What does the Road-to-Zero mean for coaches?

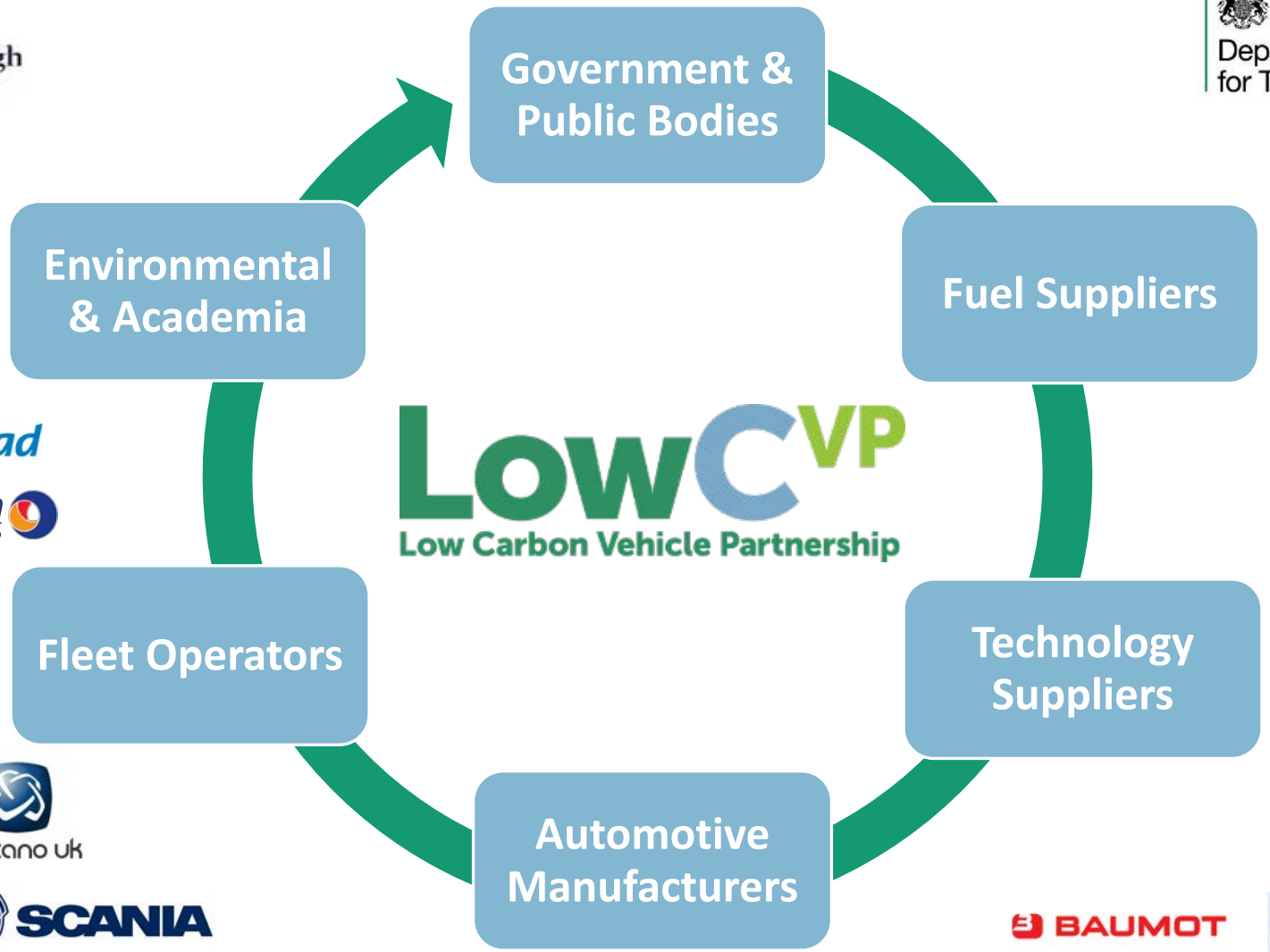
LowCVP
Low Carbon Vehicle Partnership

Coach Tourism Association
24th February 2020, York

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.

LowCVP
Low Carbon Vehicle Partnership



Aston University
Loughborough University
University of Bath
Coventry University
RAC Foundation
Institution of Mechanical Engineers
First Bus
Go-Ahead
Stagecoach UK BUS
abellio
Wrightbus
Yutong
BYD
Alexander Dennis
Arrival
caetano uk
Volvo
VW
BMW
Scania

Department for Transport
Transport Scotland
Transport for Greater Manchester
City of York Council
Office for Low Emission Vehicles
Nottinghamshire County Council
energy saving trust
Transport for London
Argent Energy
Shell
UK Power Networks
UKpia
sse
CNG Fuels
Ricardo
AVID technology
elementenergy
MAGTEC
VP
SMMT Driving the Motor Industry
HJS Emission Technology
Baumot
Eminox
Jaguar
Land Rover

LowCVP Working Groups

LowCVP members participate through the partnership's **Working Groups**, which formulate and develop initiatives.

There are currently working groups for:

The work programme is agreed by members, delivered through the Working Groups and overseen by the Members Council

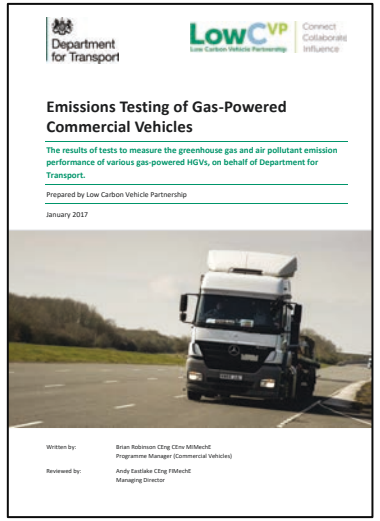
How we work…

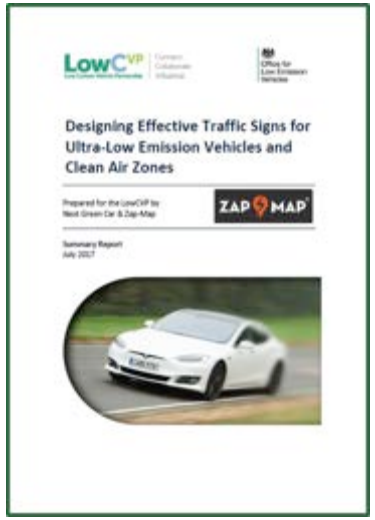
Creating communities with shared goals

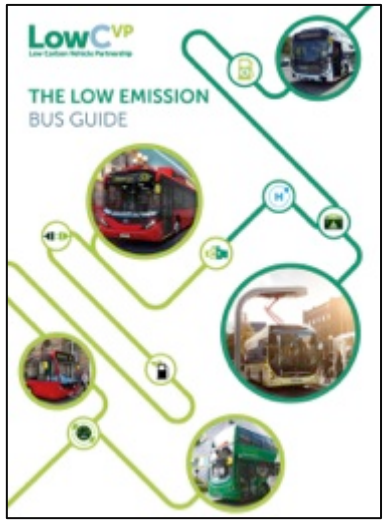
Market Understanding and evidence-based research

