University of Reading, UK

PM2.5 entails everything within the air that is not the gas, and comprises a diameter of 2.5 micrometers or less. Effects of PM2.5 are continuously studied; however it has been proven to pose adverse negative health effects such as respiratory diseases and premature mortality. Human ill-health brings the necessity to remedy and mitigate PM2.5 emissions in air pollution. Traffic is a key contributor to the PM levels; hence the increased adoption of EVs may be one of the ways in which PM levels could be reduced. With the use of literature and statistical analysis, it is possible to study the role of EVs in influencing PM2.5 levels.

Secondary data was collected from 5 London boroughs, consisting of annual mean PM2.5 (µg/m3), annual MVC, and number of registered ULEVs, BEVs, and PHEVs for each site from 2011-2019. Producing a multivariate regression model displayed 2 negative correlations between PM2.5 levels, and ULEVs/MVC. Furthermore, ULEVs are statistically highly significant at explaining the variation in PM2.5 levels, while MVC was depicted to be statistically not significant. Exclusion of PHEV and BEV data may indicate different types of EVs do not necessarily contribute more than others in reducing PM2.5 levels, whereas the reduction is derived from the electrification of all vehicles in the sector. In conclusion, the shift towards EVs does influence the decrease of PM2.5 levels. Future policy should focus on providing favorable benefits to EV owners, attracting and motivating citizens to adopt an economical alternative, all the while reducing PM2.5 emissions from traffic.

October 21, 2022; October 28, 2022; December 05, 2022