

**Evidence from the Greater London Authority (GLA)
The Environmental Audit Committee Inquiry - 'Outdoor and indoor air quality targets'**

Summary

The Government's air pollution targets are not ambitious enough and do not provide adequate protection for public health. The targets are not aligned with World Health Organization (WHO) guidelines or the Government's own Office of Environmental Protection's recommendations. Aiming to achieve 10 micrograms of PM_{2.5} per cubic metre by 2040 is simply too long to wait for people to breathe clean air and will condemn yet another generation to the health impacts of toxic air.

The Mayor of London has set a target for London to reach 10 micrograms of PM_{2.5} per cubic metre by 2030 and is calling on the Government to do the same. The EU have recently proposed the same target as the Mayor of London. Modelling from both the Mayor and Defra indicates this more ambitious target of 10 micrograms of PM_{2.5} per cubic metre by 2030 is achievable.

The Mayor of London is taking action to clean up London's air. The Mayor has introduced the world's first Ultra Low Emission Zone (ULEZ), pioneered planning policies to tackle air pollution, transformed London's bus and taxi fleets through use of electric, hybrid and hydrogen technology and installed electric vehicle charging points. In his London Environment Strategy, published in 2018, the Mayor has also pioneered policy action and research to address indoor air quality.

To further improve London's air quality, the Mayor requires additional funding and additional powers. Boroughs similarly need additional powers and resources – particularly as the Government requires them to implement additional initiatives.

What evidence exists of the extent of air pollution directly or indirectly impacting health of individuals or communities in England?

1. Research from Imperial College London has found that around 4,000 Londoners die prematurely each year as a result of toxic air¹. A full breakdown of deaths by borough is listed in Annex 1.
2. A recent review from Imperial College London's Environmental Research Group found that air pollution poses a serious risk to people's health at every stage of life, including prior to birth. The study found that air pollution can impair normal foetal development in the womb, increasing the risk of miscarriage, low birth weight and pre-term births. Recent studies and reviews also highlight adverse associations between air pollution and a range of sperm parameters including decreases in semen volume, concentration of sperm, motility, and normal morphology. The health impacts of air pollution exposure continue into old age, increasing the risk of

¹https://www.london.gov.uk/sites/default/files/london_health_burden_of_current_air_pollution_and_future_health_benefits_of_mayoral_air_quality_policies_january2020.pdf

stroke, dementia, cancer, multiple longer-term illness including respiratory and cardiovascular disease, and early death².

3. Evidence from the British Lung Foundation found that over 500,000 Londoners suffer from asthma and are vulnerable to the effects of toxic air, with more than half of these people living in outer London³.
4. If no further action is taken to reduce air pollution, around 550,000 Londoners will develop diseases related to poor air quality over the next 30 years. In this case, the cost to the NHS and social care system in London is estimated to be £10.4 billion by 2050⁴.

What evidence exists to demonstrate the impact of the Ultra Low Emission Zone in London, and other Clean Air Zones nationwide, on reducing public health risks or improving health outcomes within areas where they have been introduced?

5. In April 2019, the Mayor of London launched the world's first 24-hour Ultra Low Emission Zone (ULEZ) in central London. In October 2021 the zone was expanded across inner London, up to, but not including, the North and South Circular Roads. The GLA recently published a one-year report which outlines the impact of the ULEZ expansion to inner London⁵. Impacts include:
 - a) Harmful NO₂ concentrations alongside roads are estimated to be 46% lower in central London and 21% lower in inner London than they would have been without the ULEZ and its expansion.
 - b) There are 74,000 fewer non-compliant vehicles in the whole of the zone on an average day, a reduction of 60% since October 2021.
 - c) There are 47,000 fewer vehicles overall in the zone on an average day, a reduction of 5%.
 - d) CO₂ emissions have reduced by 4% since 2019.
6. Other benefits of ULEZ include:
 - e) The number of schools in areas exceeding the legal limits for NO₂ fell by 96%, from 455 in 2016 to just 20 in 2019⁶.
 - f) PM_{2.5} levels have reduced across London, with a 41% reduction in average concentrations in central and inner London since 2017⁷.
7. Following an extensive consultation, the Mayor confirmed plans to expand the ULEZ across all London boroughs from 29 August 2023 to tackle the triple threats of air pollution, the climate emergency and traffic congestion. Five million people are expected to breathe cleaner air as a result of expanding ULEZ to outer London - where over half of the deaths attributable to air pollution currently occur and where