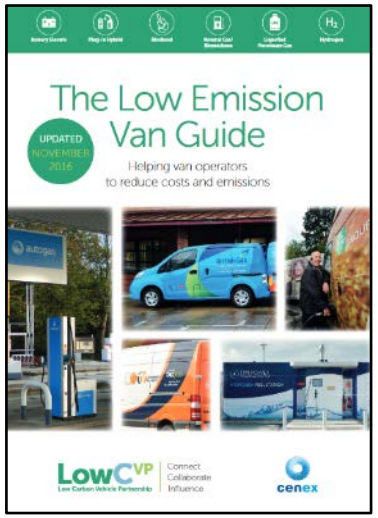
Influencing policy and information

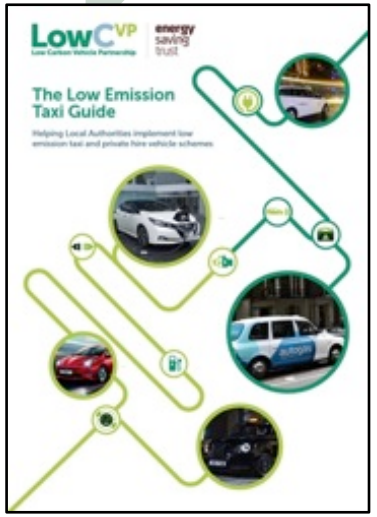
Accelerating the market



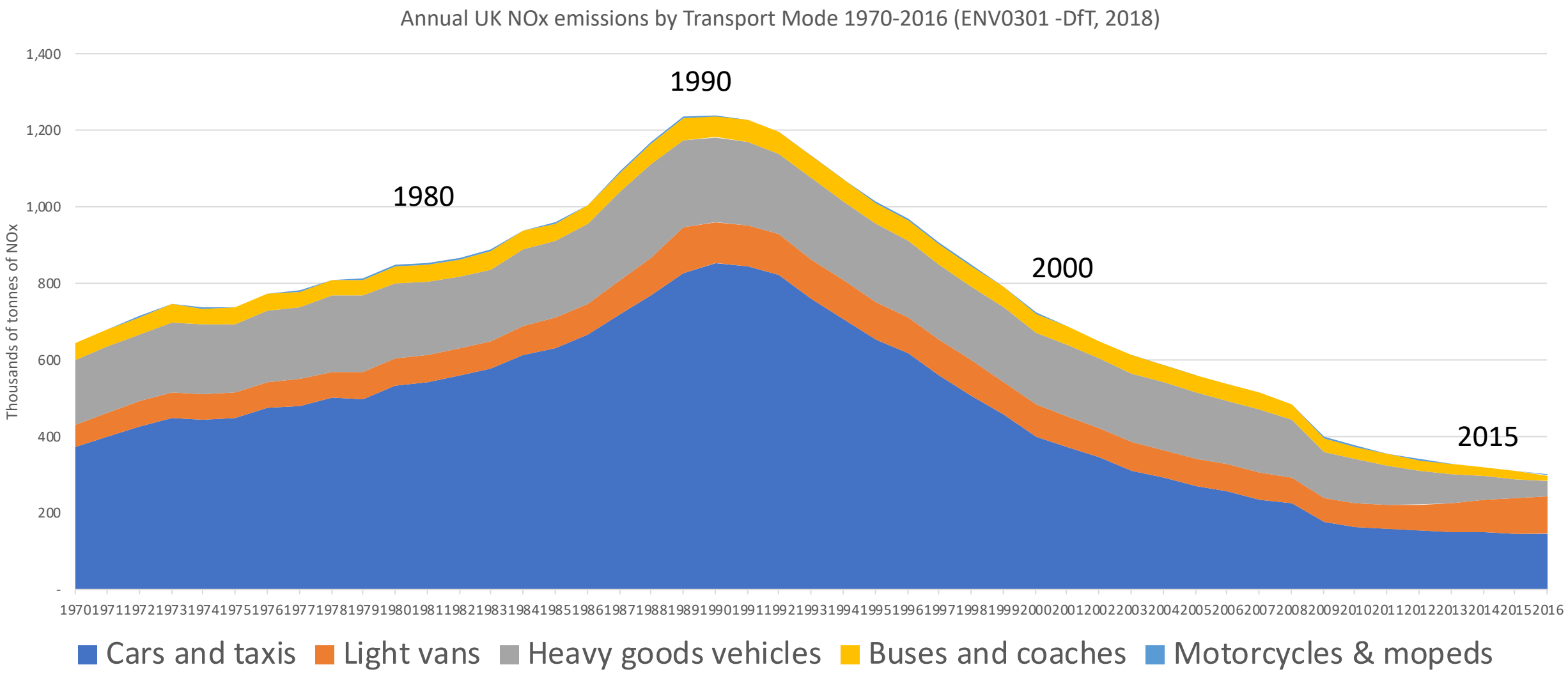






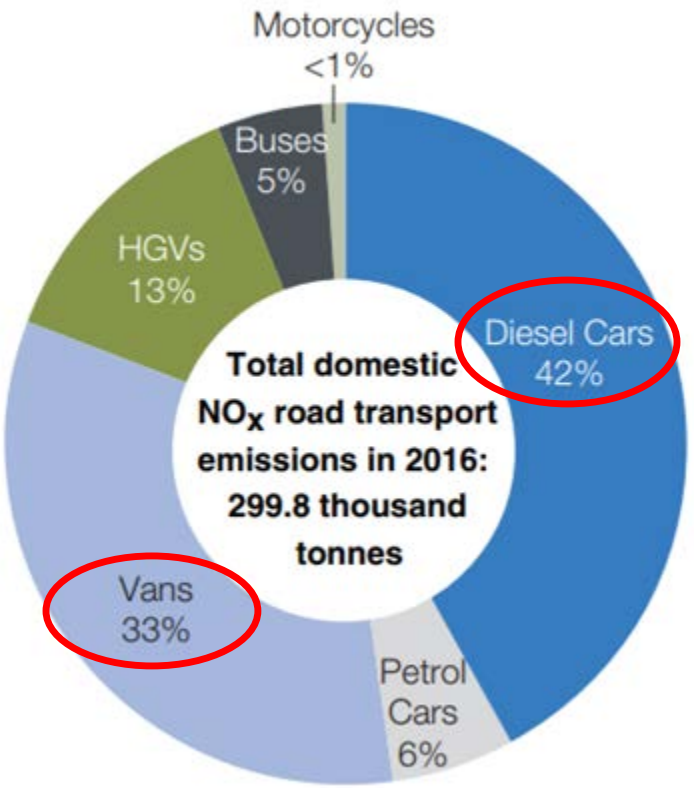


Air Quality: We are getting there…



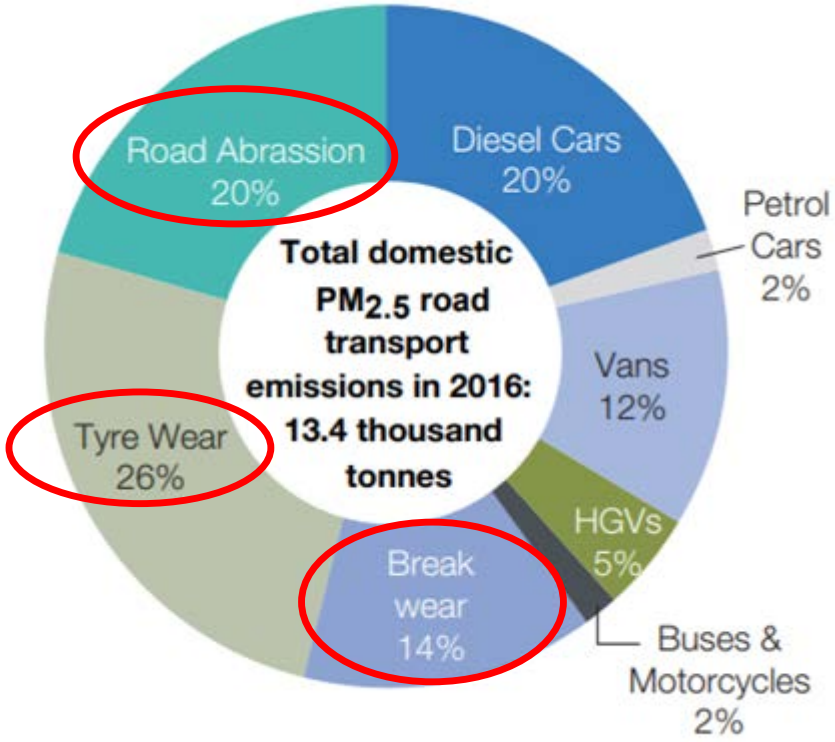
Still more to be done… UK Air Quality

