



FREIGHT in the **CITY** **EXPO**

www.freightinthecity.com

 @freightincity

#FITC2018

SEMINAR ROOM

Seminar partner:





Keynote speaker

Lynne Goulding

Principal Consultant: Visionary Innovation Group

Frost & Sullivan



The Future of Urban Logistics

Lynne Goulding, Visionary Innovation, Frost & Sullivan

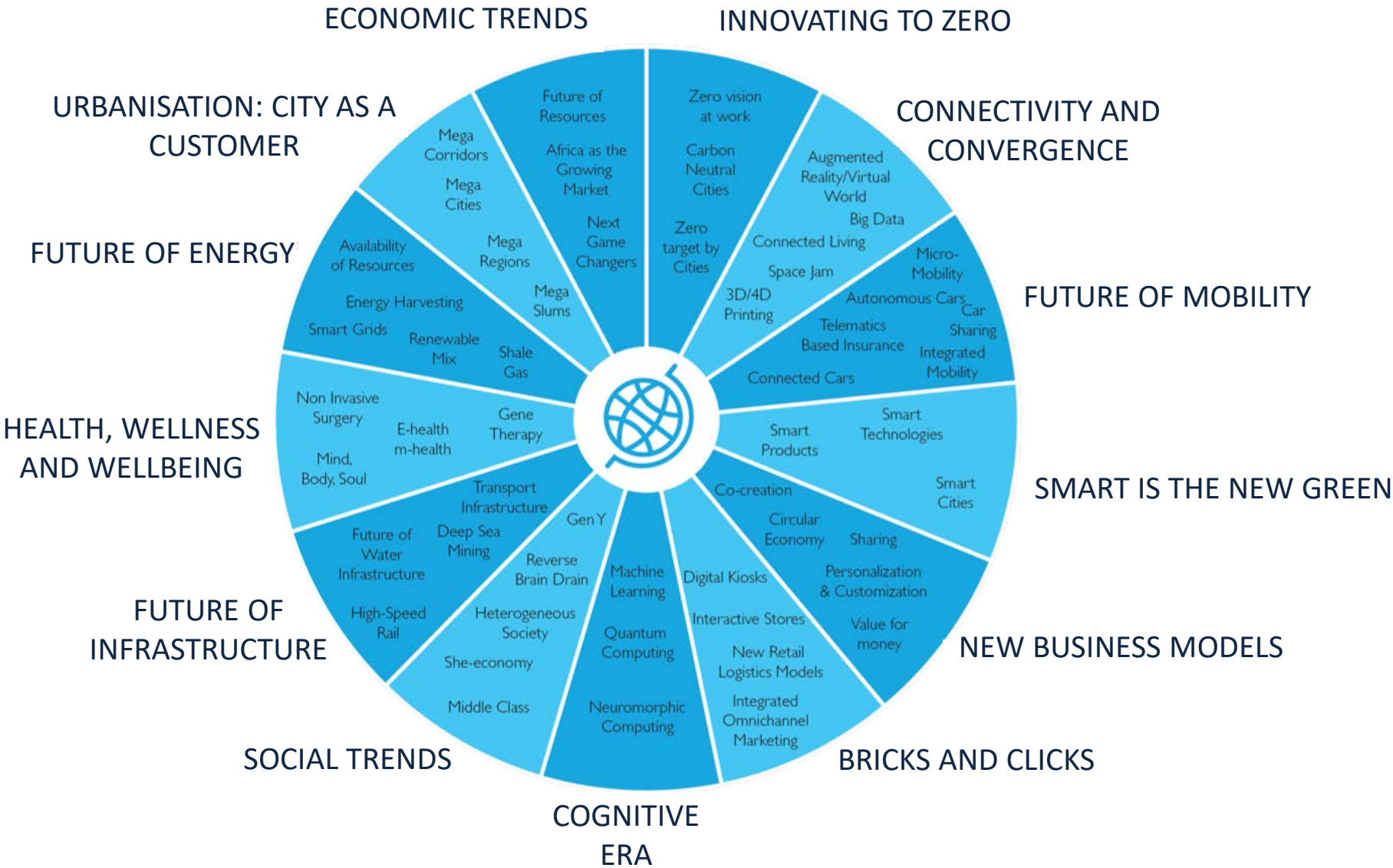
Change is constant







Our Megatrends Universe





Mega Cities



Mega Regions



Mega Corridors

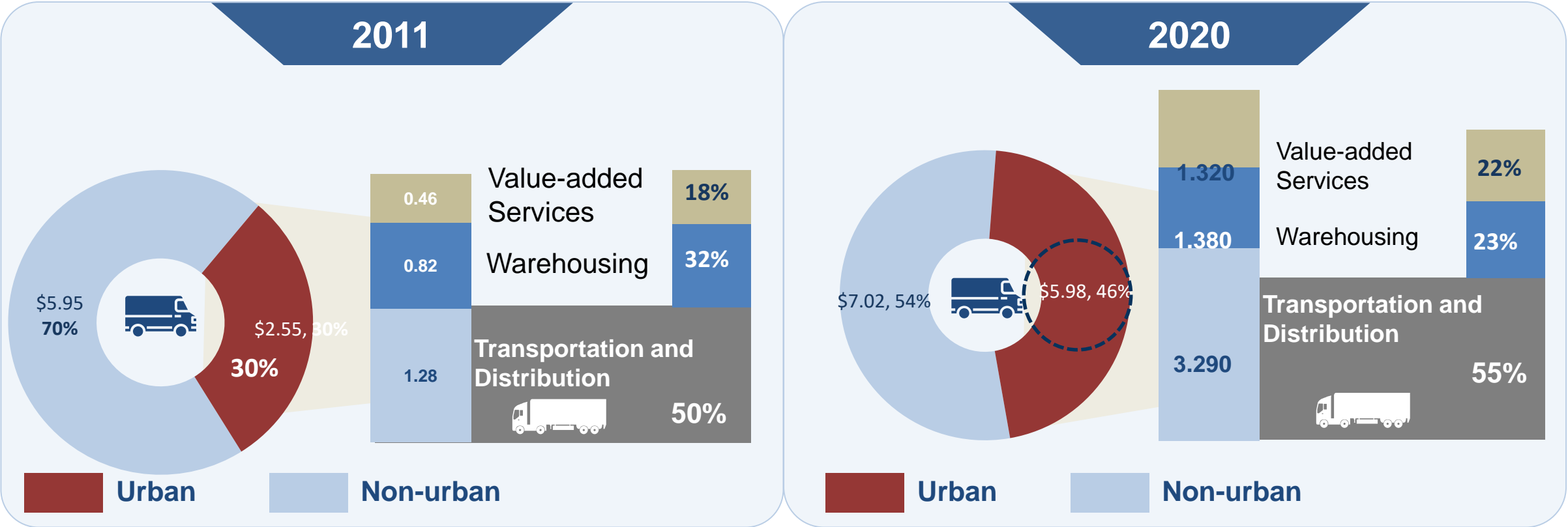


Smart and Sustainable Cities

Global Urban Logistics Spending

Urban logistics spending to reach \$5.98 trillion by 2020 (55% = transportation)

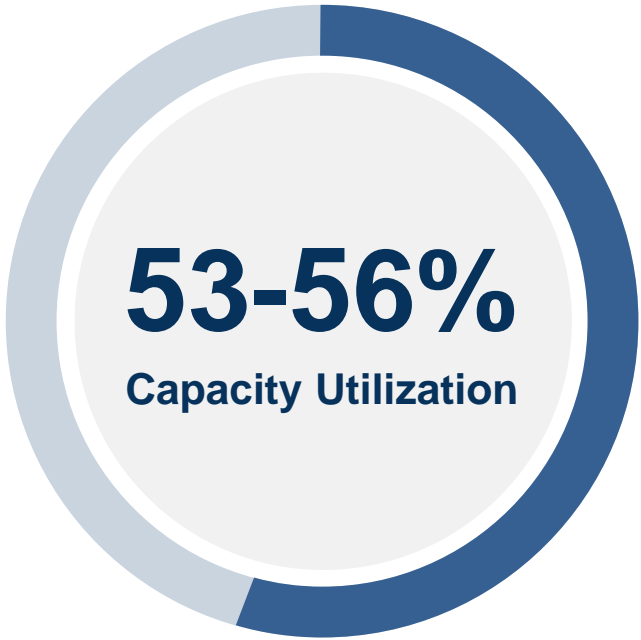
Urban Logistics Spending, By Segments, Global, 2011 and 2020



Note: Numbers provided here are in Trillions

Source: World Bank; IMF; BESTUFS; Frost & Sullivan

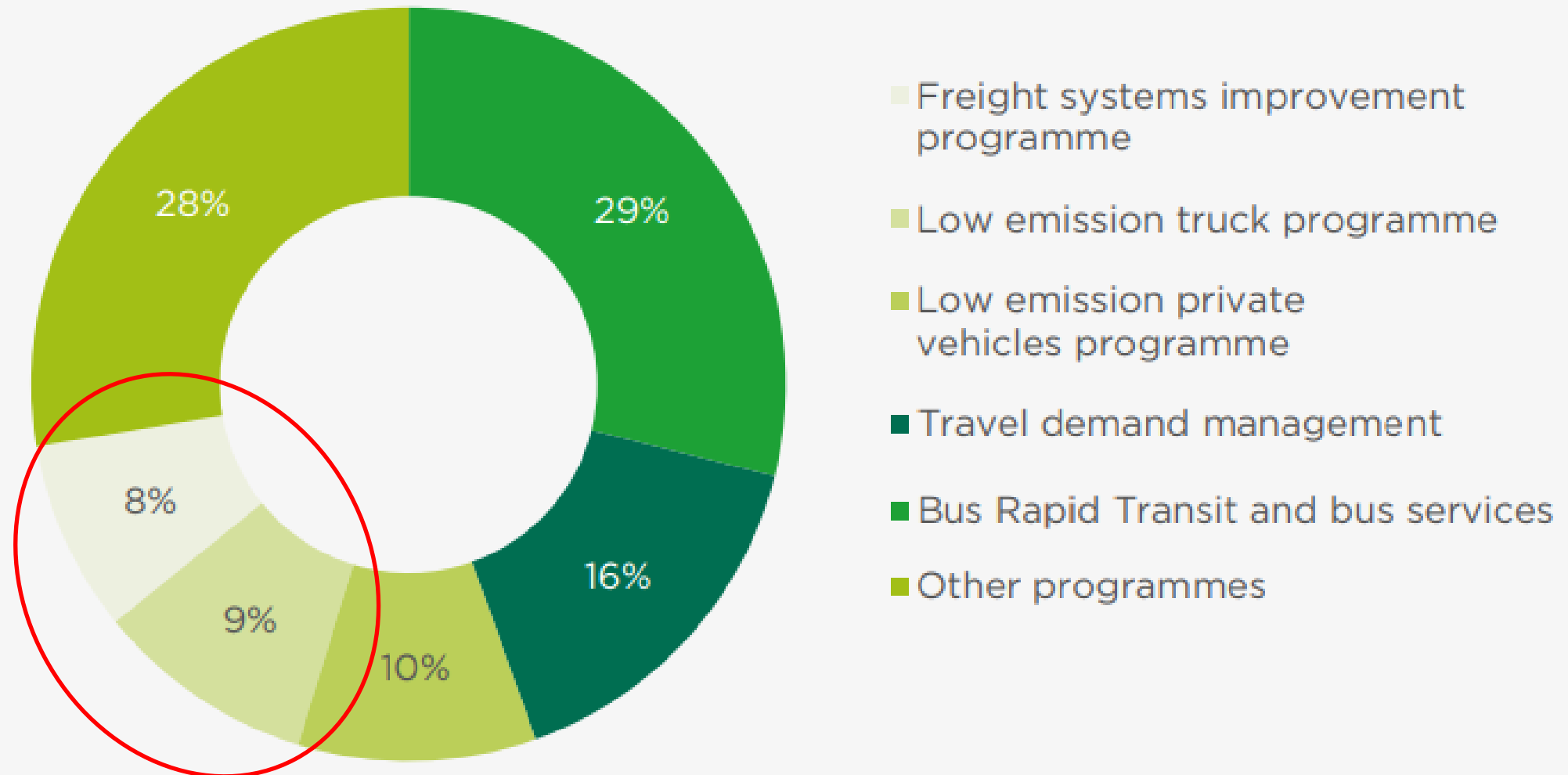
Road Freight Capacity Utilisation Inefficiencies



