



Global Best Practice Overview of the Low Carbon Vehicle Partnership

Low Emission Vehicles and Fuel Economy:
China Stakeholder Engagement Workshop
Innovation Centre for Energy and Transport

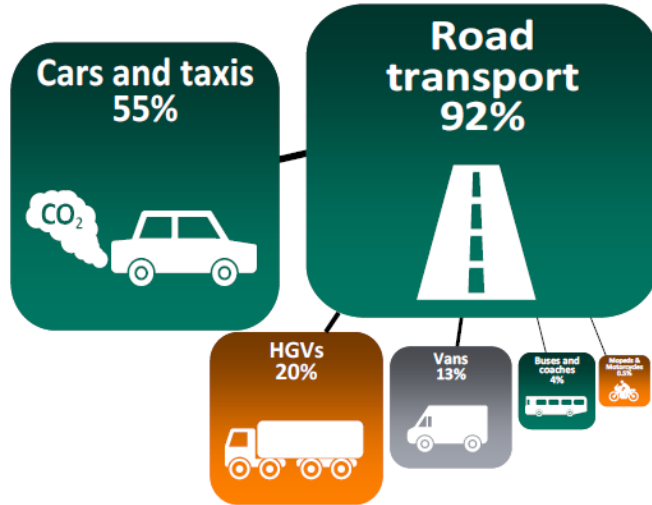
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15 August 2014

Content of Presentation

- Overview of low carbon vehicle policy in the UK
- Introduction to the Low Carbon Vehicle Partnership (LowCVP)
- Outline of how LowCVP operates
- LowCVP success stories
- Influencing policy through our Passenger Car Working Group
- Concluding messages

There are environmental and economic drivers for low emission vehicles in the UK

Reducing road transport CO2 emissions



Improving energy security



Reducing NOx and PM emissions from diesel vehicles



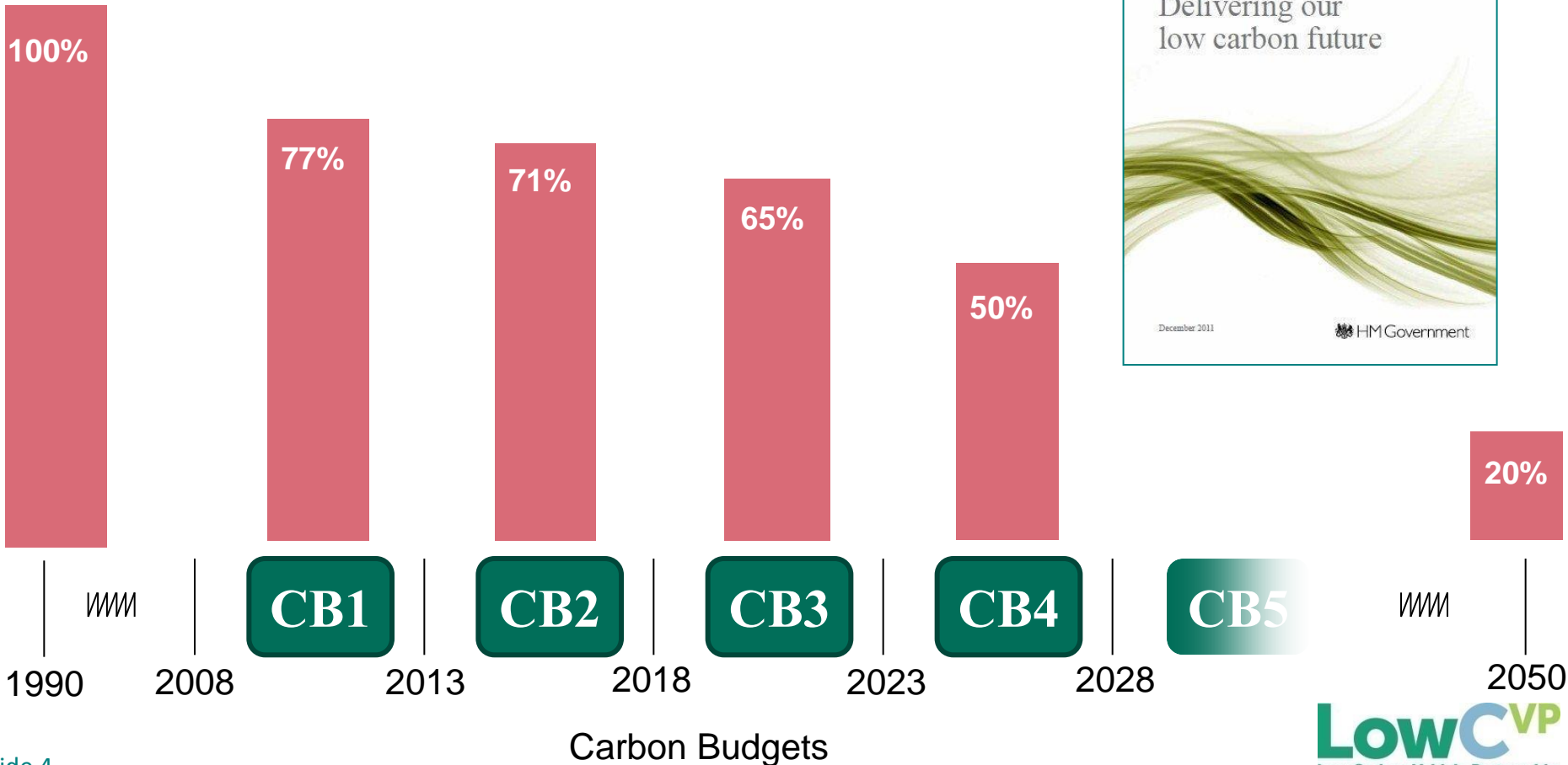
Economic growth - investment and jobs in the automotive industry