NOx emissions by source



PM emissions by source

Legislation will start to look at non-tailpipe : Tyres, heaters

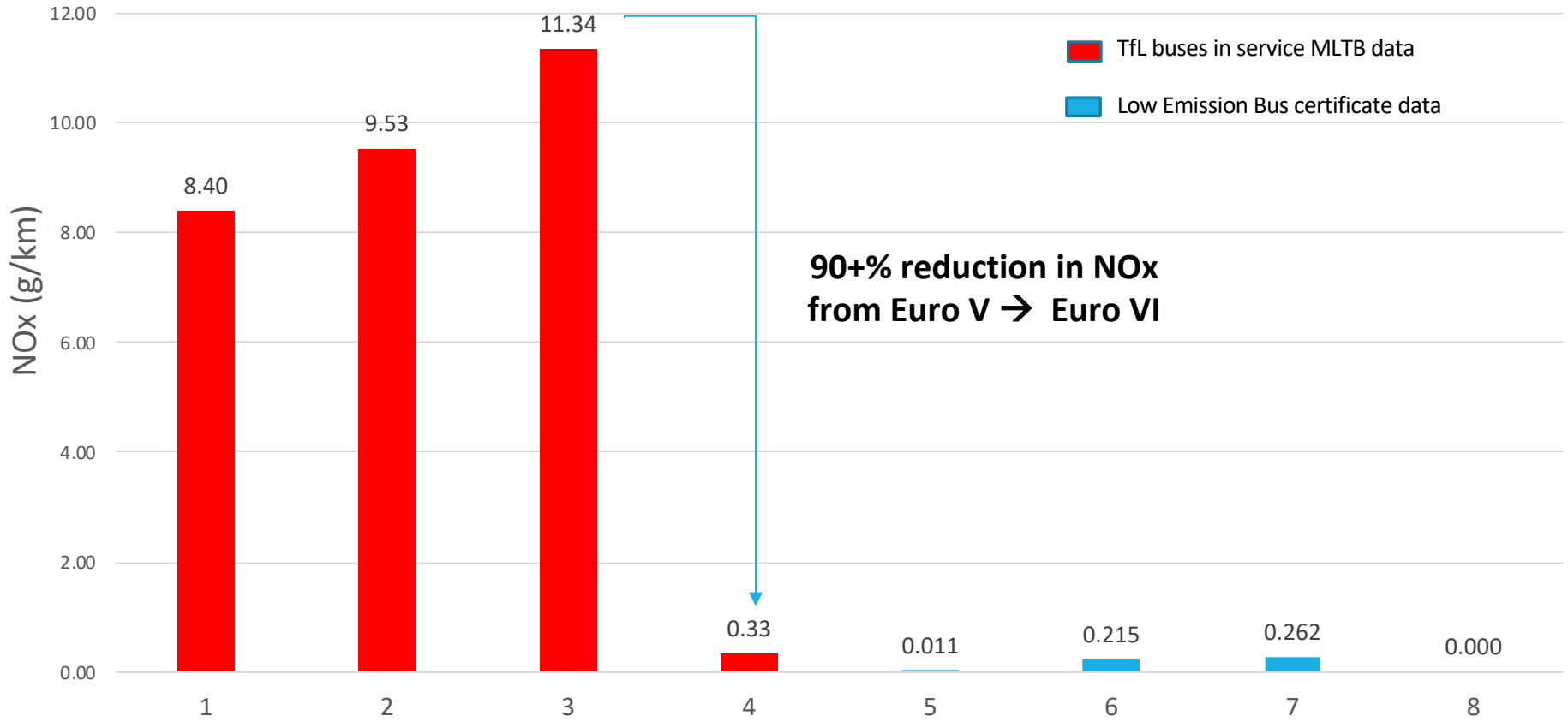


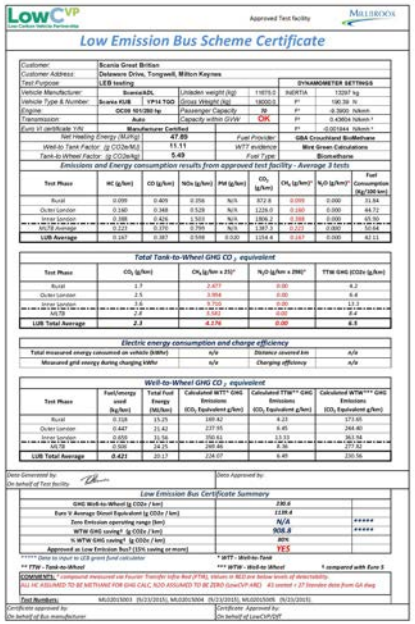
Data is National Average and sources apportionment will vary locally depending on local conditions

Source: National Atmospheric Emissions Inventory

Not all diesels are ‘dirty’

