

The Role of the Low Carbon Vehicle Partnership and Hybrid Technology in the Car of the Future

RAC Foundation Public Policy Committee

11th July 2005

Graham Smith

MD Toyota (GB) PLC

Chairman, Low Carbon Vehicle Partnership

Scope

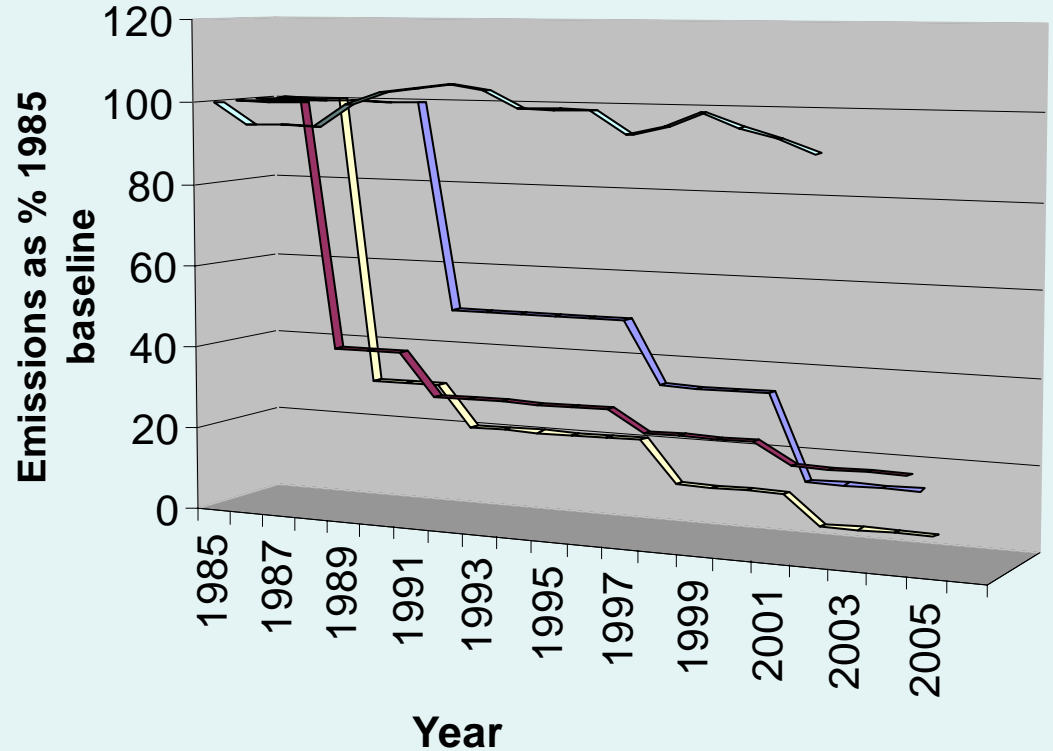
- ❑ The car of the future
- ❑ The role of the LowCVP in stimulating change
- ❑ The market challenge
- ❑ Pathways to the car of the future
- ❑ The role of hybrid technology
- ❑ The Toyota vision



Boscastle, Cornwall, August 2004

The car of the future

- ❑ A fifth, and increasing, proportion of greenhouse gas emissions arise from road transport
- ❑ c150 local authorities have declared Air Quality Management Areas
- ❑ Half of Londoners consider noise a problem – traffic noise is the biggest concern



CO2 Petrol

NOx Diesel

PM Diesel

NOx Petrol

Low Carbon Vehicle Partnership

*Accelerating a
sustainable shift
to low carbon
vehicles and fuels
in the UK*

*Stimulating
opportunities for
UK businesses*

- ❑ Facilitate cross-sectoral engagement between industry and other stakeholders
- ❑ Encourage research, demonstration and commercialisation of low carbon automotive technologies in the UK and assist UK businesses participate in emerging markets
- ❑ Contribute towards the setting, and achievement, of UK Government's targets for carbon reduction from the road transport sector
- ❑ Deliver an effective flow of information within and between industry and other stakeholders

