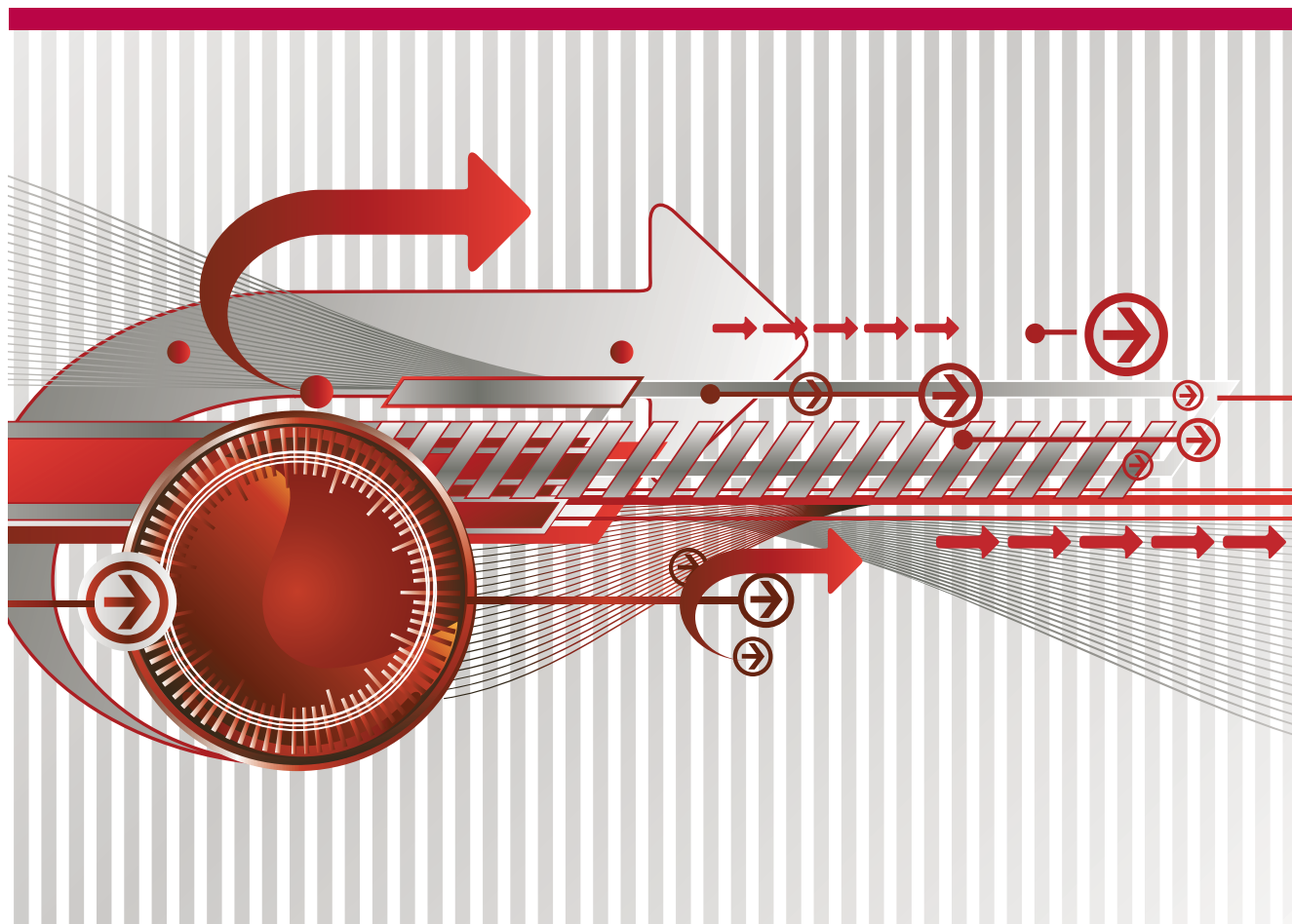




# Low Carbon Automotive Directory

**UK Trade & Investment** is the Government organisation that helps UK based companies succeed in an increasingly global economy.

Our range of expert services are tailored to the needs of individual businesses to maximise their international success. We provide companies with knowledge, advice and practical support.



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# Introduction

Climate change is often quoted as the most significant challenge facing civilisation. Past desires for the most economic energy sources has led to implications for future generations with the consequent need to reduce energy requirements for transport together with reductions in carbon emissions. Europe, the United States and many countries, including the largest of the emerging economies, recognise the need for greater fuel efficiency and have introduced targets and policy statements adding up to a major global push in this area.

- **In Europe, fleet average vehicle CO<sub>2</sub> must be reduced to less than 130g/km by 2015 and to 95g/km by 2020.**
- **Non-compliance fines equivalent to €95/g CO<sub>2</sub> would also be levied on every vehicle sold if the target is not met.**
- **In the USA, an all-encompassing Federal target of 35.5 mpg for all passenger vehicles by 2016 has been announced, unifying regulatory efficiency targets for all of the United States.**

Whilst the key market driver for lower carbon transport is regulatory, consumers have shown an increasing desire for the lower running costs and “greener” image of more fuel efficient vehicles. This has created a demand for new technologies and innovations that are both cost effective and, particularly for passenger cars, attractive, avoiding the perception that fuel efficient vehicles, by definition, are dull and boring. More fuel efficient combustion engines, vehicle innovations, electrification of drivetrains, including all electric and plug-in hybrid systems, are in development and will be introduced to the marketplace in a wide variety of combinations and products.

These new technologies drive the demand for new supply chains, providing opportunities for new entrants to the automotive sector. With expertise in these new technologies spread around the world, consumer markets and supply chains are also likely to globalise. This will provide opportunities for both developed and developing markets in both low carbon technologies and systems.

The UK has a long and experienced track record in the automotive sector with particular strengths in advanced combustion engines, new and lightweight materials and innovative and niche vehicles and products. The UK is also well known for the strength of its motorsport and engineering services sectors. These capabilities have provided the UK with a leading edge capability to respond to the low carbon transport challenge and deliver technology and products to the new and emerging “green” market. This directory reflects the strength and breadth of UK-based companies operating in this key market.



