



EVCONNECT

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Dear Friends,

The 33rd issue of EV Connect — our monthly electric mobility focused newsletter — highlights our conversation with Jasmine Shah (Vice-chairperson, Dialogue and Development Commission of Delhi). Mr. Shah talks about the Delhi EV Policy journey and its different components. He also shared the Delhi Government's efforts in accelerating electric vehicle (EV) adoption across the city.

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

Please share your thoughts so that we can improve further.



Sincerely,

Dr. OP Agarwal
CEO, WRI India

WATCH

Presenting Power Talk – EV Connect's exclusive monthly interview with experts, policymakers and stakeholders discussing key insights. We also present one hand-picked video that showcases a global EV innovation.



Power Talk with Jasmine Shah
Vice Chairperson, Dialogue and
Development Commission of Delhi



**How Removing Cobalt From
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POWERTALK

IN CONVERSATION WITH JASMINE SHAH

Vice Chairperson, Dialogue and Development Commission of Delhi

Interview by Amit Bhatt, WRI India

The Delhi Transport Department has received bids for the installation of 100 EV charging stations. This is one of the biggest tenders in the country where chargers will be installed in a PPP model. By August 2022, we should see 500 more public charging points across the city.

The Delhi Government is confident of meeting the 25% target of new vehicle registrations to be electric vehicles. In coming years, 50% of the intra-city transit will shift to EVs which will mostly include two-wheelers and three-wheelers.

Q. Electric vehicles sales in Delhi have gone up from 1% to 9%. Please highlight current numbers.

A. Delhi has seen tremendous growth in electric vehicle (EV) sales and registrations over the last one and half years. The Delhi EV Policy was launched in August 2020. At that time, the share of EVs was only 1.2%, which was mostly led by electric three-wheelers. However, in the last quarter, EV sales crossed the 9% mark and in the coming few months it will cross the 10% mark as well. To accelerate EV uptake, the state government has taken a strategic approach that includes political commitment, sustained funding and policy, regulatory support etc.

Q. How was the Delhi EV Policy formulated?

A. India is home to 21 of the 30 most polluted cities in the country. A few years ago, the Delhi Government came up with its green budget, which conceptualized that Delhi should become the leading city for electric vehicle (EV) adoption, to curtail pollution. In 2018, the Dialogue and Development Commission for Delhi (DDCD) came up with the draft EV policy. We were the first state to put out a number that by 2024 25% of the new vehicle registrations would be electric. Our policy did not focus on attracting investments but on providing subsidies, rebates etc. We consulted with various stakeholders, manufacturers commercial fleet businesses, individuals and took learnings from major countries and cities around the globe. All these paths helped us chalk out the entire Delhi EV policy.

Q. How is the Delhi EV policy different from other state policies?

A. The Delhi EV policy mostly focuses on demand-side incentives to attract more EV users. The Policy also aims to improve Delhi's air quality by driving the rapid adoption of electric vehicles. So, we focused on those vehicles (two-wheelers and three-wheelers) that were the major polluters. Then, we announced incentives and subsidies for this EV segment, so that people could afford to buy e-2Ws and e-3Ws. Coming to charging, which is again a big hurdle towards EV adoption, the Delhi

Government simplified this by setting up charging stations, and launching incentives and a single-window process. The process helps individuals, corporates and shopping malls in setting up a charging station by spending only ₹2,500 for a charging point. Today malls, offices, residential societies, colleges can install private chargers in their premises with these simple steps. They can also opt to pay the entire cost upfront or choose a monthly subscription payment model. We have also launched a dedicated and efficient state EV fund, exempted road tax on registration of EVs, and introduced non-fiscal incentives to push both commercial and non-commercial consumers to switch to electric. To accelerate EV adoption, coordinated efforts are required from both the government and the stakeholders' end.

