

EVCONNECT

Issue - 4 | November 2018 | *For private circulation only*

NEWSLETTER

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India's rickshaw revolution leaves China in the dust.
By Jill Ward and Anindya Upadhyay. *First published
on 26 October 2018, bloombergquint.com*

FROM THE CEO'S DESK

Dear Friends,

I am pleased to present to you the fourth issue of our electric mobility newsletter, EV Connect.

The move to electric vehicles is ever more critical for India. A host of issues are at play – energy security, climate change, and air pollution in cities. We now know from the latest report of the International Panel on Climate Change (IPCC) that the world is set to be warmer by 1.5 degrees unless aggressive actions are taken in the next twelve years. Countries like India are directly in the line of danger from the harmful effects such as sea level rise, droughts, and extreme heat in cities. Transport sector almost entirely relies on fossil fuel in India. Electric vehicles offer India an opportunity to move away from fossil. In this, critical parameters include charging infrastructure, energy storage and battery technologies to integrating renewables into the grid awareness about electric vehicles amongst consumers, and policies that support invention.

New developments are taking place at a very rapid pace, often difficult to keep up with them. These are reported through multiple media channels and often hard to track. This newsletter seeks to bring together several of these developments into one document. We hope that over time, this curated and compiled content will come handy to those who are seeking the latest information on electric mobility.

This edition of the newsletter also includes a conversation with Mr. Chandra Mohan Patowary, Cabinet Minister For Transport, Parliamentary Affairs, Industry and Commerce & Transport Minister Assam, on the issues related to electric mobility and charging infrastructure and their goals on this. It also features insights from Bloomberg Quint on the rise of electric rickshaw market in India.

We hope you find the fourth edition of the newsletter useful and share your suggestions to improve this newsletter.

Sincerely,



Dr. OP Agarwal
CEO, WRI India



POWERTALK

IN CONVERSATION WITH MR. CHANDRA MOHAN PATOWARY

CABINET MINISTER FOR TRANSPORT, PARLIAMENTARY AFFAIRS,
INDUSTRY AND COMMERCE

Interview taken by Shravani Sharma, Consultant WRI



“Electric buses are environment friendly. One of the four pillars of our governance framework is a ‘pollution free’ Assam. I am hopeful that electric vehicles will help us in reducing pollution and improving mobility at the same time.”

Interviewer: What is your vision for public transport in Guwahati?

Minister: I would want the public transport in Guwahati to be safe, reliable, comfortable, affordable and environment friendly. It should address the concerns and needs of all sections of the society and make mobility easy and seamless.

Interviewer: There are a lot of conversations around electric buses. What are your thoughts?

Minister: Electric buses are environment friendly. One of the four pillars of our governance framework is a ‘pollution free’ Assam. I am hopeful that electric vehicles will help us in reducing pollution and improving mobility at the same time.

Interviewer: In your opinion, what are the main barriers to electric buses in India?

Minister: The main barriers are the enabling policy framework and infrastructure. Also, it takes time to change habits and behaviour but technology these days is getting more and more sudden and disruptive. Hence, I feel that the barriers and challenges are not insurmountable.

Interviewer: How can you overcome these barriers in India?

Minister: We must communicate effectively. The benefits of electric vehicles (EVs) must be told unambiguously to all stakeholders. There should be an acceptance of this idea, an enabling ecosystem, and the will to implement.

Interviewer: What is the role of research institutions like WRI in accelerating electric buses in India?

Minister: Research institutions like WRI can help in the dissemination of the right knowledge, and in getting the stakeholders on board. They can share evidence-based knowledge with both the policy makers and users, which will make EV buses more acceptable and sustainable.