**Professor Neville Jackson**

Group Technology Director, Ricardo UK Ltd  
Chairman, Low Carbon Vehicle Partnership





# About this guide

This guide has been produced by UK Trade & Investment and the Low Carbon Vehicle Partnership. It provides information on the capabilities of a range of UK companies and organisations involved in the low carbon automotive sector.

## This guide

Among the full spectrum of low carbon automotive capabilities featured are:

- Advanced Materials & Fluids
- Specialist Manufacturing
- Engines & Engine Components
- Transmissions & Drive Trains
- Energy Recovery & Storage
- Electrical Recharging Infrastructure
- Low Carbon Fuels & Infrastructure
- Emissions Control
- Systems Integration & Power Management
- Design & Simulation
- Monitoring & Evaluation
- End of Life Vehicle Recycling
- Fuel Cells

The companies and organisations are listed in alphabetical order by name and, where provided, full company contact details are given, followed by summarised information on the services each provides.

An easy reference matrix of key services and products provided by the companies and organisations listed in this guide can be found on page 44.

## NOTE

Whilst every care has been taken in compiling the information in this guide, UK Trade & Investment and the Low Carbon Vehicle Partnership cannot be held liable for mistakes or omissions, and inclusion of any organisation in this guide does not constitute approval or endorsement in any way. The information on specific organisations was provided by the companies themselves, and therefore the opinions and ideas expressed do not necessarily reflect those of UK Trade & Investment or the Low Carbon Vehicle Partnership.

It is the intention of UK Trade & Investment and the Low Carbon Vehicle Partnership that this document should continue to be developed as a useful resource.

UK Trade & Investment is the Government organisation that helps UK based companies succeed in an increasingly global economy. Our range of expert services are tailored to the needs of individual businesses to maximise their international success. We provide companies with knowledge, advice and practical support.

UK Trade & Investment also helps overseas companies bring high quality investment to the UK's economy – acknowledged as Europe's best place from which to succeed in global business. We provide support and advice to investors at all stages of their business decision-making.

UK Trade & Investment offers expertise and contacts through a network of international specialists throughout the UK, and in British Embassies and other diplomatic posts around the world. We can assist at all stages of the business planning cycle, from inception to completion. Here's an overview of what UK Trade & Investment does to foster companies' growth:

#### In The Export Market

- Support to build export capability.
- A range of services to assist in exporting for the first time.
- Advice and support including the highly regarded Passport to Export programme that puts together in one simple, responsive process all the tools that exporting companies need to grow their business. The package includes advice from an international trade adviser to help develop an export strategy, identify gaps in international trade skills and then provide assistance with training, help before a visit to an overseas market and post-visit evaluation.
- Information and opportunities including sales lead and bespoke research carried out by overseas teams that can be accessed via the web. Programmes of face-to-face meetings can also be arranged in-market and with key decision makers brought to the UK.
- Making it happen by arranging meetings with key business contacts, and financially supporting eligible companies to travel in groups, or at times alone to tradeshows through our Tradeshow Access Programme (TAP), or on overseas missions. UK Trade & Investment puts companies in touch with carefully selected potential buyers in their sector who are regularly brought in groups to the UK to see the best we have to offer.

#### Investors To The UK

- In-depth information provision.
- Support with doing international business from the UK.
- UK Trade & Investment will provide targeted companies with a range of support including (where appropriate) a client account manager who will help existing investors develop their business. These account managers will advise on appropriate usage of trade services including sales leads and market research.
- UK Trade & Investment will advise on the UK as a potential business location from the inception of the decision-making process through to detailed exploration of location options.
- A team of R&D specialists helps to support the Government's target to increase UK R&D investment from 1.9% to 2.5% of GDP over the 10-years to 2014.

The programme's objective is to persuade targeted overseas companies to undertake R&D in the UK. This involves the deployment of Virtual Teams, including UK Trade & Investment staff at home and overseas, staff in the Business Relations teams in BIS, the BIS Science and Innovation Network, Research Councils, Technology Strategy Board and a pool of R&D Specialists employed by Pera.

The programme also helps overseas companies find academic or commercial partners in the UK.

**For further information please visit us at [www.uktradeinvest.gov.uk](http://www.uktradeinvest.gov.uk)**

The Low Carbon Vehicle Partnership is an action and advisory group established in 2003 to take a lead in accelerating the shift to low carbon vehicles and fuels in the UK, and to help ensure that UK business can benefit from that shift. The Partnership consists of over 300 organisations from the automotive and fuel industries, the environmental sector, government, academia, road user groups and other organisations with a stake in the low carbon vehicles and fuels agenda.

The mission of LowCVP is “To accelerate a sustainable shift to low carbon vehicles and fuels in the UK and thereby stimulate opportunities for UK businesses” and to achieve this through the aims of:

- Developing initiatives to promote sales and supply of low carbon vehicles and fuels
- Providing a forum for stakeholders to share knowledge and information
- Ensuring that UK motor, fuel and related businesses are best placed to capitalise on the opportunities in the low carbon markets of the future
- Contributing to the achievement of UK Government targets for road transport carbon reduction
- Encouraging research, demonstration and commercialisation of low carbon automotive technologies in the UK and help UK businesses to participate in emerging markets
- Influencing Government and other decision makers on future policy directions and optimal policy mechanisms

LowCVP also plays a key role in helping Government to deliver its low carbon transport strategy which seeks to ensure that the UK takes a leading role in the global shift towards low carbon transport.

At the heart of Partnership are the LowCVP Working Groups which identify opportunities and challenges and the specific actions to realise and address these. The LowCVP working groups are currently formed in the areas of Innovation, Passenger Cars, Fuels and Buses:

- The Bus Working Group consists of bus manufacturers and operators, design engineering companies, delivery bodies and local authorities. Its role is to develop action programmes to encourage the introduction of low carbon buses in the UK.