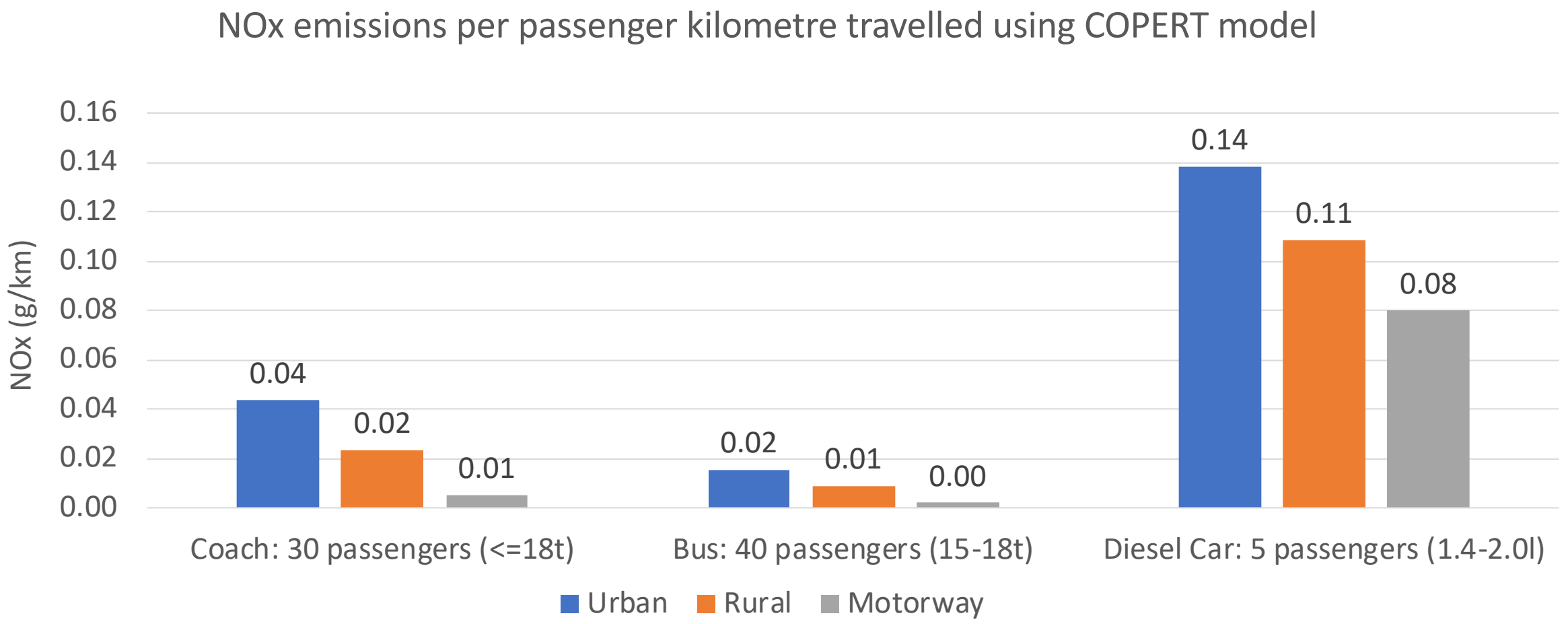
LowCVP bus testing demonstrates that **all Euro VI technologies are clean!!**



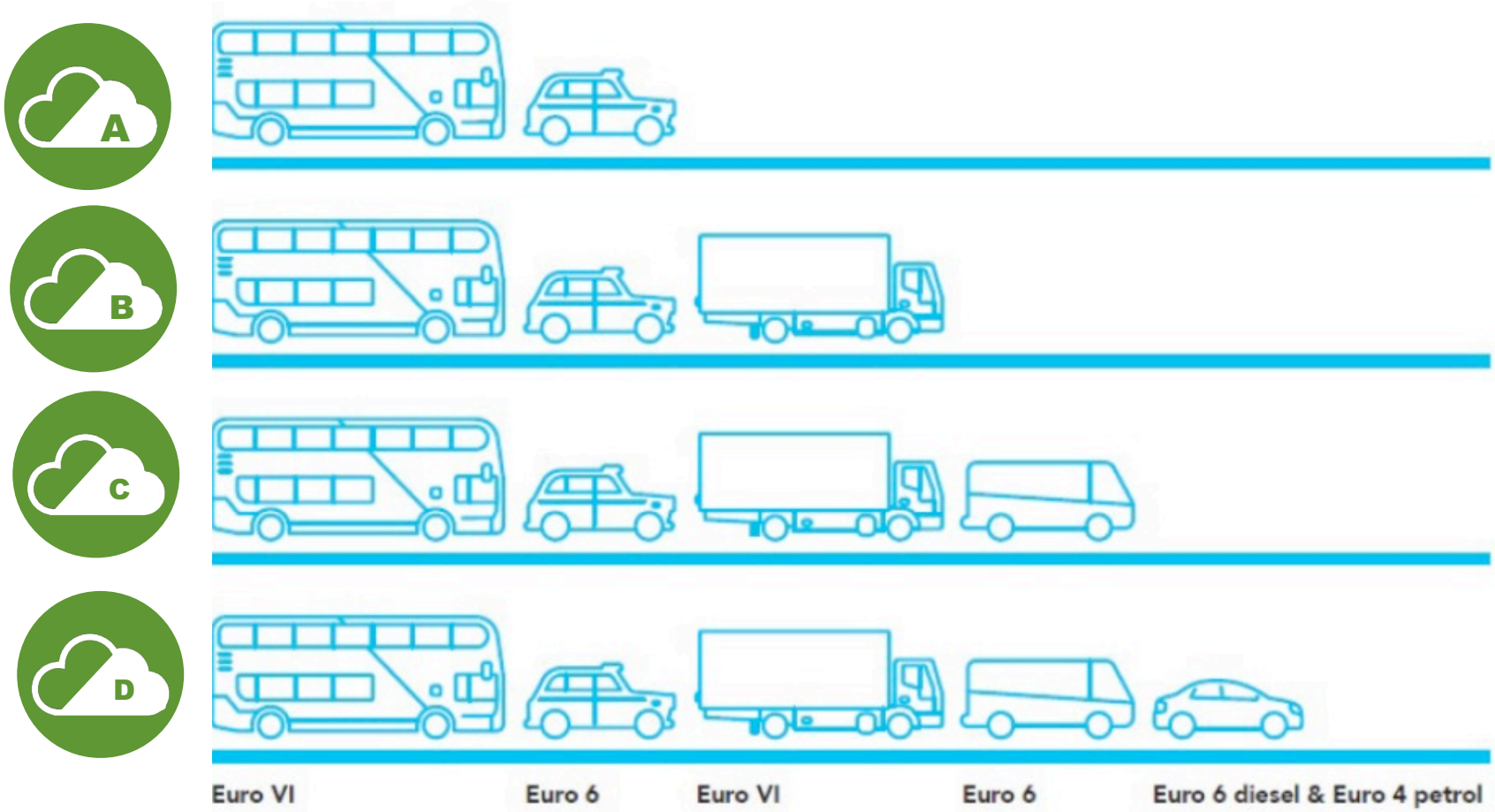


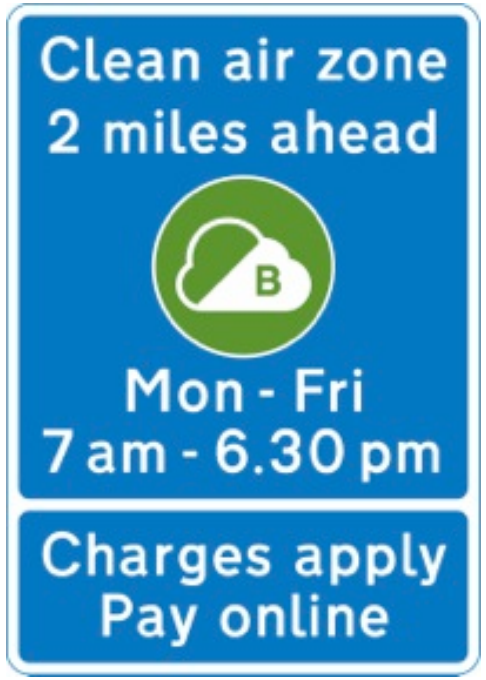
Download certificates from LowCVP Low Emission Bus Hub

Important metric: Emissions per passenger



Clean Air Zones to tackle urban AQ challenge





National vehicle checker now live:

https://www.gov.uk/check-clean-air-zone-charge

CAZ, LEZ and ULEZ = Euro VI

Charging Clean Air Zones identified as most effective method to tackle poor air quality in cities

- Min standard Euro VI/6 for diesel, Euro 4 for petrol.
- Camera systems capture registration plate linked to Euro standard.

