’s limits by a factor of 7-12. More EVs means less carbon emissions.

“It is a no-brainer that EVs are the future. I think that is well-established now,” says Chetan Maini, Co-Founder and Vice Chairman, Sun Mobility who built India’s first electric car, Reva, back in the 1990s. At Sun Mobility, Maini is working to establish a network of battery swapping infrastructure across the country. “An EV is even more suitable in high congestion cities and stop-go traffic conditions like we have in India,” he says.

However, any new technology at the start comes at a price. EVs, too, cost more than their petrol and diesel counterparts. But with more EVs being produced, the cost of lithium-ion batteries that account for nearly 50 per cent cost of an EV is falling fast — over the last decade, prices have dipped from \$1,000 per MW Hour to just over \$150 per MWH. They are tipped to fall below \$100 by 2023, making EVs as cheap as internal combustion engine vehicles.

On top of this, culmination of a number of local factors has provided a major tailwind for EVs in India. Till such time that EVs become affordable, the government has stepped in with a host of incentives under the umbrella FAME 2 Scheme. The level of incentives now on offer for EVs in India are the highest ever — up to ₹32,000 for electric two-wheelers, ₹3 lakh for electric cars and ₹35-55 lakh



For the world and for us, the way forward is electrification. All our planning and strategy are based on our vision for the future of mobility. The future is all about partnerships and collaborations. We have set big targets for ourselves internally”

Pawan Munjal, Chairman and Managing Director, Hero MotoCorp

27 June 2021 | Business Today

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for buses. There is an additional income tax rebate on loans taken for buying electric cars.

States have granted more EV sweeteners. The new EV policy announced by the Delhi government last year, for example, offers additional subsidy of ₹30,000 for two-wheelers and up to ₹1.5 lakh for electric cars. It has been widely lauded as a template for other cities and states in the country. "It is a holistic policy that addresses the core challenges of subsidising the cost difference with respect to internal combustion engine vehicles by giving financial incentives on loans, creation of charging stations and skill creation. Covid-19 gave us a rare glimpse into clear skies and cleaner air. We believe that accelerating EVs will bring health, geopolitical and economic benefits to India," says Saurav Kumar, CEO & Founder, Euler Motors, a New Delhi-based EV start-up.

The rise in prices of petrol and diesel that are at all-time highs also acts in favour of EVs. The running cost of an electric car is just ₹1 per km compared to petrol's ₹9 per km and diesel's ₹6 per km. The savings offset the higher price of the vehicle, making EVs more attractive to consumers.

"India's EV sector has been rapidly growing over the last three years as both Central and state governments have been taking initiatives to promote adoption of EVs," says Jeetender Sharma, MD & Founder, Okinawa Autotech. "The recent hike in fuel prices has further pushed consumers to look for alternatives such as EVs. We as a company aim to provide EVs that are on a par with internal combustion engine vehicles."

The More the Merrier

In addition to these, there has been an increase in the number of players, which is helping on two counts — increasing



PHOTOGRAPH BY NILOTPAL BARUAH

options for consumers and creating awareness and countering myths regarding the new technology. The bulk of the action right now is in two-wheelers, believed to be a low-hanging fruit. Used mostly for shorter distances and intra-city travel, two-wheelers do not need big batteries, making them more affordable and faster to recharge. Most of the heavy lifting in the first few years was done by manufacturers like Hero Electric and Electrotherm. They were joined by a host of new age startups like Ather Energy, Revolt Motors, Okinawa, Ampere and Avan Motors expanding the options manifold for consumers.

India wants to make 70 per cent commercial cars, 30 per cent private cars, 40 per cent buses and 80 per cent two-wheelers and three-wheelers electric by the end of this decade



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Electric is the future of mobility and we are reimagining the user experience of owning an electric vehicle. Our plan to build a comprehensive charging network is a key piece of this”

Bhavish Aggarwal, Chairman and Group CEO, Ola Electric

“The biggest thing is awareness and it is increasing every quarter. The market is much bigger now, which official numbers do not reflect, as it doesn’t count low-speed two-wheelers that do not require registration. Our estimate is that it is already at 2,50,000-3,00,000 units,” says Basavanhalli of Greaves Cotton. “Quarter on quarter, this industry as a whole has been growing significantly. People are still coming to terms with electric two-wheelers. There are concerns over charging infrastructure, which are being cleared, as two-wheelers can be charged at home. With growing awareness, numbers will grow.”

Big conventional brands who were fence-sitters for long have also joined the fray. In 2019, TVS group launched its first electric scooter, iQube, in Bangalore and followed it up with Delhi in 2020. Bajaj Auto also threw in its hat in the ring with Chetak, marking its re-entry into the scooter segment all over again.

In four-wheelers, the big mover was Tata Nexon EV last year, which lowered the price barrier for the segment and quickly became the largest-selling electric car in the country. Tata is planning to follow it up with an electric version of its premium hatchback, Altroz, later this year, which may open doors further. The luxury car segment also saw action with the launch of Mercedes EQC and, more recently, Jaguar iPace. Audi, BMW and Volvo are set to follow suit very soon.

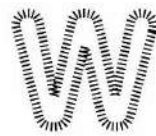
Then there are the big movers in Ola and Hero MotoCorp that may boost the sector even further. On the four-

wheeler side, the entry of Tesla could have a similar impact.

