

# The Low Emission Bus Guide Greener Journey's Trilogy

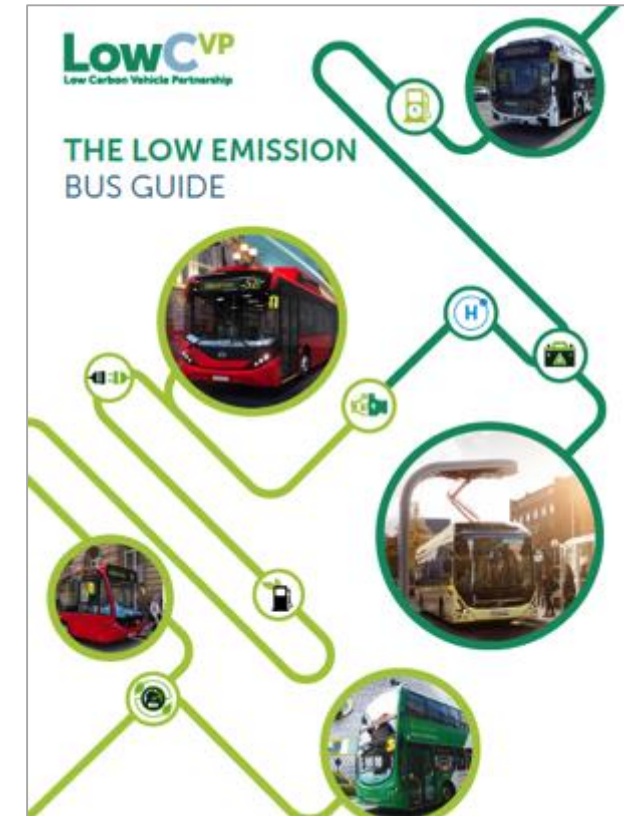
Low Emission Bus Workshop - Leeds  
Tuesday 11<sup>th</sup> July 2017



Daniel Hayes, Project Officer  
Low Carbon Vehicle Partnership

# Low Emission Bus Guide

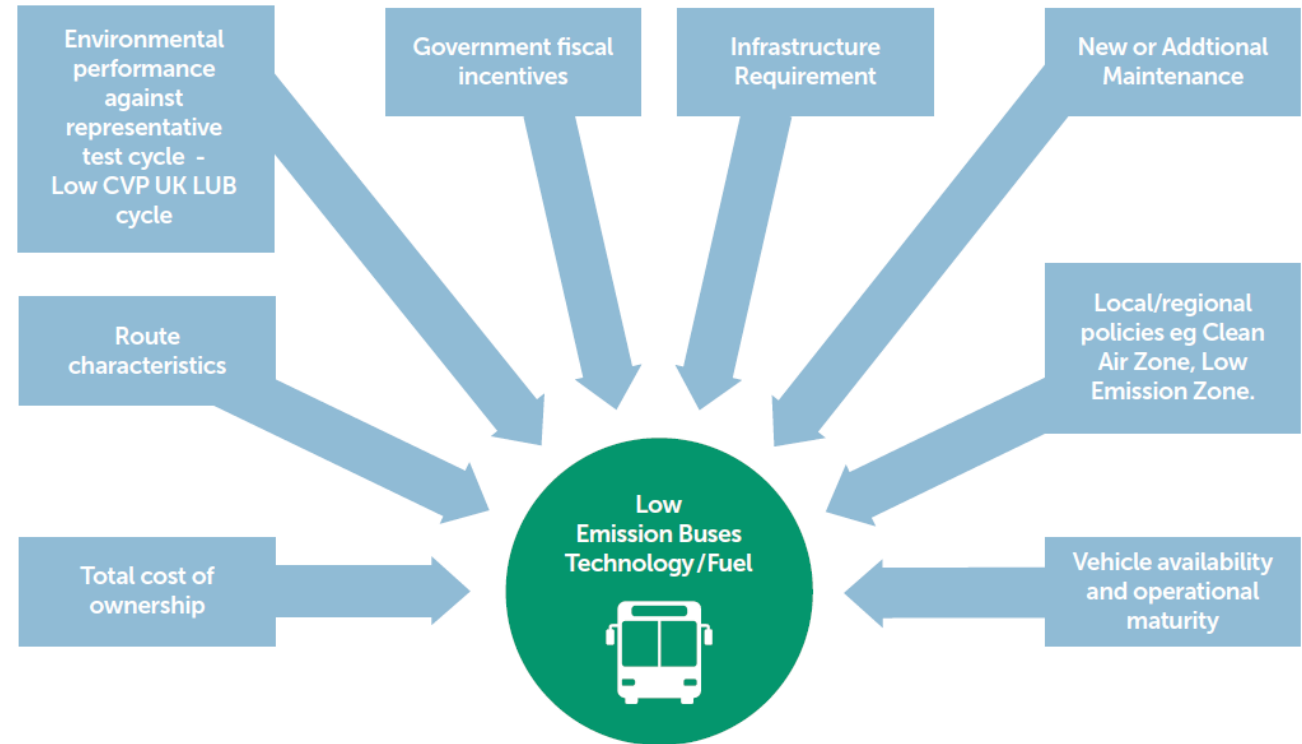
- LowCVP identified the **provision of information** has key role to play in encouraging the growth of low emission bus market
- Focus on small operators and local authorities.
- Low Emission Bus Guide created to aid procurement decisions and increase knowledge of available options, including:
  - National policy framework including grants and incentives
  - Technical – *how different bus technologies & supporting infrastructure work*
  - Environmental – *Well-to-Wheel greenhouse gas & AQ emissions*
  - Operational – *variation compared to conventional diesels.*
  - Financial – what to consider when assessing total cost of ownership
- Aims to answer how can LEB technologies and fuels best suit different routes and ambitions.
- Supported by case studies of in-service bus fleets in the UK & Europe.