Q. The Delhi Government is working actively to improve the charging infrastructure in the city. Can you elaborate more?

A. Delhi has today 377 public charging points across the city, which have been installed over the last two years. However, awareness is low. To help consumers, the Delhi Government has recently launched a dedicated one-stop website – www.ev.delhi.gov.in – that provides all the required information about various charging stations. Delhi has the cheapest EV charging tariff in the country, where you can charge your vehicle for four and a half rupees. The state government has also come up with a convenient process where consumers don't have to install a separate meter for EV charging that adds up to the cost of setting up a charging station. We have done numerous consultations with stakeholders and came up with this unique single-window process where within seven days, consumers can get their charging point activated. All these steps have been taken to promote private charging infrastructure. On the public charging front, the Delhi Transport Department has received bids from some top companies for the installation of 100 EV charging stations with 500 points across the city. This is one of the biggest tenders in the country where chargers will be installed in a PPP model. So, by August 2022, we should see 500 more public charging points across the city. We have also put out a mandate that in the next three months, all Delhi Government offices will have at least one slow and one moderate to fast charger on their premises. By end of this year, Delhi will have a stronger charging infrastructure than other cities.

Q. What are some of the innovative steps the Delhi Government has taken to push forward the policy and accelerate EV adoption?

A. We have set up a dedicated state EV cell which includes think tanks, members and experts who have deep knowledge of electric vehicles and their components. The Transport department works in coordination with these stakeholders who help in filling up the knowledge gap. Secondly, we are going to create a position of chief EV officer of Delhi as well as consultants who will work under the Delhi Government but will have private-sector expertise.

Thirdly, within the DDC-D (Dialogue and Development Commission of Delhi), we have set up a small team that works in close coordination with the Transport department in navigating different aspects of the EV policy. As charging infrastructure is a big barrier in EV adoption, we have also set up a dedicated working group team for the accelerated rollout of charging infrastructure in Delhi. This working group includes secretaries of the transport department, power department, CEOs of DISCOMS, municipal commissioners and members from Delhi Development Authority (DDA) who work in a coordinated manner. Lastly, in 2020, we launched the Delhi EV forum where different stakeholders work together for the successful implementation of the EV policy. As part of this forum, stakeholders, including original equipment manufacturers (OEMs), fleet operators, charging station energy operators along with the Transport minister,

commissioner, secretary and power secretary power meet every six months to discuss the challenges, potential solutions and way forward towards implementing the EV policy. So, there are many challenges on the ground, but with effective collaboration, the government is able to implement the policy smoothly.

Q. What will be the Delhi EV journey in the coming five years?

A. Firstly, the Delhi Government is confident of meeting the 25% target of new vehicle registrations to be electric vehicles. Also, we believe that 50% of the intra-city transit will shift to EVs which will mostly include two-wheelers and three-wheelers. In the last 1-2 months, there has been tremendous growth in the sales and registration of e-2Ws. This is mainly due to subsidies, cheap electricity tariffs etc. In the commercial fleet segment, Delhi is soon going to have the largest number of e-rickshaws. The same applies to electric cargo vehicles as well. In the bus segments, the government is sure that at least 50% of the fleet by 2027 is going to be electric buses. However, EV is a technology that is constantly changing, and there is product innovation, technology change etc. So, as a government, we are keeping our ear to the ground, but at the same time, we are also pushing on our current priorities.



UPDATES FROM THE WORLD

Norway races ahead of EU in electric car shake-up | *Policy Measures*

Norway and Iceland are leading Europe's electric car revolution. According to industry reports, more than 62% of cars registered in Norway in 2021 were powered by batteries. Netherlands and Sweden each registered about one all-electric vehicle, in every five, while countries in Eastern Europe such as the Czech Republic and Slovakia registered just a few electric vehicles. [Read more](#)

Takeaways for India: The Society of Manufacturers of Electric Vehicles (SMEV) recently stated that the total number of electric vehicles sales, sold over 15 years, is going to touch 10 lakh units. The recent changes in the FAME II scheme, as well as the government's push for a cleaner and greener transportation sector, have proved to be a game-changer for the Indian EV market. However, the government needs to focus on efficient charging infrastructure and better financing to reduce existing apprehensions among customers.

