



WRI INDIA

CELEBRATING
ONE YEAR



EVCONNECT



ANNUAL ISSUE
2018-2019



MOVING
INDIA FORWARD





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FOREWORD

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मुख्य कार्यकारी अधिकारी
Chief Executive Officer



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Foreword

India's urban population will see about eight hundred million people living in cities by 2050. The challenge for India is not only to facilitate mobility for this vast a population but do so in a sustainable manner - drastically reducing air pollution and greenhouse gas emissions. At the moment, the transport sector almost entirely relies on fossil fuels, which are polluting and compel a very high dependence on imports. Therefore, we need to shift away from Internal Combustion Engines (ICE) to electric-powered vehicles. Resource efficiency in the mobility system needs to become the mantra for Indian policymakers, implementers and businesses. Electric, shared and connected modes are at the core of this.

A host of external factors are making electric mobility a promising bet - declining battery prices, growing share of renewables for a cleaner energy mix, use of surplus power from the grid, and growth of digital technologies. If well leveraged, these have the potential to become game changers in the mobility sector, apart from serving the interests of the renewable energy sector.

The last budget demonstrated India's commitment towards clean transportation, wherein the Goods & Service Tax (GST) on Electric Vehicles (EVs) was proposed to be reduced from 12 percent to 5 percent. The budget also proposed an additional income tax deduction on Rs.1.5 lacs for interest paid in buying EVs. An increase in the petrol and diesel prices by Rs.2 per litre through an additional duty & cess, creates a further nudge towards the alternative fuels to power our mobility system.

This comes after the Government of India has already initiated the second round of the Faster Adoption and Manufacturing of (hybrid) and Electric Vehicles in India (FAME) scheme. FAME 2 has an allocation of the Rs.10,000 crore and looks to bring 15 lac electric vehicles in India in the next three years.

In such a rapidly evolving field - any effort and bringing together developments happening in different parts of India, and around the world, serves a very valuable purpose in getting policy makers and other stakeholders updated. WRI India's monthly electric mobility newsletter, EVConnect, has made a tremendous contribution towards this in the last one year. I congratulate WRI India on this achievement and I hope to see EVConnect continuing to inform many more actions in cities and states over the coming years.

Place: New Delhi
Dated: 2nd August, 2019


(Amitabh Kant)

EV INDIA 2018-2019



- JULY 2018**
- EVConnect is launched
 - Ather Energy, an electric scooter start-up, open pre-order for two scooter models, Ather 340 and Ather 450 for customers in Bengaluru.

- AUGUST 2018**
- Indian Space Research Organisation (ISRO) announces that it will transfer its space-grade lithium-ion cell technology to industries and startups making EVs.

- SEPTEMBER 2018**
- MOVE Summit, India's first global mobility summit, is organised by NITI Aayog, Government of India. WRI India is a knowledge partner in the MOVE Summit.
 - The government of India approves 100% electrification of Indian railways by 2021-22.

- JANUARY 2019**
- The Central Board of Indirect Taxes and Customs (CBIC) lowers import duties on parts and components of electric vehicles by 10-15%.
 - ISRO shortlists 14 companies, out of a pool of 100, who showed interest in obtaining ISRO's proprietary lithium-ion cell technology.

- DECEMBER 2018**
- Ministry of Power issues the electric vehicle charging guidelines and standards.
 - SmartE, one of India's largest EV fleet operators, signs an MoU with Mahindra to deploy the first 1,000 Mahindra Treo and Treo Yaari electric three-wheelers in Delhi NCR by March 2019.

- NOVEMBER 2018**
- The government of Delhi releases the Draft Electric Vehicle Policy.
 - NTPC signs MoU with seven vehicle aggregators to set up charging infrastructure.

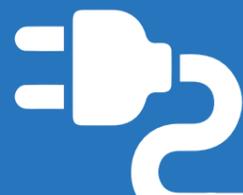
- OCTOBER 2018**
- The state government of Kerala releases its policy on electric mobility.
 - The state government of Uttarakhand releases its policy on EVs.