- The Passenger Car Working Group is comprised of vehicle manufacturers, fleet operators, consumer associations, environmental groups and other interested parties. Its role is to accelerate the introduction of low carbon cars into the UK and to better inform car buyers of the low carbon options available. The PCWG advises Government on the further development of the EU Voluntary Agreements for passenger cars and focuses on a strategic approach to consumer information including environmental labelling for vehicles, identifying key messages and opportunities.
- The Fuels Working Group focuses on providing analysis and strategic advice on future low carbon fuels, including biofuels and hydrogen. Members are utilising UK and international studies to develop a common analysis of the short, medium and long-term options and implementation scenarios for the UK's low carbon transport fuels future. As part of their remit, the group develops advice on a suitable fiscal framework for low carbon fuels and identifies options for research and development.
- The Innovation Working Group provides expertise and develops initiatives to support the development and supply of low carbon technologies for the automotive sector. The Group aims to foster collaborative activity to underpin and strengthen the UK supply chain and identify and address challenges to bringing forward new innovations including access to information, support, market and finance.

**Find out more about the Low Carbon Vehicle Partnership at [www.lowcvp.org.uk](http://www.lowcvp.org.uk)**

# Stakeholder Organisations





**LowCVP**

83 Victoria Street  
SW1H 0HW

**Roy Williamson**

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roy.williamson@lowcvc.org.uk  
www.lowcvc.org.uk

The Low Carbon Vehicle Partnership is an action and advisory group, established in 2003 to take a lead in accelerating the shift to low carbon vehicles and fuels in the UK and to help ensure that UK business can benefit from that shift. The LowCVP is a partnership of over 300 organisations from the automotive and fuel industries, the environmental sector, government, academia, road user groups and other organisations with a stake in the low carbon vehicles and fuels agenda.

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**Motorsport Industry Association**

Federation House,  
Stoneleigh Park,  
Warwickshire  
CV8 2RF

**Chris Aylett**

+44 (0)24 7669 2600  
chris.aylett@the-mia.com  
www.the-mia.com

Since organising the first Cleaner Racing Conference in 2002 and through similar events around the world since, notwithstanding the social responsibilities, the MIA has encouraged members and the wider Industry to consider the business opportunities provided by a low carbon future. Increasingly recognised as the laboratory of performance engineering with a powerful and timely problem solving capability, the Industry continues to make major progress innovating alternative fuels, power sources, lightweight materials and increasingly efficient power and drivetrain developments.

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**NNFCC**

Biocentre,  
York Science Park,  
Innovation Way,  
Heslington,  
York  
YO10 5DG

**Geraint Evans**

+44 (0)1904 435 182  
g.evans@nnfcc.co.uk  
www.nnfcc.co.uk

NNFCC are the UK's National Centre for renewable materials and technologies, and provide independent advice and information to industry, Government and the general public. Established in 2003, the NNFCC helps to build supply chains for plant-derived renewable materials including fuels. NNFCC develop and assess the scientific evidence on renewable materials and only recommend products that will deliver environmental benefits

---

**Retail Motor Industry Federation**

201 Great Portland St  
W1W 5AB

**Stephen Latham**

+44 (0)20 7580 9122  
www.rmif.co.uk

Trade federation for franchised dealers & independent garages

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**Sheffield City Council**

PPPM  
PO box 1283  
Town Hall  
S11 1JJ

**Andrew Clarke**

www.sheffield.gov.uk

Procurement Partnering and programme management

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**SMMT Foresight Vehicle**

Forbes House,  
Halkin Street,  
London,  
United Kingdom  
SW1X 7DS

+44 (0)1455 292955  
info@smmtforesightvehicle.org.uk  
www.smmtforesightvehicle.org.uk

SMMT Foresight Vehicle is the UK's prime knowledge transfer network for the automotive industry and is operated by The Society of Motor Manufacturers and Traders. Foresight Vehicle facilitates thematic networking events involving OEM and supply chain representatives, academia and government. Foresight Vehicle also engages in other activities that are informed by its networking events, such as technology roadmapping and supporting R&D consortia. SMMT Foresight Vehicle is a founder member of the Low Carbon and Fuel Cell Technology Knowledge Transfer Network (KTN).

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**Technology Strategy Board**

North Star House,  
North Star Avenue,  
Swindon  
SN2 1UE

**Andrew Everett**

+44 (0)1793 442769  
[www.innovateuk.org](http://www.innovateuk.org)

The Technology Strategy Board is a business-led government organisation which promotes and supports technology-enabled innovation in the UK. One of its major programmes is the Low Carbon Vehicles Innovation Platform, which invests heavily, together with public sector and industry partners, to help business develop a range of technologies which may help provide solutions to this major challenge. Knowledge exchange and collaboration are central to this work. Current projects include a major demonstrator programme involving trials of over 200 ultra-low carbon vehicles around the UK.

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**The Society of Motor Manufacturers and Traders (SMMT)**

Forbes House,  
Halkin Street,  
London,  
United Kingdom  
SW1X 7DS

+44 (0)20 7235 7000  
[www.smmt.co.uk](http://www.smmt.co.uk)

The Society of Motor Manufacturers and Traders exists to support and promote the interests of the UK automotive industry at home and abroad. Working closely with member companies, SMMT acts as the voice of the motor industry, promoting its position to government, stakeholders and the media. Through representation, events, reliable data and advice services, SMMT plays a central role in the working life of the UK motor industry, ensuring that the UK remains a key global player within the automotive sector and that the industry continues to be a significant contributor to the UK economy.

---

**We Are Futureproof**

The Hub,  
5 Torrens Street,  
London  
EC1V 1NQ

**Blake Ludwig, Managing Director**

+44 (0)7932 736 257  
[blakeludwig@gmail.com](mailto:blakeludwig@gmail.com)  
[www.wearefutureproof.org.uk](http://www.wearefutureproof.org.uk)

We Are Futureproof is a not-for-profit limited company focused on helping to bring in sustainable transport solutions. Through our Transport on the Move strand we are researching and promoting new cutting edge designers, thinkers and ideas that have the capacity to change the way we travel. Our Driving Knowledge strand focuses on providing car consumers the information they need to make better purchasing choices in our changing world. We are very keen to find new collaborations for academic research projects and knowledge sharing that will help to transform the car market.

