

Improving air quality in London

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EVERY JOURNEY MATTERS

Media interest in air pollution is growing

Square Mile has worst levels of deadly toxic particles in capital

London
**Evening
Standard**

FleetNews

the Wharf

Residents of Tower Hamlets and Newham twice as likely to die of lung disease as affluent neighbours

New London Mayor Sadiq Khan plans to tackle air quality with extended ULEZ

London
**Evening
Standard**



Established 1827

Tackle diesel pollution to clean up our air

getwestlondon

'Big, bold' transport changes announced by Sadiq Khan to tackle London air pollution

theguardian

Mother calls for inquiry into air pollution's role in child's death

London
**Evening
Standard**

London homebuyers looking for property in areas with low pollution



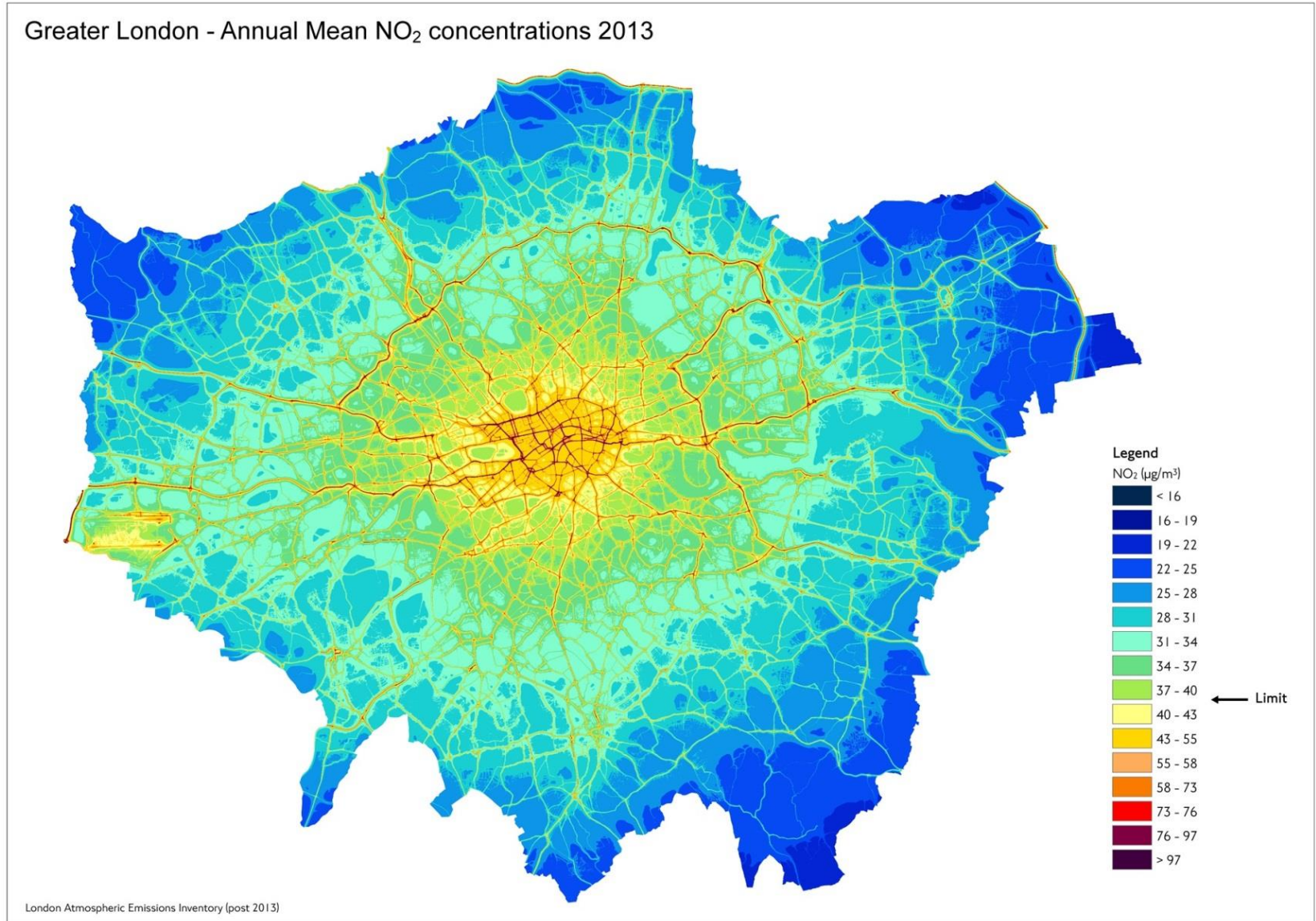
CITY A.M.



