

# Unmasked: the true story of the air you're breathing



Friends of the Earth's groundbreaking citizen science air pollution experiment and its initial findings





# Part one

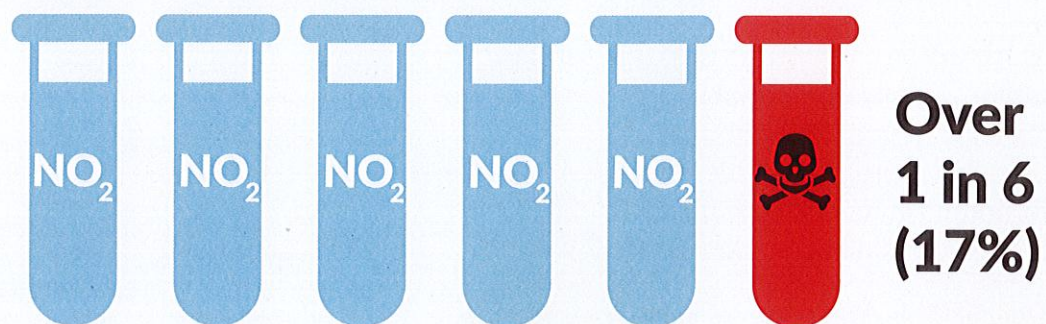
## KEY FINDINGS: THE RESULTS FROM OUR CLEAN AIR KITS

**Our citizen scientists are finding that air pollution is not just in the obvious spots, it's a hyper-local, nationwide problem.**

Friends of the Earth has begun one of the biggest ever nationwide citizen science experiments. Already 3,000 people – and more than 50 Friends of the Earth local groups – have used air monitoring "diffusion tubes" to measure concentrations of one key pollutant, nitrogen dioxide (NO<sub>2</sub>). NO<sub>2</sub> is dangerous to human health, simple to measure and the subject of the government's draft – and soon to be final – Air Quality Plan, required to tackle illegal levels of the gas (although it is by no means the only pollutant we face). People took samples right where they live and shop; outside schools, nurseries and hospitals. Even outside MPs' constituency offices. So far we've had the results back from more than 2,500 individual tubes.<sup>1</sup>

**The results give a snapshot of just how dirty the air is where people live and work:**

- More than 1 in 6 (17%) of our monitoring tubes found NO<sub>2</sub> pollution levels above the level at which the average annual legal limit of 40 micrograms per cubic metre (µgm<sup>-3</sup>) is set.



- We recorded these higher NO<sub>2</sub> concentrations<sup>2</sup> in 133 local authorities and 181 Westminster Parliamentary constituencies<sup>3</sup>, representing every region of England, as well as Scotland, Wales, Northern Ireland – plus the Isle of Man and Jersey.

**133**  
Local Authorities

**181**  
Westminster Parliamentary Constituencies

**13**  
BRAND NEW HOTSPOTS

- 13 new hotspots. Our tubes found high readings in the following council areas not currently identified as having a pollution problem by the local authority or national government:

government:  
 • Braintree • Castle Point  
 • Darlington  
 • Derbyshire dales  
 • Eastbourne • Gwynedd  
 • High peak • Mendip  
 • Oadby and Wigston  
 • Stevenage • Stroud  
 • Swindon • Vale of Glamorgan

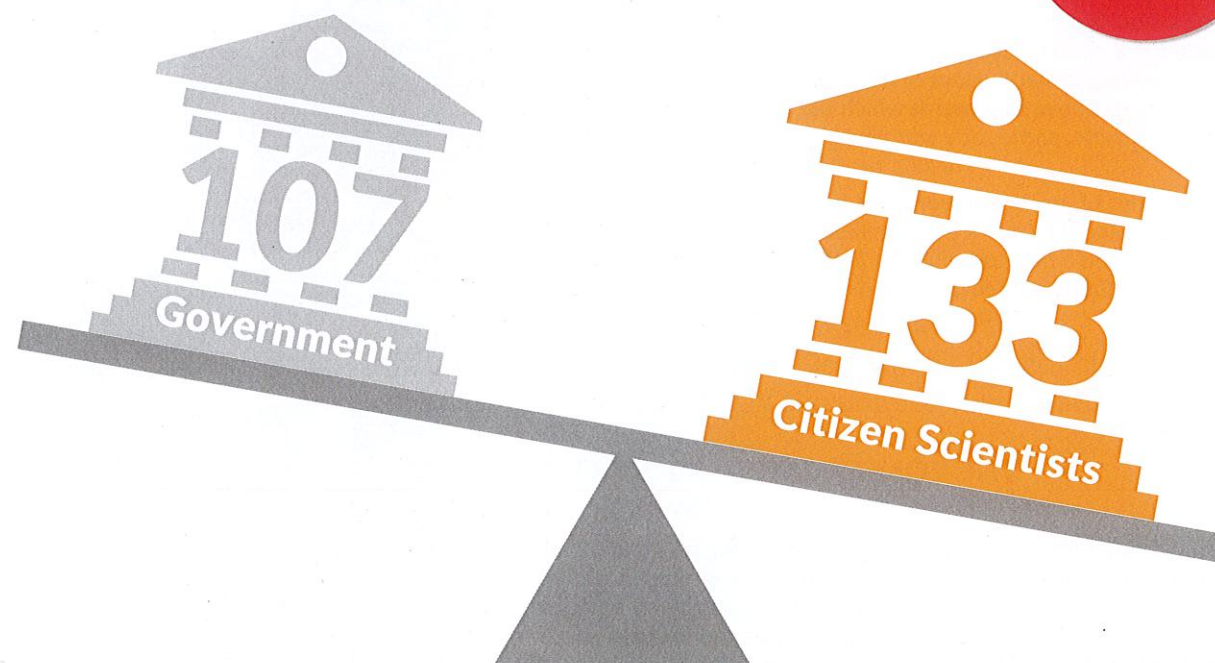
**"People in the UK are 64 times as likely to die of air pollution as those in Sweden and twice as likely as those in the US."**

*The Guardian, 17 May 2017 (WHO World Health Statistics 2017)*

- The results suggest that the problem with air pollution is much more widespread than the government acknowledges in policy designed to meet legal limits. Its draft Air Quality Plan suggests that there are (a still shocking) 107 local authorities, including the 33 covered by the Greater London Authority, which look set to breach legal limits in 2017. This is far fewer than the 133 local authorities found in our results.