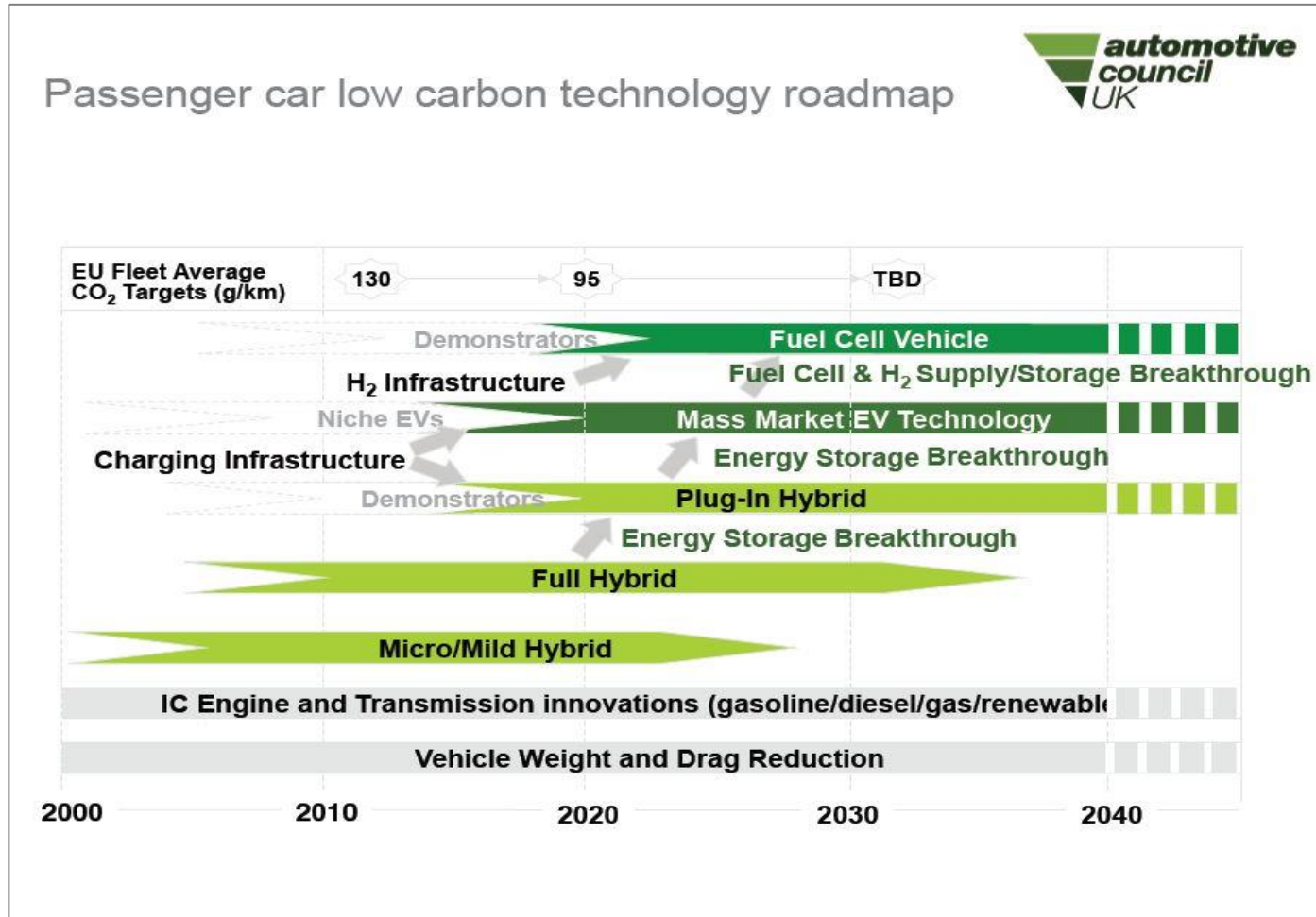
UK is committed to reducing GHG emissions by 80% by 2050 compared to 1990 through a series of “carbon budgets”

UK has a legally binding carbon reduction commitment

- Surface transport will need to be ‘near zero’ GHG by 2050
- Ultra-low emission vehicles essential
- Aligned with lower carbon electricity grid

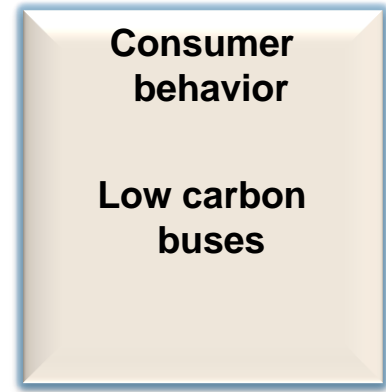
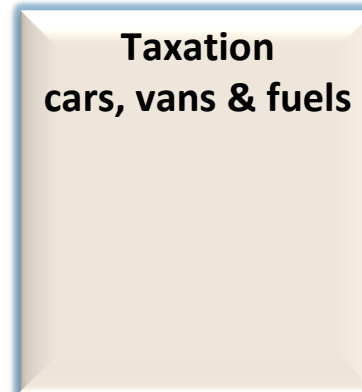
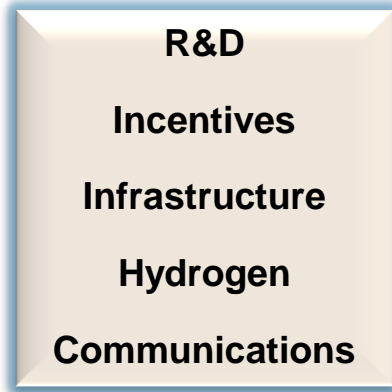


Technology roadmaps have been developed by the UK automotive industry to direct developments in low carbon vehicles



Average new car CO₂ emissions in the UK are currently 128g/km. This has decreased by 22% since 2007.