The mayor said he would launch formal consultation in a matter of weeks

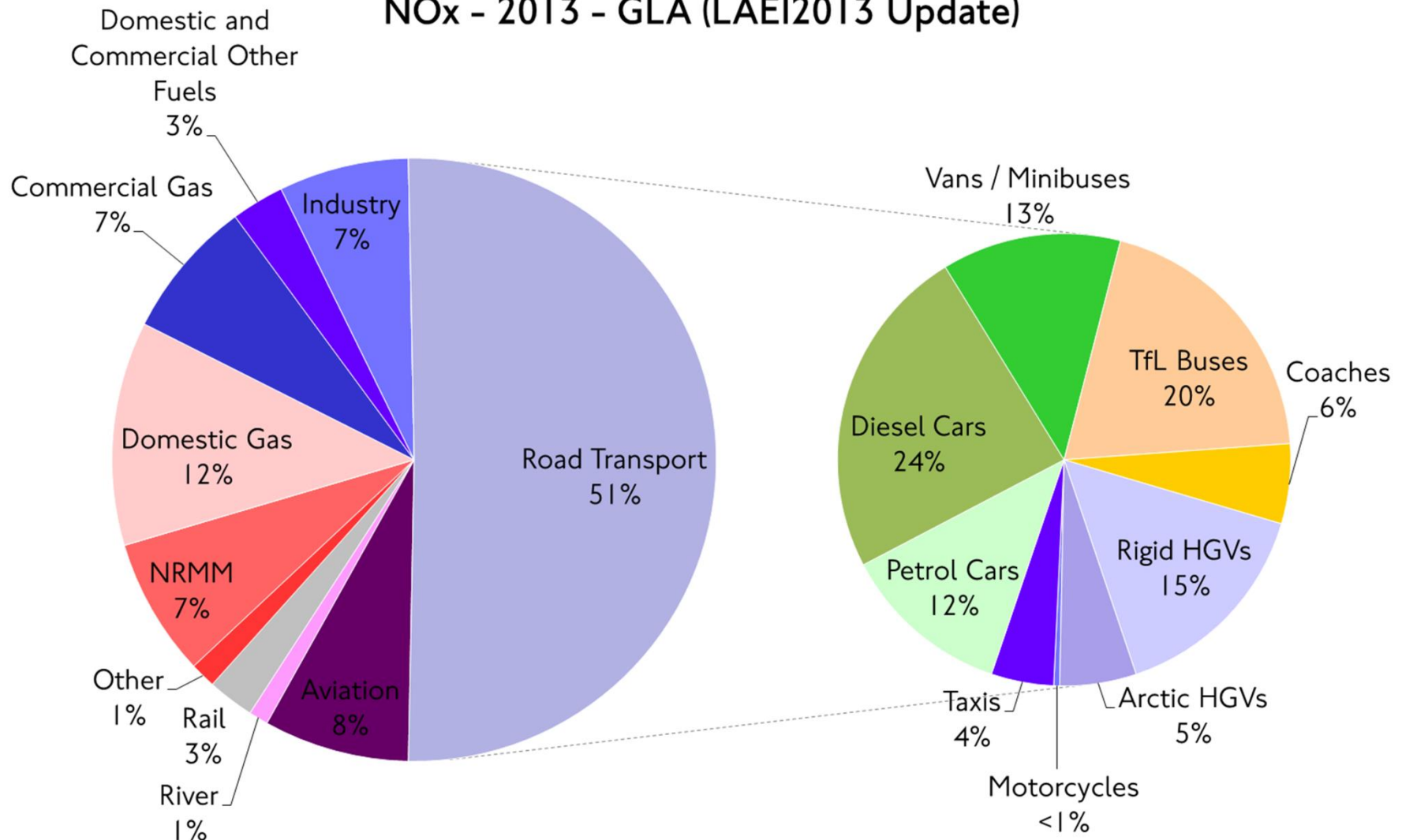
Khan: I'll be a breath of fresh air on beating smog in London

Scale of air quality problem in London



Road transport is a major source of air pollution

NOx - 2013 - GLA (LAEI2013 Update)



Aim for London to have the best air quality of any world city by 2050

TRANSPORT

Strict new emission requirements across London (e.g. ULEZ, zero emission zone)



Mode shift to walking, cycling & public transport



All vehicles zero emission by 2050



Zero emission bus fleet by 2037 and
all taxis zero emission by 2033



Reduce emissions from rail, river
and aviation transport



T-Charge

- Launched on 23 October 2017
- Same boundary and time as Congestion Charge
- £10 surcharge on top of Congestion Charge
- T-Charge standard is Euro 4
- Stepping stone to ULEZ



**If you could see London's air,
you'd want to clean it too.**

The Mayor has introduced a £10 T-Charge for older more polluting vehicles driving in central London. It's part of his bold plan to clean up London's toxic air. Find out what else he's doing at london.gov.uk/cleanair

