WRI INDIA

10 YEARS

EVCONNECT

Issue - 25 | June 2021 | *For private circulation only*

NEWSLETTER

INSIDE THE ISSUE

FROM THE CEO'S DESK

Dear Friends,

The 25th issue of EV Connect, our monthly electric mobility focused newsletter, sees us in conversation with Mr. Naveen Munjal, (Managing Director, Hero Electric Vehicles Pvt. Ltd.). We discuss current challenges, opportunities, and measures the Indian government, and businesses, can take to accelerate electric vehicle (EV) adoption in India. Along with our regular news updates, from national and global frontiers, we have a special feature on how to prep buildings to make them EV-ready.

Various developments are taking place in the electric mobility market, and it is often difficult to keep up with them. We hope this curated and compiled newsletter will come in handy to those who are seeking the latest information on electric mobility.

We hope you find this edition beneficial and share your thoughts so that we can improve further.

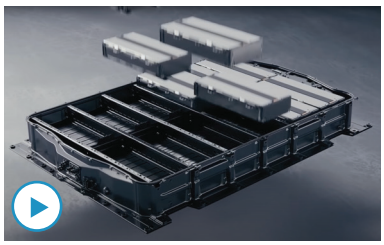
Sincerely,

Dr. OP Agarwal
CEO, WRI India

WATCH

Presenting EV Connect Powertalk - exclusive monthly interviews with EV experts, policymakers and stake-holders discussing key insights. We also present one hand-picked video that showcases a global EV innovation.

Power Talk with Naveen Munjal
Managing Director, Hero Electric Vehicles Private Limited



How long do EV batteries last?
Best Electric Vehicle

WATCH the full interview **here**

"Recently, the government of India has made amendments in the FAME-II policy. This will tremendously help in scaling up electric two-wheeler adoption."

"When you look at an e-vehicle in terms of its TCO (Total Cost of Ownership), they become more economical to operate than ICE vehicles."

POWERTALK

IN CONVERSATION WITH NAVEEN MUNJAL

Managing Director, Hero Electric Vehicles Pvt. Ltd.

Interview taken by Amit Bhatt, WRI India

Interviewer: **Hero is a very renowned group across the world; can you tell us more about the Hero electric initiator?**

Mr. Munjal: Hero group has been in the market since 1956. We introduced electric cycles way back in 2001 to bridge the gap between a cycle and a motorcycle. However, it did not work and in 2004, we tried again. We sent a couple of mopeds to a company in the Las Vegas industrial zone, experimented, took out the fuel tank and plugged in lithium-ion batteries. And that worked, but the issue was that the battery pricing made the vehicle expensive. In 2007, we launched electric scooters and to give more focus to our electric work, we set up a separate company and a separate business with the strength of the brand Hero. That's how Hero Electric came into existence in 2010.

Interviewer: **In the last couple of decades, how have you seen the overall electric mobility market change?**

Mr. Munjal: It has been a very interesting journey. We had a substantial number of tailwinds pushing us forward and at the same time we also faced headwinds. In 2009, we formed the EV association called SMEV (Society of Manufacturers of Electric Vehicles). In 2012, the whole market collapsed. There was a financial crisis which resulted in the rupee devaluing, oil crashing and the end of a major subsidy. We took a double two-pronged approach – firstly, to keep the market alive and second to provide additional revenue to the dealers. Then came the announcement of the National Electric Mobility Mission Plan (NMMP) in 2013, followed by FAME-I in 2015 and FAME-II in 2019, and recently the amendments to FAME-II. All these have worked for us to some extent. Many states have now announced EV policies that are once again pushing the electric mobility mission forward. For instance, Delhi has a very good EV policy. States like Tamil Nadu, Karnataka, Maharashtra are focusing more on domestic manufacturing in their policy. Electric mobility has now become the buzzword.

Interviewer: **What are the big opportunities in the transport electrification sector?**
Mr. Munjal: The opportunities are going to be immense; we just need to break them into different segments. For example, in the manufacturing segment, there are multiple opportunities like reskilling and upskilling workforce. Or a company which is in the casting business can easily make motors for electric vehicles. A company which is in fine precision forgings could be developing forgings for electric mobility and so on. As a company, we offer training to roadside mechanics to fix any breakdown that might happen while driving an EV. While we have been training them on our vehicles, they can apply the learnings to fix any electric vehicle or two-wheeler.