UK Government is undertaking broad activities to support low emission vehicles

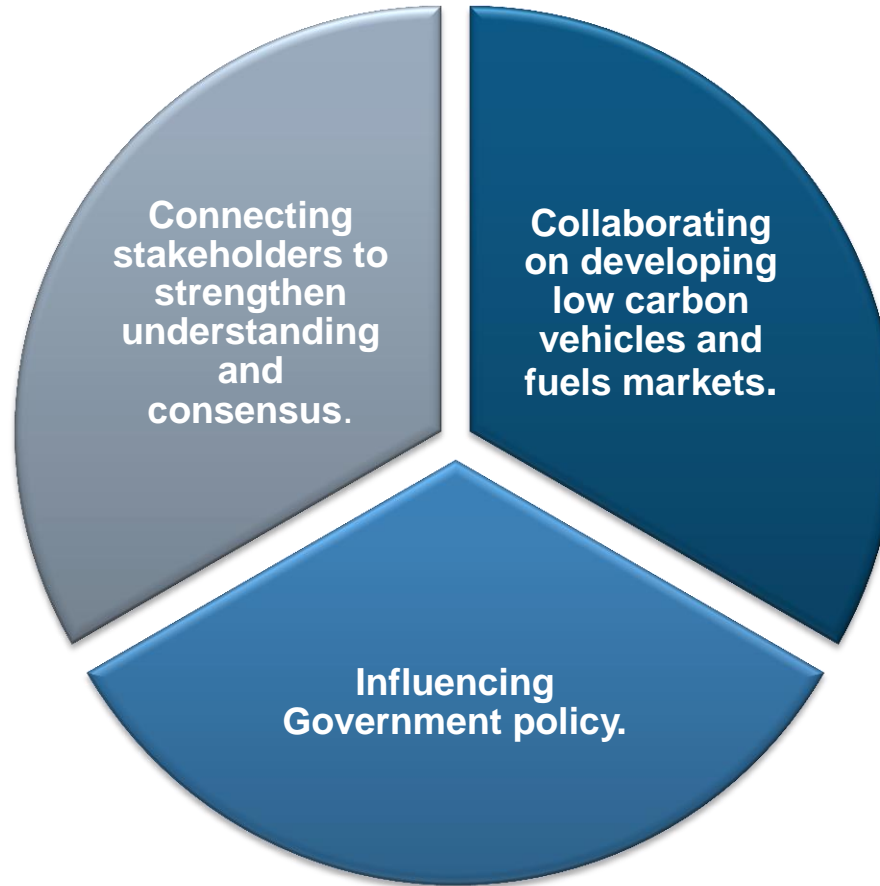


UK Government vision – ‘placing the UK at the global forefront of ultra-low emission vehicle development, demonstration, manufacture and use’.

Overview of the Low Carbon Vehicle Partnership

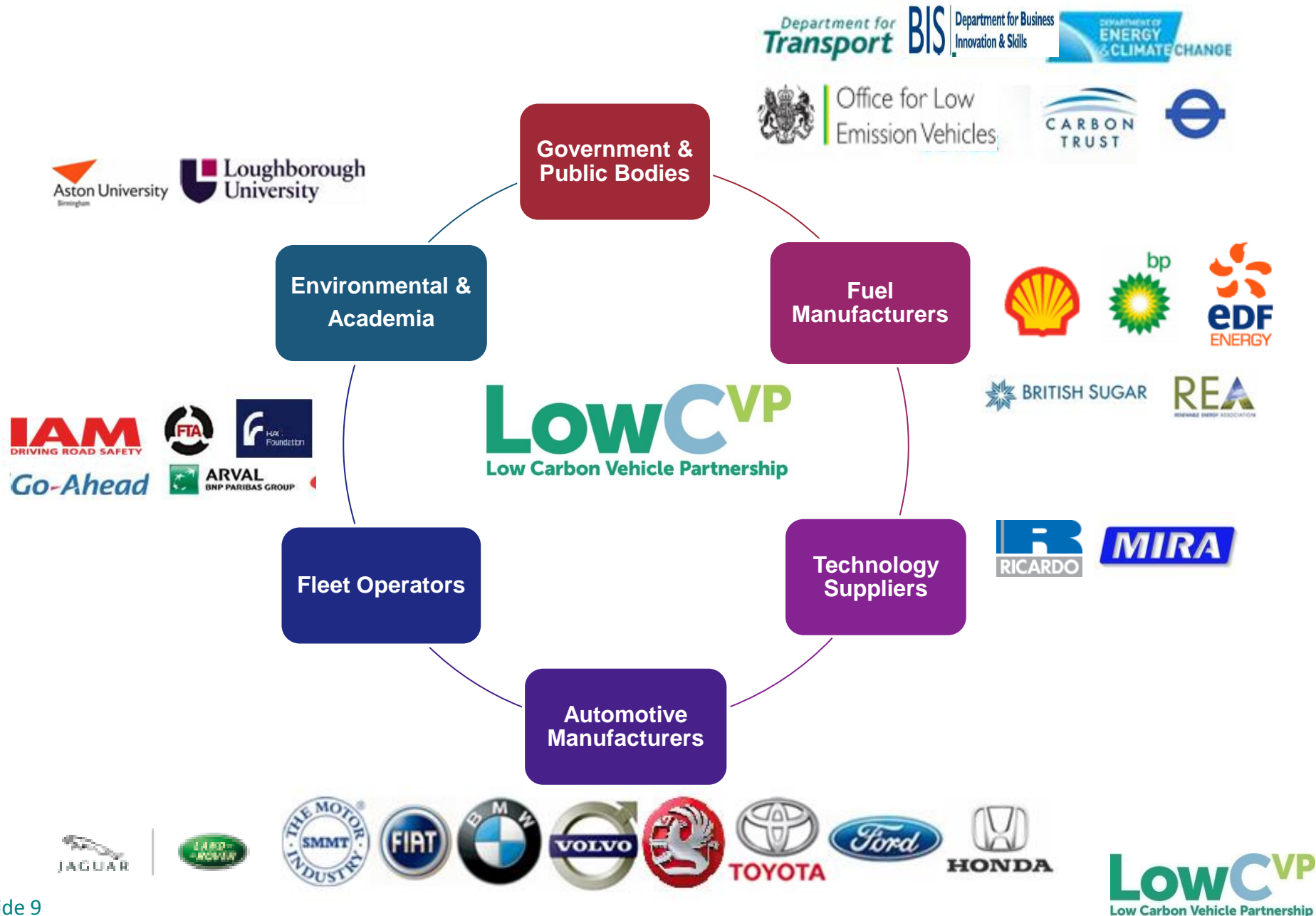
- Established by UK Government in 2003 as recommended by its Powering Future Vehicle Strategy.
- Public-private multi-stakeholder partnership.
- Funding: UK Government, grants and membership fees
- Managed by Secretariat (6 staff)
- Board of senior executive members and co-opted directors