## Local authorities over legal limits in 2017

Results Show  
**133**  
Local Authorities



Official monitoring by Local Authorities suggests that the problem is deeper still: there are actually 255 Local Authorities with at least one Air Quality Management Area (AQMA) set up to tackle excessive NO<sub>2</sub> levels. Some councils also have AQMAs dedicated to other pollutants, like fine particle air pollution and sulphur dioxide.<sup>4</sup>

**The story couldn't be any clearer: there is an overwhelming case for urgent government action to achieve Clean Air Everywhere.**





# A map of shame: Dirty air everywhere

Thousands of people up and down the country have been using Friends of the Earth's Clean Air Kits to monitor NO<sub>2</sub> concentrations in the air close to them – and doing similar work with the London Sustainability Exchange (LSx) in the capital. The results to date give a snapshot of just how dirty air is where people live and work. And they are shocking.

This map shows locations of air monitoring diffusion tubes that recorded a concentration of over 40 µg m<sup>-3</sup>. These results have been bias-adjusted to calibrate them against official government monitoring stations.

## THE PRIMARY SCHOOL: Tower Hamlets, London

Year 5 students at English Martyrs Catholic Primary School in Tower Hamlets investigated the pollution at their school using the Clean Air Kit. The school is a few minutes' walk from congested Tower Gateway, down a side street where pollution levels might be expected to be lower. They found that five out of nine locations around the school recorded results above the level at which the annual legal limit is set for nitrogen dioxide, particularly worrying given the long-term effects of NO<sub>2</sub> on children's lung development.

Through a series of practical lessons that helped the nine and 10-year-olds to understand the causes of air pollution, its effects on their health and how they could help to reduce air pollution, the school worked with Friends of the Earth and Muslim Aid to create a Clean Air Schools Pack for other primary school students.

## THE CONSERVATIVE MP'S OFFICE: Hanham High Street, Bristol

Our monitoring tube was positioned by Sarah Brown, [also see p9] on a lamp post in Hanham, a suburb with a population of around 10,000 on the outskirts of Bristol. It's within sight of the constituency office of local MP, Chris Skidmore, near bakeries, bike shops and takeaways, and just up the road from the local library and community centre.

On a bustling local high street, like many around the country, our diffusion tubes recorded a reading of 43.8 µg m<sup>-3</sup> of NO<sub>2</sub>, above the 40 µg m<sup>-3</sup> of NO<sub>2</sub> level at which the annual legal limit is set. Sarah was motivated to get involved as an asthma sufferer; she rarely goes to the High Street as it causes her respiratory problems. Sarah is using the results to start a conversation about air pollution with her MP, and push for action.

## THE MARKET TOWN REPRESENTED BY THE HEALTH SECRETARY: Godalming, Surrey

Leafy Godalming (population 22,000) in the South West Surrey constituency of Health Secretary Jeremy Hunt MP might not seem an obviously polluted spot.

Our monitoring tube located near a beautiful interiors shop, old cottages and the playground of a local junior school, nonetheless recorded an alarming reading of 63.8 µg m<sup>-3</sup> of NO<sub>2</sub>. Perhaps nearby waterway 'Hell's Ditch' was aptly named?

Nitrogen dioxide exceedances measured by Friends of the Earth and the London Sustainability Exchange

- UK local authority, crown dependency or bailiwick within which at least one diffusion tube recorded a nitrogen dioxide concentration above 40 micrograms per cubic metre
- Location of a diffusion tube recording a nitrogen dioxide concentration above 40 micrograms per cubic metre (FoE)
- Location of a diffusion tube recording a nitrogen dioxide concentration above 40 micrograms per cubic metre (LSx)

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The full list of Local Authorities (plus the Isle of Man and Jersey) is:

Aylesbury Vale ■ Barnet ■ Basingstoke and Deane ■ Bath and North East Somerset ■ Birmingham ■ Bournemouth ■ Bracknell Forest ■ Bradford ■ Braintree ■ Brent ■ Brighton and Hove ■ Bristol, City of ■ Bromley ■ Broxtowe ■ Cambridge ■ Camden ■ Cannock Chase ■ Cardiff ■ Castle Point ■ Central Bedfordshire ■ Chelmsford ■ Chichester ■ Christchurch ■ City of London ■ Croydon ■ Darlington ■ Dartford ■ Derbyshire Dales ■ Dover ■ Ealing ■ East Hertfordshire ■ Eastbourne ■ Eastleigh ■ Enfield ■ Erewash ■ Exeter ■ Fenland ■ Gedling ■ Glasgow City ■ Gravesham ■ Greenwich ■ Guildford ■ Gwynedd ■ Hackney ■ Hammersmith and Fulham ■ Haringey ■ Harrogate ■ Havering ■ High Peak ■ Hillingdon ■ Hounslow ■ Ipswich ■ Islington ■ Kensington and Chelsea ■ Kingston upon Hull, City of ■ Kingston upon Thames ■ Kirklees ■ Lambeth ■ Lancaster ■ Leeds ■ Leicester ■ Lewes ■ Lewisham ■ Luton ■ Manchester ■ Medway ■ Mendip ■ Merton ■ Mid Ulster ■ Monmouthshire ■ New Forest ■ Newham ■ North East Lincolnshire ■ North Tyneside ■ Northampton ■ Nottingham ■ Oadby and Wigston ■ Oxford ■ Perth and Kinross ■ Poole ■ Portsmouth ■ Reading ■ Redbridge ■ Richmond upon Thames ■ Rochford ■ Runnymede ■ Rushcliffe ■ Rushmoor ■ Salford ■ Sandwell ■ Sheffield ■ Shropshire ■ Solihull ■ South Gloucestershire ■ South Hams ■ South Lakeland ■ South Somerset ■ Southampton ■ Southend-on-Sea ■ Southwark ■ Stevenage ■ Stockport ■ Stroud ■ Suffolk Coastal ■ Surrey Heath ■ Swale ■ Swansea ■ Swindon ■ Tameside ■ Teignbridge ■ Test Valley ■ Thurrock ■ Tonbridge and Malling ■ Tower Hamlets ■ Trafford ■ Vale of Glamorgan ■ Wakefield ■ Walsall ■ Waltham Forest ■ Wandsworth ■ Watford ■ Waverley ■ West Berkshire ■ West Dorset ■ Westminster ■ Wigan ■ Winchester ■ Woking ■ Wokingham ■ Wolverhampton ■ Worcester ■ Wycombe ■ York

## THE QUIET RESIDENTIAL ROAD: Timperley, Greater Manchester

St George's Avenue is a quiet residential street, lined with grass verges and comfortable 3- and 4-bed semi-detached houses, close to Altrincham in the borough of Trafford. Our monitoring tube here still recorded a 45.7 µg m<sup>-3</sup> concentration of NO<sub>2</sub>, above the level at which the annual legal limit is set.

