The Pathway to Healthy Air in the UK

Presented by Imogen Martineau

Clean Air Fund

28 Sept 2022

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What are the barriers to cleaner air in the UK?

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The drivers below….

- Lack of public demand for clean air

- Perceived lack of policy solutions

- Limits to technical know-how and funding to deliver solutions

contribute to the main barrier…

Lack of political will

which has the following impacts…

- Unambitious targets

- Limited clean air policies

- Limited funding for clean air solutions

- Limited powers to deliver solutions

- Limited regulation on businesses

2

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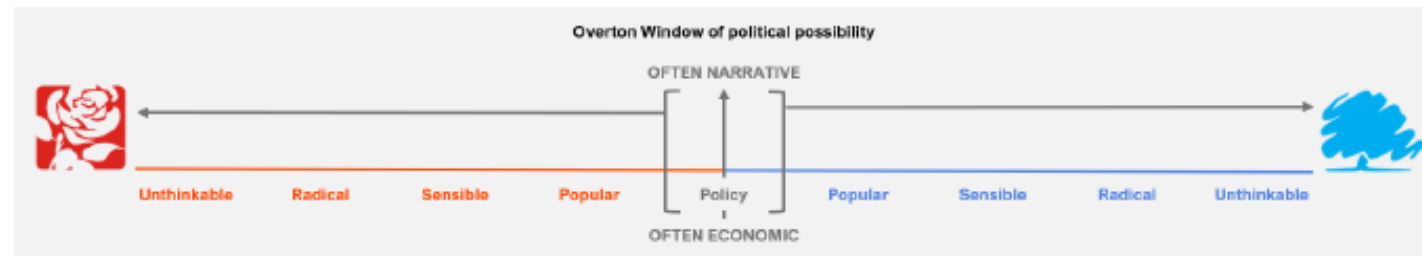
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3

Driving change on air quality

- The Overton Window represents the range of policies on a given subject that are politically acceptable to the population at a given time. Currently, the policy solutions for air quality exist outside the Overton Window and are seen as radical or even unthinkable.

- The desired outcomes from government and businesses (national legislation, increased resources for local authorities and regions, and commitments from businesses), depend on shifting the Overton Window. This is achieved by making action seem a 'sensible', 'popular' and a response to increased public demand.

- This will push solutions to air pollution up the political agenda, increasing the political dividend of action by creating a political cost of inaction.

Overton Window of political possibility

OFTEN NARRATIVE

Unthinkable | Radical | Sensible | Popular | Policy | Popular | Sensible | Radical | Unthinkable

OFTEN ECONOMIC

We need to shift the Overton Window by:

- Defining the target audience – the people who will create real, long-lasting change.

- Understanding the target audience's drivers.

- Building a strategy to move your target audience on to your strongest territory.

- Campaigning with discipline, sticking to the strategy.

- Constantly evaluating, refining and improving the strategy.

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Awareness of the problem of air pollution and the clean air debate is very low, and facts do not resonate

- For the most part, voters do not directly recall effective air quality campaigns. Those who do, claim they have not changed their behaviour as a result.

- Language in current campaigns isn't cutting through because it remains intangible.

- The nature of the problem means voters cannot see the immediate benefit of solving air pollution, but they can see the immediate pain points of policy solutions.

- There isn't the national dialogue – or high awareness levels – on this subject yet for more punitive policies (like bans and taxes) to be politically viable.

- Air quality is rarely seen as its own issue or policy. Voters often conflate air quality with the wider environmental movement and see it as one small part of climate change rather than its own issue.

> There's a lot of signs around now about going green. I don't really understand what they are to be perfectly honest.
>
> Red Wall

> This clean air zone that they want to bring into Manchester is going to kill businesses for absolutely no reason whatsoever.
>
> Red Wall

> I'd love to see the percent of air pollution which is caused by wood burning stoves, by the way, when you've got coal fired power stations churning out, like, tons of CO2 a day.
>
> Blue Wall

> I live in one of the highest polluted area? No way, that's cobblers.
>
> Red Wall

Air pollution feels too big to solve and makes voters feel a lack of agency

- The problem of air pollution feels too big to solve and therefore easy to ignore.

- Voters are open to being part of the solution but at the moment do not feel like they understand what to do or how to have a major impact. Voters see Government and businesses as needing to set the tone and rules on air pollution.

- As with other environmental issues, people are not willing to make sacrifices unless there is system-wide change.

- Agency is key – there is a real desire to have some agency over this problem. Currently they feel that it is too complicated to try and solve, so it's not worth trying.

- Voters feel a deeper commitment and positivity if they have some aspect of agency and feel that they are making a visible contribution to lessen a problem. This also helps to confirm some voters' own self-image as 'good' or 'upstanding' people.

> *With everything else that is going on, there doesn't seem to be that much out there about what we can do.*
>
> Red Wall

> *Yes, cleaner air would be lovely, but what do we do? We take away people's transport or we squeeze prices up and make everybody buy an electric. Whichever way you do it, there's a loss.*
>
> Red Wall

> *It makes me feel angry but there's nothing I can do about it. You know, you've got your representatives in local government but personally, I think these local councillors are buttering the wrong bread really because they've got their own agenda.*
>
> Red Wall

Health messaging in its current form will not mobilise voters

- The current framing of the problem as a risk to an individual or multiple individuals' health does not align with voters' own values and therefore does not create concern for the issue.

- Instead, it can have a paradoxical effect of creating a sense of confusion or acceptance that this is a problem they can 'live with' or too big to deal with.

- Even those whose health has been directly impacted by air pollution, don't see it is an imminent issue that they need to be concerned about. The problem seems too big to solve for them and is not pressing enough to make considerable changes in habits and behaviour.

- Whilst concerns for others' health is more potent, it still does not cut through with the potency that is needed to mobilise people. It remains intangible and stuck in a tangle of issues.

> *It's obviously related and stuff but it's hard to get quite the grasp on that level that me sitting in my car and my wife driving into St Albans that that's having that impact on my health.*
>
> Blue Wall

> *You're not going to walk out to a pub and say, 'Oh, I'm not going to go because of air pollution.' It's just common sense.*
>
> Red Wall

> *I mean, [wood burning stoves] are very bad for you but, you know, so is smoking, so is drinking. I mean, if you're going to ban these, where do you stop really?*
>
> Blue Wall

Understanding the population's attitudes to the need for and solutions to air pollution

Through our research we have created a bespoke segmentation of the UK population based on attitudes to air pollution – both the need to tackle it and the solutions required. Doing so allows us to identify the key segment of the population – Winnables and Reachables – that we need to target to drive change up the triangle to decision-makers.* .

25	19	10	22	7	6
Willing to spend more every month to achieve cleaner air.

Supportive of more interventionist policies – i.e. increased road tax for high polluting vehicles. | Support the *principle* but not the *policies*.

Likely to resist the imposition on their lives of more intrusive air quality policies. | Generally unwilling to pay to achieve cleaner air.

But change their mind when told they live in a highly-polluted area.

These are one of our most important target group, winnable through the frame we have agreed on. | Reject paying for cleaner air, even when presented with facts about levels in their local area.

Believe air pollution is too big of an issue to tackle and nothing they can do would make a difference. | Believe both they cannot make a difference to the problem

Also believe it is not their problem to solve.

Their opinions are set and will likely not change. | Attitudes are hard to discern.

Are ambivalent about air quality action.