INTERNATIONAL NEWS

Climate report bolsters our outlook for electric vehicles | *Policy*

The Intergovernmental Panel on Climate Change released a report this week that calls for faster electric vehicle (EV) and hybrid adoption as part of the actions needed to limit the effects of climate change. The report calls for emissions to be reduced by 45% versus 2010 levels by 2030. Conclusions of this report could lead to governments setting stricter regulations and investing in EV charging infrastructure, which would result in increased EV adoption that will benefit both the consumer and the supplier side. EV penetration will follow the trajectory of similar innovations that have reached cost parity with prior technologies. Examples include, wind power generation, compact fluorescent light bulbs, and the first automobiles as a representative group of comparable innovations that reached cost parity. These innovations share similar characteristics with electric vehicles: function held constant, higher purchase (fixed) cost and lower operating (variable) cost, government support, and other considerations.

Takeaway for India: This article is a good reminder that India can learn from its past success in achieving economies of scale in LED light bulb technologies. EVs require a strong government push on both the consumer and the supplier side. Learning from the adoption cycle of new technologies, the focus should be on making EVs as convenient and lucrative an option as older technologies (ICE vehicles). India already faces the many perils of a warming climate. Faster adoption of EVs will assist in reducing the emissions of the country. This, however, requires aggressive and urgent political action and support from the industry. [Read more](#)

Want electric vehicles to scale? Add chargers to gas stations | *Market development*

In a survey done in the United States, the lack of ability to charge away from home after cost, is the second most common reason people give for not buying electric vehicles. If electric chargers start to become ubiquitous, they can also spur a higher adoption of the vehicles. Gilbarco Veeder-Root – one of the largest suppliers of fuel dispensers to gas stations – has just invested in Tritium, an electric vehicle charging company. Tritium makes a high-power charger that can fully charge a car in five to 10 minutes. Installing chargers at gas stations is becoming analogous to how people refuel their gas-powered cars now. Trying to change behavior just to buy an EV can be difficult, but using gas stations is a good opportunity to not have to change behavior.

Takeaway for India: For faster adoption of electric vehicles, it is worth extending the existing infrastructure such as fuel stations into electric charging stations that consumers are accustomed to using. This might be a more efficient approach to helping consumers understand the ease of charging vehicles. It will also help petrol station owners to retain jobs and put their existing facilities to use. [Read more](#)

Illinois Tollway may add EV charging to I-294 | Policy / Technology

The Illinois Tollway has begun to examine the addition of embedded equipment on the I-294 corridor that would allow EVs to charge on route. At present, the interstate is undergoing a \$4 billion reconstruction, which includes the widening of a 22-mile stretch of the roadway. Off-highway, the agency is looking at conventional charging stations and “super-charger” stations that power up electric cars and trucks more rapidly. The agency is also studying “smart-powered lanes,” a type of wireless charging technology being piloted in Sweden. If consumers can charge their cars as they are driving on the road, their range anxieties will be alleviated to a large extent.

Takeaway for India: Wireless charging may seem to be a futuristic intervention in India, especially for existing highways. However, wireless charging could be explored on dedicated stretches in the case of new constructions. Policymakers could look into public-private partnerships for setting up such technologies. [Read more](#)

EDF Energy and Nissan partner to advance low carbon transport | OEM development

EDF Energy, the UK’s largest producer of low-carbon electricity, and Nissan, one of Britain’s leading car manufacturers are joining forces to work together on a first of its kind collaboration to explore how second-life Nissan EV batteries can support demand side management. EDF Energy has a demand side management initiative called PowerShift. This partnership will support the use second life batteries to supply electricity to the grid, create an energy storage market, and help cut down Britain’s carbon emissions.

