

New low carbon vehicles could be on Britain's roads within 5 to 7 years following an investment of £23m of Government funding in 14 innovative new projects.

Including investments by the companies involved, the total value of the investment in these development projects is £52m.

About innovation platforms

Set up by the Technology Strategy Board, innovation platforms address major policy and societal challenges, by working with business and research organisations to identify their response to the issue, understanding the role of Government regulation and procurement, and supporting programmes to deliver innovative solutions.

The first Low Carbon Vehicle Innovation Platform competition was launched by the Technology Strategy Board and the Department for Transport, in September 2007. It allocated more than £20m of investment to support Low Carbon Vehicle research, development and demonstration projects.

It was the first competition under this new innovation platform – which seeks to position the UK's automotive sector to benefit from growing public and private sector demand for lower carbon vehicles.

Two Low Carbon Vehicle competitions have been launched in 2009: 'Ultra-efficient systems for the market advancement of electric and hybrid vehicles' and 'Ultra low carbon vehicle demonstrators'. Project details will be available on the Technology Strategy Board website shortly.

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Low Carbon Vehicles Innovation Platform

Current R&D project details
September 2007 Competition

About the projects

Axon 60: A Structural Carbon Fibre Car with Plug-in Hybrid Option

Project Abstract Unique vehicle structures technology is being put into production for the first time, in a vehicle for the very low CO₂/km fleets of the future, delivering 100+ mpg whilst meeting EU vehicle legislation. It is lightweight (less than 500kg), has low drag and is powered by a best practice 500cc engine and Infinitely Variable Transmission (IVT). The vehicle structure will use a globally patented structural carbon beam technology. A plug-in hybrid system will be used to explore the bounds of plug-in hybrid electric vehicles (PHEV) in light vehicle applications.

Lead Organisation Axon Automotive

Consortium members University of Warwick, Powertrain Technologies Ltd, Scott Bader Company Ltd

Hybrid Electric Technology for Transit Buses

Project Abstract This project will enable accelerated UK market entry of hybrid electric drive (HED) technology by building and developing a UK capability and supply chain. This will speed up production of a UK HED transit bus application and rapidly develop a UK centre of excellence for HED application engineering.

Lead Organisation BAE Systems

Consortium members Alexander Dennis Ltd, University College London

Li-ion Batteries for Plug-In Hybrid Electric Vehicles (PHEVs)

Project Abstract To develop and demonstrate a high efficiency, low cost, and ultra-safe Li-ion cell for HEVs and PHEVs. The project aims to improve the energy density of the low cost, very safe titanate/manganate Li-ion system by incrementally increasing the capacity of the active electrode materials whilst preserving their other characteristics.

Lead Organisation FiFe Batteries Ltd

Consortium members ABSL Power Solutions Ltd

Engine Optimisation for Reduced Parasitic Losses

Project Abstract The project will investigate the application of various new technologies which seek to lower the energy losses due to internal friction of the engine plus other engine and gearbox related parasitic losses. The aim is to demonstrate overall fuel economy improvement and thus CO₂ reduction of 5-10% on the European drive cycle.

Lead Organisation Ford Motor Company Ltd

Consortium members MAHLE Powertrain Ltd, BP

Commercial Vehicle Fuel & Carbon Reduction Using 'Aerospace Aero' Devices

Project Abstract To provide a device fitted to commercial vehicles that significantly reduces fuel consumption and consequently CO₂ emissions. The aim is for the device to build on current systems and technology and take it into a new dimension that utilizes developments from the aeronautical industries.

Lead Organisation Hatcher Components Ltd

Consortium members Mercedes Benz UK Ltd, Cranfield University

Zero Emission London Taxi Commercialisation

Project Abstract To initiate and accelerate introduction of commercial fleets of zero emission fuel cell hybrid taxis, primarily for London, by 2012 and for other cities, by 2014. The project will develop and integrate robust, high efficiency, proton exchange membrane (PEM) fuel cell hybrid powertrains into LTI TX4 taxis.

Lead Organisation Intelligent Energy

Consortium members Lotus Cars Ltd, LTI Ltd, TRW Conekt

Flywheel Hybrid System for Premium Vehicles

Project Abstract To design and develop a mechanical hybrid (flywheel and variable drive system) kinetic energy recovery system for use in premium passenger vehicles – as an alternative, cost competitive solution to other hybrid systems. The project will demonstrate this in an existing vehicle to prove its effectiveness and viability for production.

