



# EVCONNECT

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NEWSLETTER

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## FROM THE CEO'S DESK

Dear Friends,

The 29th issue of EV Connect, our monthly electric mobility focused newsletter, highlights our conversation with Mr. Sanyam Gandhi (Whole Time Director, Chartered Speed Limited). Mr. Gandhi discusses the urban mobility scenario, stresses on the challenges in transitioning to electric mobility adoption and further explains how supportive policies can help private sector stakeholders in the electric vehicle (EV) ecosystem.

This issue also has a special feature on how hydrocarbon-rich countries can include EVs in their transport decarbonisation strategies ; and as always we present the latest global and Indian news from the sector.

Various developments are taking place in electric mobility, and it is often difficult to keep up with them. We hope this curated and compiled 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 interviews with experts, policymakers and stakeholders discussing key insights. We also present one hand-picked video that showcases a global EV innovation.



**Power Talk with Sanyam Gandhi**  
Director, Chartered Speed Limited



**Single Phase VS 3-phase Charging**  
Best Electric Vehicle



# POWERTALK

## IN CONVERSATION WITH SANYAM GANDHI

Whole – Time Director, Chartered Speed Limited

*Interview taken by Amit Bhatt, WRI India*

**Interviewer:** Chartered Speed is one of the leading fleet bus operators in India for inter and intra-city passenger mobility operations. Can you tell us more about your work?

**Mr. Gandhi:** Chartered Speed is a passenger mobility service provider company, founded back in 2010. Our services include city buses, intercity coaches, micro-mobility like bike-sharing and even personal mobility like self-driving cars etc. We help move 300,000 people daily and connect 70 cities across 10 states. We started with e-bus operations in Indore in 2018. The next year, we launched a smart bicycle sharing scheme in Kolkata to enhance first and last-mile connectivity.

**Interviewer:** How you have seen the urban mobility scenario change over the last 10 years?

**Mr. Gandhi:** There has been a huge shift in the urban mobility scenario. The advent of Public-Private Partnership (PPP) changed the face of public transport to an extent, as it is now governed by city authorities. The modes of transport have increased and the quality of service has also changed. Ridership has also increased across cities. To accelerate the use of public transport, the focus should be to make it more multimodal and integrated.

**Interviewer:** Conventionally public transport was mostly driven by the internal combustion engine (ICE), but now a lot more focus is on EVs. What is your take on this transition?

**Mr. Gandhi:** EVs are the game changer for public transport — Whether it is the technology, engine or comfort of passengers. The same kind of disruption can be noticed in the electric 2-wheeler and 3-wheeler segment, where the market is booming and many players and startups are coming on board to provide best-in-class vehicles and services to users. Also, the incentives and subsidies by the government (Center and State) have accelerated this transition.

We are presently running over 40 e-buses in Indore. There have been several challenges like charging and operations and we are trying to streamline processes. In the electric 2-W segment, we recently launched

last-mile delivery services in Mumbai in association with Adani Electricity, where we are using their substations to charge the bikes. We have also partnered with several delivery partners like Swiggy, Zomato and Denzo to provide them unlimited last-mile deliveries during the day using a vehicle-swapping model. We are also operating around 500 e-bikes in Kolkata, which have already generated great traction among users.

**Interviewer: What made you shift to the last-mile delivery segment?**

**Mr. Gandhi:** There has always been a need for different modes of passenger mobility, but they were not seen as a reliable source of income as several parameters affect mobility. People, these days are relying a lot on e-commerce delivery platforms and this is one of the main reasons we shifted to the last-mile delivery segment.

**Interviewer: As a private sector operator, do you think that the EV sector can be championed by private companies or is it still a government-driven sector?**

**Mr. Gandhi:** Electric vehicles are good for the private sector as it reduces a lot of uncertainties. For instance, in an ICE vehicle, 40%-50% of the cost comes from crude oil where prices have never been stable and keep on fluctuating. Due to this, business models keep evolving as the major cost component is not in your hand. With electricity, this is not the case. On the other hand, government push is necessary to encourage OEMs as well as fleet management companies like us working in the EV space. As private players, we can then help in accelerating adoption. Also, with EVs, there are much greater business avenues in terms of multimodal and integrated transport.

**Interviewer: How do you see the issue of skill development and capacity building in EV transition and how can the private sector help resolve this challenge?**

**Mr. Gandhi:** The issue of skill development and capacity plays a crucial role in accelerating EV transition. As a private company, we can only take small steps as we don't have a skilled workforce. I think that educational institutes and training centers can come up with some kind of course where we can partner with them and train our mechanics and drivers to operate EVs in a better way. This will help us in better performance and delivery.