Takeaway for India: Creating an energy storage market for second-life batteries is inevitable for India as the uptake of EVs increases. As seen internationally, second life batteries have about 70% capacity and about 10 years of life remaining in them. Using batteries in their second-life will offer India an opportunity to use solar energy to fill in the intermittencies in renewable energy supply. It will also help to wisely manage the waste batteries, which may otherwise end up being disposed and/or dismantled informally and release hazardous chemicals. [Read more](#)

Electricity storage is next feat for Germany’s energy transition | Policy

Germany is pursuing Energiewende – a policy for moving to low carbon, affordable and reliable forms of energy. As the share of renewables increases in the country, the use of energy storage technologies such as the batteries used in EVs is the logical next step. Renewables are weather-dependent, so on the days when there is no sun or wind, coal-based electricity is used. Hence, batteries can be used to store renewable energy for such days. So far, energy has been supplied in a centralized way, i.e. through coal power plants, solar farms. Batteries will decentralize the process, which German stakeholders see as an important milestone. Consumers could use energy generated through rooftop solar panels to not only charge their EV batteries, but also store it for further use and feed into the grid if needed. Lithium Ion batteries will see a drop in price by 50-70% by 2035 and will likely increase the use of energy storage.

Takeaway for India: Like Germany, India is also betting big on solar to steer away from coal-fired energy in the decades to come. Policies and business models that encourage the use of EV battery technologies are key for cleaning the energy-mix and make the use of solar possible even when there is no sun. Utilities stand to benefit, provided they create business plans for consumers to feed stored energy into the grid at attractive prices. Germany is also preparing to be the global leader in energy storage technologies – an important reminder for both Indian industries and government. [Read more](#)



NATIONAL NEWS

Goreen E-Mobility announces electric scooters in India | *Market*

Goreen E-Mobility has announced the launch of the first removable lithium ion battery powered electric scooter 'Gemopai Ryder' for the Indian market. The new Gemopai Ryder runs a 70km/charge, is available in 5 colors, and comes with the option of various accessories for the Indian market. Gemopai plans to launch 2 more high speed electric scooters within the next three to six months. Scooter specifications included in Gemopai's mobility options are hydraulic suspensions, disk brakes, digital speedometer, LED headlight, keyless entry, anti-theft alarm, and mobile USB charging with little to no service requirement for the expertly developed electric transportation solution.

[Read more.](#)

Car fueled by water, aluminium developed in India! All about IIT's new innovation | *Technology*

Students from IIT Roorkee have developed an electric car that requires only 1L of water and can travel for up to 300 km. This new car prototype requires no fuel or even electricity and will cost as much as a standard car. A report in The Print confirms that IIT-R students have started a new start-up called Log9 Materials and have developed an electric car that will need water and an aluminium plate to generate power. Based out of an incubation cell, the project started about two years back. The students claim that this car will give a range of 1,000 km on a single charge and would require 1L of water every 300 km. Once you cross the 1,000 km mark, the aluminium plate has to be replaced and the whole process will not take more than 15 minutes. [Read more.](#)

Maharashtra looks for ₹25,000 Crore investments in e-vehicle segment | *Market*

The Maharashtra government is encouraging the use of electric vehicles by its departments. The Chief Minister of Maharashtra, Mr. Devendra Fadnavis while speaking at a function at the state secretariat mentioned that five e-vehicles have been procured on rent from Energy Efficiency Services Limited (EESL). EESL will provide 1,000 such vehicles in phases on rent. Initially, two charging stations each will be set up at the state secretariat in Mumbai and Nagpur. [Read more.](#)

Kerala takes an e-vow | *Policy and Strategy*

The state of Kerala is all set to join the country's e-mobility push. Kerala is only the fifth State in the country, after Karnataka, Andhra Pradesh, Maharashtra and Telangana, to roll out a policy to encourage e-mobility. The main motivation, apart from a push from the NITI Aayog, is the need to accelerate use of clean energy technologies in various sectors to address the global challenges of energy security, climate change and sustainable development. The air pollution level, which is substantially higher than WHO guidelines, also played a part in the decision making process. Some of the key elements of the policy are a three-year exemption in road tax for newly registered electric vehicles, the creation of robust infrastructure, incentives for vehicle manufacturers, State of Power (SoP) for EV charging infrastructure providers, the creation of a favorable power tariff regime, the provision for quality power round the clock, and steps for human capacity building. [Read more.](#)