# What to consider?

Guide highlights key elements to consider when assessing different LEB options:

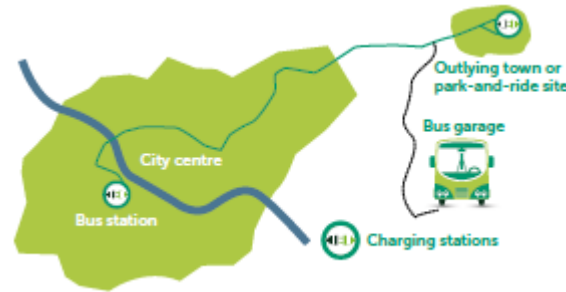
- Local policies
- Route characteristics
- Infrastructure requirements
- Vehicle availability
- Environmental performance
- Fiscal incentives
- Total cost of ownership



# Overview of Technologies, Fuels and Infrastructure

8 different technologies and fuel options covered:

- Battery Electric
- Hybrid
- Plug-in Hybrids
- Biomethane
- Hydrogen Fuel Cell
- Biodiesel & HVO
- Efficient Diesels (Electrified Ancillaries)
- Retrofit SCR for NOx emissions reduction



**Emissions performance data from Low Emission Bus accreditation scheme for new buses.**

View all models on [LowCVP Low Emission Bus Portal](#)

Hybrid Bus Models	Fuel Consumption	WTW GHG and Air Pollution Emissions
 <b>Volvo 7900 Electric</b> Single Decker Length: 12m Passenger capacity: 80 GVW: 18,000 kg	24.1 l/100km	WTW GHG emissions: 824.1 gCO <sub>2</sub> e /km 10.05 gCO <sub>2</sub> e/passenger km WTW GHG Savings: 34% Achieves Euro VI
 <b>Volvo 85HL</b> Double Decker Length: 10.5m Passenger capacity: 90 GVW: 19,000kg	25.7 l/100km	WTW GHG emissions: 870 gCO <sub>2</sub> e /km 9.2 gCO <sub>2</sub> e/passenger km WTW GHG Savings: 37% Achieves Euro VI
 <b>Streetline H.E.V.</b> Single Decker Length: 7.1- 10.6m Passenger capacity: 69 GVW: 13,408 kg	22.2 l/100km	WTW GHG emissions: 731.4 gCO <sub>2</sub> e /km 10.6 gCO <sub>2</sub> e/passenger km WTW GHG Savings: 35% Achieves Euro VI
 <b>Wrightbus Street-Deck H.E.V.</b> Double Decker Length: 7.1- 10.6m Passenger capacity: 95 GVW: 18,000 kg	27.4 l/100km	WTW GHG emissions: 904.2 g CO <sub>2</sub> e/km 9.52 g CO <sub>2</sub> e/passenger km WTW GHG Savings: 35% Achieves Euro VI
 <b>ADL E400 48V Hybrid</b> Double Decker Length: 10.3-11.5m Passenger capacity: 99 GVW: 18,000 kg	31.8 l/100km	WTW GHG emissions: 1072.1 gCO <sub>2</sub> e /km 10.8 gCO <sub>2</sub> e/passenger km WTW GHG Savings: 24% Achieves Euro VI
 <b>ADL E200 48V Hybrid</b> Single Decker Length: 11.5m Passenger capacity: 72 GVW: 13200 kg	23.0 l/100km	WTW GHG emissions: 767.9 gCO <sub>2</sub> e/km 10.6 gCO <sub>2</sub> eq/passenger km WTW GHG savings: 34% Achieves Euro VI

# A Green Bus for Every Journey

- Produced trilogy of reports in collaboration with GJ

## “A Green Bus for Every Journey”:

- Provides the bus operators perspective of low carbon buses and fuels:
  - Hybrid, Battery Electric, Biomethane, Hydrogen, Biodiesel, Efficient Diesels
  - 20 case studies including: TfL, Nottingham CC, Stagecoach, National Express, Lothian Buses, First Bus, Arriva, Reading Buses and more..
  - Includes environmental and financial benefits



# Conclusions

- Low Emission Bus Guide provides comprehensive details regarding how bus operators can choose different low emission fuels and technologies for their fleet upgrades.
  - Regularly update vehicle data and new models on website.
- A Green Bus for every journey gives wide variety of cases studies of LCEBs and LEBs in operation across UK.
- LowCVP hosting 2 more regional workshops across 2017/18 to reach out to more operators and local authorities. Next workshop to be in Nottingham in November.

[Download reports from the LowCVP website.](#)

- For more info on joining LowCVP speak to Gloria, Alec or myself.
- Please visit Optare stand during break for tour of Metrodecker EV.

[www.lowcvp.org.uk](http://www.lowcvp.org.uk)