Making Britain's air cleaner,
healthier and better to breathe:

A blueprint for government action on clean air

Healthy Air Coalition

Contents

Foreword

by Dr Camilla Kingdon, Chair of the Healthy Air Coalition

Air pollution is a public health emergency that demands urgent, coordinated action across every level of government. It is invisible, yet it affects us across our whole life course. As paediatricians, clinicians, and health advocates, we see the impact polluted air can have every day – in children with asthma, adults with chronic respiratory disease, and the disproportionate burden shouldered by our most deprived communities. This is not just an environmental issue; it is a health crisis, a social justice issue, and a preventable tragedy.

We have made progress – but not nearly enough. Millions of people still live, work, travel and grow up in environments where the air is unsafe to breathe. The science is unequivocal, and the solutions are within reach. What we need now is political will and legislative ambition to match the scale of the challenge.

This report sets out a bold but essential vision: for a new Clean Air Act that prioritises health, embeds public health principles, and holds the government accountable for continuous progress.

We're calling for the UK to meet and exceed the standards being set by our European neighbours, not fall behind. That means regularly updating legally binding targets based on the latest scientific evidence, and ensuring those targets are met everywhere, not just in selected locations.

The actions we outline are practical, evidence-based and health-focused. From phasing out domestic wood burning to investing in clean heating, redesigning transport systems, and ensuring our planning system delivers healthy communities. Every recommendation is rooted in a vision for healthier and fairer air.

We must also confront the reality that air pollution does not affect everyone equally. The most vulnerable – children, older people, people with existing health conditions, and those living in poverty – are disproportionately exposed and harmed. Indoor air pollution, often overlooked, is a growing concern, particularly in poorly ventilated and substandard housing. Our strategy must be inclusive and equitable, closing the gap in exposure and health outcomes between the least and most advantaged.

This report is a call to action for policymakers: clean air is not a luxury, it is a fundamental right. It is time we treated it as such. We know what needs to be done. Now we must do it, with urgency, ambition, and with the health of current and future generations at the heart of every decision.

About this report

The Healthy Air Coalition is a coalition of over 30 leading health, environment and transport organisations united by the shared vision of a UK free from toxic air.

We believe that everyone in the UK has the right to breathe safe, clean air, no matter who they are or where they live.

It is time for the government to act with ambition to bring air pollution down to safer levels and realise the benefits of clean air for people's health, the NHS and the economy.

This report is a blueprint for tackling air pollution in the UK. It examines the main sources of air pollution and provides corresponding solutions to tackle them. These sources include road transport, domestic combustion, agriculture, and industry. We advocate for stronger, evidence-backed government air quality targets, underpinned by a stronger legislative framework to support the policy change needed.

This report summarises the Healthy Air Coalition's position on clean air policy solutions. It should not be viewed as a comprehensive guide to each coalition member's views on these topics.

This report was written by the Healthy Air Coalition Secretariat. Supporting research was provided by all members of the Healthy Air Coalition.

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The Healthy Air Coalition is delighted to receive support from the **Clean Air Fund** and **Impact on Urban Health**.

Policy recommendations

Tackling air pollution requires a concerted effort across government.

In this blueprint for clean air action, we advocate for four overarching policy shifts that would address the most harmful sources of air pollution.

Image credit: Mary Turner

We call on the government to:

Strengthen the clean air regulatory framework

- Introduce a new Clean Air Act that sets ambitious targets for air quality, aligned with the latest World Health Organization air quality guidelines.
- Launch a national public awareness campaign and implement the recommendations of the Air Quality Information System (AQIS) Review.
- Put our right to breathe clean air into UK law, ensuring everyone has access to this basic human right.
- Commit to long-term funding for local authorities to enforce regulations, with funding proportionate to the scale of action required in each area.

Deliver the transition to clean home heating

- Phase out the use of wood burning stoves, open fires and other domestic solid fuel burning as soon as possible.
- Deliver the Warm Homes Plan in full, realising the clean air co-benefits of sustainable home heating and well-fitted insulation across all homes.
- Provide grants to those on low incomes and those reliant on domestic burning as a sole heating source to switch from oil or gas heating to a heat pump.
- Develop a cross-government strategy to address indoor air pollution and clarify departmental responsibility for indoor air quality within government.

Reduce reliance on cars and promote cleaner transport options

- Clean up the most polluting diesel vehicles on our roads, through measures including rolling out affordable electric vehicle charging infrastructure across the UK.
- Commit to a traffic reduction target that will bring down nitrogen dioxide air pollution in line with World Health Organization guidelines.
- Deliver cleaner public transport that is more affordable, accessible and reliable for all.
- Outline how the UK will meet its target of 50% of short journeys in towns and cities walked, wheeled or cycled by 2030, and set out the scale of infrastructure and funding required to meet this target.
- Introduce clean air considerations into the planning process, ensuring new homes are not reliant on car use, and are connected to public transport and active travel infrastructure as standard.

Clean up polluting practices in farming and industry

- Carry out a review of the use of waste incinerators in the UK.
- Introduce a UK-wide moratorium on all new incineration capacity.
- Strengthen air quality regulations in the construction sector and improve local authority enforcement capacity.
- Provide construction businesses with resources and a clear regulatory roadmap to drive investment in less polluting technologies.
- Invest in a dedicated national programme to reduce ammonia from agriculture and drive down secondary fine particulate matter air pollution.
- Ensure plans to decarbonise aviation also reduce air pollution emissions.

