

# An Initiative of Adopting E-Vehicles to Minimize Air Pollution

Kesar Chand

G.B. Pant National Institute of Himalayan Environment and Sustainable Development, North East Regional Centre, Itanagar, Arunachal Pradesh

## ABSTRACT

Electric vehicles seem to be a new and innovative approach to conserve ecological sensitive areas from air pollution. Being E-vehicles, it is needless to say that these vehicles will have more advantages in comparison to heavy and light vehicles that run on gasoline or diesel. E-vehicles produce zero direct emissions, which not only helps in improving of air quality but also reduce emission of gases in urban and Himalayan towns. In this short communication, have try to showcase the different initiatives has been taken by states and Central governments to consider EVs, which will be a drastic change in evolving air pollution. Himachal Pradesh is foremost state of the country in adopting EVs over higher attitude site (Rohtang Pass 13,000ft). It is primarily to minimize the impact of air pollution on health, ecology, glaciers and many more. Therefore, bringing acquisition of EVs will be a beneficial step.

**Key Words:** Initiative; Air pollution; E-vehicles; Himalayan; Attitude

## INTRODUCTION

Nature is giving all the resources to the living entities on earth. Our living is not possible without their support. In fact, the human being is rapidly using the resources exorbitantly and making them diminish drastically (Aina and Salau1992). The human being is exploiting nature without thinking about the next generation. Air is tainting due to various human activities such as extensive use of vehicles, though industrial corridor and many more to suffice once need (Guttikunda et al. 2014; Hausberger 2010). This is a major problem of how to curtail this burning issue of controlling air pollution (Rizwan 2013; Nagpure and Gurjar 2012). Before the industrial era, it has been noticed that the pollution was very less, and it was not averse to the man-kind. After the industrial era, air pollution was unusually increasing. If air pollution will keep increasing, it will

directly affect many things such as earth energy budget, Photosynthesis process, diseases and many more. The earth has witnessed many events due to air pollution. Some countries had experienced heavy smog. To name, in 1952; London had experienced this smog due to air pollution and similarly in 1966; New York City experienced the same. In recent times that is 2013; northeast China experienced the same. This threatening endangered life on our planet (Bickel and Friedrich 2005; Maibach et al. 2008). Eventually, India is experiencing this perilous situation in various Metro cities such as Delhi, Gurgaon, Kanpur, Hyderabad, etc. It is due to crop residue burning in winter, industrial or vehicle pollution. Pollution is an alarming stage due to heavy usage of fossil fuels and rapid industrialization and deforestation (Colville et al. 2001; Belis et al. 2013). Many researchers and scientists are working

on air pollution. They are preventing, trying to measure restrains the adversities. Different government agencies and countries are making strong policies and act to minimize or tackle this crucial loss. Throughout the world, people are concerned about air pollution and the governments in all the countries are enforcing lassos to cutdown and control air pollution. This standard may help the environment not to deteriorating further. The WHO reported that 14 out of the world's most polluted, 15 cities are from India. The city-specific action plans will be developed for all 102 reported cities that exceed national air quality safeguards.

Moreover, this bad air quality has been observed and intake by not only metro cities of India but it also involves some Himalayan states too. So, the WHO makes India to think about air pollution very sternly. Even India had promised to minimize greenhouse gases (GHGs) emission per unit of GDP by 33 to 35% below 2005 and ensure that 40% of its energy would be generated from solar, wind or biofuels by the year of 2030. Following are some steps, which the government has taken to improve air quality.

### **Initiatives taken by the government**

Central Pollution Control Board (CPCB) released air quality index (AQI) of 72 cities which is continuously monitoring the process in all the metro cities. In AQI primarily pollutants are being monitored PM<sub>2.5</sub> and PM<sub>10</sub>. 44 cities out of 67 fell under the severe and poor situation of categories in India. Most of the cities which do not meet the national ambient air quality standards are Mumbai, Pune, Kolkata, Varanasi, Kanpur, Lucknow, Allahabad, Patna, Bengaluru, Chandigarh, Jaipur, and Hyderabad. National Green Tribunal (NGT) has asked all states and UTs to prepare city-specific plan on air pollution mitigation. To overcome with air pollution, India is taking a major step at the national level. MoEF&CC has recently launched the National Clean Air Program (NCAP). The

