



HEATHROW

Clean Vehicles Partnership



Clean Vehicle Partnership Seminar

Action for Cleaner Air

3rd April 2019

Action for Clean Air Seminar Agenda

10.00	Policy and regulation for Clean Air
	Clean Air Strategy
	Dr Bruno Viegas – Defra
	The London Ultra Low Emission Zone
	Catherine Westoby – TfL
	Progress on Clean Air Zones in other cities
	Guy Hitchcock – Ricardo Energy & Environment
	Updated CVRAS Guidance
	Dan Hayes - LowCVP
11.15	Break

Heathrow
Making every journey better



Department
for Environment
Food & Rural Affairs



11.30	Policy and action at Heathrow
	Heathrow CVP Awards
	Dan Clarke – Ricardo Energy & Environment
	Heathrow Airside ULEZ and Infrastructure
	Neil Pritchard – Heathrow
	Other Regulated Charges
	Simon Grant – Heathrow
	Panel Session
	All participants
13.00	Lunch

Action for Clean Air Seminar Agenda

14.00	Technical Workshop – Financing Cleaner Vehicles
Financing options presentations from the following organisations:	
<ul style="list-style-type: none">• Asset Alliance Group - Paul Wright• Cyan Finance - Jonny Page• DriveElectric - Ellie Vujasevic• Junghienirch UK Ltd - Li Cheung• Octopus – Dan Saunders	
Panel Session	
All participants	
15.30	Close



10.00	Session 1 – Policy and regulation for Clean Air
	Clean Air Strategy Dr Bruno Viegas – Defra
	The London Ultra Low Emission Zone Catherine Westoby – TfL
	Progress on Clean Air Zones in other cities Guy Hitchcock – Ricardo Energy & Environment
	Updated CVRAS Guidance Dan Hayes - LowCVP
11.15	Break

11.30	Session 2 – Policy and action at Heathrow
	Heathrow CVP Awards
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	Other Regulated Charges
	Simon Grant – Heathrow
	Panel Session
	All participants
13.00	Lunch



HEATHROW

Clean Vehicles Partnership

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www.Heathrow.com/CVP



Department
for Environment
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Clean Air Strategy

Bruno Viegas

Heathrow CVP Seminar

3 April 2019



Forestry Commission
England



Environment
Agency

Tackling air pollution is a government priority



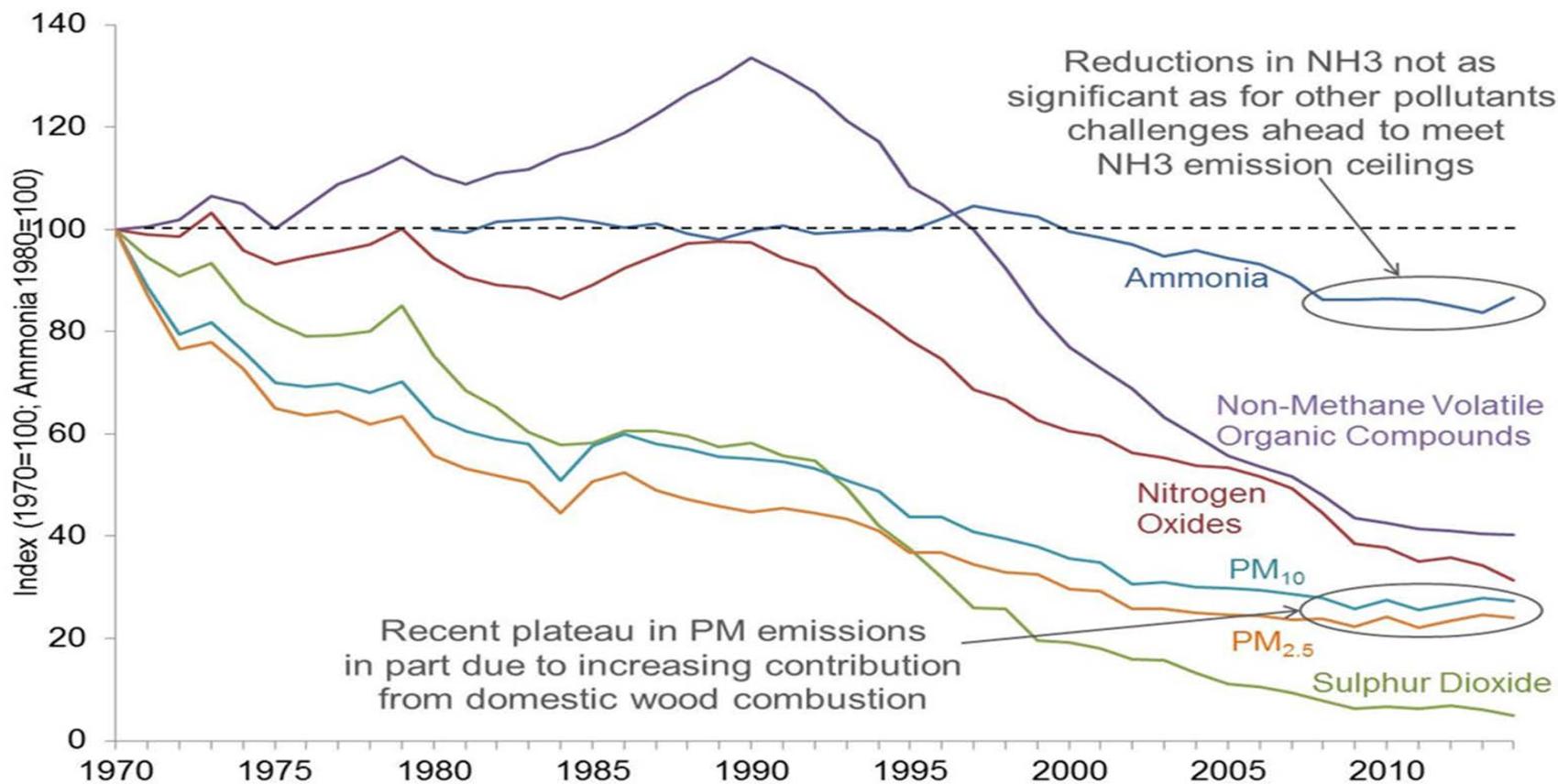
The **Clean Air Strategy** was published in Jan 2019. It sets out how we will meet international commitments to **reduce emissions of five damaging air pollutants by 2020 and 2030** (*nitrogen oxides; particulate matter; sulphur dioxide; non-methane volatile organic compounds; ammonia*).

The **Road to Zero Strategy** was published in July 2018, setting out how government will support the **transition to zero emission road transport** and reduce emissions from conventional vehicles during the transition. **Maritime 2050...** **Aviation 2050...**



Alongside these sits a targeted delivery programme on the UK's most immediate air quality challenge: **tackling roadside NO_x/NO₂ concentrations – plan published in July 2017.**

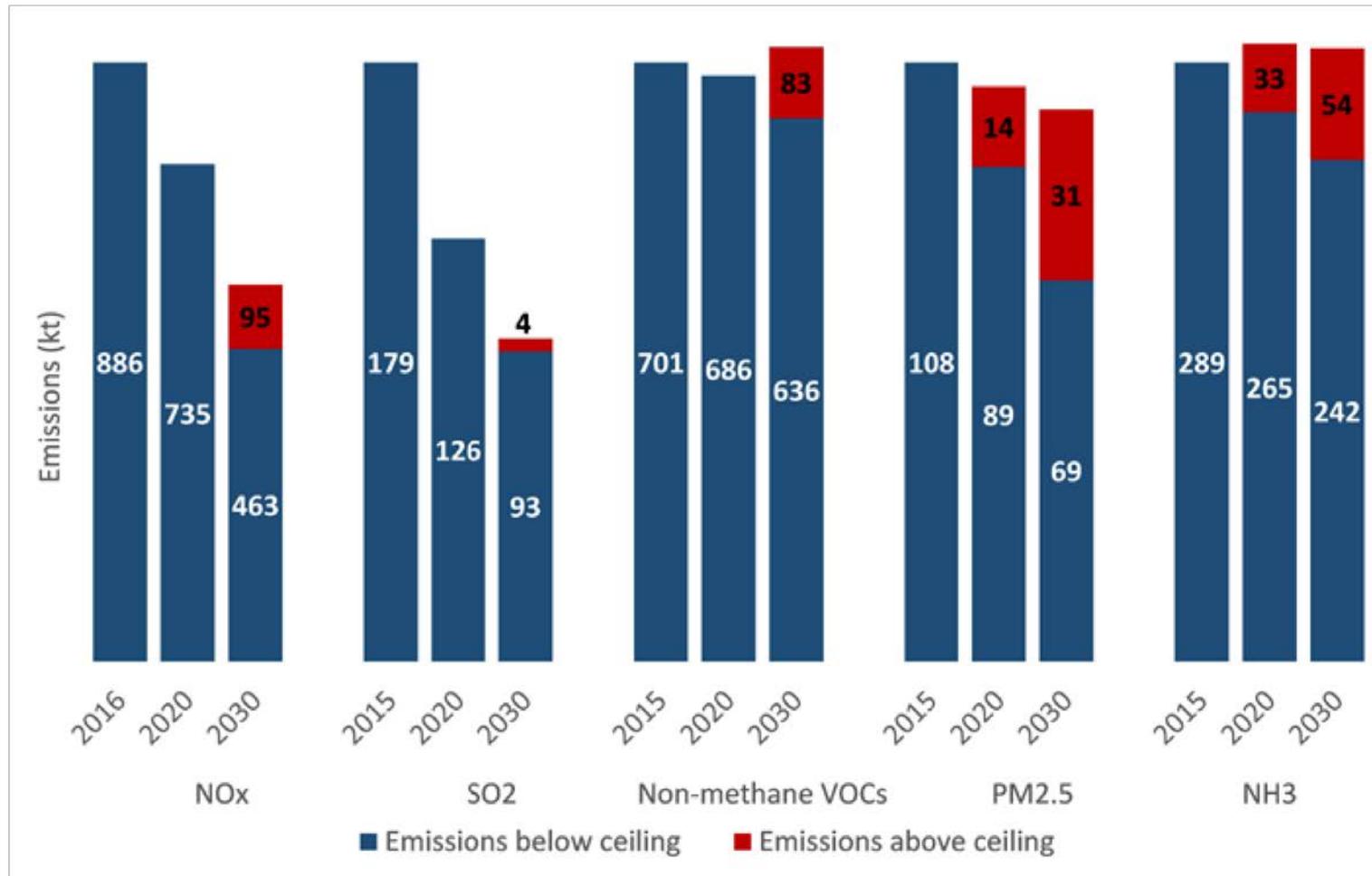
UK national emissions are mostly improving...