Electric vehicles bring down CO2 emissions of new cars in UK to lowest level ever | *Policy Measures*

A recent data by the Society of Motor Manufacturers and Traders (SMMT) revealed that due to an increase in the sales of electric vehicles UK registered the lowest ever carbon dioxide emissions in 2021. In 2019, road transport accounted for 25% of UK's carbon dioxide emissions. As per the data, average new car CO2 emissions fell by 11.2% to 119.7g for every kilometer driven. [Read more](#)

Takeaways for India: Battery electric vehicles are not only more efficient than internal combustion engines (ICE) but also help in reducing GHG emissions. In India, the road transport sector contributes to more than 90% of the total CO2 emissions. Switching to electric vehicles will help meet our climate action commitments and make our road transport sector cleaner and more sustainable.



Volvo Cars to invest \$1.1 bln in Swedish plant for the switch to EVs | *Market Development*

Volvo Cars announced its plans to invest USD 1.1 billion to produce fully electric cars. The investment will be a joint venture, between battery maker Northvolt and Volvo, as part of which the two Swedish companies will develop batteries and set up a gigafactory for production and a research and development center for EVs.

Takeaways for India: Setting up domestic plants for the production of EV batteries is a win-win proposition for the government as well as manufacturers. The Government of India has already approved the PLI scheme 'National Programme on Advanced Chemistry Cell (ACC) Battery Storage' that allows companies to domestically manufacture batteries. This will enable India to leapfrog to an efficient electric vehicles EV ecosystem. [Read more](#)

Massachusetts startup giving used EV batteries new life | *Market Development*

Massachusetts-based Ascend Elements created a revolutionary process of recycling worn-out EV battery cells to create new batteries that are superior to the old ones. The upcycled batteries can charge faster and more frequently and last around 30% longer than the original batteries. The startup has also partnered with Honda to supply them with the product made from spent lithium-ion batteries. [Read more](#)

Takeaways for India: According to the International Energy Agency (IEA), there will be more than 230 million electric vehicles on the roads by the end of this decade. However, the life cycle of EV batteries comes to an end after about 10 years, which means they end up as toxic waste. This significant upcycling will not only add value to the old batteries but will also reduce the battery supply-chain dependence. As the battery life will increase, it can also help in cutting the cost of the overall product.



UPDATES FROM INDIA

Old diesel, petrol vehicles can be soon converted into EVs in Delhi | *Strategy and Initiative*

The Delhi Government's Transport Department recently began the registration process for centers to retrofit old diesel and petrol vehicles with electric kits to convert them into e-vehicles. The move will enable vehicle owners in Delhi to convert their old diesel and petrol vehicles into electric vehicles. Around ten manufacturers of electric kits have been enrolled till now. The installer needs to conduct a fitness test once a year to ensure battery health and condition. [Read more](#)

Maharashtra launches Mumbai EV Cell for faster electric mobility transition | *Strategy and Initiative*

To promote the use of electric vehicles and progress towards a greener Mumbai, the State Environment Minister, Aaditya Thackeray, recently inaugurated the city's first Electric Vehicle (EV) Cell, as part of the Mumbai Climate Action Plan (MCAP). The EV Cell is a joint initiative of the Brihanmumbai Municipal Corporation (BMC) and World Resources Institute, India (WRI India) and will comprise of government officials, e-mobility experts, and industry stakeholders who will work together to accelerate uptake in Mumbai. [Read more](#)

IIT BHU researchers develop new tech to charge electric vehicles that can slash the price of EVs in half | *Category: Market Development*

In a path-breaking initiative, IIT BHU researchers developed a new technology to charge electric vehicles, which costs about half of the current onboard charger technology. The technique aims to significantly reduce the cost of two and four-wheeler electric vehicles. Experts from IIT Guwahati and IIT Bhubaneswar have also collaborated for the development of this technology. [Read more](#)