**Interviewer: What kind of support or policy initiatives do you need from government agencies to realise the electric mobility dream in Indian cities?**

**Mr. Gandhi:** One of the biggest challenges towards EV transition is its financing. If that can be expedited through priority lending, then companies like us can take up bigger projects in other cities which will help the industry grow. Also, a push from the government will encourage private banks and other Non Banking Financial Companies (NBFCs) to enter into the EV financing sector.

The government must focus on more procurement policies for electric vehicles. For instance, our e-bus project in Indore helps us in generating the revenue from ticketing itself and we just need to pay the cost of power. All other costs are incentivised through subsidies from the Department of Heavy Industries (DHI). Such kind of subsidies, from DHI or FAME-II, will further accelerate EV transition in other cities. The government can also work to smoothen the tendering process that can help firms like us to approach more cities for operating EVs in bigger quantities and at lower costs.



## UPDATES FROM THE WORLD

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### **EO Charging unveils complete electric vehicle fleet charging ecosystem** | *Market Development*

EO Charging — a leading provider of technology-enabled turnkey solutions for electric vehicle (EV) fleets — recently unveiled its fleet EV charging ecosystem that offers complete charging infrastructure solutions for cars, vans, trucks and bus fleets. The offering includes everything, from design to deployment, that a business or government needs to electrify EV fleets at scale. [Read more](#)

*Takeaways for India:* A 'full-stack' EV charging ecosystem will not only fulfil the basic needs and requirements of EV fleet owners but will also act as a common platform where the businesses can have more control and insight into their fleet's performance. In India, at a time when both government and private sector are pushing for the electrification of commercial fleets, an innovative approach like this can intensify EV adoption.

### **Energy from bogs: Estonian scientists use peat to make batteries** | *Market Development*

Scientists at an Estonian university claimed that peat from bogs could be used to make cheap sodium-ion batteries for use in electric vehicles (EVs). Sodium-ion batteries are one of the new technologies that battery makers are looking at as they seek alternatives to the dominant and expensive lithium-ion model. [Read more](#)

*Takeaways for India:* The cost of batteries is one of the most dominant factors that leads to the higher price of an EV. Innovation in battery chemistry will not only reduce the overall cost of battery manufacturing but will also reduce the price of an EV. In a cost-sensitive market such as India, such technology will increase interest and help in furthering uptake.

### **ABB launches world's fastest EV charger; provides full charge in under 15 min** | *Market Development*

Technology major ABB recently launched its innovative all-in-one electric vehicle charger that provides the fastest charging experience. The new 'Terra 360 modular charger' can simultaneously charge up to four EVs with dynamic power distribution. The charger has a maximum output of 360kW and is capable of fully charging an electric car in less than 15 minutes. It will be available in North America, Latin America and Asia Pacific in 2022. [Read more](#)

*Takeaways for India:* Range anxiety is one of the main barriers to electric vehicle adoption. However, switching to fast chargers can help governments interest the masses in making the switch to electric vehicles. Furthermore, installing such chargers in public places can provide EV owners the flexibility to charge up their vehicles quickly and effortlessly.



### **Honda pledges to sell only electric cars in China after 2030** | *Market Development*

Honda Motor Co. pledges to sell only electric cars in China after 2030. This is in line with the Japanese automaker's aim of ditching internal combustion engine (ICE) cars globally by 2040. Honda will be introducing 10 electric vehicles under its "e:N Series" range within five years. Additionally, new dedicated EV production plants will be built and will be ready for operations from 2024. [Read more](#)

*Takeaways for India:* Electric vehicle growth in India is still in the nascent phase. However, the government, through its strong policy measures, is pushing hard to accelerate the adoption of EVs. Such commitments from leading carmakers and manufacturers will give momentum to India's EV market thereby paving way for startups and original equipment manufacturers (OEMs) to work together to scale up EVs in India.

### **Thailand positioned to be a global electric vehicle hub** | *Strategy and Initiative*

The Thai Government has unveiled a three-phase development roadmap designed to increase EV production to 30% of its total automotive manufacturing capacity— i.e. 750,000 by 2030. Supported by government policies and incentives, Thailand's EV roadmap encompasses all aspects of the electric vehicle supply chain, with a focus on batteries, local production of critical parts, and the inclusion of commercial vehicles of all sizes, including ships. [Read more](#)

*Takeaways for India:* In India, the National Mission for Electric Mobility and Faster Adoption and Manufacturing of Electric Vehicles (FAME) has given a much-needed boost to the EV market. Recent and notable amendments in the FAME-II subsidies have given further momentum to the EV market. WRI India experts have carried out various studies to inform the evolution of e-mobility in India. Together these reports aim to offer a definitive analysis of the EV evolution to its various stakeholders and chart the way for a smooth transition over the next decade.