LowCVP membership and activities

□ Industry initiatives

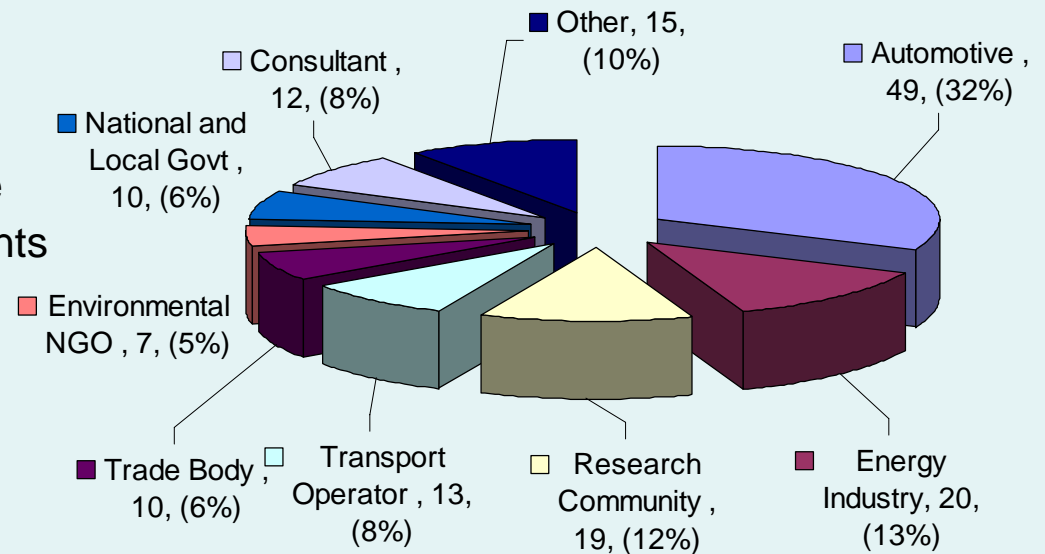
- Biofuels assurance
- Car label

□ Advice to Government

- Testing of low carbon buses
- TransportEnergy programme
- Future of voluntary agreements
- RTFO Assurance Feasibility Study
- Climate Change Programme Consultation workshops

□ Research

- Car buying behaviour
- R&D agenda for Cenex
- Environmental impacts of biofuels



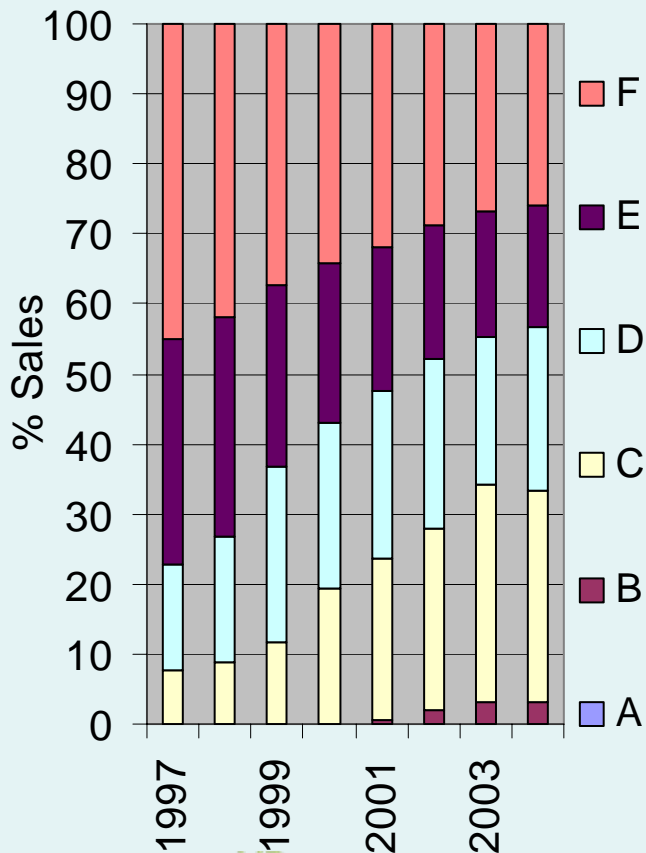
Key Partnership challenges and activities

- ❑ Limited market for environmentally friendly vehicles
- ❑ Insufficient incentives for consumers
- ❑ High cost and limited availability of renewable transport fuels
- ❑ Limited UK involvement in low carbon vehicle, research, development and demonstration
- ❑ Low levels of industry profitability