Introduction

Toxic air is putting severe strain on the UK economy and health service, with up to 43,000 early deaths linked to air pollution every year[1]. The Royal College of Physicians and the Royal College of Paediatrics and Child Health estimate that health problems resulting from air pollution cost the UK £20 billion per year[2]. Without stronger action, air pollution risks undermining the government's mission to build an NHS Fit for the Future.

Air pollution is the greatest environmental threat to health[3]. Short-term exposure can increase the risk of breathing difficulties[4] or stroke[5], while long-term exposure can contribute to the development of chronic conditions such as asthma, chronic obstructive pulmonary disease[6] and cardiovascular disease[7]. Air pollution has also been linked to lung cancer[8], dementia[9] and low birth weight[10].

While overall air quality has improved in the last decades, evidence now suggests that air pollution is worse for our health than previously understood, placing greater pressure on the NHS and social care system if not tackled effectively. The emerging evidence connecting air pollution to dementia and other health risks led the World Health Organization (WHO) to update its air quality guidelines in 2021, and prompted the UK's Committee on the Medical Effects of Air Pollution (COMEAP) to revise upwards their estimate of mortality linked to air pollution.

As highlighted by the Marmot Review[11] and the 2022 Chief Medical Officer's annual report, the UK's deprived communities are the hardest hit by toxic air, with more vulnerable groups experiencing the greatest health effects of air pollution[12]. Analysis by Healthy Air Coalition member Friends of the Earth shows that air pollution levels are highest in low-income areas and those with larger ethnic minority populations[13]. Furthermore, The Health Foundation has found that men living in the most polluted areas of the UK die 3.5 years younger on average than men in the least polluted areas[14].

Some groups are more susceptible to the effects of air pollution, including children, older people, pregnant women and people with existing health conditions. Children are particularly vulnerable to lasting health effects, as their lungs are still developing, and they are more likely to breathe in air pollution due to their proximity to pollution sources at ground level[15].

"Healthy, happy children is not a 'nice to have', it's a basic right."

Sir Keir Starmer[16]

Given the extensive health burden of poor quality air, it is perhaps unsurprising that air pollution also impedes the UK's economic growth ambitions. Tackling air pollution is critical to the government's plan to boost economic growth, reduce economic inactivity, and get people back into work.

Reducing air pollution emissions will also lower greenhouse gas emissions, in turn delivering co-benefits for the economy, the NHS and accelerating progress towards the UK's Net Zero targets.

Image credit: Gulshan Khan

Tackling air pollution directly supports the government's plans to:

Build an NHS fit for the future by preventing disease before it develops.

Kickstart economic growth by improving population health and curbing congestion.

Make Britain a clean energy superpower by phasing out the most polluting vehicles and heating methods.

What is air pollution?

Air pollution is the presence of harmful or excessive substances in the air – such as gases, particles, or biological materials – that pose risks to human health and the environment.

In the UK, the two pollutants of most concern for our health are nitrogen dioxide (NO2) and fine particulate matter (PM2.5).

Image credit: British Heart Foundation

Nitrogen dioxide

What is it?

A gas that is commonly released when fossil fuels are burned in vehicle engines, industrial processes, and boilers in our homes.

NO2 is one of the main components of nitrogen oxides (NOx).

How does it impact health?

Short-term exposure to NO2 can irritate the airways, causing inflammation and reducing lung function, especially in children and people with existing respiratory and cardiovascular conditions.

Long-term exposure is linked to the development of asthma, and reduced lung growth in children.

Particulate matter

What is it?

A mix of solid particles and liquid droplets in the air that are harmful for health due to their size.

PM10 are particles up to 10 micrometres wide, while PM2.5 are finer particles up to 2.5 micrometres wide that penetrate deep into the lungs and bloodstream.

Common sources are road traffic (particularly tyre and brake wear), domestic wood burning, industrial processes, construction activities, and agriculture.

How does it impact health?

PM2.5 has the highest cost to society and the NHS of any pollutant[17]. Short-term exposure can exacerbate asthma, cause breathing difficulties, and trigger heart attacks and strokes.

Long-term exposure is linked to cognitive decline and increased risk of dementia, development of respiratory conditions and increased risk of premature death. Approximately one in ten cases of lung cancer in the UK can be linked to air pollution[18].

Other pollutants, like ammonia (NH3) and ozone (O3), are also harmful to human health, and contribute to secondary particulate matter air pollution when they interact with other gases in the air.

Laying the foundations for a public health approach

The UK must follow the example set by the European Union (EU) in its 2024 Ambient Air Quality Directive, which transferred the WHO's recommended interim pollution levels of 20 µg/m^3 of NO2 and 10 µg/m^3 of PM2.5 into legally-binding targets to be met by 2030[19].

Table: Legal limits for NO2 and PM2.5 air pollution

	NO2 annual mean limit value	PM2.5 annual mean limit value
England (legal limit)	40 µg/m^3	20 µg/m^3
European Union (2030 target)	20 µg/m^3	10 µg/m^3
WHO Air Quality Guideline	10 µg/m^3	5 µg/m^3

We call on the UK Government to introduce a new Clean Air Act that sets ambitious targets for air quality, aligned with the latest World Health Organization air quality guidelines.