Citizen scientists using our Clean Air Kits recorded these higher NO<sub>2</sub> concentrations<sup>5</sup> in 132 local authorities and 181 Westminster Parliamentary constituencies, representing every region of England, as well as Scotland, Wales, Northern Ireland plus the Isle of Man and Jersey. And we have not yet received results from every local authority in the country.

## THE BUSY PORT: Felixstowe, Suffolk

The Port of Felixstowe is Britain's busiest container port and one of the largest in Europe, handling around 3000 ships every year. It is currently represented by Thérèse Coffey, the Parliamentary Under Secretary of State at the Department for Environment, Food and Rural Affairs – with direct responsibility for air quality. The combination of large numbers of truck movements and huge sea-going vessels make big ports a particular challenge for air quality. Our monitoring tube here recorded 47.1 µg m<sup>-3</sup> of NO<sub>2</sub>.

## THE MAGISTRATES COURT: Croydon, London

Croydon Magistrates Court sits on a dual carriageway in the Croydon Central constituency, the fourth most marginal seat in the country at the 2015 General Election – and which changed parties in 2017.

Close to parks, a theatre and lots of housing, our monitoring tube returned a reading of 57.7 µg m<sup>-3</sup> of NO<sub>2</sub>. Several other tubes across Croydon painted a similar picture: and in March 2017 the local council launched a public consultation on air quality.



# How we did it: what's in a Clean Air Kit – and what does it measure?

Want to monitor the air where you live? For a minimum donation of £15 you can order your very own Clean Air Kit by visiting: [www.foe.co.uk/clean-air/clean-air-campaign-order-clean-air-kit](http://www.foe.co.uk/clean-air/clean-air-campaign-order-clean-air-kit)



The readings from each tube give a unique snapshot of NO<sub>2</sub> pollution at the location where it was placed.

## What's a Clean Air Kit?

### What's in the kit?

You can order a Clean Air Kit online. The kit arrives by post with an air monitoring tube and fixings. There are also instructions, an air pollution guide providing info about how to tackle air pollution and practical next steps on how to get more involved with the Clean Air campaign.

### How do you use the kit?

Pick a place you're interested in monitoring (eg, your street, child's school). Install your tube to measure NO<sub>2</sub> by attaching securely to a lamp post (or similar). Record the location and postcode. Keep it up for two-four weeks. Then remove and send back in the package we supply so it can go for analysis at a professional lab.

### What about the results?

The results are bias-adjusted to calibrate them against official government monitoring stations. We send

you the results and explain how to interpret your results. The info you send will also be added to our air pollution map.



Tubes stay up for two weeks. To date, more than 2,500 tubes have been processed. You can see the latest updates on our online map at [www.foe.co.uk/clean-air/clean-air-campaign-air-monitoring-kit-results](http://www.foe.co.uk/clean-air/clean-air-campaign-air-monitoring-kit-results)

## What does the Clean Air Kit measure?

### NO<sub>2</sub>

The diffusion tubes measure the concentration of nitrogen dioxide (NO<sub>2</sub>) in the air in micrograms per cubic metre (µg m<sup>-3</sup>). NO<sub>2</sub> is one of the most worrying pollutants for human health. (But it's only one of three key pollutants that are bad for health – the others are particulates and ozone.)

### A snapshot...

The readings from the tubes give a snapshot of NO<sub>2</sub> concentrations over the sampling period. They can help to identify areas of high NO<sub>2</sub> concentration from sources such as traffic emissions, which don't change much from day to day, though overall air quality changes considerably day-by-day due to the weather.

### ...not an annual average

These snapshot measurements show how bad the air pollution is in relation to the level at which the legal limit is set. However as they are not collected for a whole year, and as weather (and air pollution with it) can vary over the year, they are not strictly comparable with the results collected by official monitoring stations. (The latter results are averaged over the course of a full year to produce an annual mean result). In an ideal world we would look at

the results taken throughout a year from multiple tubes, over several years.

“Friends of the Earth's Clean Air Kits are a valuable tool in enabling people to discover what air pollution is like in places that matter to them. If enough people take part, the data they gather could shed new light on the reality of pollution at a local level throughout the country”

Dr Ben Barratt, air quality science lecturer at King's College London

King's College London is pioneering a methodology that will allow these snapshot measurements to be adjusted to take account of weather conditions during the year and consequently to be directly comparable with official annual mean results. We will be looking to update our results in line with these techniques in future editions of this report.



# Lives made harder and shorter: the health impacts of dirty air

## Just how problematic is air pollution?

Every year there are 40,000 early deaths in the UK because of health complications caused by air pollution.

You won't see this on the death certificate though. As Chris Griffiths, who is Professor of Primary CARE at Barts & the London Medical School and part of Doctors Against Diesel explains: "Day-to-day it's difficult to say, 'Well that asthma attack or bronchitis was precipitated by poor air quality,' because these things are multifactorial."

In 2016 the Royal College of Physicians made it clear that, "exposure to outdoor air pollution... plays

a role in many of the major health challenges of our day. It has been linked to cancer, asthma, stroke and heart disease, diabetes, obesity, and changes linked to dementia. The health problems resulting from exposure to air pollution have a high cost to people who suffer from illness and premature death, to our health services and to business. In the UK, these costs add up to more than £20 billion every year." [rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution](http://rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution)

“We used to pay over the odds for a bag of smokeless fuel to protect air quality, and yet you could go out on Albert Bridge at rush hour, and barely breathe. You go out on to the road, and the air quality is unbelievably bad. So many people in their 60s and 70s are suffering from COPD (chronic obstructive pulmonary disease).”

Thomas McCormick, resident of The Markets estate, which is on the corner of two major roads where rush hour commuter traffic from East and South Belfast meet

“All children have a right to good education, and all children have a right to breathe clean air. This is where I think my daughter was cheated. Ella was ill and she wasn't breathing clean air. That's what we should be fighting for – for our children to breathe clean air.”

Rosamund Kissi-Debrah set up the Ella Roberta Family foundation in memory of her daughter, to ensure lessons are learned from Ella's sudden death due to severe asthma <http://ellaroberta.org/>



## The reality of pollution

“If you're walking about at rush hour, you're just hit by the fumes from the cars just sitting there. If you're pushing along a pram, or if there are kids coming home from school, they're just walking along in the fumes.”