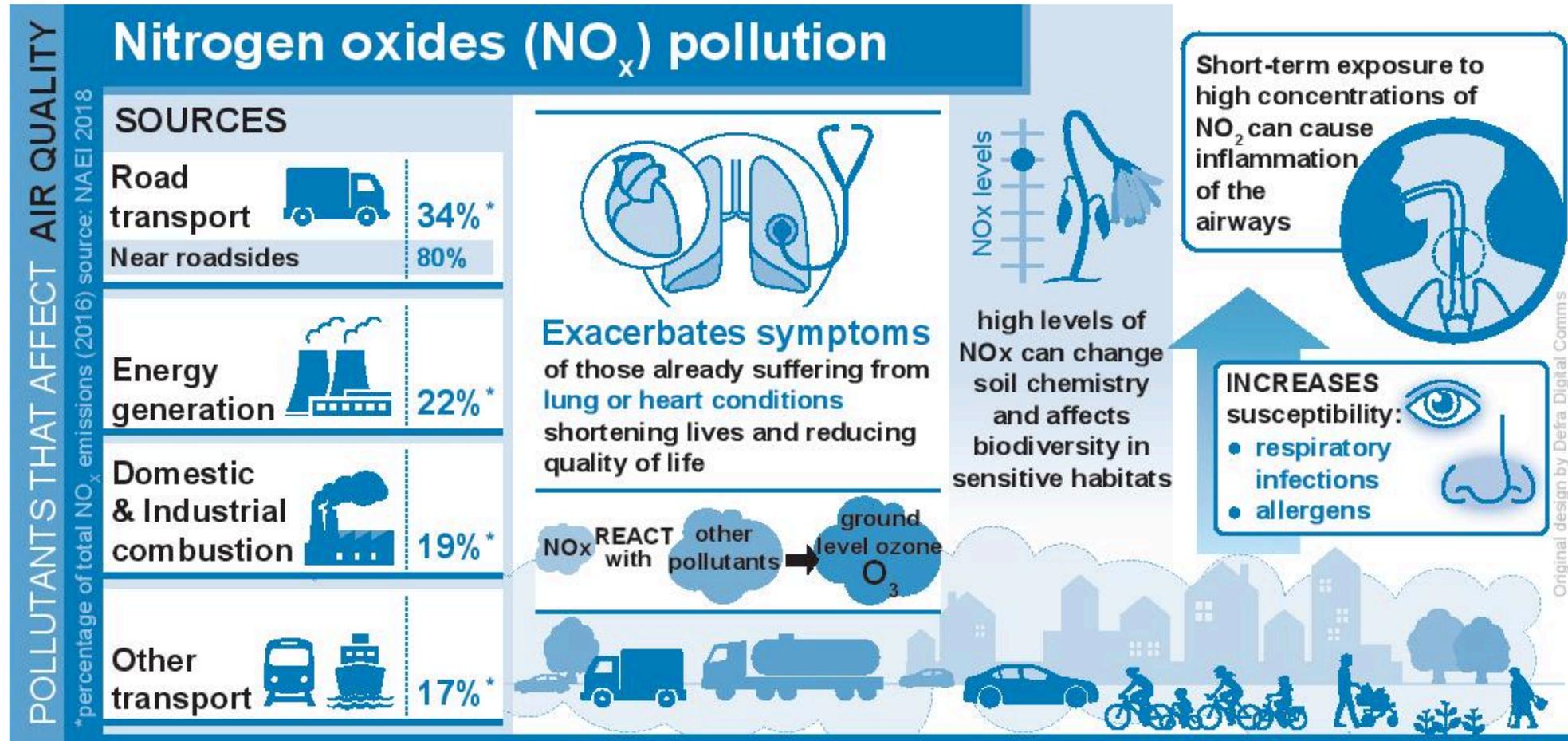
- Long-term decline in the emissions of key air pollutants since 1970.
- With the exception of ammonia and PM_{2.5}, emissions of all pollutants continued to decrease in 2015.

Meeting our Emissions Ceilings in 2020 and 2030

If we took no further action, we would be likely to breach our emission ceilings for PM2.5 and NH3 in 2020 and all five of our emissions ceilings in 2030.

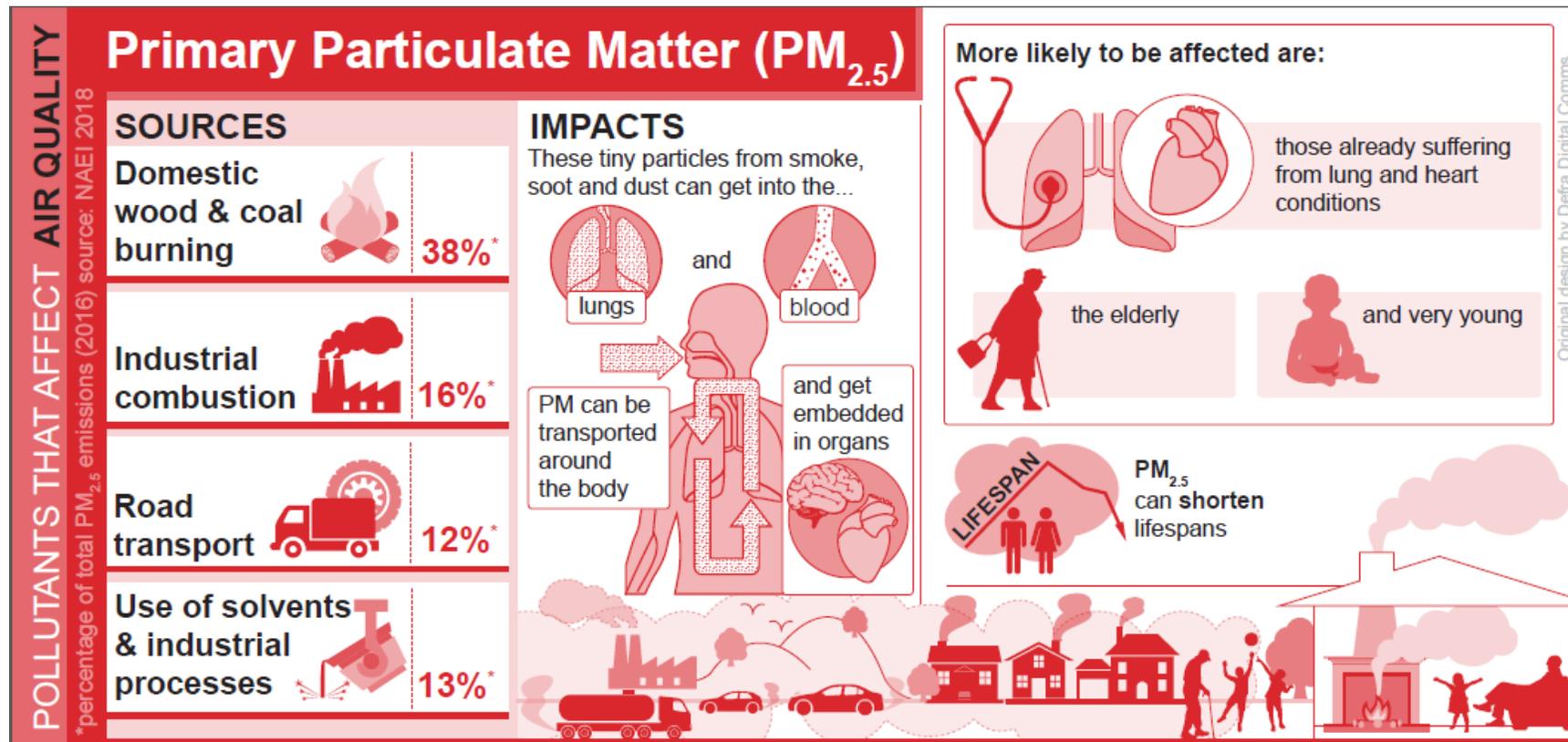


Nitrogen oxides – sources and impacts



Fine particulate matter – sources and impacts

- It is estimated that the mortality attributable to PM_{2.5} is equivalent to 29,000 deaths in the UK annually (COMEAP);
- PHE research suggests that 1ug / m³ in PM2.5 concentrations this year could prevent 50,000 new cases of coronary heart disease and 9000 new cases of asthma by 2025.



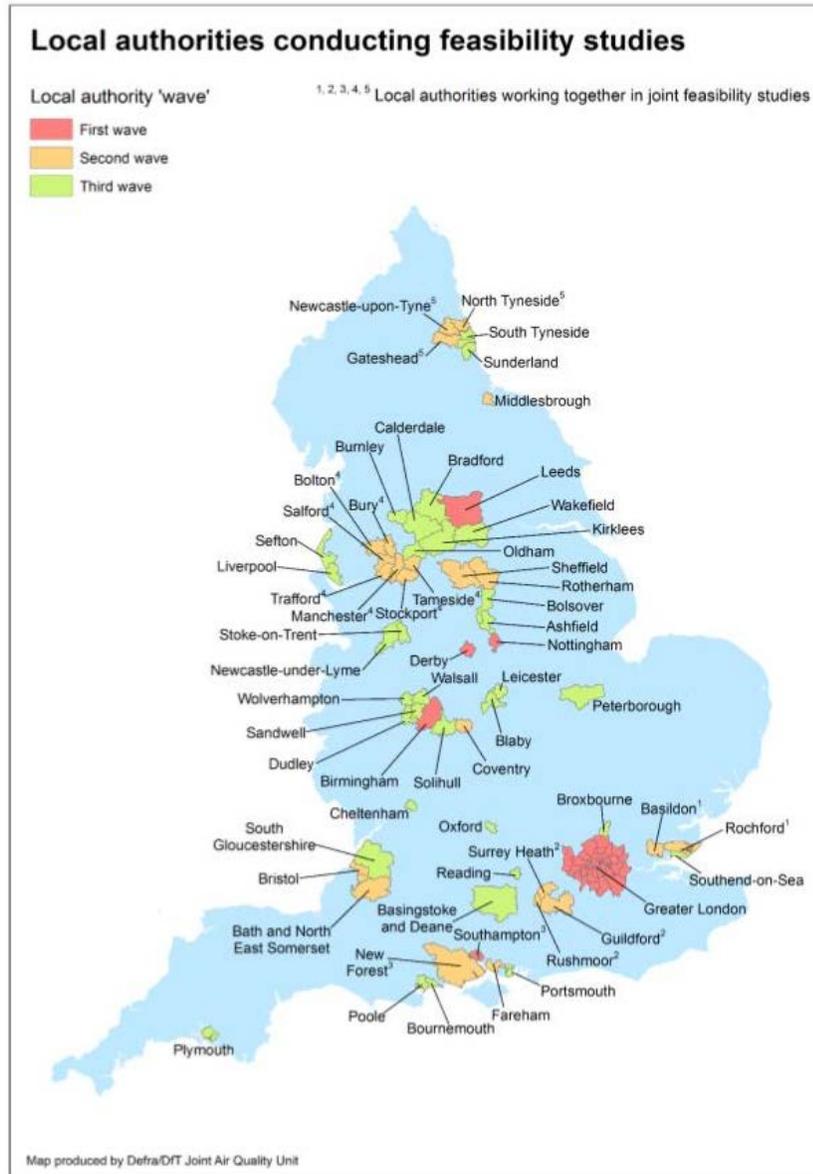
Government Investment in Air Quality

- Local Authorities receive financial support through:
 - A **£275m Implementation Fund** to support local authorities to develop and implement their plans to tackle air quality issues.
 - A **£220m Clean Air Fund** to mitigate the local impact of air quality measures. This includes improvements to bus services and cycling infrastructure, employer-led travel to work schemes and support for businesses.