The government must commit to bring long-term air quality targets in line with 2021 WHO air quality guidelines for key pollutants.

The UK should meet WHO interim targets for annual mean concentrations of 10 µg/m^3 for fine particulate matter and 20 µg/m^3 for nitrogen dioxide in all parts of the UK by 2030 at the latest.

The government should also be required by law to set a plan to meet full compliance with the WHO guidelines as soon as possible.

Focus should be put on ensuring reduced exposure to air pollution in every community across the UK. Air pollution limit values are crucial apex targets, but they are not the only measurements that matter. Legal limits should be accompanied by a suite of supporting targets to reduce air pollution everywhere and improve air quality in the long-term and short-term. An updated Population Exposure Reduction Target (PERT) should be aligned with the latest WHO member commitment of a 50% reduction in pollution-related health impacts by 2040 (compared to 2015 levels)[20].

Clean air targets should be accompanied by a framework for delivery that ensures coordinated action is taken to meet the targets. It is unacceptable that the UK has consistently breached the legal limit for NO2 since it was introduced in 2010, with government calculations now estimating that the legal limit will not be met in parts of the country until 2045, 35 years after it was introduced[21].

A new Clean Air Act should require the Department for Environment, Food and Rural Affairs (Defra) to:

- Set legally-binding targets based on the best available health and environmental evidence.
- Apply the precautionary principle, prioritising health, even in the face of scientific uncertainty.
- Ensure targets are non-regressive. They may only be strengthened, never weakened.
- Review and update binding short- and long-term targets at least every four years, responding to new science through secondary legislation.
- Consult on, implement, and review a plan setting out concrete, impact assessed measures to achieve air pollution targets, confirming who will deliver them when.
- Ensure progress made towards meeting targets is supported by adequate, strengthened air pollution monitoring requirements.
- Deliver up-to-date and high-quality information about local air quality to the general public, in a way that accessibly communicates adverse effects on health.

The right to breathe clean air: Ella's Law

Everyone deserves the right to breathe clean air. This principle is at the heart of the campaign led by Rosamund Adoo-Kissi-Debrah CBE, following the death of her daughter Ella, who tragically died aged nine in 2013 from asthma exacerbated by London's air pollution. Rosamund's fight to reopen Ella's inquest led to Ella becoming the first person in the world to have air pollution listed as a cause of death on her death certificate.

Rosamund has continued to campaign for air pollution to be recognised as a public health crisis, including for the government to enshrine the human right to breathe clean air in UK law. Through the Ella Roberta Foundation, Rosamund has campaigned for the Clean Air (Human Rights) Bill – also known as Ella's Law – which provides a legislative pathway to achieve WHO Air Quality Guidelines.

The Healthy Air Coalition supports the Ella Roberta Foundation's campaign for a new Clean Air Act, and is calling for the government to put our right to clean air into UK law, ensuring everyone has access to this basic human right.

Image credit: The Ella Roberta Foundation

Principles for a mission-led approach to tackling air pollution

Joined-up government

An effective government approach to tackling air pollution requires greater commitment to cross-government working. While Defra leads the government's work on air pollution, many important policy levers fall outside the Department's remit, including with the Department for Transport (DfT), the Department for Energy Security and Net Zero, the Department of Health and Social Care, and the Ministry of Housing, Communities and Local Government.

The government should use its commitment to mission-led government to strengthen cross-departmental delivery of clean air strategies.

Communicating and engaging with communities

Currently, UK air pollution forecasts provided via the Daily Air Quality Index (DAQI) are unclear and outdated. To adequately communicate air pollution harms to the public, the DAQI should be aligned with WHO guidelines for short-term air pollution exposure.

The same is true for alerts issued by the government during periods of elevated air pollution, the high threshold for which does not reflect the necessity for warning. There are also currently no alerts for elevated levels of PM2.5 and PM10, and a majority of the public are unaware that an air pollution alert system exists at all[22].

The recently concluded Air Quality Information System (AQIS) Review[23] offers a pivotal opportunity to drive improvements in public awareness and understanding of air quality. The final report of the AQIS Review recommends that the government 'develop and implement a communications strategy to raise public awareness of air pollution, including the actions the government and other public bodies are taking'[24]. We urge the government to prioritise the needs of those most affected by air pollution in its communications, and clarify how the public can be involved in shaping government policy.

We urge the government to implement the recommendations of the AQIS Review in full, and launch a national air pollution public awareness campaign.

Funding for local authorities

Local authorities require dedicated funding to deliver clean air schemes and enforce regulations at a local level. Facing ongoing financial pressures, local authorities have struggled to draw sufficient resources from core budgets, making it essential that central government provides financial support to the areas most affected by air pollution.