Tata Power and Apollo Tyres join forces to build EV charging stations in India | *Market Development*

Tata Power and Apollo Tyres Ltd announced a strategic partnership for the deployment of public charging stations across India. These charging stations will be deployed at Apollo Tyres' commercial and passenger vehicle zones spread across the country. Tata Power will initially set up charging stations at 150 retail outlets – Commercial Vehicle (CV) and PV Zones – of Apollo Tyres, later opening them for the general public throughout the year. [Read more](#)



1,000 new charging points for electric vehicles coming up across Delhi: DDC | *Strategy and Initiative*

The Delhi Government recently informed that around 1,000 new charging points for electric vehicles (EV) are expected to come up across the city as the top malls in the national capital have committed to installing charging points in 5% of their parking space over the next six months. The state government has released a guidance document for shopping malls that will help them in planning and implementing EV charging stations in their parking spaces. [Read more](#)

Electric vehicle: Govt to soon announce incentives under new battery swapping scheme | *Strategy and Initiative*

The Delhi Government recently notified an 'Aggregators' Policy' to mandate electric vehicle (EV) fleets for ride aggregators and delivery services. The policy is aimed at the adoption of EVs in a bid to combat air pollution in Delhi. The first state government in the country to notify such a policy, the notification directs all cab aggregators and delivery companies to ensure that at least 10% of newly operated two-wheelers and 5% of four-wheelers over the next three months be electric. [Read more](#)

Electric vehicle charging stations expand 2.5 times in 9 mega cities in India: Power Ministry | *Market Development*

The Ministry of Power recently revealed that electric vehicle (EV) charging stations have expanded by two-and-a-half times across nine megacities, including Delhi, Mumbai and Chennai, in the last four months. According to the statement, additional 678 public EV charging stations were installed between October 2021 and January 2022 in these nine cities. To strengthen the charging infrastructure in the country, the Ministry of Power also issued the revised consolidated Guidelines and Standards for EV charging infrastructure on January 14, 2022. [Read more](#)

Hero Electric, ReadyAssist roll out initiative to skill 20,000 people in EV servicing | *Skill Development*

Hero Electric partnered with ReadyAssist, a 24/7 roadside assistance company to train 20,000 mechanics for servicing EVs, under its Private Garage owners (PGO) initiative. The initiative will aid in identifying mechanics willing to upgrade their skill set, following which they will be trained over the next two years. The training program will have two stages – beginners and experts respectively. [Read more](#)

WEBINAR



Webinar on prioritising public EV Charging infrastructure locations

The availability of widespread public charging infrastructure is a crucial prerequisite to the growth of electric vehicles (EV). For a well-planned charging infrastructure network, it is important to deploy charging points and charging stations where charging demand is high and where they are accessible to EV users. The webinar presented WRI India's location planning framework for public charging infrastructure. The webinar focused on how to maximize access and utilization, and minimize implementation costs of charging facilities, by integrating a geospatial analysis site selection approach. [Watch the recording here](#)

INITIATIVE



Delhi Government and WRI India released step-by-step guidebook for EV charging in shopping malls

The Dialogue and Development Commission of Delhi (DDC), in partnership with World Resources Institute, India (WRI India), released the 'Electric Vehicle (EV) Charging Guidebook for Shopping Malls in Delhi' on 4th February to simplify and enable the adoption of EV charging at shopping malls in Delhi. With this launch, Delhi is the first in the country to come up with a step-by-step guide to help shopping malls adopt charging of EVs in their parking space. During the launch, top malls in Delhi committed to installing EV charging points in 5% of their parking capacity over the next 6 months. [Read here](#)