Kathleen McCarthy, Belfast

“I have COPD (Chronic Obstructive Pulmonary Disorder) because I used to smoke. But that doesn't mean there aren't other factors that can aggravate it, like general air pollution. If I walk around the more congested areas in London, I notice that my breathing deteriorates for about a week afterwards.”

Angela Needham, Hull



“My asthma is getting worse rather than better. And it's a lot more triggered by traffic pollution. So now when I'm walking down the street, I'm short of breath.”

Sarah Brown, Bristol

## What we do know

That orange haze hanging over the city that looks a bit like an Instagram filter, is probably nitrogen dioxide, a toxic gas

NO<sub>2</sub> gets worse the closer you go to road traffic. Mostly you can't see or taste it, but it inflames the lining of the lung and reduces immunity to lung infections, such as bronchitis.

**Particle air pollution worsens heart and lung disease**  
Standing behind a belching diesel exhaust is an unpleasant part of city traffic jams. But it's the smallest particles – which you cannot see – that are the most dangerous. Particulate Matter, or 'PMs', are many times smaller than the width of a human hair and can penetrate deep into our lungs, from where they cross into the bloodstream.

### Air pollution and diesel exhausts cause cancer

The World Health Organisation states that outdoor air pollution, including particulate matter (PMs) and also diesel exhaust, is carcinogenic to humans. They are all in Group 1 – the strongest class of carcinogens – where you will also find tobacco smoke.

Now air pollution is being associated with changes in the brain linked to dementia. Also, in a six year study of London children doctors were shocked to discover it can lead to children growing up with smaller lungs.

The wider effects of air pollution include the burden on our health services and businesses.

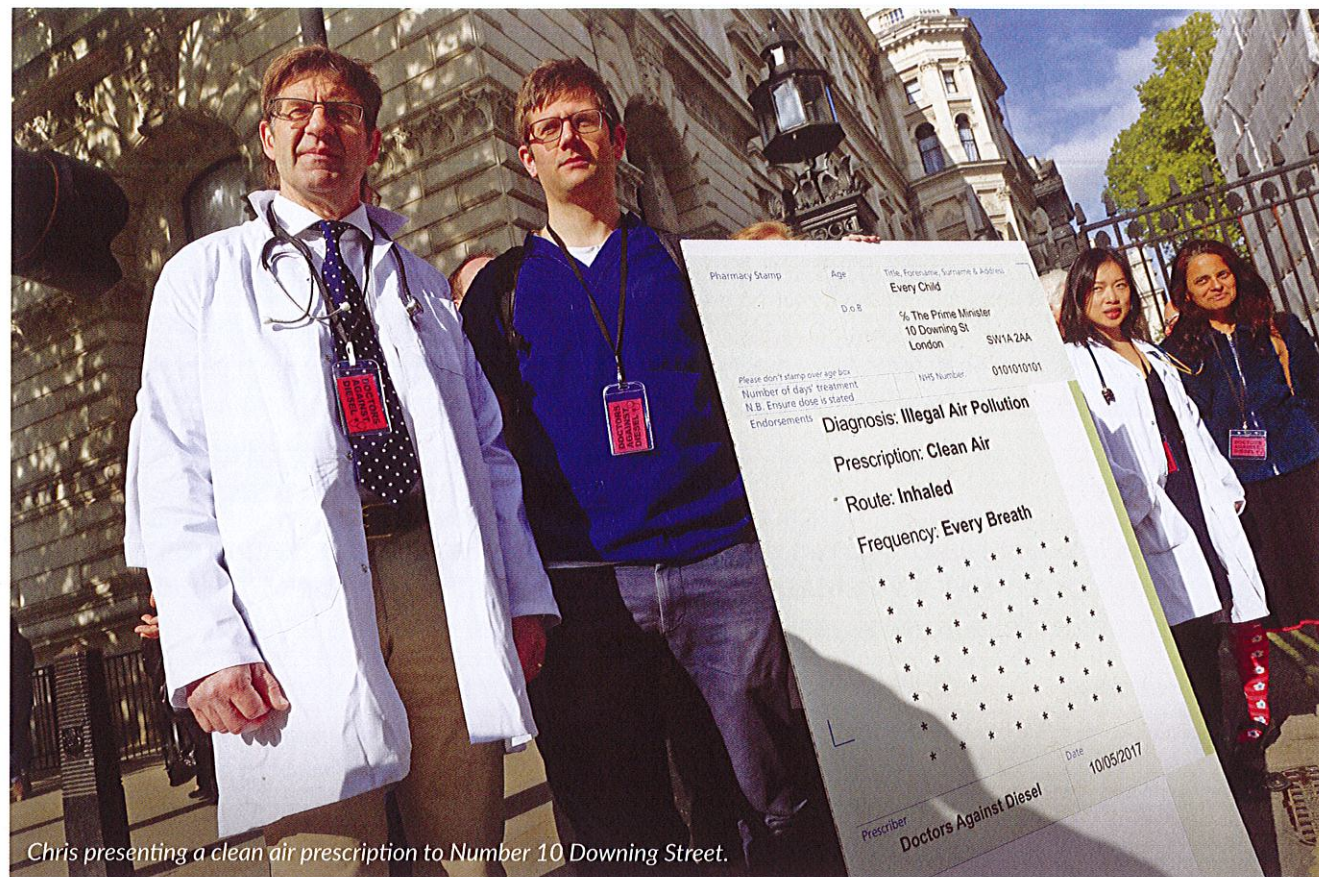
That's why cleaning up our air makes sense. The benefits would be shared by everybody: reduced traffic congestion if traffic levels are cut; more liveable cities and towns; and fewer days off sick.

Cleaning up our air will also help us tackle climate change, the biggest environmental problem we face.



**"Around 40,000 deaths are attributable to exposure to outdoor air pollution, which plays a role in many of the major health challenges of our day."**

Royal College of Physicians



**Chris Griffiths**  
Professor of Primary CARE at Barts & the London Medical School.  
Member/founder of Doctors Against Diesel.

"I've just finished with colleagues, a six-year study where we evaluated the impact of London's 2008 Low-Emission Zone.

"I found myself quite stunned that the several thousand children we assessed across Hackney and Tower Hamlets, their lung growth and development were significantly adversely affected [by bad air pollution]. So on average children would be seeing about a 5% reduction in the lung capacity – some children up to 10%. So if you were a parent you'd be absolutely stunned. Why would my child be in an environment where the air is reducing the size of their lungs? It's extraordinary.