- FEBRUARY 2019**
- The second phase of the 'Faster Adoption and Manufacture of Electric (and Hybrid vehicles)' or FAME 2, a subsidy scheme by the Department of Heavy Industries, Government of India, that prioritises public, shared transport and two-wheelers, is released.
 - Ministry of Housing and Urban Affairs releases 'Amendments for Modern Building Byelaws for Charging of Electric Vehicles.'



- MARCH 2019**
- National Mission on Transformative Mobility and Battery Storage approved by the cabinet.
 - WRI India inaugurates the Electric Mobility Forum at its annual conference, Connect Karo 2019, with the Honorable Vice President of India Venkaiah Naidu as the chief guest.

- APRIL 2019**
- Maruti Suzuki Ltd, a car maker in India, announces that it will stop making diesel cars from April 2020.
 - Automotive Research Authority of India (ARAI) works on the technology to convert existing petrol run auto-rickshaws into electric variants.



- JULY 2019**
- The Budget 2019 provides custom duty exemption on certain EV parts and subvents interest on loans for EV purchase.
 - Ola Electric Mobility Pvt Ltd becomes a unicorn startup after raising about \$250 million from the SoftBank Group.

- JUNE 2019**
- Mahindra and Mahindra begins construction of a plant that will manufacture EV powertrains in Chakan, Maharashtra.
 - Energy Efficiency Services Limited (EESL) and Ahmedabad Municipal Corporation enter into a 10-year partnership to create EV infrastructure on the ground.

- MAY 2019**
- The Department of Science and Technology and Bureau of Indian Standards to make indigenous standards for chargers for EVs.
 - Tata Motors completes its first EV fleet order for the city of Mumbai, via Aaron Travels, a private Mumbai-based fleet car operator.

MESSAGE



FROM THE CEO'S DESK

India has been moving strongly towards electric mobility. The last budget offered several incentives to promote electric vehicles – for instance reduced GST, income tax concessions and an added levy on petrol and diesel were all aimed at making electric vehicles more attractive. A transition towards electric mobility is the right choice for India as it offers several advantages.

First, oil accounts for a very large share of India's import bill and fluctuating oil prices play havoc with national finances, especially our foreign exchange reserves. The energy security of 1.2 billion people has to be protected. This needs a diversification of the fuel used in meeting our transportation needs.

Second, the operating costs of intensely used vehicles, like buses and para-transit, is lower than that of ICE vehicles, thereby improving their viability and making them more popular. This again, is the right choice and the national urban transport policy of 2006 recommends greater use of such vehicles over personal motor vehicles.

Third, while the west largely depends on personal cars, the dominant share of the vehicle fleet in the emerging East-Asia market comprises smaller cars and 2-wheelers. India can become a dominant market for small electric vehicles, to serve the markets in East, South and South-East Asia.

Fourthly, India has committed to increasing the share of renewables in its energy mix. The batteries, that are integral to EVs, can be extremely useful for enhancing the share of renewable energy, which is available only intermittently, depending on weather conditions. These batteries can store electricity when it is produced and transmit it when it is needed.

Fifth, the energy storage capacity of batteries will also help improve plant load factors of stressed generating stations enabling them to become more efficient in the use of their available capacity.