Tata Power, HPCL join hands to set up EV charging stations | *Market*

Tata Power has signed an MoU with Hindustan Petroleum Corporation Limited for setting up commercial-scale EV charging stations at its retail outlets and other locations across the country. Both entities, through this MoU have agreed to collaborate in the planning, development, and operation of charging infrastructure for EVs (i.e. e-cars, e-rickshaws, e-bikes, e-buses, etc.) at suitable locations across India. [Read more.](#)



EV @ WRI

Not Just Car Makers, Utilities Are Banking on Shared Electric Vehicles Too. Here's How Batman and Robin Are Redesigning the Batmobile

With CEO Mary Barra at the wheel, GM has matured their climate strategy from simply greening operations to product strategy to shared electric mobility solutions. A few years ago, GM's energy demands came from building cars. Now they come from running cars. And the company is being joined by some unlikely allies in the push for widespread electric vehicle adoption. Explore what happens when car manufacturers and energy producers work together. [Read more](#)



EV FEATURE

INDIA'S RICKSHAW REVOLUTION LEAVES CHINA IN THE DUST

By Jill Ward and Anindya Upadhyay. First published on 26 October 2018, [bloombergquint.com](https://www.bloombergquint.com)

(Bloomberg) -- An electric-vehicle revolution is gaining ground in India, and it has nothing to do with cars.

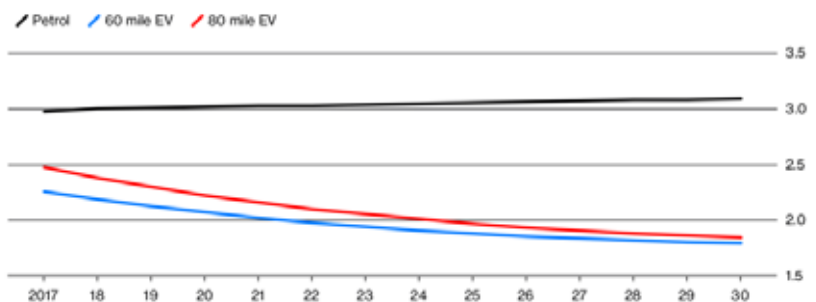
The South Asian nation is home to about 1.5 million battery-powered, three-wheeled rickshaws – a fleet bigger than the total number of electric passenger cars sold in China since 2011. But while the world's largest auto market dangled significant subsidies to encourage purchases of battery-powered cars, India's e-movement hardly got a hand from the state.

Rather, drivers of the ubiquitous three-wheelers weaving through crowded, smoggy streets discovered that e-rickshaws are quieter, faster, cleaner and cheaper to maintain than a traditional auto rickshaw. They also are less strenuous than cycle rickshaws, which require all-day peddling. So with more rides possible in a day, the e-rickshaws are proving more lucrative.

As many as 11,000 new e-rickshaws hit the streets every month, and annual sales are expected to increase about 9 percent by 2021, according to Rahul Mishra, a principal at consulting firm A.T. Kearney. Three-wheeled vehicles make up a \$1.5 billion market, and manufacturers of electric versions include Mahindra & Mahindra Ltd. and Kinetic Engineering Ltd., along with smaller outfits that assemble parts imported from China.

Rickshaw Revolution

Electric three-wheelers are cheaper to run than their petrol-fuelled counterparts



Note: shows cost in rupees per km, in thousands of rupees

Source: Bloomberg New Energy Finance

“This is a once-in-a-lifetime, transformational opportunity that we’re looking at,” said Goldie Srivastava, chief executive officer and co-founder of SmartE, an Uber-style app using 800-plus e-rickshaws around New Delhi. “When we look at electric mobility, the focus should be: Are you as a government enabling products that are designed for the future?”