Source: Frost & Sullivan

Innovating to Zero: C40 Deadline 2020

Emissions savings against BAU from Transport Programmes



Connectivity and Convergence: Digital Transformation

01

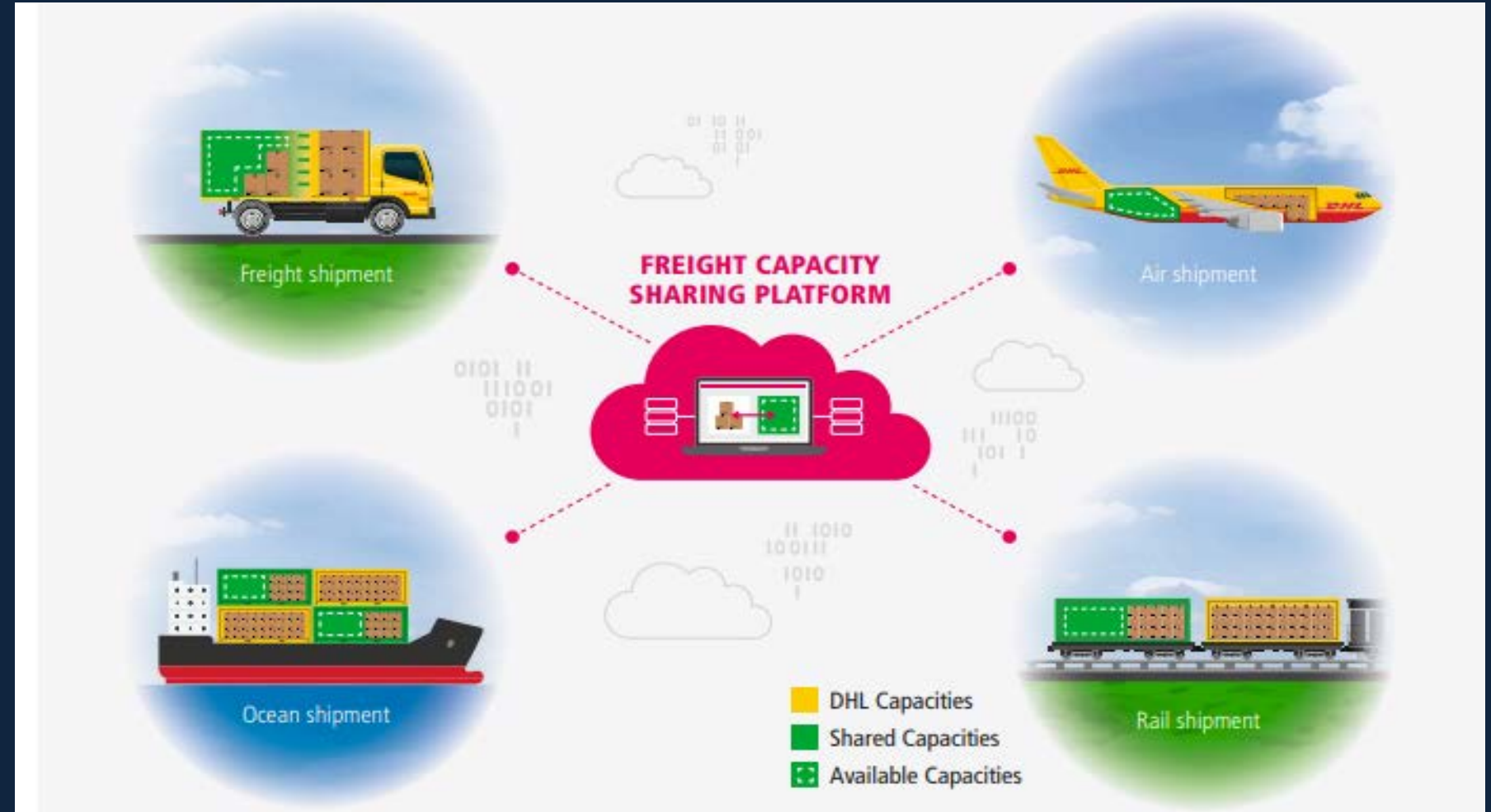
BIG DATA
ANALYTICS

02

INTERNET OF
THINGS

03

CLOUD
LOGISTICS



Intermodal, fully networked and sustainable supply chains



RIO – THE FUTURE IS BRIGHT. THE FUTURE IS DIGITAL.

When it comes to seizing digital opportunities, the logistics industry still has a long road ahead. There's a lot of cobbling together but little connectivity. And some vehemently guarded applications that only work with certain manufacturers. Now, things are about to change. With RIO. One platform for all applications. One platform on which everything works – in every vehicle – no matter the make. One platform on which you can compile a growing number of applications so they fulfill your needs. Applications that RIO developed and ones from high-caliber partners. So what can RIO do for you? It makes your company more modern, more profitable and more future-proof. Just a few of many reasons why you can look forward to RIO.

Cognitive Era: Autonomous World

01

ARTIFICIAL
INTELLIGENCE

02

ROBOTICS AND
AUTOMATION

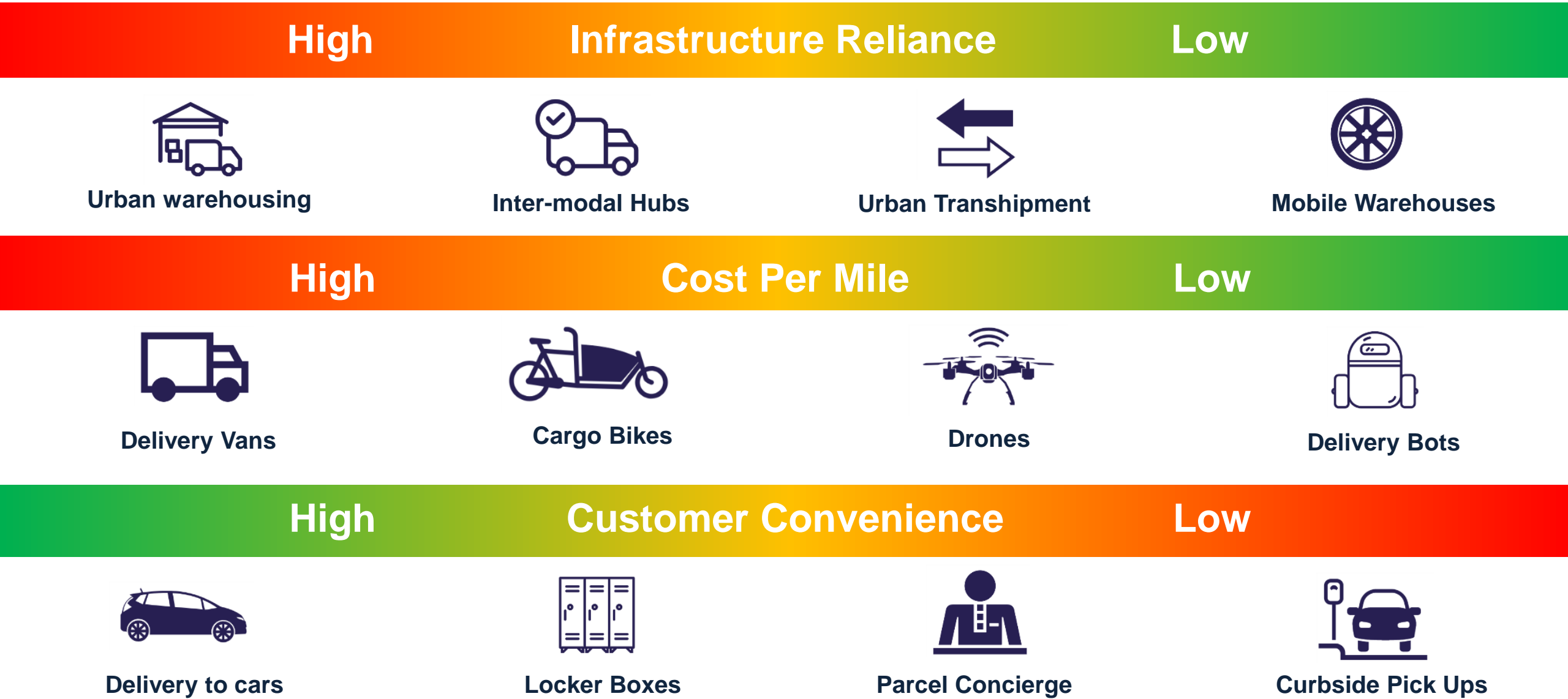
03

AUTONOMOUS
VEHICLES



New Last Mile Models: Taxonomy of Innovations

Spiraling last-mile costs resulting in new business models for last-mile deliveries



Future Logistics Innovation

Digital Freight Mobility Maturity 2025



Last mile delivery innovation will gravitate towards micro-distribution, smaller lighter vans



Global market* of EVs in trucking (incl. LCV+ MCV + HCV) will reach 2.5 Million units by **2025**



Digital freight brokering platforms reduce empty miles by **8-10%**



Control tower will orchestrate all siloed fleet innovations to one cohesive solution