NCAP aims to reduce harmful particulate matter pollution by 20-30% by 2024. NCAP is intending to have a mechanism to develop a public grievance redressal portal for handling public complaints on air pollution. The cities will be required to develop infrastructure accordingly so that only visible air pollution can be reported at a web portal by email or SMS. The National Electric Mobility Mission Plan (NEMMP) 2020 launched by the Government of India in 2013 with the objective of achieving national fuel security by promoting electric and hybrid vehicles. The target is to achieve sales of 6-7 million in the hybrid and electric vehicles sector from 2020. The expectation is that crude oil worth Rs.62000 crore will be saved due to this. Under the NEMMP, the government has launched the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME India) scheme. This scheme is expected to provide a major thrust towards early adoption of electric and hybrid technologies.

### **Union Budget 2019 accelerate the Electric Vehicles adoption**

Union Budget 2019 recommended reducing the GST rate on electric vehicles from the current 12 percent to five percent in a bid to push the sale of EVs in the country. In addition, there will be an income tax deduction of ₹ 1.5 lakh on the interest paid on the loans taken to purchase electric vehicles also included the proposal for custom duty exemption on import of specific components. The new proposals will be in addition to the ₹ 10,000 crores allocated for EVs under the FAME II scheme and include solar storage batteries and charging infrastructure as well. NITI Aayog is portentous to forbid two-wheelers below 150 cc by 2025. Meanwhile, the deadline recommended for conventional three-wheelers is 2023, to be replaced by electric derivatives.

### **Initiatives to promote EVs by the different state government**

Pure electric vehicle penetration (in 2017) remained quite low in India. This was largely driven by critical hurdles like high upfront purchase price of EVs, non-existent public charging infrastructure, and low levels of investments in EV manufacturing. However, unlike the Centre, a handful of states have managed to put a policy in place in order to give some assurance to electric vehicle manufacturers. These states are in sync with the Centre coming out with a specific policy to promote EVs with a mix of incentives, fiscal sops, and encouragement to expand this ecosystem. Following states has introduced policy dedicated to electric vehicles. The Karnataka electric & energy storage policy, 2017, operational for five years, is expected to give the necessary stimulus to the electric mobility sector in the state and attract investments. The government of Karnataka intends to make Bengaluru the electric vehicle capital of India. Investment target of Karnataka is Rs. 31,000 crores create jobs for 55,000 people and research on EV mobility. Delhi has drafted EV policy in 2018 and seeks to drive rapid adoption of battery electric vehicles (BEVs) so that they contribute to 25 percent of all new vehicle registrations by 2023. Delhi government encourages the EV by road tax, registration charges, one-time parking fee, and auto-rickshaw permit fees to be waived for e-autos. Public transport to have 50% of electric buses by 2023. This policy encourages the acquisition of electric three-wheeler goods carriers. Maharashtra introduced EV policy in 2018 with the aim to make the most preferred EV investment destinations for global investors through promotional strategies, which will be combined with developing a competitive and sustainable investment environment. Uttar Pradesh has identified for a pilot project of multi-modal electric public transport, under the faster adoption and manufacturing of Electric vehicles in India (FAME) scheme. Telangana introduced its EV policy in 2018 to showcase a model of international standards for electric vehicle

adoption across the segment, supported by world-class infrastructure and ecosystem. Andhra Pradesh has an ambitious plan of putting 10 lakh EVs on the road in the next five years, which will be aided by fiscal incentives to become one of the important hubs for this segment in the country. The state launched its Electric Mobility policy in 2018. Kerala also came out with an electric vehicle policy 2018, which seeks to reduce the number of vehicles running on fossil fuels with the introduction of electric buses in public transport and e-auto rickshaws. It is aiming for full electrification of all types of motor vehicles by 2030. On the other hand, Uttarakhand came out with its EV policy in 2018. The state wants to create a conducive atmosphere to support manufactures and reduce vehicular pollution. It is also looking to create jobs in the state. Following table shows the key highlights of different states.

