

# National Policy Outlook Autumn 2017

Thursday, 16<sup>th</sup> November

Low Emission Bus Workshop Nottingham, Nottingham Conference Centre

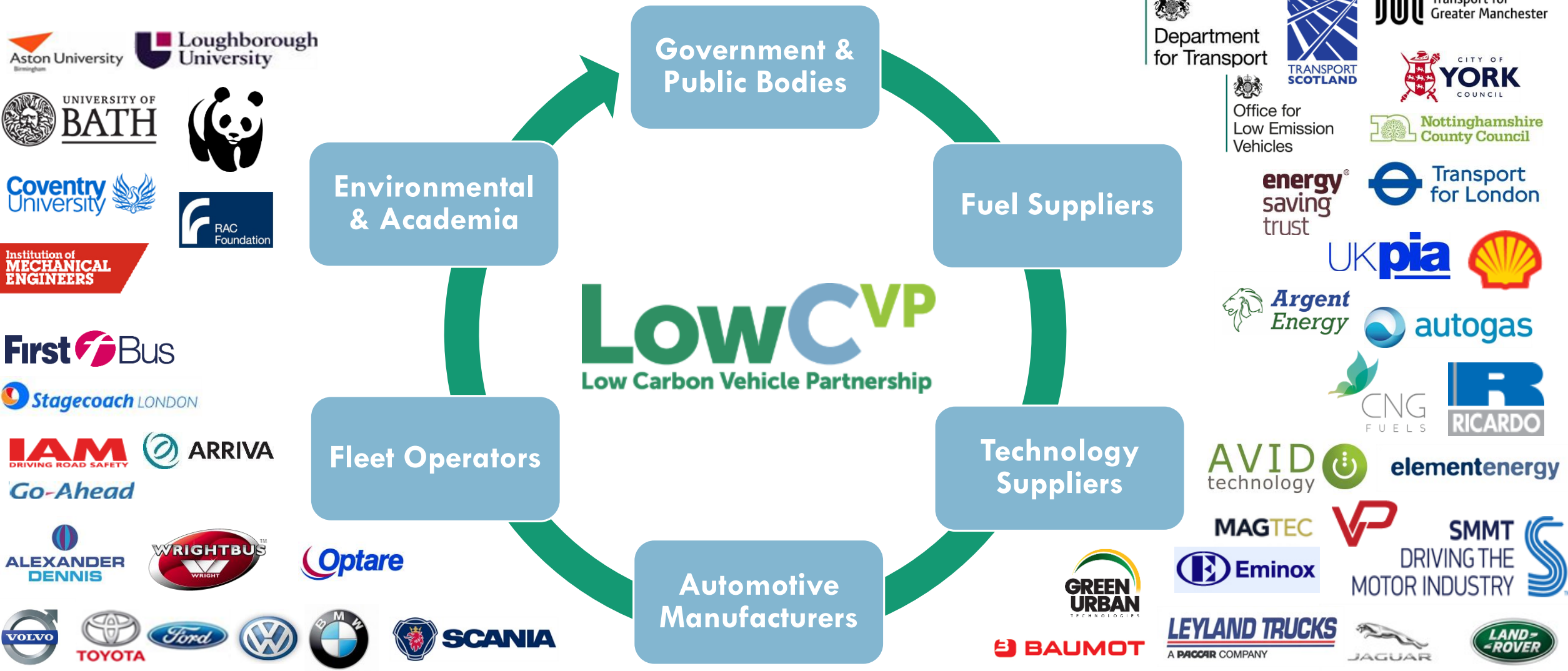


**LowCVP**  
Low Carbon Vehicle Partnership  
Connect | Collaborate | Influence

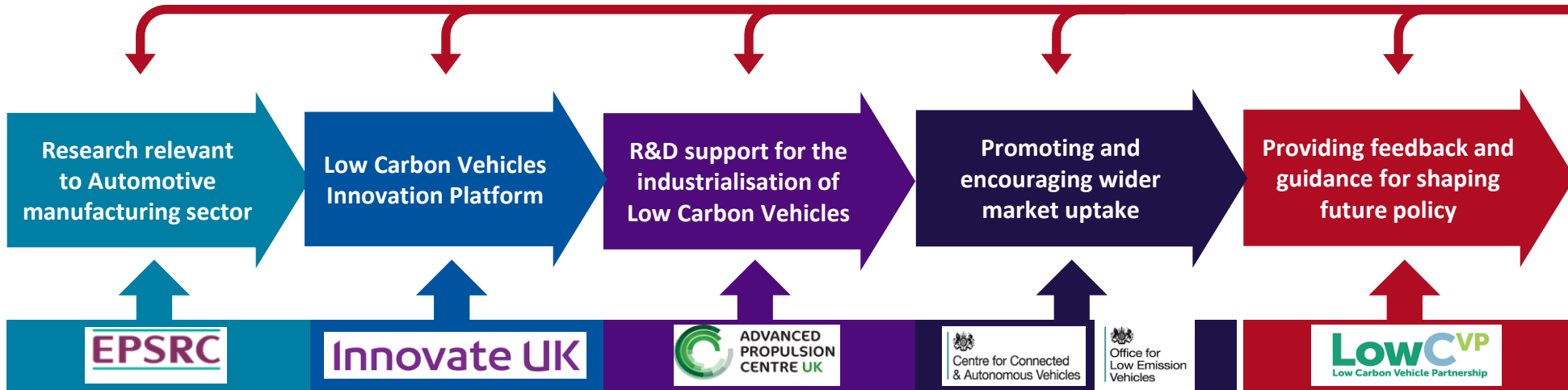


Daniel Hayes  
Project Manager

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



Providing a platform for strategy, growth and sustainability in the automotive sector and UK transport market