BLOGS AND INSIGHTS



Here's why India needs a Comprehensive 2030 Electric Bus Rollout Plan

by Aparna Vijaykumar, Aparna Vijaykumar, Shyamasis Das and Anirudh Ray

WRI India's recent analysis estimates that India requires over one lakh e-buses by 2030, which is 100 times more than the current deployment. Transitioning a fleet of ICE buses to electric ones requires a coordinated effort from all stakeholders including holistic vision, robust planning, sustainable financing, and careful execution. The blog proposed four major action points to scale up e-bus deployment. [Read here](#)



EVFEATURE

The road to an EV future still has a few potholes. Here's how to fix them

by Luiz Avelar, Strategy Senior Director, Envision Digital, Envision Group | January 2022 | This article first appeared in weforum.org

- Around the world, governments are driving the shift away from fossil-powered cars to electric vehicles.
- But several issues still pose obstacles to the widespread adoption of EVs.
- Here's a guide to those challenges – and how we can solve them.

Late in 2021, Germany announced that sales of new internal combustion engine-driven (ICE) vehicles would end in 2030. The move did not catch the industry by surprise, despite the country having one of the largest ICE fleets in use in the world and being the proud home of traditional brands such as Mercedes-Benz, Audi and Porsche. With more 40 countries pledging to phase out ICE vehicles before 2050, Germany simply joined the international race to cut emissions and electrify transportation.

Globally, electric vehicle (EV) sales grew 80% in 2021 and companies like Toyota and Volkswagen announced \$170 billion of investment into electrification. Besides eliminating exhaust emissions and tackling part of the 23% of global CO2 emissions contributed by the transportation sector, EVs also provide key flexibility to the grid as we transition to a greater share of renewable energy (RE) supply. However, despite this global push, EVs only accounted for 7.2% of global car sales in 2021. The electric revolution still has a long way to go.

Challenges to the widespread adoption of EVs

Capital cost has always been a major factor in the EV purchase decision, with 63% of consumers believing that an EV is beyond their budget. However, with the falling cost of batteries and cost parity between EVs and ICE vehicles to be achieved by 2026, focus is shifting towards the challenge of scaling the necessary infrastructure and supply of raw materials to enable the mass adoption of EVs. Here are four of the issues we face:

1. Inadequate charging infrastructure

Compared to traditional petrol stations, charging stations are harder to find, normally limited by investment costs and difficult infrastructure development. The cost of installation – from \$2,500 for a slower charger to \$35,800 for a fast charger – plus miscellaneous fees, such as permits and regulations, have made charging stations an expensive investment. Furthermore, enabling people to charge where they usually park, at home or at work, has its own challenges, such as dealing with multi-tenant buildings, grid-connection management, and charging slot availability. This results in a smaller network of functional charging stations and has deterred consumers from making the switch to EVs.

2. Risk of grid overload

Power grids are already strained as we deal with a greater RE share and the challenge of more intermittent energy supply. Increased adoption of EVs adds further electricity load, potentially requiring new investment in grid infrastructure to meet this increased demand. Forecasting when and where this power is needed is a further challenge faced by utilities and power generators as they grapple to understand the rapidly growing EV market. However, there is a lower risk of grid overload if EVs were to be charged during off-peak hours – that is, late at night or early in the morning.

3. High-carbon grid profile

Grey electricity grids, with their high reliance on fossil fuels, decrease the effectiveness of EVs as a way for firms and consumers to cut their emissions. Therefore, it is crucial to decarbonize the grid as much as possible to convince buyers that their switch to an EV is worthwhile and reduces carbon emissions.

4. Finite critical minerals and rare earth metals

EVs use about six times more mineral inputs than ICE vehicles. The IEA's forecast of 70 million EVs on the road by 2040 will be accompanied by a 30-fold increase in demand for minerals. There is no shortage of these resources underground, but rather a concern as to whether they will be extracted sustainably, in line with social responsibility governance, and in time to meet demand. It is anticipated that there will be a shortage of nickel and challenges in scaling up lithium production. This supply shortage may also cause manufacturers to use lower-quality mineral inputs, adversely affecting battery performance.