LowCVP Mission - “Accelerating a sustainable shift to low carbon vehicles and fuels and stimulating opportunities for UK businesses”

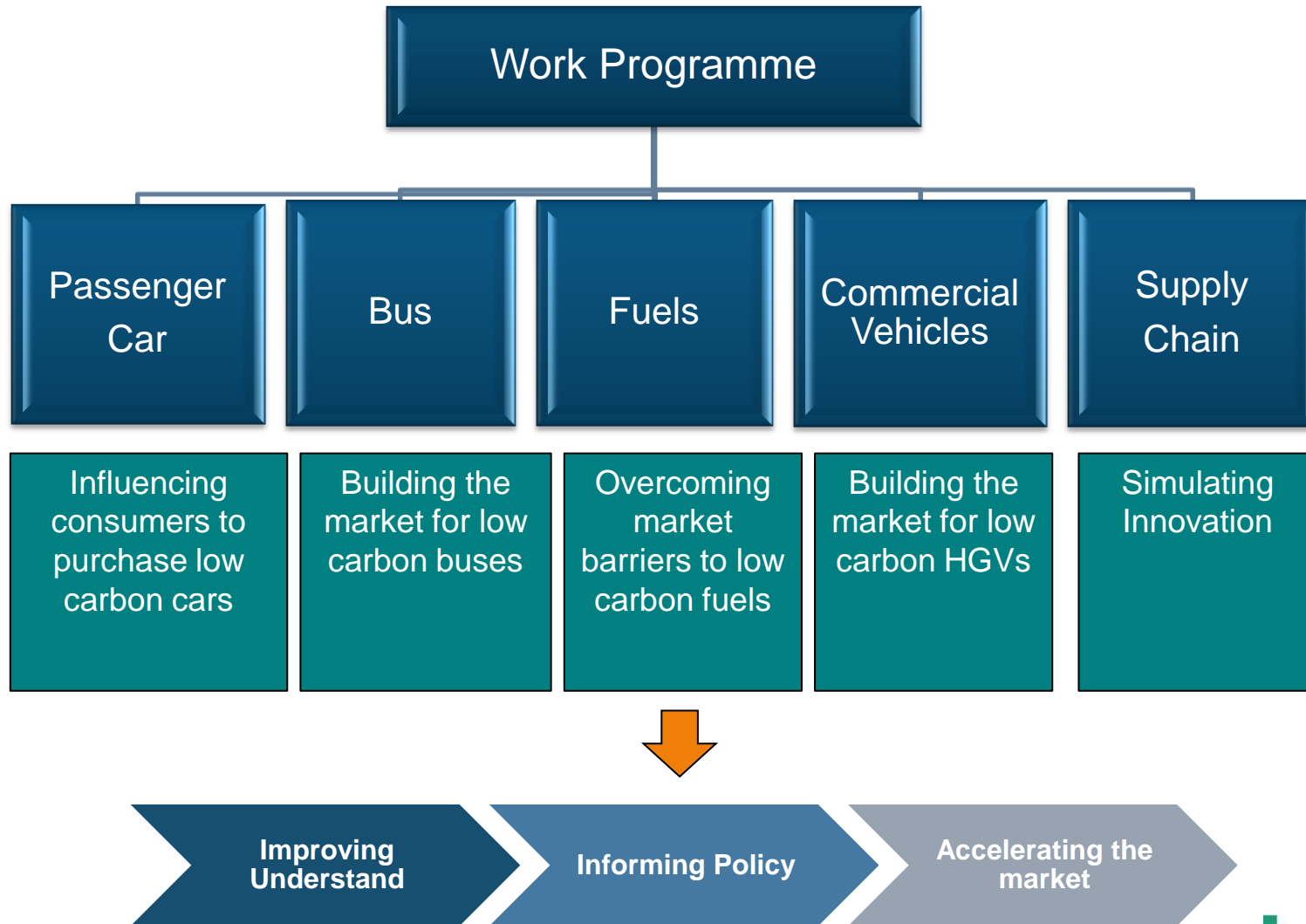


We work to increase both the supply and demand of low carbon vehicles and fuels

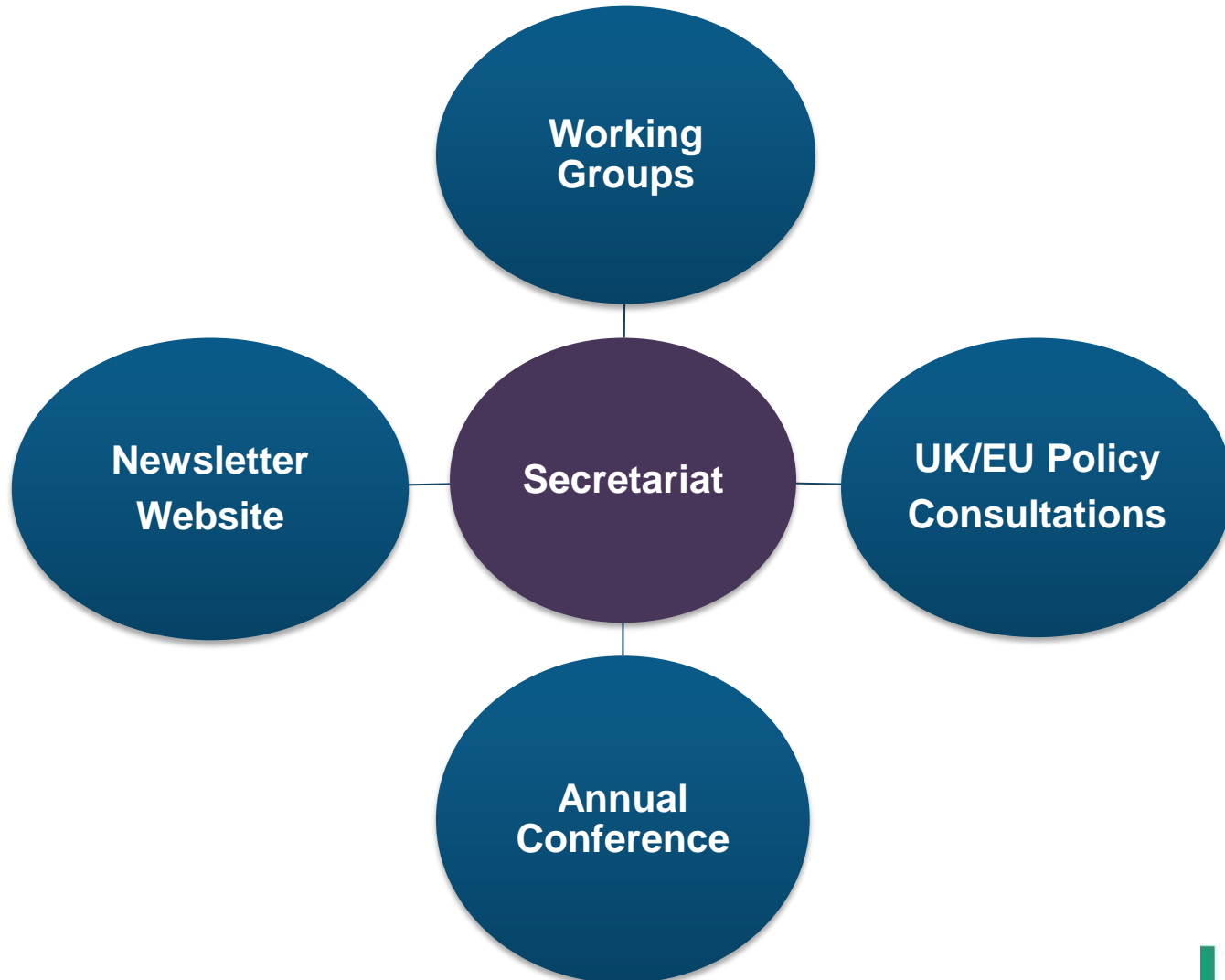
LowCVP has c200 members covering a range of organisations



LowCVP's mission is executed through a work programme associated with five activity areas



Effective multi-stakeholder engagement is a key element of LowCVP's success



LowCVP success stories over the past 10yrs

Passenger Cars

- **Created new car fuel economy labels**
- Car buyer research
- **Research on life-cycle analysis of low carbon cars**