Confirmed Clean Air Zones

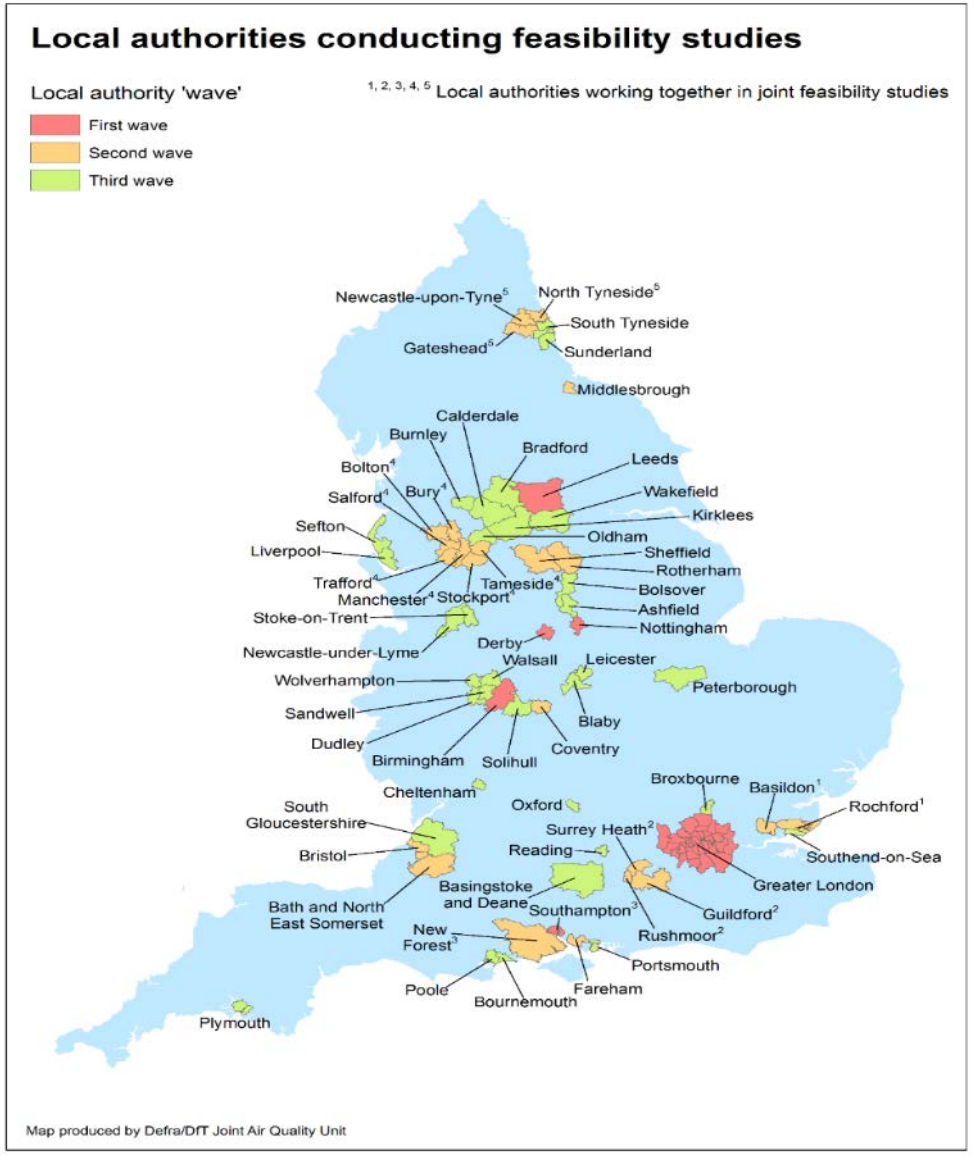
- London (ULEZ = CAZ D. LEZ moving to Euro VI in Oct 2020)
- Birmingham (CAZ D– 2020/21)
- Leeds (CAZ B – Starting 2020/21)
- Bath (CAZ C – 2021)
- Sheffield (CAZ B/C -2021)

Manchester, Bristol, Leicester, Reading and more…

Scotland: Low Emission Zones in four major cities:

- Glasgow – phased introduction, first buses, then other types
- Edinburgh, Dundee, Aberdeen to follow
- All cities will be Class D by start of 2023

Zero Emission Zones proposed in London and Oxford from 2025!



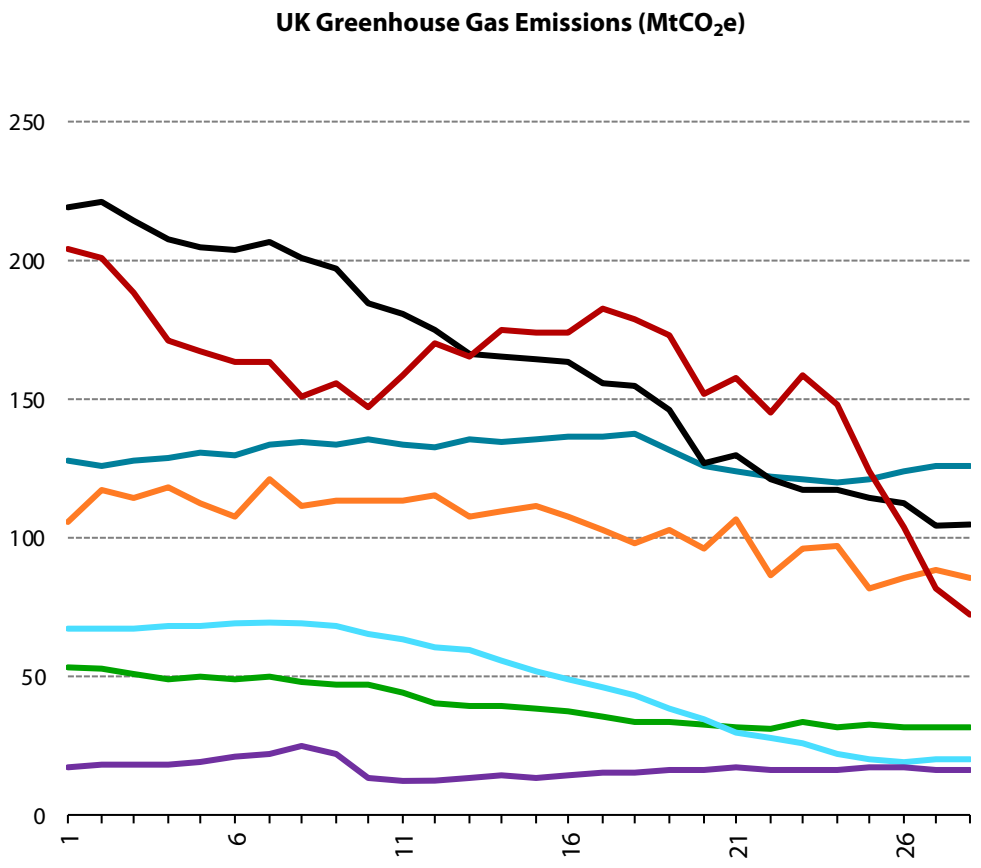
National Retrofit Scheme: Euro VI equivalence