Advances in technology can help mitigate these challenges

Technology will play a significant role in enabling charging and grid infrastructure and maintaining a steady supply of critical minerals to support the widespread adoption of EVs at an affordable cost.

1. Smart and flexible charging

Cars are normally idle 95% of the time. Smart and flexible charging technology utilizes unused power from car batteries to provide additional electricity supply to the grid during times of peak demand or, in some cases, just intelligently pauses or reduces charging power. Conversely, it enables consumers to recharge during off-peak hours, at one-third or less of the peak-hour charging price, thus reducing grid congestion during peak hours and cost for consumers. By allowing EV owners to schedule charging based on power constraints, price and priority, and to sell unused power back to the grid, the charging system can better anticipate sudden peaks in electricity demand. The technology also enables the grid to increase capacity, serve the increased demand from electric vehicles at a lower cost to consumers, reduce grid system stress and avoid energy price surges.

2. Smart energy management for effective EV load management

Energy management systems orchestrate the generation assets (such as solar or wind power installations) and demand assets (such as EV chargers, heating and cooling systems, and lighting) of an energy system on an integrated digital platform. This allows real-time monitoring of asset health and performance via Internet of Things (IoT) connectivity and AI-driven algorithms, which in turn maximize renewable energy consumption, thus reducing operational costs and system investments. It also allows EV and stationary storage to be co-optimized with other assets connected to the grid, providing additional grid stability services compatible with local renewable energy resources, to balance the load and ensure steady energy supply and stable market prices.

3. Battery monitoring, analytics and recycling

AIoT-enabled battery monitoring and analytics for EVs and stationary storage enables predictive maintenance and usage optimization that can extend battery lifetime, helping reduce the need for new batteries and supply chain pressure. Furthermore, data can support better decisions on when to repurpose or recycle batteries and identify individual cells that are damaged (vs scrapping the entire battery pack) thus simplifying and optimizing recycling of lithium-ion batteries.

The way forward

With the transition to EVs well underway, fueled by rising environmental concerns, government legislation and financial incentives, the challenges presented by this shift are only increasing. Fortunately, together with other hardware, manufacturing and supply chain solutions, AIoT-assisted technology enables us to overcome many challenges. Smart charging technology improves charging infrastructure and customer experience. Smart energy management improves EV and stationary load management, reducing the risk of grid overload, and enables greater consumption of renewable energy. Battery monitoring, analytics and recycling mitigate supply shortages faced by rising demand for the needed battery minerals by extending lifetime and reusability.

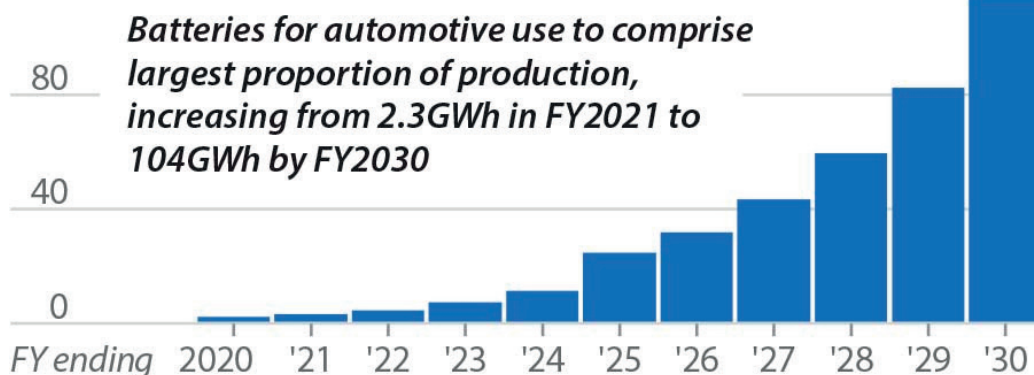
With the global drive to reduce emissions, coupled with technologies expediting the electrification of transport, more countries will follow Germany and other nations in banning sales of combustion engine vehicles. Knowing that the ban could be enforced as early as 2030, the question that remains is: are companies, districts and cities ready to switch to EVs in this decade?