- Best practice principles in car advertising

Buses

- Created Well-to-Wheel test procedure for low carbon buses, integrated into Government policy
- Influenced fiscal policy for low carbon buses

Fuels

- Extensive research on life-cycle CO₂ emissions of biofuels
- Create carbon and sustainability methodology for reporting biofuels, adopted by Government, embedded in European Biofuel Policy
- Developed a Fuels Roadmap for UK, adopted by Government

Commercial Vehicles

- Developed HDV technology roadmap, adopted by Government
- Informing HDV CO₂ policy development in Europe

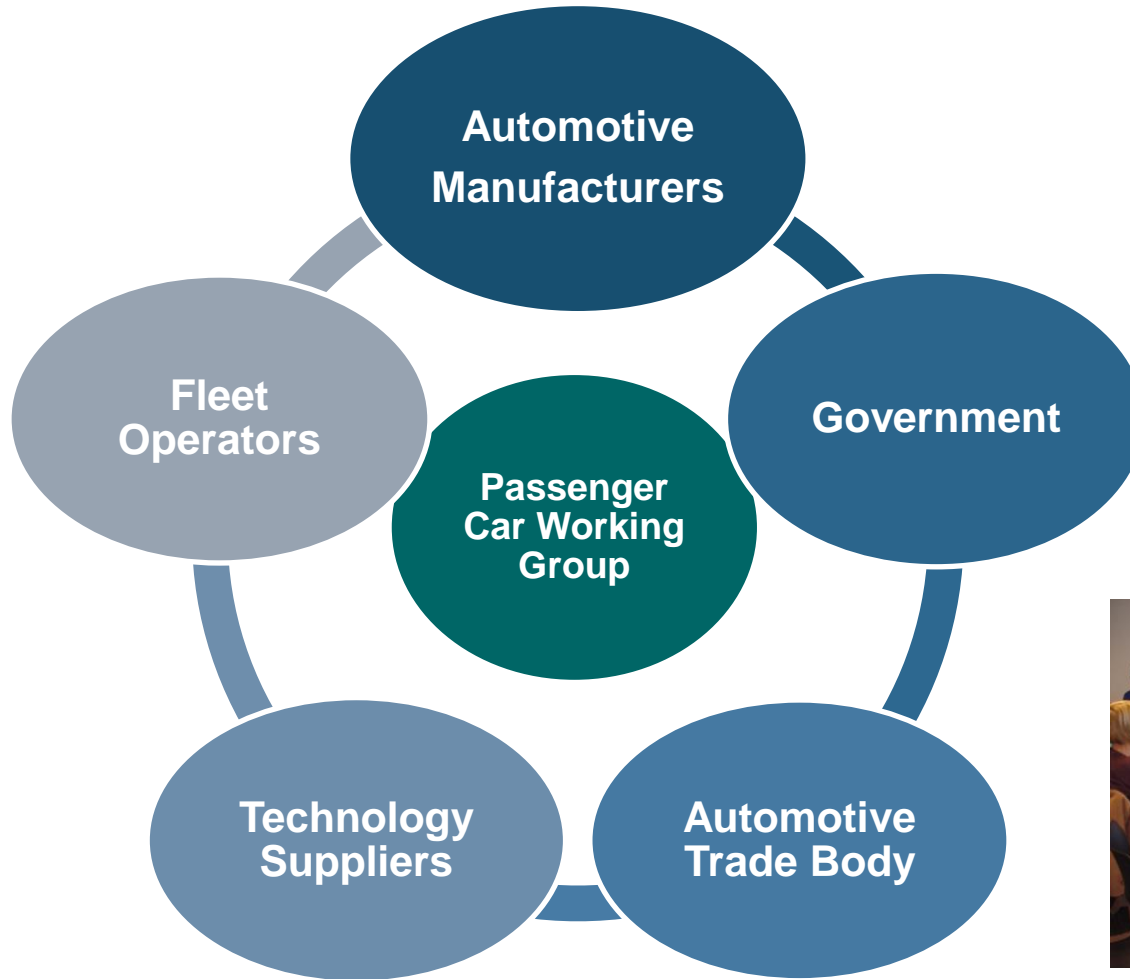
LowCVP has contributed to numerous consultations to inform & influence UK and European low carbon transport policy