- Government is committed to **investing over £3.5 billion overall in air quality and cleaner transport**. This includes:
 - £1.5 billion in ultra-low emission vehicles and infrastructure.
 - £1.2 billion through the Cycling and Walking Investment Strategy.
 - £156 million for retrofitting through Green Bus Fund, Clean Bus and Vehicle Technology Funds.
 - £100 million for air quality as part of Road Investment Strategy.

Overview of Local Authorities taking action



The risk from NO₂ is highly localised, so interventions are targeted to the problem areas.

- **5 'First wave' local authorities (LAs), plus London**, directed to develop local plans by Sept 2018.
- **23 'Second Wave' LAs**, directed to develop local plans by Dec 2018.
- **33 'Third Wave' LAs** were **projected to become compliant in 2019, 2020 or 2021** in national air quality modelling and were directed to conduct targeted feasibility studies in Mar 2018. Subsequently,
 - 10 of these local authorities are **already compliant**, as shown by detailed local models
 - **10 of these LAs** directed to implement measures
 - **8 of these LAs** directed to develop detailed plans in Oct 2018.

36 LAs have been asked to consider charging CAZs but other measures preferred where they are as effective.

Key Commitments in the Clean Air Strategy (1)

- We will reduce PM2.5 levels in order to halve the number of people living in locations where concentrations of PM2.5 are above WHO guidelines (10 µg/m³); we will set out our plans to reduce PM2.5 concentrations even further in due course and to support this we will publish evidence examine what action would be needed to meet the WHO annual guideline limit of 10ug/m³.
- We will legislate to prohibit the sale of the most polluting domestic fuels and we will ensure only the cleanest stoves are available for sale by 2022.
- We will give new powers to Local Authorities to take action in areas of high pollution; bringing legislation into the 21st century with more flexible, proportionate enforcement powers.

Key Commitments in the Clean Air Strategy (2)

- We will require and support farmers to make investments in farm infrastructure and equipment to reduce ammonia emissions
- Holistic approach to address emissions from transport, by taking action on each mode of transport and encouraging a transition to lower modes of transport (public transport, active travel).
- Commitment to address non-exhaust PM from road transport.
- Commitment to address emissions from NRMM.
- Evidence and tools – e.g., sensors

Why do we need primary legislation?

Local government stakeholders say that:

- Responsibility and accountability for tackling air quality across local government and other public bodies is out of alignment with powers and levers to take effective action
- Transboundary nature of air pollution is not recognised: action to improve air quality in one local authority can have an impact (positive/negative) in a neighbouring area
- Powers can be confusing to use

Defra evidence shows that:

- The existing legal framework does not drive action – identification of concentration exceedances against maximum limits & development of action plans has not led to compliance and clean air everywhere
- Compliance with maximum limits does not incentivise prevention



Amendments to the Environment Act

The current Local Air Quality Management framework has not driven sufficient action to tackle air pollution at a local level. To improve this structure, the Government has set out proposals to create a more strategic and collaborative framework.

Proposals into consideration:

- Ensuring that accountability for air quality sits at the right tier of local government.
- Shifting the focus towards prevention and placing a duty on local authorities to take action to avoid future exceedances of air quality targets.
- Ensuring both neighbouring local authorities and public bodies work collaboratively to tackle the problem of transboundary air pollution.

The amendments we are proposing will help local authorities take more effective, co-ordinated actions in order to achieve their air quality objectives and thus deliver improvements to public health.



Clean Air Strategy - timescale

- 14 Jan – publication; consultation on NAPCP
- End Mar – submission of NAPCP
- Publication of report on WHO targets
- Laying Environment Bill – sets out environmental watchdog and includes package of measures on air quality.
- Longer term – development of approaches to reduce emissions for other sources.



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Thank you



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NATURAL
ENGLAND



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The Ultra Low Emission Zone

3 April 2019

Catherine Westoby
Transport for London



Context



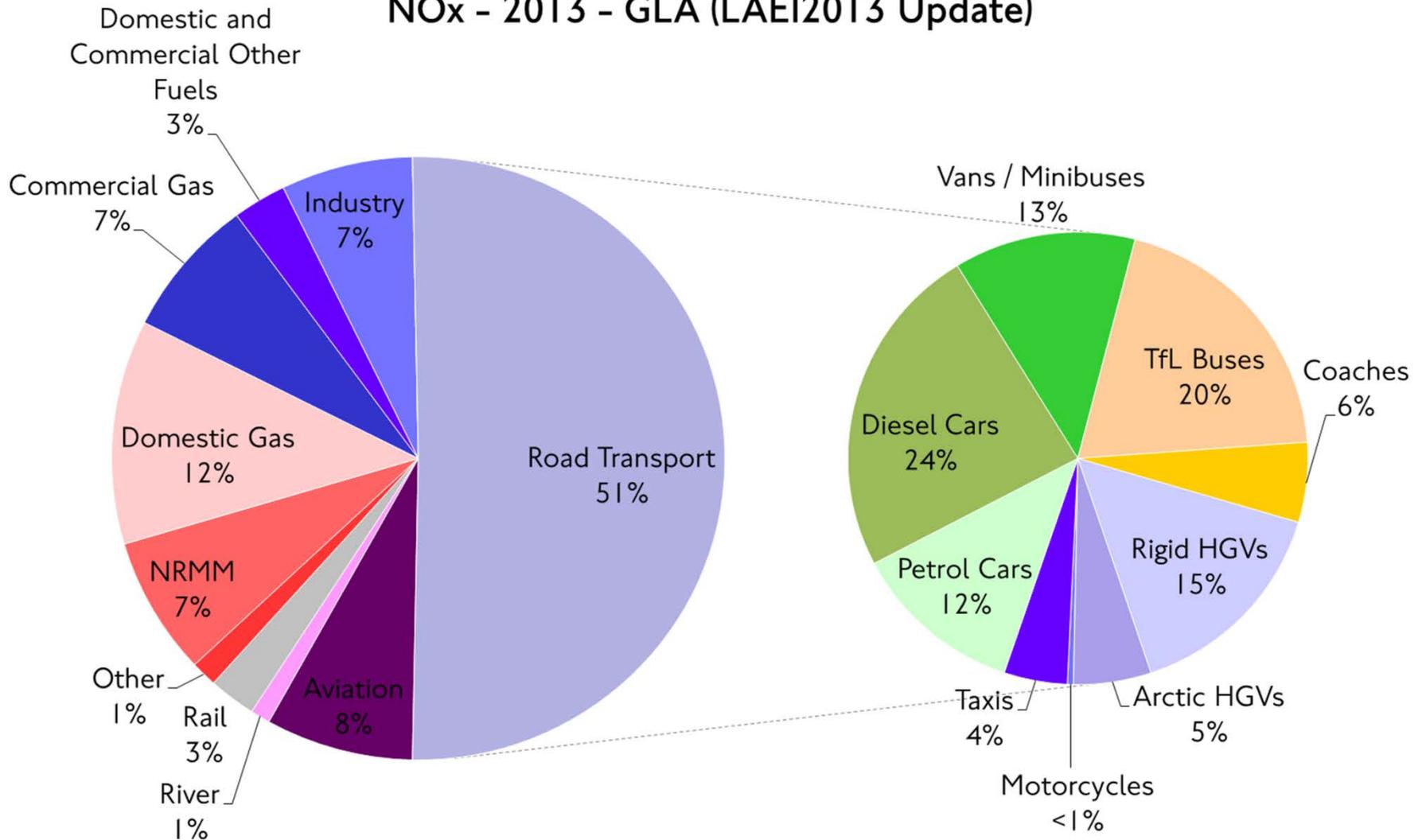
Impacts of air pollution

- **Thousands of Londoners die prematurely each year** because of toxic air pollution.
- London's toxic air is **stunting the growth of children's lungs** in ways that will affect them for the rest of their lives.
- Toxic **air pollution is a cause of cancer** and it increases the risk of asthma, stroke and dementia.
- **London's toxic air crisis is also an issue of social justice** as air pollution is worse in more deprived areas.