For a start-up, Ola’s plans are so ambitious that they can put established players in the shade. It is investing ₹2,400 crore to build a factory in Tamil Nadu that can produce two million electric scooters to begin with. It can be expanded to 10 million per annum. It bought Dutch startup Etergo last year. A significant part of the investment is for R&D. Its first offering will hit the roads by the middle of this year. It is also setting up 5,000 charging points in 100 Indian cities, which will be ramped up to 400 cities and 1,00,000 charging points. “Electric is the future of mobility and we are reimagining the entire user experience,” says Bhavish Aggarwal, Chairman and Group CEO, Ola. “Our plan to build a comprehensive charging network is a key piece of this. By creating the world’s largest and densest two-wheeler charging network, we will dramatically accelerate adoption of EVs and rapidly shift the industry to electric.”

India’s largest two-wheeler maker, Hero MotoCorp, is also readying its first electric offering this fiscal. The company is all about scale. It is going about it meticulously, tying up with Taiwanese electric two-wheeler maker Gogoro to develop products and battery swapping stations. Last year, it had said it would invest ₹10,000 crore this decade, a significant portion of which would be in EVs.

“For the world and for us, the way forward is electrification. All our planning and strategy are based on our vision for the future of mobility. The future is all about partnerships and collaborations. We have set big targets for ourselves internally,” says Pawan Munjal, Chairman and Managing Director, Hero MotoCorp.



While India is yet to officially spell out its electrification targets, the aspiration, as mentioned by NITI Aayog, the government’s primary think-tank, is that 70 per cent of all commercial cars, 30 per cent private cars, 40 per cent buses, and 80 per cent two-wheeler and three-wheelers would be electric by the end of this decade.

If these targets are achieved, the numbers will be big. As per a study by the CEEW Centre for Energy Finance (CEEW-CEF), the market opportunity is worth nearly \$206 billion (₹14,42,000 crore) with cumulative EV sales in all vehicle segments projected to jump to over 100 million units by FY30. It has estimated that over \$180 billion (₹12,50,000 crore) investment will be required in vehicle production and charging infrastructure until 2030.

“Availability and affordability of capital for OEMs, battery manufacturers, charge point operators and end consumers would be key to determining the pace, efficiency and cost of India’s transition to EVs,” says Vaibhav Pratap Singh, Senior Analyst at CEEW-CEF and the lead author of

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The biggest chunk of ₹57,000 crore in the PLI Scheme was allocated for the domestic automobile industry

the report. "Consistent policy support would also be critical. The recent announcements by the government to set up EV kiosks across 69,000 petrol stations in the country and permit sale and registration of EVs without batteries can give a boost to the sector."

The study further estimates that India will need an annual battery capacity of 158 GWh with an investment of \$6.1 billion (₹42,900 crore) even if half of the battery manufacturing capacity is to be indigenous. The recently approved Production-Linked Incentive (PLI) Scheme for automobile and battery manufacturing sectors could create the right ecosystem for indigenisation and job creation in the EV sector.

The government is mindful of the opportunity and the need for incentives which is why the biggest chunk of ₹57,000 crore in the overarching PLI Scheme was allocated for the domestic automobile industry. A major part of it is for future technology and electrification. For advanced chemistry cell battery storage, for example, a corpus of ₹18,100 crore has been allocated.

"The scheme is likely to ensure giga-scale cell manufacturing in India to substitute import dependency and provide the much-needed impetus to sectors like automobile and defence," says Saurabh Agarwal, Partner, EY India. "Unlike other PLI schemes, this will be a bid-based scheme

which will provide direct fiscal incentives to companies which commit highest volumes, timely scale-up and claim lowest incentives."

Another big opportunity that has opened up is in charging infrastructure. The CEEW-CEF study says India would need a network of over 2.9 million public charging points by FY30, beyond the in-home charging points, which would require an investment of up to \$2.9 billion (₹20,600 crore). There are less than 1,000 public charging stations in the country at present.

A McKinsey report puts the size of the opportunity even higher. It says that even at a moderate rate of adoption by 2030, with only about 11 million battery EVs, India will need an estimated five million charging stations. This will entail an investment of \$6 billion (about ₹42,000 crore).

It is this opportunity that has lured many startups to this space. The solutions are also innovative. One-year-old Bengaluru-based Charzer, for example, wants to set up an electric two-wheeler charging station on every street of every city in the country. It has devised a low-cost hardware set-up that costs ₹15,000 and can be easily installed in all mofussil *kirana* stores. The company says the shop owner will be able to break even and recover his cost in a year even if it is utilised for just two hours daily. At six-seven hours a day, break-even can be achieved in three months and, thereafter, the shopkeeper can earn a profit of ₹7,000-7,500 every month.

"Lack of charging infrastructure is still a chicken and egg problem as without it there is range anxiety and, as a result, EVs do not proliferate. Our effort is to break that cycle," says Sameer Ranjan, one of three co-founders at Charzer. A B-Tech from NIT Raipur, Ranjan had also co-founded another EV startup, Fae Bikes, which provides electric scooters on rent to logistics companies.

"We have been in the EV space for five years and know this industry from inside out. In the previous company, we realised the missing piece has always been chargers, which held back our own expansion as well as that of the EV ecosystem at large," he says.

Charzer has currently set up 120 charging points in the country. It lost some momentum due to the lockdown last year but is still confident of setting up 10,000 charging points by end-March 2022. "The initial response was tremendous. We conveyed to people that these are the petrol pumps of the future," he adds.

Vehicles zipping down roads and making zero noise and pollution. They can be recharged at malls, parking lots, overnight at home, docked at a supercharging station or even your friendly neighbourhood *kirana* store. Or a discharged battery itself can be swapped for a new one. That is the future of mobility in India. **BT**

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