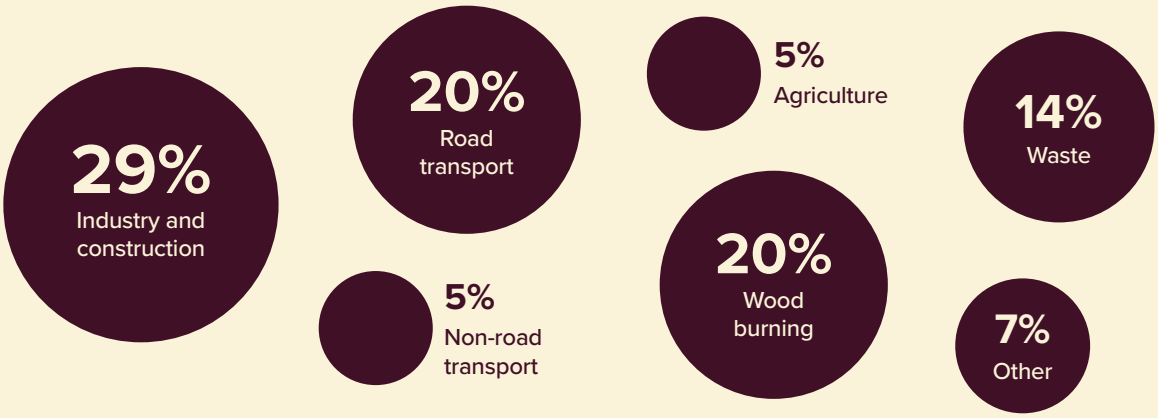
The UK remains non-compliant with the legal NO2 limit set in 2010, which required local authorities to bring air pollution within legal thresholds as soon as possible. A recent report from the Office for Environmental Protection warned that non-compliance is likely to persist beyond 2030[25], 20 years after the limit was introduced. Without adequate funding, local authorities will struggle to meet this legal obligation to reduce toxic NO2.

Historically, local authorities could apply for funding through the Air Quality Grant Scheme, receiving over £53m since 2010 to support air quality improvement projects. However, this scheme was paused in May 2024 with no commitment to reinstate it[26], limiting the financial support available to local authorities wanting to improve air quality. The government now has an opportunity to incorporate air pollution into its mission for economic growth, via its promise to "give councils multi-year funding settlements and end wasteful competitive bidding"[27].

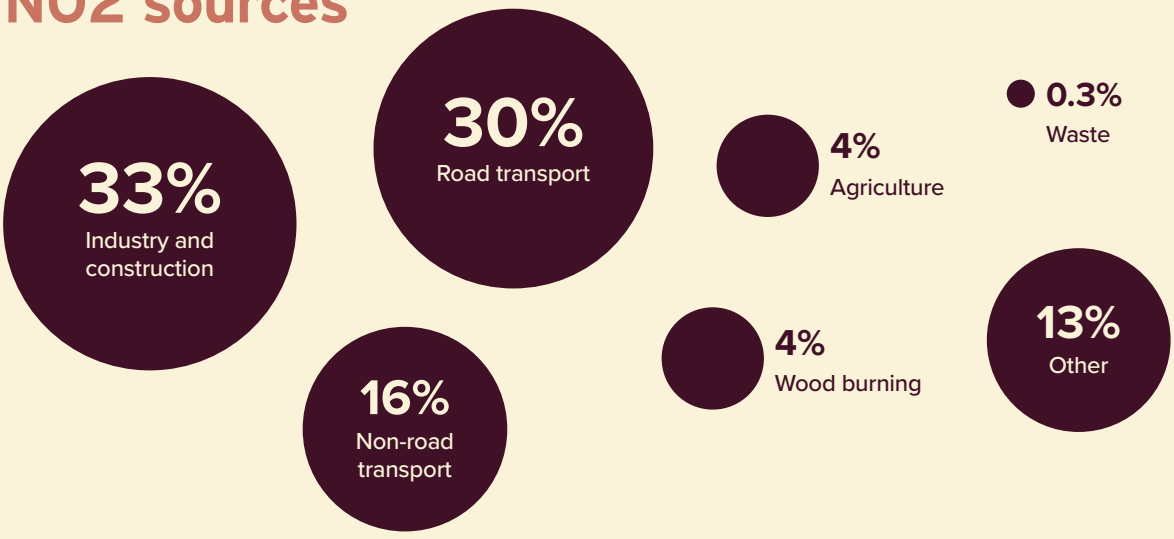
The UK Government should commit to long-term funding for local authorities to tackle air pollution and enforce existing regulations. This funding must be ring-fenced, not contingent on competitive bidding, and should be proportionate to the scale of action required in each area.

Where does air pollution come from?

PM2.5 sources



NO2 sources



Getting around

While transport is commonly known as the largest source of carbon emissions in the UK, it is also the leading source of NO2 and PM2.5 air pollution, responsible for 30% and 20.5% of total pollution levels[28]. Reducing the UK's reliance on cars is critical to building healthier communities and boosting economic growth.

Investing in well-planned communities with accessible public transport and active travel infrastructure will reduce road congestion, improve air quality, and create healthier communities – making tangible in our neighbourhoods the benefits of delivering Net Zero. The government's planning reforms provide a prime opportunity to realise this vision.

Reducing pollution from our roads

Achieving Net Zero by 2050 will require significant reductions in carbon from the transport sector[29], but without dual action to drive down air pollution, the UK will not see the public health benefits of decarbonisation.

The government's Zero Emission Vehicle mandate was a step in the right direction, with electric vehicle sales now making up one fifth of the UK car market[30]. However, millions of diesel cars found to have failed pollution tests are still on the road[31], and the number of miles we collectively travel by road continues to rise[32].

Furthermore, there remain significant disparities in the distribution of electric vehicle charging points across the UK, with 33.7% of all charging points located in London[33]. Ultimately, to clean up the air we breathe, we need to reduce the number of miles driven on our roads.