NO₂ Road Transport Problem

NOx - 2013 - GLA (LAEI2013 Update)



Need for action

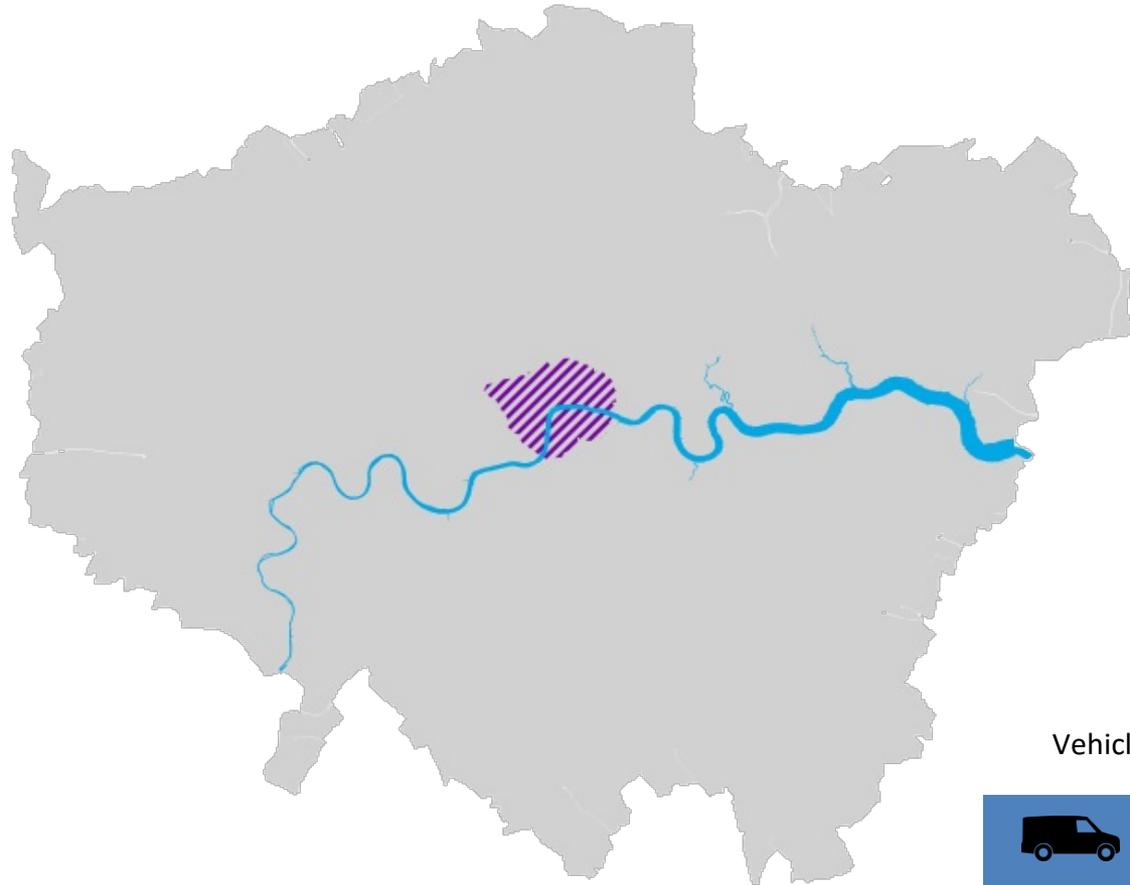
- Over 400 London schools and nearly 600 inner-London NHS facilities are in areas exceeding legal limits for nitrogen dioxide
- Every Londoner in the capital lives in an area exceeding World Health Organization (WHO) guidelines for the most dangerous toxic particles known as PM_{2.5}.
- While the Mayor is also acting on other sources, road transport is the greatest contributor to air pollution in London.
- There is no way to make the massive improvements needed to London's air quality without tackling the most polluting vehicles and so this must be a focus for action.
- Doing nothing is not an option



Changes to ULEZ



Existing situation



Note: In the hatched areas, standards indicated by both colours apply.

*Vehicle class is indicative only, additional vehicles are affected

**Minimum emissions standard is for NOx and PM unless otherwise stated

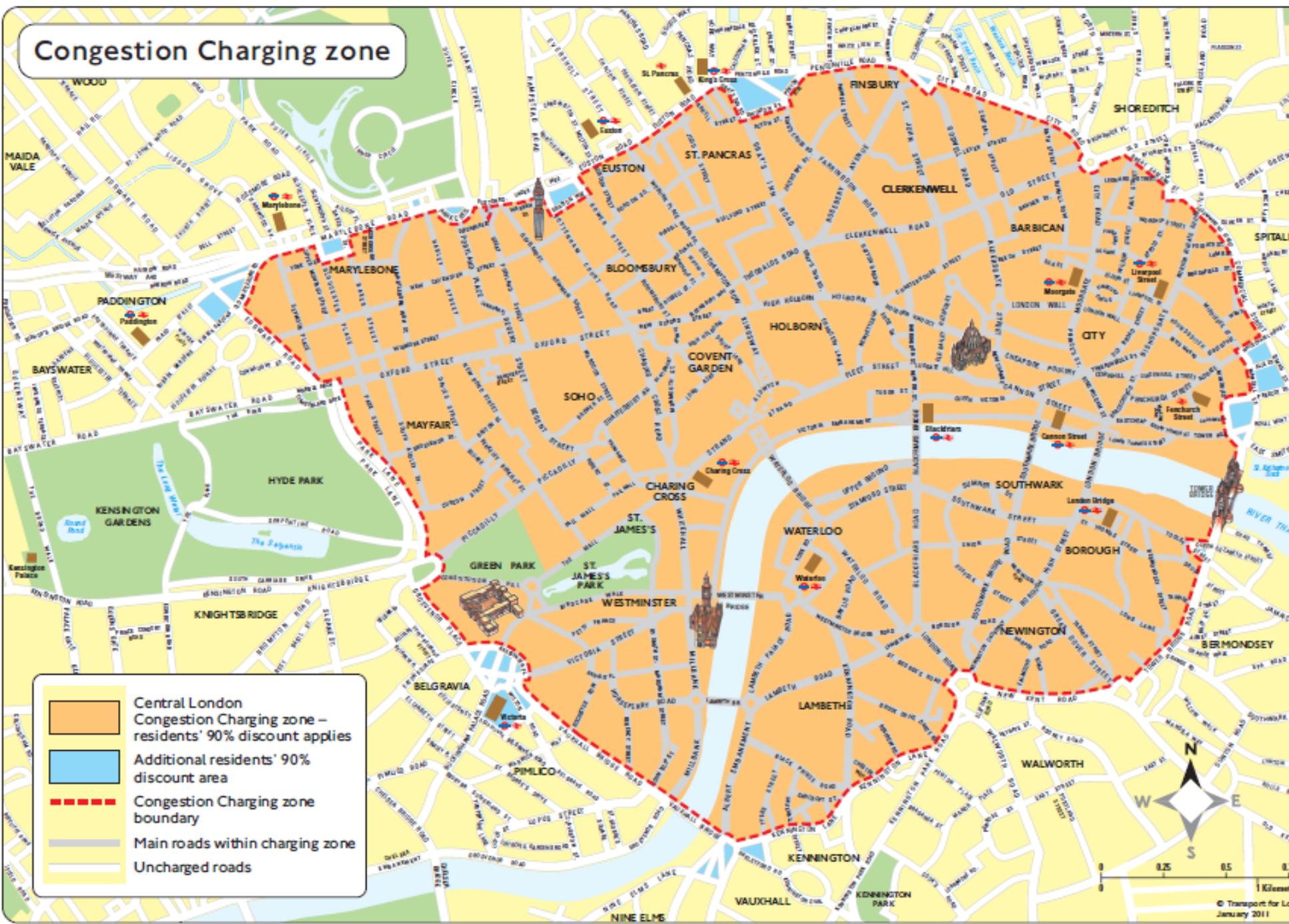
T-Charge and LEZ in operation

PHVs exempt from T-Charge

Vehicle class*	Min emission standard**	or	Daily Charge
 	Euro 4		£10
 	Euro IV		(CC Hours Only)
 	Euro IV PM		£200
	Euro 3 PM		£100



Congestion Charging zone



- Central London Congestion Charging zone – residents' 90% discount applies
- Additional residents' 90% discount area
- Congestion Charging zone boundary
- Main roads within charging zone
- Uncharged roads

April 2019 – Central London ULEZ



Note: In the hatched areas, standards indicated by both colours apply.

*Vehicle class is indicative only, additional vehicles are affected

**Minimum emissions standard is for NOx and PM unless otherwise stated

ULEZ replaces T-Charge. Introduction of Euro 6/VI diesel standard and change in charge and hours

No PHV exemption from ULEZ

Vehicle class	Min emission standard	or	Daily Charge
	Euro 3		£12.50
 	Euro 4 petrol or Euro 6 diesel		£12.50
 	Euro VI		£100
 	Euro IV PM		£200
	Euro 3 PM		£100



October 2020 – Strengthening of LEZ standards



Note: In the hatched areas, standards indicated by both colours apply.

*Vehicle class is indicative only, additional vehicles are affected

**Minimum emissions standard is for NOx and PM unless otherwise stated

Euro VI standard applies London-wide for heavy vehicles

Vehicle class*	Min emission standard**	or	Daily Charge
	Euro 3		£12.50
 	Euro 4 petrol or Euro 6 diesel		£12.50
 	Euro VI Euro IV PM		£100 £300
	Euro 3 PM		£100



October 2021 – Expansion of ULEZ



Note: In the hatched areas, standards indicated by both colours apply.

*Vehicle class is indicative only, additional vehicles are affected

**Minimum emissions standard is for NOx and PM unless otherwise stated

ULEZ expands to inner London

Vehicle class*	Min emission standard**	or	Daily Charge
	Euro 3		£12.50
 	Euro 4 petrol or Euro 6 diesel		£12.50
 	Euro VI Euro IV PM		£100 £300
	Euro 3 PM		£100



The Ultra Low Emission Zone

8 April 2019



Euro VI (c.2014)
...or £100 a day



Euro 3 (c.2007)
...or £12.50 a day

Euro 4 petrol (c.2005)
Euro 6 diesel (c.2015)

...or £12.50 a day



Exempt but
new licencing rules



Additional hybrid or
electric standard

Upgrading our fleet - buses



- Since 2018, all new double deck buses are hybrid or zero emission.
- The Mayor has also launched an £85m programme to upgrade around 5,000 buses so that the entire fleet meets the Euro VI emissions standard in 2020.
- The Mayor has asked that TfL buses comply with the ULEZ from April 2019 and they plan to go beyond the minimum standards.
- All single deck buses operating in the ULEZ will be zero emission and double deck buses will be Euro VI diesel-electric hybrid from 2020.
-
- Twelve new Low Emission Bus Zones are being introduced in areas where Londoners are exposed to some of the highest levels of nitrogen dioxide pollution.
- Seven have already been introduced, with a further five expected by the end of 2019, earlier than the Mayor's previous target of 2020.
- Only buses that meet the strict Euro VI emissions standard will operate within the zones, which have been delivered through a combination of new and retrofitted buses.
- It is estimated that annual bus NOx emissions will be reduced by an average of 90 per cent from zones delivered so far.

Upgrading our fleet – taxis



- The Mayor is phasing out diesel taxis to help make London's taxi fleet the greenest in the world.
- From 2018, TfL has banned new diesel taxis from being licensed in London and all new taxis need to be zero emission capable.
- TfL provide financial incentives to enable this switch to cleaner taxis and over 150 rapid charge points have been installed, with many dedicated to the trade.
- There will also be a consultation to reduce the maximum age of diesel taxis in early 2019 to accelerate uptake.