Cities in India		
Rank, 2016	PM 2.5	PM 10
1	Kanpur, India	Delhi, India
2	Faridabad, India	Varanasi, India
3	Gaya, India	Riyadh, Saudi Arabi
4	Varanasi, India	Al Subah Al-Salem, Kuwait
5	Patna, India	Agra, India
6	Delhi, India	Patiala, India
7	Lucknow, India	Al-Shuwaikh, Kuwait
8	Agra, India	Baghdad, Iraq
9	Gurgaon, India	Srinagar, India
10	Muzaffarpur, India	Dammam, Saudi Arabia

Source: World Health Organisation

Note: Measured by harmful particulate matter smaller than 2.5 micrograms per

India's dominant ride-hailing startup, Ola, plans to place 10,000 e-ricks in its service by next April.

India is the world's fourth-largest auto market, but previous attempts to boost private electric-car ownership flopped. The government likely scaled back because it fears disrupting an industry that contributes about 7 percent of the total gross domestic product, according to a Bloomberg NEF report in March.

Unlike the estimated 1.35 million passenger EVs cruising around China, the number of electric cars plying Indian roads is a paltry 6,000, according to BNEF data. Chinese automakers sell more than that in three days.

India's largest automaker, Maruti Suzuki India Ltd., won't sell its first EV until 2020.

Prime Minister Narendra Modi's administration now is pivoting toward promoting EVs in public transportation and fleet operations – primarily, two- and three-wheelers, taxis and buses. The Ministry of Finance is finalizing a plan to spend about 40 billion rupees (\$600 million) in the next five years to improve the nation's charging infrastructure and subsidize e-buses.

"India needs to focus on electrifying two-wheelers and three-wheelers," said Amitabh Kant, chief executive of NITI Aayog, a government policy institute helping formulate the new strategy.



Outside an east Delhi metro station, a slew of partly open-air vehicles line the street as commuters hail their rides. They also carry tourists, schoolchildren, crates of fruit and the occasional goat.

Anil Chaudhary, 32, switched to an e-rickshaw from a cycle model two years ago. His income increased, he's able to take longer breaks and he sends money to his wife and three children in Bihar, about 700 miles away. He's already on his second electric model. "Two months ago, I called my brother from the village and gave him my old e-rickshaw so that he could drive it," he said as a goat strolled past. "I've bought this new one," he said, gesturing toward a glossy, red vehicle adorned with paper flowers and an Indian flag.

Then there's the ameliorative effect that e-ricks have on the toxic air in India, home to 10 of the world's most-polluted cities, according to the World Health Organization.



A total of 635,698 three-wheel vehicles were sold during the fiscal year that ended in March – a 24 percent increase from a year earlier, according to the Society of Indian Automobile Manufacturers. By comparison, about 3.3 million passenger cars were sold, mostly all powered by gasoline or diesel.

One hindrance to the potential growth of EVs is the lack of charging and battery-swapping stations nationwide. India had about 425 publicly available charging points at the end of last year. By 2022, government and private efforts are expected to boost that to an estimated 2,800 charging points, according to BNEF.

Instead of waiting, some companies are starting to build their own infrastructure. SmartE partnered with Delhi Metro Rail Corp. to provide charging near 10 stations, with plans to expand throughout the 214-station system by the end of 2020.

Another hindrance is the lack of bank financing for traditional rickshaw drivers, who typically earn low incomes, said Shishir Agrawal, managing director of Shigan eVoltz Ltd., the parent company of manufacturer GreenRick.

The Gurgaon-based company, which sells e-rickshaws mostly in Delhi and Uttar Pradesh, could more than triple production to 1,000 vehicles a month if that issue was resolved. The potential market for e-rickshaws could be sales of 20 million vehicles a year, he said.

“If the subsidies get better, and easy financing options become available, this market is unstoppable,” Agrawal said.

COURTESY FOR THE ARTICLES

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