² <https://www.london.gov.uk/sites/default/files/2023-04/Imperial%20College%20London%20Projects%20-%20impacts%20of%20air%20pollution%20across%20the%20life%20course%20%E2%80%93%20evidence%20highlight%20note.pdf>

³ [Asthma statistics | British Lung Foundation \(blf.org.uk\)](https://www.blf.org.uk/asthma-statistics)

⁴ [modelling the long-term health impacts of changing exposure to no2 and pm2.5 in london final 250220 -4.pdf](#)

⁵ <https://www.london.gov.uk/sites/default/files/2023-02/Inner%20London%20ULEZ%20One%20Year%20Report%20-%20final.pdf>

⁶ https://www.london.gov.uk/sites/default/files/air_quality_in_london_2016-2020_october2020final.pdf

⁷ [Inner London ULEZ Expansion 1 Year Report](#)

air pollution is reducing more slowly. Modelling⁸ suggests that expanding the ULEZ London-wide in August 2023 is expected to:

- a) Reduce PM_{2.5} exhaust emissions from cars in outer London by nearly 16% leading to a 1.5% overall reduction in PM_{2.5} emissions London-wide.
- b) Lead to a reduction of nearly 10% of NO_x emissions from cars in outer London.
- c) Reduce the number of cars not meeting the standards each day from 160,000 to 46,000 and the number of vans not meeting the standards from 42,000 to 26,000.
- d) Lead to 146,000 fewer car trips overall – a nearly 2% reduction.
- e) Save 362 tonnes of NO_x emissions and 23,000 tonnes of CO₂.

Are the current national targets for outdoor air pollution ambitious and wide-ranging enough to provide adequate protection for public health and the environment in a) rural and b) urban areas?

8. The Government's air pollution targets are not ambitious enough and do not provide adequate protection for public health. The targets are not aligned with World Health Organization (WHO) guidelines, which are recognised globally and reflect the best available health evidence. The targets also fall short of the recommendations made by the Government's own Environmental Protection Office. Aiming to achieve 10 micrograms of PM_{2.5} per cubic metre by 2040 is simply too long to wait for people to breathe clean air, condemning yet another generation to the health impacts of toxic air.
9. The Government's own consultation on air quality targets found that there were several scenarios under which it would be possible to achieve 10 micrograms of PM_{2.5} per cubic metre nationwide by 2030⁹. In 2019, City Hall similarly published a peer-reviewed study showing that an annual mean concentration of 10 micrograms of PM_{2.5} by 2030 was achievable in London if additional powers and resources were devolved to the Mayor¹⁰.
10. **Recommendation:** The Mayor of London has set a target for London to reach 10 micrograms of PM_{2.5} per cubic metre by 2030 and is calling on the Government to do the same. The EU have recently proposed the same target as the Mayor of London.

Does the Government provide sufficient funding and devolved powers to local authorities in England to improve local air quality? If not, what additional funding or devolved powers are required?

11. No - to improve London's local air quality, the Mayor of London requires both additional funding for programmes and infrastructure and additional devolved powers.