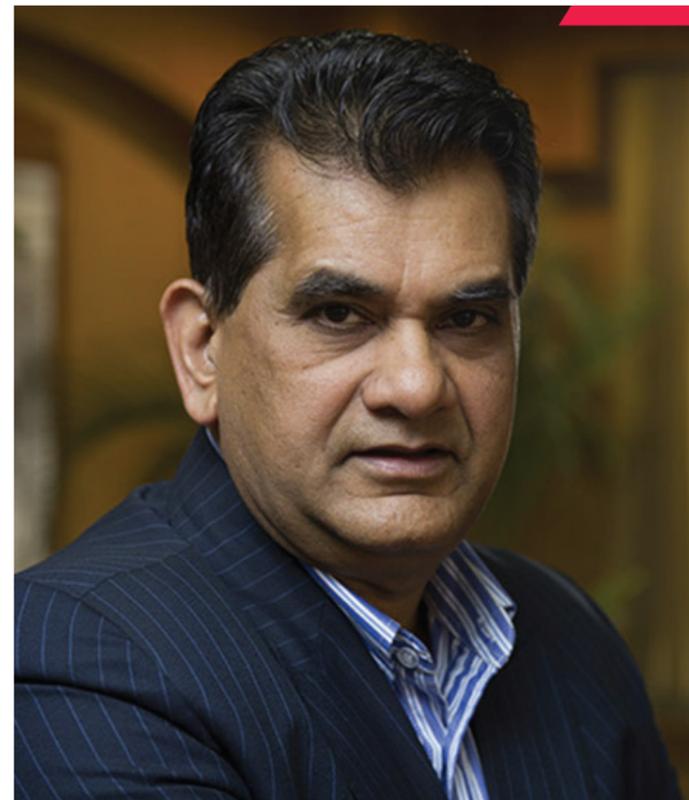
Having said this, it also needs to be recognised that a large-scale transition to electric mobility will not be easy and there is a lot to be learnt from developments around the world as well as in different parts of the country. Many ideas are still not fully understood by the people responsible for leading the transition and several technologies are still evolving. Business models may need a change as may mobility choices. Hence, a mechanism to bring the learnings from different parts of the world to an electric mobility "champion" will be critical for a successful transition. It is with this in mind that WRI India has put together "EV Connect" as monthly newsletter to consolidate developments around the world into one document. Along with this, WRI India has also put in place a webinar series that brings together experts to talk about some of the essential basics that are often not fully understood. We hope that these two initiatives will help those leading the transition to electric mobility and make their task a whole lot easier.

Sincerely,

Dr. OP Agarwal
CEO, WRI India



POWER TALK

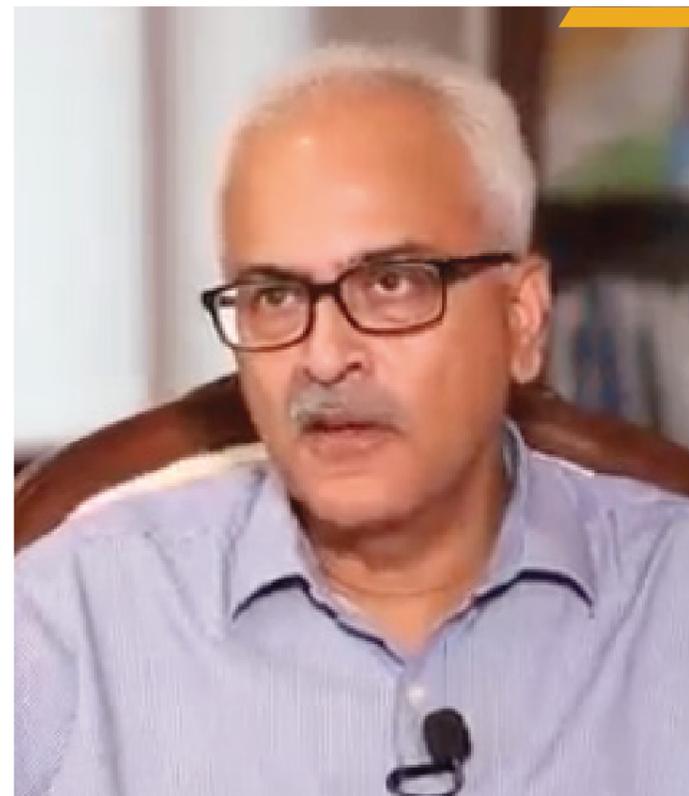


AMITABH KANT

CEO, NITI Aayog, Government of India

“ India’s electrification strategy are very different from the rest of the world. **While the rest of the world is focussing on cars, we would be focussing on public transport to facilitate shared and connected transport.** Going forward, India should simultaneously push for renewable energy. In the long run, electric vehicles must be charged by clean power. We need to upgrade our power grid system to deal with the intermittent nature of renewables.