Interviewer: **What are the challenges that one must overcome to grow?**
Mr. Munjal: In India, when you look at different forms of mobility, each has a different requirement. Electric two-wheelers and three-wheelers have different requirements, while e-cars and commercial e-vehicles have entirely different requirements. All of them did not scale up at the same time. However, the challenges remain the same. Recently, the government of India has made amendments in the FAME-II policy. So, now the subsidy is up from Rs 10,000 to 15,000 with a change in capping from 20% to 40%. This will tremendously help in scaling up electric two-wheeler adoption.

The other challenge is people are still not fully aware about the benefits of EVs. Last year we conducted a series of webinars to understand what is holding back people in making the switch to electric. The common answer was 'range anxiety'. To resolve this, we have started installing dense charging infrastructure in areas like markets, grocery stores etc. where you can park and plug in your vehicle to charge. We have now switched to installing portable batteries in electric two-wheelers to make charging hassle-free. Our charging infrastructure can be used by any company, any shop-owner or dealer. We have also been talking to the government to start scaling up awareness on electric vehicles at different levels.

Another factor is the settting up of long-term goals. It is very critical to set the targets, be it 2025 or 2030, so that companies like ours and others can start planning their supply chains and manufacturing facilities. Right now, financing is just 5% or 7% of the total EV sales which is very less as compared to Internal Combustion Engine (ICE) vehicles. Many state governments are now offering subsidies on EV purchases. With this momentum, there will be traction in the banks and Non-Banking Financial Companies (NBFCs) to start putting in more efforts.

The last challenge is EV uptake in the B2B market. Essentially, the majority of delivery vehicles are old and polluting. There is a need to start converting these vehicles to electric. Recently, many big companies like Flipkart, Amazon etc. that they will introduce EVs in their supply chain. However, more works need to be done in this direction.

Interviewer: **How do you think the COVID-19 pandemic has impacted the EV story in India?**
Mr. Munjal: As I said earlier, this is a temporary phenomenon, and this will have a positive impact on the electric vehicle industry. Currently, the whole industry is shaken because supply chains and logistics are disrupted. But, as we begin to open up the markets, things will change slowly and gradually. For instance, last year we had prepared a hybrid sales model that works both offline and online. We have vehicles sales through our website, but we route them through the dealer so that they can also make some revenue.

Another positive factor is the price of the vehicle. With a series of announcements related to subsidies, the price of the vehicle has come down making it alluring for the customers. So, when you look at an e-vehicle in terms of its TCO (Total Cost of Ownership), they become more economical to operate than ICE vehicles. Also, with fuel prices rising, switching to electric vehicles is the best option as it saves money. So, these factors favour electric mobility, whether in terms of the TCO or the price of the vehicle. This will gradually help the market to shift and adopt electric vehicles at a higher pace.

Interviewer: **Where do you see electric mobility in the next 5 to 10 years?**
Mr. Munjal: If you had asked me last year, I would have different assumptions and projections but things have been changing continuously. So, as per our calculations, we are looking at about 4 million units in the market by 2026 and by 2030, there will be 50-60% conversions in the market which means 20 to 25 million EV units.

Interviewer: **What can research organisations, like WRI India, do to further electric mobility deployment in India?**
Mr. Munjal: Research organisations like WRI India can help in many ways including getting the messaging out. For instance, you can talk to the government and tell them about the major challenges of this sector and why there is a need to accelerate EV adoption based on your data-driven research and assumptions.

Second is the support to the industry by letting them know about the positive aspects of domestic manufacturing of EV and its components; and how it can bring down EV costs. Third is to focus on reskilling of the workforce. This will not only help in job creation but will also produce a trained workforce to handle electric mobility. Setting up training centers where students and upcoming startups get more knowledge about EVs will help develop a strong EV workforce in the country which is currently not in place.

Charging infrastructure is another point of focus. Organisations like WRI India can help the industry as well as the government to solve the issue of range anxiety among the masses. There is a need to create dense charging infrastructure in our country. Fifth is EV financing. We must push banks and NBFCs to start financing electric vehicles. Currently, a lot of work is needed in this direction. We know that there are some discussions within the nationalized banks in terms of financing these vehicles, but it has still not moved to that extent. And, finally we must nudge B2B companies to start converting their fleets to electric. Better management can make things easier not only for the companies and their riders but also for companies likes us. So, all of us need to take responsibility to create a robust ecosystem for electric vehicles in India.