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# Production/Manufacture



**Allied Biodiesel Industries (UK)**

6 Coyle's Lane,  
Ballyrobert,  
Bangor, Co Down  
BT19 1UF

**Terry de Winne**

+44 (0)28 9185 3318  
terry@biofuels.fsnet.co.uk  
www.ukbiodiesel.biz

Trade organisation

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**Allied ZEV**

230 Balmore Road,  
Glasgow  
G22 6LJ

**Donald Pow**

+44 (0)141 336 3211  
donald.pow@alliedvehicles.co.uk  
www.alliedelectric.com

Allied ZEV manufacturers and supplies a range of all-electric vans and people carriers. Built in conjunction with Peugeot, current products include the Peugeot Expert and Boxer panel vans, Peugeot Eurobus MPV and Peugeot Monarch minibus. All vehicles have an average range of at least 100 miles and a recharge time of 7 to 9 hours. Demonstrations are available throughout the UK.

---

**Alternative Energy Choices Limited**

Enterprise Workshops  
LL65 2HY

**Martin Brook**

+44 (0)1407 860557  
martinbrook@uwclub.net  
TBA

We are planning for "ENERGY ISLAND" on Anglesey and the North Wales coast.

---

**AVID Vehicles Limited**

Unit 8 Arcot Court  
Nelson Park  
Cramlington  
NE23 1BB

**Mr Ryan Maughan**

+44 (0)1670 707040  
ryan@avidvehicles.com  
avidvehicles.com

New converter and manufacturer of low carbon vehicles having electric propulsion on Saab, LDV and Range Rover platforms.

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**Axeon**

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Wester Gourdie,  
Dundee  
DD2 4UH

**Rebecca Trengove**

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info@axeon.com  
www.axeon.com

Axeon is a leading technology developer, designer and manufacturer of complete Lithium-ion battery systems for Electric and Hybrid Electric vehicles (EVs and HEVs). To date there are over 100 production Electric Vehicles on the roads of Europe powered by Axeon Lithium-ion battery systems. We can deliver batteries with a range of up to 140 miles on a single charge and with stored energy capacity from 5 kWh to 180 kWh. Axeon continues to invest in R&D to make better batteries, improve battery technology, reduce cost and increase performance.

---

**Axon Automotive Limited**

Bryson Building,  
Scott Bader HQ,  
Wollaston,  
Wellingborough,  
Northants  
NN29 7RJ

**Dr Steven Cousins**

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cousins@axonautomotive.com  
www.axonautomotive.com

Axon Automotive designs and manufactures light weight vehicles and vehicle structures based on a carbon fibre structures technology. Low tooling cost for parts, combined with high performance and low weight make this a competitive low carbon car platform technology. Beams, crash structures and structures for vehicle derivatives are typical applications.

---

**Bee Automobiles Ltd**

200 Brook Drive,  
Green Park,  
Reading  
RG2 6UB

**Stephen Voller**

+44 (0)118 949 7000  
stephen.voller@beeautomobiles.com  
www.beeautomobiles.com

British manufacturer of electric cars. Bee One a 5-door 4 seat family car with upgradeable battery packs, available 2011. Top speed 80 mph, range up to 200 miles charged from regular plug socket. Patented design with host of electrical safety features. Estimated cost 12,000 at launch, and eligible for up to 5,000 rebate (awaiting details of scheme from UK Government). BRM Bee Four ERV electric racing car to participate in British speed hill climb championship in 2010 and revive BRM marque. Estimated 720kw or 1400 hp per tonne. Bee Four, 2-seat extreme track-day version of BRM Bee Four ERV.

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**BIS Manufacturing Advisory Service (MAS)**

East Midlands Development Agency  
NG2 4LA

**Ann Palmer**

+44 (0)115 947 1789  
annpalmer@emd.org.uk  
www.mas.bis.gov.uk

The BIS Manufacturing Advisory Service (MAS) is one of the products in the Solutions for Business suite and as the leading advisor for manufacturing aims to address the practical needs of British manufacturers by delivering practical, hands-on support and assistance from experts in a wide range of manufacturing disciplines. MAS has been a huge success since its launch in 2002. Working with thousands of companies it now plays a vital role in helping UK manufacturers to share knowledge, improve productivity and achieve success in an increasing competitive global economy.

**CAN Systems Ltd**

3 Mackenzie Way,  
Manor Road,  
Cheltenham  
GL51 9TX

**David Paul**

+44 (0)1242 573720  
davidpaul@cansystems ltd.com  
www.cansystems ltd.com

Provider of modular plug/play CAN systems for all vehicle types – based on high volume OEM applications and especially suited to vehicles with high communication demands such as EV and Hybrid. (also close association with Consat Engineering – offering complete EV/Hybrid vehicle drivetrain and electrical integration).

**Chesterfield BioGas**

Meadowhall Road,  
Sheffield  
S9 1BT

**Stephen McCulloch**

+44 (0)7773 039 602  
stephen.mcculloch@chesterfieldcylinders.co.uk  
www.chesterfieldbiogas.com

Now Chesterfield BioGas offers a complete system for the upgrade, storage and dispensing of energy-efficient biogas in the form of naturally generated biomethane. In conjunction with Greenlane Chesterfield BioGas can offer a process to upgrade the raw untreated biogas into biomethane which is identical in composition to CNG, which is suitable for CHP, Gas grid network or fuelling vehicles HGV, buses, coaches, taxis, passenger cars. Chesterfield BioGas offers a complete turnkey solution for all your Biomethane needs.

**Comesys Europe Limited**

Unit 8 Arcot Court,  
Nelson Industrial Estate,  
Cramlington  
NE23 1BB

**Jon Aitchison**

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jon.aitchison@comesyseurope.com  
www.comesyseurope.com

Comesys Europe Ltd design and manufacture systems for vehicle emission control and reduction. The company has three areas of specialism they are:

1. Drive by wire accelerator pedals, hand controls and position sensors
2. Instrumentation and mobile electronics
3. Thermal management and control systems

In addition to the standard product offerings the company has developed a range of mini hybrid systems aimed at parasitic loss

reduction on heavy duty diesel engines. These systems offer an economic payback with a fuel saving of around 10% and corresponding reduction in emissions.

