



# Building the UK a Competitive Advantage from the Shift to a Low Carbon Economy

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Promoting Low Carbon Vehicles: Policy and Practical Action  
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# Scope of Presentation



- UK competitive advantage
- Cenex approach to assisting UK competitiveness
- Conclusions

# UK Motor Industry Competitiveness



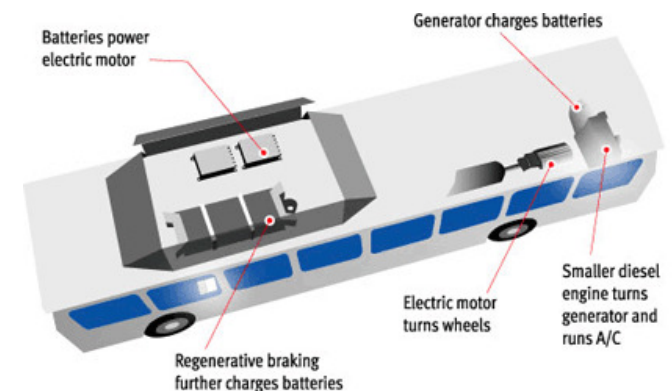
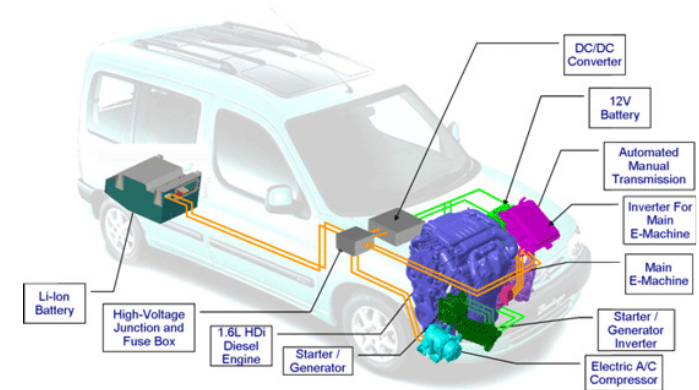
- 6.8% of UK Manufacturing Sector GDP, 3,500 companies, 198,000 employees
- Vehicle Production
  - > 40 Vehicle Manufacturers contributing £9.8b value-add
  - > 1.5million cars and > 200,000 commercial vehicles
- Engine Production
  - 3 million engines produced each year
- Components Sector
  - > 2,600 component manufacturers (including 19 of top 20 suppliers) producing total of £4.8b value-add
- Design Engineering
  - Employs 7,500, £650mpa turnover
- Motor Racing
  - 38,000 people employed, £4.6b of turnover
- Academic and Industry R&D
  - Heritage of > 100 collaborative Foresight Vehicle projects worth> £100m

Source: BERR

# Opportunities from the shift to a Low Carbon Economy



- Light weight Materials
  - Light weighting via composites
- Energy storage and release
  - Braking: batteries, supercapacitors, flywheels
  - Exhaust gas energy recovery
- Powertrain efficiency enhancement
  - Advanced engines, battery electric, hybrid and fuel cell powertrains
  - Energy efficient mechanical and electric drivelines
- Combustion and fuel processing systems enabling operation on renewable energy feedstocks
  - Green electricity
  - Hydrogen
  - Bio-fuels (liquid and gaseous)
  - Synthetic (Fischer-Tropsch) fuels



# Challenges Faced by New Low Carbon Automotive Technologies



- Need help in critical exploitation (Valley of Death) phase between R&D and Deployment
- Limited early\niche markets for immature products
- Disruptive technologies not easily integrated into (risk averse) mature motor industry investment cycles
- Procedural barriers
- “Initial investment” challenge for supply chain and consumer\end users
- Customers need complete package (inc. refuelling infrastructure and after-sales support)
- Critical need for evidence of:
  - Performance capabilities of the key low carbon technologies
  - Supply chain capabilities
  - Market readiness
  - Business case (for suppliers and end users)

# Background to Cenex



- UK's Centre of Excellence for Low Carbon and Fuel Cell Technologies to promote UK competitiveness
  - Recommendation of Automotive Innovation and Growth Team
  - Business case developed via LowCVP stakeholder engagement
  - Launched in 2005 as a BERR sponsored private partnership
  - Appointed manager of a Low Carbon and Fuel Cell Technology Knowledge Transfer Network
- Cenex strategic delivery via:
  - technology demonstrations
  - Innovation Orientated Procurement
  - Knowledge Transfer Network

Low Carbon  
and Fuel Cell  
Technology

Knowledge Transfer Network



## Technology Demonstrations

- Help mobilise an effective UK – located supply chain
- Provide means of technology and market evaluation (stimulate market)
- Act as flagship projects to showcase UK supply chain capabilities to the global motor industry