UPDATES FROM THE WORLD

Volkswagen's electric cars to help Astypalea island in Greece to go green | *Policy Initiative*

Summary of news: As part of Volkswagen's 5-year green energy plan to convert Astypalea's entire mobility network to electric, Volkswagen delivered its first set of electric cars to the island. The deployed electric cars will be used by the police, coast guard and at the local airport. Astypalea aims to be "a test bed for the 'green' transition: energy autonomy, fully powered by nature itself." **Read more**

Takeaways for India: Achieving sustainable mobility targets in Indian cities requires an innovative approach. The learnings from such an initiative, fostered by the collaboration of government and businesses, will help in accelerating the transformation towards sustainable and green mobility.

US President Joe Biden's electric vehicle plan includes battery recycling push | *Strategy*

Summary of news: To further their EV goals, the US government is planning to spur domestic recycling of batteries to reuse lithium and other metals. Boosting domestic recycling aims to reuse older EVs' components for new vehicles and reduce the reliance on mining. The government is also planning to focus more on research and development thereby boosting the use of already-mined metals. **Read more**

Takeaways for India: Focusing on domestic manufacturing of electric vehicles and its components, such as batteries, will make India more self-reliant. Development of less expensive and more efficient batteries will not only reduce the product cost but will also further EV adoption more aggressively.

Hyundai offers two years of complimentary fast charging to Ioniq 5 customers | *Strategy*

Summary of news: Hyundai Motors in collaboration with Electrify America is offering complimentary fast charging to its 'Ioniq 5' EV customers in the US. The announcement is part of an existing agreement between the two companies to provide 250 kilowatt-hours of complimentary charging on Electrify America's network for owners of 2021 Kona Electric and IONIQ Electric. **Read more**

Takeaways for India: Such offers will play an important role in reducing apprehensions of buyers with regard to EV purchases in India. However, the need of the hour is to prioritise adequate charging infrastructure in the country that will further accelerate India's electric mobility revolution.

iPhone maker Foxconn join hands with Thailand's public company to make EVs | *Market Development*

Summary of news: Foxconn, Apple's main iPhone maker, has expanded its activities by embracing the EV segment. Recently, the company signed a Memorandum of Understanding (MoU) with the Petroleum Authority of Thailand (PTT PCL) to make EVs and their components for the Thai market. The group aims to provide EV components/EV services to 10% of the world's EVs by 2025 to 2027. **Read more**

Takeaways for India: Many startups, OEMs and auto component manufacturers are foraying into the Indian market, developing affordable, efficient and hi-tech EV products to encourage growth in the EV industry. WRI India research has identified more than 100 such strategic moves in the Indian industry between 2017 and 2020.

Consumers Energy launches electric vehicle program for Michigan Businesses | *Strategy and Initiative*

Summary of news: Consumers Energy, a Michigan-based public utility, launched a new electric vehicle program 'PowerMIFleet' to provide rebates and consultation to businesses looking to electrify their vehicle fleets. Through this program, the public utility will connect Michigan businesses, local governments and school bus fleets with planning resources, expert guidance and financial incentives to encourage uptake. **Read more**

Takeaways for India: Integrating electric vehicles into corporate fleets will promote the use of electric vehicles amongst employees. Initiatives such as handholding, expert consultation and financial subsidies will encourage businesses to take the lead in switching their fleet to greener options.

UPDATES FROM INDIA

Government extends FAME-II scheme | *Policy Initiative*

The Central Government is extending the second phase of the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme by two years to March 31, 2024. The scheme, started in 2019 for promoting sales of electric vehicles, was supposed to end by 2022. **Read more**

Centre proposes exemption of electric vehicles from registration renewal charges | *Policy Initiative*

In a bid to accelerate adoption of Electric Vehicles (EVs), the Ministry of Road Transport and Highways (MoRTH) has proposed to exempt EVs from payment of fees for the issue or renewal of registration certificates and assignment of new registration marks. Last year, in December, the government had allowed the sale and registration of electric two-wheelers and three-wheelers, minus batteries, to bring down costs and to give a boost to the battery-swapping industry. **Read more**

Karnataka amends electric vehicle policy to offer more incentives | *Policy Initiative*

The Karnataka Government recently made amendments in the state Electric Vehicle and Energy Storage Policy, 2017, by offering subsidies and incentives to EV component manufacturers. The move will benefit manufacturers of cells, batteries and other components of electric vehicles and will also provide an impetus to the state's electric mobility sector. The state government will also set up a technical committee to define and certify EV components seeking incentives and concessions under the policy. **Read more**