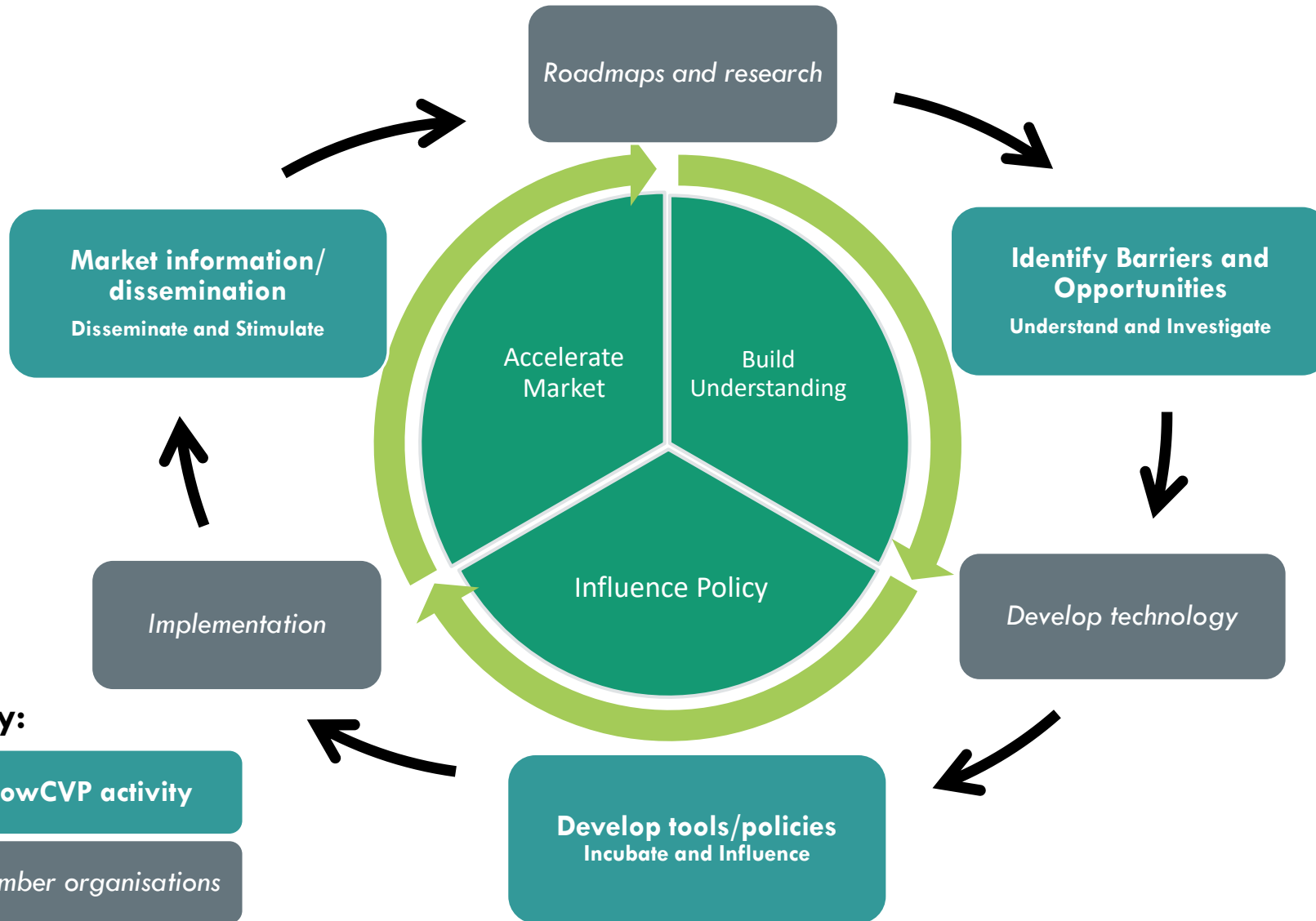
Early TRLs

Early/Mid TRLs

Mid/Late TRLs

Promoting British trade across the world facilitating inward investment and export.  
Championing Innovation, Low & Zero Carbon Vehicles across industry and Government and users