Vehicle/ Fuel	UK Government	European Commission
Passenger Cars	Car Taxation Funding packages for electric vehicles	2015 and 2020 Car CO ₂ Regulations
Biofuels	Advanced biofuels Biofuel transport policy	EC Biofuels Review Renewable Energy Directive – indirect land use change of biofuels
Heavy Duty Vehicles		HDV CO ₂ Strategy

Consultation workshops:

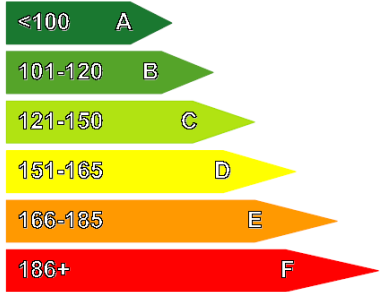

- Identify key stakeholders and then bring together.
- Presentations from experts in LowCVP, Government and industry (automotive/fuels).
- Set specific questions for debate & collective views.
- Consolidate opinions and present to Government or European Commission.

Passenger Car Working Group - forum for collaboration and connection between Government, automotive industry and consumers.



LowCVP car fuel economy label

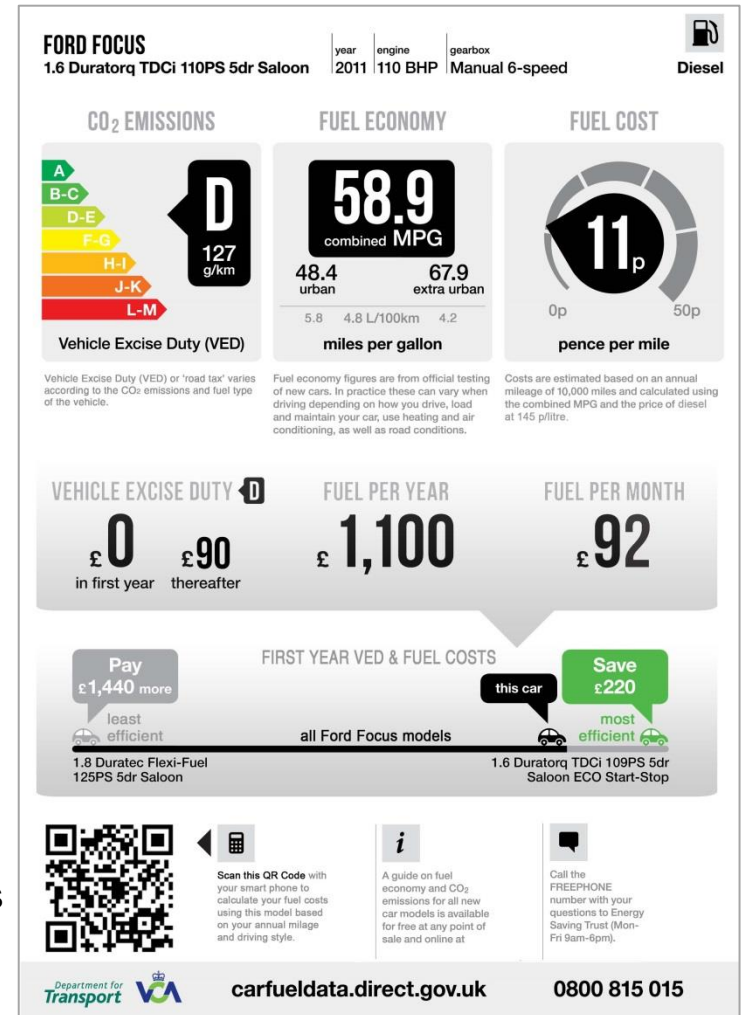
- LowCVP developed a voluntary initiative with the automotive industry introducing a new fuel economy label for cars in 2005.
- Consensus with automotive industry on information to present:
 - ✓ CO₂ emissions in colour-coded bandings
 - ✓ Vehicle tax
 - ✓ Estimated fuel cost
 - ✓ Fuel consumption in miles per gallon
- Monitoring >90% car dealers display the car fuel economy label

Fuel Economy		Ford Fiesta 1.4 TDCi ZETEC
CO₂ emission figure (g/km) 		B 117 g/km
Fuel cost (estimated) for 12,000 miles <small>A fuel cost figure indicates to the consumer a guide fuel price for comparison purposes. This figure is calculated by using the combined drive cycle (town centre and motorway) and average fuel price. Re-calculated annually, the current cost per litre is as follows – petrol 76p, diesel 78p and LPG 38p (VCA May 2004).</small>		£662
VED for 12 months <small>Vehicle excise duty (VED) or road tax varies according to the CO₂ emissions and fuel type of the vehicle.</small>		£85
Environmental Information		
<small>A guide on fuel economy and CO₂ emissions which contains data for all new passenger car models is available at any point of sale free of charge. In addition to the fuel efficiency of a car, driving behaviour as well as other non-technical factors play a role in determining a car's fuel consumption and CO₂ emissions. CO₂ is the main greenhouse gas responsible for global warming.</small>		
Make/Model Fuel type	Ford Fiesta 1.4 TDCi ZETEC Diesel	Engine capacity (cc): 1399 Transmission type: 5 speed manual
Fuel Consumption:		
Drive cycle	Litres/100km	Mpg
Urban	5.4	52.3
Extra-urban	3.8	74.3
Combined	4.4	64.2
Carbon dioxide emissions (g/km): 117g/km <small>Important note: Some specifications of this make/model may have lower CO₂ emissions than this. Check with your dealer.</small>		
		