CESL to supply EVs to Goa, Kerala and Andhra Pradesh | *Strategy*

Convergence Energy Services Limited (CESL) - a subsidiary of Energy Efficiency Services Limited (EESL) recently signed agreements and MoUs with the state governments of Andhra Pradesh, Goa and Kerala to procure over 30,000 electric two- and three-wheelers. As part of the agreements, CESL will also be investing in establishing electric vehicle charging infrastructure and monitoring the use of asset in these states. **Read more**

Maharashtra pushes Electric Vehicle policy | *Market Development*

To provide a fillip to electric transportation, the Maharashtra government announced its Electric Vehicles (EV) Policy 2021 during a Town Hall organised by Maharashtra Environment and Climate Change Department's Majhi Vasundhara along with Climate Voices — a consortium of three advocacy groups working pan-India. The Town Hall was hosted by WRI India Ross Centre and Waatavaran Foundation. Under the draft policy, the state aims for 10% of all new registered vehicles to be electric by 2025 and intends to make four highways and expressways fully EV-ready. **Read more**

West Bengal government proposes green lanes for electric vehicles | *Policy Strategy*

The West Bengal government proposed a special inter-city corridor for electric vehicles, with charging stations every 25km. The environment-friendly lanes will be initially developed along two popular routes - Kolkata to Asansol (215 km) and Kolkata to Digha (185 km). The state has already introduced electric vehicles in different government transport facilities and has a target of 10 lakh battery-powered vehicles on road by 2030. **Read more**

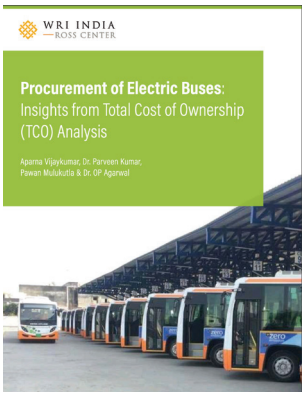
'Country's first' e-vehicles-only area to be developed in Kevadia | *Market Development*

Gujarat's Statue of Unity area is all set to become India's first electric vehicles-only zone. The Statue of Unity Area Development and Tourism Governance Authority (SOUADTGA) recently released a statement announcing that the entire area will be developed into a zone free from vehicular pollution in a phased manner. The plan includes assisting in the form of subsidy to purchase electric vehicles, preference and free training at skill development centers for women e-rickshaw drivers, setting up of charging stations etc. **Read more**

Electric two-wheelers now more affordable as govt revises FAME- II subsidies | *Policy Initiative*

The Department of Heavy Industry Ministries (DHI) has issued a notification with partial amendments for the FAME-II (Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles) scheme that benefits customers. The revisions introduce a demand incentive of Rs 15,000 per KWh for electric two-wheelers with a maximum cap at 40% of the vehicles' cost up from 20% earlier. **Read more**

EV@WRI India



ELECTRIC BUS PROCUREMENT IN INDIA - THE ROAD AHEAD

A shift towards clean energy for public transport brings multi-dimensional benefits. However, adoption has been varied and uneven in scale. The major barriers in accelerating electric bus adoption include the high upfront cost, issues related to planning the charging infrastructure, and anxiety related to the new technology. The paper 'Procurement of Electric Buses: Insights from Total Cost of Ownership' takes a close look at electric bus operation by public bus agencies in India through the lens of WRI India's Total Cost of Ownership (TCO) analysis. View recording **here.**

IN THE NEWS

India has made the right move on charging infrastructure for electric vehicles **Read here**
By Shyamasis Das, and Chaitanya Kanuri | ETEnergyWorld

Why electric rickshaws need better regulation in India **Read here**
By Aparna Vijaykumar, Pawan Mulukutla and Karthikeyan Hemalatha | Down to Earth

Spurring India's E-Mobility Aspirations **Read here**
By Parveen Kumar, Leona Nunes and Madhav Pai | EMobility+ Magazine

Greening last mile delivery through e-micro-mobility **Read here**
By Jagriti Arora and Amit Bhatt | Traffic Infratech

Road to EV adoption: A review of government targets and policies **Read here**
By Chaitanya Kanuri, Rohan Rao and Pawan Mulukutla | Financial Express

BLOGS & INSIGHTS

E-car adoption in India: Understanding the Facilitators and Barriers

By Dr. Parveen Kumar and Anshika Singh

Large-scale adoption of e-cars not only requires financial incentives and innovative business models but also the development of a robust charging network. The blog talks about various challenges and recommendations essential for promoting e-car adoption in India. **Read more**