Lithium-Ion battery (LiB) manufacturing landscape in India

India: Lithium-ion Battery Addition Projections

Growth in production projected to reach 116GWh by 2030

120GWh capacity



Source: [ieefa.com](https://www.ieefa.com)



EV Podcast

How CESL is catalyzing a transition to cleaner transportation in India?

CESL - a wholly owned subsidiary of Energy Efficiency Services Limited (EESL) - recently floated an initiative called 'Grand Challenge' which aims to create demand for electric buses aggregated across nine Indian cities. Through this Grand Challenge, CESL intends to deploy 5450 single decker buses and 130 double decker e-buses. The podcast explores the unique business model of the company which is giving a big thrust to the adoption of electric buses for public transport in India.

Listen to the podcast [here](#)

COURTESY FOR THE ARTICLES

Sources:

<https://economictimes.indiatimes.com/industry/renewables/old-diesel-petrol-vehicles-can-be-soon-converted-into-evs-in-delhi/articleshow/89420480.cms>
<https://auto.hindustantimes.com/auto/electric-vehicles/maharashtra-govt-launches-mumbai-ev-cell-for-faster-electric-mobility-transition-41645626003023.html>
<https://www.indiatoday.in/education-today/news/story/iit-bhu-researchers-develop-new-tech-to-charge-electric-vehicles-1903435-2022-01-23>
<https://zeenews.india.com/electric-vehicles/tata-power-and-apollo-tyres-join-forces-to-build-ev-charging-stations-in-india-report-2433723.html>
<https://www.news18.com/news/auto/1000-new-charging-points-for-electric-vehicles-coming-up-across-delhi-ddc-4740464.html>
<https://greenmobility-library.org/public/index.php/single-resource/WDZEaUznRDl3V1gyTlJlQmtVNGpkUT09>
<https://www.livemint.com/news/india/electric-vehicle-govt-to-soon-announce-incentives-under-new-battery-swap-scheme-11643953819876.html>
<https://economictimes.indiatimes.com/industry/renewables/electric-vehicle-charging-stations-expand-2-5-times-in-9-mega-cities-in-india-power-ministry/articleshow/89680137.cms>
<https://www.bgr.in/electric-vehicles/hero-electric-readyassist-to-train-20000-mechanics-in-ev-servicing-within-india-1042500/>
<https://www.thenationalnews.com/world/europe/2022/02/08/norway-races-ahead-of-eu-in-electric-car-shake-up/>
<https://www.theguardian.com/environment/2022/feb/04/electric-vehicles-bring-down-co2-emissions-of-new-cars-in-uk-to-lowest-level-ever>
<https://www.reuters.com/business/autos-transportation/volvo-cars-invest-11-bln-swedish-manufacturing-plant-over-coming-years-2022-02-08/>
<https://www.dailymail.co.uk/sciencetech/article-10444645/Scientists-invent-method-recycle-lithium-ion-batteries-used-electric-cars.html>
<https://wri-india.org/news/delhi-government-and-world-resources-institute-india-wri-india-launches-step-step-guidebook-ev>
<https://wri-india.org/blog/heres-why-india-needs-comprehensive-2030-electric-bus-rollout-plan>
<https://www.weforum.org/agenda/2022/01/the-ev-revolution-obstacles-solutions/>
<https://ieefa.org/ieefa-lithium-ion-battery-manufacturing-in-india-has-got-the-power-for-evs-and-the-grid/>
<https://auto.economictimes.indiatimes.com/podcast/how-cesl-is-catalyzing-a-transition-to-cleaner-transportation-in-india/89071424>

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VIDEO CREDIT

How removing cobalt from batteries can make EVs cheaper: <https://www.youtube.com/watch?v=DFL8iQ3p3cl&t=42s>

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.

www.wri-india.org