#### **Practices to the adoption of Electronic Vehicles in Himalayan State**

Nowadays some parts of mountain towns are having poor air quality. Due to increasing population, industrial activities, fossil fuel burning, and biomass burning lead to bad air quality in some tourist spot. One of the examples of emerging pollution is the Rohtang Pass (13,000 ft) Himachal Pradesh which was facing unrestrained tourist activities. Growing numbers of the tourists visiting Himachal Pradesh impacting adversely its fragile environment. National Green Tribunal (NGT) ordered to control tourist activities over the Rohtang Pass by banning or control on vehicle influx. After NGT order Himachal has adopted the EVs on the Rohtang Pass and limit the numbers of fossil fuel vehicles. The Himachal Pradesh government introduced lithium ion-powered buses and set to become the first state to introduce zero-emission electric buses in the country. These electric buses are completely Made in India by Goldstone Infratech and have been certified by ARAI after extensive testing at various levels at various facilities. The electric bus can travel for up to 200 km in a

single charge. Goldstone has developed a 25 seater Goldstone eBuzz K7 zero-emission electric bus for the commercial services over Rohtang Pass.

Later, the Himachal government started electronic taxi and bus in State capital Shimla and other districts of Himachal Pradesh. This practice would not only facilitate transport for the common people but also play a significant role in reducing pollution.

## CONCLUSION

The government has committed to reduce the air pollution concentration. Government is adopting expensive technologies to achieve the target which is committed under COP 21 Paris agreement. At present adoption of EVs is the only solution for controlling the vehicular pollution in cities and towns. Though the budget 2019-20 has given a boost to green mobility, that would have given a push to the green mobility efforts. EVs will not only improve energy security, lower GHG emissions, and improve air quality, but also enable new economic development opportunities and technology innovation in the transportation and electricity sectors.

## REFERENCES

1. Aina AT, Salau AT. The challenges of sustainable development in Nigeria, Nigerian Environmental Study/Action Team (NEST), Rio-De-Janeiro1992; 8-16, Brazil.
2. Belis CA, Karagulian F, Larsen BR, Hopke PK. Critical review and meta- analysis of ambient particulate matter source apportionment using receptor models in Europe, *Atmos Environ.*2013; 69 (94)e108. <http://dx.doi.org/10.1016/j.atmosenv.2012.11.009>.
3. Bickel P, Friedrich R. Externalities of Energy, Methodology 2005 Update. Institut fur Energiewirtschaft un Rationelle Energieanwendung – IER, Universitat Stuttgart; 2005. [http://ec.europa.eu/research/energy/pdf/kina\\_en.pdf](http://ec.europa.eu/research/energy/pdf/kina_en.pdf).
4. Colvile RN, Hutchinson EJ, Mindell JS, Warren RF. The transport sector as a source of air pollution. *Atmos Environ.*2001;35: 1537e1565. [http://dx.doi.org/10.1016/S1352-2310\(00\)00551-3](http://dx.doi.org/10.1016/S1352-2310(00)00551-3).
5. Guttikunda SK, Goel R, Pant P. Nature of air pollution, emission sources, and management in the Indian cities. *Atmos Environ.* 2014; (95):501–510.
6. Hausberger S. Fuel Consumption and Emissions of Modern Passenger Cars, Carried out under contract of the Bundesministeriumfür Land -und Forstwirtschaft, Umwelt und Wasserwirtschaft, Report Nr. I-25/10 Haus-Em 07/10/676 from 29.11.2010.2010. <http://www.ermes-group.eu/public/reports/2010-TUG-fuel-consumption-cars.pdf>.
7. Maibach MC, Schreyer C, Sutter D, Van Essen HP, Boon BH, Smokers R, Schroten A, Doll C, Pawlowska B, Bak M. Handbook on the Estimation of External Costs in the Transport Sector. Report Produced within the study Internalisation Measures and Policies for All external Cost of Transport (IMPACT), Version 1.1, Commissioned by the European Commission DG TREN, Delft. 2008. [http://ec.europa.eu/transport/themes/sustainable/doc/2008\\_costs\\_handbook.pdf](http://ec.europa.eu/transport/themes/sustainable/doc/2008_costs_handbook.pdf).
8. Nagpure AS, Gurjar BR. Development and evaluation of Vehicular Air Pollution Inventory model. *Atmos Environ.*2012; (59):160–169.
9. Rizwan S, Nongkynrih B, Gupta S. Air pollution in Delhi: Its Magnitude and Effects on Health, *The Indian Journal of Community Medicine.* 2013; (38): 4–8.

How to cite this article: Chand K. An Initiative of adopting E-Vehicles to minimize air pollution. *International Journal of Research and Review.* 2019; 6(12):605-608.

\*\*\*\*\*