⁸ [our-proposals-to-help-improve-air-quality-tackle-the-climate-emergency-and-reduce-congestion-by-expanding-the-ulez-london-wide-and-other-measures \(amazonaws.com\)](https://www.amazonaws.com/our-proposals-to-help-improve-air-quality-tackle-the-climate-emergency-and-reduce-congestion-by-expanding-the-ulez-london-wide-and-other-measures)

⁹ https://consult.defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Air%20quality%20targets%20%20Detailed%20Evidence%20report.pdf

¹⁰ https://www.london.gov.uk/sites/default/files/pm2.5_in_london_october19.pdf

12. The Mayor currently has the power to tackle emissions from transport and new buildings. However, by 2025, road transport emissions are expected to be overtaken as the main source of pollution across Greater London by industrial/commercial heat and power generation sources.
13. **Recommendation:** To address these emerging sources of air pollution, Government should devolve additional powers to the Mayor, including the power to tackle emissions from Non-Road Mobile Machinery (NRMM), woodburning, commercial cooking, shipping and the domestic and industrial combustion of coal and oil. The Mayor has called for this in his London Environment Strategy, and he reiterated these calls during the passage of the Environment Act.
14. The Government should also go further to support the Mayor with the implementation of ULEZ. The ULEZ is a highly targeted scheme, designed to get only the most polluting vehicles off the road. 9 out of 10 cars seen driving in outer London are already compliant and will not be affected by charges. But for those who will be impacted by the scheme, the Mayor is funding the biggest scrappage scheme to date to help those most in need – £110m for Londoners on lower incomes, disabled Londoners, micro-businesses and sole traders, and charities to scrap or retrofit their non-compliant vehicles.
15. **Recommendation:** The Mayor of London is also calling for Government to match the funding he is providing for scrappage in London and introduce a targeted scrappage scheme that provides help to those based in the home counties who drive into London with the most polluting vehicles. More funding would allow more grants to be made, enabling more people to switch to cleaner vehicles.
16. The Government has provided funding to Greater Manchester (£120m), Bristol (£42m), Birmingham (£38m) and Bradford (£30m). But London and the home counties, including Surrey and Kent, have not received any financial support from central Government.
17. The Government's revised Air Quality Strategy also places more responsibilities on boroughs to support the achievement of national targets. **Recommendation:** If boroughs are expected to deliver additional initiatives, they must be supported by the Government with additional powers and resources for the results to be achieved. For example, for boroughs to play an effective role in the enforcement of Smoke Control Area restrictions they will require additional funding and regulatory powers.

What steps can the Government take to improve indoor air quality?

18. There is currently little understanding of indoor air pollution levels in London and across the country. The London Atmospheric Emissions Inventory (LAEI)¹¹ data, which is used by the GLA, and the National Atmospheric Emissions Inventory (NAEI), which is used nationally, has many gaps. Neither includes key sources of indoor air pollution - including from the fabric of buildings and furnishings, cooking processes, and sources of airborne biological matter. There are currently no methodological approaches, emission factors, or activity data to enable detailed emission inventories to be developed for such indoor sources.

¹¹ <https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2019>

19. **Recommendation:** The Government should develop activity-based emissions inventories, such as those used in the London Atmospheric Emissions Inventory (LAEI) and the National Atmospheric Emissions Inventory (NAEI), which could be used to underpin modelling of indoor concentrations and the effectiveness of interventions.
20. The Mayor of London has taken clear action to reduce indoor air pollution. This includes reducing the need for indoor combustion through the Warmer Homes Programme¹², planning policies for new builds and refurbishments, and developing technical guidance to support boroughs in the delivery of the London Local Air Quality Management (LLAQM)¹³. The Mayor of London has also recently published detailed guidance on Air Quality Neutral¹⁴ and Air Quality Positive¹⁵ which will help to improve indoor air quality in new buildings. **Recommendation:** The Government should follow this approach and implement similar initiatives across the country.
21. The GLA has also researched ways to reduce indoor pollution, including trialling indoor filtration systems in nurseries. **Recommendation:** The Government should follow the GLA's approach at a national level, including by developing Air Filtration Systems (AFS) design standards with minimum performance requirements, certified under common testing criteria¹⁶.

What are the differential impacts, geographically, and across socioeconomic groups, of poor outdoor and indoor air quality? Are measures to address poor air quality appropriately targeted?