# LowCVP Activity & Influence Cycle - Robust Research, Policy and Information

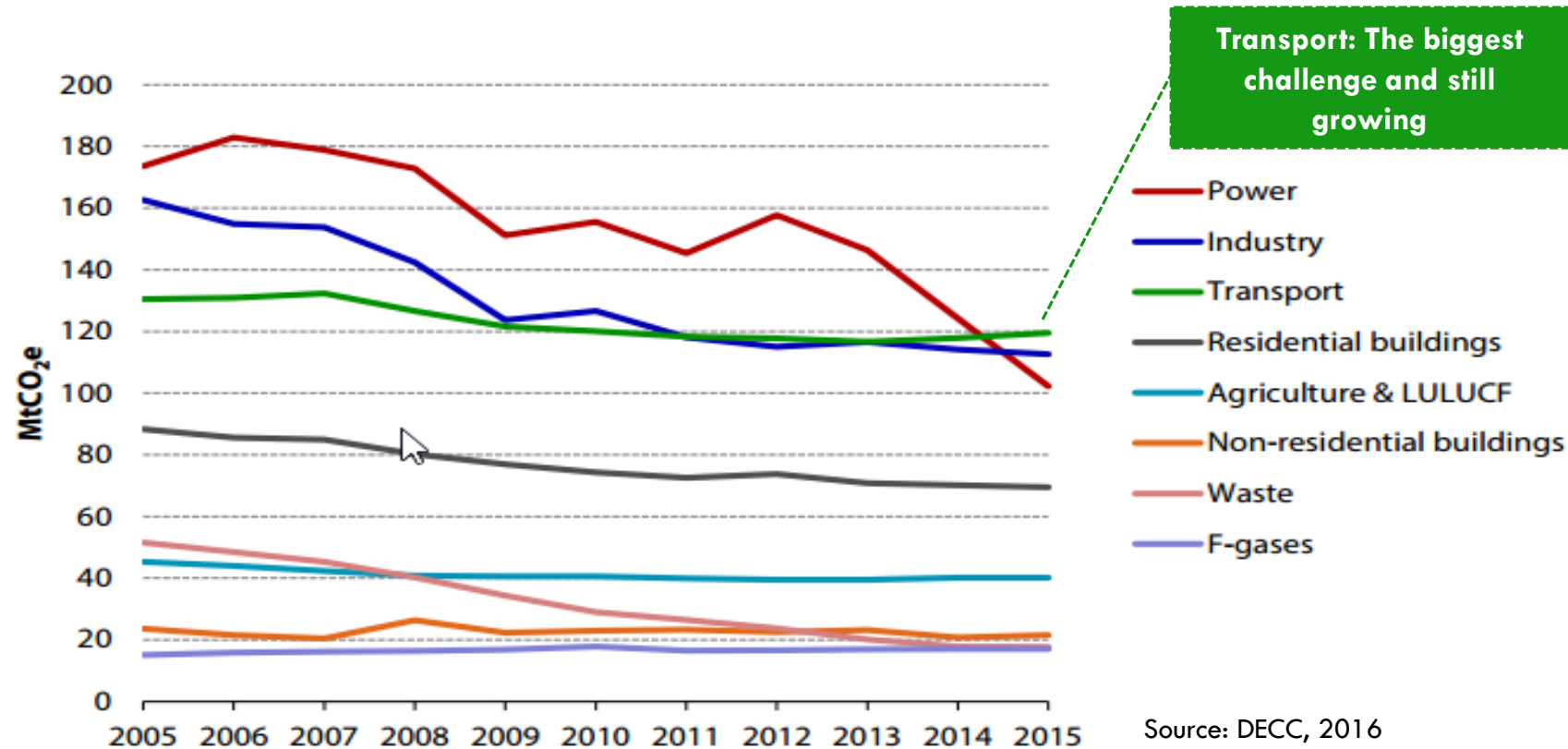


## Working Groups

- Commercial vehicles
- Buses
- Fuels
- Passenger cars
- Innovation

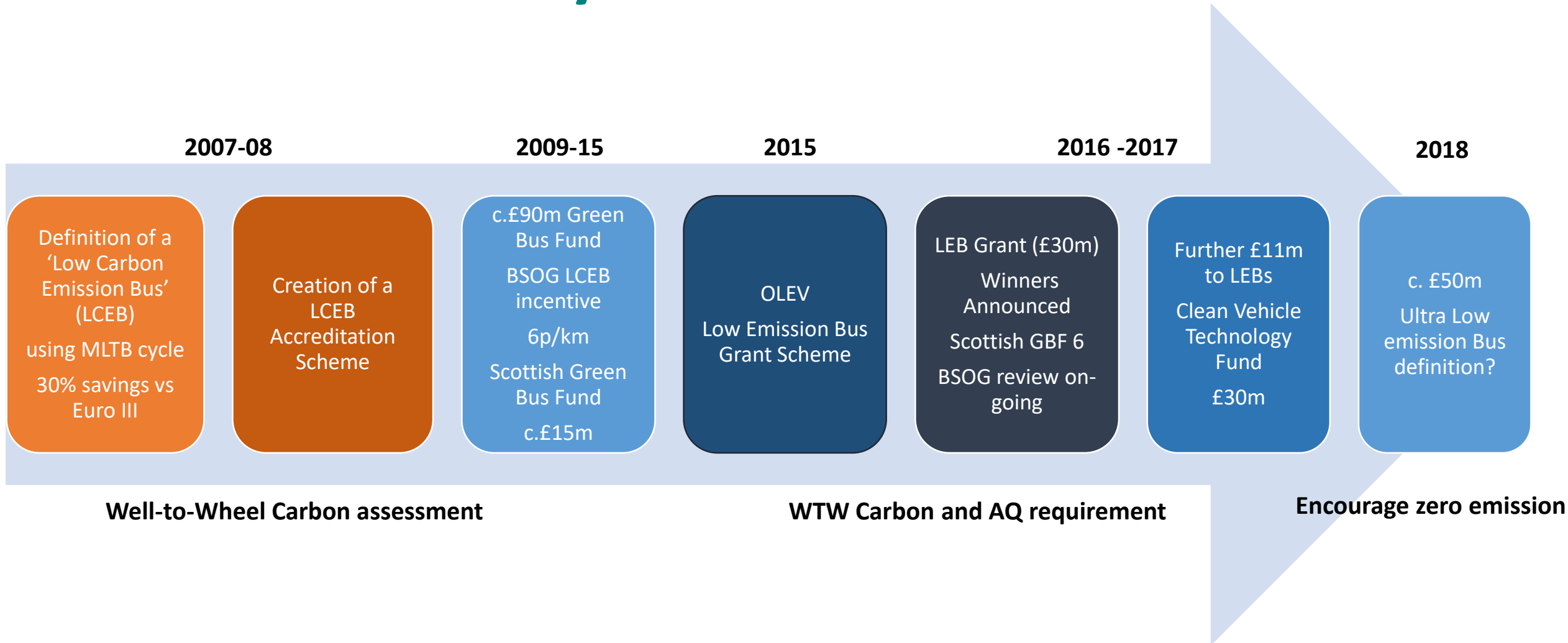
# Decarbonising UK Transport: Transition to zero

- Transport sector is now the largest source of greenhouse gas emissions in the UK and is growing!
- Government vision: Zero emissions capable by 2040, fully zero emission by 2050.
- The Committee for Climate Change identified gaps between current transport policies and the trajectory.