They are broadly disengaged from political debates. |
| **Committed Advocates** | **Armchair Advocates** | **Winnables** | **Reachables** | **Unconcerned** | **Disengaged** |

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Why particular segments matter politically
2019 General Election vote

How the segments voted in 2019

Disengaged
Conservatives 38, Labour 31, Liberal Democrats 5, Green Party 3, Scottish National Party 3

Unconcerned
Conservatives 39, Labour 27, Liberal Democrats 5, Green Party 2, Scottish National Party 2

Reachables
Conservatives 43, Labour 23, Liberal Democrats 4, Green Party 3, Scottish National Party 3

Winnables
Conservatives 35, Labour 28, Liberal Democrats 7, Green Party 3, Scottish National Party 4

Armchair Advocates
Conservatives 38, Labour 31, Liberal Democrats 7, Green Party 3, Scottish National Party 3

Committed Advocates
Conservatives 30, Labour 38, Liberal Democrats 8, Green Party 5, Scottish National Party 5

How our targets are shifting

Voting intentions compared with voting behaviour in 2019 for our target audience
The voting intentions and past behaviour of target 1s and target 2s

2019
Conservatives 41, Labour 24, Liberal Democrats 5, Green Party 3, Scottish National Party 4

Tomorrow
Conservatives 29, Labour 30, Liberal Democrats 5, Green Party 4, Scottish National Party 4

Understanding the value drives of these audience segments

Mapped on Stonehaven's in-house Compass model

COMPASS is Stonehaven's unique platform to understand motivations of all humans – be it voters, customers or citizens.

—COMPASS has been developed using over 600,000 data points and 300 hours of qualitative research that explore values and attitudes of the UK populous.

—X-axis denotes economic attitudes – the further to the right, the more in support one is of free market economic.

—Y-axis indicates the values dynamic – the upper quadrants are more globalist in outlook, whereas the bottom quadrants are more traditional.

—Goes beyond traditional research methodologies and work from lasting trends, not media or politically generated fads.

—Understand the values-based dynamics at play in society that underpin voter/consumer attitudes and decision making.
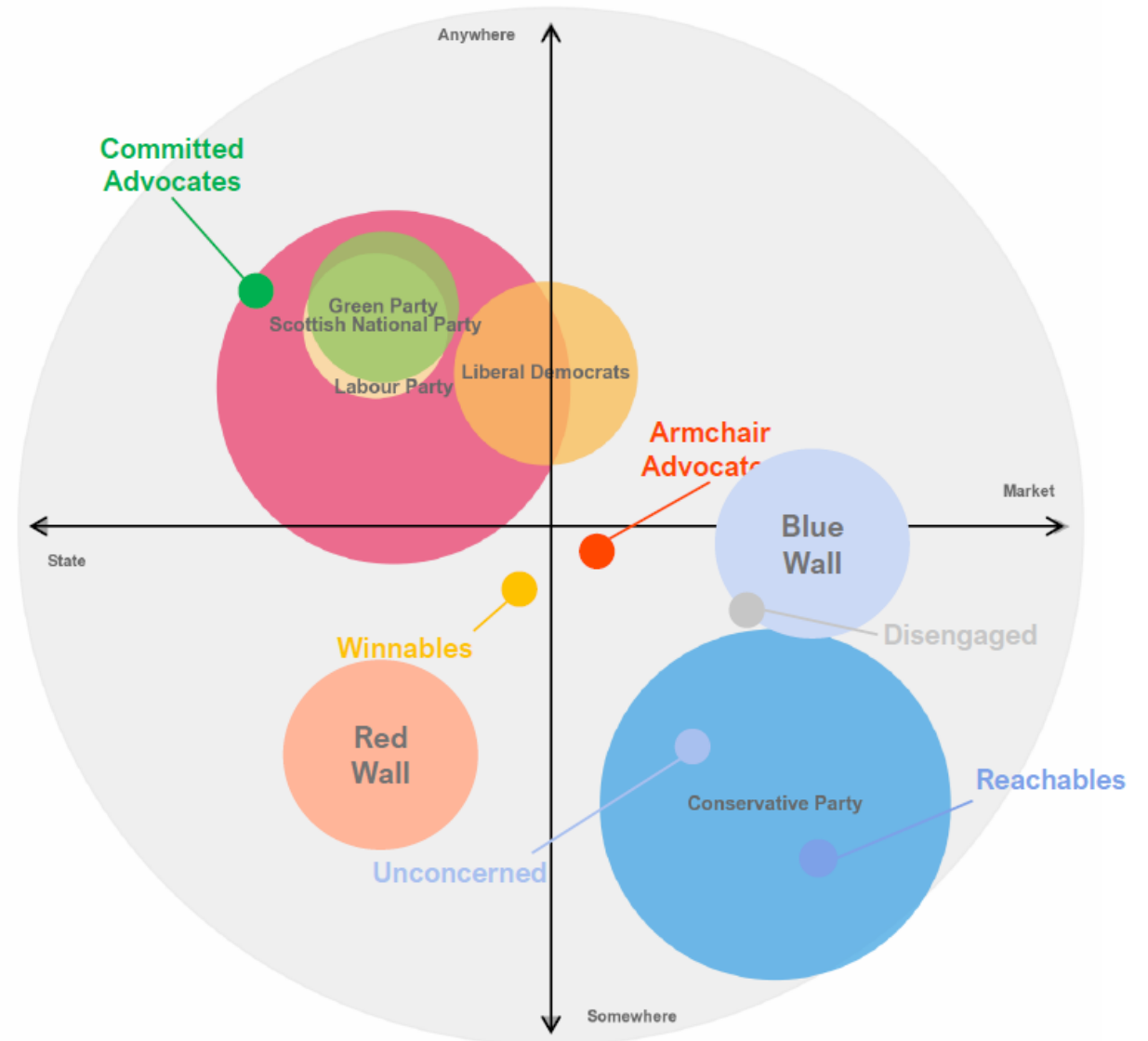
We credit David Goodhart's 2017 book *The Road to Somewhere* as helping provide a description of the social axis on our chart.

01
PROBLEM

Awareness won't come through simply creating more noise.

To disrupt the narrative around air quality need to reset the question & redefine the problems that the solutions for air quality will solve.

02
PLAN

The policy pathways need to be seen to have a wider benefit, linked to the protection & transformation of communities.

We need to set out a plan that key audiences can coalesce around, framed to engage and empower.

03
ACTION

Change won't and can't only come from top down activation.

To create the political space and incentive to act, we need to mobilise our target voter audience (the Winnables and Reachables) in support of political action to accelerate change.

Setting a target for PM2.5 in the UK

FIGURE 4: CURRENT UK AND WHO TARGETS, AND CORRESPONDING LEVELS OF PM$_{2.5}$ IN THE UK.

Source: Imperial College London ERG, 2021. Population-weighted PM$_{2.5}$ by local authority area is used for current UK levels.