Decoding Electric Vehicle Range: Rated versus Actual Mileage

By Dr. Parveen Kumar, Arya Bhat and Vivek Tripathi

Electric mobility is widely considered to be an effective way to improve air quality and address environmental concerns. However, the sector still faces a lot of challenges. The blog offers insights on underlying reasons for the gap in actual and promised EV range and its variability with operational conditions. **Read More**

EVFEATURE

Prepping our buildings today for an EV-ready future

Ten years on, the EV charging points in our buildings could be as ubiquitous as LED lighting in our homes. However, for a smooth and well-designed transition, we must start planning now.

by Chaitanya Kanuri and Pawan Mulukutla, WRI India | February 2021 | This article first appeared in ***economictimes.com***

New Delhi: Soaring fuel prices, environmental awareness and the new vehicle scrappage policy announced in Budget 2021 are likely to encourage a gradual shift to electric vehicles in the coming years. Personal vehicles make up more than 90 percent of registered motor-vehicles in India, with nearly 162.6 million two-wheelers sold between 2011-2020. Hence, for the nation to realize its EV vision, facilitating its uptake among individual consumers – both four- and two-wheeler users – is as important as electrifying commercial fleets. However, a critical obstacle to boosting individual uptake today, is the lack of charging infrastructure at convenient locations. With studies showing that about 50-80 percent of private charging happens at homes and another 15-25 percent at the workplace, it is essential to equip our buildings with the necessary infrastructure for EV charging.

Aiming for the low-hanging fruits

Charging points in buildings will need to primarily cater to electric two-wheelers and cars. The new crop of electric two-wheelers has an average drive range of 60-80km, enough for a typical daily commute. With access to charging at parking spaces in home or at office buildings, consumers need not think twice before buying an electric two-wheeler.

Electric two-wheelers can be charged with a simple 15A, alternating current (AC) charging outlet – the kind into which you plug in your washing machine – in 4-5 hours. In fact, portable chargers that can be plugged into a 5A socket are also now being provided by manufacturers, which can charge an electric two-wheeler overnight.

For cars, which have larger batteries and longer driving ranges, level 2 AC home charging is recommended for a charging time of 6-8 hours. This might require additional power connections, depending on the connected electrical

load for the building, and customised wiring. Cars can also be charged using level 1 or slow chargers, which take longer to fully charge the battery (15 hours) but can be accommodated within the existing building load. For larger apartments and office campuses where multiple EV charging points are needed, smart chargers can be used to manage the EV charging load based on the connection capacity.

Challenges ahead

Many urban residents live in apartment buildings or gated communities, where electrical and parking facilities are shared and obtaining permissions from residential associations to install charging points, is difficult. Also, EV charging points can be expensive to install in certain cases, and there is no clarity for individuals on how to get the necessary permissions or connections from the electricity distribution companies. And for the many households without a dedicated parking within their premises, buying EV could be a nightmare.

The Union Ministry of Housing and Urban Affairs, in February 2019, amended the Model Building Bye-Laws 2016 to suggest that at least 20 percent of parking spots in newly constructed buildings be equipped with the electrical infrastructure for EV charging. These amendments are yet to be adopted by most states. Meanwhile, thousands of new buildings are constructed every year across the country, each with a lifespan of over 50 years, that are not equipped with EV charging amenities. Retrofitting existing buildings is an option – but a very expensive one – especially for larger buildings with hundreds of units.

The Way Forward

A crucial first step would be regulatory interventions by urban development authorities to amend the development control regulations (DCR) and municipal building codes (MBR) to mandate the installation of charging points in new buildings, based on the land-use and building type. For building retrofits, Delhi is the only state that offers a 100 percent grant for charging equipment up to INR 6,000-per-point for the first 30,000 installations. Such grants can go a long way in making buildings EV-ready. Indian states can also take a cue from best practices in other countries. Germany, for instance, offers up to 30% incentives for the purchase and installation of a charger through KfW, the country's federal development bank. The UK provides grants of up to 75% of the costs of installing private charging points.

Further, the government needs to look at myriad financial avenues, not just subsidies. A government committee has recommended that companies be allowed to spend their Corporate Social Responsibility (CSR) funds on EV charging infrastructure. This funding source may be particularly relevant for office campuses and tech parks, which can cater to workplace charging availability.