We call on the government to:

- Clean up the most polluting diesel vehicles on our roads, through measures including rolling out affordable electric vehicle charging infrastructure across the UK.
- Commit to a traffic reduction target that will bring down NO2 in line with WHO guideline levels.
- Maximise the impact of the Bus Services Bill by delivering cleaner public transport that is more affordable, accessible and reliable for all.

Active travel

Designing communities to encourage walking, cycling, and wheeling can improve our health by promoting everyday physical activity. Physical inactivity currently costs the UK economy an estimated £7.4 billion per year, including £1 billion in direct NHS costs[34]. By creating safer, pollution-free routes for children to walk or cycle to school, we can offset this cost while reducing children's exposure to toxic air.

There is strong evidence that active travel is cost-effective. DfT analysis shows that schemes promoting walking and cycling deliver an average return of £5.50 for every £1 spent – substantially higher than many conventional transport infrastructure projects[35].

However, in June 2023, the National Audit Office found that current active travel funding levels (2% of the overall transport budget[36]) were insufficient to meet the government's interim 2025 target of 46% of all short journeys in towns and cities to be walked, wheeled or cycled[37]. Central government funding for transport projects should be rebalanced away from road building and towards public transport, walking, cycling and wheeling.

We call on the government to:

- Outline how the UK will meet its existing target of 50% of short journeys in towns and cities walked, wheeled or cycled by 2030, and specify the infrastructure and funding required to meet this target.

- Set modal shift targets in the Integrated National Transport Strategy that are aligned with the UK's climate and air quality objectives. Achieving these goals will require a significant increase in investment to support the scale of transformation, raising active travel funding progressively to around 10% of current total transport spending.

Planning new communities

The government's planning reforms aim to unlock much-needed new housing, but without the integration of sustainable transport options, they risk exacerbating congestion and creating car-dependent communities.

In 2024, traffic congestion cost the UK economy £7.7 billion[38]. This figure will rise if new developments are not designed with public transport and active travel in mind. Research by the Royal Town Planning Institute[39], the New Economics Foundation[40] and Transport for New Homes[41] has found that many new housing developments built in the last decade have failed to provide access to key amenities by sustainable transport. For example, in rural areas, only 26% of new builds are within 45 minutes of a hospital by public transport[42].

The government's planning reforms are an opportunity to reverse these trends and ensure that all new homes have appropriate sustainable transport links that foster healthy communities. Local authorities, developers, and strategic planning bodies should work together to ensure that newly planned or built housing developments are seamlessly integrated into sustainable transport networks.

The government must introduce clean air considerations into the planning process, ensuring new homes are not reliant on car use, and are connected to public transport and active travel infrastructure as standard.

Image credit: Mary Turner

Heating our homes

The Government's vision for an NHS focused on prevention and reducing health inequalities can only be realised by tackling the drivers of poor health that come from our homes. Tackling pollution from domestic heating must be a priority.

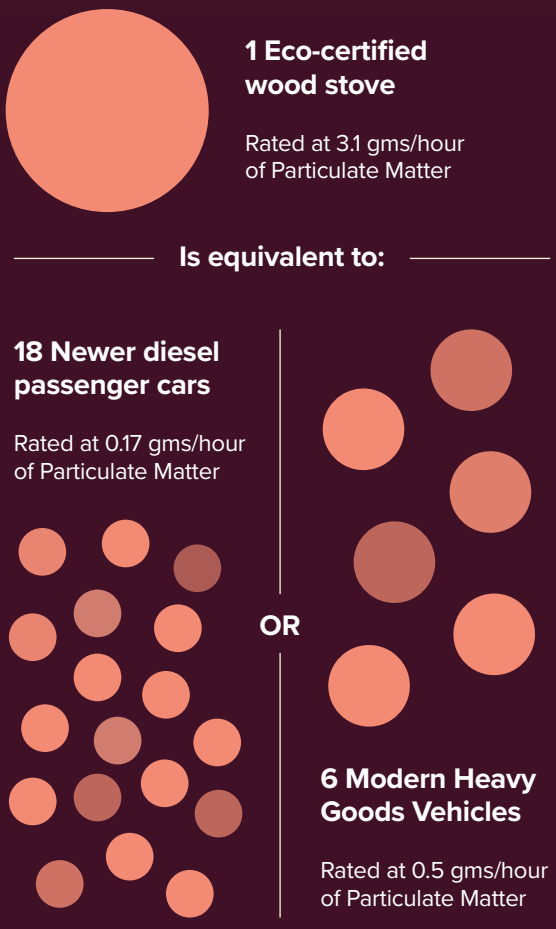
We are calling for a rapid phase-out of wood and solid fuel burning in the home, investment in clean heating alternatives like heat pumps, and a cross-government strategy to tackle indoor air pollution.

Phasing out wood burning

A significant increase in the prevalence of wood burning stoves over the last decade has seen pollution from this source steadily rise. The burning of solid fuels in the home is now a leading source of air pollution in the UK, responsible for 20.1% of total PM2.5 emissions in 2023[43].

The use of wood burning stoves in the UK is primarily a lifestyle choice, rather than a necessity, as the majority of households with wood burning stoves do not rely on them to heat their homes. Research by Healthy Air Coalition partner Global Action Plan shows that only 8% of homes with wood burning stoves use them as their primary source of heating[44]. The majority of those burning wood are not aware of the related health harms, with research commissioned by Healthy Air Coalition member Impact on Urban Health finding that only 19% of stove users were aware of negative health impacts[45].