#CleanAir

MAYOR OF LONDON

Ultra Low Emission Zone proposed for 2019



Euro VI (c.2014)
...or £100 a day



Euro 3 (c.2007)
...or £12.50 a day

Euro 4 petrol (c.2006)
Euro 6 diesel (c.2015)

...or £12.50 a day



Exempt but
new licencing rules



Additional hybrid or
electric standard

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

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

April 2019 – Central London ULEZ






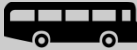




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ULEZ replaces T-Charge. Introduction of Euro 6/VI diesel standard and change in charge and hours

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 LEZ standards




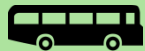


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Euro VI standard applies London-wide for heavy vehicles

Vehicle class*	Min emission standard**	or	Daily Charge
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 	Euro VI Euro IV PM		£100 £300
	Euro 3 PM		£100

October 2021 – Expanding ULEZ




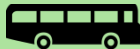




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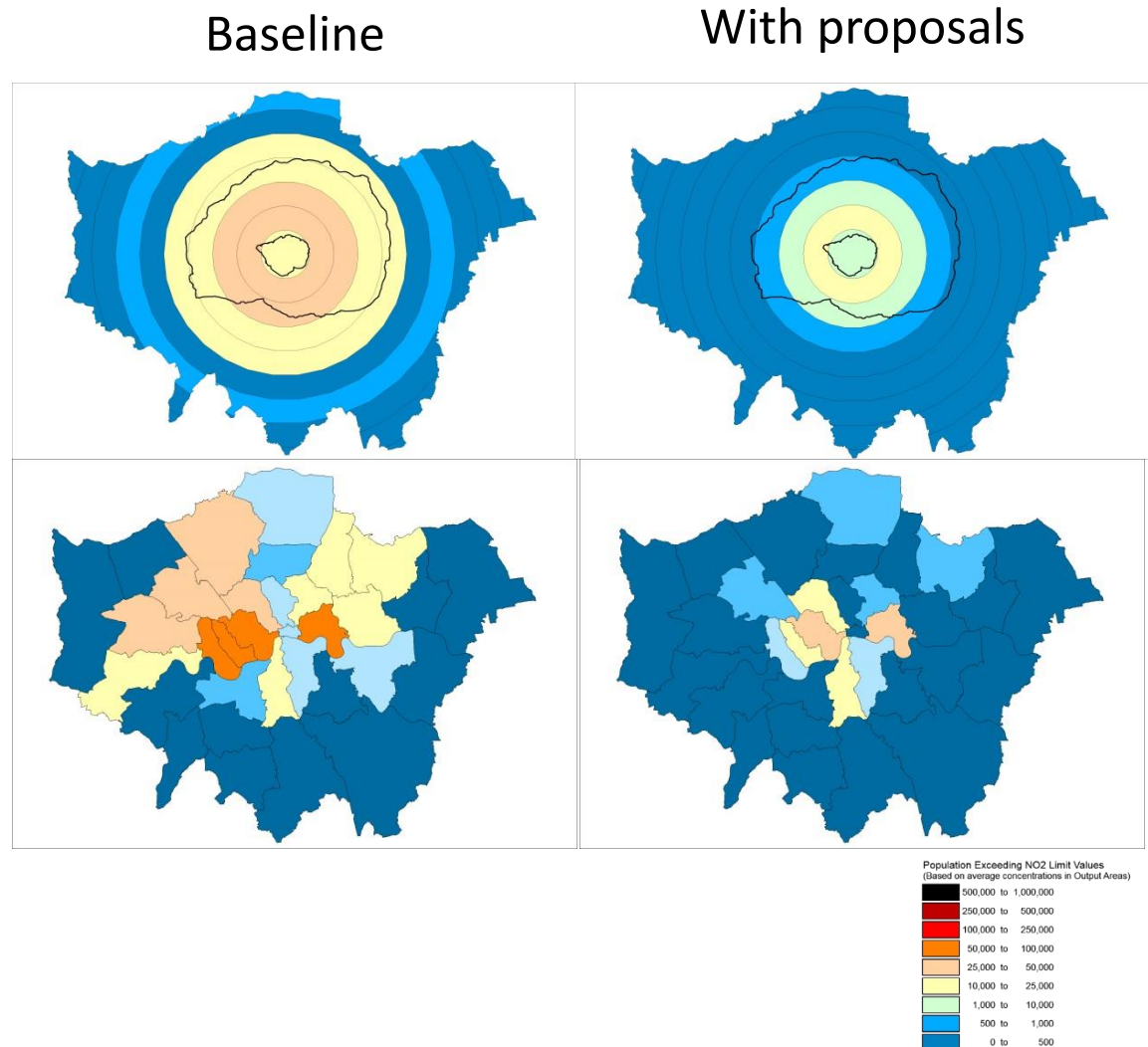
**Minimum emissions standard is for NOx and PM unless otherwise stated