Thank you



FREIGHT in the **CITY** **EXPO**

www.freightinthecity.com

Session 1

Emission Control



Bob Moran
Deputy Director, Head of Environment Strategy
Department for Transport



Department
for Transport

Clean Transport and the Road to Zero

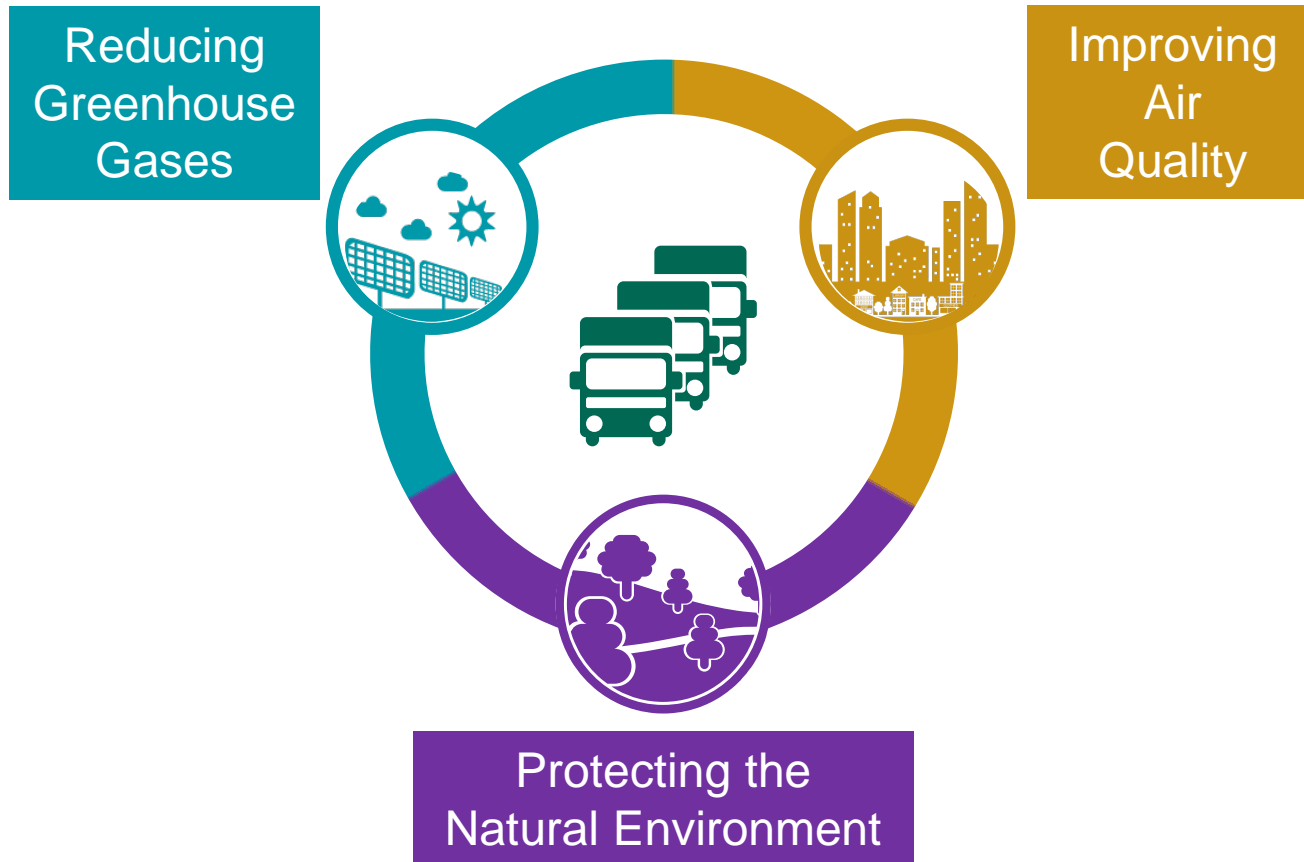
Dr Bob Moran

Deputy Director, Head of Environment Strategy

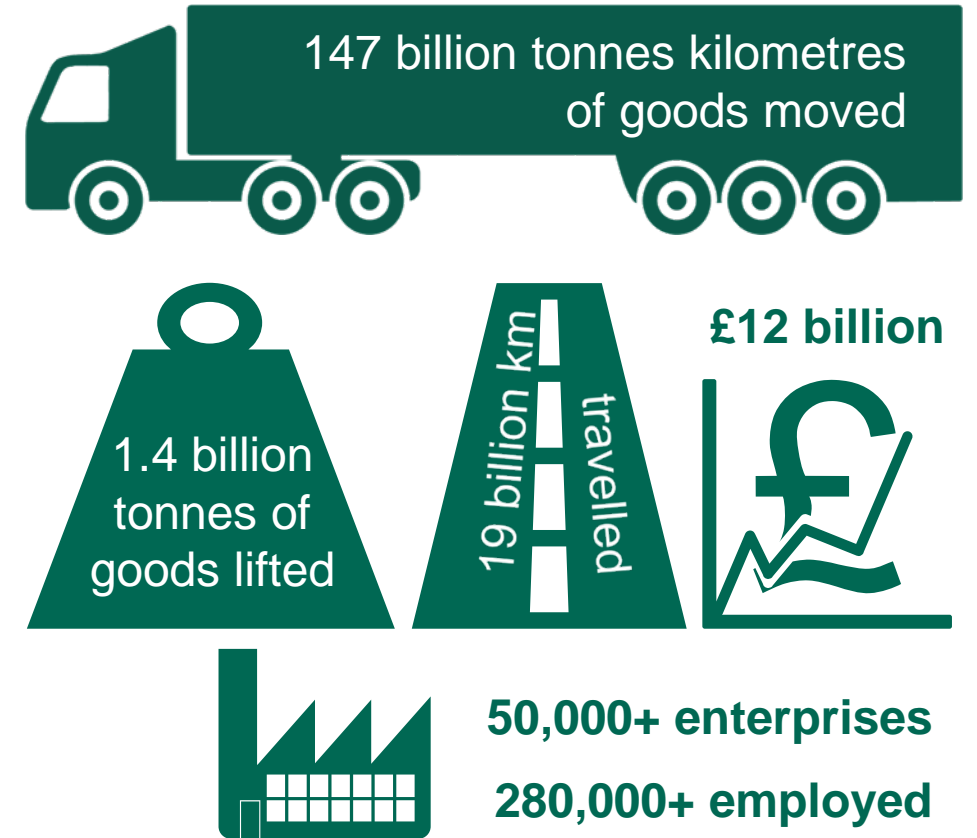




What's driving the Road to Zero?



Why is it so important?



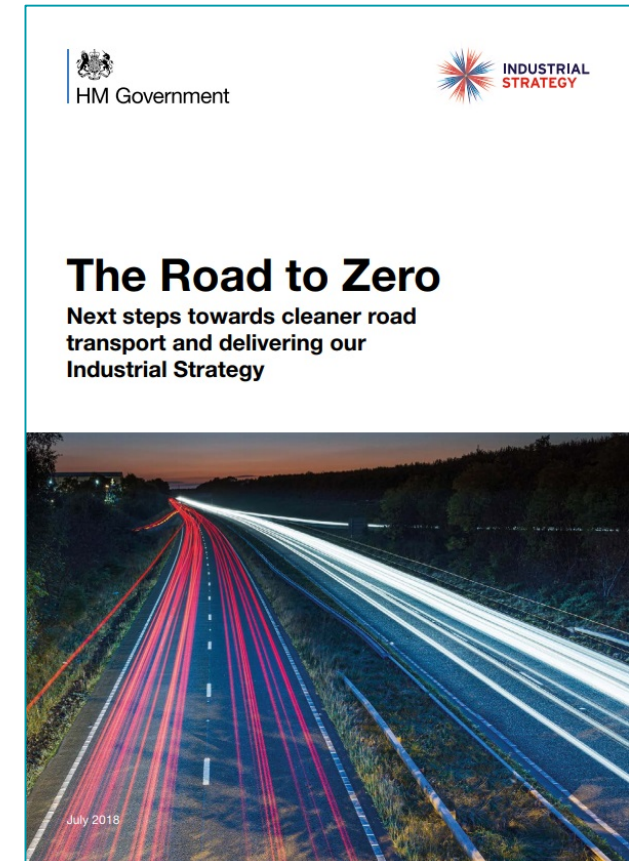


The Road to Zero ... it's not just for cars.

- ▶ Long-term ambition – to decarbonise road transport
- ▶ Sets a core 2040 mission – to put the UK at the forefront of the design and manufacture of zero emission vehicles

Sets out how we will:

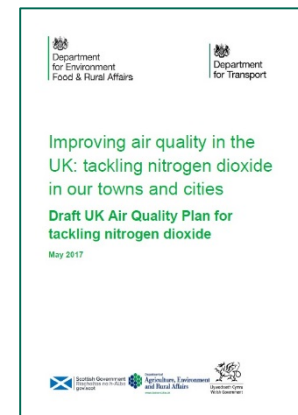
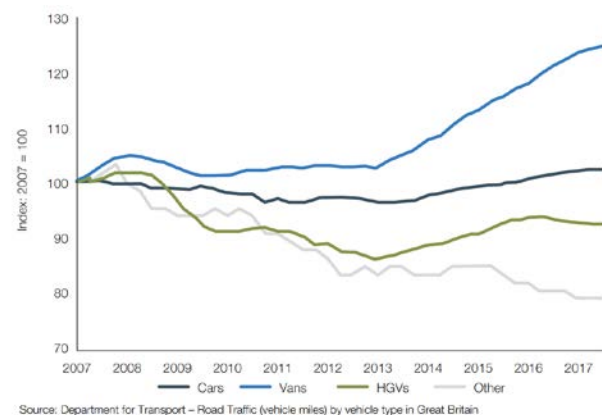
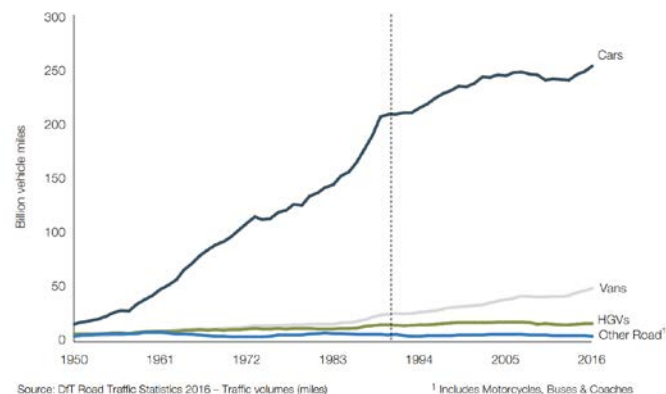
- ▶ Reducing emissions from the vehicles already on our roads
- ▶ Drive uptake of the cleanest new vehicles
- ▶ Host the best EV infrastructure network in the world
- ▶ Support local action





The Road to Zero ... it's not just for cars.

- ▶ 40% of new van sales to be ultra low emission by 2030 and ...
- ▶ end sale of petrol/diesel vans by 2040
- ▶ doubling use of biofuels by 2032
- ▶ extending clean vehicle retrofit accreditation scheme (CVRAS)
- ▶ continuing grants for vans/HGVs
- ▶ reforming van VED
- ▶ 15% reduction in HGV GHG emissions by 2025
- ▶ assess zero emission technology for HGVs on the UK road network
- ▶ ultra low emission truck standard





The Road to Zero is a rallying call ...

- ▶ to speed up efforts to clean up road transport
- ▶ to speed up efforts to decarbonise road transport
- ▶ to build on our early momentum, and
- ▶ to grasp a substantial share of £1trillion by 2030.
- ▶ to bust the myth that traffic has to be polluting
- ▶ to leave the environment in a better state than we inherited it, and
- ▶ to transform the world we all live in for the better.

@DrBobMoran /// Bob.Moran@dft.gov.uk





Natalie Chapman
Head of Urban Policy and South of England
Freight Transport Association



The challenge of localised emissions regulations

Natalie Chapman
Head of South of England & Urban
Policy

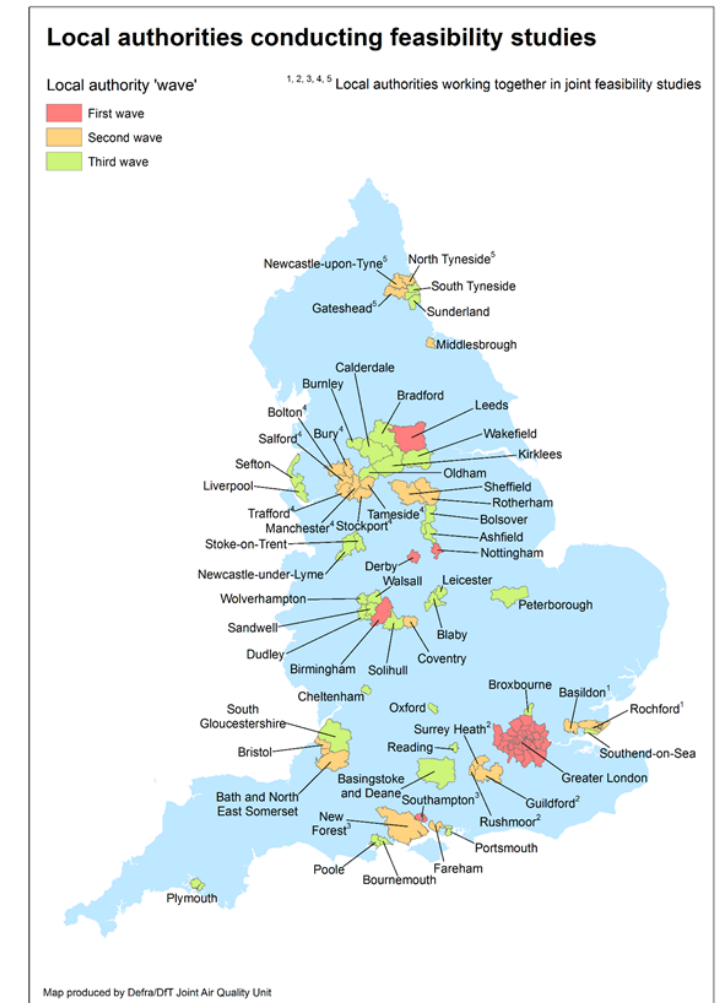
November 2018

FTA is one of Britain's largest trade associations

- over 17,000 members
- more than 200,000 HGVs
- third of the 4 million vans registered in the UK
- Members deliver over 90% of freight moved by rail
- Consign 70% of UK visible exports by sea
- Consign 70% of UK visible exports by air