# National Bus Policy Evolution

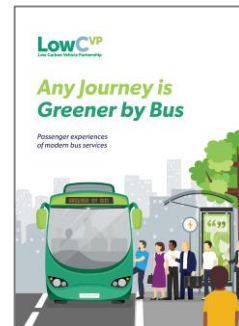
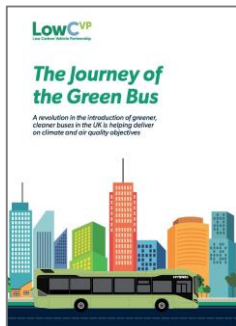
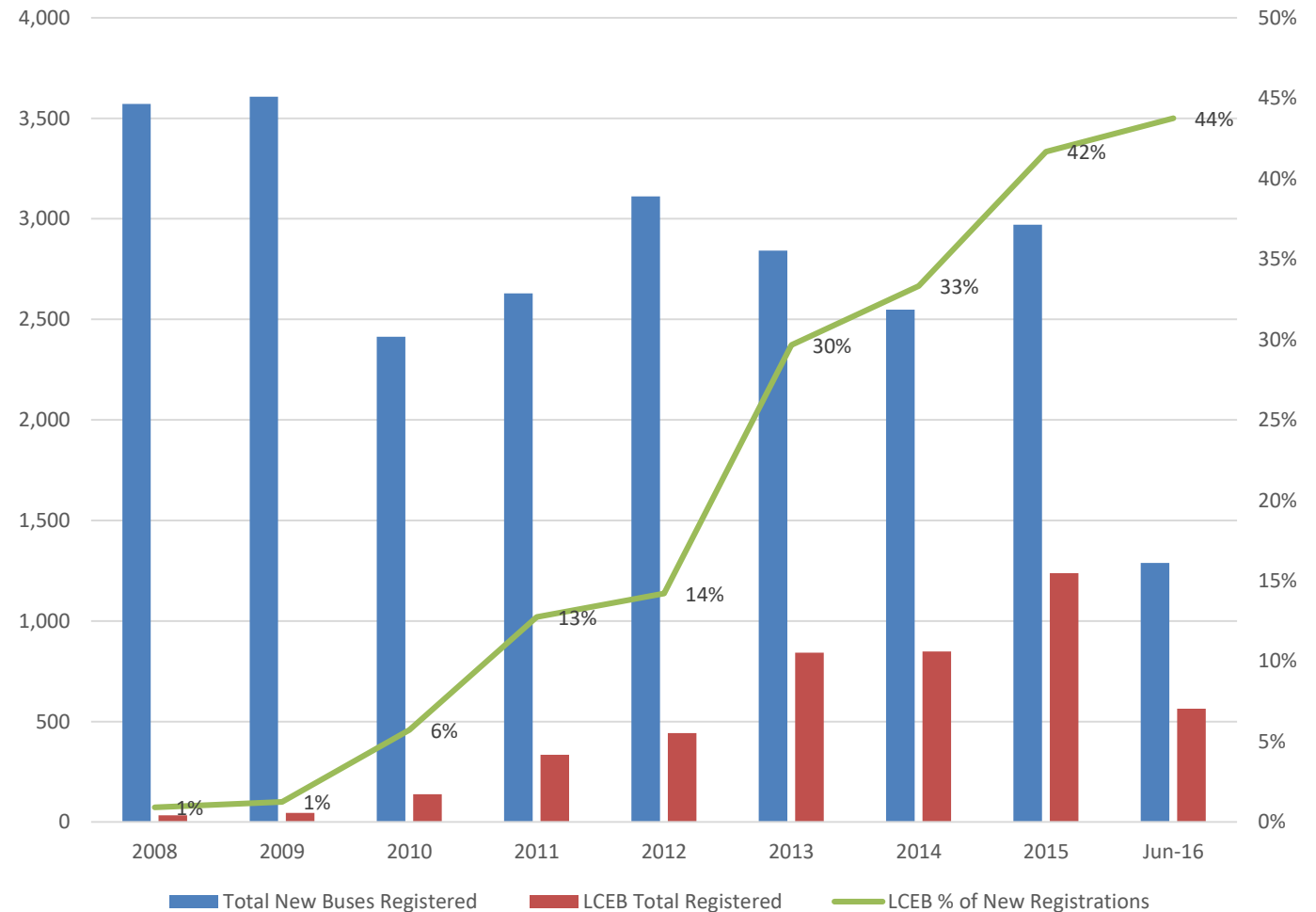


LowCVP membership has influenced Government policy over the last decade and continues to drive ambition

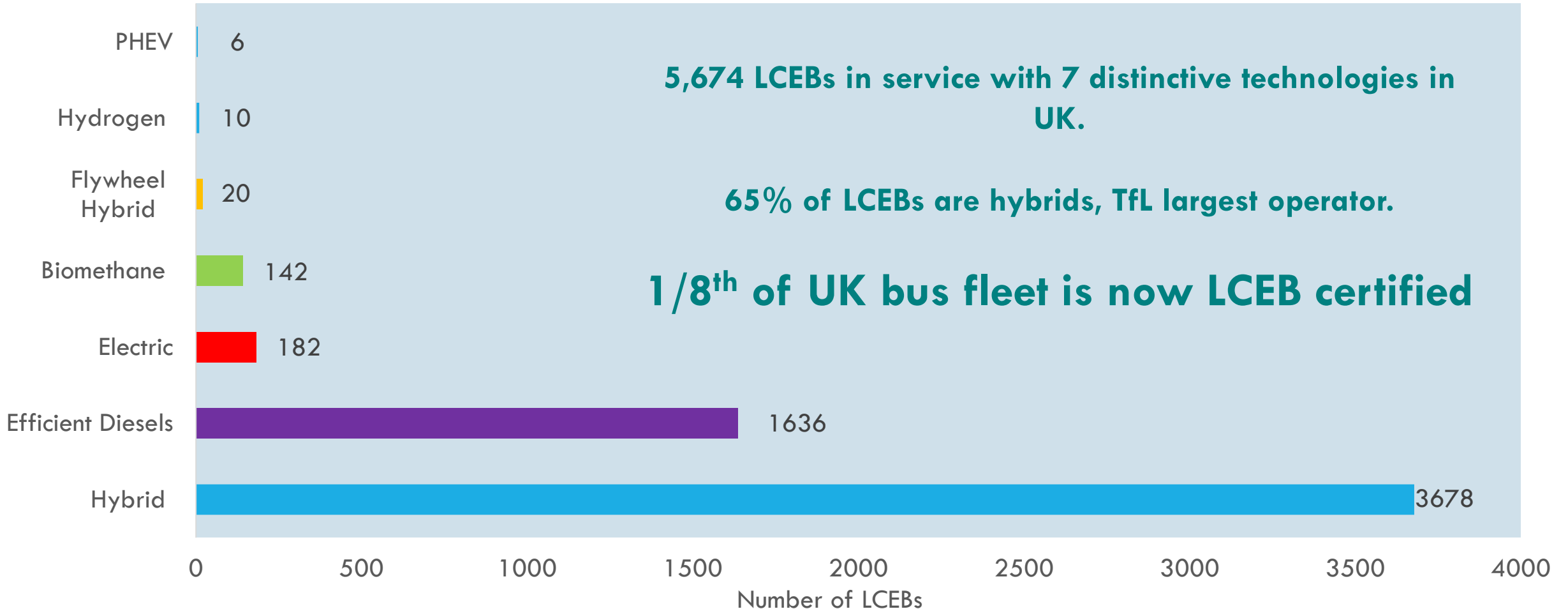
# Success: Low Carbon Emission Bus Adoption