"The data had such an effect on me that I thought we have to go beyond simply the usual approach of publishing our work in journals, going to conferences. People in London need to know what's happening.

"We need to take effective, rapid action to drive down the pollution levels in cities and towns. That means

changing dramatically the vehicle fleet so the vehicles that we have on our roads are fewer in number, and emit either zero or very little air pollution."

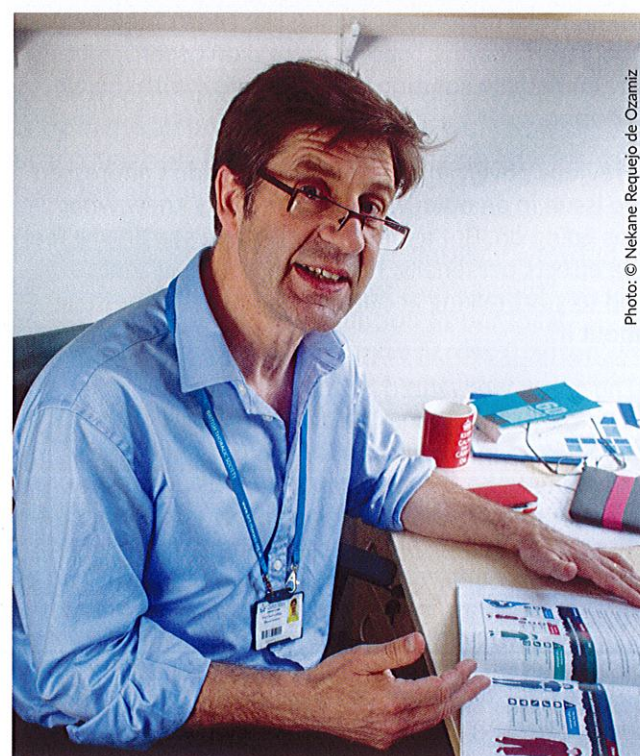


Photo: © Nekane Requejo de Ozamiz

## Part two

GOVERNMENT IN DENIAL?

### Official stats reveal shocking extent of dirty air

It's not just our citizen science: statistics collected by local and national government show that NO<sub>2</sub> pollution is more widespread than the government's draft Air Quality Plan suggests.

The government's draft Air Quality Plan is supposed to finally put the UK on track to compliance with the EU legal limits on NO<sub>2</sub> (including an annual mean of no more than 40 µgm<sup>-3</sup>). These same limits were supposed to be complied with by 2015 at the very latest.

#### Air Quality Zones

It is not well known that the UK is divided into 43 'Air Quality Zones' for reporting on our compliance with EU legal limits. A full 37 of these are failing the legal limits on NO<sub>2</sub> (and which should have been cleaned up by 2015 at the very latest).

#### Local Authorities – recent history

As well as Air Quality Zones, figures also exist covering Local Authorities' pollution.

In response to a Parliamentary Question in 2016, the government admitted that according to their own monitoring and modelling, in 2015 fully 169 UK local authorities breached legal limits for average levels of NO<sub>2</sub>.

#### Local Authorities – into the future (see map on next page)

Now, new modelling for the government's draft Air Quality Plan finds that 107 local authorities are expected to breach the annual mean limit for NO<sub>2</sub> in 2017.

Even more disturbingly, the draft Plan suggests that by 2019, without further action, a staggering 90 local authorities will still have illegal air.

If no new action is taken, the Plan says, this will still be true for 52 councils by the end of the next parliament in 2022.

Serious questions arise as to the ambition of the Air Quality Plan when you see the eye-popping prediction that London is projected to still have illegal air in 2030.

#### Same pollution, different system

If that wasn't confusing enough, different bodies require different reporting. The EU sets 'limit

values' for NO<sub>2</sub> against which Air Quality Zones are measured. But these are set at exactly the same level as an entirely separate monitoring scheme under which local authorities have to monitor and report, known as Local Air Quality Monitoring (LAQM) 'Objectives'.

The LAQM statistics<sup>6</sup> show there are actually 255 Local Authorities with at least one Air Quality Management Area (AQMA) set up to tackle excessive NO<sub>2</sub> levels, i.e. containing annual mean pollution over 40 µgm<sup>-3</sup>.

That's an astonishing number of places with a pollution problem.

These statistics come from DEFRA - the same department that produced the weak national draft Air Quality Plan. Why is the scale of this public health problem not being made clear by central government? And why is the government focusing on scraping into technical legal compliance with EU law, rather than addressing the widespread issues of poor air across the UK?