PM$_{2.5}$ concentration (μg/m³)

- Current UK Limit
- Worst level in UK, 2018
- WHO interim target (WHO-10)
- WHO target (WHO-5)
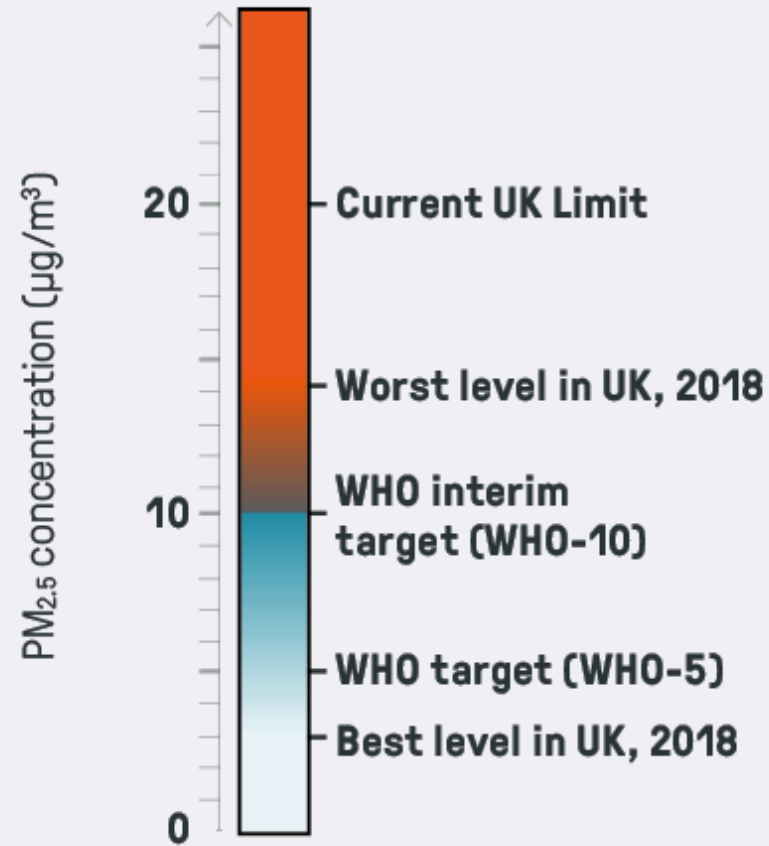- Best level in UK, 2018

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FIGURE 1: THE MODELLING FOR 2018 AND 2030 WAS UNDERTAKEN FOR THE UK AS A WHOLE BUT TOOK INTO ACCOUNT ADDITIONAL AIR QUALITY MEASURES FOR LONDON.

The two models used have been approved for use in Defra model intercomparison studies.
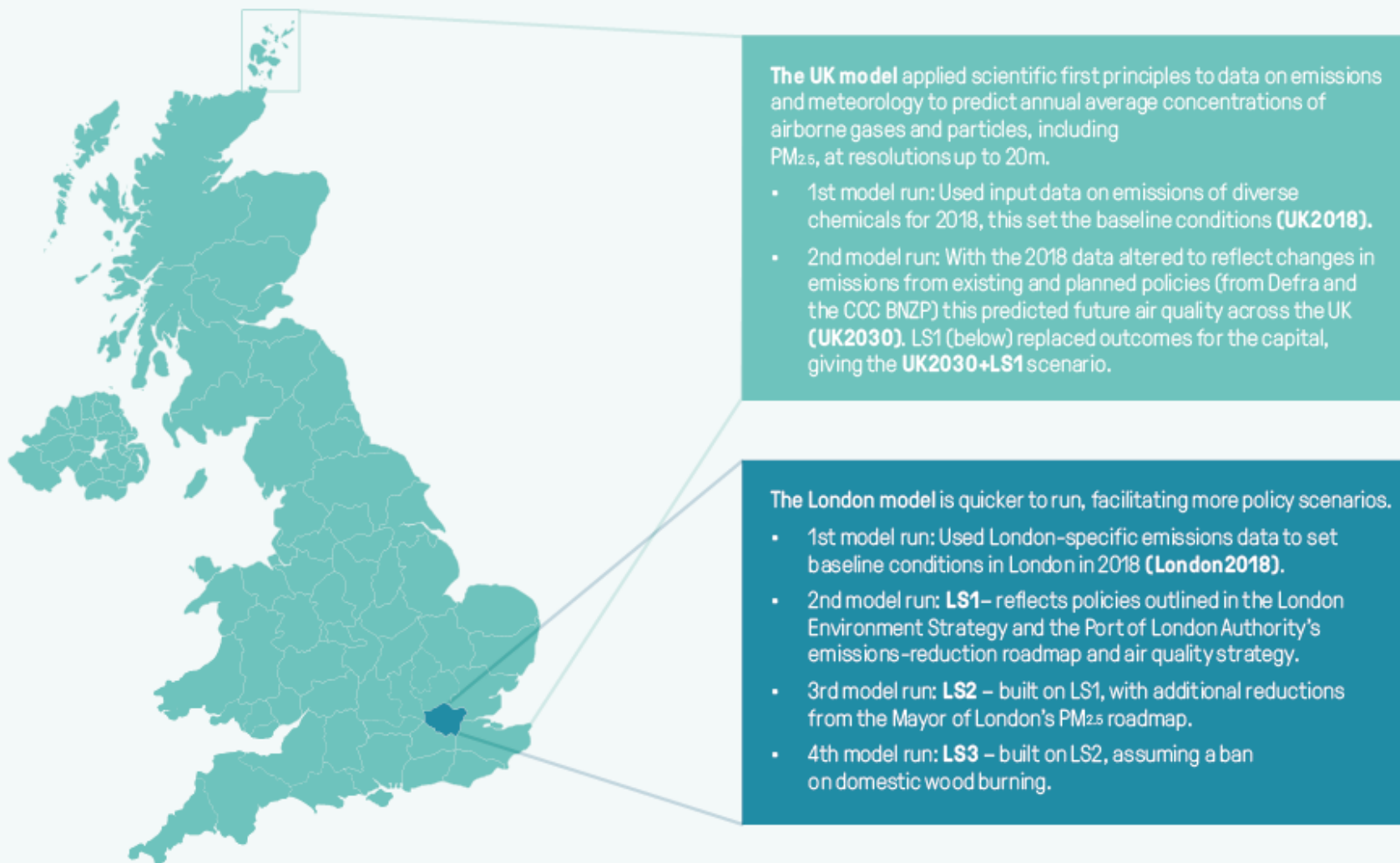
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The UK model applied scientific first principles to data on emissions and meteorology to predict annual average concentrations of airborne gases and particles, including PM2.5, at resolutions up to 20m.

- 1st model run: Used input data on emissions of diverse chemicals for 2018, this set the baseline conditions **(UK2018)**.

- 2nd model run: With the 2018 data altered to reflect changes in emissions from existing and planned policies (from Defra and the CCC BNZP) this predicted future air quality across the UK **(UK2030)**. LS1 (below) replaced outcomes for the capital, giving the **UK2030+LS1** scenario.

The London model is quicker to run, facilitating more policy scenarios.

- 1st model run: Used London-specific emissions data to set baseline conditions in London in 2018 **(London2018)**.

- 2nd model run: **LS1**– reflects policies outlined in the London Environment Strategy and the Port of London Authority's emissions-reduction roadmap and air quality strategy.

- 3rd model run: **LS2** – built on LS1, with additional reductions from the Mayor of London's PM2.5 roadmap.

- 4th model run: **LS3** – built on LS2, assuming a ban on domestic wood burning.

FIGURE 5: ANNUAL MEAN PM$_{2.5}$ CONCENTRATIONS ACROSS THE UK IN 2018 AND 2030, FOLLOWING THE UK 2030 AND LS1 POLICY SCENARIOS.