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

Impact on population exposure

- Over 100,000 fewer people living in areas exceeding legal NO₂ limits London-wide in 2021
- 77 per cent reduction London-wide, 96 per cent reduction in Outer London
- 71 per cent fewer schools in areas exceeding legal limits in 2021



TfL is using its influence to enable a switch to zero emission transport

Leading by example: All single deck buses in central London will be zero emission by 2020



Funding:
Supporting innovation e.g. through MAQF, NoF, LENS



Stakeholder engagement:
LoCITY programme helping the freight industry adopt ULEVs



Regulation:
New licencing requirements for zero emission capable taxis and private hire vehicles



Technology trials:
wireless bus charging and new electric double deck buses



Infrastructure:
Charge point delivery in partnership with boroughs and private sector



Move to zero emissions zones

- 
- 1.Paris
 - 2.London
 - 3.Los Angeles
 - 4.Copenhagen
 - 5.Auckland
 - 6.Barcelona
 - 7.Cape Town
 - 8.Heidelberg,
 - 9.Medellin

- 10.Mexico City
- 11.Milan
- 12.Oslo
- 13.Quito
- 14.Rome
- 15.Rotterdam
- 16.Seattle
- 17.Seoul
- 18.Tokyo

- 19.Vancouver
- 20.Warsaw
- 21.Birmingham
- 22.Honolulu
- 23.Oxford
- 24.Greater Manchester
- 25.Santa Monica
- 26.West Hollywood



**Our Commitment to
Green and Healthy Streets**

Clare Healy
City Planner, Transport Strategy
Transport for London



EVERY JOURNEY MATTERS

LAEI 2013

What it is...

- A full inventory of London's emissions, by source and locations for 2013.
- Future year emissions estimated for 2020, 2025 and 2030.
- 2008 and 2010 emissions recalculated with method updates.
- Provided inputs for London Toolkit Air Quality Model

Analytical evidence base essential for policy development and planning:

- Strategic emissions modelling
- Concentrations modelling & air quality mapping
- Hotspot identification
- Source contributions
- Vehicle Fleet Compositions
- Traffic flows and vkm
- LEGGI

Key users:

- Boroughs (LLAQM, Planning and Health)
- GLA and TfL policy and strategy development
- GLA/Defra – reporting to EC
- Consultancies, Developers (EIA & planning)
- Public Information systems (Kings – Nowcast, Cleaner Air For London)