We need to have predictability, consistency, and clarity of policy over a long period, so that there is a smooth transition from internal combustion engines to electric vehicles. WRI, as a partner of the government, can scan the globe and tell the policymakers what are the best practices.”



AJAY BHALLA

Secretary, Ministry of Power, Government of India

“ The most important thing is that we have to be clear on the whole road map of electric mobility and exactly what we want to achieve in the medium and long-term future. This will invite manufacturers to come forward with their innovations. Furthermore, mental barriers in consumer mindset need to be broken. People are used to getting petrol filled by going to the petrol pump, in 3 to 5 minutes. And they expect an equally convenient charging station network.

I feel research on batteries is an area of concern. **We need to look at batteries compatible with the high temperatures of Indian cities because at high temperatures, the effectiveness of charging goes down.**”



KAILASH GAHLOT

Minister of Transport, Government of NCT of Delhi

“ About 20% of outdoor pollution in Delhi comes from vehicles. Therefore, we are taking concrete steps towards shifting entire public transport to electric vehicles. **The Delhi government has announced procurement of 1000 Electric buses in the 1st phase and intends to roll out these buses by 2019.** In addition, we need to find ways of local manufacturing of electric vehicles and reduce the cost of batteries which stands as 50% of overall cost of the vehicle. Another important task for us is building public confidence about electric vehicle and its working.

WRI India can play a crucial part in accelerating the entire shift towards electric vehicles in collaboration with the Delhi Government.”



CHANDRA MOHAN PATOWARY

Cabinet Minister for Transport, Parliamentary Affairs, Industry and Commerce, Government of Assam

“ One of the four pillars of our governance for Assam is a ‘Pollution Free Assam’. I am hopeful that electric vehicles will help us in reducing pollution and improving mobility at the same time. It takes time to change habits and behaviour of people to bring new and disruptive technologies like the electric mobility. We must communicate effectively. The benefits of electric vehicles must be told unambiguously to all stakeholders. There should be an acceptance of this idea, an enabling ecosystem, and political will to implement.

Research institutions like WRI India can help disseminate evidence based knowledge for both policymakers and vehicle users and bring stakeholders on board.”



DR JUDITH JEEVRAJAN

Research Director, Underwriters Laboratory Inc, United States

“ **I see Lithium Ion batteries to be the preferred technology for the electric vehicle industry.** I don't see a big leap or anything out of the box in the coming years. And even if someone is discovering it today, it takes 10-15 years to bring it to market, and more for it to gain traction. Perhaps innovation will be in different forms of Lithium Ion.

Li-ion recycling facilities can actually recover a lot of usable material that can be used again in making another new cell. Of course it will be expensive, but you get the benefit of reusing these materials. Dumping waste batteries in landfill is a safety hazard.”



SANJAY KRISHNAN

Founder, Lithium Urban Technologies, Bengaluru, India

“ We all agree that hydrocarbons are limited in their supply and that science and scale have reduced the costs of renewables. 50% of the variable costs in transportation is fuel. Therefore, if you were to substitute hydrocarbons with renewables, mobility is cheaper and cleaner.

Our customers save up to 40% of the transportation costs by using electric cars for employee transportation, so if other service providers can similarly pass on some of their savings from EVs back to the customers, I think the adoption will be much quicker. Because no one buys an electric vehicle because its green, everyone buys it because it is cheaper.”