#### In brief:

- 2015: **169** Local Authorities failing limits

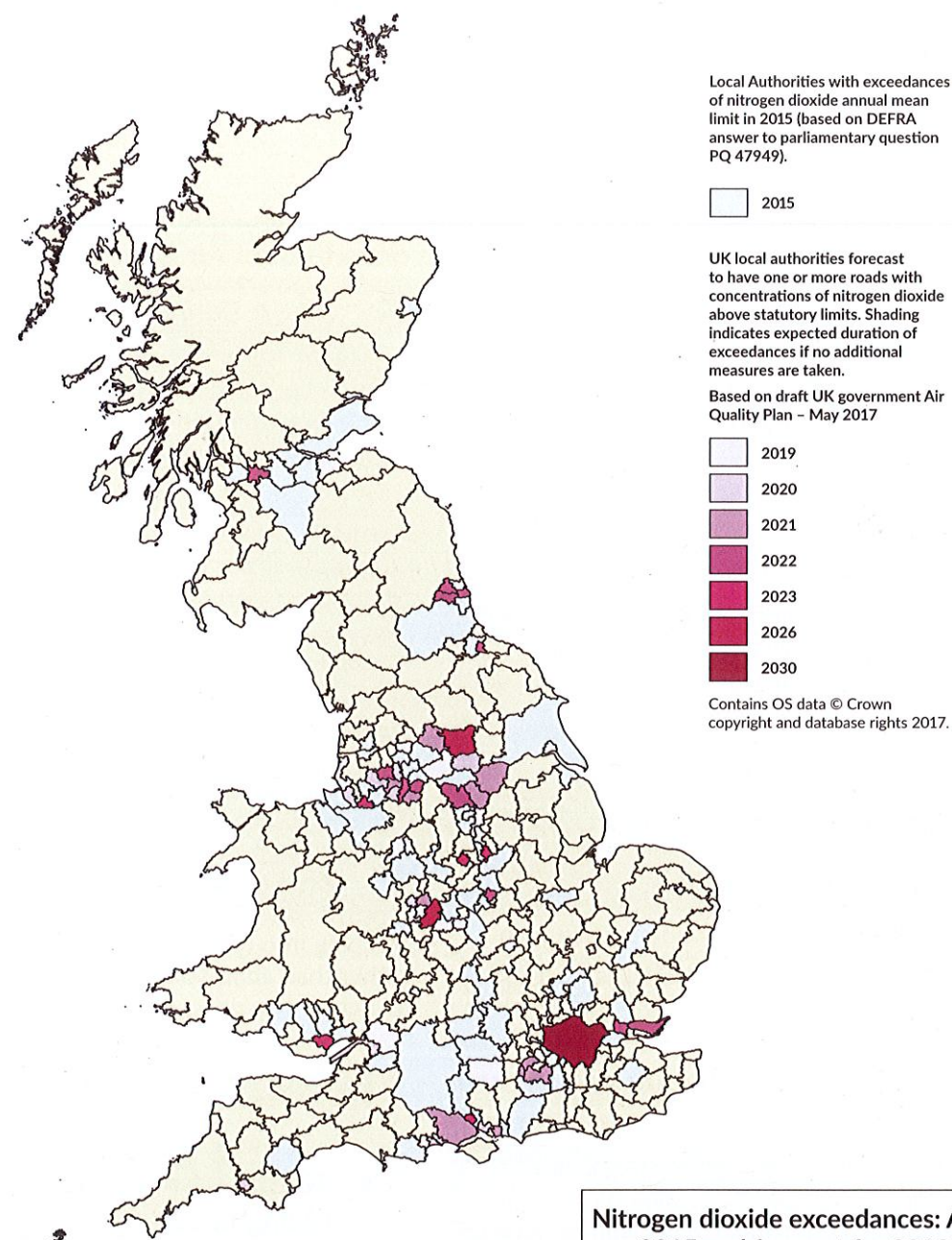
- 2017: **107** expected to fail
- Without further action:

- 2019: **90** still with illegal air
- 2022: **52** still failing
- But might the number in fact be

higher, with **255** councils currently trying to tackle a pollution problem?



# NO<sub>2</sub> pollution without further action



Nitrogen dioxide exceedances: Actual in 2015 and forecast for 2019 to 2030

## There's no escape from dirty air

It's a list of shame. The government's revised figures indicate that by 2019 all these places – tourist attractions, homes, top class university towns, workplaces, shopping and leisure centres – will still have illegal air, if no further action is taken. And moving home, even if you can afford to do so, doesn't solve the air pollution problem.

Greater London Authority ■ Leeds City Council ■ Birmingham City Council ■ Derby City Council ■ Nottingham City Council ■ Cardiff County Council ■ Halton Borough Council ■ Southampton City Council ■ Middlesbrough Borough Council ■ Glasgow City Council ■ Tameside Metropolitan Borough Council ■

Gateshead Metropolitan Borough Council ■ Newcastle City Council ■ Basildon District Council ■ South Tyneside Metropolitan Borough Council ■ Bolton Metropolitan Borough Council ■ Manchester City Council ■ Rochford District Council ■ Sheffield City Council ■ Rushmoor Borough Council ■ Guildford Borough Council ■ New Forest District Council ■ Rotherham Metropolitan Borough Council ■ Surrey Heath District Council ■ Walsall Metropolitan Borough Council ■ Leicester City Council ■ Salford Metropolitan Borough Council ■ Stockport Metropolitan Borough Council ■ Bury Metropolitan Borough Council ■ Bristol City Council ■ Portsmouth City Council ■ Bradford City Council ■ Liverpool City Council ■ Trafford Metropolitan Borough Council ■ Fareham Borough Council ■ Plymouth City Council ■

Wolverhampton City Council ■ Doncaster Metropolitan Borough Council ■ Coventry City Council ■ Wakefield Metropolitan District Council ■ Bolsover District Council ■ North Tyneside Council ■ Wigan Metropolitan Borough Council ■ Reading Borough Council ■ Bournemouth Borough Council ■ Stoke-on-Trent City Council ■ Sefton Metropolitan Borough Council ■ Edinburgh City Council ■ Newcastle-under-Lyme Borough Council ■ Sandwell Metropolitan Borough Council ■ Basingstoke and Deane Borough Council ■ Poole Borough Council ■ Kirklees Metropolitan Council ■ Southend Borough Council ■ Burnley Borough Council ■ South Gloucestershire District Council ■ Dudley Metropolitan Borough Council ■ Solihull Metropolitan Borough Council

*Diesel must be phased out across the UK by 2025. And petrol and other internal combustion engines should be phased out as fast as possible.*

## THE CAUSES AND SOLUTIONS: DIESEL AND THE ACTION NEEDED TO GET CLEAN AIR EVERYWHERE

“I went to this Clean Earth group and they were talking about diesel cars and I suddenly felt very guilty like, ‘I’m a diesel driver. Should I actually be here?’ But one of the ladies there said, ‘You need to be careful not to punish diesel drivers, because not all of them obviously knew how bad it was, and even still now we haven’t been educated quite enough into how bad they are’.”

Mima Bavington, Catford

## Diesel's part in air pollution

The government admits that road traffic is the biggest problem for today's air quality, and that diesel fuels are the worst of all, which is why we have to get the most polluting vehicles off the road, and reduce road traffic.

Road transport is the biggest source of the toxic gas nitrogen dioxide (NO<sub>2</sub>) in the air we breathe. But even the newest diesel cars (Euro 6) emit more than five times as much nitrogen oxides as new petrol cars.<sup>7</sup>

There are around 12 million diesel cars using UK roads. In fact if you go to buy a new car, you're likely to be shown a diesel model because today diesel vehicles make up more than 40 per cent of new car sales in the UK.

Every diesel car using the road is making the UK's air that little bit dirtier. To some extent this is the legacy of government incentives based on the carbon savings and greater fuel efficiency of diesel compared to petrol.