- In 1996, MLTB test created by TfL.
- In 2008, LowCVP incorporated MLTB test into Low Carbon Emission Bus Accreditation Scheme. **Well-to-Wheel assessment.**
- From 2009-15 Green Bus Fund uses LCEB accreditation to allocate **£90m** to 1240 buses. BSOG LCEB 6p/km incentive created.
- By mid-2016, **44%** of all buses registered had LCEB status – compare this to ULEV uptake in the passenger car market at 1.6% in 2016!

LCEBs as a percentage of New Bus registrations (2008- June 2016)



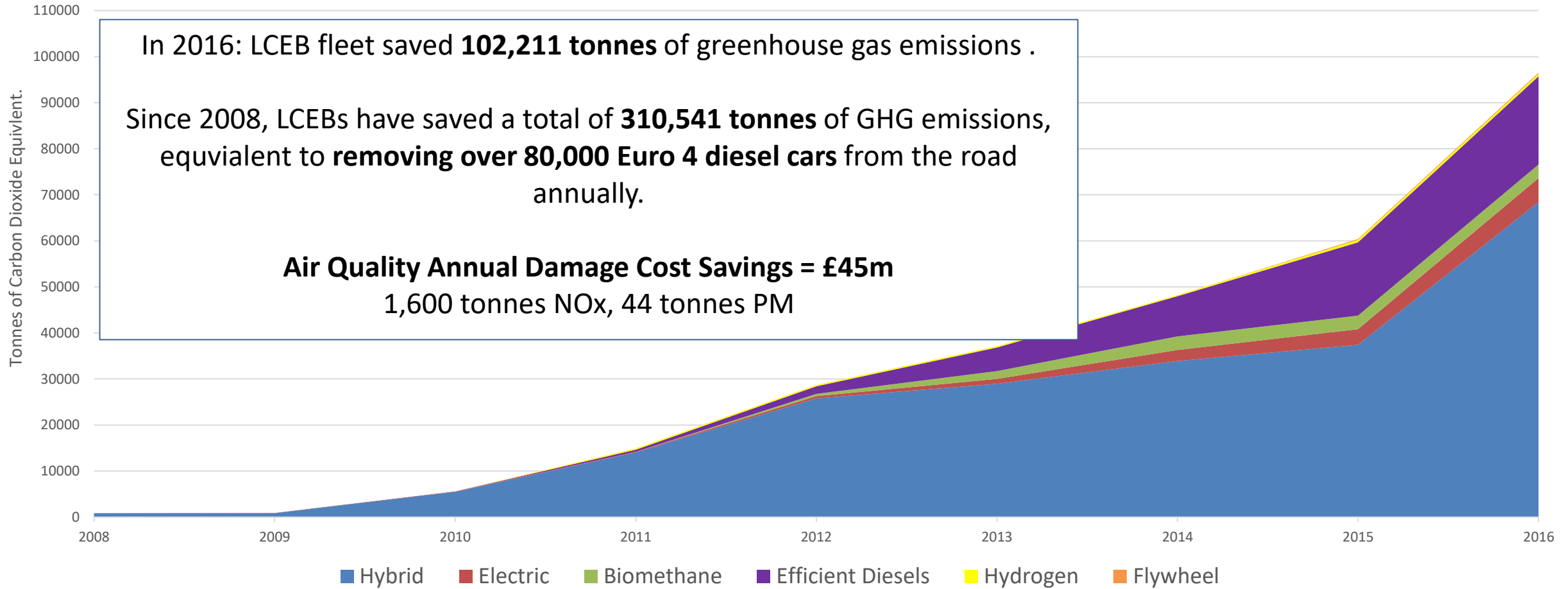
# Breakdown of Low Carbon Emission Bus Technologies in-service in UK





# Impact of Low Carbon Emission Buses

Estimated Annual Well-To-Wheel CO<sub>2</sub>e saved by LCEBs technologies (tonnes CO<sub>2</sub>e)



# Evolution: Low Emission Bus Scheme (include AQ requirement!)

- In 2015, Low Emission Bus Scheme formed based on lessons learnt. (15% WTW GHG saving, Euro VI)
- Vehicles tested over LUB cycle – certificates published on LowCVP website for transparency and comparison.
- Low Emission Bus Guide created to inform operators and local authorities on best practice case studies
- To date, £41m allocated to new buses (479) and supporting infrastructure.
- In 2017, further iterations of LEB test to make testing more representative (Euro VI baseline, ancillary loads).
- c£50m for next round of funding, launched in 2018...