Clean Air Zones

- A number of cities have been mandated to introduce Clean Air Zones (CAZs)
- Some will achieve air quality improvements by other means
- Many more to follow
- Some will achieve air quality reductions by other means
- Defra framework applies some commonalities, but detailed implementation is a local issue



FTA is calling for:

- Better traffic management
- Zones: as few and as small as can be
- Vans not to be included unless essential
- Temporary exemptions for local businesses
- Exempt journeys to key facilities i.e. testing centres
- More support for future alternative fuel options
- Single registration/charging portal

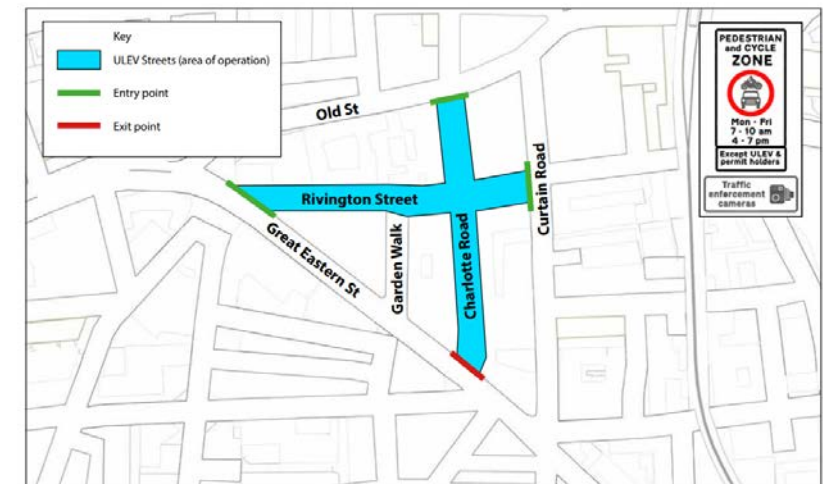
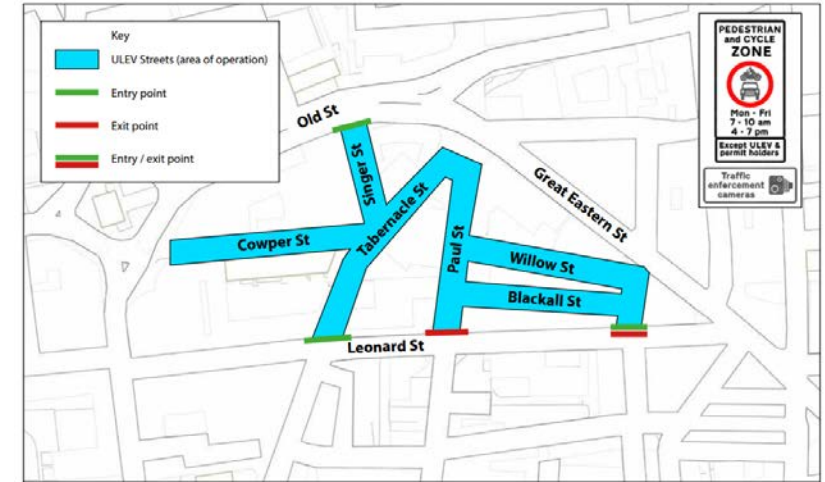
Zero/Ultra-Low Emission Vehicle streets

Hackney City Fringe Low Emission Neighbourhood

- 8 ULEV streets
- Mon-Fri, 07.00 -10.00 and 16.00 – 19.00
- Only vehicles that emit less than 75g/km CO₂ are permitted

But

- Effectively a ban on vans which are not EVs
- a total ban on HGVs
- Only a three-week lead time
- Poor engagement with the wider business community
- Concerns about a 'patchwork' of schemes



Vans

Electric is the future. However EVs aren't without their challenges:

- Range
- Capacity
- Longevity
- Resale Value
- Charging infrastructure

HGVs

Retrofit?

Need a definition of an Ultra-Low Emission Truck (ULET)



Euro VI Fleet



Need to look beyond alternatively fuelled vehicles



No magic bullet that fits all

What industry needs



Details



Time



To be part of the solution

Agenda

- Transport Manager Calendar
- A view from the Traffic Commissioner
- Question Time with the DVSA
- Tyre Safety and the Environment
- Earned Recognition - the operator's experience
- Clean Air Zones - are you ready?
- Lowering Your Emissions
- Managing Risk - The Role of Technology
- Be Brexit ready
- Smart Tachographs - changes on the way
- www.fta.co.uk/tm2018



Remaining dates

- 07/11/2018: Grand Hotel
Gosforth Park Newcastle, High
Gosforth Park, Newcastle, NE3
5HN
- 21/11/2018: The Oval, London
- 28/11/2018: Edgbaston Cricket
Ground , Birmingham



The challenge of localised emissions regulations

Natalie Chapman
Head of South of England & Urban
Policy

November 2018



Andy Eastlake Managing Director Low Carbon Vehicle Partnership

The reality of Retrofits

- FiTC 2018 Emission Control
- London 6 Nov 2018

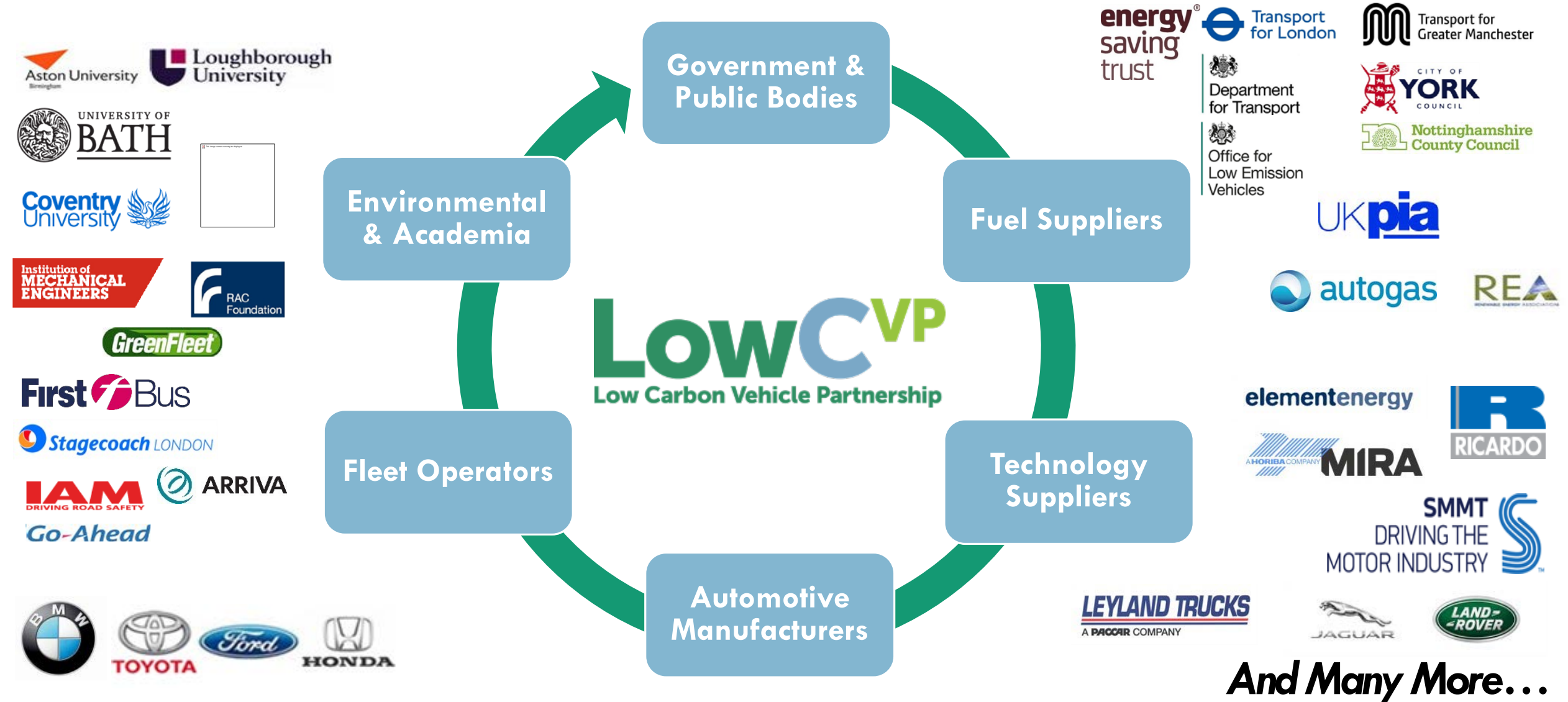


LowC^{VP}
Low Carbon Vehicle Partnership
Connect | Collaborate | Influence



Andy Eastlake
Managing Director

LowCVP: A unique public-private membership organisation, building evidence and creating robust policies and innovation in the UK



And Many More...

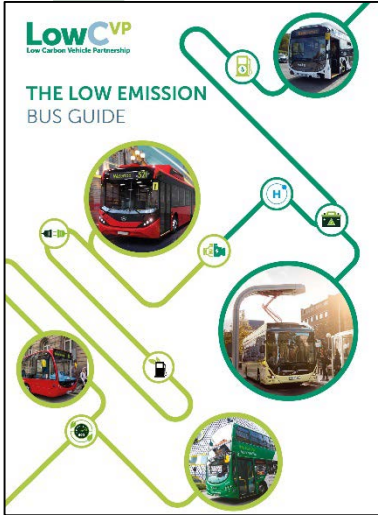
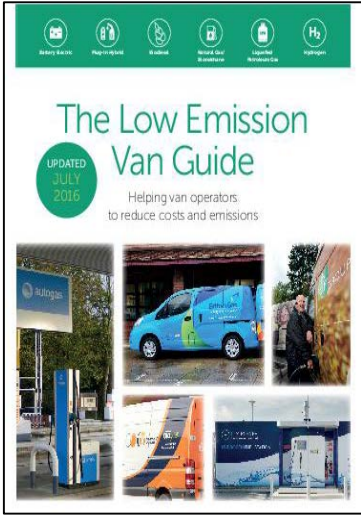
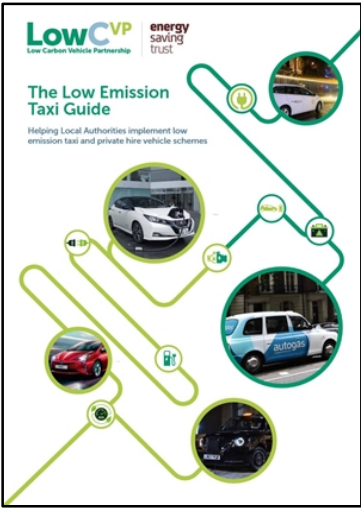
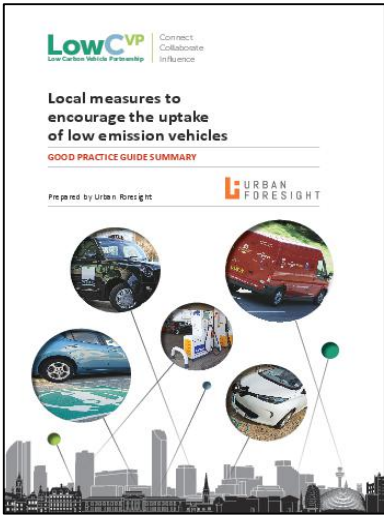
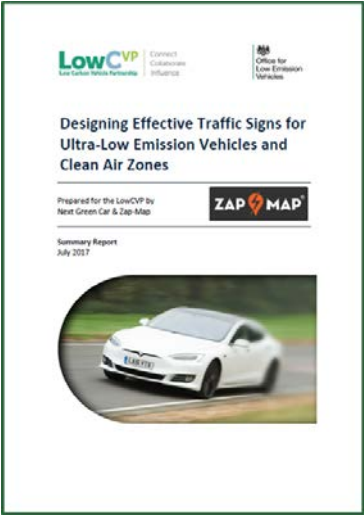
Working together – to build evidence, creating robust policies and innovation and change the market