**Connaught Engineering**

Connaught Technical Centre  
Technium Performance Engineering,  
Llanelli Gate,  
Dafen,  
Llanelli  
SA14 8LQ

**Geoff Matthews**

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info@connaughtengineering.com  
www.connaughtengineering.com

HYBRID+ is a system that enhances performance, saves fuel and reduces CO<sub>2</sub> exhaust emissions (up to 25%). Ecologically friendly, with no battery packs to dispose of, store or carry, the lightweight system uses compact supercapacitors with a 10kW motor/generator coupled to the engine via a CVT, adding and recouping energy when required. Developed as Original Equipment for the Connaught Type- Dh four seat coupe, the HYBRID+ range is now available as a retro-fit system for light vans. For more information on Products or Design Services telephone 01554 748820 or visit [www.connaughtengineering.com](http://www.connaughtengineering.com).

**Controlled Power Technologies Ltd**

Unit 4, Westmayne Industrial Park,  
Bramston Way,  
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SS15 6TP

**Nick Pascoe**

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nick.pascoe@cpowert.com  
www.cpowert.com

Evolutionary CO<sub>2</sub> reduction powertrain products: VTES: An electrical supercharger for downsizing/driveability at 12V, cost effective torque assist/mild hybrid at >12V and transient particulate and/or NOx emissions improvements. Fuel cell air supply potential. Production ready. CPT SpeedStart: A 12V Integrated Starter Generator for stop-start micro-hybrid and efficient energy generation. Torque assist/mild-hybrid potential at >12V. Application ready. TIGERS: A Turbo-Generator Integrated Gas Energy Recovery System for efficient energy generation/recovery. Advanced engineering project.

**Corus Strip Products UK**

Product and Market Development,  
Llanwern Works,  
Newport  
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**Vernon John**

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www.corusstripproducts.co.uk

CSP UK manufactures strip steel products for automotive body-in-white, chassis and suspension products. In partnership with our customers, our Automotive Engineering Group and R&D centres, we provide solutions in product design and application technologies to help customers obtain the best results from our products. Our ongoing development programme includes identifying the

strongest, most formable steels which meets our customers' requirements of thinner gauges for vehicle lightweighting, safety and recyclability.

**Cummins Westport Inc.**

Yarm Road,  
Darlington,  
Co Durham  
DL1 4PW

**John Burgess**

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john.m.burgess@cummins.com  
www.cumminswestport.com

Cummins Westport Inca joint venture between Cummins Inc. and Westport Innovations Inc. delivers high-performance alternative fuel engines for the global market. CWI engines are manufactured by Cummins, with warranty, service, and aftermarket support provided by the Global Cummins Distributor and Dealer network. Vehicles powered by natural gas offer up to 20% lower well to wheel greenhouse gas emissions. Engine Summary: CWI offer engines in 6, 8.3 and 9 litre displacements from 195hp through 320hp that meet the latest European and North American Automotive emission standards.

**EcoCa Ltd**

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Vicarage Gate  
W8 4HG

**Kamran M Naghdi**

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ecocaltd@aol.com

At EcoCa we are committed to manufacturing the most environment friendly quadricycle vehicles in the world. At manufacturing stage, during the life cycle and after life. EcoCa has the production line for manufacturing an electric version for 5,500 and a petrol version to be

sold at 1,250. Our vehicles are 2 seaters, automatic, convertible and have the best quality drivelines with lowest cost of maintenance. We have designed for a niche market that has become the main market around the world. Classed as L7e EcoCa can circulate and be sold in Europe as quadricycles.

**Elektromotive Ltd**

The Sussex Innovation Centre,  
Science Park Square,  
Falmer,  
Brighton,  
East Sussex  
BN1 9SB

+44 (0)1273 704775  
info@elektromotive.com  
www.elektromotive.com

Elektromotive is a leading provider of technology and engineering solutions for electric vehicle recharging stations. The Elektrobay is our recharging station for on-street or multi-storey car park installations, a sophisticated piece of design engineering offering a safe and user friendly way to charge electric and plug-in hybrid vehicles. Elektrobays have been operating successfully in 8 London boroughs and 13 counties nationwide for two years. Proven technology available now.

**Elsbett Limited**

1 Vine Street,  
London  
W1J 0AH

**James Scruby**

+44 (0)20 3206 7120  
james.scruby@elsbett.com  
www.elsbett.com

Elsbett is the pioneer and world leader in the technology to operate diesel engines on pure plant oil. This technology achieves significantly higher carbon dioxide savings from the same feedstocks than chemically processed biofuels. Elsbett technology is in use worldwide and operates on most plant oils.

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**EVO Electric Ltd**

14 Woking Business Park,  
Woking,  
Surrey  
GU21 5JY

**James Rosson**

+44 (0)1483 745010  
james.rosson@evo-electric.com  
www.evo-electric.com

EVO Electric develops and manufactures hybrid and electric drivetrain solutions based on proprietary axial flux motor/generator technology. Our core competence is in the design and manufacture of Axial Flux Motors/Generators. Axial flux machines have significant benefits over conventional radial flux machines. EVOs innovations in materials technology, design and manufacture have enabled the successful implementation of machines which meet the requirements of hybrid and electric vehicles as well as other challenging application

---

**FCL Petroleum Ltd**

Hawthorns House,  
Halfords Lane,  
Smethwick,  
B66 1DW

**Colin Walker**

+44 (0) 121 555 1040  
sales@fcl-group.com  
www.fcl-biofuels.com

FCL is a leading blender and distributor of advanced fuels that have a significant impact on lowering CO<sub>2</sub> and other emissions, while still providing an economical source of commercially available petrol and diesel. Operating from our own storage and blending facility located on the UK's East Coast, we are able to supply some of the highest quality fuels currently available in the UK. Our product portfolio includes among others B5, B10, B15 B30 & B50 blends.