Visit the [Low Emission Bus Hub](#) to download guide and certificates

LowCVP Approved Test facility MILLBROOK

### Low Emission Bus Scheme Certificate

Customer:	Scania Great Britain		
Customer Address:	Delaware Drive, Tongwell, Milton Keynes		
Test Purpose:	LEB testing		
Vehicle Manufacturer:	ScaniaADL	Unladen weight (kg)	11975.0
Vehicle Type & Number:	Scania KUB   YP14 TGD	Gross Weight (kg)	18000.0
Engine:	OC09 101280 hp	Passenger Capacity	70
Transmission:	Auto	Capacity within GVW	OK
Euro VI certificate V/A	Manufacturer Certified	Fuel Provider:	GBA Crouchland Biomethane
Net Heating Energy (MJ/kg)	47.89	WTT evidence	Mixt Green Calculations
Well-to Tank Factor: (g CO <sub>2</sub> e/MJ)	11.11	Fuel Type:	Biomethane
Tank-to-Wheel Factor: (g CO <sub>2</sub> e/kg)	5.49	Emissions and Energy consumption results from approved test facility - Average 3 tests	

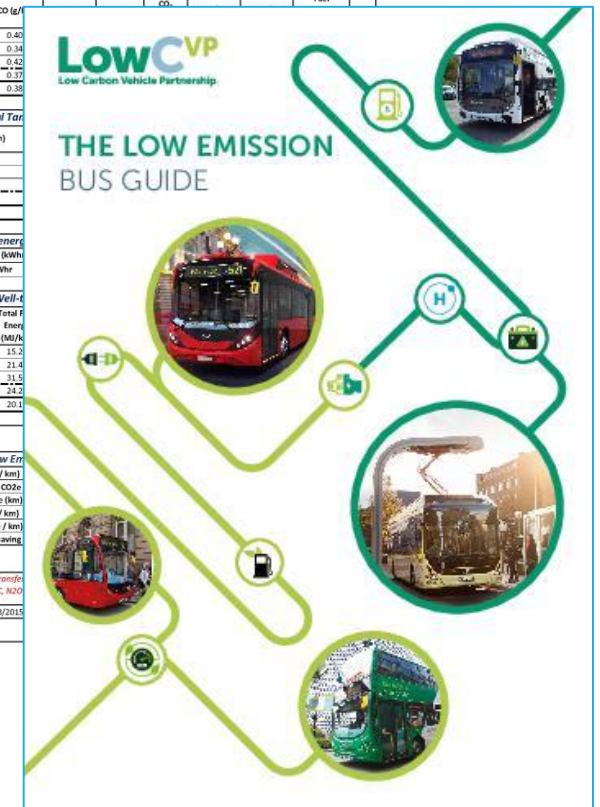
Test Phase	HC (g/km)	CO (g/km)	CO <sub>2</sub> (g/km)	Fuel
Rural	0.099	0.40		
Outer London	0.160	0.34		
Inner London	0.388	0.42		
MILB Average	0.223	0.37		
LUB Average	0.167	0.38		

Test Phase	CO <sub>2</sub> (g/km)
Rural	1.7
Outer London	2.5
Inner London	3.6
MILB	2.9
LUB Total Average	2.3

Test Phase	Fuel/Energy used (kg/km)	Total Fuel Energy (MJ/k)
Rural	0.318	15.2
Outer London	0.447	21.4
Inner London	0.659	31.5
MILB	0.506	24.9
LUB Total Average	0.421	20.1

Data Generated by: *[Signature]*  
On behalf of Test facility

Low Emission Bus Scheme
GHG Well-to-Wheel (g CO <sub>2</sub> e / km)
Euro V Average Diesel Equivalent (g CO <sub>2</sub> e / km)
Zero Emission operating range (km)
WTW GHG saving* (g CO <sub>2</sub> e / km)
% WTW GHG saving* (g CO <sub>2</sub> e / km)
Approved as Low Emission Bus? (15% saving)
**** Data to input to LEB green fund calculator
** TTW - Tank-to-Wheel
COMMENTS: * compound measured via Fourier, N2O
ALL HC ASSUMED TO BE METHANE FOR GHG CALC. N2O
Test Numbers: MIL02015003 (R/23/2015)
Certificate approved by: <i>[Signature]</i>
On behalf of Bus manufacturer



# Driving ambition: ULEB

## Currently reviewing Low Emission Bus accreditation scheme in 2017/18:

- Update baseline to Euro VI  
Conducting a test programme on 8 Euro VI buses – complete by December
- Even more representative test : Change of test order and conditions  
e.g. temperature of test cell to 10°C / cabin heating turned on