In January 2022, the UK implemented EcoDesign regulations, requiring all new wood-burning stoves to meet specific emissions standards. **However, burning wood for one hour in an EcoDesign stove has been found to emit PM2.5 levels six times higher than a Heavy Goods Vehicle idling for the same amount of time.**[46]



Data from "Potential Air Quality Impacts from Biomass Combustion", Air Quality Expert Group (UK), 2017

Misconceptions that wood is a sustainable source of energy, or that some stoves are good for the environment and our health are compounded by the labelling of stoves as EcoDesign or 'Defra-approved'. These labels are confusing for consumers, and must be urgently replaced with information that reflects the real health and environmental impacts of wood burning.

We call on the government to:

- Phase out the use of wood burning stoves, open fires and any other domestic solid fuel burning as soon as possible, and set out a roadmap with milestones to reaching this goal.

  Steps on this roadmap should include:

  - Phasing out the most polluting stoves first and adding health warnings to all new and refurbished stoves on the market. Stoves already carry warnings about the dangers of carbon monoxide.
  - Reform smoke control areas to reflect modern-day health harms, enabling local authorities to enforce against chimneys emitting harmful levels of air pollution, rather than 'visible smoke'.
  - Prohibit the installation of wood burning in all new build properties, following the model implemented in large developments in parts of London under the Air Quality Neutral and Air Quality Positive guidance.

- Deliver a national public health campaign that sets out clear health advice about the harms of wood burning, including specific guidance for homes that have a stove.

Healthy Air Coalition member Global Action Plan has developed a detailed policy pathway for a government-led phase out domestic burning[47].

Heat pumps: A healthier alternative

As air pollution from other sources has decreased, the share contributed by gas central heating has risen, with gas boilers contributing 6% of all UK nitrogen oxides (NOx) emissions in 2021[48].

Heat pumps and heat networks powered by renewable energy present cleaner alternatives to gas heating, as they can generate no emissions when in use. While the switch from gas central heating to heat pumps is often framed around decarbonisation benefits, heat pump installations also present significant co-benefits for clean air.

We urge the government to consider the significant public health co-benefits of this transition. Independent modelling commissioned by National Energy Action found that government action to meet the UK's fuel poverty target by 2030 would also remove 24,000 tonnes of harmful NOx air pollution from the air between 2022 and 2030[49].

We call on the government to:

- Deliver its Warm Homes Plan in full, realising the clean air co-benefits of sustainable home heating and well-fitted insulation across all homes.
- Provide grants to those on low incomes and those reliant on domestic burning as a sole heating source to switch from oil or gas heating to a heat pump.
- Rebalance electricity environmental levies to fossil fuels to make heat pumps cheaper to run and incentivise their uptake.

Indoor air pollution

People experiencing deprivation in the UK are more likely to be exposed to high levels of air pollution outdoors, and there is increasing evidence of similar disparities inside the home[50,51]. This is due to a higher prevalence of poor housing, with living conditions that are more likely overcrowded, cold and damp, with older appliances and inadequate ventilation.

In particular, cold homes are more likely to develop mould[52], which creates indoor air pollution and puts vulnerable groups at particular risk of illness. The Healthy Air Coalition supports the introduction and application of Awaab's Law to the social and private rented housing sectors, as a measure that will limit some harms of indoor air pollution.

Approximately 36 million people in the UK may also be exposed to dangerous indoor air pollution from gas hobs and ovens that exceed the legal limits of pollutants permitted outdoors[53]. While induction hobs offer a cleaner and increasingly affordable alternative to gas cooking, no measures exist to discourage consumers from purchasing gas hobs.

The Government should develop a cross-government strategy to address indoor air pollution and clarify departmental responsibility for indoor air quality within government, as recommended by the Chief Medical Officer in 2022[54]. An indoor clean air strategy should include air quality standards aligned with WHO guidelines, a cross-departmental working group to implement the strategy and funding to support households to transition to less pollution heating and appliances.

Transforming farming and industry

As the government seeks expansion of the UK's clean energy capabilities, re-evaluating our reliance on waste incineration, traditional agriculture practices, air travel and polluting construction practices will be critical to improve air quality alongside achieving Net Zero.

Incinerators

Industrial burning of waste is a significant source of PM2.5 air pollution in the UK, responsible for 13.7% of all PM2.5, while also producing significant carbon emissions.

In December 2024, Defra announced its intention to crack down on waste incineration, but between 2019 and 2023, the number of UK incinerator sites surged and their overall PM2.5 outlay rose by 59%[55]. Using incineration to produce energy is the second most damaging form of energy production for the climate, following closely behind coal[56]. Healthy Air Coalition member Greenpeace has found that around 58% of UK plastic waste is incinerated, with only 17% recycled[57].

People living near incinerator sites are more at risk of developing health problems and burning waste has been associated with a range of adverse health effects, including in babies and pregnant women. These include congenital anomalies, infant deaths, and miscarriage[58]. Incinerators are also disproportionately sited in deprived, ethnically diverse communities, exacerbating existing health inequalities[59]. Analysis by Healthy Air Coalition member ClientEarth found that, per tonne of waste, the health costs of incinerating waste are 2.5 times higher than putting it in landfill[60].