Overview of modelling process



Vehicle counts, speed, age



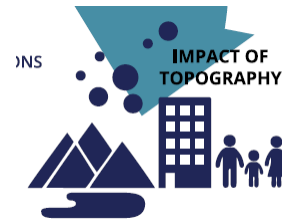
Other transport



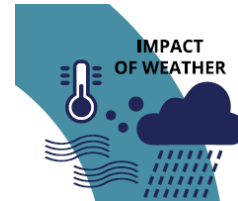
Non-transport sources

→ LAEI
emissions
inventory

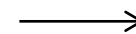
+



Weather



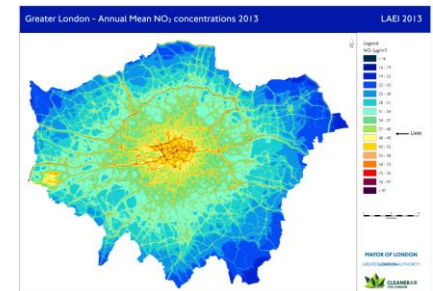
Topography



Validation

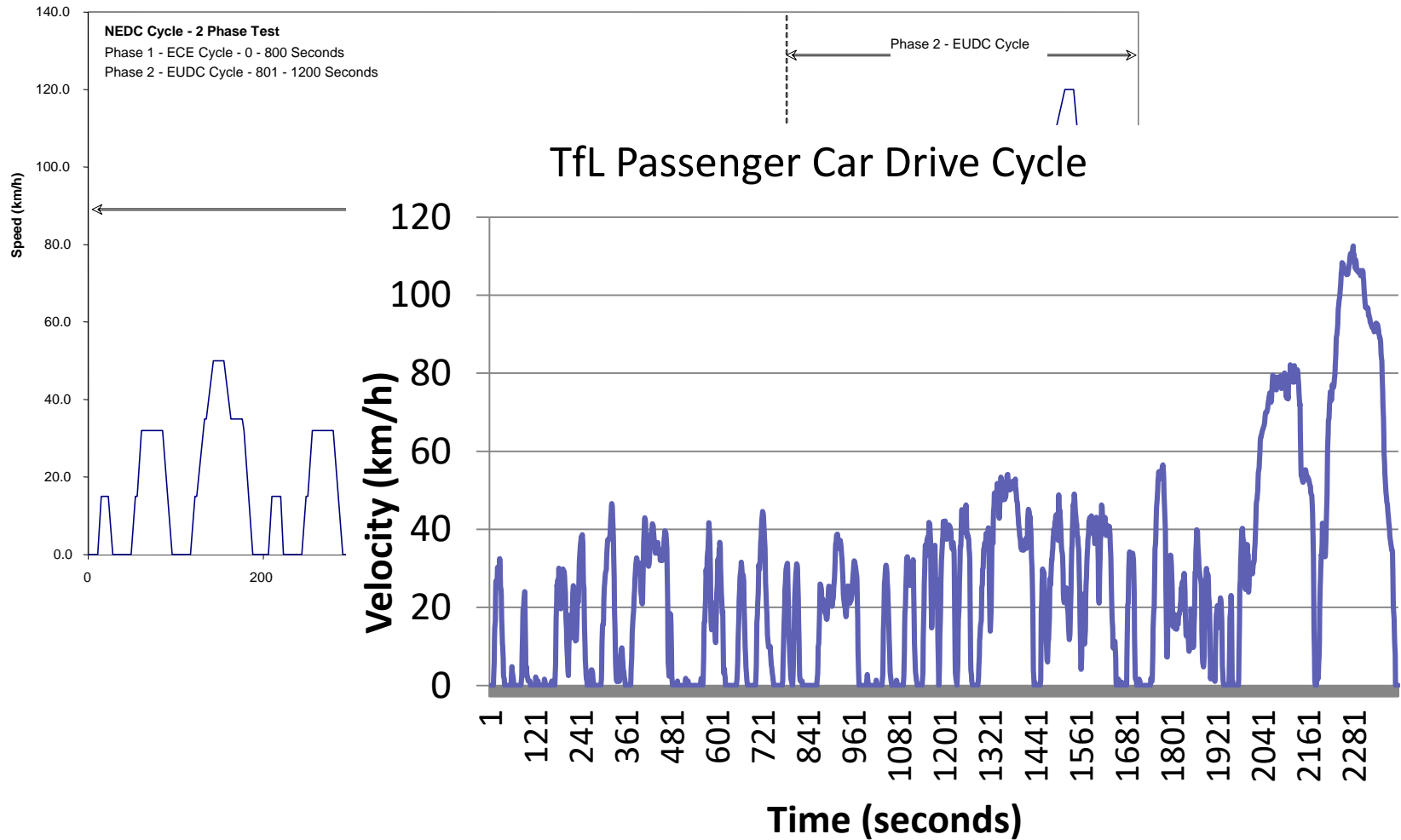


Concentrations



We have been testing the effectiveness of Euro 6/VI

New European Drive Cycle (NEDC)



Emissions based charging schemes – T-Charge and ULEZ

- Schemes where vehicles must meet minimum emissions standard or pay a daily charge

2017



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

- The Low Emission Zone (LEZ)
 - operates London-wide, 24/7
 - Since 2008, tightened 2012
 - Has saved 28t of particulate matter
- The T-Charge
 - covers the CC zone and hours
 - A 28 percent reduction in non-compliant vehicles entering the CCZ

2019 - Confirmed



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

- In 2019 the Ultra Low Emission Zone (ULEZ) will replace the T-Charge in central London and operate 24/7
- Expected to save 20 percent of road transport NOx in 2019 in central London