---

**Ford Component Sales Ltd**

Eagle Way,  
Warley,  
Brentwood,  
Essex  
CM13 3BW

**John Tampkins**

+44 (0)1277 251272

Ford Component Sales Ltd (FCS), a division of Ford Motor Company, supplies powertrains, chassis and body components to Original Equipment Manufacturers for use in a wide range of vehicles, industrial equipment and other products. FCS is working with a number of companies in the design, development and manufacture of low carbon vehicles with diesel/electric hybrid and electric propulsion. By incorporating Ford powertrains and components in their products, OEMs reap the multiple benefit of market-proven designs, zero development and tooling costs, together with competitive OE pricing.

---

**Formtech Composites**

Leafield Technical Centre  
OX29 9EF

**Mark Preston**

+44 (0)1993 871000  
www.formtech-composites.com

Lightweight design and manufacture. Carbon fibre composite parts, expertise in full vehicle design and project management. Stress analysis and research and development on parts in extreme environments such as high load and temperature. Formtech Composites was created from the Super Aguri F1 Team and is situated near Oxford.

---

**Gasfill Limited**

2 New Star Road,  
Leicester  
LE4 9JQ

**Norman Leece**

+44 (0)1789 751337  
nleece@gasfill.com  
www.gasfill.com

Gasfill have developed and manufacture a low cost slow fill refuelling unit for cars and vans that use CNG (compressed natural gas) as a fuel. The unit can be used anywhere in the world and compresses natural gas from the normal pipeline supply, at an inlet pressure of 21mbar, up to the on vehicle storage pressure of 200bar, A normal domestic electricity socket is used as the source of power. The natural gas supply can also be biomethane. Refuelling takes place over a number of hours when the vehicle is parked at home or at the office. Distributors/manufacturing partners are being sought

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**Greenergy International**

198 High Holborn  
WC1V 7BD  
+44 (0)20 7404 7700  
www.greenergy.com

Greenergy is the UK's largest independent oil company supplying over 10% of the UK's overall petrol and diesel market and approximately one third of the biofuels market. Greenergy has extensive worldwide sourcing experience, with manufacturing operations in the UK and a blending facility in Rotterdam from which it supplies customers across Europe.

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**HGCA**

223 Pentonville Road,  
London  
N1 9HY

**Richard Safford**

www.hgca.com

HGCA is the cereals and oilseeds sector of the Agriculture and Horticulture Development Board (AHDB) established on 1 April 2008. We support the UK cereal and oilseeds industry in improving its competitiveness in the UK and overseas markets. We sponsor R&D and marketing activities for the production of biofuels from UK grown feedstocks. This includes development of biofuel GHG calculators, farm carbon audit schemes, best agronomic practice and breeding programmes for production of low carbon feedstocks, R&D for second generation biofuels.

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**Honda (UK)**

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Berkshire  
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**John Kingston**

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Honda (UK) sells and markets Honda vehicles in the UK. Honda is a leader in the development of low emission hybrid technology, featured in the Civic Hybrid and the all-new Insight. The Insight is the UK's most affordable hybrid and will open up hybrid technology to more UK car buyers. Honda's manufacturing facility in Swindon has produced over 2 million new cars. Minimising environmental impact from the production process is a cornerstone of the operation. Honda was the first manufacturer to introduce global per unit CO<sub>2</sub> reduction targets for our products and manufacturing plants.

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**Hug Engineering Ltd**

5 Noel Coward House  
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**Urs Halter**

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www.hug-eng.co.uk

Hug Engineering develops and manufactures exhaust after treatment systems, specialising in gas and diesel engines from 15 kW.

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**INEOS Bio Limited**

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**Graham Rice**

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www.ineosbio.com

INEOS is the third largest chemical company in the world with 70 manufacturing sites in 14 countries. In July 2008 INEOS Bio was established to commercialise, what we believe to be, the world's most advanced bioenergy technology. Our proprietary technology process will convert wastes generated locally into clean, green biofuel and renewable power for use locally. Use of INEOS Bio Ethanol in cars would deliver 100% GHG savings vs petrol, solve a challenging waste problem, help to provide security of energy supply, create jobs – and the bioethanol should ultimately be cheaper than petrol.

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**International Rectifier**

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Lesbourne Road,  
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**Andrew Stewart**

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Automotive grade (Q100 & Q101) power management semiconductor solutions qualified to meet the needs of 12V, 24V and HEV/EV applications. Industry's leading MOSFET, IGBT, Protected Switch and High Voltage driver ICs for battery management; motor control and power architecture.

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**LiFeBATT**

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**Ian Goodman**

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LiFeBATT is a global provider of large format rechargeable power solutions for diverse applications. Our engineers have more than 20 years of experience in the development of li-ion cells. The LiFeBATT team has extensive expertise in high power, large battery assemblies, as a new power source in the automotive, aircraft, military, UPS, LEV, and e-bike transportation markets. We are a complete solution provider.

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**Market Engineering**

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Market Engineering is Europe's leading PR agency for the automotive technology industry. We have substantial experience working with developers of low carbon vehicle technologies, including electric/hybrid drives, transmissions, control systems, light weight structures and test services. We have worked on TSB and EST funded programmes. If you would like to receive good quality press coverage for your business and technologies, do please give us a call.

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**Microcab Industries Limited**

Bugatti Building,  
Coventry University,  
CV1 5FB

**John Jostins**

www.microcab.co.uk

Design and construction sustainable/ low energy vehicles for urban use including light cars, vans and taxis.

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**Modec**

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Modec is the world's first purpose built Zero Emission Vehicles in its class. UK-based Modec has sold over 120 vehicles since production began and will expand to Europe and the US in 2009.

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**Robert Bosch Ltd**

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**Nik Armistead**

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Bosch is a leading global automotive technology supplier, with expertise in gasoline/direct, diesel high pressure injection systems and hybrid drive technology contributing to lower emissions; active and passive chassis safety systems; as well as power electronics, battery management, electric motors and transmission control. Bosch has a joint venture to develop and manufacture automotive lithium-ion batteries and a collaboration to produce power semiconductors. Bosch supplies start/stop technology to an increasing number of vehicle manufacturers.