Creating communities with shared goals

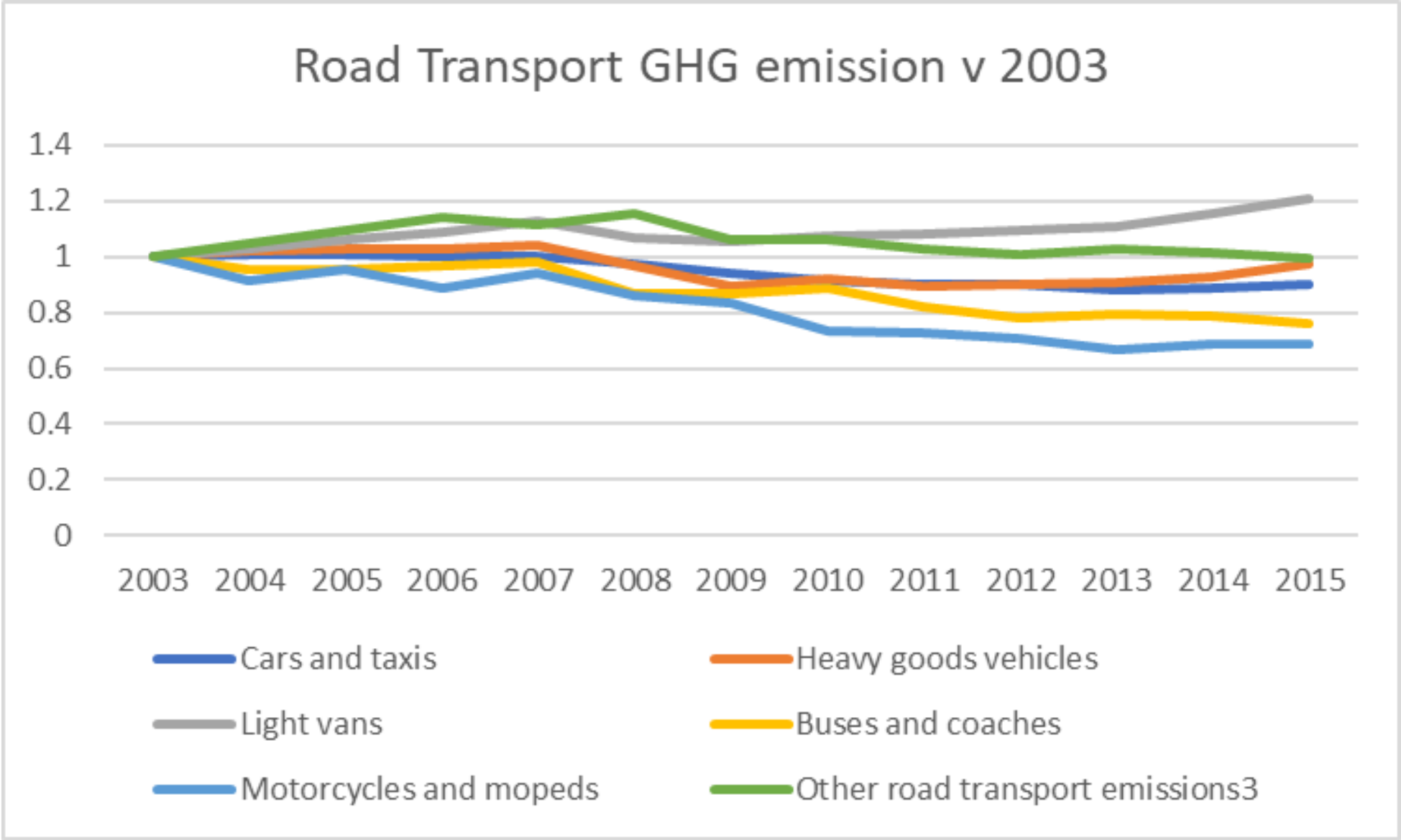
Understanding and evidence based research

Influencing policy and information

Accelerating the market

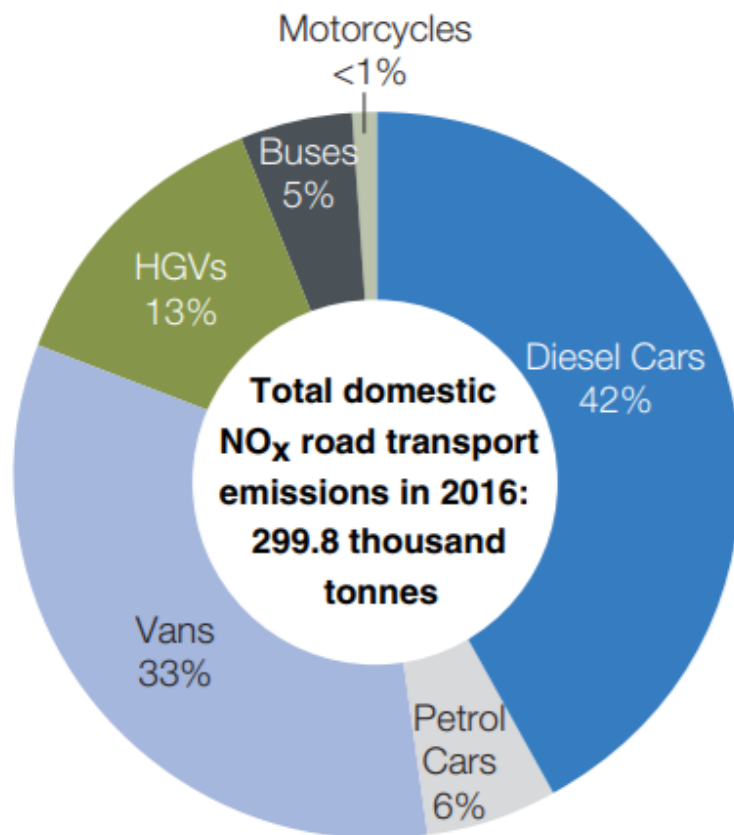


Freight operations increasing GHG impact (DfT Env0201)

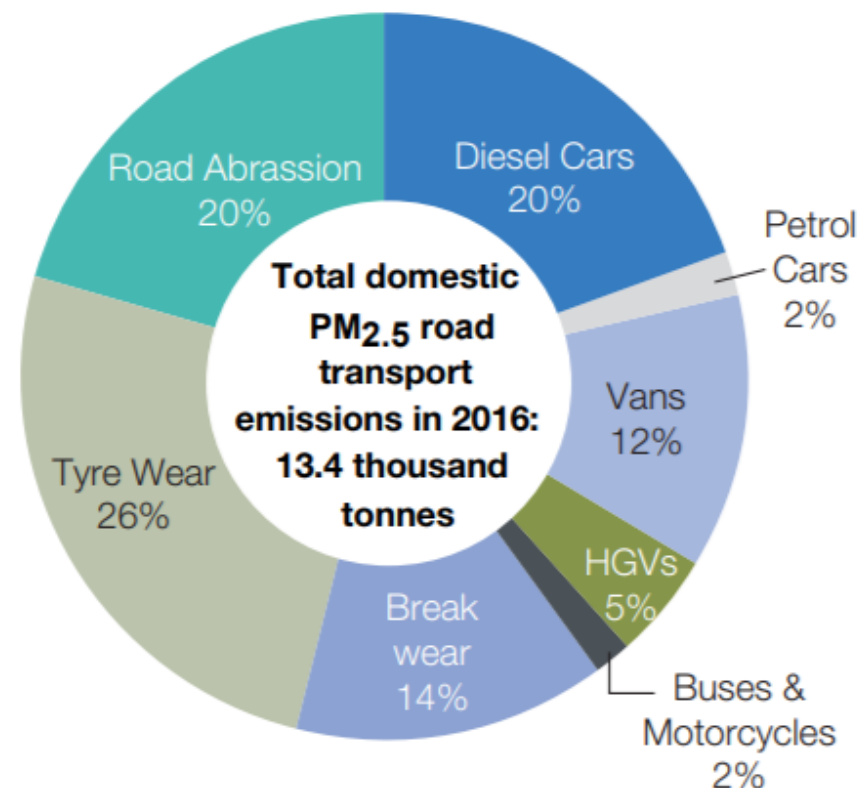


It's not just GHG we must reduce

Figure 1.2: UK road transport NO_x emissions are primarily from diesel cars and vans; most road transport PM_{2.5} emissions are not from the tailpipe ⁵⁴



Source: National Atmospheric Emissions Inventory

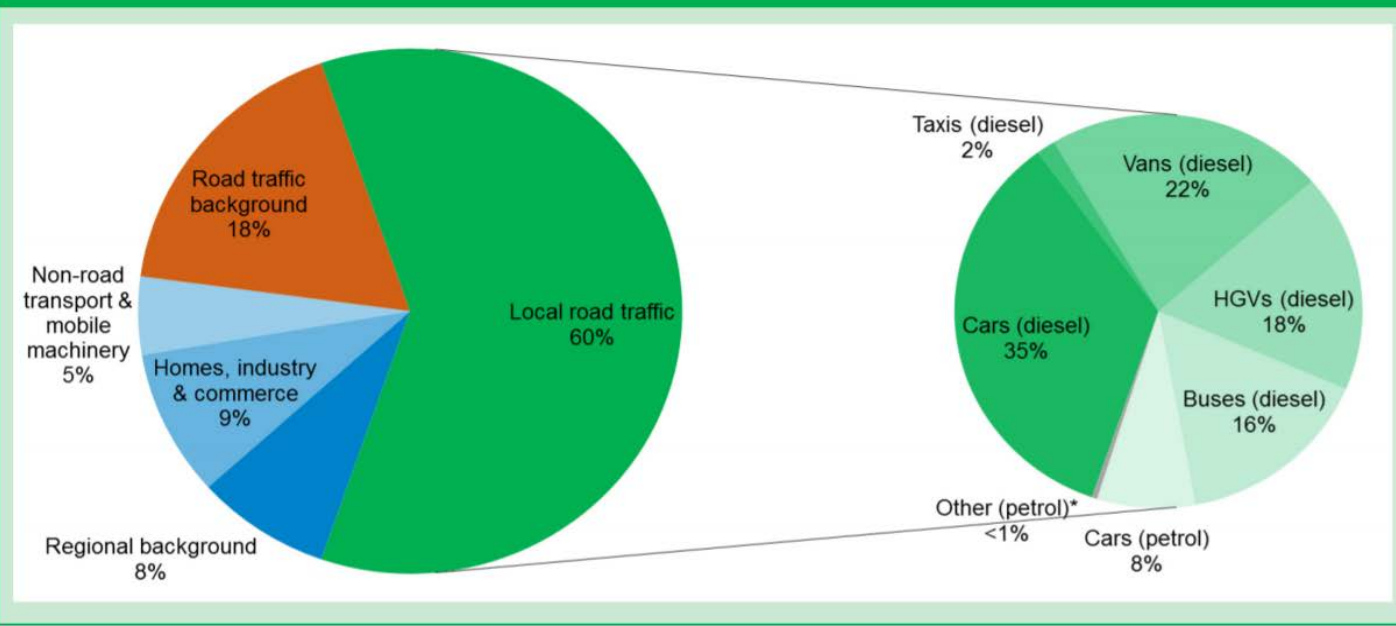


Source The Road to Zero

Clean Air/Low Emission Zones

- CAZ/LEZs “It is evident that only CAZs are expected to deliver a concentration reduction of sufficient size to achieve the compliance of zones in the shortest time possible.”
- “Road vehicles contribute about 80 per cent of NO_x pollution at the roadside. **Growth in the number of diesel cars and vans**, coupled with the failure of vehicle manufacturers to ensure that they replicated laboratory test based emissions performance (Euro standards) in real world driving conditions, **has exacerbated this problem because of the NO_x they emit**”

Figure 1.2: UK national average NO_x roadside concentration apportioned by source of NO_x emissions, 2015



Clean Air Zone Framework

Principles for setting up Clean Air Zones in England

May 2017

UK plan for tackling roadside nitrogen dioxide concentrations

Detailed plan

July 2017

Zone Categories and vehicles affected



BUS

BUS

BUS

BUS

COACH

COACH

COACH

COACH

TAXI & Private Hire

TAXI & Private Hire

TAXI & Private Hire

TAXI & Private Hire

TRUCKS (HGV)