UK 2018

UK 2030

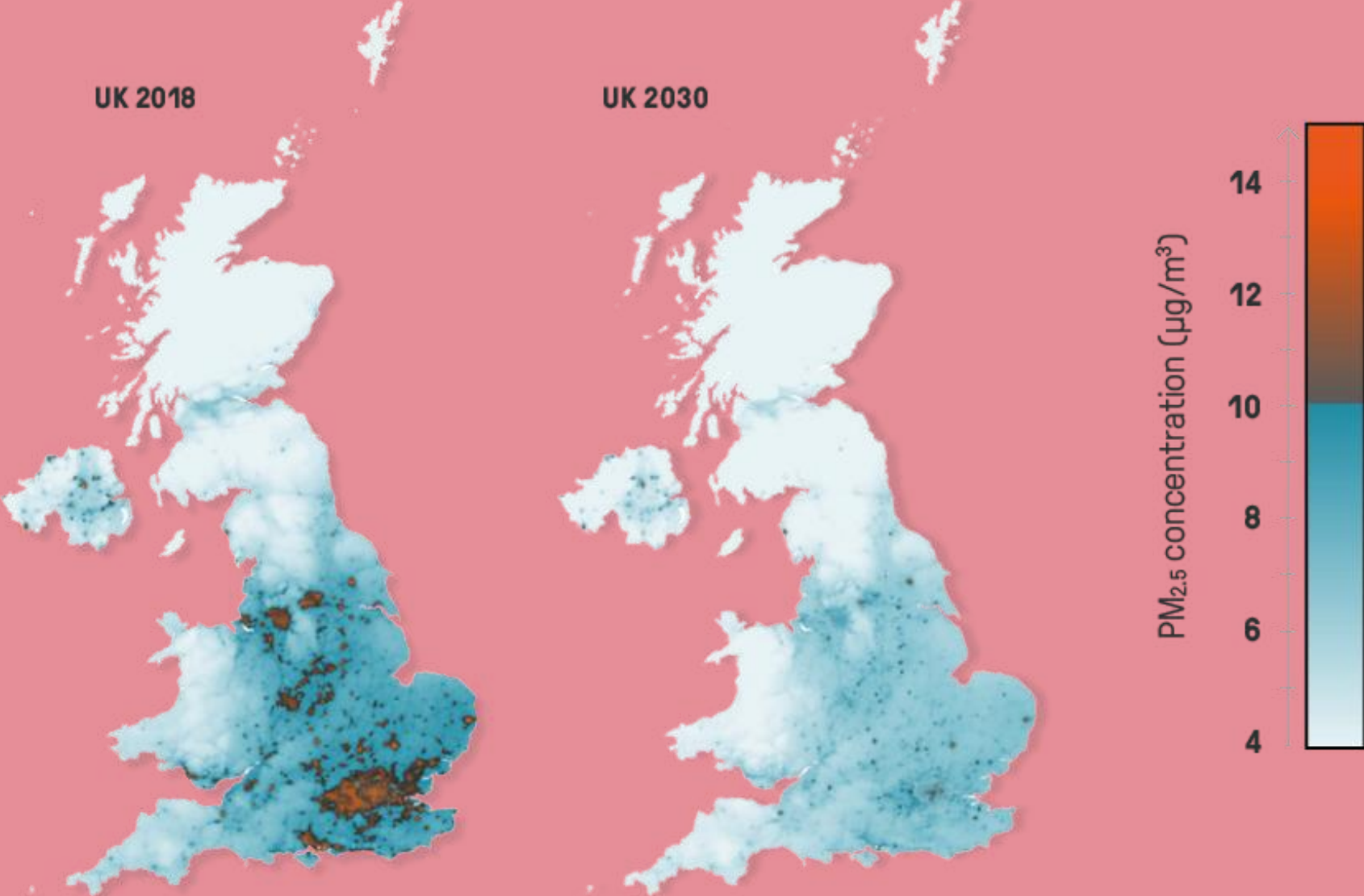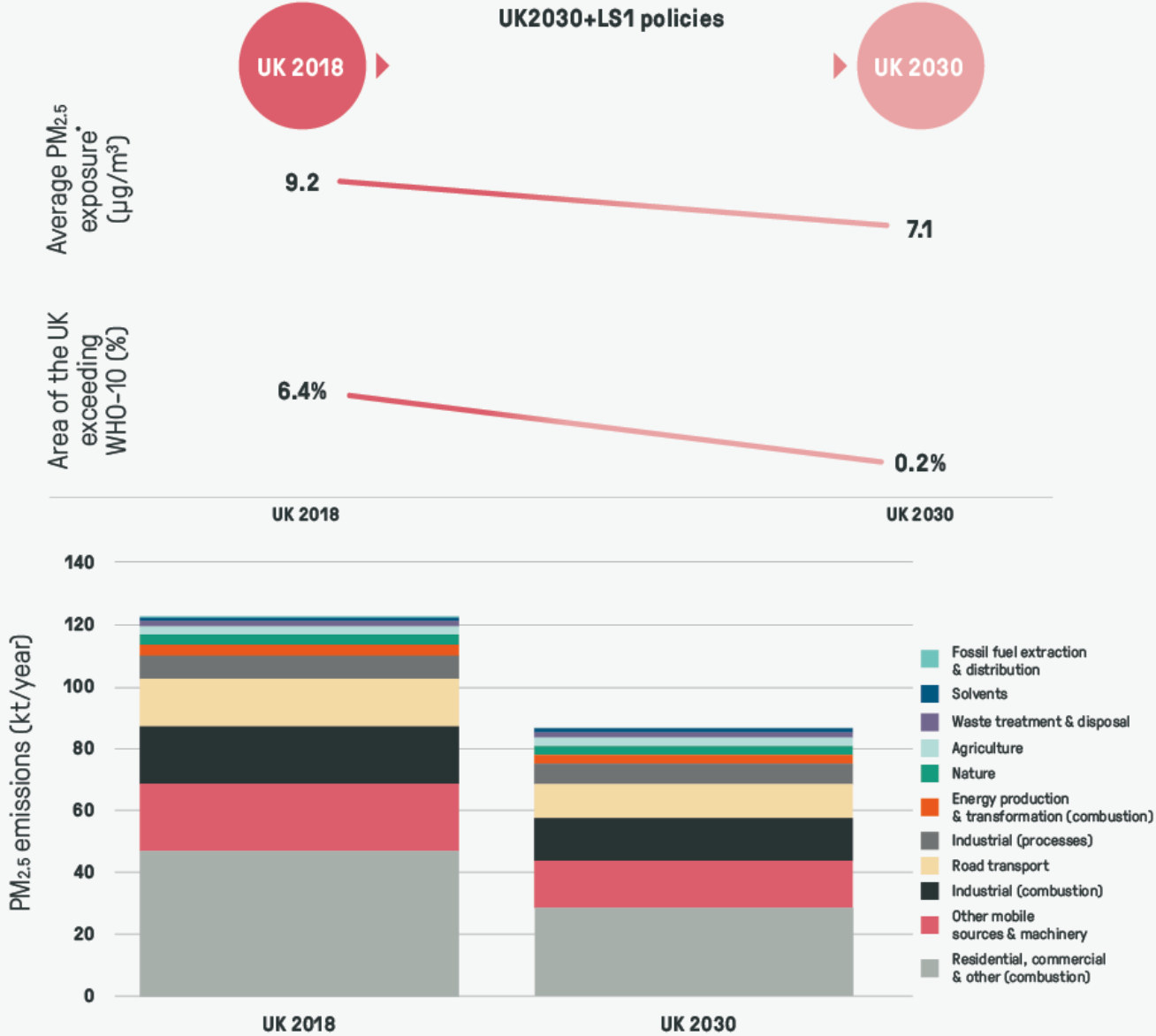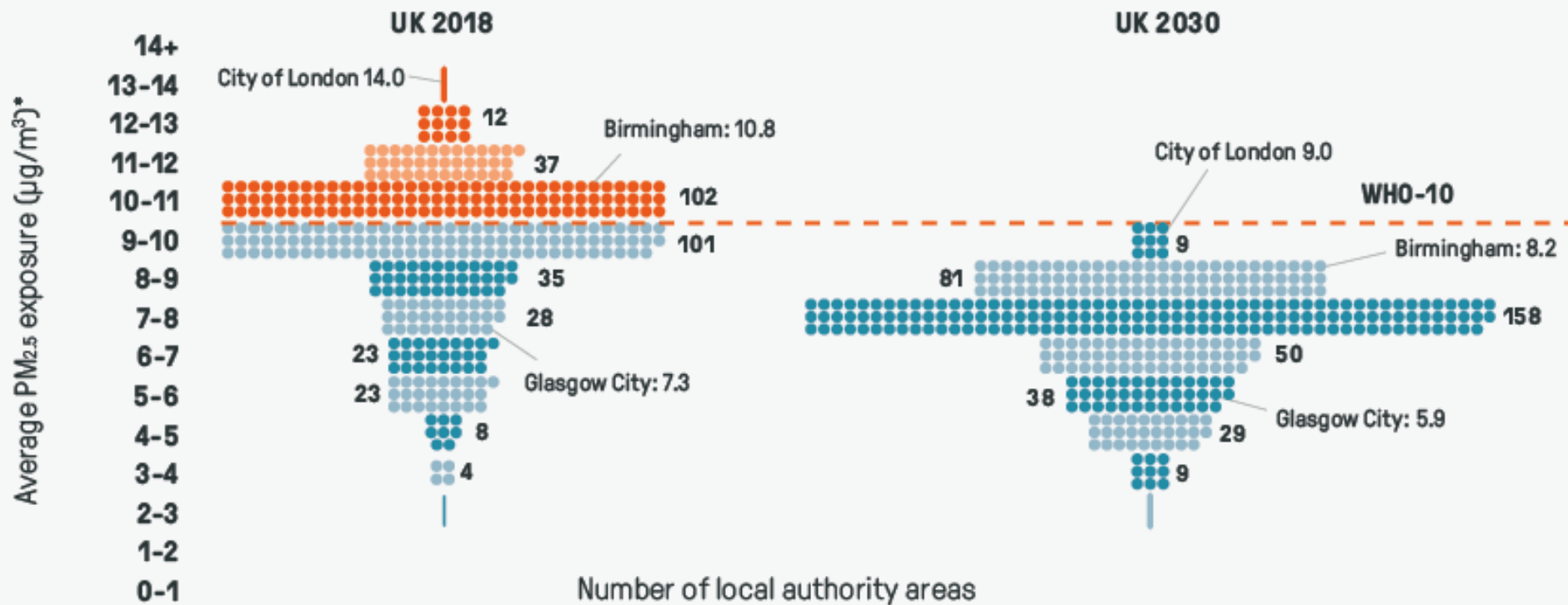PM$_{2.5}$ concentration (µg/m³)