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**Scania gb**

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Scania gb is the sister company of Scania CV AB. We supply trucks, buses, coaches and industrial and marine engines throughout the UK. We are able to provide your total transport solutions including specialist vehicles, used trucks and finance package support. We have approximately 100 service outlets throughout the UK

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**Smith Electric Vehicles**

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Birtley Road,  
Washington  
NE38 9DA

**Kevin Harkin**

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Founded in 1920, Smith Electric Vehicles produces a range of battery powered vans and trucks, with top speeds of up to 70mph and a range on one battery charge of 100 miles. They are designed for applications such as home shopping/parcel/post delivery, logistics, utilities, airports and public sector operations. Smith has a collaboration agreement with Ford in Europe to develop and produce commercial electric vehicles, focused on the Ford Transit and Transit Connect vans. This collaboration now extends to North America, where Ford has chosen Smith to electrify the Ford Transit Connect.

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**Stadco Ltd**

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Stadco is the largest BIW company in the UK, engineering and manufacturing body structures for major manufacturers. Stadco is involved in developing engineering and manufacturing solutions for lightweight structures, including using aluminium and magnesium and new processes that will help reduce vehicle CO<sub>2</sub> emissions. Stadco specialises in developing and manufacturing lightweight structures for alternative fuel vehicles that meet all necessary safety requirements. Stadco is UK-based but has operations in Russia and Germany and experience working in North & South America, India and China.

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**Tesla Vehicles Limited**

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**Mr John Holden**

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Designer and manufacturer of leading-edge public transport solutions in PRT systems, ultra light rail and advanced buses and trolleybuses.

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**TomTom WORK**

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TomTom WORK, the B2B division of TomTom NV, provides businesses easy to use and innovative solutions for the management and control of vehicle fleets of any size. TomTom WORK focuses on connected navigation: a smart combination of navigation, two-way communication, tracking & tracing, order management and reporting. Included in the TomTom WORK offering is TomTom WEBFLEET, a market-leading online fleet management service accessible 24 hours a day from any Internet-enabled PC. TomTom WORK sells its solutions across Europe and in the US. Visit [www.tomtomwork.com](http://www.tomtomwork.com) for more info.

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**UOP (A Honeywell Company)**

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**Jim Woodger**

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UOP is a global technology development & licensing company with over 90 years experience in the oil & petrochemical industry. In 2006 UOP started a Renewable Energy & Chemicals business. To date we have launched “Ecofining”, a process for making green diesel from renewable oils. We have also announced the formation of ‘Envergent Technologies’, a JV with Ensyn Corp, which will offer the “RTP” Pyrolysis technology for making green power from biomass, and later drop-in transport fuels from the same. UOP has also conducted 3 successful test flights with green jet fuel made using our technology.

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**Wrightbus Ltd**

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Wrightbus Ltd is a major British producer of high quality, stylish, public transport buses and since 1999 is the leading UK developer and manufacturer of low carbon, hybrid city buses. Currently it provides single and double deck hybrids to bus services in London and its articulated hybrid StreetCar to Las Vegas USA for Bus Rapid Transport routes [BRTs] The company’s substantial R & D programme seeks continuous improvement of fuel economy, carbon reduction and manufacturing efficiency to benefit both bus operators and the environment.

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**Zytek Automotive Ltd**

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Zytek specialise in the design, development and manufacture of electric and hybrid vehicle motor drives and control electronics. Low or high volume production, or built to print solutions for a wide variety of vehicle applications. Zytek offer turnkey solutions to the vehicle manufacturers or the provision of individual components. Operating as a an engineering consultancy Zytek will also offer engineering solutions to their customers.

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# Training and Qualifications



## **Institution of Mechanical Engineers (Automobile Division)**

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The Automobile Division works to promote and develop automotive engineering internationally and to equip engineering professionals from all sections of the industry with the highest standards of technical knowledge and commercial acumen. The Division has over 11,000 members and ten regional centres.

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# Development



**Admeasure Scanning**

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Admeasure Scanning provides services in 3D Laser Scanning, Digital Measurements, Surface Capture, Reverse Engineering and 3D Inspection. The majority of scanning projects can be conducted at clients premises. Reverse engineered data is ideal for import into CAD/CAS packages, NC-machining and for use in computational fluid dynamics and finite element analysis. Admeasure Scanning is also an authorised reseller for Geomagic software products in the UK. This includes Geomagic Studio for Reverse Engineering and Geomagic Qualify for Inspection.

**AEA Plc**

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AEAs team of transport specialists works with a wide variety of public and private sector clients to achieve a sustainable, low carbon future for all modes of transport. Our expertise covers new technologies, emissions, vehicles, fuels and driver behaviour; our work ranges from leading edge technical research and policy, through to helping fleet operators improve their operational efficiency. Since 2006 AEA has run the Energy

Efficient MotorSport programme, supporting cutting edge low carbon automotive initiatives. AEA is a world leading energy and climate change consultancy.

**Airmax Remote Ltd**

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www.airmaxremote.com

As a leading trade supplier of advanced telematics solutions to the fleet market, we offer an innovative range of products providing solutions far beyond the usual simple telematics offerings. We have in-depth market experience and can provide off-the-shelf or custom product and service solutions which are highly functional and extremely competitive and environmentally sensitive. We design, develop, and manufacture our complete range of products and a policy of continuous product development and enhancement is supported by our own, in-house development teams.

**Amzel Ltd**

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With more than 30 years experience in motorsport design, we have moved over the past few years into the design and engineering of ultra-high efficiency road cars. Some of these use hybrid powertrains, with fuel cell or IC engine prime movers and electrical

energy storage in batteries or ultracapacitors; others are pure electric. Motorsport design focuses on efficiency with the aim of maximising performance: we seek to use the same design philosophies, but with the aim of minimising energy consumption.

**Antonov Automotive Technologies Ltd**

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CV34 6LX

**David Paul**

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Transmission specialists – complete transmission design capability (concept, detailed design, prototyping). Novel high efficiency solutions for Electric Vehicles to extend vehicle performance / range and reduce traction motor size.