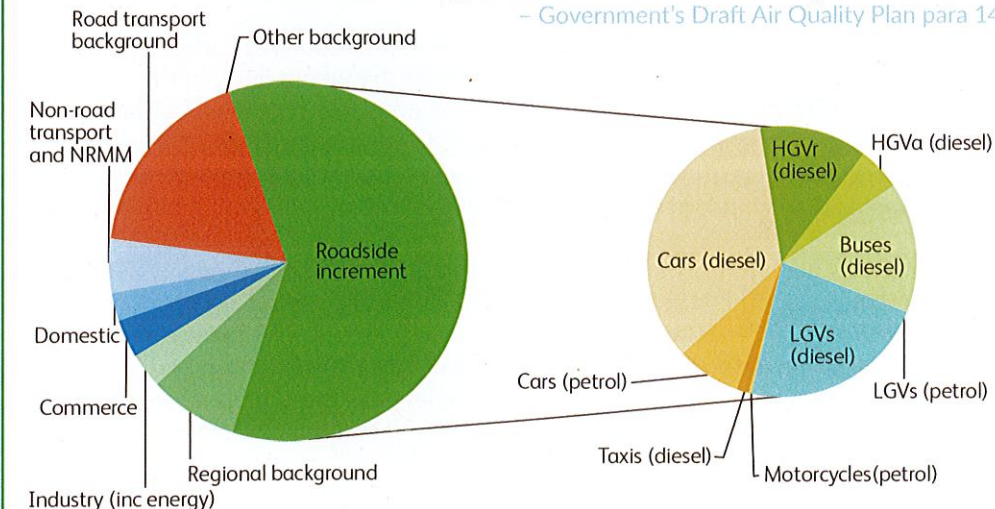
than in the laboratory. Some emitted up to 12 times the EU maximum.

And in 2015 the car manufacturer Volkswagen was caught using software to cheat emissions tests so they spewed out less filth in the lab than on the road. Volkswagen eventually admitted to fitting this technology to millions of its diesel vehicles. Record fines have been imposed on Volkswagen in the US and legal action is likely in Europe.

The scandal has rocked trust in car manufacturers, and poses tough questions for the governments that were supposed to be keeping them in check.

## Diesel breakdown

“Road transport is responsible for some 80 per cent of NO<sub>x</sub> concentrations at roadside, with diesel vehicles the largest source in these local areas of greatest concern.”  
– Government's Draft Air Quality Plan para 14



But worse, about 11 million cars across Europe were designed to cheat air pollution tests. It's long been known that diesel cars pollute far more in real world driving conditions than they do in lab tests. A 2016 Department for Transport study found that all diesel cars tested produced more pollution on the road



**In May 2017 there were 100,000 registered electric cars - up from just 3,500 in 2013.**

## A cleaner way to go

**There's plenty of good news: an increase in electric cars in the UK and some incredible people who are creating solutions to ensure more of us can drive clean vehicles.**

Over the past four years the number of registered electric cars in the UK has increased exponentially: from 3,500 in 2013 to more than 100,000 by the end of May 2017.<sup>8</sup>

Data from the Society of Motor Manufacturers and Traders show that around 500 electric cars were registered per month during the first half of 2014. By the end of 2016 more than 35,000 plug-in cars had been registered during the year – the highest number ever – and an average of more than 3,000 per month.

There are even plans in the Netherlands and Norway to halt the sale of diesel and petrol cars entirely from 2025.



**Tom Druitt**  
CEO, The Big Lemon bus company,  
Brighton and Hove  
<https://thebiglemon.com/>  
The Big Lemon have just introduced the UK's first 'solar-powered' buses – electric buses, charged overnight from electricity generated from solar panels and stored in batteries at the depot

"I've always used public transport as my default way of getting around. I became frustrated by the user experience on public transport. It seemed to me that in rural areas the main problem was availability, in urban areas it was price.

We wanted to ensure people had a good experience and saw it as a positive alternative to using the car. We wanted it to be a part of society's response to climate change.

That's why we started with biodiesel – the lifecycle reductions in carbon dioxide are very significant. We were the first bus company to use biodiesel for the whole fleet. In the community, the one thing that they all know is that the Big Lemon bus runs on waste cooking oil. Biodiesel tailpipe emissions have approximately half the level of PM10s [compared with regular diesel], there's no sulphur dioxides and no carbon monoxide. In terms of NOx, there's no reduction at all compared with regular diesel – it's perhaps 6–7% greater than standard diesel for the same journey.

Big Lemon has been interested in air quality issues from the beginning; we've been conscious of the need to do something about the NOx. With electric buses we can reduce everything to zero.







The impetus to move to zero emission vehicles comes from Brighton and Hove having a few dire hotspots for air quality that we need to tackle; and biodiesel ticks the climate change box. But a zero emissions bus, charged up by solar panels ticks the air pollution and health box too."

## What decision makers need to do

**If we want to make sure everyone, everywhere has safe air to breathe then diesel will have to go by 2025, as part of a comprehensive approach to Clean Air Everywhere.**

The fact that thousands of people are taking action to address air pollution on this scale is profoundly inspiring; all of them are heroes. It is a scandalous dereliction of duty by the UK government that so many of us feel that it is now down to us as citizens to monitor our own air quality and to fix the problems ourselves. They must put this right, right now.

The government's draft Air Quality Plan, published in May 2017, is breathtakingly weak and short on detail. It needs changing so it includes:

-  A plan to **end illegal pollution** in 2018
-  A **diesel scrappage scheme** to help people shift to clean vehicles
-  Changes to road tax to **deter diesel use**
-  A comprehensive network of **plug-in points** for electric vehicles by 2025
-  Huge **investment in public transport**, walking & cycling routes
-  A new **Clean Air Act** for the whole country to curb all types of air pollution.

 **friends of the earth**

### The way forward

Our citizen scientists have shown how widespread the air pollution problem is, which is why we need tough measures to restrict diesel.

We need robust Clean Air Zones (CAZs) that will charge the most polluting vehicles entering polluted areas.

But people with diesel cars should not be unfairly penalised - Friends of the Earth believes the government must create a scrappage scheme, funded largely by car manufacturers, to help people switch from dirty diesels to clean alternatives. It shouldn't be as simple as dirty car for cleaner model: there needs to be a well-thought out scheme which offers replacement clean vehicles or better options such as car club membership and rail season tickets.

We also need changes on diesel car taxation and a new Clean Air Act.<sup>9</sup>

See [foe.co.uk/clean-air/latest-air-quality-plan](https://foe.co.uk/clean-air/latest-air-quality-plan) for more.