The ULEZ is designed to 'clean up' diesel and petrol

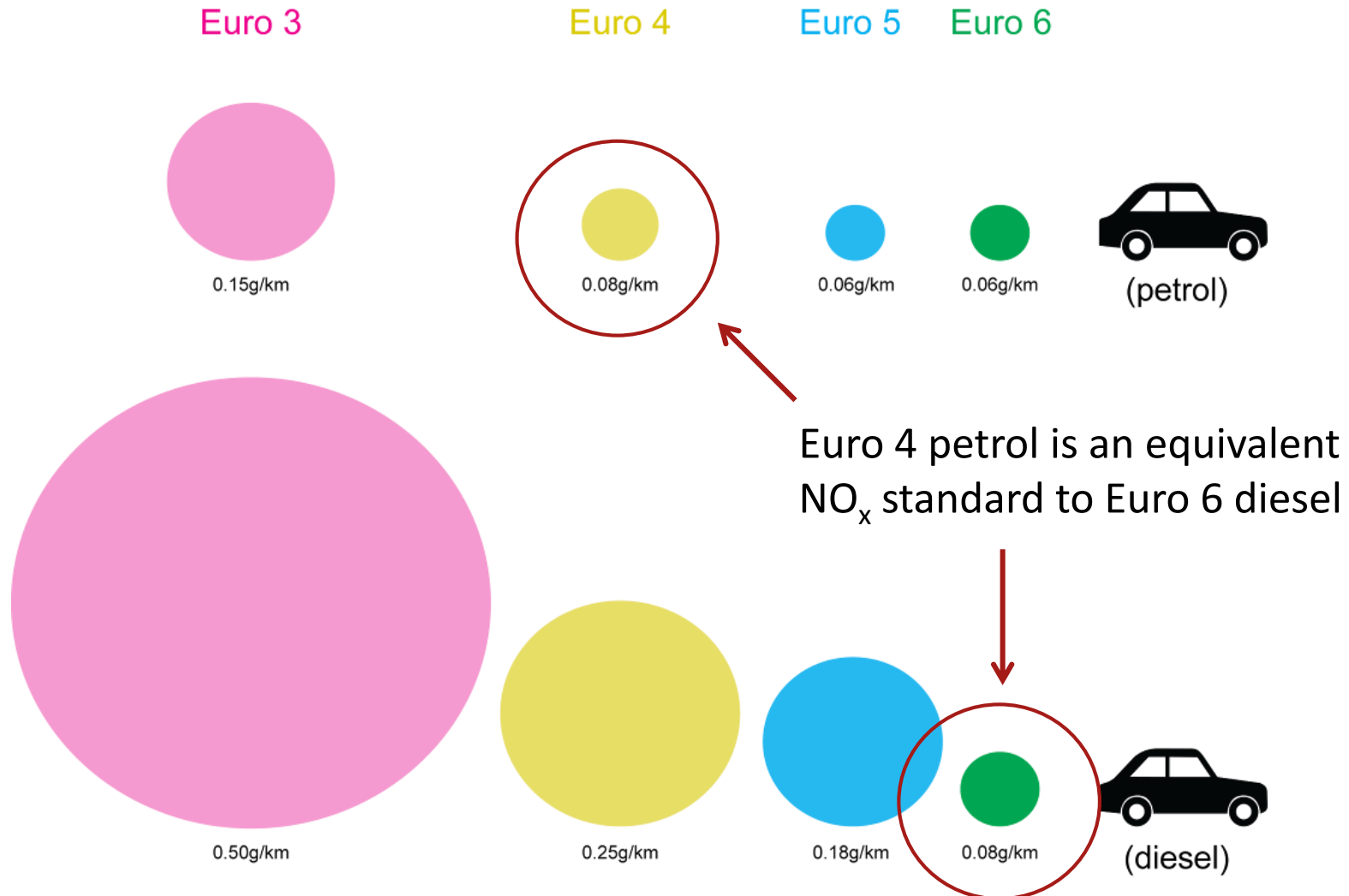
- When setting the emissions standards, we had to consider the number of vehicles that would need to upgrade and the likely technological solutions.
- A lot of vehicles enter central London over any given year:



5,000,000	40,000	660,000	118,000
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- The Government currently estimated there would be around 110,000 plug-in cars registered in the UK by 2020.
- This meant it would be difficult to set a 'non ICE' standard in 2020.
- Therefore, our starting point was to ensure the petrol / diesel fleet is as clean as possible

Understanding how polluting different vehicle types are: legislated emissions standards



How people might respond to the charge

All vehicles in zone

Will meet the emissions requirement

Will not meet the emissions requirement

- Charge has to make the cleaner, compliant vehicle the cost effective option for people
- Want to encourage frequent users of the zone (and therefore contribute most to pollution) to change their vehicles
- Want to still allow low levels of infrequent travel but at a cost