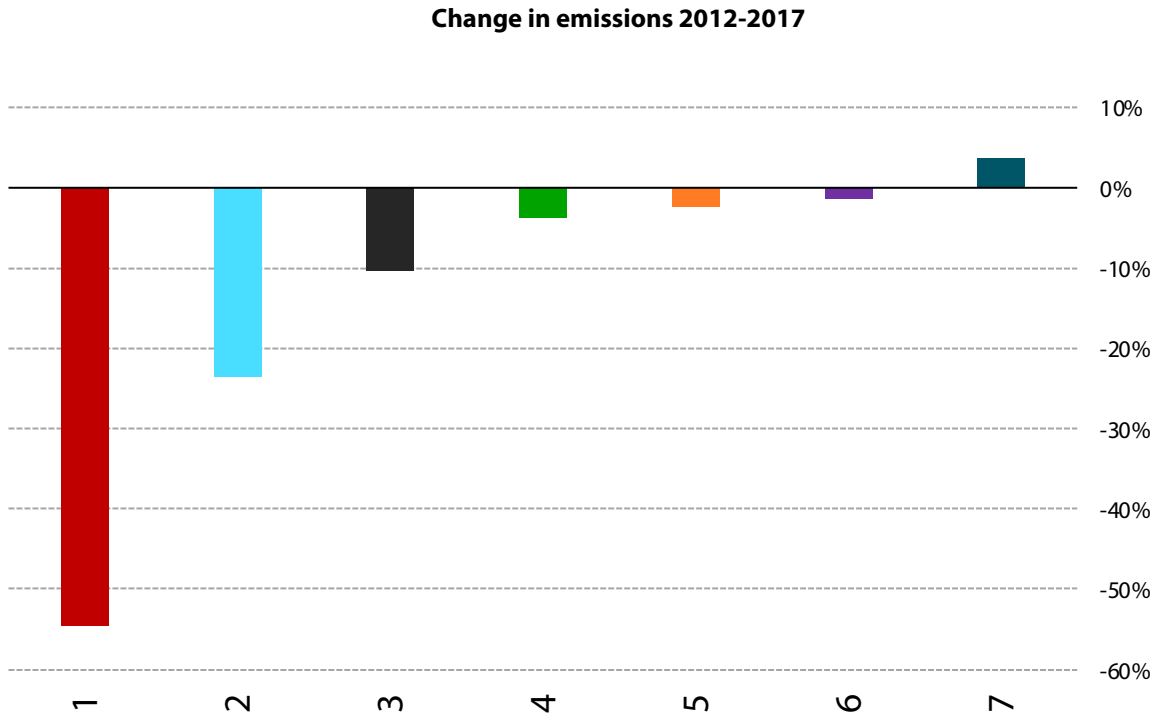
Clean Vehicle Retrofit Accreditation Scheme

- Technologies that achieve Euro 6/ VI equivalence - must be CVRAS approved for government funding.
- Covers HGVs, Buses, Coaches, Vans, Black Taxis, RCVs, Cars.
- Enables older vehicles to enter CAZ/ULEZ free of charge.
- Currently 5 exhaust aftertreatment approved systems for coaches, more expected in 2020.
- Gov't has provided funding for developing retrofit systems. Challenge of demand/supply for retrofit options
- Birmingham, Leeds & London offering £16k per vehicle to support retrofit, others likely to support too.
- LowCVP **Clean Vehicle Retrofit Technology Guide** details options for retrofit

https://www.energysavingtrust.org.uk/business/transport/clean-vehicle-retrofit-accreditation-scheme-cvras

How are we doing? 43% reduction in GHG emissions since 1990





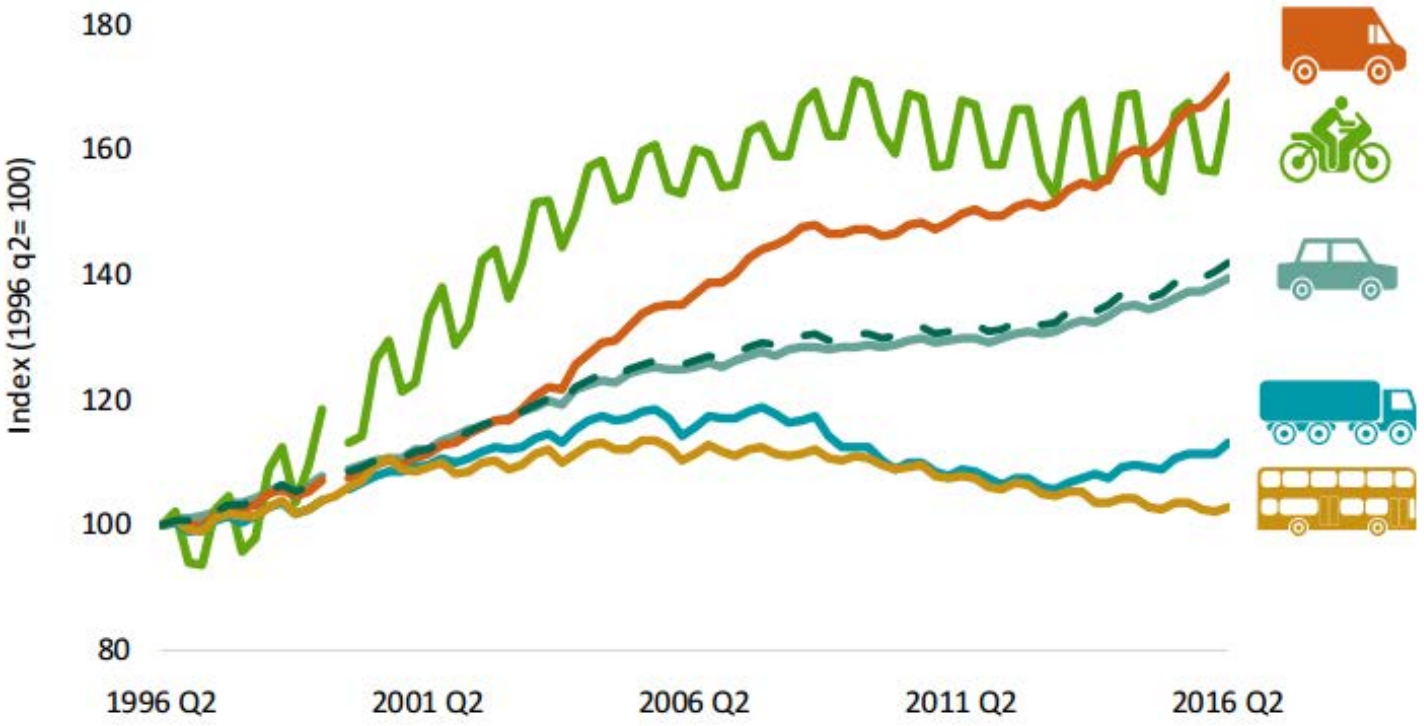
However…. **Transport is now the largest contributor to UK Greenhous Gas emissions and is increasing!**

(Source: Committee on Climate Change, 2018)

Why is transport CO_2e increasing?