14

12

10

8

6

4

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FIGURE 6: REDUCTIONS IN EXPOSURE TO PM2.5, EXCEEDANCES OF WHO-10 AND PM2.5 EMISSIONS ACROSS THE UK IN 2030, FOLLOWING THE UK2030 AND LS1 POLICY SCENARIOS.

*Average exposure was estimated using population-weighted average annual mean PM2.5 concentrations aggregated at the local authority area scale'

FIGURE 11: CHANGES TO THE NUMBER OF LOCAL AUTHORITY AREAS IN THE UK WITH PM₂.₅ CONCENTRATIONS ABOVE WHO-10 BETWEEN 2018 AND 2030, FOLLOWING UK 2030, LS1 AND LS2 POLICY SCENARIOS.

*Average exposure was estimated using population-weighted average annual mean PM₂.₅ concentrations aggregated at the local authority area scale

ACHIEVING WHO-10 ACROSS THE UK BY 2030 WOULD RESULT IN:*

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23%
REDUCTION IN AVERAGE EXPOSURE TO PM2.5

£384 BILLION
OF ECONOMIC BENEFITS TO THE UK

8-9 WEEKS
LONGER LIFE EXPECTANCY

~20 FEWER INFANT DEATHS PER YEAR

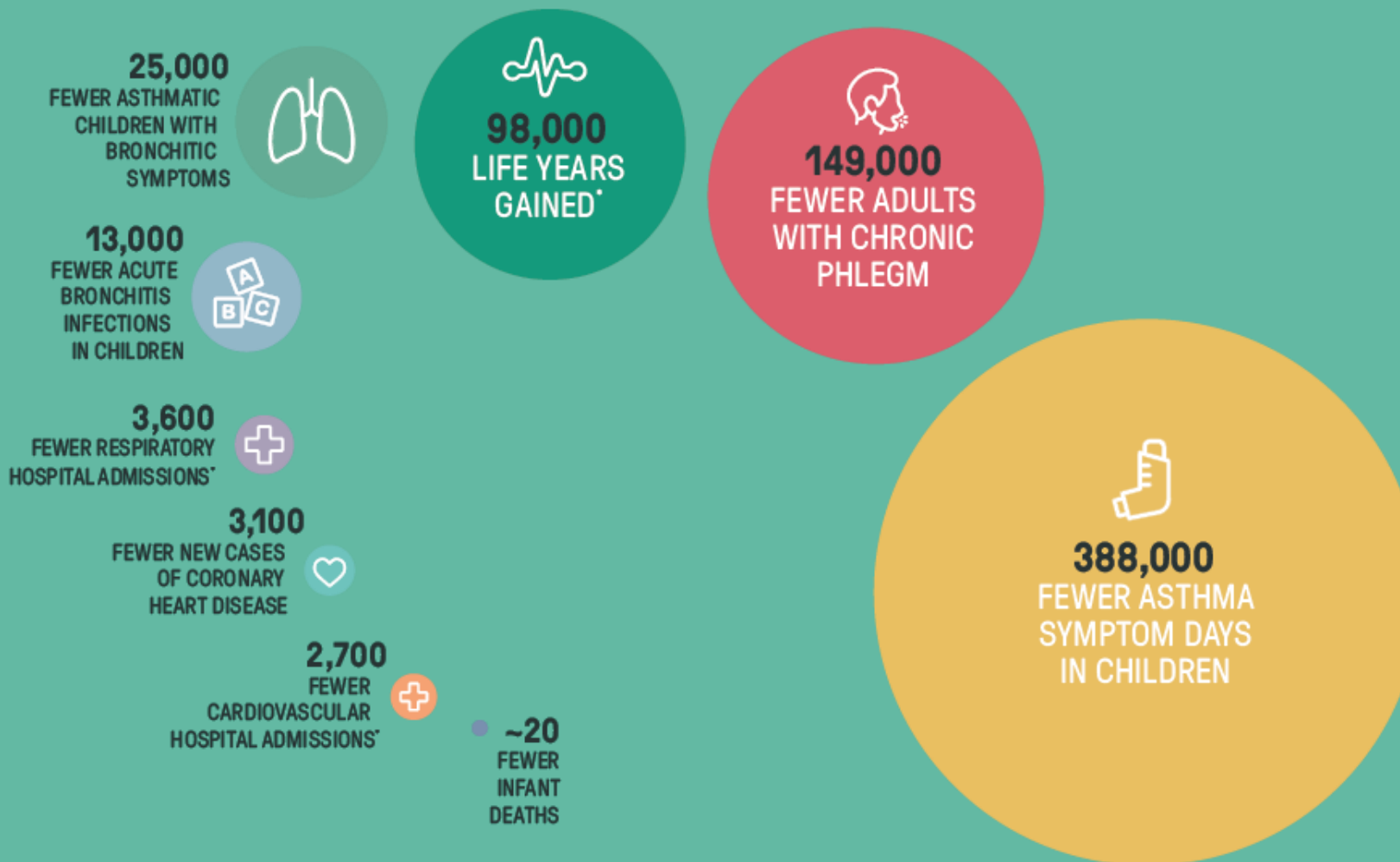**3,100 FEWER NEW CASES OF CORONARY HEART DISEASE PER YEAR**

* More information on these statistics, their calculation methods and uncertainties are available below and in the technical report.