TRUCKS (HGV)

TRUCKS (HGV)

VANS (LGV)

VANS (LGV)

CARS

A range of options to comply

- Avoid the zone
- Accept & pay the charge
- Re-arrange fleet
- Buy “new” compliant vehicles
- Retrofit

• Or ignore and just pay the penalty - £1000/day

Only new vehicles and Retrofit actually reduce overall NOx emissions (rather than move it)

Retrofits - Evaluating options

Clean Vehicle Technology Fund and Clean Bus Technology Fund Programmes

Evaluation Report

Prepared for the DEFRA/DfT Joint Air Quality Unit

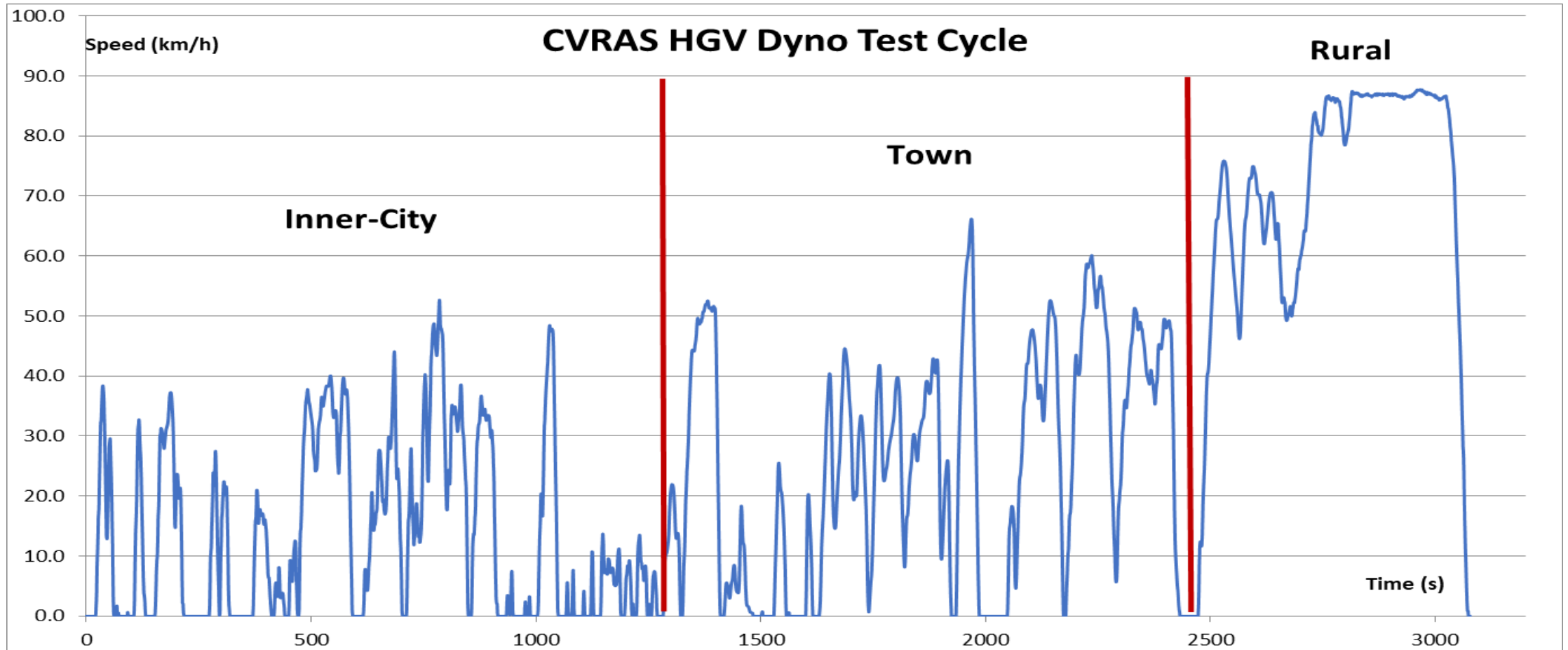
Report
August 2017



- Range of options available for different vehicles and different “depths of pockets”

	Retrofit Technology	Vehicle Types	No. of vehicles funded	Euro Standard	Covered in evaluation study
Exhaust After Treatment	Selective Catalytic Reduction	Bus, coach, fire engine, mini-bus, car	1,594	Pre Euro, Euro II - V Euro 4/5	Yes
	Thermal Management Technology	Bus	83	Euro VI	Yes
Fuel Saving	Flywheel hybrid	Bus	104	Euro III/V	Yes
	Mild Hybrid	Bus	40	Euro III-V	Yes
	Hybrid Assist	Van	18	Euro 4	Yes
	Battery powered ancillaries	Ambulance	109	Euro III	No
	Battery Electric	Bus	7	Euro II	Yes
Engine Conversion	Range extender battery electric using compressed biomethane gas	Bus	1	Euro III	No
	Spark ignition engine powered by CBG	Bus	16	Euro III	No
	Duel Fuel Compressed Natural Gas	Black Taxi	113	Euro 2,3,4	Yes
	Spark Ignition Engine powered by LPG	Black Taxi	65	Euro 1,2,3	No

Representative tests and real world confidence



Consistent national framework

Clean air zone
2 miles ahead



Charges apply
Pay online

Clean air zone
2 miles ahead



Mon - Fri
7 am - 6.30 pm

Charges apply
Pay online

KC Korfield Council

Clean air



ZONE

Charges apply
Pay online

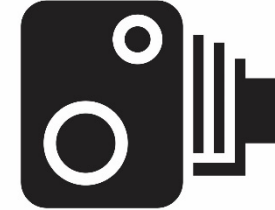
KC Korfield Council

Clean air



ZONE

Mon - Fri
7 am - 6.30 pm
Charges apply
Pay online



**Zone
ENDS**

Charges apply
Pay online

Zone proposals (many more under consideration)



Glasgow 2019



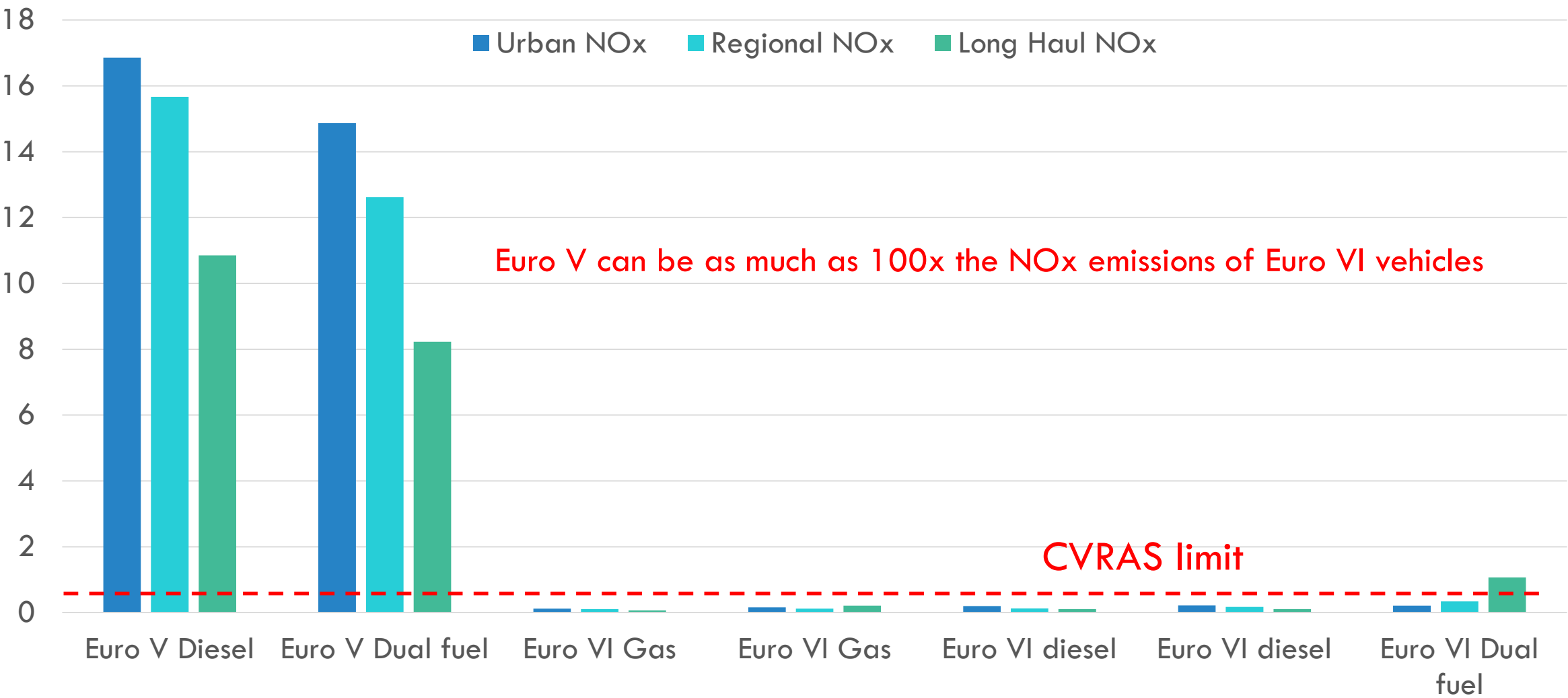
Leeds Jan '20
Aberdeen 2020?
Southampton 2019



Central London Apr'19
Birmingham 2020?
Bath 2020?
Dundee
Edinburgh

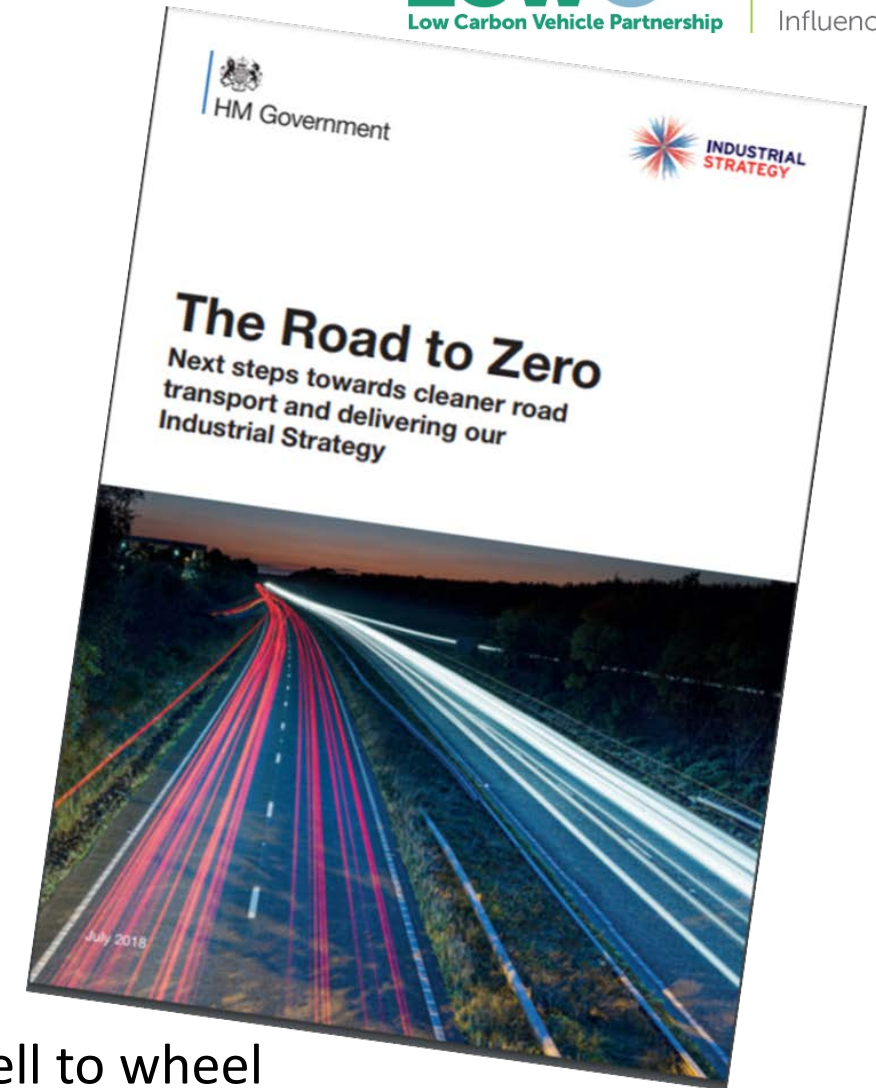
Can't we just use Euro V?

