

Written evidence submitted by HEAT (AIR003)

One of the commonly recommended solutions to reducing vehicle produced air pollution in cities is Low Emission Zones (LEZ's). The concept is to restrict the travel of high polluters in the LEZ, which in theory will reduce the ambient concentrations of vehicle produced air pollutants. Generally, the entrance criteria to the LEZ's have been based on a vehicle's EU emissions certification. Conceptually, a newer EU 6 vehicle will be cleaner than a EU 5 certified vehicle, which would be cleaner than a EU 4 certified vehicle. Therefore, most LEZ's encourage the use of newer vehicles, through a higher entrance fee or an outright ban on older vehicles.

Unfortunately, this model has failed to acceptably reduce the ambient concentrations of Nitrogen Dioxide (NO₂) and Particulate Matter (PM 2.5) in LEZ's. An example is London's LEZ. A 2015 study by King's College London study found that *"The LEZ did not reduce ambient air pollution levels, or affect the prevalence of respiratory/allergic symptoms over the period studied. These data confirm the previous association between traffic-related air pollutant exposures and symptoms of current rhinitis. Importantly, the London LEZ has not significantly improved air quality within the city, or the respiratory health of the resident population in its first three years of operation. This highlights the need for more robust measures to reduce traffic emissions."*

[https://kclpure.kcl.ac.uk/portal/en/publications/effects-of-air-pollution-and-the-introduction-of-the-london-low-emission-zone-on-the-prevalence-of-respiratory-and-allergic-symptoms-in-schoolchildren-in-east-london\(46396359-248a-4d97-a84a-30c2b52d2441\).html](https://kclpure.kcl.ac.uk/portal/en/publications/effects-of-air-pollution-and-the-introduction-of-the-london-low-emission-zone-on-the-prevalence-of-respiratory-and-allergic-symptoms-in-schoolchildren-in-east-london(46396359-248a-4d97-a84a-30c2b52d2441).html)

Recent revelations concerning the Volkswagen (VW) "defeat device" scandal have brought to light the maleficent behavior of vehicle manufacturers in regards to the EU vehicle emissions certification process. While VW committed an outright crime and is being punished for their criminal activities, nearly all other vehicle manufacturers found "loopholes" in the EU certification process. The result is that the streets of the U.K. are filled with diesel vehicles, which passed the EU certification laboratory test, but pollute at alarming rates under real world driving conditions. In some cases EU 6 diesel vehicles pollute more than EU 5 diesel vehicles. The use of EU certification levels as the sole entrance criteria to LEZ's will not solve the NO₂ and PM 2.5 problems in an acceptable timeframe, and may actually make the problem worse.

Fortunately, there is a solution to the problem. A technology exists which measures vehicle emissions as the car drives down the road. This technology, known as Emissions Detection and Reporting (EDAR), uses a NASA inspired laser system to read emissions as a vehicle drives down the street. The system uses an automatic number plate reader to identify the vehicle and then captures an image of the entire exhaust plume measuring multiple pollutants including NO₂ and PM 2.5. Through the use of this technology governments can identify the vehicles that are emitting the most pollution under real-

world driving conditions, and then take appropriate corrective actions. Additionally, they can set policy on evidence-based information rather than reliance on the deeply flawed EU certification standards.

The point is that you cannot solve a problem until you know who is causing it. Using the EU certification level for entrance into an LEZ does not give accurate information concerning the real-world driving emissions of a vehicle. EDAR does.

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