Buy a compliant vehicle

Pay the charge

Change travel behaviour

Divert

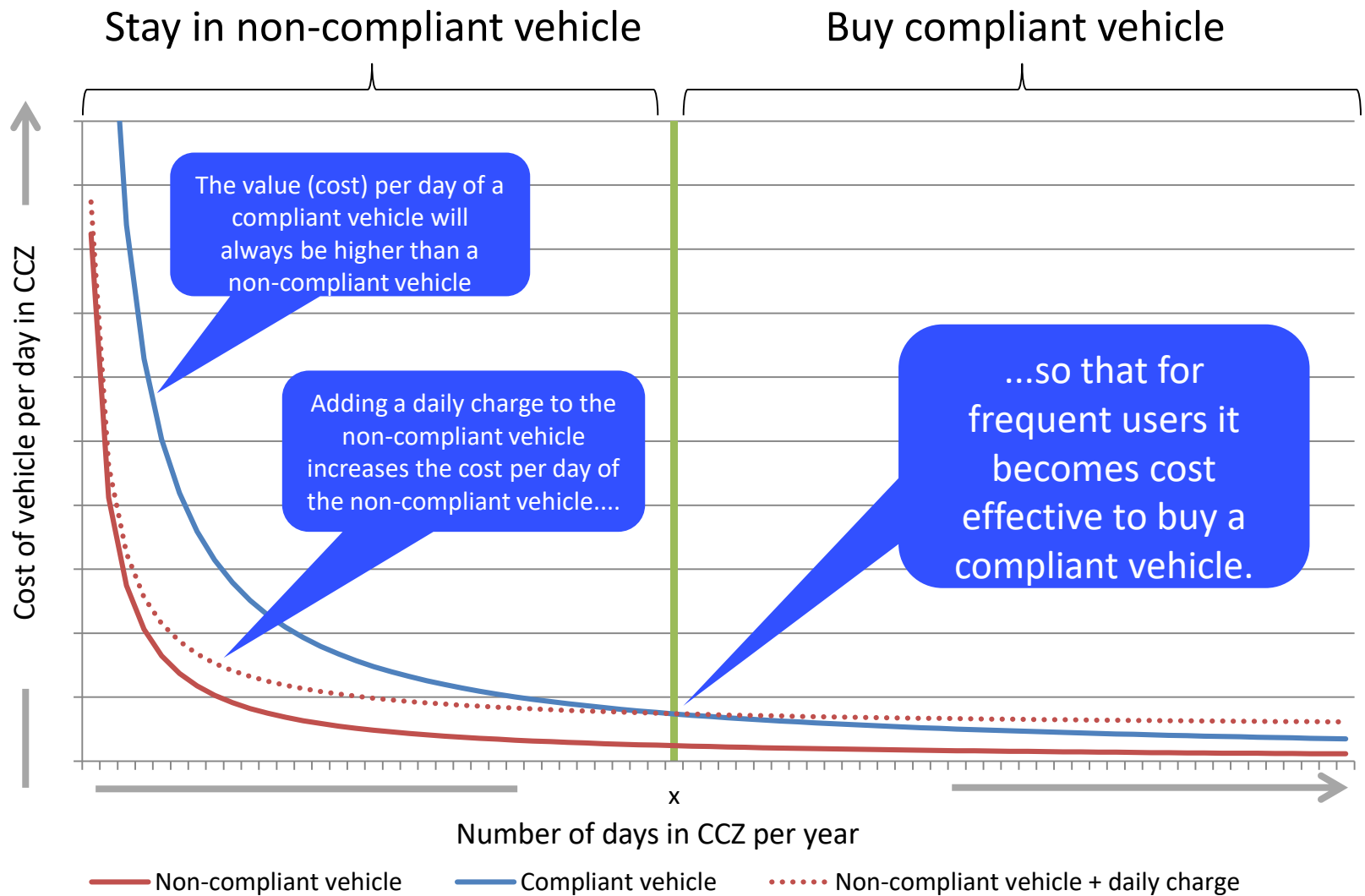
Re-mode

Re-time

Forgo trip



There is a daily charge for 'non-compliance'



Emissions-based charging schemes – Stronger LEZ and extended ULEZ

2020 - Confirmed



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

- 2020: to strengthen LEZ standards to a Euro VI requirement for heavy vehicles
- Expected to reduce NOx emissions by 19 per cent London-wide