In the UK, electricity generated through the combustion of biomass – particularly wood pellets – has also grown significantly over the past decade. The volume of PM10 air pollution emitted by Drax Power Station in Yorkshire is now the equivalent of three million additional diesel cars on the roads every year[61].

We call on the government to:

- Carry out a review of the use of waste incinerators in the UK.
- Introduce a UK-wide moratorium on all new incineration capacity.
- Strengthen regulations on biomass and waste incineration to ensure the private sector takes responsibility for reducing its emissions.

Agriculture

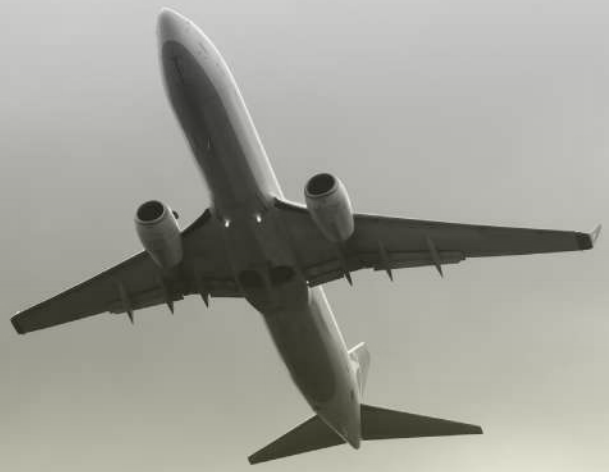
Agriculture is the leading source of ammonia air pollution in the UK, responsible for 87% of emissions[62]. Emissions have flatlined since 2008 and the UK is currently projected to miss its 2030 emission reduction target for ammonia unless further action is taken.

Like NO2, ammonia is a gas that causes short and long-term health issues and contributes to climate change, but it becomes most harmful to health when it combines with other gases in the air to form secondary PM2.5. Secondary PM2.5 can cause poor air quality in rural areas, and contributes to our nationwide air pollution crisis. A study from University College London found that between 25%-38% of PM2.5 in major cities like London, Birmingham and Leicester came from agriculture[63].

Reducing ammonia is an effective way to cut PM2.5, and the government must use incentives and regulation to ensure the agricultural sector reduces pollution. Solutions are often simple, for instance, covering slurry stores could reduce ammonia by up to 80%[64].

The government's Air Quality Expert Group (AQEG) has highlighted successful policies in the Netherlands, where regulatory controls on agricultural ammonia were responsible for around half of a 64% reduction in ammonia emissions between 1990 and 2016[65]. Similarly, Denmark has reduced levels of ammonia by 40% between 1990 and 2016. The UK can learn from our neighbours' successes if the government is willing to prioritise this issue.

The government must invest in a national programme to reduce ammonia from agriculture to meet its 2030 ammonia targets and drive down secondary PM2.5 air pollution.



Aviation

As the government encourages expansion of the UK's largest airports, there is a significant risk of this policy direction elevating already harmful levels of air pollution.

Road traffic surrounding UK airports and on-site operations are major sources of local NO2 air pollution, and both stand to increase with airport expansion[66]. It is vital that there is no worsening of air quality surrounding UK airports as a result of the government's airport expansion plans.

While PM2.5 has been recognised as one of the worst pollutants for health, the health harms of much smaller ultra fine particles (UFPs), are less well understood. UFPs – particles with a diameter of less than 100 nanometres – primarily come from road transport and shipping, but research has shown significant levels near major airports[67].

The government's Air Quality Expert Group (AQEG) has stated that some potentially important sources of UFPs are poorly quantified[68].

The government has promoted sustainable aviation fuel (SAF) as the solution to reducing carbon emissions from aviation. However, while SAF can create fewer of the soot particles that contribute to climate change, any potential benefits to local air quality need to be substantiated. Decarbonisation and improving public health must go hand in hand, and it is crucial that the government acknowledges aviation's non-carbon emissions and invests in their monitoring and research.

The government must ensure that policies to decarbonise aviation also reduce air pollution emissions, including by investing in research, monitoring and measurement of ultra-fine particle air pollution.

Construction

Both NO2 from construction machinery and dust from construction processes affect the health of construction workers and the communities they work in. The construction industry accounts for 18% of PM10 air pollution emissions in the UK[69], but this sector has received limited attention from industry and policymakers, reflected in air pollution from this source flatlining over the last 25 years.

Air pollution from construction can be reduced by ensuring construction sites comply with existing regulations and by encouraging the industry to adopt less polluting practices[70]. Stronger regulations, including introducing a clear timeline for adopting the next phase of the European Non-Road Mobile Machinery (NRMM) emission standards, would incentivise the development of cleaner construction machinery in the UK. The construction industry has called for additional regulation that would provide clarity and a level playing field[71].

We call on the government to:

- Strengthen regulations in the construction sector and improve the capacity for local authorities to enforce compliance.
- Provide construction businesses with resources and a clear regulatory roadmap to drive investment in less polluting technologies.

Occupational health

Clean air is an occupational health issue. A growing body of evidence shows the harms of indoor air pollution in places where people have little control over the air they breathe.

Workers in certain indoor environments are disproportionately exposed to high levels of air pollution. This includes people working in the manufacturing industry, in food markets and as cleaners. The CBI calculates that 3 million work days lost to illness could be regained if air pollution is reduced to WHO guideline levels[72].