# Electric Vehicles



- Smart ED Project
  - Field trial of 100 Smart 4,2 ed cars in the UK. If the trial is successful, providing evidence of a market at the right product price, Smart will launch an ed version of the next generation smart car
  - Cenex helped place vehicles with public and private sector fleet operators and will oversee field trial (qualitative as well as quantitative testing)
- Modec Dealer Network Support
  - Cenex providing leasing support package to enable set-up operations (vehicles and garaging equipment) at dealers with the aim of helping ensure triability of Modec vehicles
  - Cenex will work with project partners to accelerate setting of realistic industry view on EV Residual Values





# Hybrids and Biofuels



- Hybrids
  - Working with the leading technology developers from the UK supply chain and a number of blue chip public and private sector fleet operators to formulate diesel electric hybrid demonstration projects for van, mini-bus and midi-bus applications
  - Projects will help illustrate the fuel (carbon) and lifecycle cost) savings potential of hybrids, which are very application (duty cycle) specific
- Biogas
  - Working with organisations investing in processing waste to integrate transport (natural gas and dual-fuel vehicles) into waste-to-energy projects



# Hydrogen and Fuel Cells



- EnV Bike Certification
  - Using EnV bike as a test case for developing processes to secure vehicle certification needed to help overcome barriers to UK demonstrations of hydrogen vehicles
- Hydrogen Clusters Project
  - Project underway to integrate vehicle use into emerging regional hydrogen infrastructure development projects



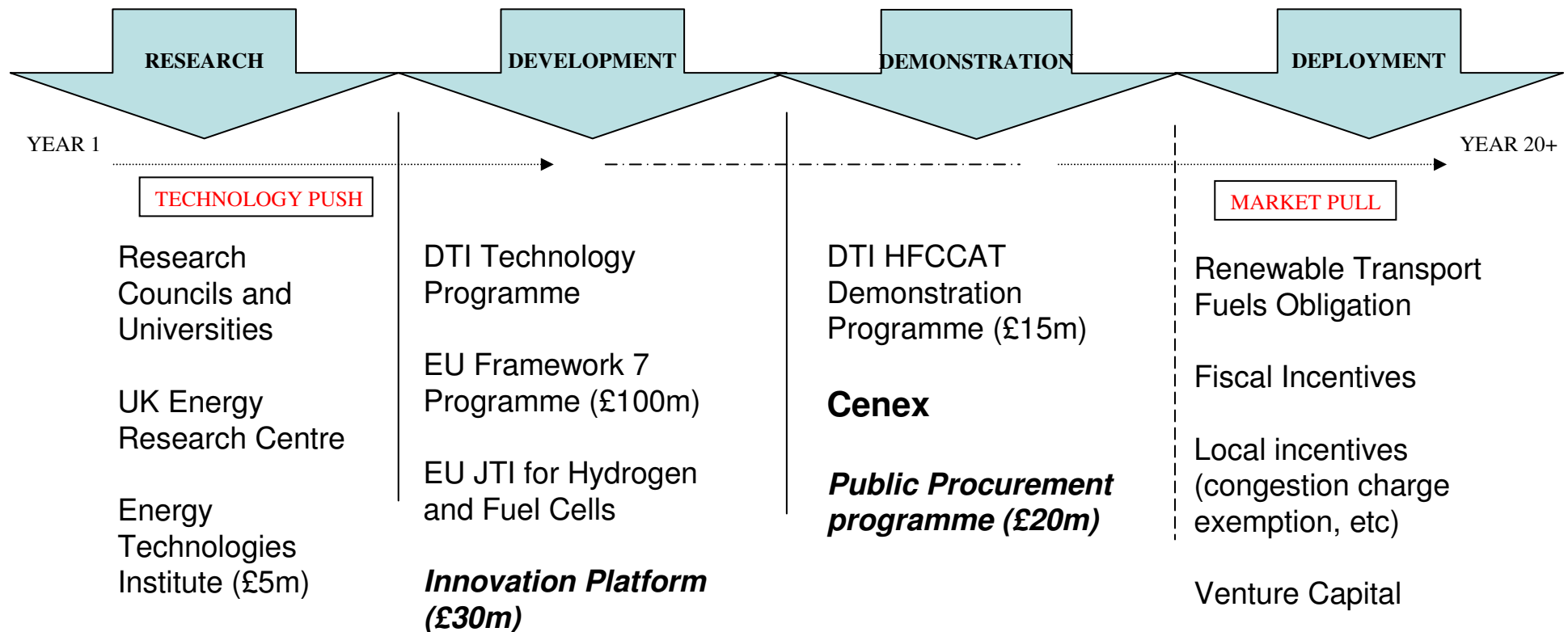
## Cenex and Innovation Orientated Procurement