## Ultra Low Emission Bus Definition for next £50m

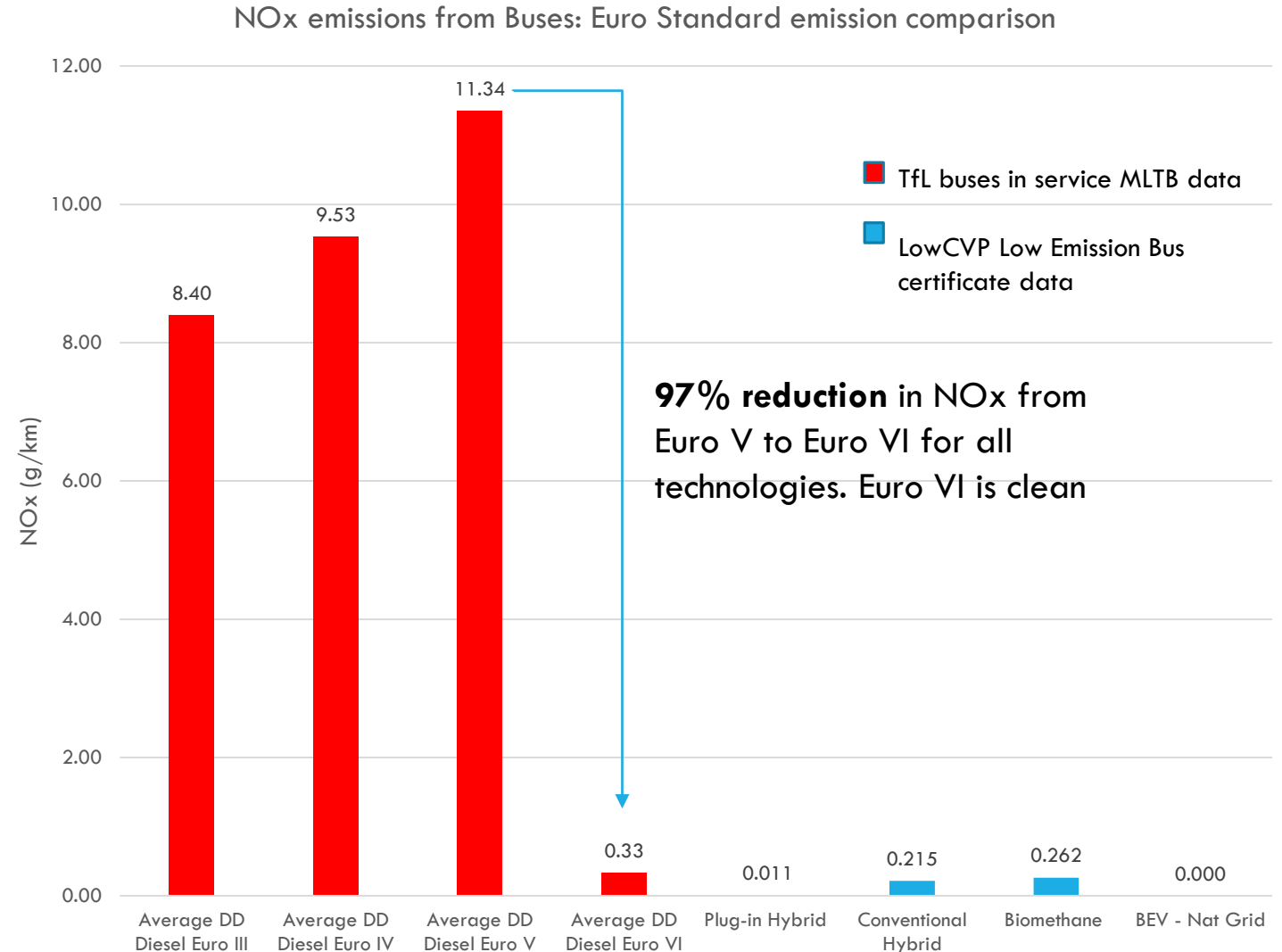
LowCVP thinking to create ULEB definition for next round of funding:

- 30-35% GHG savings vs Euro VI baseline
- Funding to focus zero emissions mileage (Road to Zero)
- Continue to encourage vehicle efficiency improvements.
- Align terminology with other vehicle sectors – future use in CAZ?



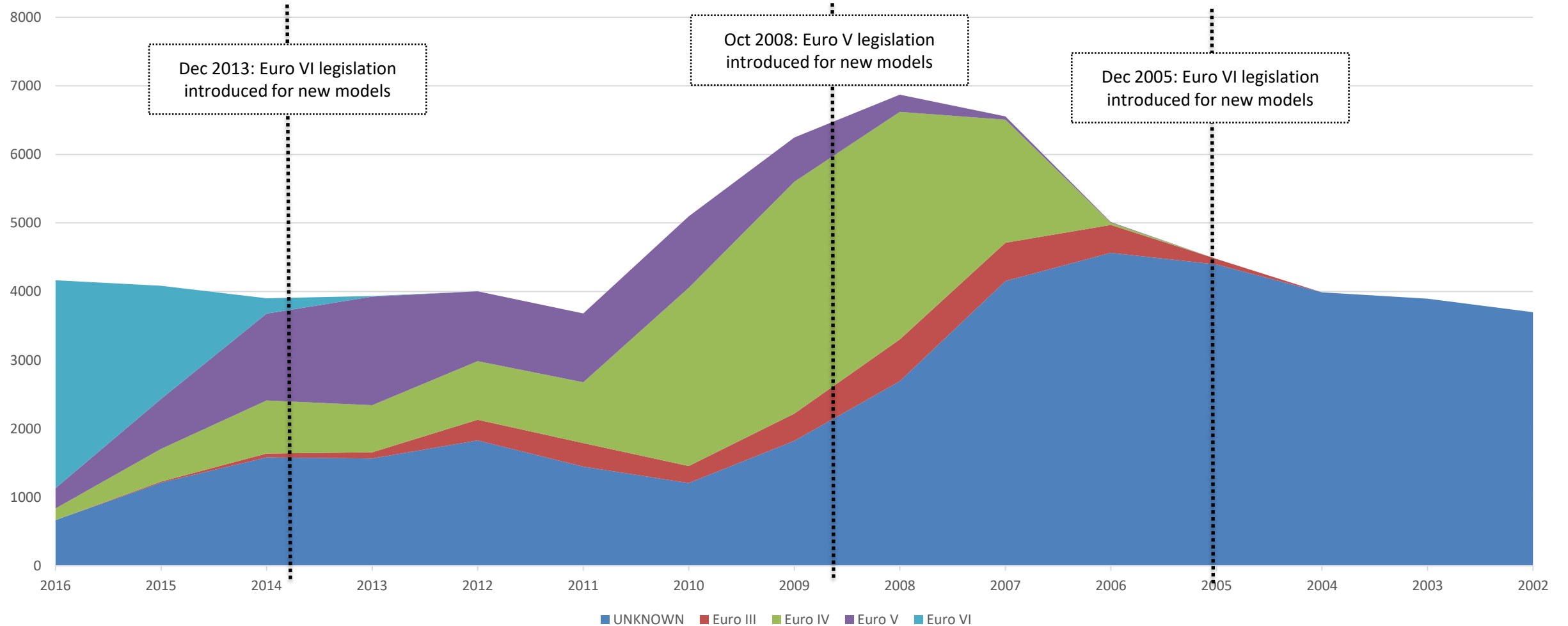
# Low Emission Bus Testing: All Euro VI technologies are clean!

- *It's a myth!* Common consensus that all diesels are dirty – Euro VI bus test data shows otherwise.
- National CAZ framework mandates Euro VI/6 for all diesel vehicles. 20 cities expected.
- Clean Air Zones **must be viewed as an opportunity** for public transport operators (get private cars out of city centres).
- CAZ to become zero emission zones in future – **early as 2025 in London** (road to zero).