EU Labelling Directive - car fuel economy label to be displayed at the point of sale

New LowCVP consumer research shows how to improve information to influence purchasing decisions

- Car buyer research study with automotive industry examining new designs for conventional cars, electric and plug-in hybrid car fuel economy labels.
- Consumer response:
 - ✓ Understand colour-coded CO₂ bandings
 - ✓ Fuel consumption (MPG) more prominent
 - ✓ Like fuel cost pence/mile
 - ✓ Like 'quick response code' linked to calculator/comparison tools
 - ✓ Like 'you save money' for comparisons
 - ✓ Confused by electricity consumption data (kwh/km)
 - ✓ Require electric vehicle range
 - ✓ Like website link to electric vehicle charging locations



Labeling research informs policy development

New electric vehicle car fuel economy labels

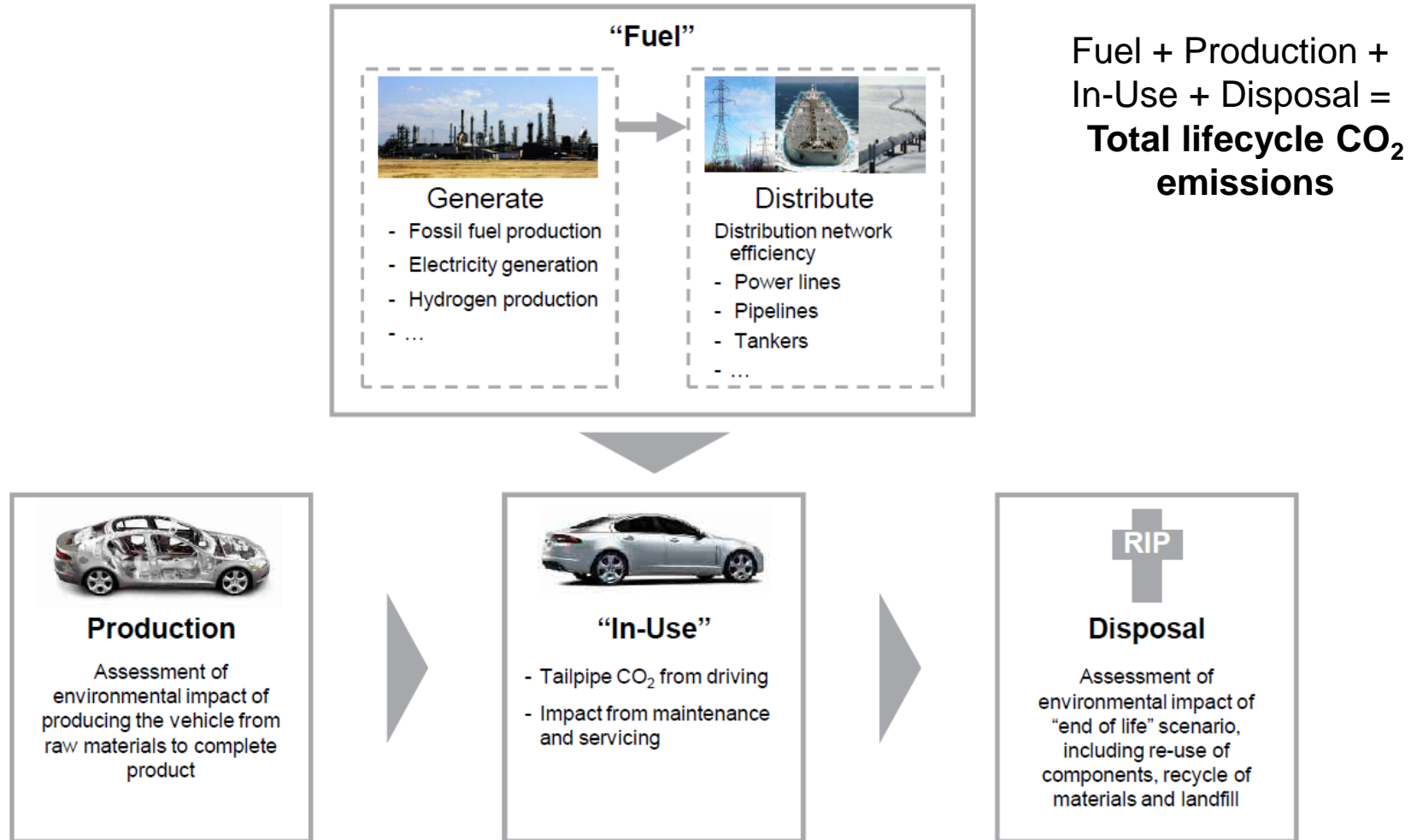
- Led collaboration with automotive industry to introduce new electric & plug-in cars fuel economy labels in the UK - endorsed by Government 2014.

Influence internationally

- Presented research at a workshop run by International Energy Agency and Global Fuel Economy Initiative on fuel economy labeling.
- Intend to present research to European Commission to inform forthcoming review of the EU Labeling Directive.