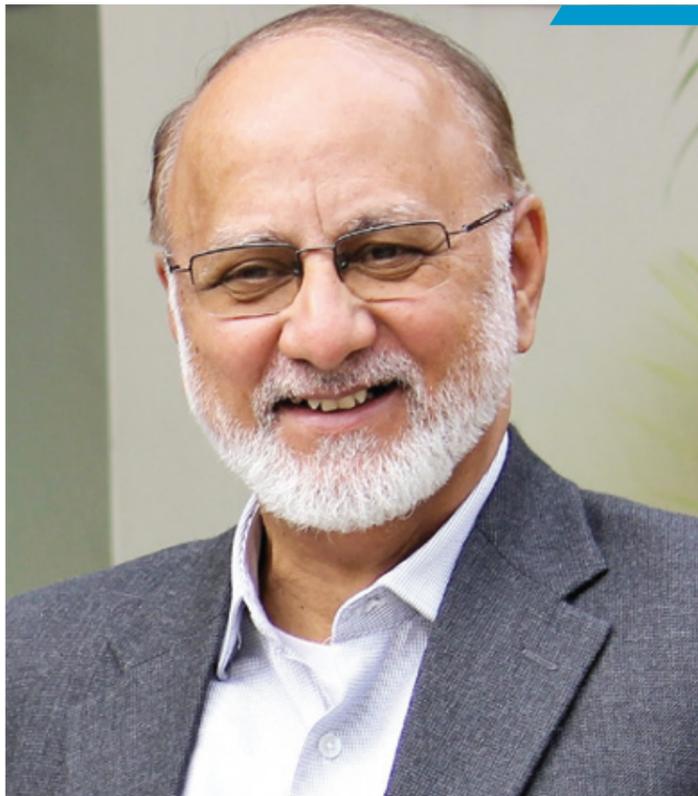


DR DARIO HIDALGO

Senior Mobility Consultant, WRI Ross Center and Executive Director
Fundacion Despacio, Bogota, Colombia

“ One of the biggest opportunities for India is to electrify its intermediate public transport systems, which provide last mile connectivity and short trips in cities. Buses are also an important part of the city mobility system. Buses may look expensive because of the high capital costs but big savings are possible in operating costs. **Learning from Latin American experience, initial government support is needed in implementing the electric vehicle policy.** Electrifying public buses is a good idea because they have institutional support.

There is this combination of need: to safeguard public health, reduce environmental impacts and the political economy, that will drive electrification of public transport systems.”



SOHINDER GILL

Director General SMEV and CEO, Hero Electric

“ The short run is more important for electric mobility than long run. Industry and the government have to work together to raise awareness, create financing mechanisms to tip the balance for people who don't have too much of money but who still want to buy an electric vehicle. **Private sector has a very, very large role to play. It has to take a leap of faith and come forward with investment. This will draw component makers and technology suppliers into the system** – by giving them confidence through contracts, volume equations and co-working.

WRI has its own high standards of research with which it can give inputs to policymakers on what works and what doesn't.”