The government must also ensure that employers take outdoor air pollution seriously and protect their outdoor workers exposed to the most toxic air. These include street cleaners, refuse workers, traffic police, cycle couriers, construction and maintenance workers, gardeners, or security guards working on busy roads.

We call on the government to:

- Instruct the Health and Safety Executive (HSE) to recognise exposure to outdoor air pollution as an occupational health issue and adopt a workplace exposure limit (WEL) for diesel engine exhaust emissions.
- Instruct the HSE to update the workplace exposure limits (WEL) in their EH40 guidance to include standards for PM2.5 and PM10 in line with WHO guidelines.


HIGHWAY MAINTENANCE

Appendix:

Existing air quality legislation and government strategies

Pollutants covered include nitrogen dioxide (NO2), nitrogen oxides (NOx), fine particulate matter (PM2.5), sulphur dioxide (SO2), carbon monoxide (CO), ammonia (NH3), non-methane volatile organic compounds (NMVOC).

Legislation/ strategy	Purpose	Targets	Responsibility
Air Quality Standards Regulations (2010) • **Air Quality Standards (Wales) Regulations (2010)** • **Air Quality Standards (Northern Ireland) Regulations (2010)** • **Air Quality Standards (Scotland) Regulations (2010)**	Transposed EU air quality directives into UK law, setting legally binding ambient air concentration limits for several pollutants.	• NO2: 40 µg/m^3 (annual mean) • PM2.5: 20 µg/m^3 (annual mean) • SO2: 350 µg/m^3 (1-hr mean, 24 exceedances), 125 µg/m^3 (24-hr mean, 3 exceedances) • CO: 10 mg/m^3 (8-hr mean) • Lead: 0.5 µg/m^3 (annual mean) • Benzene: 5 µg/m^3 (annual mean) **Wales** • NO2: 40 µg/m^3 (annual mean) • PM2.5: 25 µg/m^3 (annual mean) **Northern Ireland** • NO2: 40 µg/m^3 (annual mean) • PM2.5: 25 µg/m^3 (annual mean) **Scotland** • NO2: 40 µg/m^3 (annual mean) • PM2.5: 10 µg/m^3 (annual mean)	**The UK Government and devolved governments** are responsible for setting limits. **Local authorities** monitor and act on exceedances to ensure compliance.

National Emission Ceilings Regulations (2002, updated 2018)	Set emission reduction commitments for NOx, SO2, NMVOC, NH3, and PM2.5 for 2020–29 and 2030 onwards, in line with the Gothenburg Protocol and EU directives. Was weakened by the Retained EU Law (Revocation and Reform) Act 2023, removed plan-making requirements.	**Percentage reduction by 2020:** • NOx: -55% • SO2: -59% • NMVOC: -32% • NH3: -8% • PM2.5: -30% **Percentage reduction by 2030:** • NOx: -73% • SO2: -88% • NMVOC: -39% • NH3: -16% • PM2.5: -46%	**The UK Government** coordinates UK-level compliance and reporting. **Devolved governments** (Scotland, Wales, Northern Ireland) are responsible for emissions reductions in respective nations.
Environment Act (2021)	Introduced two legally binding PM2.5 targets. Introduced long-term environmental governance structures, including the Office for Environmental Protection (OEP).	**By 2040, compared to 2018 levels:** • M2.5 Annual Mean Concentration Target (AMCT): 10 µg/m^3 in all parts of the country • PM2.5 Population Exposure Reduction Target (PERT): 33% reduction in population exposure	Applies only to **England** for environmental target-setting. **The UK Government** is responsible for implementation. **The Office for Environmental Protection (OEP)** oversees government performance. **Devolved governments** set their own air quality targets and governance structures.
Environmental Improvement Plan (2023)	Sets a 25-year vision with interim targets tied to the Environment Act. Must be updated every five years.	**Interim targets for the Environment Act. By 2028 compared to 2018 levels:** • PM2.5 AMCT: maximum of 12 ug/m^3 in all parts of the country (target met by 2025) • PM2.5 PERT: reduction of 22% across the country (target met by 2025)	Applies only to **England**. **Defra** is responsible for planning and delivery. **Local authorities** and national agencies (e.g., **Environment Agency**) support delivery. **Devolved governments** produce their own environmental improvement plans.

Clean Air Strategy (2019)	Set out the UK's approach to tackling all sources of air pollution and improving public health through stronger regulation and cleaner technologies. No requirement to update.	No numerical targets. Contains policy and process guidance to help meet legally binding standards. Was linked to the implementation of the National Air Pollution Control Programme (no longer required following the Retained EU Law (Revocation and Reform) Act 2023)	**Defra** authored the strategy for England. **Devolved administrations** published their own complementary strategies.
Air Quality Strategy (2023)	Defines national approach and a framework for local authority to manage air quality. Must be published every five years.	No numerical targets. Contains policy and process guidance to help meet legally binding standards.	Applies to **England** only. **Defra** sets policy framework. **Local Authorities in England** responsible for Local Air Quality Management (LAQM). **Devolved governments** have their own air quality strategies and LAQM systems.

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We are the Healthy Air Coalition.

The Healthy Air Coalition is a collective of leading health, environment and transport organisations with the shared vision of a UK free from toxic air.

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