2016 testing - HGV NOx g/km



6 key strategic areas identified

1. Reduce Emissions from vehicles currently on the Road
 2. Drive uptake of cleanest new vehicles
 3. Reduce emissions from HGVs and road freight
 4. Put UK at forefront of design and manufacture of ZEVs
 5. Support development of EV infrastructure
 6. Support local action
- Overarching points
 1. Technology neutral
 2. Zero emissions refers to tailpipe, GHG emissions refer to well to wheel

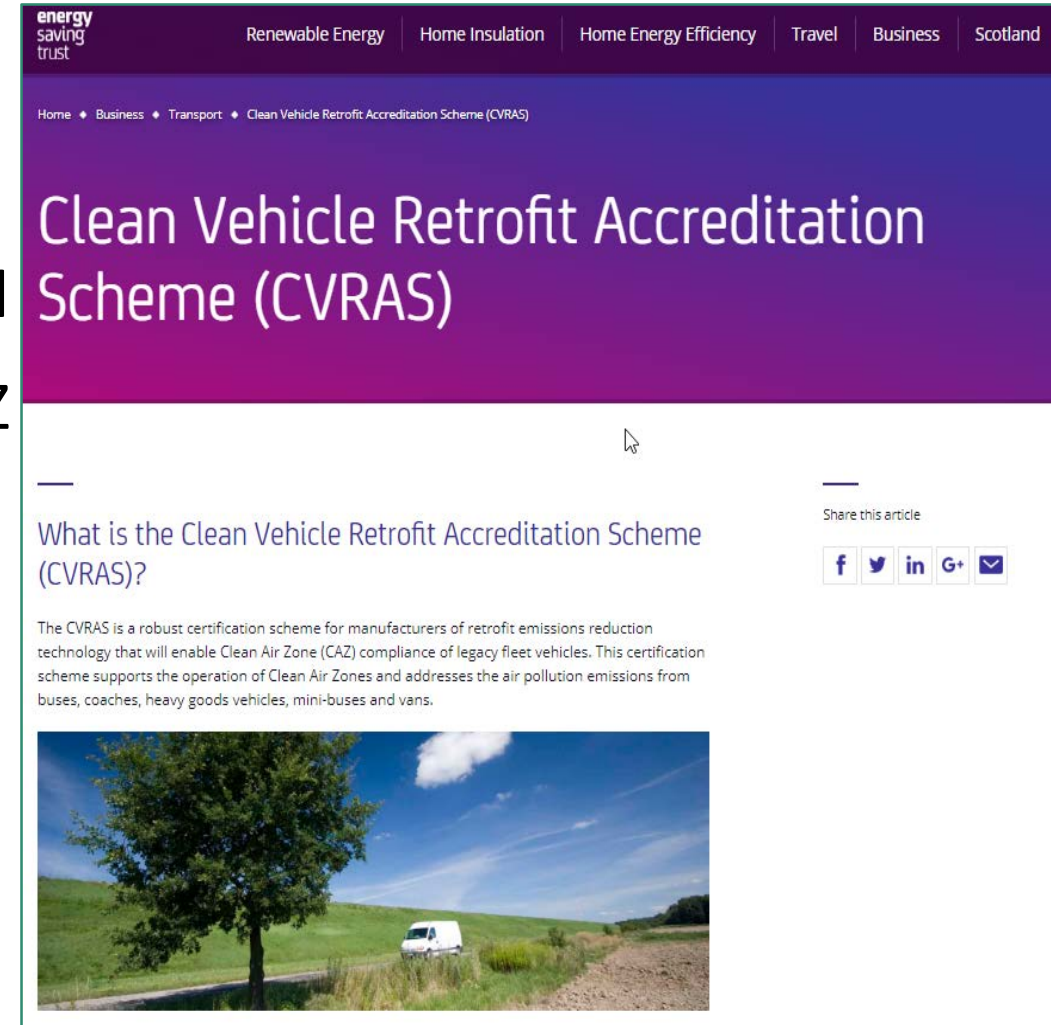


Reducing emissions of current fleet

- Increase **Supply** and **Sustainability** of low carbon fuels in UK, doubling current use
 - LowCVP work to develop market for high blend bio/renewable fuels
 - LowCVP work on renewable fuel sustainability criteria
- Emissions enforcement on road
- Extending the **Clean Vehicle Retrofit Accreditation Scheme** beyond buses – Coach, HGV, Vans and cabs (**LowCVP** & EST)
 - Test processes and limits developed for HGV, Van, Taxi/cab.
 - Test process for refuse vehicles established, limits under discussion. Systems approved
 - Clean Air Zones (ULEZ, LEZ) all accept CVRAS
 - Funding for testing approved and open for bids
 - Funding to LA's to support local action and retrofits
- Accelerate adoption of fuel efficient motoring across all sectors

Use accredited retrofit!!!

- The “promise” of incentives and enforcement has brought out all the shysters and ‘snake oil’ salesmen
- Many adverts are claiming Fuel and NOx savings. Or even claiming to be able to get CVRAS approval
- Only the accredited systems will be CAZ/LEZ/ULEZ compliant and enable you to operate in every zone without paying a charge or receiving penalty.
- Don’t believe everything you read!
- Report misleading adverts to LowCVP/EST



No HGV's ? – Truck Retrofitting since 1999

Developing a market for low carbon commercial vehicles and technology

A review of Low Carbon HGV programme

FTA Logistics Carbon Reduction Conference
17th June 2010

Jonathan Murray, Deputy Director
Low Carbon Vehicle Partnership

LowC^{VP}
Low Carbon Vehicle Partnership

© LowC^{VP} 2010

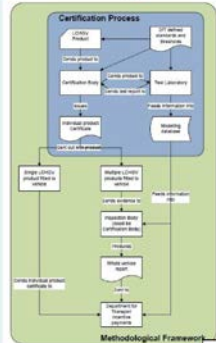
Accreditation of low carbon technologies and HGVs

□ Certification Process

- Designed to be cost effective by combining physical tests and computer modelling
- Requires a range of appropriate robust tests
- Computer model needs to reflect vehicle spec and driver cycle

□ Methodological framework

- Allows for single or multiple technologies to be fitted to vehicle
- Modelling history allows process to become self validating



LowC^{VP}
Low Carbon Vehicle Partnership

Programme of testing various technologies using different tests to determine sensitivity



Track testing comprised a number of elements

- High speed circuit
- Hill circuit
- City circuit
- 1 mile straight for coast down
- Requires use of benchmark vehicle

Chassis dynamometer

- Variable temperature emission chamber
- Can be tailored to duty cycle within reason



MILLERBROOK

Veolia to trial electric bin lorries powered by energy-from-waste

5 September 2018, source [edie newsroom](#)

Waste management firm Veolia's vehicle fleet is set to include two fully-electric bin lorries, which will be charged with power derived from waste collected by the company.



Green power for charging the lorries will come from the Energy Recovery Facility (ERF) in Sheffield

The project will see two of Veolia's end-of-life refuse collection vehicles (RCVs) retrofitted with batteries and electric motors, converting them from diesel to electric power.

RETROFIT SOLUTION TO CUT NITROGEN OXIDE
EMISSIONS FROM WASTE TRUCKS BY 99%

24.10.2018 10:02

Veolia Teams up With Exhaust Specialist to Cut NOx Emissions from Westminster RCVs

Veolia is to introduce emissions reduction technology developed in the UK to its refuse collection vehicles Westminster, in the bid to reduce harmful emissions and nitrogen oxide by 99%.

By [BEN MESSENGER](#)

[f](#) [t](#) [G+](#) [x](#) [in](#) [rcv](#) [veolia](#) [Garbage Truck](#) [london](#) [emissions](#)



Image © Veolia

£220m Clean Air Fund

15. Potential air quality measures such as charging zones or access restrictions could also impact the freight and heavy duty sector. Potential measures to support freight operators to **upgrade their vehicle** or change their current patterns could include: freight consolidation centres; improving freight deliveries e.g. by changing mode, time of delivery or route; **investing in alternative fuel refuelling**; or HGV retrofit.

16. Van drivers, which includes sole traders and small businesses, could be impacted by local air quality measures in particular as the cost of upgrading to a compliant vehicle can be prohibitively expensive and options are restricted.

17. Potential measures could include: **support for conversion to LPG**, **support for upgrade to electric vehicles**; or local upgrade schemes.

Additional measures to support individuals and businesses affected by local NO₂ plans

Summary of responses to the consultation

March 2018

Clean Air Fund

Published as part of the government response to the consultation on additional measures to support individuals and businesses affected by local nitrogen dioxide plans

March 2018

Conclusion – the role of Retrofit

- Emission zones are coming! – Clean Air - Low – Ultra Low – and ultimately Zero
- The hierarchy is clean and common (Bus, Taxi, Truck, Van, Car)
- Fleets are encouraged to purchase the cleanest vehicles they can when replacing
- The transition to Euro VI and Zero emissions will take time
- Targeted retrofitting is one of the most effective measures to improve Air Quality “in the shortest possible time” (other than banning vehicles entirely)
- The HGV market has been slow to embrace the opportunity.
 - Funding is available to LAs
 - Funding is available to test retrofit systems
 - Bus, Coach, RCV, Taxi Manufacturers and fleets are already working with retrofit suppliers
- LowCVP and its members are at the centre of the ‘pragmatic policy making’

If you can't beat them, Join them

- The LowCVP has developed and supported the CVRAS testing and limits and continues to provide technical guidance.
- Policy guidance using robust and independent evidence supported by industry members.



Interested in joining the Partnership?

Andy Eastlake C Eng FIMechE

Managing Director

Andy.Eastlake@LowCVP.org.uk / 020 7304 6851

Szilvia Libor

Membership Coordinator

Szilvia.Libor@LowCVP.org.uk / 020 7304 6880



Tim Campbell
Director
Vahana Automotive



IT'S A GLOBAL PROJECT

Understanding the implications

THE WORLD IS CHANGING
THE WORLD HAS ALREADY CHANGED!