Lead Organisation Jaguar Cars Ltd

Consortium members Flybrid Systems, Ford Motor Company Ltd, Prodrive, Ricardo UK Ltd, Torotrak plc, Xtrac Ltd.

Limo-Green

Project Abstract To use Jaguar's class leading lightweight aluminium executive saloons as the basis for proving the concept of a large luxury vehicle with an advanced hybrid electric driveline, consisting of an advanced drive motor, small battery pack and a small auxiliary power generator for sustained cruising. The project aim is to demonstrate a vehicle with sub 120gm/km emissions whilst maintaining the premium qualities of the vehicle.

Lead Organisation Jaguar Cars Ltd

Consortium members MIRA Ltd, Lotus Engineering, Caparo Vehicle Technologies

Lower Cost, Lightweight Vehicles by Increasing the Use of Post Consumer Aluminium Scrap

Project Abstract To demonstrate the feasibility of manufacturing a mass producible lightweight car – built using sustainable aluminium sheet partly derived from low cost energy efficient recycled post consumer scrap – within 5 years. This will be a key enabler for mass production in the UK of low CO₂/km premium cars. The sheet manufacture will be based on world leading continuous casting and melt conditioning technology using high performance, low cost sheet cast from melts containing up to 75% of recycled material.

Lead Organisation JLR

Consortium members Novelis Inc, Zyomax, Norton Aluminium, Innoval Technology, Brunel University, Stadco Ltd

Range Extended Electric Vehicle REHEV

Project Abstract Develop a modular electric and electric/diesel powertrain, suitable for several different vehicle types. This will be tested on a large premium sports utility platform delivering 120 to 130g/km and a zero emissions range of at least 12 miles. The project will also investigate range extension and plug-in charging and installation/ commissioning of local recharging facilities for vehicle trials within the E.ON fleet.

Lead Organisation Land Rover

Consortium members Amberjac Projects Ltd, Ricardo UK Ltd, E.ON UK Plc

High Torque Density Electric Drive for Commercial Vehicles (HITED)

Project Abstract To develop a highly novel brushless permanent magnet electrical machine incorporating integral magnetic gearing, for traction use with hybrid trucks, buses and construction vehicles. The recently invented pseudo-direct-drive has the highest torque density of any known electrical machine, improved energy efficiency, requires only natural air cooling, and is more compact with low manufacturing cost. The project will provide and evaluate two demonstrators.

Lead Organisation Magnomatics Ltd

Consortium members Kollmorgen Corporation, Magnet Applications Ltd, Volvo Group

2/4CAR 2/4-Stroke Switching Carbon Reduction Vehicle

Project Abstract The project will deliver a premium vehicle demonstrating 25-30% reduction in CO₂ emissions with no loss of performance, using an innovative, highly-downsized gasoline engine with 2-stroke/4-stroke switching technology. Laboratory work has shown that its torque output is more typical of an engine with twice the capacity. The engine design incorporates a cycle-switching valvetrain, an advanced boosting and control system, and will demonstrate powertrain integration and driveable control strategies.

Lead Organisation Ricardo UK Ltd

Consortium members University of Brighton, DENSO Sales UK Ltd, Jaguar Cars Ltd

DESERVE: Develop High Energy Battery & High Power Supercaps for all Electric Range

Project Abstract Integrate, within a 3.5ton electric delivery van, the two leading, available electrical energy storage technologies – high energy (Zebra battery) and high power (supercapacitors). The project will look to maximise the energy and power capabilities of the two systems, develop a power electronic interface controller to optimise the performance of the combined storage system, integrate the storage system within the vehicle, and optimise vehicle performance. The targets are: a range of 250km, top speed 100km/h and acceleration to 80km/h in 18 seconds.

Lead Organisation Tanfield Group plc

Consortium members Beta Research and Development Ltd, University of Manchester, Energy Technology Services

Second Generation 7.5-12t Diesel/Electric Hybrid Truck

Project Abstract To develop a second generation diesel/electric hybrid truck, in the 7.5t to 12t GVW category. This work would bring forward changes to vehicle architecture, powertrain topology and energy management systems, to deliver an optimised and commercially viable product to the marketplace in 2012/13. With fully integrated hybrid architecture, the vehicle will deliver better fuel economy/CO₂ emission reductions of at least 30% compared to diesel power, in urban operation.

Lead Organisation Leyland Trucks

Consortium members Eaton Ltd, Newcastle University