Options for compliance with ULEZ

- **Buy compliant vehicle**
 - Heavy Vehicles: Euro VI available from 2014
 - Vans Euro 6 available from September 2015
 - Cars: Petrol Euro 4 available from January 2005, several earlier models meet NOx standards
- **Retrofit vehicle**
 - National Retrofit certification procedure developed by Low Carbon Vehicle Partnership and Energy Saving Trust for heavy vehicles
 - Pressure needed on industry and government to deliver solutions, for the more expensive specialist vehicles in particular
- **Lease compliant vehicle**
- **Reduce trips**
 - Mode shift or consolidation of freight trips to reduce overall costs
- **Pay the daily charge**
 - Level set to enable occasional trips
 - AutoPay will be available to pay charges



Mitigating actions

We are implementing measures to mitigate the impact of ULEZ on van operators in particular:

- **Scrappage**
 - Refining proposals for a targeted van scrappage scheme for micro-businesses and lobbying UK government for funding
- **Retrofit emissions abatement**
 - Working with manufacturers of retrofit equipment to help bring a solution to market for vans
- **Used vehicles**
 - Providing information and signposting about the availability of used Euro 6 and plug-in vehicles



Mayor's scrappage scheme

- The Mayor has announced £48 million funding to create scrappage schemes that help micro businesses, low-income Londoners and charities operating minibuses switch to cleaner vehicles and greener forms of transport
- Details of the new proposed £25 million car scrappage scheme – the funding for which was announced on 14 February – will be launched later this year.
- It comes on top of the Mayor's existing £23 million scheme, launched on 22 February, to help micro-businesses and charities scrap vans and minibuses that do not comply with the new ULEZ standards, but which are driven into the central London ULEZ regularly.
- Micro-businesses and charities can choose from a range of options and apply for the scheme online at www.tfl.gov.uk/scrappage-scheme.
- The Mayor is also urging government to match fund this and go further to deliver a targeted vehicle renewal fund to offer even more drivers a fair deal.

Questions





Ricardo
Energy & Environment

Progress on Clean Air Zones in other cities

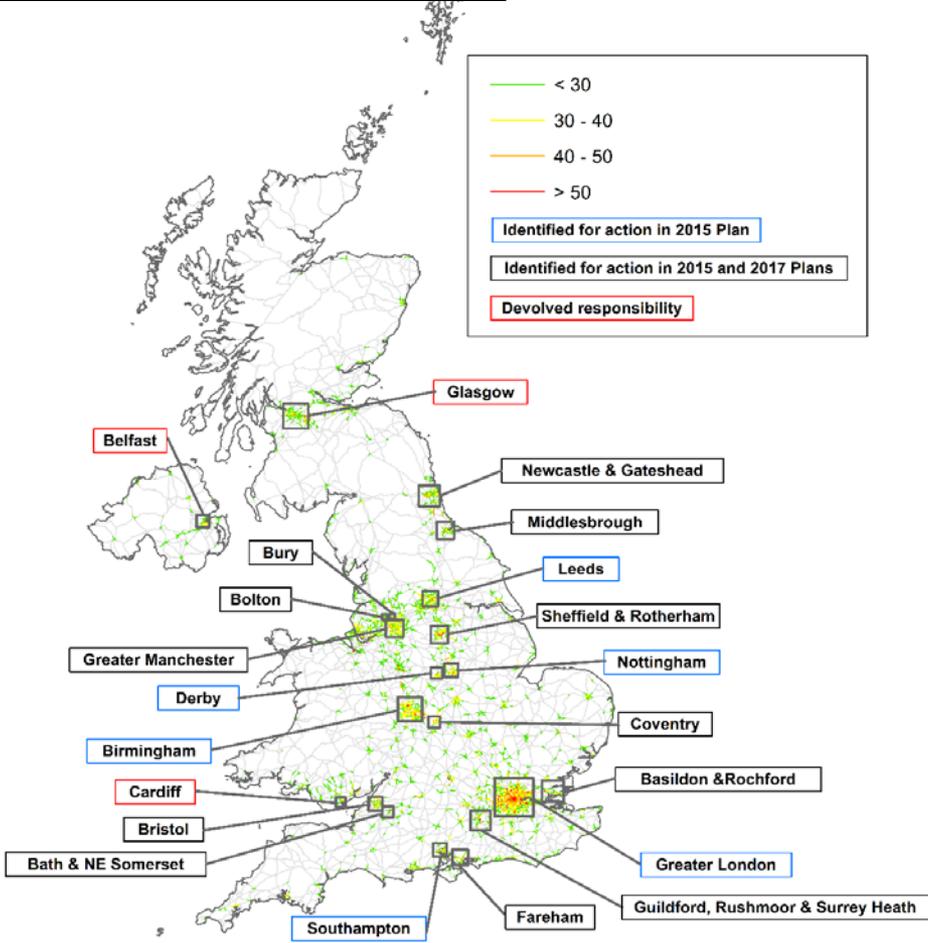
Dr Guy Hitchcock
Technical Director

CVP Seminar, 3rd April 2019

Local authorities required to assess the need for a CAZ

28 towns and cities 'first and second wave' required to develop a detailed local NO₂ compliance plan based on the national Clean Air Zone framework

33 further LAs to do rapid assessments aiming to bring compliance forward



Local authorities affected		
Ashfield	Kirklees	Sandwell
Basingstoke & Deane	Leicester	Sefton
Blaby	Liverpool	Solihull
Bolsover	Newcastle-Under-Lyme	Southend
Bournemouth	Oldham	South Gloucestershire
Bradford	Oxford	South Tyneside
Broxbourne	Peterborough	Stoke
Burnley	Plymouth	Sunderland
Calderdale	Poole	Wakefield
Cheltenham	Portsmouth	Walsall
Dudley	Reading	Wolverhampton

What is a Clean Air Zone (CAZ)?

Clean Air Zones are **areas** where action is focussed to improve air quality and the cleanest vehicles are encouraged. They aim to:

- Focus on immediate actions to improve air quality and health
- Support local growth and ambition
- Accelerating transition to a low emission economy

CAZ locations are areas where an area is defined where access restrictions for the most polluting vehicles will be implemented to improve air quality.

*They will not all be charging schemes
Should be a defined area, but not clear if non-charging
Even if charging schemes they will also include other supporting measures*

Two types of CAZs

- **Non-charging Clean Air Zones** – focus for action to improve air quality and health. These zones do not include the use of charge based access restrictions.
- **Charging Clean Air Zones** – Zones where, in addition to the above, vehicle owners are required to pay a charge if vehicle does not meet the particular standard in that zone.



Definition of the charging CAZ

- Uses road user charging powers from the UK Transport Act 2000
- Vehicles that do not meet a given emission standard are charged for entry to the area
- Fixed definition of standards and vehicle classes charged

Class	Vehicle type
A	Buses, coaches, taxis
B	Buses, coaches, taxis, HGVs
C	Buses, coaches, taxis, HGVs, LGVs
D	Buses, coaches, taxis, HGVs, LGVs and cars

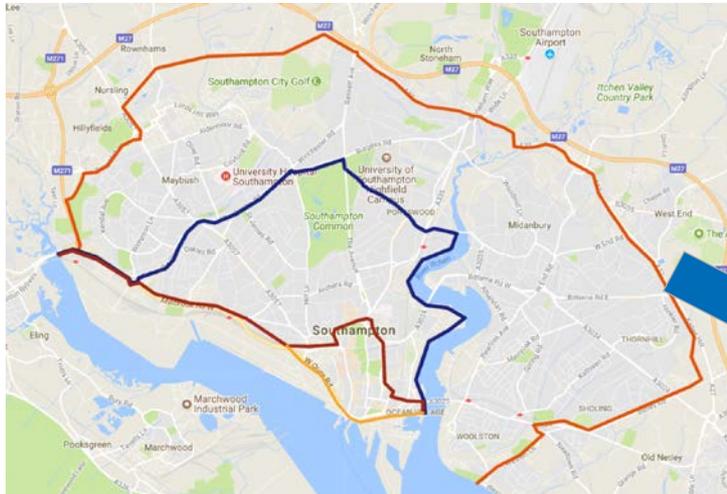
Vehicle	Nox emission limit
Buses/coaches	Euro VI
HGV	Euro VI
Van (1305-3500kg)	Euro 6 (diesel) 4(petrol)
Car/light comm. (1305kg)	Euro 6 (diesel) 4(petrol)

ULEZ



Elements of a charging scheme

Boundaries



Classes

Class	Vehicle type
A	Buses, coaches, taxis
B	Buses, coaches, taxis, HGVs
C	Buses, coaches, taxis, HGVs, LGVs
D	Buses, coaches, taxis, HGVs, LGVs and cars

Scenario	Red	Blue	Brown WA+CC	Brown WA+CC	Brown CC	Brown CC
	Citywide	Outer RR	inc Inner RR	exc Inner RR	inc Inner RR	exc Inner RR
0 DM (not incl. CAZ response)						
1 Citywide B	B					
2 Citywide C	C					
3 Citywide D	D					
4 OuterRR B		B				
5 OuterRR C		C				
6 OuterRR D		D				
7 Inner WA+CC (Inc InnerRR) B			B			
8 Inner WA+CC (Inc InnerRR) C			C			
9 Inner WA+CC (Inc InnerRR) D			D			
10 Inner WA+CC (Exc InnerRR) B				B		
11 Inner WA+CC (Exc InnerRR) C				C		
12 Inner WA+CC (Exc InnerRR) D				D		
13 Citywide Doughnut BD	B				D	
14 Citywide Doughnut BC	B				C	
15 Citywide Doughnut CD	C				D	
16 Citywide Doughnut BD	B					D
17 Citywide Doughnut BC	B					C
18 Citywide Doughnut CD	C					D
19 OuterRR Doughnut BD		B			D	
20 OuterRR Doughnut BC		B			C	
21 OuterRR Doughnut CD		C			D	
22 OuterRR Doughnut BD		B				D
23 OuterRR Doughnut BC		B				C
24 OuterRR Doughnut CD		C				D
25 Double Doughnut BCD	B	C			D	
26 Double Doughnut BCD	B	C				D

Charges apply 24/7, 365 days a year

Local flexibilities

- Charges
 - ULEZ: light vehicles £12.50, heavy vehicles £100
 - Local charges being considered:
 - Heavy vehicles £50 or £100
 - Light vehicles £8, £9, £10 or £12.50
- Exemptions
 - Electric/hybrid and gas vehicles
 - Disabled badge holders
 - Residents have some exemptions or weekly caps
 - Taxis may get a weekly cap
 - Emergency vehicles
 - Specialist vehicles
- Upgrade support – grants for operators to renew/retrofit