[a] 11.5 million UK life years gained between 2018 and 2134 (average 98,000 life years per year) including a gain of 8–9 weeks of life expectancy in those born in 2018.

[b] The target of WHO-10 proposed in this study was also recommended in the Prevention of Future Deaths report by the Coroner overseeing the inquest into the death of nine-year-old Ella Kissi-Debrah, who died as a result of air pollution.

FIGURE 12: REDUCTIONS IN HEALTH IMPACTS FROM THE AIR POLLUTION IMPROVEMENT IN THE UK UP TO 2030, FOLLOWING THE UK 2030 AND LS1 POLICY SCENARIO (CASES PER YEAR AVERAGED OVER 2018-2134).

Comparison is made against a scenario where concentrations remain unchanged from UK 2018.

25,000
FEWER ASTHMATIC CHILDREN WITH BRONCHITIC SYMPTOMS

13,000
FEWER ACUTE BRONCHITIS INFECTIONS IN CHILDREN

3,600
FEWER RESPIRATORY HOSPITAL ADMISSIONS*

3,100
FEWER NEW CASES OF CORONARY HEART DISEASE

2,700
FEWER CARDIOVASCULAR HOSPITAL ADMISSIONS*

~20
FEWER INFANT DEATHS

98,000
LIFE YEARS GAINED*

149,000
FEWER ADULTS WITH CHRONIC PHLEGM

388,000
FEWER ASTHMA SYMPTOM DAYS IN CHILDREN

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*Decreases in hospital admissions and gains in life years were calculated for both PM$_{2.5}$ and NO$_2$ and the largest result between the two pollutants taken (summing both would lead to double counting due to overlap between the pollutants). See technical report for details.

FIGURE 13: CUMULATIVE ECONOMIC BENEFITS FROM THE REDUCED DEATH AND ILLNESS ASSOCIATED WITH AIR POLLUTION IMPROVEMENT IN THE UK UP TO 2030, FOLLOWING THE UK 2030 AND LS1 POLICY SCENARIO (CALCULATED OVER 2018-2134).

Comparison is made against a scenario where concentrations remain unchanged from UK 2018. Cumulative benefits given here whereas average cases per year given in Figure 11.
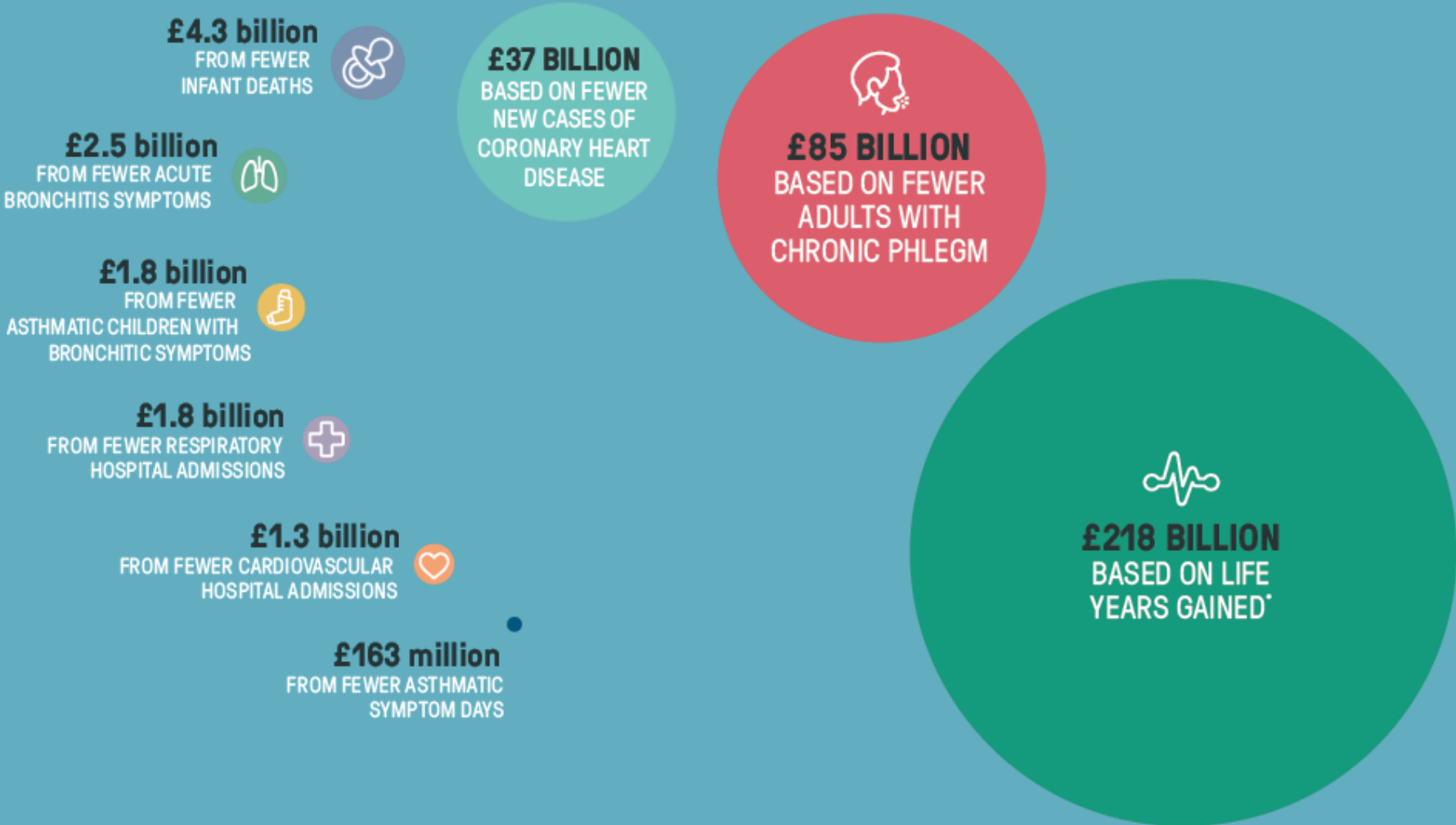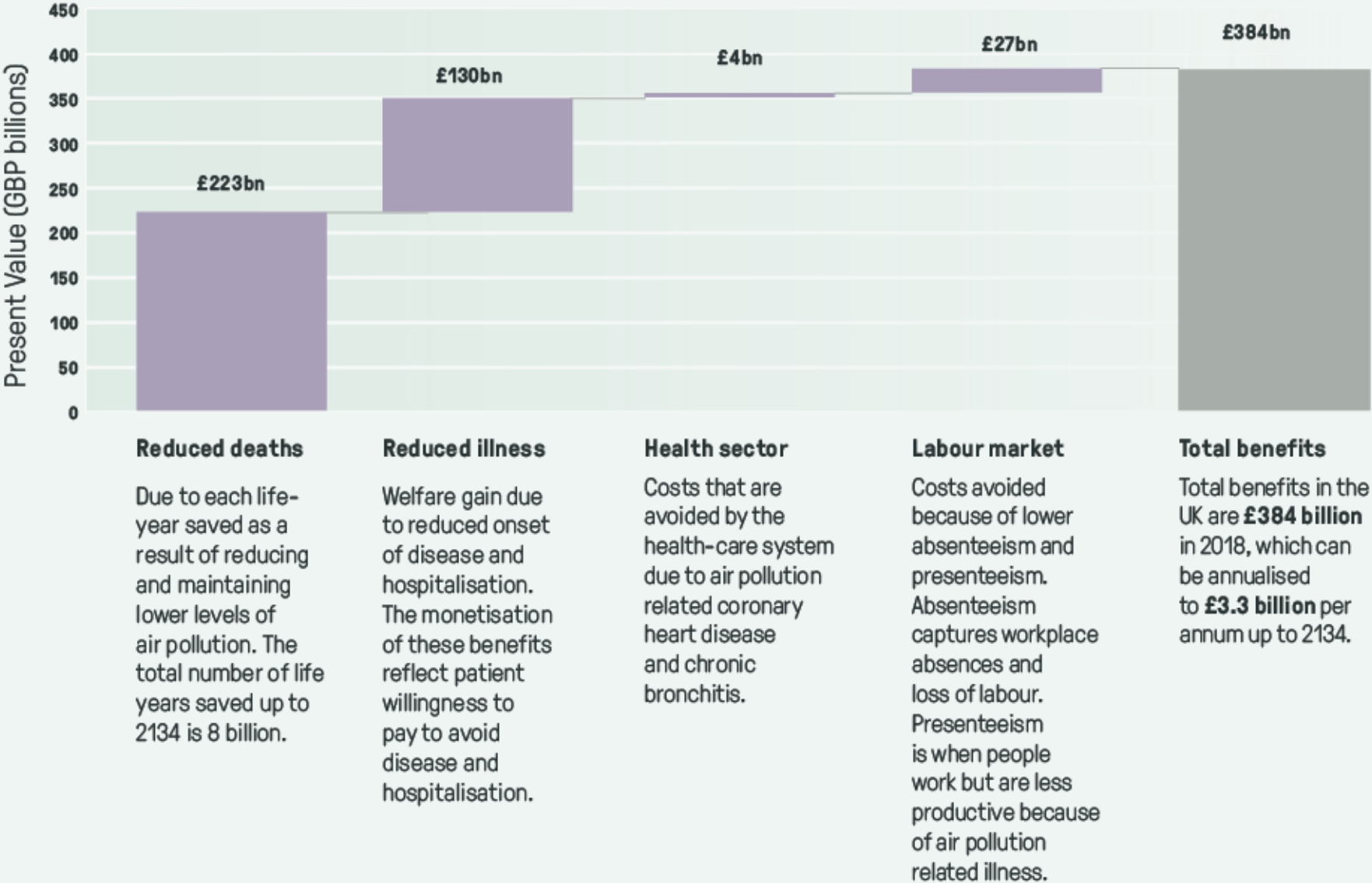
£4.3 billion
FROM FEWER INFANT DEATHS