2021 - Confirmed



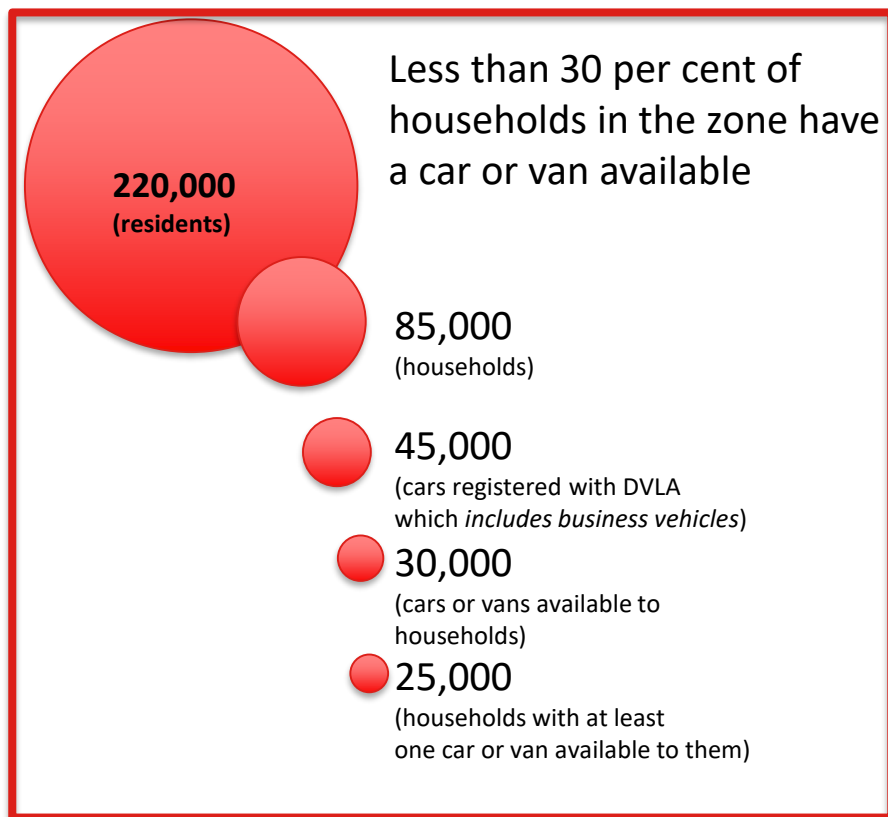
ULEZ expands to inner London

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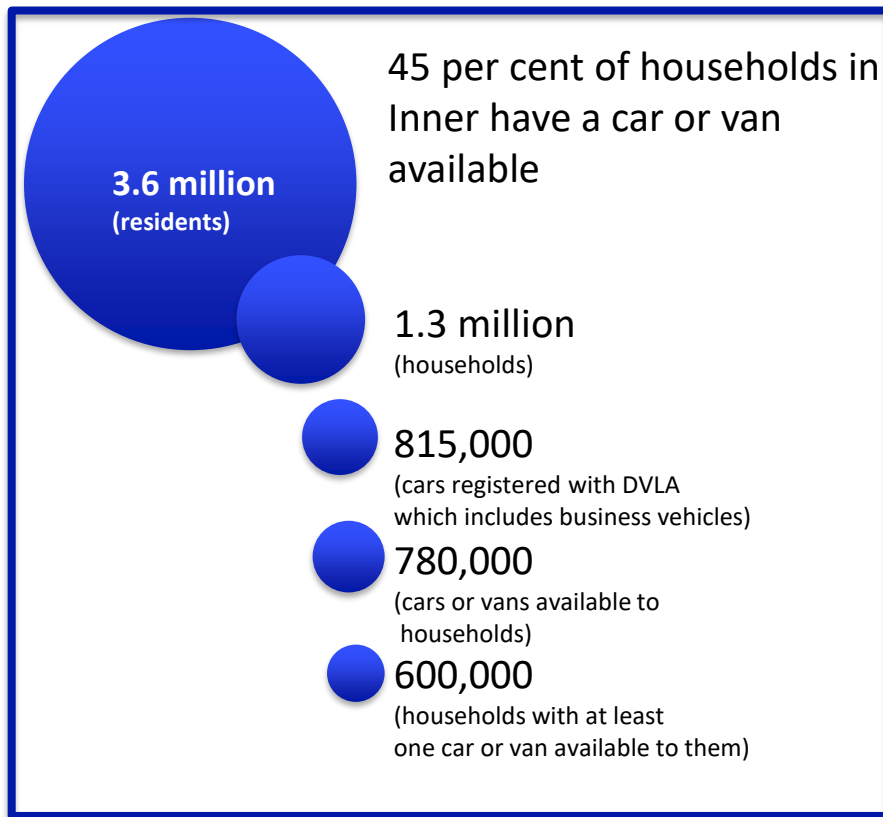
- 2021: to expand the ULEZ so that all vehicles entering inner London are subject to emissions controls from this date forward
- Combined impact is expected to reduce NOx emissions by 28 per cent London-wide

Many more residents

Central ULEZ



Inner ULEZ



Roadmap to zero emission road transport

		NOW	2020	2025	2030	2035	2040	2045	2050	
London action	Demonstrating technologies	Zero emission-capable taxis		Town centre Zero Emission Zones						
		Electric single-deck buses; bus charging infrastructure								
		Supporting low-emission freight								
	Changing purchasing patterns	Deliver a major expansion in electric vehicle charging points	Further investment in charging and refuelling infrastructure				All newly registered vehicles driven in London zero emission			
		At least 15 hydrogen fuelling stations installed in and around London								
		All new taxis zero emission capable	All new private hire vehicles zero emission capable							
		All new buses will be hybrid, electric or hydrogen	Pan-London approach to parking charges for zero emission vehicles							
	Fleetwide adoption and managing congestion	Keep Congestion Charge under review and support borough measures	Develop a new, more sophisticated way of paying for road use, integrating existing and proposed emissions-based and congestion charging schemes							London-wide Zero Emission Zone
		Emission Surcharge/ Central London Ultra Low Emission Zone	Expanded Ultra Low Emission Zone	Central London Zero Emission Zone	All buses zero emission or hybrid	Wider Zero Emission Zone				Zero emission road transport
					All taxis and PHVs zero emission capable	All buses zero emission				
				All public sector car fleets zero emission capable						
National action		Increase use of renewable electricity generation for the National Grid until it results in net zero carbon emissions								
		Plug-in vehicle grants	Taxation encourages ultra low emission vehicles over conventional vehicles					Taxation discouraging ownership of non-zero emission vehicles		
		Funding low-emission vehicle research – especially heavy vehicles			Financial incentives for businesses/manufacturers					
		Vehicle tax exemption for zero emission	National diesel scrappage scheme							

Key:

Taxis/PHV	Buses	Fleets	Congestion reduction	Infrastructure	Emissions Charging Zones	Taxation	Aim
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