Non-charging scheme options



Regulating taxis and buses



Investment in clean vehicles and infrastructure



Wider fiscal measures – e.g. parking charges

Go Ultra Low Nottingham
Electric Vehicle FestEval
 A car show with... join us for a festEval all things...
 Old Market Square on 29-30 June
 9am to 5pm

- ◆ A range of electric vehicles on display from event sponsors BMW, Kia, Nissan, Drive Electric and many more
- ◆ Talks from electric car enthusiast, Red Dwarf star and Fully Charged presenter Robert Llewellyn and radio presenter Mark Goodier
- ◆ Like what you see? Drive direct with the dealer
- ◆ Ask us anything - find out how you can like to own an EV
- ◆ Tackling air quality - take a look at the future of electric transport

Partnership working and information



Planning and procurement

Outcomes for the first wave cities

- Birmingham – CAZ D
- Leeds – CAZ B
- Derby – traffic management scheme plus supporting measures
- Southampton – non-charging package of transport measures
- Nottingham – bus retrofit and taxi measures



Birmingham case study

- CAZ D charging all vehicles
 - LDVs £8
 - HGV's £50
- Due in by end of 2020
- ANPR enforcement
- Mitigation measures
 - Scrappage and mobility credits for residents
 - Grants and leasing scheme for taxis
 - Vans – EV charging credits
 - HGV/Coach - lease/retrofit grant

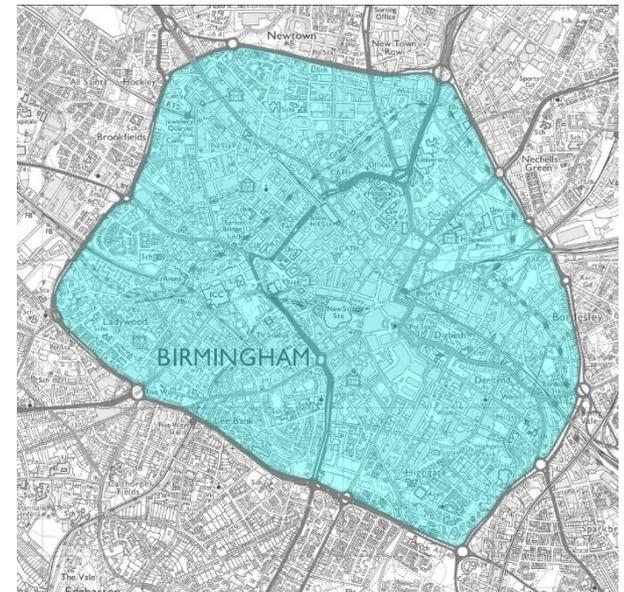
Have your say.
Consultation open
from 4 July to
17 August 2018.



#brumbreathes

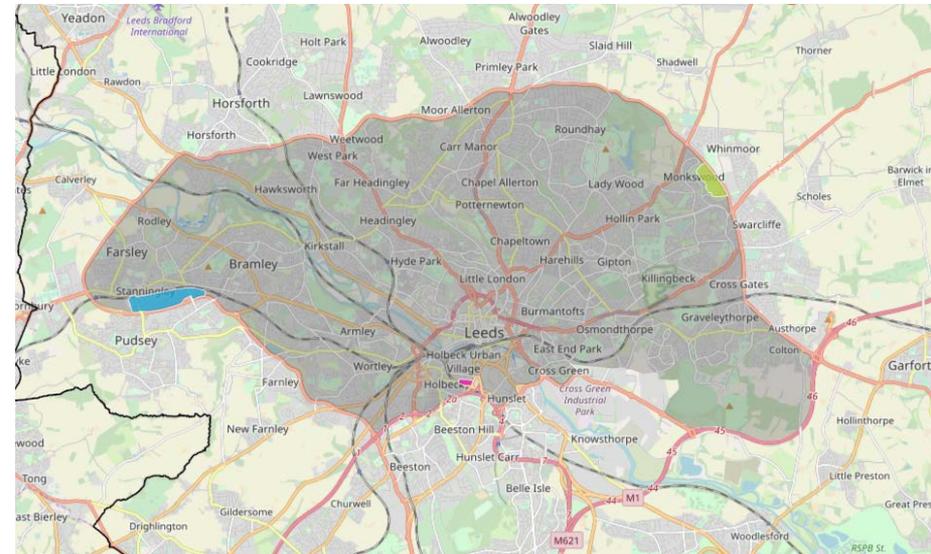
**A Clean Air
Zone for
Birmingham**

birmingham.gov.uk/caz



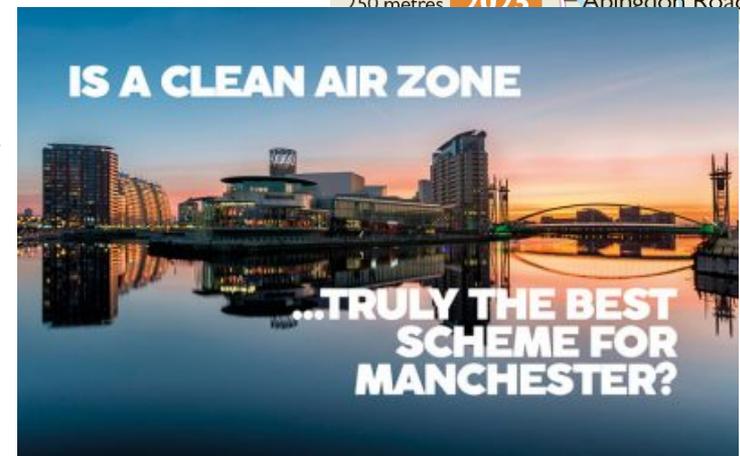
Leeds case study

- CAZ B
 - £12.50 for taxis
 - £50 for HGVs and coaches/buses
- Due in 2020
- ANPR enforcement
- Mitigation
 - £15,000 retrofit/lease grant for HGVs
 - £10,000 interest free loan for taxis
 - Or £1,500 grant for taxis



Plans for the second wave cities/towns

- Plans due June to Oct 2019
- Most are still working on the assessment of options
- Some have clear plans
 - Bath: CAZ D, LDV £9, HDV £100
 - Sheffield: CAZ C, LDV £10, HDV £50
 - Oxford: staged approach to ZEZ
- Others have political issues
 - Manchester and Bristol oppose CAZ on equity issues



To conclude

- Clean Air Zones can be many things from a charging scheme to a package of transport measures
- How many formal charging schemes will there be? Perhaps no more than 6 or 8
- They will all be a bit different
 - Different vehicles included
 - Different charges
 - Range of supporting packages
- Potential for confusion with operators
- Will all this make a difference
 - Yes, significant investment is being provided, some £500 million
 - But is it enough? This remains to be seen





Dr Guy Hitchcock
Technical Director
Ricardo Energy & Environment

Guy.Hitchcock@Ricardo.com

Thank you for your attention

CVRAS Update & Guide

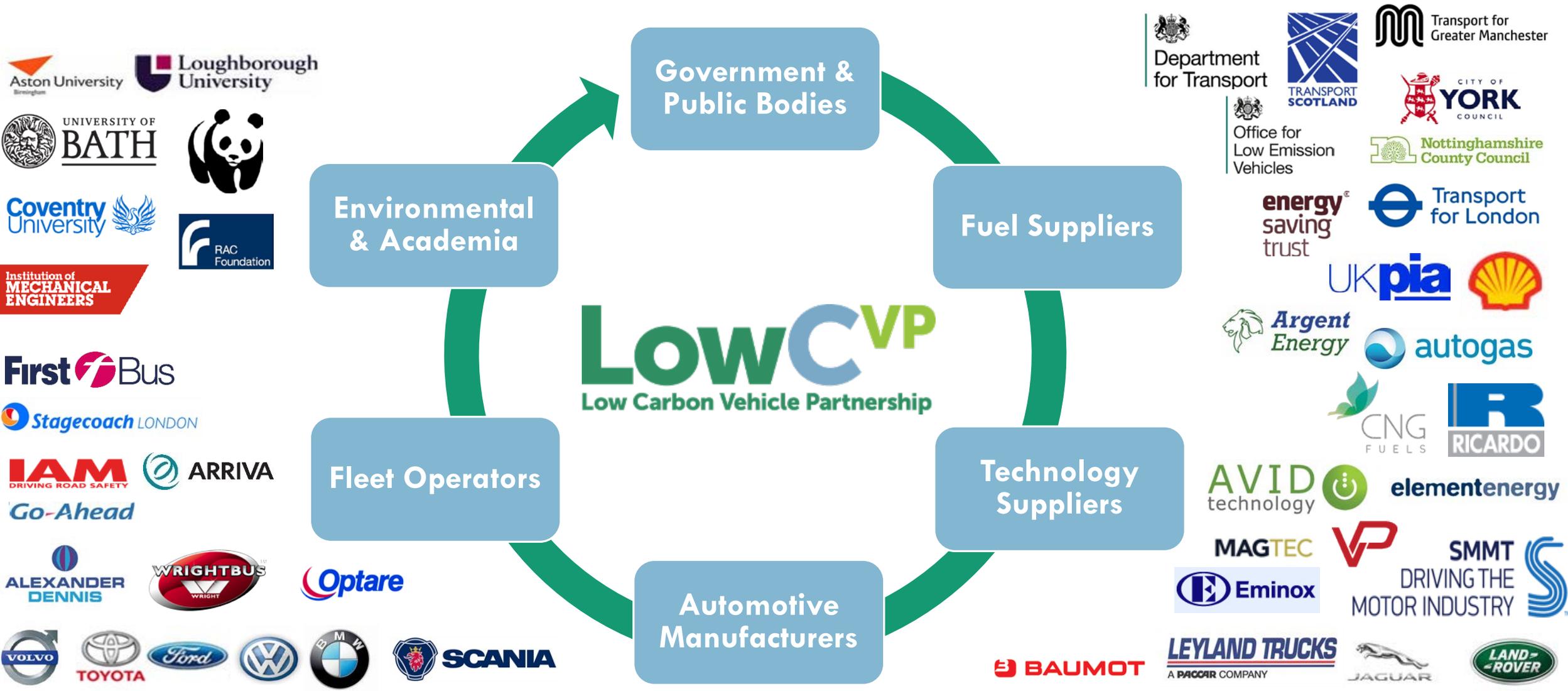
3rd April 2019

Heathrow CVP



Daniel Hayes
Project Manager

LowCVP is a unique public-private membership organisation tasked with “accelerating the shift to low carbon road transport” in the UK.