22. The greatest number of deaths attributable to air pollution are in outer London boroughs, mainly due to the higher proportion of elderly people in these areas, who are more vulnerable to the impacts of air pollution¹⁷.
23. At present, air pollution hits the poorest communities and Black, Asian and minority ethnic communities the hardest¹⁸.
24. London's poorest households are the least likely to own a car. In outer London, 70 per cent of households earning less than £10k of annual income don't own a car.¹⁹ Whilst London's poorest households are much less likely to own a car, they are more likely to be affected by the air pollution impacts resulting from traffic and congestion. It is estimated that the most deprived areas of London experience average concentrations of NO₂ that are 13% higher than the least deprived areas, with PM_{2.5} concentrations 6% higher²⁰.

¹² <https://www.london.gov.uk/programmes-strategies/housing-and-land/improving-quality/warmer-homes>

¹³ https://www.london.gov.uk/sites/default/files/llaqm_technical_guidance_2019.pdf

¹⁴ <https://www.london.gov.uk/sites/default/files/2023-02/Air%20Quality%20Neutral%20LPG.pdf>

¹⁵ <https://www.london.gov.uk/sites/default/files/2023-02/Air%20Quality%20Positive%20LPG.pdf>

¹⁶ [2020212_afs_trial_findings_report_v8.3_inc_apdx.pdf](https://www.london.gov.uk/sites/default/files/2020212_afs_trial_findings_report_v8.3_inc_apdx.pdf) (london.gov.uk)

¹⁷ <https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/health-burden-air-pollution-london>

¹⁸ <https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/environment-publications/air-pollution-and-inequalities-london-2019>

¹⁹ London Travel Demand Survey 2019/2020 (internal data set)

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https://www.london.gov.uk/sites/default/files/air_pollution_and_inequalities_in_london_2019_update_0.pdf

25. The Mayor's policies have already helped reduce the exposure between the most and least deprived areas by up to 50% and the gap between air pollution in areas where BAME Londoners are most and least likely to live has narrowed by 15-37%. But there is further to go to tackle air pollution and the resulting health inequalities²¹

How well is the Government spreading awareness of the impacts of poor air quality and promoting action being taken to tackle the issue

26. The government does not take sufficient action to spread awareness of the impacts of poor air quality.
27. In 2016, the Mayor of London consulted the public on air quality. 15,000 people responded, and 79% of respondents stated that they wished to receive information when air pollution is high or very high, so that they can take action to protect their health. In response, the Mayor implemented a London-wide alerts system to notify the public of elevated pollution levels. When high and very high air pollution is forecast, air quality alerts are displayed at many public locations across London, including all bus stop countdown signs. Alerts and guidance are also available via social media providing different information and guidance depending on the alert level. **Recommendation:** The government should learn from and follow the approach of the Mayor's Air Quality Alert system used in London²².
28. There is a need for more information and awareness about both indoor and outdoor air pollution at the national level. The Coroner's Prevention of Future Death's report²³ identifies the need for improved provision of public information about the dangers of air pollution. **Recommendation:** The Government should lead a national communications campaign so that the public understands the dangers of air pollution and how to reduce exposure to it. The health system also has a crucial role to play in such a campaign.
29. The Defra Air Quality Index (DAQI) provides recommended actions and health advice for each air pollution banding²⁴, but the DAQI has not been updated since 2012, and in the last 10 years understanding of the impacts of air pollution on health has improved. The GLA has been working with the NHS to implement a health based air quality alert, but this project is dependent on accurate recommended actions and health advice being issued. **Recommendation:** Defra should urgently review and update the health advice provided within the Defra Air Quality Index (DAQI) and disseminate the information nationally.

How well is the Government coordinating measures between national and local actors to improve air quality, both outdoors and indoors?