## UPDATES FROM INDIA

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### **Exponent Energy claims to charge EV batteries in under 15 minutes** | *Market Development*

Bengaluru-based Exponent Energy has come up with a solution that addresses charging infrastructure for electric vehicles (EVs) in India. The brand's first line of products - a battery pack & charging station called E-pack & E-pump respectively - claims 0 to 100% rapid charge within just 15 minutes for all types of commercial vehicles. [Read more](#)

### **Govt plans 30% EV sales penetration for private cars by 2030: Nitin Gadkari** | *Strategy and Initiative*

Stressing on an immediate need to decarbonise the transport sector, Union Minister Minister for Road Transport & Highways Nitin Gadkari recently announced 30% EV sales penetration for private cars, 70% for commercial vehicles and 80% for two- and three-wheelers in India by 2030. He added that the increased adoption will help India reduce its consumption of crude oil by 156 million tonnes resulting in savings of Rs 3.5 lakh crores. [Read more](#)

### **Driving an electric vehicle can get you free parking in Chandigarh** | *Strategy and Initiative*

The Chandigarh administration proposed a 100% waiver on parking charges for electric vehicles at municipal corporation-run parking facilities for the next five years. The UT's first-ever draft electric vehicles policy aims to set up at least 50 public charging stations, with one in every sector. The administration has also removed the upper limit on the purchase of electric vehicles for availing subsidy. [Read more](#)

### **Mumbai's BEST adds 60 more electric buses, target 200 double-decker buses** | *Policy Measures*

Mumbai recently added another 60 electric buses to its BEST fleet. Maharashtra Environment Minister, Aaditya Thackeray, along with the city's Mayor Kishori Pednekar, launched the electric buses procured from Tata Motors. The government also plans to induct a total of 1,900 electric buses into Mumbai's BEST fleet in the second phase with the aim of 100% e-bus fleet in Mumbai by 2027. [Read more](#)



### **PowerBank sets up 18 EV charging stations across Manali-Leh NH-4** | *Market Development*

Lithium Urban Technologies and Power Bank successfully installed 18 EV charging stations across the Manali-Leh National Highway-4 in 10 days. Of these 18 stations, 15 were set up at locations with a height of 10,000 feet - 14,000 feet above sea level. The chargers installed are a mix of Type-I and Type-II AC chargers catering to electric two, three and four-wheelers. The move aims to reduce range anxiety on this difficult route. [Read more](#)

### **Haryana notifies draft EV policy; preference for STU fleet conversion** | *Policy Measures*

To intensify EV adoption in the state, Haryana Government recently notified its draft EV policy. As per the draft EV policy, the state aims to convert 100% of the fleet owned by the State Transport Undertakings (STUs) in the state into electric buses by 2029. In the first phase, the state is looking to convert 100% of the bus fleet in Gurugram and Faridabad by 2024. The policy also states that all forms of government vehicles, including vehicles under government corporations, boards and government ambulances etc. will be converted to EVs by 2024. [Read more](#)

### **Tata Power completes installation of over 1,000 EV charging stations across cities** | *Market Development*

Tata Power — one of the country's largest private-sector integrated companies — now has a network of more than 1,000 public EV charging stations across the country. These charging stations provide innovative and seamless EV charging experiences across offices, places of public access etc. enabling clean mobility and freedom from range anxiety. Currently, the charging points are operating in nearly 180 cities and multiple state and national highways under various business models and market segments. [Read more](#)



## WEBINAR



### Enabling Residential EV Charging Infrastructure

WRI India brought together policymakers, DISCOMs, urban development authorities, residential developers, resident welfare associations (RWAs) and charge point operators (CPOs) to identify key challenges for setting up charging infrastructure in residential locations, highlight best practices and successful case studies and identify pathways to mainstreaming the deployment of residential charging in both existing as well as new constructions. View recording [here](#)

## INSIGHTS



This paper explores battery designs, chemistries, and cell formats, and assesses their potential in making the transition to EVs economically feasible in a resource-secure way for India. The paper also focuses on the currently available battery technologies as well as on battery research aimed at developing alternative technologies. The authors explore the research and development (R&D) landscape for EV batteries and also investigate how the R&D community can work collaboratively and effectively with the manufacturers to address the challenges and uptake of battery technologies. [Read here](#)





# EV FEATURE

## How can we get hydrocarbon-rich nations to board the EV wagon?

*by Ekaterina Miroshnik, Director; Head, Infrastructure, Eurasia, Sustainable Infrastructure Group, European Bank for Reconstruction and Development (EBRD) and Adam Sieminski, President, King Abdullah Petroleum Studies and Research Center (KAPSARC), Senior Writer, Formative Content | September 2021 | This article first appeared in [weforum.org](https://www.weforum.org)*

- As the fourth largest source of carbon emissions, global transport must decarbonize.
- Near-term reductions are most feasible in the light-duty vehicle sector.
- Supply-side policies could be more effective in encouraging hydrocarbon-rich states to participate.