Fuel Economy		VED band and CO ₂	
CO ₂ emission figure (g/km) 		A 0 g/km ⁽¹⁾	
Electricity cost (estimated) for 12,000 miles A guide price for comparison purposes is calculated using the combined drive cycle (town centre and motorway) and electricity price. Cost is recalculated annually. Unit price as at March 2012: electricity 13.7p/kWh.		Annual energy cost £458 ⁽²⁾	
VED for 12 months Vehicle Excise Duty (VED) or road tax varies according to the CO ₂ emissions and fuel type of the vehicle.		1st year rate £0 ⁽¹⁾	Standard rate £0 ⁽²⁾
Electric energy consumption: 3.6 Miles/kWh ⁽⁵⁾		Electric range: 109 Miles ⁽⁵⁾	
Environmental Information A guide on fuel economy and CO ₂ emissions which contains data for all new passenger car models is available at any point of sale free of charge. In addition to the fuel efficiency of a car, driving behaviour as well as other non-technical factors play a role in determining a car's fuel consumption and CO ₂ emissions. CO ₂ is the main greenhouse gas responsible for global warming.			
Make/Model NISSAN Leaf		Engine Capacity (cc): N/A	
Fuel Type: Electricity ⁽⁴⁾		Transmission: N/A	
Fuel Consumption Drive Cycle		Litres/100km ⁽⁵⁾	Mpg ⁽⁵⁾
Urban		N/A	N/A
Extra-urban		N/A	N/A
Combined		N/A	N/A
Carbon dioxide emissions (g/km): 0			
Important note: Some specifications of this make/model may have lower CO ₂ emissions than this. Check with your dealer.			
<small>(1) A new 1st year VED rate will be applied to cars registered for the first time (scheme effective from April 2016).</small>			
<small>(2) The standard 12 month VED rate for all registered cars in this band is shown for the purposes of comparison. Note, figures quoted reflect the current rate only, and may be subject to change in the future.</small>			
<small>(3) Please note that figures quoted are obtained under specific test conditions, they may not be achieved under 'real world' driving conditions. However, the figures serve as a means of comparing models of a similar type.</small>			
<small>(4) A list of electric vehicle charging points is available here: http://plugsurfing.co.uk/.</small>			
<small>(5) Not available for electric cars.</small>			
Department for Transport		To compare fuel costs and CO₂ emissions of new cars, visit http://carfueldata.direct.gov.uk	

LowCVP leads research on life-cycle CO₂ analysis of low carbon cars to influence future regulations

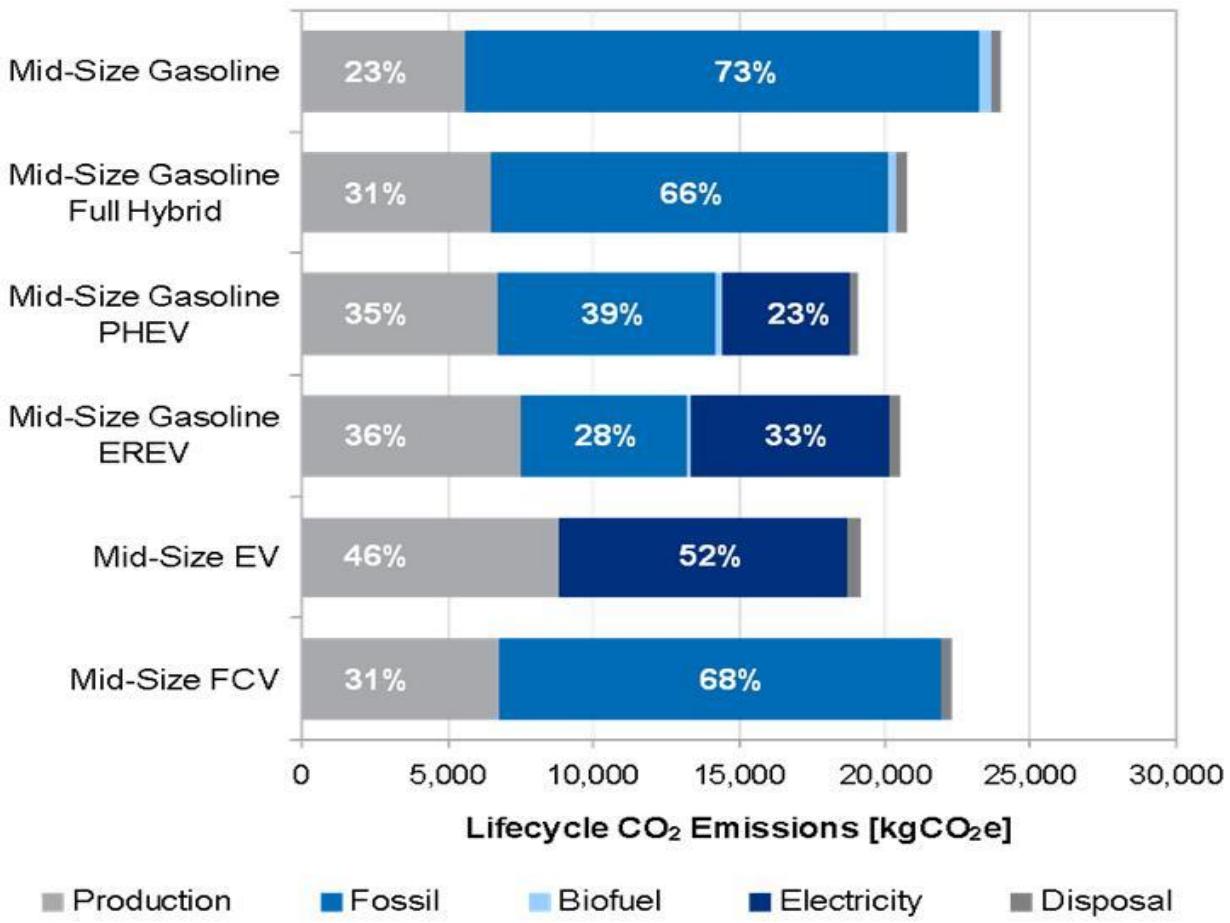


Source: Ricardo

Collaboration between fuel and automotive stakeholders

Life-cycle CO₂ emissions of hybrid and EVs will be lower than gasoline cars but embedded emissions are higher

Comparison of lifecycle CO₂ vehicle emissions



- Production and disposal CO₂ emissions are likely to increase in the future.
- Reducing CO₂ from electricity generation essential for lowering the CO₂ impact of electric cars.
- European Commission reviewing future GHG transport policy – life-cycle CO₂ one option
- LowCVP presented research to European Commission

Concluding messages from LowCVP

- Robust evidence is an important prerequisite to informing low emission vehicle policy.
- Bringing the right stakeholders together, facilitating collaboration and connection, has a powerful role to play in influencing the development of consistent and sound policy.
- Success in advancing the low emission vehicle market requires partnership working between many different players including automotive and fuels industries and Government.