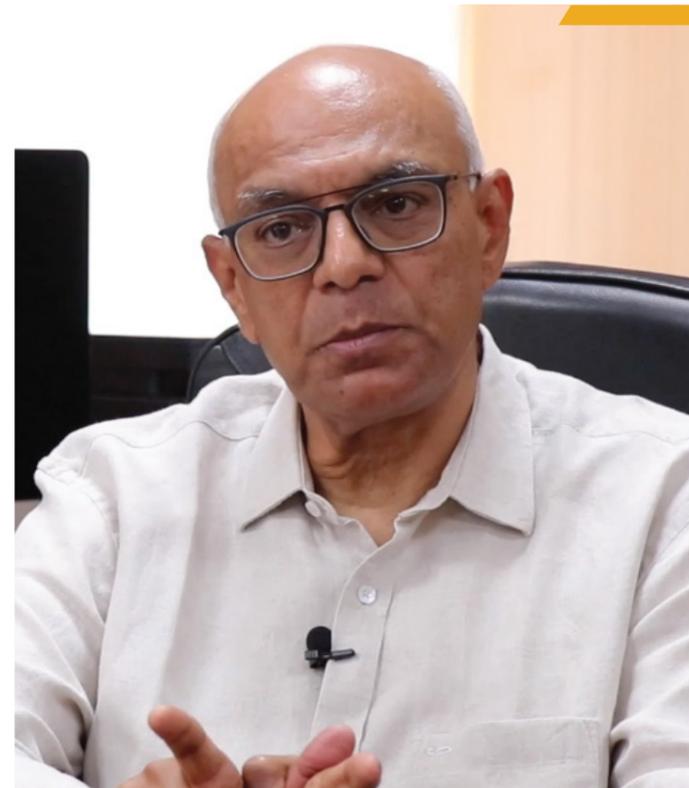


KR JYOTHILAL

Principal Secretary Transport, Government of Kerala

“ If you make public transport 100% electric in one city, rest of the cities fall in line. In Kerala, we have identified three cities to begin with – Kozhikode, Trivandrum, and Kochi. But this needs cooperation of all. Both public and private sector are equally important and that's why we are looking at a public-private partnership model for electric mobility. Ultimately, it is citizen centric governance that we should look at – what a citizen wants and how best we can deliver – it is immaterial whether the public or the private sector does it.

WRI is a global organisation with global expertise who can support us with inputs on how to implement the policy in the state. We don't need to re-invent the wheel, we can learn from others' mistakes.”



DR KP KRISHNAN

Secretary, Ministry of Skill Development and Entrepreneurship, Government of India

“ The conversion and upskilling of the existing auto workforce and familiarising them with EV technology, in addition to conventional auto knowledge, is clearly a challenge. This will require a strong collaboration between employers and establishments in the business domain and the government. **As I see the evolution of EVs, I see enormous scope for generation of entrepreneurs who have the required EV domain knowledge.** In addition, in the shift from electric vehicles, we need to focus on the informal enterprises, which are present in massive numbers in India.

An organisation like WRI India can gaze into the future and tell me approximately what type of job roles and skill sets will emerge in industries that will open up with electric mobility in India.”



“ The most efficient ICE vehicle today emits about 90 grams per km of CO2 whereas the EVs emit about 70 grams of CO2 per km, which can actually down to 50 grams if integrated with renewables. FAME 2 has made an important start by incentivising public transportation instead of private mobility, then 2 and 3 wheelers and shared modes. Now we need innovative business models to strike a balance between the return of an investment versus the social mandate of putting large number of public charging stations on the ground.

In a very fast changing energy world, what is needed is fast changing regulations. I think that is where expert bodies like WRI can provide very strong impetus to policymaking and its implementation.”

SAURABH KUMAR

Managing Director, Energy Efficiency Services Limited (EESL),
Ministry of Power, Government of India



“ In Delhi’s EV Policy, our primary goal was to lower the pollution in Delhi. We wanted a rapid take-up of electric vehicles, so we were looking at the demand side rather than the supply side.

The draft policy for Delhi has various strategies spelled out. In many cases we linked it to the national subsidy to catalyse a large scale shift to electric vehicles. The first is subsidies that certain priority segments will get because, with the present price disparity between ICE and EVs, there is a case for subsidy. The second part is the charging infrastructure and how we build it. Delhi’s EV policy lays out a plan for public as well as private charging and swapping infrastructure. And then it looks at a feebate mechanism as a funding source for the policy wherein the more polluting vehicles pay more to enable a quicker transition to electric vehicles.”

JASMINE SHAH

Vice President, Delhi Dialogue and Development
Commission, Government of NCT Delhi





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Shakti Sustainable Energy Foundation works to strengthen the energy security of the country by aiding the design and implementation of policies that encourage renewable energy, energy efficiency and sustainable transport solutions.