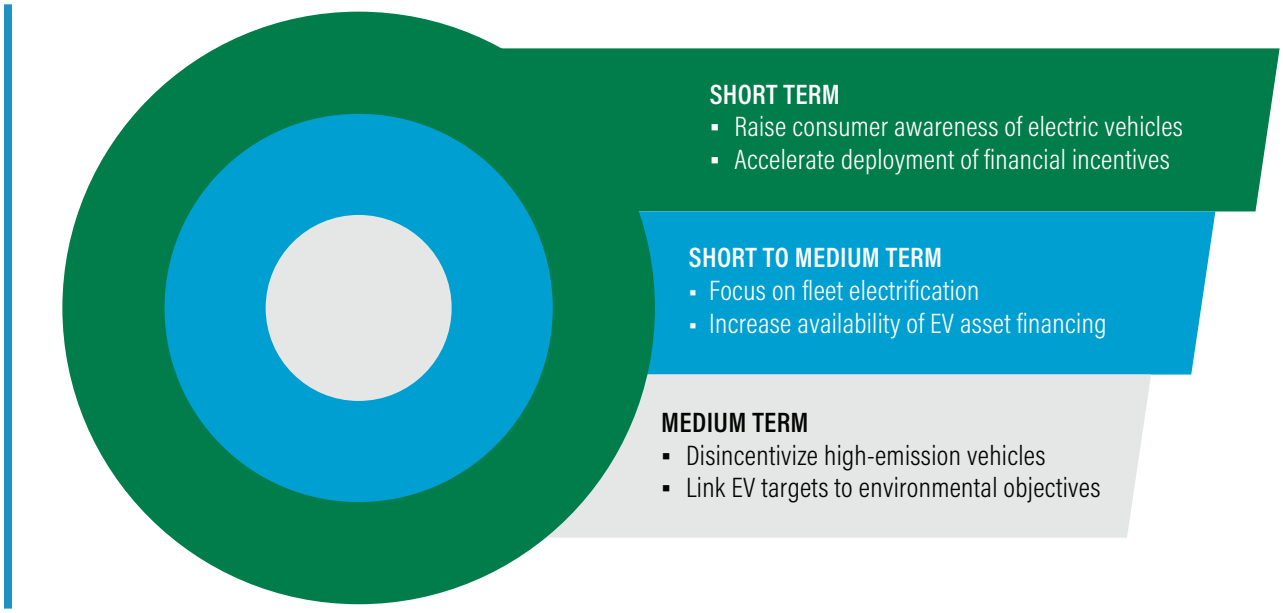
Electricity distribution companies (discoms) need to be empowered to support EV charging connections in buildings. The Delhi EV Policy mandates that the relevant discoms install chargers at their customers' premises upon request and recover additional installation charges through the monthly electricity bill. All discoms should educate their consumers on the process of applying for EV charging to avail of a separate metered connection. This can be supported by a concessional electricity tariff for EV charging in private buildings, something that is currently applicable for public charging stations in many states. The establishment of such standard operating procedures, as well as single-window clearance mechanisms for power connection applications and certification of charger installations would simplify the process of setting up EV charging in buildings.

At the city level, discoms will need to manage the extra electrical load from EV charging, especially as EV numbers grow and plan for grid augmentation in the future. The widespread use of smart chargers and load management systems can help to minimize or postpone the need for expensive upgrades to the electricity grid. Clear standards and specifications for charging equipment, be they functional, safety, or communications-related, will also support integration and management of EV charging by discoms.

India is at the cusp of a new revolution in the mobility sector. Ten years on, the EV charging points in our buildings could be as ubiquitous as LED lighting in our homes. However, for a smooth and well-designed transition, we must start planning now.

EVisual

Priority actions for accelerating EV adoption in India



Source: WRI India Review of State Government Policies for Electric Mobility (2021)

EV Podcast

What will happen when the gigafactories arrive in India?

Fireside chat with industry leaders

A chat with industry leaders on NITI Aayog's efforts to facilitate investment in establishing over 50 GWH manufacturing capacity in India over the next few years. Topics discussed include impact on battery prices as well as what will be the outcomes of such a major uplift in capacity in India.

Listen to the podcast **here**

COURTESY FOR THE ARTICLES

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VIDEO CREDIT

How long do EV batteries last? by Best Electric Vehicle: www.youtube.com/watch?v=0UN_p_MA3jw

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EDITORIAL

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ABOUT WRI INDIA

WRI India is a global research organization that turns big ideas into action at the nexus of environment, economic opportunity and human well-being.

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