Hydrocarbon fuels account for more than 80% of commercially traded energy consumption. The abundance, convenience and affordability of fossil fuels have generated economic growth and made life better for billions of people. But the emissions and climate challenges associated with combustion are significant, and policy-makers around the world must limit the rise in global temperatures caused by greenhouse gas (GHG) emissions.

Global transport is the fourth largest source of GHGs, producing about 23% of global energy-related CO<sub>2</sub> emissions. About 73% of transport emissions come from road vehicles including cars and trucks, 22% from planes and ships, and 1% from trains. GHG emissions reduction in transport is expected to significantly contribute to meeting the Paris Agreement goals.

GHG emission reduction from long-range heavy-duty transportation (trucks, trains, ships, planes) will likely require substantial R&D breakthroughs and policy interventions, because green technologies for these vehicle segments are not yet commercial. The majority of near-term GHG emission reductions in the transport sector are projected to come from electrification of light-duty vehicles (LDVs) as well as buses, where such technology is already commercial.

## **Tailpipe subsidies**

Governments globally have adopted various policies to support LDV electrification. Tax and other incentives to reduce the upfront price of electric cars are among the most commonly used policy levers. Using such a model, Norway, a hydrocarbon-rich economy, achieved the highest penetration of EVs in Europe. However, such measures can be expensive. The cost of reducing tailpipe CO<sub>2</sub> through subsidies to EV alternatives can be as high as \$1,000 per ton, significantly higher than other approaches to reducing carbon. Demand-side measures can incentivize consumers, but also act to spur the automotive industry by helping the automakers recover their R&D investments on EVs and by allowing them to charge relatively higher prices for EVs. These incentives are part of governmental energy and environment policy, and industrial policies, designed to support local innovation and manufacturing.

## **Incentivizing the fossil fuel hubs**

Demand-side policies are difficult to justify in countries without a local EV manufacturing industry, as is currently the case with countries in the Middle East and North Africa (MENA) region. Additionally, market barriers to EVs in the MENA region and in Eurasia are exacerbated by the policies that tend to favour hydrocarbon fuels use, reducing consumer incentives to adopt electric vehicles by lowering their operational cost advantage. Though government support for fossil fuels is phasing out over time in most MENA countries, economies in Eurasia have been taking very slow steps in this area. An alternative approach for the regions with an abundance of fossil fuels, especially if the goal is long-term GHG emissions reduction that is also highly cost-effective, is to emphasize technology-neutral supply-side policies, such as fuel economy standards. Such policies are based on a combination of more stringent technology-neutral performance standards with credit-based mechanisms to incentivize the uptake of lower emission vehicles. Such technology-neutral standards offer the possibility of utilizing high-efficiency gasoline-electric hybrids or high-compression internal combustion engine vehicles as affordable interim solutions. In the longer term, there is the possibility of utilizing alternative technologies once they become available, including mobile carbon-capture technology.

Saudi Arabia, led by the Saudi Energy Efficiency Center, is among the first MENA countries to have adopted fuel economy standards. Outside the region, another example includes the recent revision in the European Union's CO<sub>2</sub> emission standards for LDVs. In such a case, the speed and extent of GHG emissions reduction depends on how stringent the implemented standards prove to be. While an EV is emission-free on the road, it is useful to calculate the net carbon emissions associated with using one by considering the energy mix that provides the electricity to charge it. Ideally, the energy used to charge EVs should be generated from low-carbon or carbon-neutral sources, so that EV deployment results in overall net emissions lower than levels generated by internal combustion (ICE) engine vehicles. Time-of-use pricing can also incentivize charging during preferred times to fully reap the intended benefits. Further, it is worth noting that the projected near-term growth in EV uptake is not expected to result in substantial increases in energy consumption or peak load.