30. Overall, government does not effectively coordinate measures between national and local actors to improve air quality. In particular, there is a lack of clarity how

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https://www.london.gov.uk/sites/default/files/air_pollution_and_inequalities_in_london_2019_update_0.pdf

²² [Monitoring and predicting air pollution | London City Hall](#)

²³ <https://www.judiciary.uk/prevention-of-future-death-reports/ella-kissi-debrah/>

²⁴ <https://uk-air.defra.gov.uk/air-pollution/daq>

responsibilities fall between Defra and UKHSA and which body is responsible for setting the strategic direction, leading to disjointed approaches. Coordination between these two bodies is essential given that air quality is both a public health issue and environmental challenge.

31. The Mayor of London ensures a cohesive approach to tackling air pollution by integrating health and air quality within all of his strategies, including the London Plan²⁵, Mayor's Transport Strategy²⁶, London Environment Strategy²⁷ and Healthy Streets for London²⁸.
32. While overall coordination is not as effective as it could be, the Local Air Quality Management (LAQM) ²⁹ is an example of where the Government is providing a reasonably clear structure for coordination between government and local actors. This process works well with clear roles and responsibilities assigned. Under the Environment Act 1995, local authorities have a statutory responsibility in LAQM to ensure the national air quality objectives will be achieved by the relevant deadlines. If a local authority finds any places where the objectives will not be achieved, it must declare an Air Quality Management Area (AQMA) in that area.
33. Much of London has been designated AQMAs. The DEFRA website has an interactive map of all AQMAs in the country. Local authorities which have wholly or partly designated their boroughs as AQMAs must under LAQM produce an Air Quality Action Plan (AQAP). AQAPs set out how local authorities, working with other agencies, will use their powers to meet the air quality objectives. AQMAs provide clear coordination between government and local actors.
34. Whilst the LAQM has the potential to be an effective tool, local authorities would benefit from additional support and guidance. The Mayor has supported boroughs across London by developing Technical Guidance³⁰ and producing the Borough Air Quality Compendium³¹.
35. **Recommendation:** London should continue to manage its London LAQM system as it has done successfully since 2016. All parties are in agreement on this already.
36. The government needs to improve coordination measures for indoor air quality. There is currently lack of clarity regarding ownership and responsibility for reducing sources of indoor air quality. There is also a disjunction between the coordination of responsibilities and powers to improve air quality. For example, the Government have responsibility to legislate for indoor air quality, however, boroughs have responsibility to act on wood burning, though their powers and resources are insufficient.

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²⁵ <https://www.london.gov.uk/programmes-strategies/planning/london-plan>

²⁶ <https://tfl.gov.uk/corporate/about-tfl/the-mayors-transport-strategy>

²⁷ <https://www.london.gov.uk/programmes-and-strategies/environment-and-climate-change/london-environment-strategy>

²⁸ <https://content.tfl.gov.uk/healthy-streets-for-london.pdf>

²⁹ <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>

³⁰ <https://laqm.defra.gov.uk/air-quality/guidance/technical-guidance/>

³¹ https://www.london.gov.uk/sites/default/files/gla_compendium_report_final_jan_2022.pdf

Annex 1 – Deaths attributable to air pollution by borough³²

Borough	Attributable deaths (multi pollutant estimate)	
	Lowest estimate	Highest estimate
Barking and Dagenham	84	97
Barnet	177	201
Bexley	139	162
Brent	133	149
Bromley	172	204
Camden	99	109
City of London	4	4
Croydon	168	196
Ealing	147	165
Enfield	142	164
Greenwich	113	129
Hackney	86	96
Hammersmith and Fulham	74	83
Haringey	90	101
Harrow	102	118
Havering	149	178
Hillingdon	135	155
Hounslow	114	128
Islington	90	100
Kensington and Chelsea	70	77
Kingston upon Thames	76	87
Lambeth	112	126
Lewisham	111	127
Merton	87	100
Newham	98	111
Redbridge	124	142
Richmond upon Thames	86	98
Southwark	109	121
Sutton	101	118
Tower Hamlets	88	97
Waltham Forest	102	116
Wandsworth	115	129
Westminster	100	110

³²https://www.london.gov.uk/sites/default/files/london_health_burden_of_current_air_pollution_and_future_health_benefits_of_mayoral_air_quality_policies_january2020.pdf