- Low carbon vehicle options available today represent only a fraction of what supply chain could and will eventually deliver
- Clear gaps between what is available and what innovative fleet operators would like to trial prior to adoption
- Early evidence of organisations willing to trial emerging low carbon vehicles

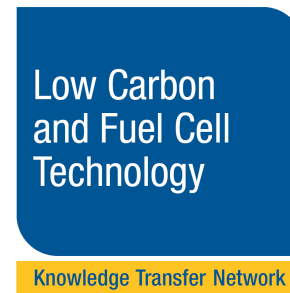


- Cenex seeking to assist UK public and private sector fleet operators to make future demand visible via Innovation Orientated Procurement (IOP)

# Cenex fits within UK policy framework designed to encourage progression from RD&D to Deployment



# Knowledge Transfer Network



- KTN dedicated to Low Carbon and Fuel Cell Vehicles
  - With SMMT Foresight Vehicle, Fuel Cells UK and Fuel Cell Today
- Focus on accelerating knowledge transfer through networking
- Delivery via
  - Events, special interest communities
  - Easy to use information services ([www.lowcarbonfuelcellktn.org.uk](http://www.lowcarbonfuelcellktn.org.uk))
- Metrics
  - Lead (150 organisations actively engaged)
  - Lag (# of projects\collaborations created and Finance raised)

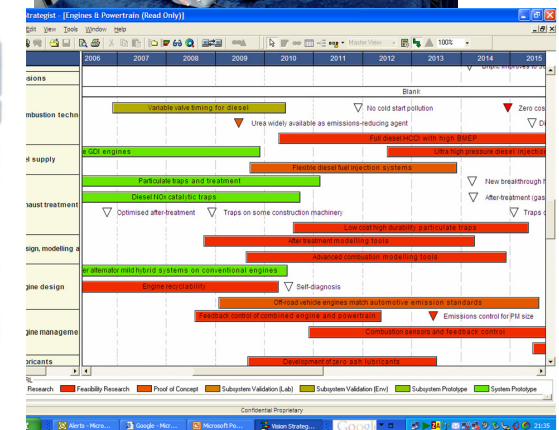
### Low Carbon Technology Vehicle Exhibition

Promoting the reduction of transport CO<sub>2</sub> emissions

20 July 2007 8.30 - 15.00

Time	Activity	View vehicles
8.30	Outside: Vehicle Demonstrations in the car park	View vehicles
9.00	Banqueting Suite: Event opens	View vehicles
9.10	Overview of the day's proceedings	View vehicles
9.15	Key Note Address	View vehicles
9.30	'Setting the Environmental Scene'	View vehicles
9.50	'The role of Cenex in the Low Carbon Automotive Sector'	View vehicles
10.15	'Natural Gas Use in the Haulage Sector'	View vehicles
10.35	'Hybrid Buses'	View vehicles
10.50 - 11.20	BREAK	View vehicles
11.20	'Strategies for Fleet Improvements'	View vehicles
11.40	'Hybrid Cars and Vans'	View vehicles
12.00	'Electric Vehicles and Plug-in Hybrids'	View vehicles
12.15	'Biomethane in the Automotive Sector'	View vehicles
12.30 - 13.00	Panel Discussion	View vehicles
13.00 - 14.00	LUNCH	View vehicles
14.00 - 15.00	Outside: Vehicle Demonstration	View vehicles

A seminar and exhibition hosted by Leeds City Council and Cenex. Sponsors include NGVA.



The website homepage features a navigation menu, a 'Welcome' message, and a 'Join Now!' section. It highlights the Low Carbon KTN's mission to accelerate business innovation through technology. A featured article discusses the KTN's role in providing information and support to researchers and innovators in the low carbon and fuel cell technologies sector.



# Conclusions



- All vehicles will ultimately incorporate low carbon technologies but shift will be disruptive to motor industry in the UK
- Threats and opportunities recognised as justification for a Centre of Excellence
  - Stakeholder engagement focused value-add not on R&D but for active hands-on support for sector leaders in critical exploitation phase
- Cenex seeking to leverage both supply and demand-side investment through supplier-led technology demonstrations and customer-led innovation orientated procurement (IOP)
  - Projects underway for electric and fuel cell vehicles and under development for hybrids and vehicles running on biogas
- Approach of Cenex now supported by policy developments of Low Carbon Transport Innovation Strategy (Innovation Platform and Public Procurement Programme)
- Desired outcome is pump primed UK-based supply chain developing innovative low carbon technologies to showcase to the global motor industry via early demonstration and adoption by fleets motivated to cut carbon



Thank you for your attention

[www.cenex.co.uk](http://www.cenex.co.uk)

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

Low Carbon  
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