- Growing Economy
- Increasing in number of vehicles (1 car for every 2 people in the UK)
- New Car CO_2 increasing (larger cars)
- "On Demand" Lifestyle (Internet)
- Increasing LDVs & HGV mileage
- **Increasing congestion**

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



Dotted line = All Vehicles

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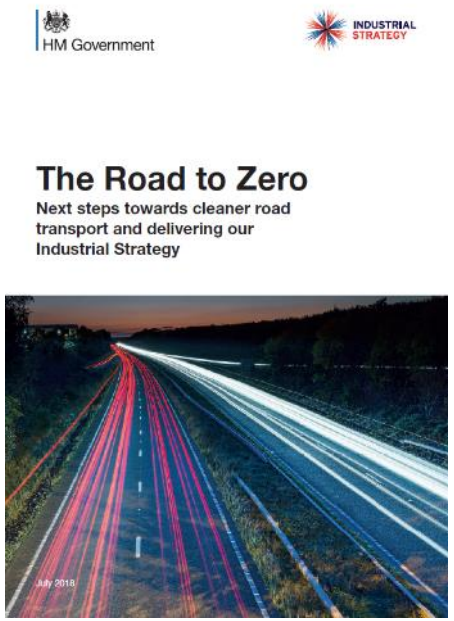
Road to Net-Zero GHG emissions

UK

- UK target for net-zero greenhouse gas emissions by 2050
- Road-to-Zero strategy: end of new ICE for cars and vans by 2040, consultation on 2035 or sooner target. 2032 in Scotland
- Voluntary 15% emissions reduction for HGVs, nothing for coaches (yet)
- Renewable Transport Fuels Obligation – 12.5% fuel to be renewable by 2032 (look out for E10 at petrol stations in 2021)



Europe

- Expecting CO_2 regulations on HDVs in next few years (g CO2/km). Will use VECTO model to estimate emissions based on vehicle characteristics.
- Clean Vehicle Directive – targets for publicly procured services to use “clean” technology or fuel and zero emission. IRU working on options for decarbonisation – CNG/LNG short term solution.
- Euro VII …. Early stages – likely CO2 reduction element if/when introduced

Options for coaches: we will need multiple solutions

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Euro VI Diesel
low emission

Renewable diesel / HVO

Low Emission & Low Carbon

Diesel Hybrid

Ultra Low Emission Vehicles

PHEV / REEV

CNG / LNG / BioLNG

Electric

Hydrogen

Requirement for new infrastructure

Zero Tailpipe Emission + Renewable Fuel

Low Emission Bus Guide for more info

EV may not always be possible, plenty of other options

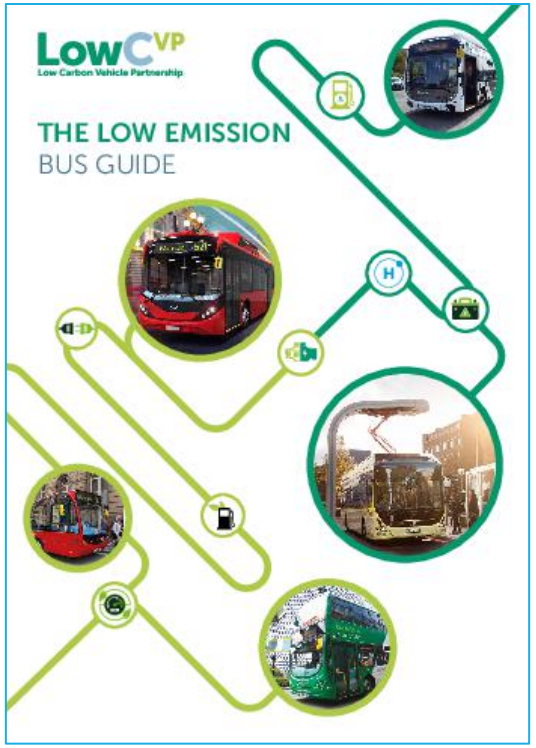
Solution will differ depending on local environment and challenges

Technologies

- Diesel-Hybrid
- Battery Electric
- Biomethane (Compressed Natural Gas)
- Plug-in Hybrid
- Hydrogen Fuel Cell
- Air Quality: Selective Catalytic Reduction (SCR)