### A YouGov poll for Friends of the Earth showed that:

- **3 in 5 British adults (61%) are concerned about the levels of air pollution in this country.**
- **Nearly half of car-owning British adults (45%) would be likely to change their car to a less polluting model – given government-backed financial assistance.**
- **Many more people supported (46%) than opposed (18%) restricting the use of diesel cars in order to combat air pollution in towns and cities.**



**MPs must now meet their constituents' demands for action by pressing the government for a far more robust Air Quality Plan.**

## How to help Local Authorities take action against diesel

MPs, Metro Mayors and Councillors can also take action in their local area.

The government is dodging its responsibility and passing the buck to local councils. There are still important steps that MPs, Metro Mayors and Councillors should be working to deliver in their local area. As expected some Local Authorities are doing better than others. The action that's needed includes:

### Clean air zones (CAZ)

These need to be introduced by the end of 2018, covering at least the 58 local authorities at risk of still have illegal pollution levels in 2019. CAZs should also all take into account all categories of vehicles, including cars.

✓ Manchester is proactively asking for one and funding to do a study

### Traffic reduction through enhancing walking, cycling and public transport

Cutting traffic cuts pollution: it's that straightforward. Traffic reduction targets need to be ambitious with a mix of cleaner ways of getting around and plans to reduce the need to travel.

✓ Oslo plans to reduce traffic by 20 per cent in 2019 and by 30 per cent in 2030.

✓ In Freiburg, Germany, around 70 per cent of people live within 500m of a tram stop.

### Cleaner vehicles

All local authorities need to ban the purchase of diesel vehicles for their business fleet.

✓ Camden council and the City of London are in the process of this.

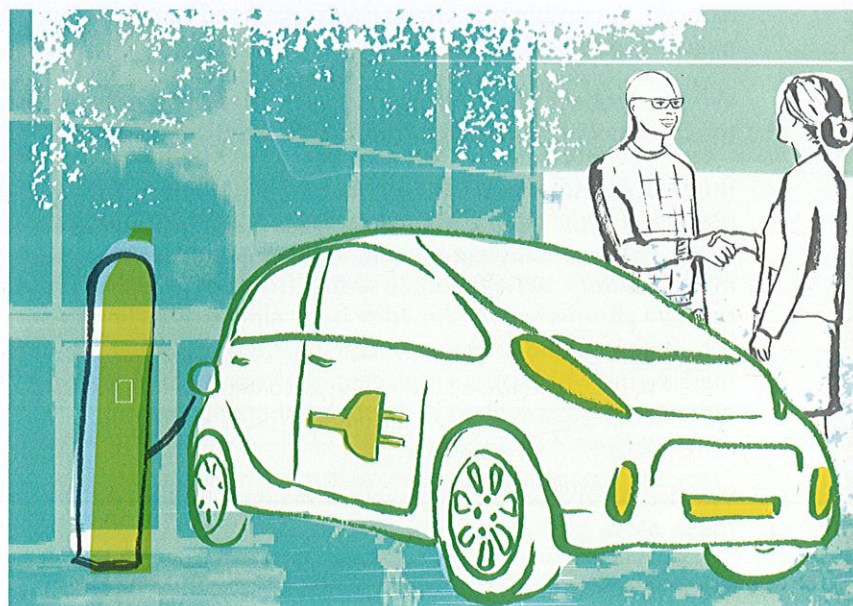
### Parking charges

Can be differentiated by the type of vehicle and how polluting they are.

✓ Islington has a £96 annual diesel surcharge on residents' parking permits.

### Charging for workplace parking

✓ Nottingham is doing this successfully.



Join our Clean Air Everywhere campaign: [foe.co.uk/clean-air](http://foe.co.uk/clean-air)

## Links and further reading

### What you can do next:

1. Become a citizen scientist – order your Clean Air Kit from [www.foe.co.uk/go/clean-air-kit](http://www.foe.co.uk/go/clean-air-kit)
2. Talk to your MP, City Mayor or Councillor about having a Clean Air Zone appropriate for your area
3. Sign the petition to the Prime Minister asking for Clean Air Everywhere [act.foe.co.uk/act/tell-prime-minister-its-time-clean-air-everywhere](http://act.foe.co.uk/act/tell-prime-minister-its-time-clean-air-everywhere)
4. Encourage school teachers to use our Clean Air Pack for primary schools which contains three lesson plans. Order from: [act.foe.co.uk/act/request-your-free-clean-air-schools-pack](http://act.foe.co.uk/act/request-your-free-clean-air-schools-pack)
5. Get active with your local Friends of the Earth group: [www.foe.co.uk/actlocal](http://www.foe.co.uk/actlocal)

Find more ideas on our website at:

[www.foe.co.uk/clean-air/simple-things-you-can-do-clean-air-campaign](http://www.foe.co.uk/clean-air/simple-things-you-can-do-clean-air-campaign)

### References

- <sup>1</sup> You can keep up to date with new data as it is generated by future Clean Air Kit users here [www.foe.co.uk/clean-air/clean-air-campaign-air-monitoring-kit-results](http://www.foe.co.uk/clean-air/clean-air-campaign-air-monitoring-kit-results)
- <sup>2</sup> At least 1 diffusion tube recording a mean value of over 40µgm<sup>-3</sup> for the period that it was in place – usually 2 weeks.
- <sup>3</sup> For a complete list of the 181 Westminster constituencies in which at least 1 diffusion tube recorded a mean value of over 40µgm<sup>-3</sup> for the period that it was in place, visit: [www.foe.co.uk/sites/default/files/downloads/cak-constituencies-exceedances-103871.pdf](http://www.foe.co.uk/sites/default/files/downloads/cak-constituencies-exceedances-103871.pdf)
- <sup>4</sup> [uk-air.defra.gov.uk/aqma/list?view=A](http://uk-air.defra.gov.uk/aqma/list?view=A)
- <sup>5</sup> At least 1 diffusion tube recording an average value of over 40µgm<sup>-3</sup> for the period that it was in place.
- <sup>6</sup> [uk-air.defra.gov.uk/aqma/list?view=A](http://uk-air.defra.gov.uk/aqma/list?view=A)
- <sup>7</sup> Policy Exchange: Up in the air: how to solve London's air quality crisis, part 2 <https://policyexchange.org.uk/wp-content/uploads/2016/09/up-in-the-air-part-2.pdf>
- <sup>8</sup> <http://www.nextgreencar.com/electric-cars/statistics/>
- <sup>9</sup> You can read more on what's needed at [www.foe.co.uk/sites/default/files/downloads/plan-clean-air-everywhere-103274.pdf](http://www.foe.co.uk/sites/default/files/downloads/plan-clean-air-everywhere-103274.pdf)

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