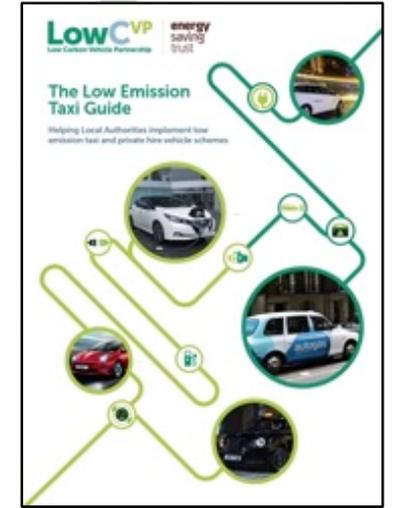
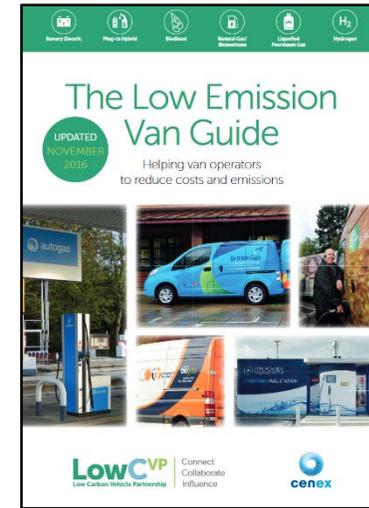
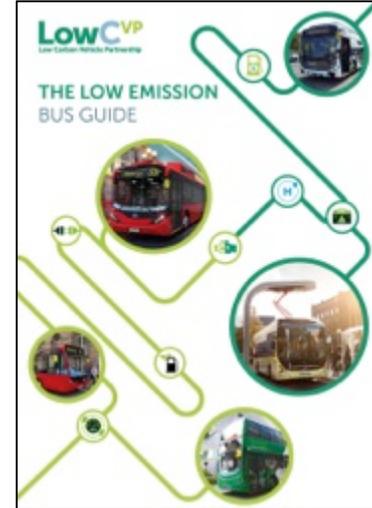
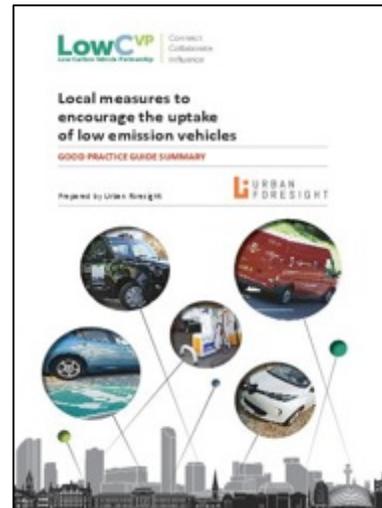
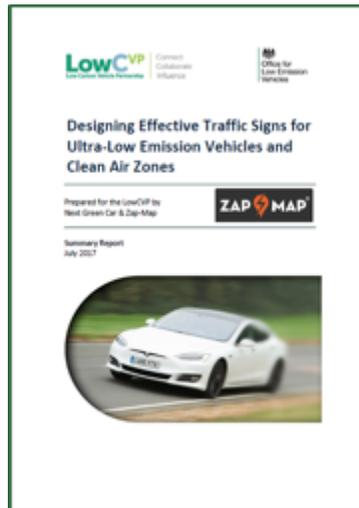
How we work...

Creating communities with shared goals

Market Understanding and evidence-based research

Influencing policy and information

Accelerating the market



LowCVP Working Group Activity



Commercial vehicles

- Ultra Low Emission Truck Definition
- Role of Gas in Truck



Buses

- Ultra Low Emission Bus Scheme
- Regional Workshops
- BSOG Reform



Fuels

- Sustainability of advanced fuels
- EV Energy Task Force



Passenger cars

- WLTP
- ULEV Policy
- Fuel Economy Labelling



Innovation

- Opportunity for L-Cats in UK
- Consortium construction

National Retrofit Scheme

energy saving trust

Renewable Energy | Home Insulation | Home Energy Efficiency | Travel | Business | Scotland

Home • Business • Transport • Clean Vehicle Retrofit Accreditation Scheme (CVRAS)

Clean Vehicle Retrofit Accreditation Scheme (CVRAS)

What is the Clean Vehicle Retrofit Accreditation Scheme (CVRAS)?

The CVRAS is a robust certification scheme for manufacturers of retrofit emissions reduction technology that will enable Clean Air Zone (CAZ) compliance of legacy fleet vehicles. This certification scheme supports the operation of Clean Air Zones and addresses the air pollution emissions from buses, coaches, heavy goods vehicles, mini-buses and vans.

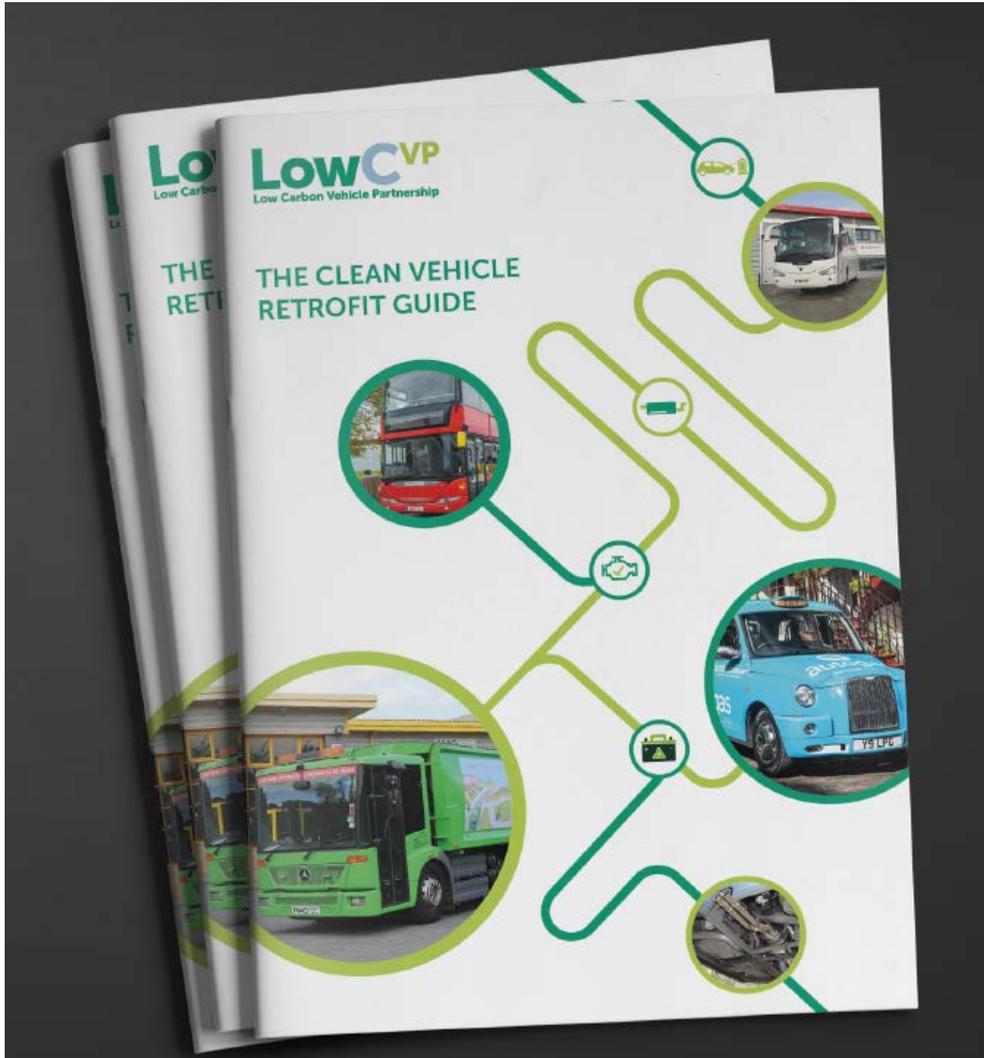
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Clean Vehicle Retrofit Accreditation Scheme

- Led by Energy Savings Trust with LowCVP technical support
- Covers HGVs, Buses, Coaches, Vans, Black Taxis, RCVs, Cars:
 - Open to all technologies, no minimum Euro Standard requirement
- Enables older vehicles to enter CAZ/ULEZ free of charge
 - CAZ D: Birmingham CAZ B/C: Leeds, Sheffield, Bath, Manchester, Leicester +more to come.
- JAQU: £1m for testing of retrofit systems – 25+ more solutions
 - ULEZ expansion in 2020 expected to be real driver for retrofit
- Leeds & B’ham offering support to local operators (Bus, Coach, HGV)
 - CVRAS Retrofit or support purchase/lease cost difference for Euro VI
- Retrofit system registration, compliance & enforcement = evolving
 - Retrofit Suppliers to log fitted systems with EST
 - Operators will be given certificate from supplier which can be presented to the relevant authority e.g. TfL / B’ham / Leeds / DVSA
 - TfL to have monthly updates from DVSA new registration database for ULEZ

Clean Vehicle Retrofit Technology Guide



Guide Includes:

- National & Local Air Quality Policy & Funding
- CAZ / LEZ / ULEZ explained
- CVRAS procedures and requirements
 - Testing & accreditation
 - Registration, compliance and enforcement
- Technology Chapters with case studies
 - Selective Catalytic Reduction (SCR)
 - Heavy Duty Engine Euro VI Repower
 - Battery Electric Repower
 - LPG Repower/ Conversion for black cabs
- Contributors include:
 - Eminox, HJS, Baumot UK, Proventia, Cummins, Millbrook Special Vehicles, EST

Publication date: April 2019 – free to download

The Road to Zero

Next steps towards cleaner road transport and delivering our Industrial Strategy



UK Government's strategy sets out long-term ambitions for tackling CO₂e from transport