Fuels

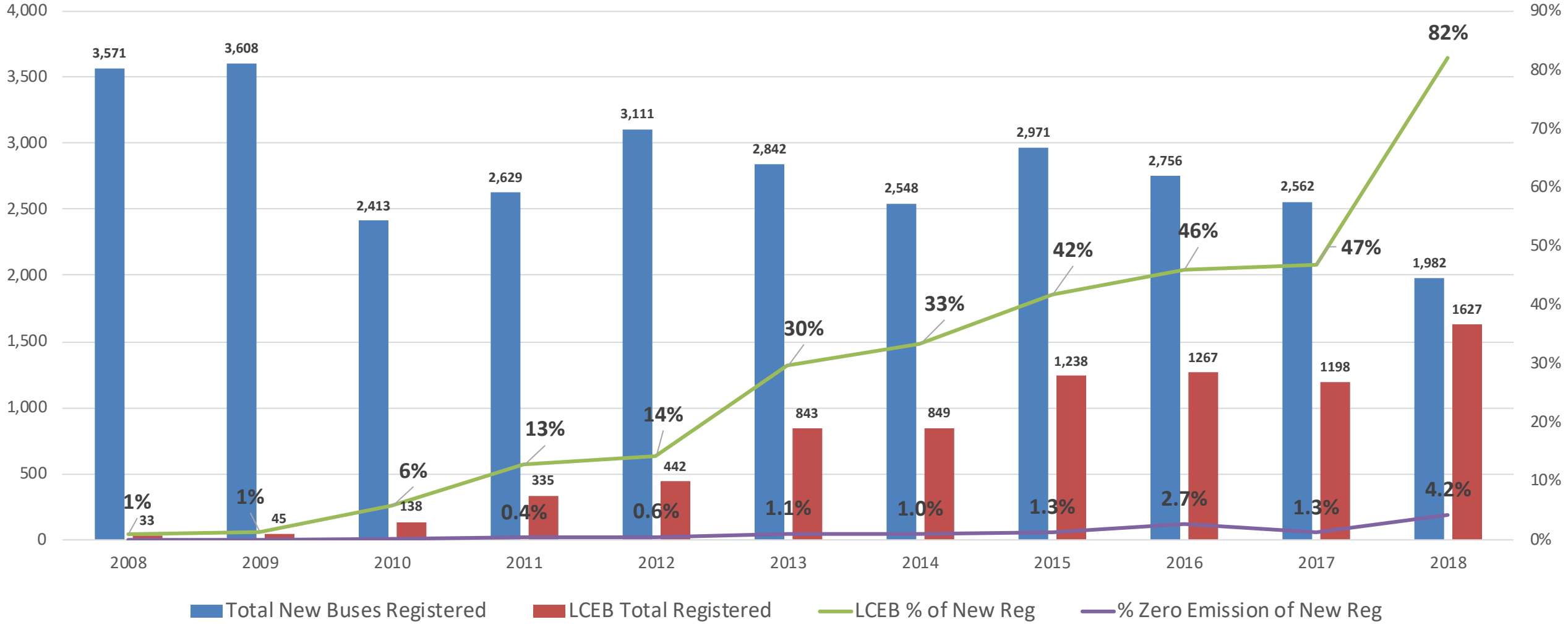
- FAME Biodiesel
- HVO



More detailed information in the ***Low Emission Bus Guide***

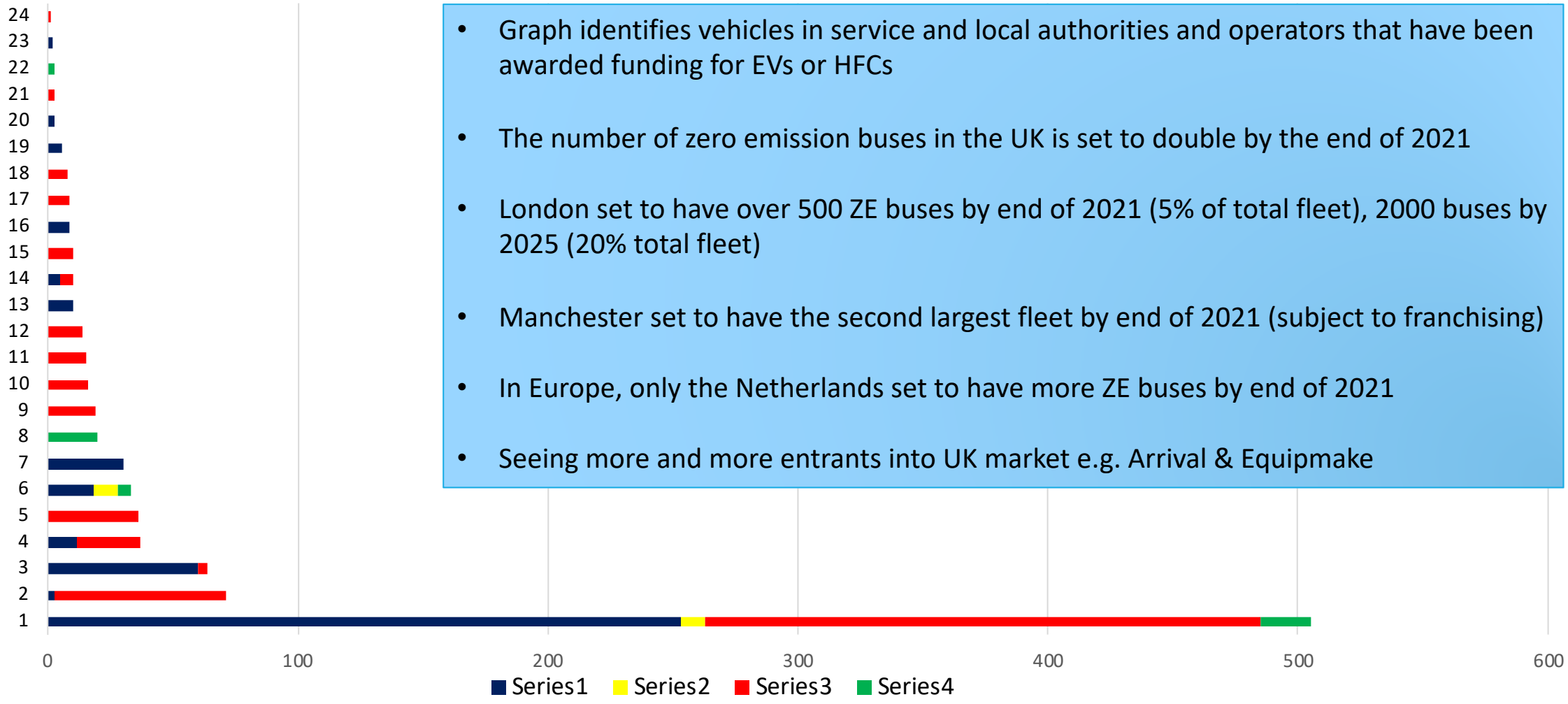
Takes decades to change a market

UK new bus registrations (blue) with number of buses with low carbon technologies (red), 2008-2018



Zero Emission Buses in UK: 431 in service, 503 on order

Zero Emission Buses in the UK: in service and on order, December 2019 (LowCVP)



- Graph identifies vehicles in service and local authorities and operators that have been awarded funding for EVs or HFCs
- The number of zero emission buses in the UK is set to double by the end of 2021
- London set to have over 500 ZE buses by end of 2021 (5% of total fleet), 2000 buses by 2025 (20% total fleet)
- Manchester set to have the second largest fleet by end of 2021 (subject to franchising)
- In Europe, only the Netherlands set to have more ZE buses by end of 2021
- Seeing more and more entrants into UK market e.g. Arrival & Equipmake

How to reduce greenhouse gases from transport?

Petrol & Diesel

Battery electric for cars, vans and city buses

Technology shift alone to EVs wont be enough for long term goals!

- Gov, local authority and industry must work in partnership to reduce congestion & encourage modal shift
- Incentivise public transport & active travel/discourage private car into city centre
- Behaviour change requires long term vision & planning and right incentives
- Clean Air Zones are opportunities for change

2020: All roads lead to COP 26

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CPT Coach Strategy
Expected 2020

Transport Decarbonisation Plan (TDP)
Department for Transport, OLEV , BEIS

COP 26
Glasgow
9 – 20th November 2020
Cabinet Office

LowCVP supporting CPT and DfT with market analysis and vehicle testing

Potential £5bn for bus to stretch to coaches

Action plan for net-zero by 2050

Potentially 4,000 new zero emission buses by 2026

Published with Comprehensive Spending Review late 2020

UK on the world stage

Expecting concrete plans about how to achieve net-zero for entire economy

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

LowCVP Resources

- **Low Emission Bus Guide**
- **Clean Vehicle Retrofit Technology Guide**
- Greener Journey's series
- **LowCVP Low Emission Bus & Coach Website**
  - Areas of operation map
  - Download test certificates
  - Latest low carbon bus news
- **Low & Zero Emission Bus Workshop series**
  - National & Local Policy insight and engagement with manufactures
  - Experience of real-world operation from operators and local authorities
  - Workshops in Glasgow, Nottingham, Leeds, Manchester, Birmingham and more to come

https://www.lowcvp.org.uk/Hubs/leb/Home.htm

Thank you. Any questions?

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Interested in joining the Partnership?

Carolyn Webb

Membership Coordinator

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