£2.5 billion
FROM FEWER ACUTE BRONCHITIS SYMPTOMS

£1.8 billion
FROM FEWER ASTHMATIC CHILDREN WITH BRONCHITIC SYMPTOMS

£1.8 billion
FROM FEWER RESPIRATORY HOSPITAL ADMISSIONS

£1.3 billion
FROM FEWER CARDIOVASCULAR HOSPITAL ADMISSIONS

£163 million
FROM FEWER ASTHMATIC SYMPTOM DAYS

£37 BILLION
BASED ON FEWER NEW CASES OF CORONARY HEART DISEASE

£85 BILLION
BASED ON FEWER ADULTS WITH CHRONIC PHLEGM

£218 BILLION
BASED ON LIFE YEARS GAINED*

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FIGURE 14: CUMULATIVE ECONOMIC BENEFITS RESULTING FROM ENHANCED AIR QUALITY , FOLLOWING UK 2030 AND LS1 SCENARIOS.

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Present Value (GBP billions)

£223bn £130bn £4bn £27bn £384bn

Reduced deaths

Due to each life-year saved as a result of reducing and maintaining lower levels of air pollution. The total number of life years saved up to 2134 is 8 billion.

Reduced illness

Welfare gain due to reduced onset of disease and hospitalisation. The monetisation of these benefits reflect patient willingness to pay to avoid disease and hospitalisation.

Health sector

Costs that are avoided by the health-care system due to air pollution related coronary heart disease and chronic bronchitis.

Labour market

Costs avoided because of lower absenteeism and presenteeism. Absenteeism captures workplace absences and loss of labour. Presenteeism is when people work but are less productive because of air pollution related illness.

Total benefits

Total benefits in the UK are **£384 billion** in 2018, which can be annualised to **£3.3 billion** per annum up to 2134.

# 12. THE BENEFITS OF POLICIES TO REDUCE AIR POLLUTION OUTWEIGH THE COSTS

An analysis of individual policies included in the UK2030 scenario, based on government analysis, indicates that the benefits outweigh the costs. The main policies affecting air pollution, and the associated costs and benefits, are summarised in Table 1.[11]

Table 1: Key policies for air pollution implemented by the UK Government.

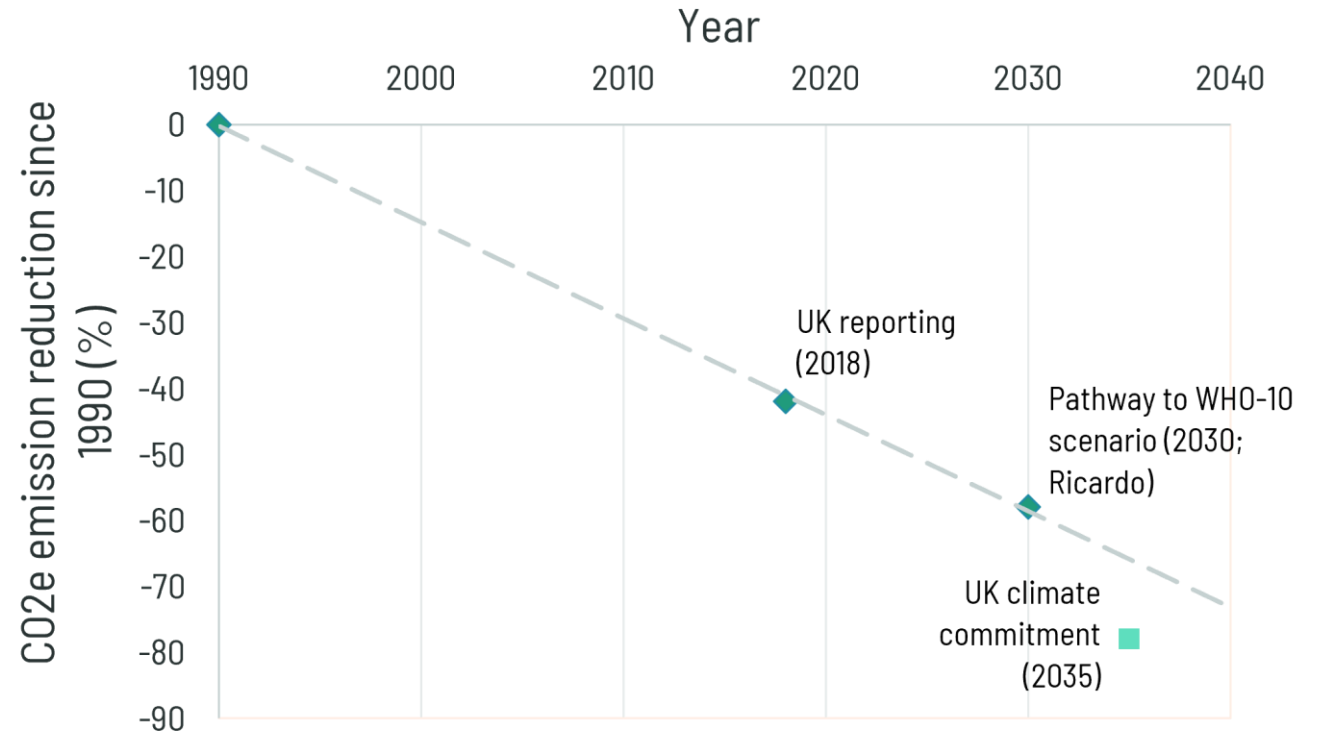| SECTOR	POLICY	PRESENT VALUE (£ MILLION 2018)		BENEFIT COST RATIO
		Total benefits	Total costs	
ENERGY & INDUSTRY	Industrial emissions directive (upper and lower scenario)[h]	6,748–10,650	2,927–1,758	2.3–6.1
	Medium combustion plant directive	1,082	224	4.8
TRANSPORT	BNZP for transport*	690,558	182,500	3.8
	Euro VI standards			NA
BIOMASS	Regulations covering wood burning and coal	8,141	128	64
BUILDINGS	Building regulations 2010	45,924	23,126	2.0
	Building regulations 2013	1,669	1,245	1.3
	Technical standards for boilers (boiler plus)	1,526	1,025	1.5
	Private rented-sector energy-efficiency regulations	1,517	926	1.6
	The heat network investment project (green heat network fund)	1,179	589	2.0