£1.5bn funding over 2015-2021

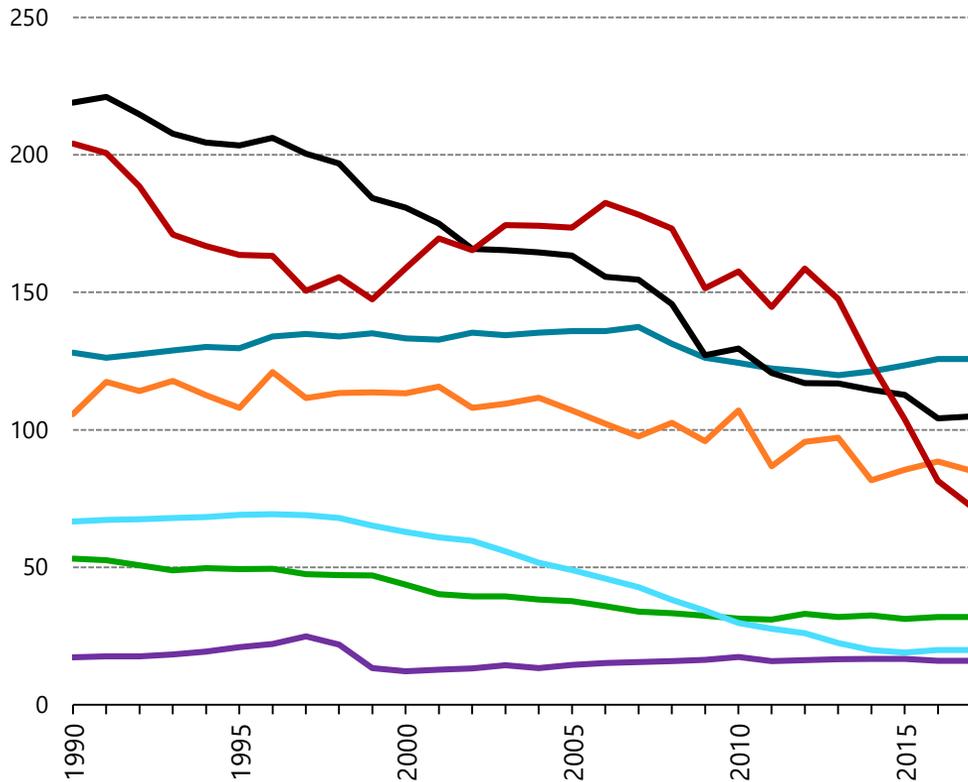
Road to Zero (Tailpipe) - 46 individual policy commitments research, development and deployment of all road vehicles, fuels and infrastructure

- All new cars and vans to be effectively zero emission by 2040.
- **Voluntary 15% reduction from HGV emissions by 2025** (v 2015)
- TRL conducting Electric Highways feasibility study
- Transition to be industry and consumer led. Review in 2025
- CCC expected to report in May that more needs to prevent rise above 1.5°C

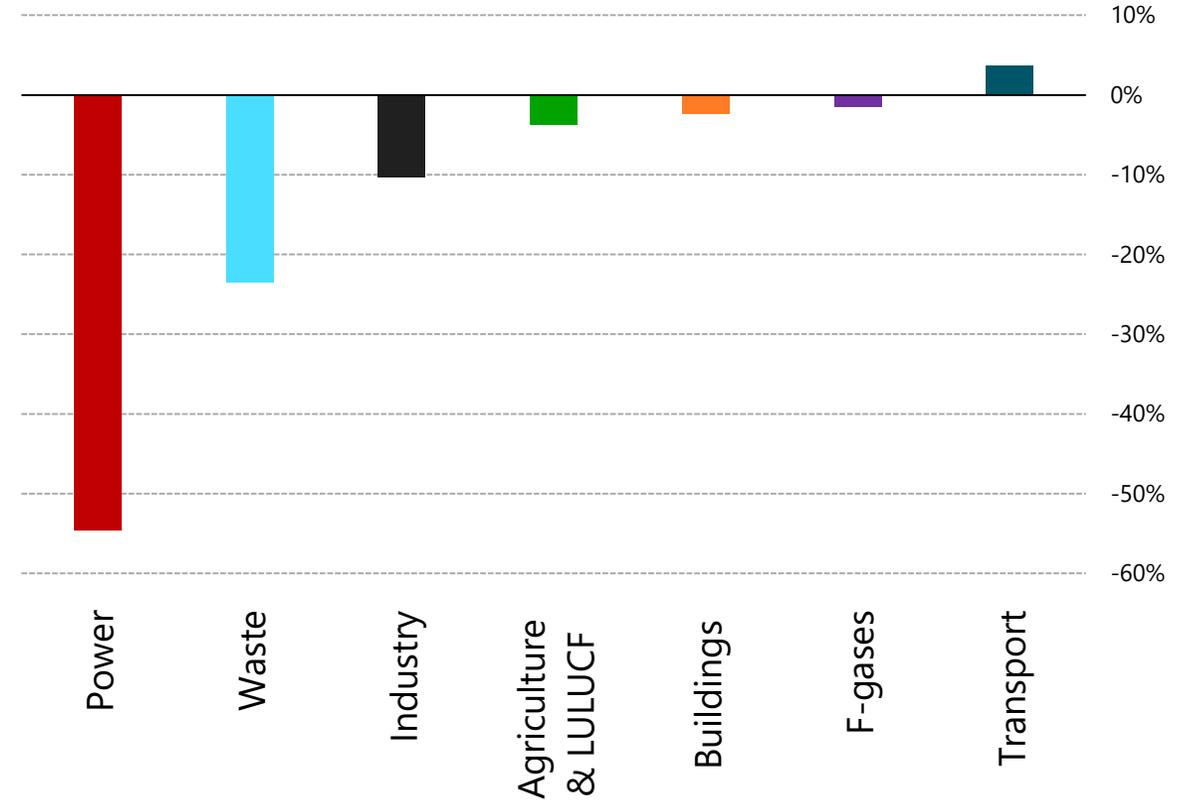
How are we doing?

Overall: 43% reduction in GHG since 1990

UK Greenhouse Gas Emissions (MtCO₂e)



Change in emissions 2012-2017



However.... Transport is now the largest contributor to UK Greenhouse Gas emissions **and is increasing!**

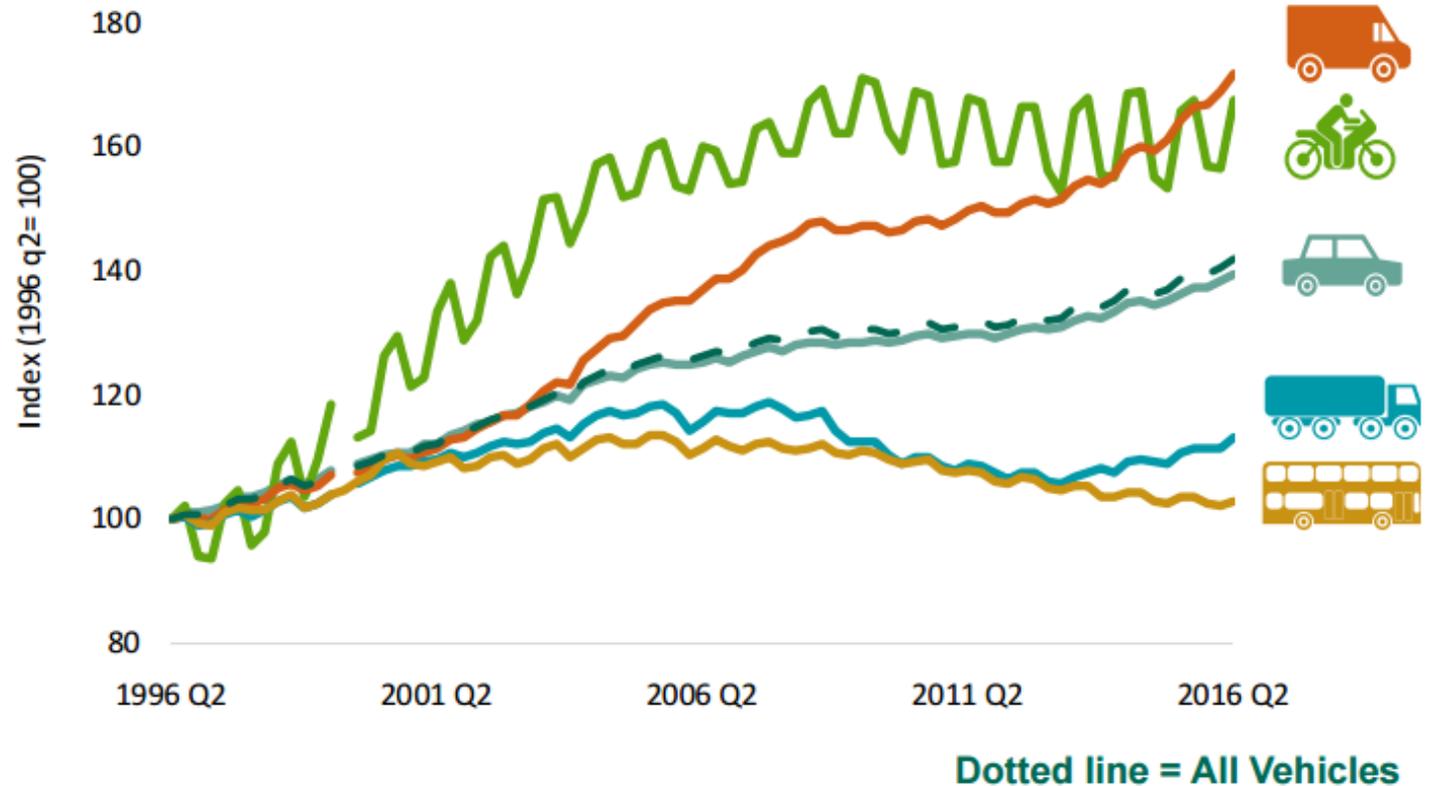
(Source: [Committee on Climate Change, 2018](#))

Why is transport CO₂e increasing?

- Growing Economy
- “On Demand” Lifestyle
- New Car CO₂ increasing
- Increase in number of vehicles
- Increasing LDVs & HGV mileage
- Increasing congestion

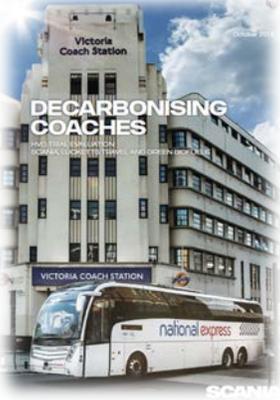
→ AQ/CAZ presents opportunity to drive modal shift and zero emission adoption.

Figure 5: Licensed vehicles by type, GB: Q2 1996 - Q2 2016



Road To Zero Transition: Range of solutions

Euro VI Diesel
low emission



Renewable diesel / HVO

Low Emission & Low Carbon

Diesel Hybrid



PHEV / REEV

Ultra Low Emission Vehicles

CNG / LNG / BioLNG

Hydrogen

Requirement for new infrastructure

Electric



Zero Tailpipe Emission + Renewable Fuel



LowCVP “Vision for Transition”

2010-2020

Euro VI standards
Decarbonisation of
Electricity
Clean Air Zones

2020-2030

Electrification of cars and
vans, city buses
Low Carbon Fuels for
HGVs
Zero Emission Zones

2030-2040

Modal shift away
from car
Net zero emission
transport system

Thank you. Any questions?



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Interested in joining the Partnership?

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