## **Barriers to EV adoption**

Countries possessing significant shares of renewable energy like hydro, solar and wind in their energy mix are better suited for EV deployment. For example, countries such as Georgia and Tajikistan (both have a substantial share of hydropower) have increased investments in electric urban transport recently. This does not mean that countries with inexpensive and abundant fossil fuels cannot still adopt EVs and reduce emissions. Hydrocarbon-rich nations can shift their generation from marginal sources toward lower-emission alternatives. For example, Saudi Arabia has announced an ambitious target aiming to generate 50% of its power needs using renewable energy by 2030, with the remainder provided by natural gas. Renewable electricity costs as well as battery costs for EVs, have been falling sharply. If the trend continues, EVs may eventually be suitable for general use in emerging markets, including in the MENA and Eurasia regions.

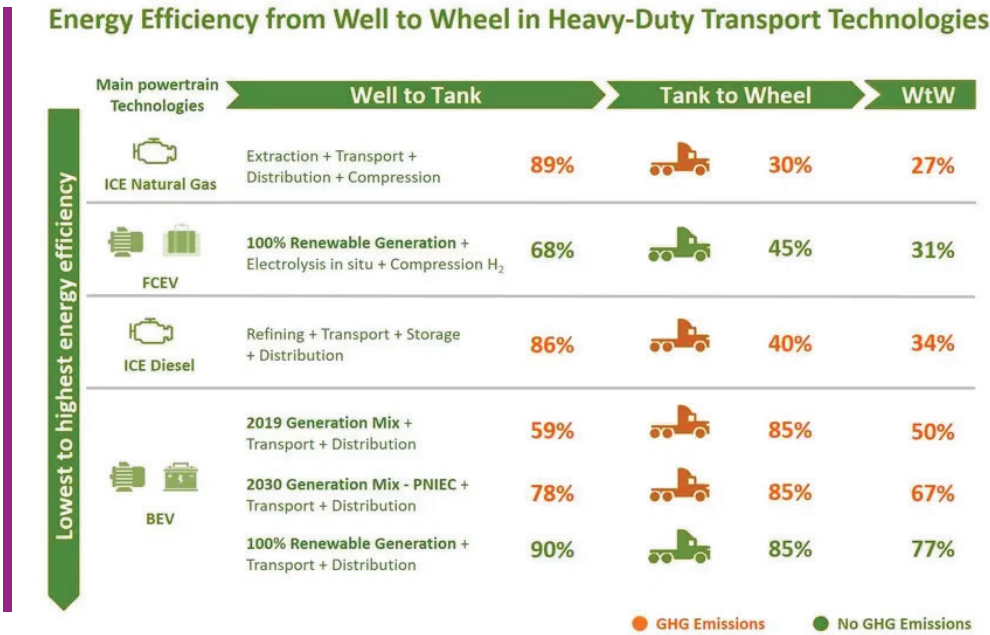
However, a rapid increase in demand for the core battery materials (e.g. cobalt, lithium), combined with constrained supply, may lead to significant increases in the cost of raw materials. Such increases could increase battery prices and ultimately electric vehicles prices, which could act as a barrier to EV adoption in the short term. Another barrier is the lack of widespread EV charging infrastructure. Going forward, it we must build roads with an eye to a future where

a significant proportion of vehicles could be EVs. This means that at the planning and design phase, road corridors need to be equipped with high-capacity EV chargers within existing fueling stations. To do so, in many cases it might be important to upgrade the local electrical grids and substations to handle these fast chargers, which consume significant energy.

Challenges like air pollution in cities continue to worsen, which should lead electorates exercising more pressure on local authorities to advance green policies. Cities are likely to become the e-mobility change champions in Eurasia (e.g., in Kazakhstan, Uzbekistan, Azerbaijan) with many embracing green development concepts and preparing green city action plans (GCAPs). GCAPs will focus on developing e-mobility strategies and prioritizing investments in electric transport (buses, trolleybuses, taxis, metro and light rail transport systems). The bottom-up pressure will encourage mayors and city councils to speed up electrification of transport, while greening electricity supply. With the right policy mix and synergy between the power and transportation sectors, as well as supportive investment by multilateral development banks to eco-responsible governments, all countries – including those who most rely on fossil fuels – have an opportunity to reduce their transportation-based GHG emissions.



Decarbonising heavy-duty transport: How electric trucks are more energy-efficient than diesel trucks



Source: Iberdrola



EV Podcast

EV Podcast- Electric Buses — Redefining the dynamics of public transport in India

This podcast focuses on the importance of electrification of public transport in moving the greatest number of people in a cost-effective, low-carbon manner. It delves into how investments in manufacturing bus components, batteries, charging infrastructure, and charge point operations will help to redefine the dynamics of electric buses across cities in India.

Listen to the podcast [here](#)