# New registrations by Euro Standard

New Bus and Coach Registrations by Euro Standard 2002-2016 (SMMT, 2017)





# Clean Bus Technology Fund & Clean Vehicle Retrofit Accreditation Scheme

## How to support bus industry to meet Euro VI CAZ criteria?

- LowCVP evaluated CBTF/CVTF 2013-2015 – report published
- **DEFRA £30m Clean Bus Technology Fund 2017- 2019** to support retrofit technologies to reduce NOx. c.2000 buses. Further £10m in 2019-20.
- **Clean Vehicle Retrofit Accreditation Scheme (CVRAS)** for suppliers of retrofit technologies to prove ability to reach Euro VI equivalence.
- Energy Savings Trust overseeing certification scheme.
- CVRAS includes Coach and HGV test cycles to enable technology to be proven for other vehicles.

## Clean Vehicle Technology Fund and Clean Bus Technology Fund Programmes

### Evaluation Report

Prepared for the DEFRA/DfT Joint Air Quality Unit

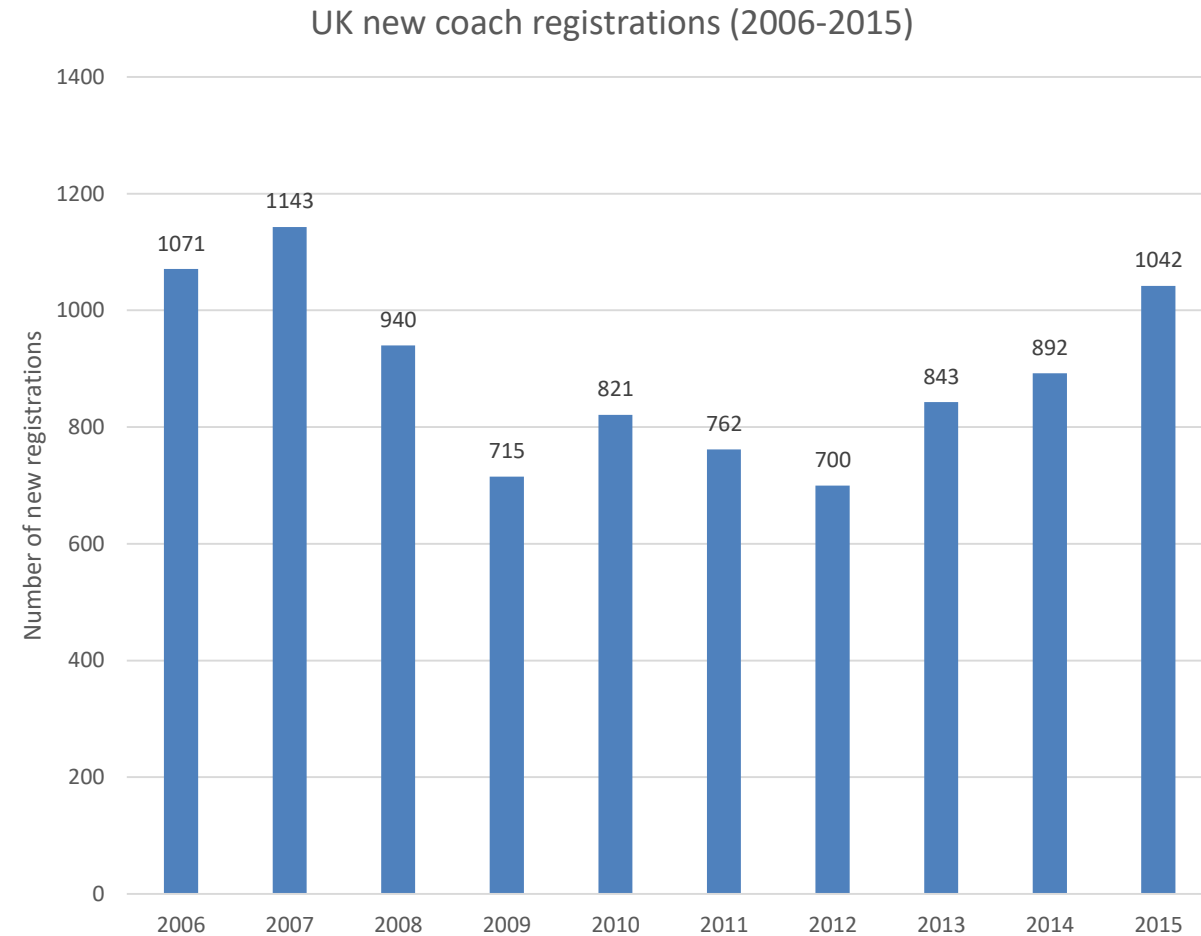
Report  
August 2017





# Evaluation of UK Coach Market: Opportunities for Decarbonisation?

- LowCVP taking snapshot of UK coach market for insight into carbon and AQ impacts.
- Identifying low carbon technologies and fuels being deployed e.g. Biodiesel, Hybrids.
- Creating case studies of various coach operations to provide better understanding of businesses
- Need to meet Euro VI is biggest push for coach operators – big impact on small businesses.
- Report will feed into policy decisions around support for retrofitting coaches
- Potential “Low Carbon Coach Scheme” in future



## To conclude..

- **Bus industry has been at the forefront** of emissions testing and uptake of low carbon technologies and fuels.
- **Euro VI is the minimum requirement for city operation,**  
all clean air zones to have the same standards.
- Introduction of Clean Air Zones is necessary –  
**but should be viewed as an opportunity!**
- Engage with your local authority and build partnerships to achieve.

# Thank you



**Daniel Hayes**

Project Manager

[daniel.hayes@lowcvp.org.uk](mailto:daniel.hayes@lowcvp.org.uk) / 020 7973 1244

## Interested in joining the Partnership?

**Szilvia Libor**

Membership Coordinator

[szilvia.libor@lowcvp.org.uk](mailto:szilvia.libor@lowcvp.org.uk) / 020 7304 6880