GLOBALLY - THE LAST 10 YEARS



World Recession



An emissions
scandal



Awakening of two
major countries



World acting on
climate issues



WORLD RECESSION

THE MANUFACTURERS RE-INVENTING THEMSELVES

DAIMLER



TRATON



TOYOTA

ISUZU



THE MANUFACTURERS RE-INVENTING THEMSELVES

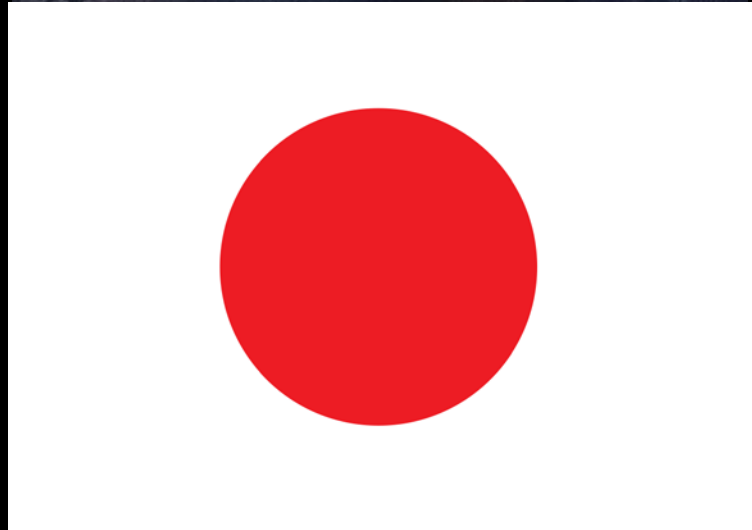


Search for a global van and truck or at least driveline

- E Canter



CASE IN POINT



US/EUROPE ULTIMATELY BECOMING ONE BASIC MARKET



First





TRUCKS

- DAIMLER OWNS FREIGHTLINER / WESTERN STAR / THOMAS BUS
- VOLVO OWNS MACK AND HAS ITS OWN BRAND
- VOLKSWAGEN CV THROUGH TRATON BOUGHT 17% OF NAVISTAR
- BASICALLY PACCAR IS THE ONLY TRUE AMERICAN VOLUME MANUFACTURER



An emissions scandal

BEFORE : World divided by sulphur content



BARRIER HAS BEEN EURO/EPA EMISSIONS



Electric vehicles don't have this problem



CHINESE
ALREADY
HERE

ELECTRIC FROM VANS TO HEAVY TRUCKS



W-15TM Electric Pickup Truck

5,000+ Pre-Orders from Fleet Customers



First in Class Commercial Electric Pickup Truck

✓ Exceptional Work Truck Performance

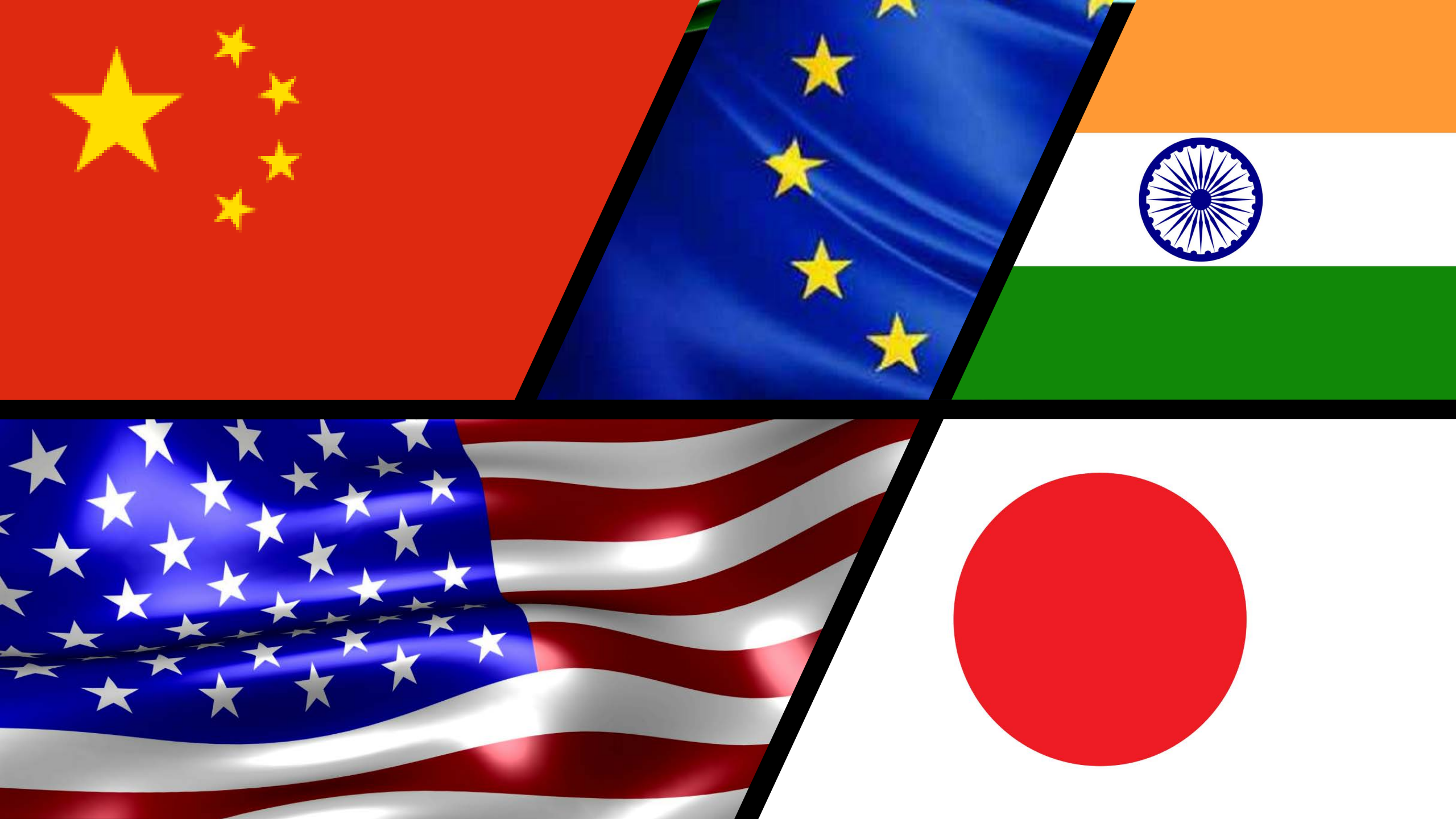
- Unlimited range with 80 miles all electric on a single charge
- 0-60 in 5 seconds
- 2,200 lbs payload, 4,000 lbs towing
- 7.2kW power export module

✓ Lower Total Cost-of-Ownership & Reduced Emissions Profile

- Estimated TCO of \$46k vs. \$80k (10 yr life)
- 75 MPGe
- 13T CO2 offset per year

✓ State of the Art Safety & Driver Experience

- ✓ Extra large front crumple zone
- ✓ Lane departure correction
- ✓ Rear crash avoidance





Awakening of two major countries



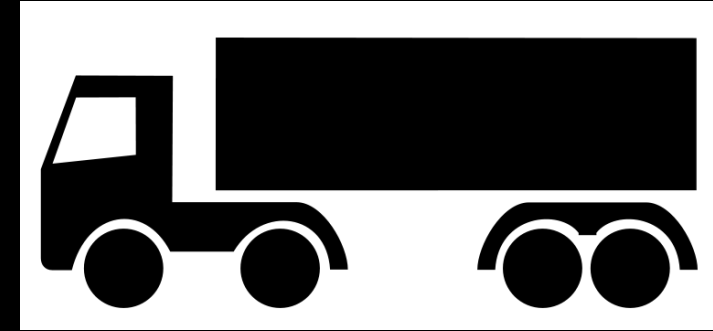
CHINESE MOTOR SHOW - BEIJING



THE FUELS ACROSS THE GLOBE



Electric
PHEV

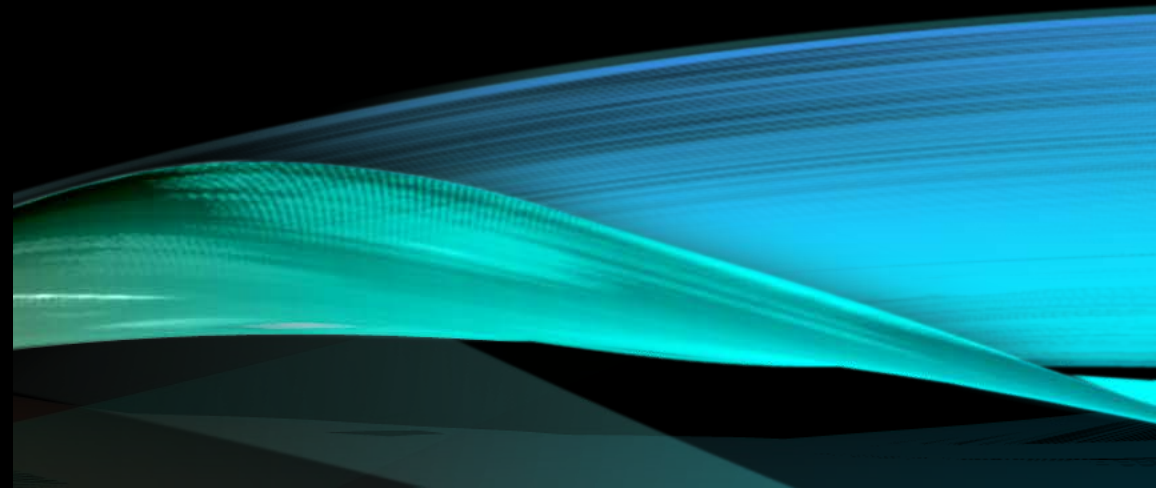


Electric
PHEV
LNG / CNG
Hydrogen

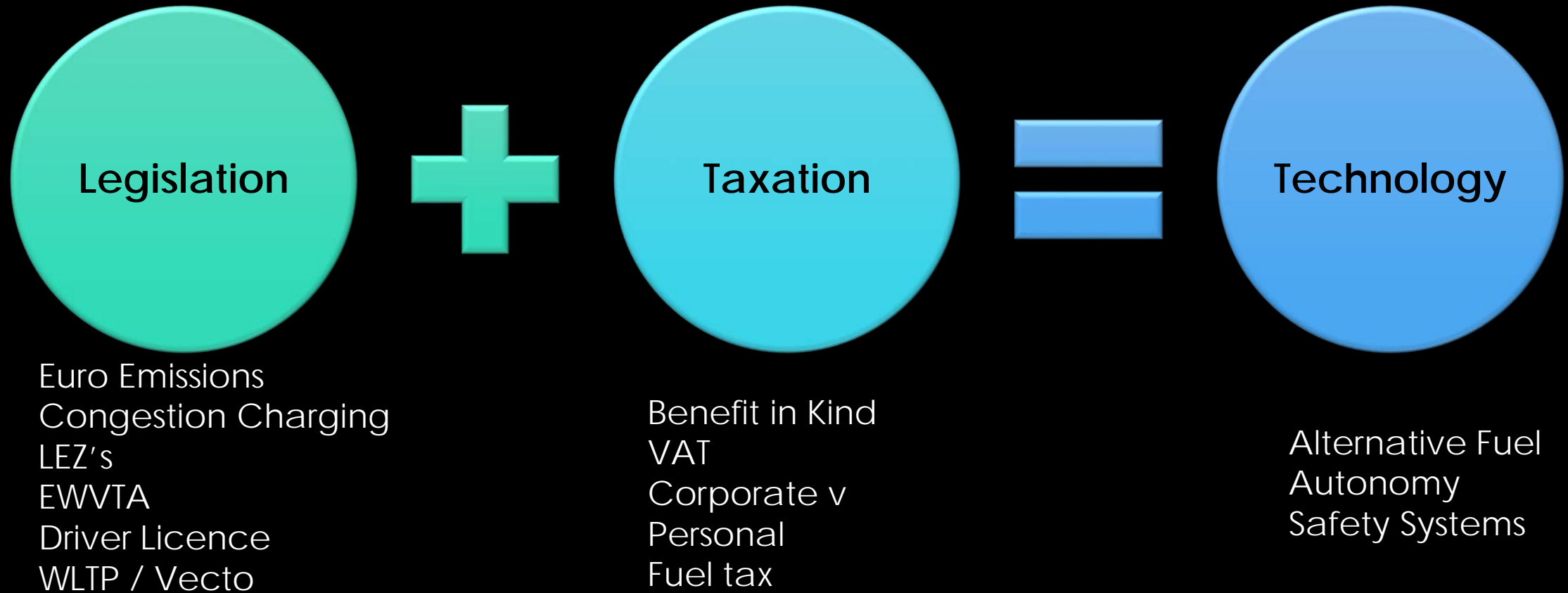
**CV Dynamics have changed –
Its not what size it is – but where does it go ??**



BACK TO THE
UK



LOCALLY - WHAT DRIVES CHANGE?



Economics

Driving Electric vans today

Not range anxiety but charger anxiety



Chargers not working/No R&M contracts/Restricted access/Leads too short !

Leasing residual values

SUMMARY

- Urban delivery vehicles looking very similar across the globe.
- Manufacturers will continue economies of scale
- Electric/PHEV for urban with CNG/LNG for regional & long distance
- So where you go is more important than what you are
- Government will NOT lose fossil fuel revenue stream so force the issue -then tax us to death !!!