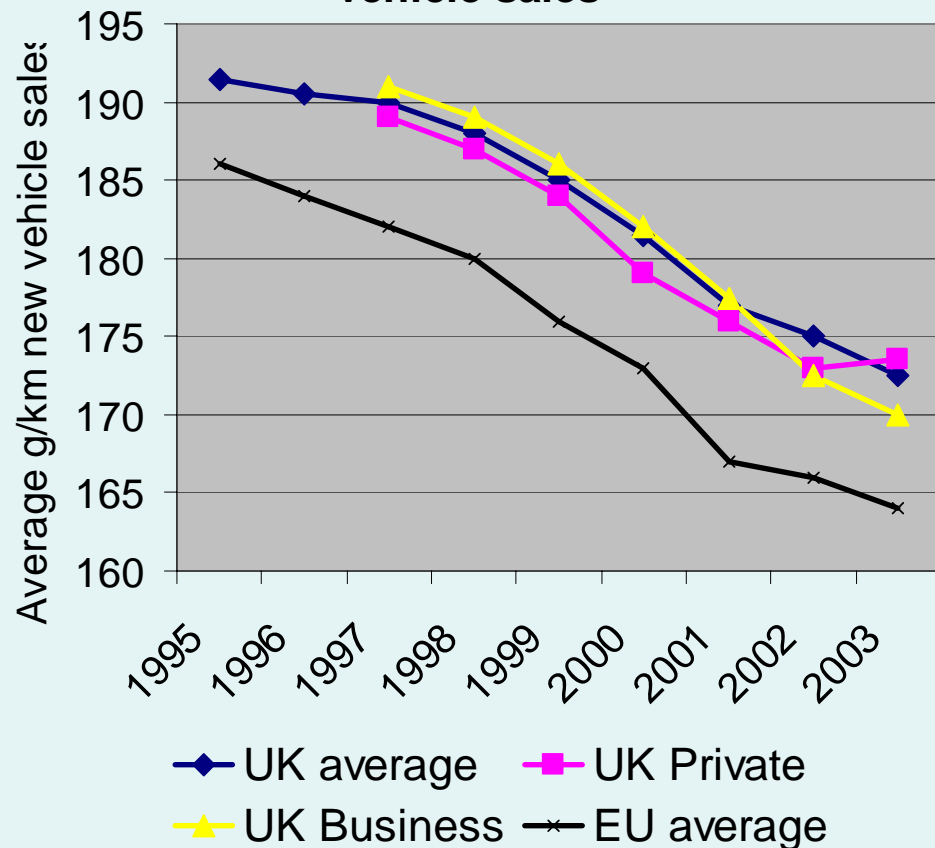
Fuel Economy		Ford Fiesta 1.4 TDCi ZETEC
CO₂ emission figure (g/km) 		B 117 g/km
Fuel cost (estimated) for 12,000 miles <small>A fuel cost figure indicates to the consumer a guide fuel price for comparison purposes. This figure is calculated by using the combined drive cycle (town centre and motorway) and average fuel price. Re-calculated annually, the current cost per litre is as follows – petrol 76p, diesel 78p and LPG 50p (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 Important note: Some specifications of this make/model may have lower CO ₂ emissions than this. Check with your dealer.		

The market for environmentally friendly vehicles is presently small and incentives for consumers limited