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Many of our actions on PM2.5 are simultaneously driving down the UK's carbon emissions

- Reduction of 126 Gt CO2e emissions per year by 2030 from the same set of measures that achieve WHO-10 across the majority of the UK

- Equates to a 58% reduction from 1990 levels
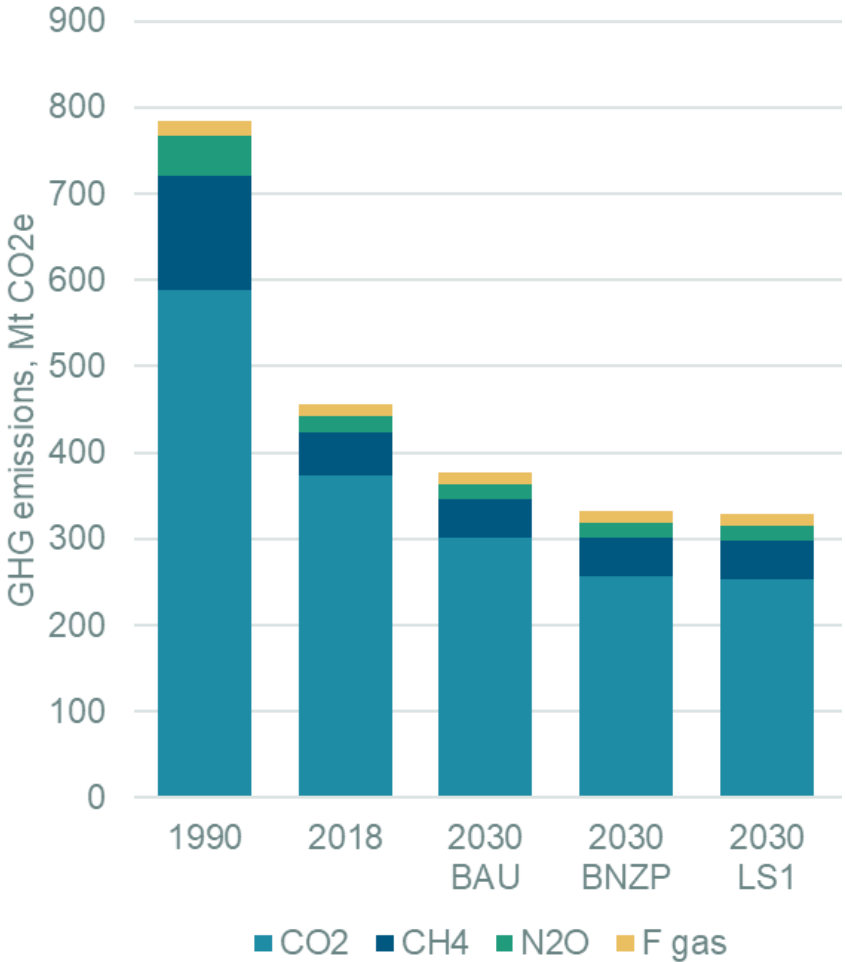
The proposed target of WHO-10 by 2040 also seems misaligned with UK climate commitments
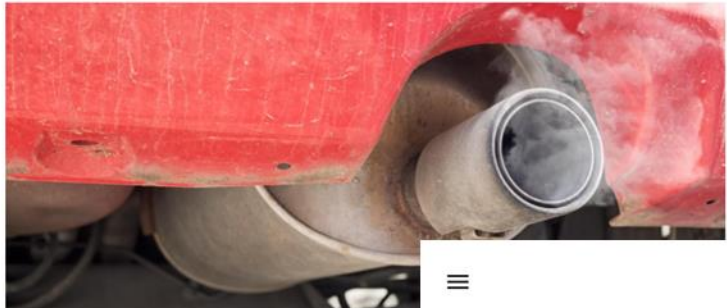
- These measures will leave the UK **behind track** on its 2035 climate commitment

- More action on greenhouse gases and fossil fuels will be needed

- The government's proposed PM2.5 target suggests a disconnect between action on health and climate.

Year

CO2e emission reduction since 1990 (%)

UK reporting (2018)

Pathway to WHO-10 scenario (2030; Ricardo)

UK climate commitment (2035)

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Target of halving air pollution target by 2040 is 'too weak'

Ben Webster, Environment Editor | Kat Lay, Health Editor
Wednesday March 16 2022, 12.01am, The Times

Rosamund Adoo-Kissi-Debrah, whose daughter died in part due to air pollution, said the government's target had failed the whole nation
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Cleaner air would help 150,000 breathe easier

Ben Webster, Environment Editor

Wednesday March 02 2022, 12.01am, The Times

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Opinion

Implementing existing air pollution policies will improve health and save lives

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Cite this as: BMJ 2022;376:o677

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Elaine Mulcahy, director
Author affiliations ▾

Every minute of every day, the majority of people in the world inhale toxic particles that settle in the lining of their lungs or filter through to their bloodstream where they trigger breathing difficulties and exacerbate heart diseases. Repeated exposure over months and years often eventually worsen the impacts of dementia, diabetes, hypertension, lung cancer, and pneumonia. The effect is lethal, resulting in millions of deaths globally every year. In the UK, the most reliable figures available estimate that between 28 000-36 000 people died as a result of air pollution in 2013.

For too long, we have accepted this toxic air as an inevitable consequence of living in an industrialised society. The World Health Organisation (WHO) estimates that today the burden of disease attributable to air pollution globally is on a par with tobacco smoking. As the evidence grows of the devastating impacts of increasing levels of air pollution on human health, the focus needs to shift.

Air pollution is created from a mix of particles (known as "Particulate Matter") emitted from various sources including vehicle exhausts, tyres, brakes, burning of wood and coal, industrial processes, chemical reactions, and agricultural processes. The different make-up of the air pollution differs from place to place, depending on the source of the emissions. The size of the particles is key from a human health perspective—particles that measure 2.5 micrometres or smaller are the most toxic. At this size, they can easily penetrate through the lungs, the smallest particles finding their way into the bloodstream.

No level is safe, but the WHO has put in place guidelines for countries to aim for in order to protect human health. In September 2021, the WHO guidelines recommended for countries to aim to limit the volume of $PM_{2.5}$ in the air to 5 µg per cubic metre ($\mu g/m^3$). The current target in the UK is 20 $\mu g/m^3$—four times WHO's recommended limit. The Environment Act 2021 commits the UK government to set a limited-based target in ambient air pollution by October 2022, and there is an opportunity to set a more ambitious limit that will significantly benefit health. The WHO interim target of 10 $\mu g/m^3$—known as WHO-10—may be a realistic target to aim for, and there is significant scope for us to achieve this.

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NEWS › UK

UK could meet WHO air pollution targets by 2030 with planned policies – report

Campaigners have urged Government to set the global health body's interim target for fine particulate matter or PM2.5 as a legal goal.

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