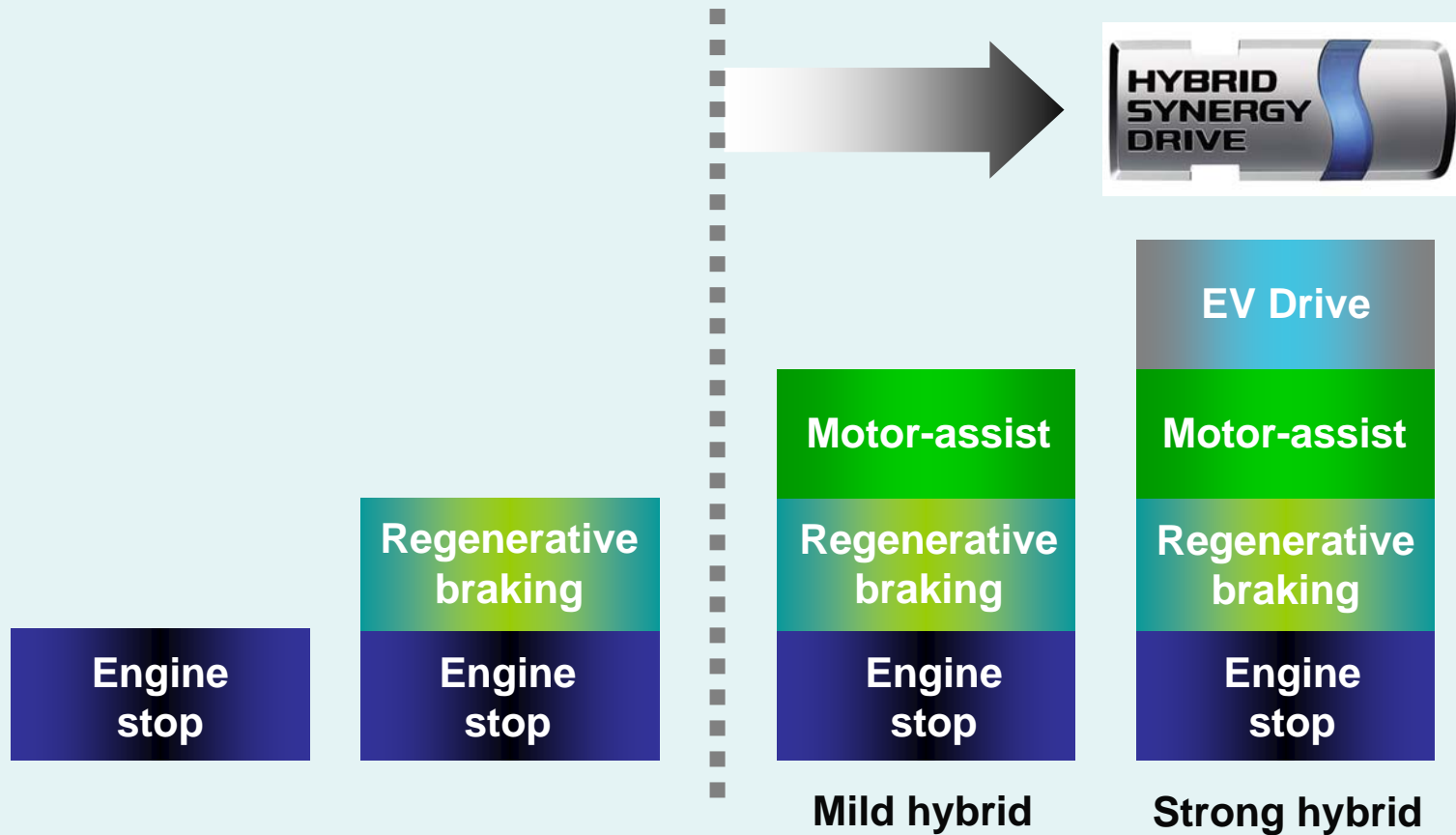
New car sales by VED Band



Fleet average emissions for new vehicle sales



The evolution to zero emission vehicles starts with hybrid technology

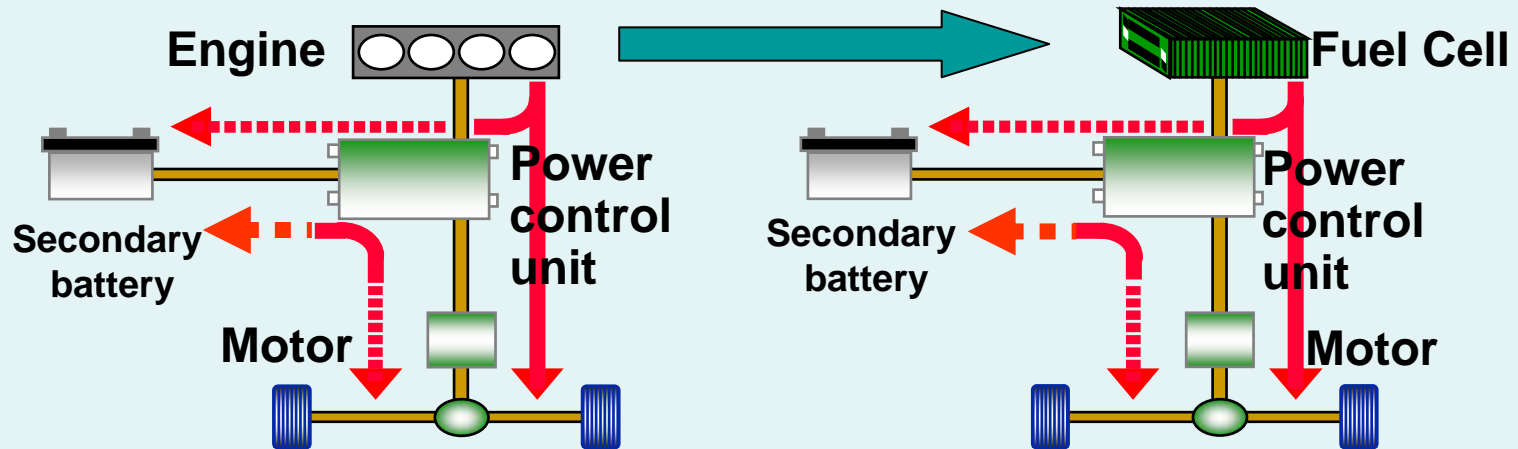


Future evolution of Hybrid Technology

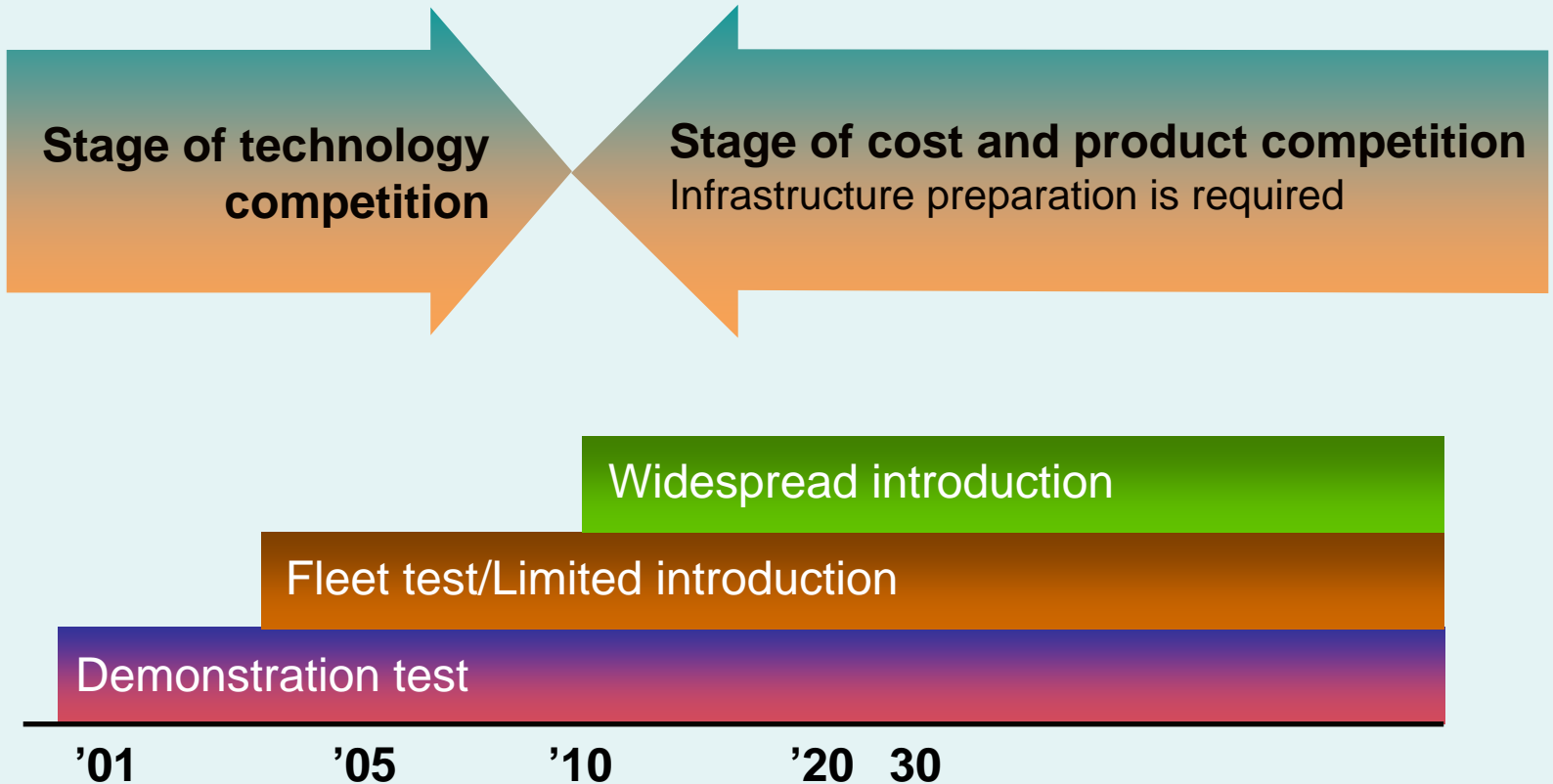
Prius: gasoline



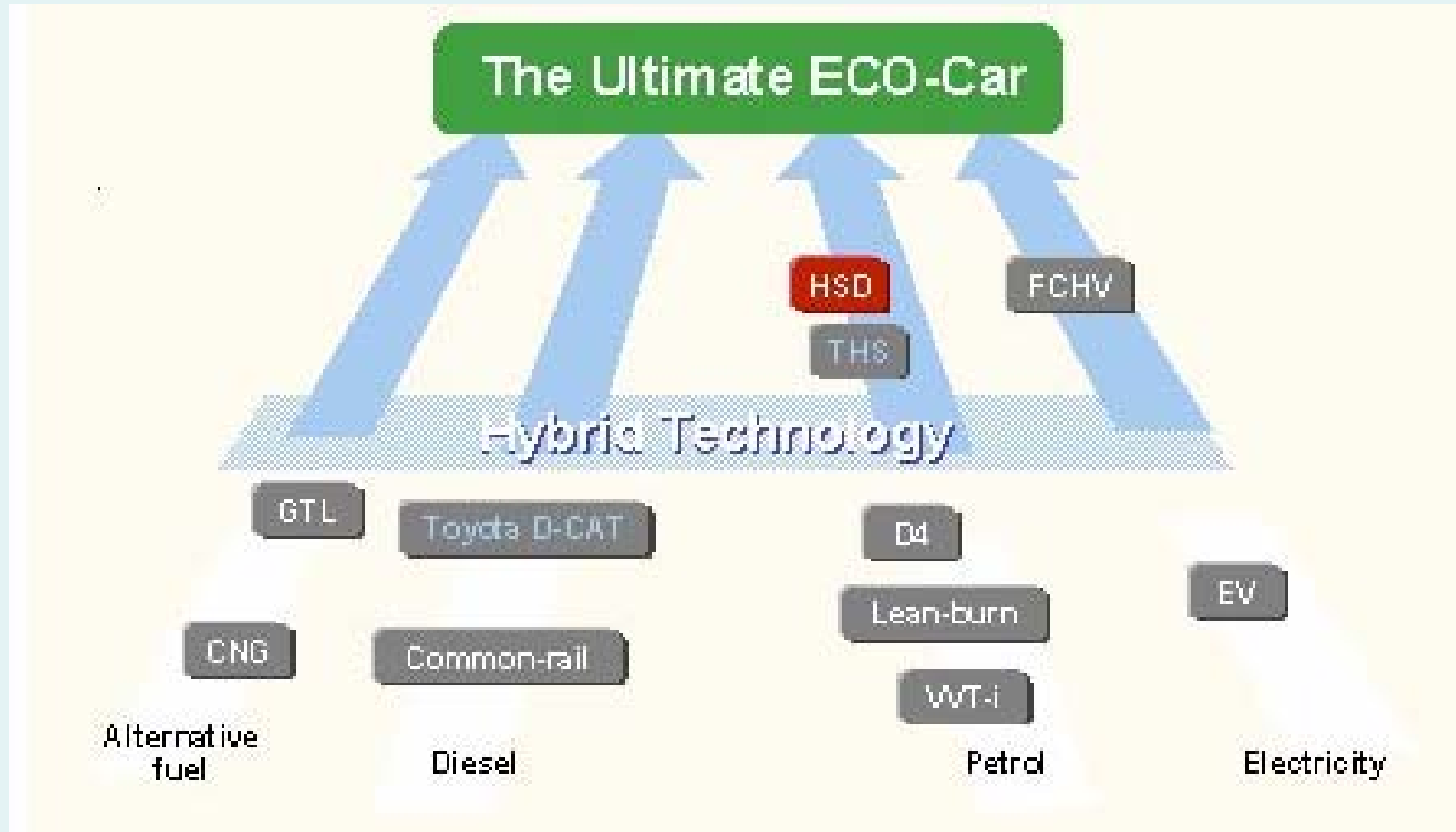
FINE-S: hydrogen



Forecast for Fuel Cell Vehicle Market Introduction



Environmental leadership



Summary

- ❑ The car of the future will be zero emission – addressing the environmental challenges of climate change, air pollution and noise
- ❑ Hybrid Synergy Drive technology is an important step in the evolution of technology to zero emission vehicles
- ❑ The LowCVP is working effectively to accelerate the transformation of the market which is currently limited by inadequate incentives to change consumer attitudes and buying behaviour
- ❑ The high cost and limited availability of renewable transport fuels is a major barrier to the introduction of low carbon vehicles
- ❑ Toyota has commenced a journey to the zero emission car of the future - other stakeholders must also contribute to accelerate progress