**Artemis Intelligent Power**

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Loanhead  
EH20 9TB

**Michael Fielding**

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Artemis Intelligent Power (AIP) performs research, development, and technology licensing associated with development and applications of Digital Displacement hydraulic power technology. Digital Displacement technology enables hydraulic hybrid transmissions, and allowed AIP to cut 30% off the CO<sub>2</sub> emissions of a BMW 530i, in independently monitored tests. Although it is licensed to Bosch Rexroth for the on-highway transmission market, Digital Displacement technology has several other automotive

applications including active suspension, accessory drives and fan drives.

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**AVL Powertrain UK Ltd**

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Basildon  
SS15 6SR

**Jason Halsey**

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The latest technology applied with the benefit of experience Engine development through production Drivetrain optimisation Applications Flexibility through open project access for customer and suppliers Production support provided by highly specialised production engineers. Comprehensive technology for testing engines, gearboxes, transmissions and vehicles Test bed systems Instrumentation & diagnostics Optimisation technology Product innovations through close collaboration with pilot customers Maximum accessibility via comprehensive service offering.

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**BAE Systems**

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**Mr Tim Tynan**

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ProductsServices/  
bae\_prod\_eis\_hybriddrive.html

BAE Systems is the world's leading producer of efficient, low-emission hybrid electric propulsion systems for heavy-duty vehicles. The company's HybriDrive propulsion technology has been in daily revenue service on buses in New York and other cities since 1998.

BAE Systems Application Centre in Rochester draws on this experience and together with Alexander Dennis is introducing the HybriDrive propulsion system into the UK. With more than 1,500 buses employing its HybriDrive propulsion system in service or on order, BAE Systems leads the fast-growing market for hybrid electric transit buses.

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**BERU f1systems**

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**John Bailey**

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BERU f1systems offers advanced design and manufacturing facilities for vehicle electrical systems, tyre pressure monitoring, stress measurement and composites. Their Wire in Composite technology offers the ability to create lightweight structures that incorporate wiring, fluid lines, hydraulics into a smaller, lighter and more reliable composite structural part. BERU f1systems is also experienced in wiring systems for KERS (high power)

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**Bio Engine Technology Ltd**

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TR15 2JD

**Philip Hosken**

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LCE/ContentByUser/923

A small, qualified engineering company with patented designs for a cheap to build and operate, lightweight, simple to re-tool and fuel, zero emission vehicle engine. It uses ethanol fuel in an extensively well proven Rankine

Cycle to run an almost silent engine composed of five moving parts that can be scaled to any size. Offers the advantages of an exhaust composed of neutral CO<sub>2</sub> and water (steam) with a substantial reduction in noise pollution and low unit cost. We have designs, schematics and full engineering facilities available for interested partners. See you soon, Phil Hosken

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**Biofuel Matters Ltd**

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NN12 8DQ

**Malcolm Shepherd**

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Biofuel Matters provides consultancy services to biofuel producers and investors on project evaluation, feedstocks and co-product marketing

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**Caparo Vehicle Technologies**

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**David Hartley**

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Caparo Vehicle Technologies primary focus is to help OEMs to develop composite products quickly and efficiently through a combination of innovation and technical expertise, and to supply cost effective production parts using novel composite processing & manufacturing techniques. From clean sheet design and engineering, all the way through to production part supply, Caparo Vehicle Technologies can offer its customers a single point of contact for all composite requirements.

**CENEX**

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Cenex is the UK's National Centre of Excellence for Low Carbon and Fuel Cell Technologies. Cenex assists the UK automotive supply chain to exploit the potential of low carbon technologies. Cenex is brokering a series of demonstrations and field trials that showcase the capabilities of UK automotive component suppliers in implementing key technological solutions for the motor industry. For more information visit [www.cenex.co.uk](http://www.cenex.co.uk)

Centre for Process Innovation (CPI)  
Wilton International Centre,  
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**Steven Broome**

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Innovation centre focusing on four business platforms. One platform is Low Carbon Energy. We are involved in the development of Low Carbon Technology including Fuel Cell technology. We have experience of developing hydrogen systems for automotive applications and have a very good support network of regional SMEs all of which have experiences/skills in the Low Carbon (inc hydrogen and electric vehicles), process, chemical sectors. This provides to CPI customers an exceptionally good one stop supply chain

**CNG Services Ltd**

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CNG Services Ltd (CSL) supports the development of new utilisation options for biogas produced in anaerobic digesters: Clean-up of biogas to produce biomethane  
Compression of bio-methane for use as fuel in road vehicles  
Injection of bio-methane into low pressure gas distribution networks  
We also provide support to introduction of natural gas and biomethane fuelled vehicles.

**CO2ST Limited**

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CO2ST provide an innovative solution to alternative fuels. Working on bespoke projects we design and manufacture fuels to your specific requirements from waste or surplus sources. We work across solid and liquid waste streams and overcome problems such as end of waste, WID and ROCs. In addition we do supply on a toll basis bio diesel that is ROC accredited. Consultancy work is also undertaken in feedstock sourcing and feasibility of projects.

**Cold Logic Limited**

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Consultants in the supply of alternatively fuelled refrigerated commercial vehicles. New product market research and launch.

**Curtis Instruments UK Ltd**

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CURTIS INSTRUMENTS is a manufacturer of motor speed control systems, instrumentation and power conversion products for electric vehicles. Pioneers of battery monitoring technology, Curtis is well positioned to support companies who wish to develop efficient vehicle drive systems. True system integration is possible using our VCL and/or CAN technology plus integrated displays. Curtis already has a global presence serving the OEM markets and the UK division can help you develop a reliable, energy efficient, quality drive system.

**David Lemon Consultants**

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**David Lemon**

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The services include all environmental aspects of passenger cars, light vans, heavy duty vehicles and off-highway machinery operation with regard to carbon and air quality emissions reduction as follows:  
Undertaking of technical and fiscal critiques  
Definition of carbon management strategies  
Advising on smarter travel choices and greener fleet management together with training and seminars associated with these activities  
Project management

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**Delta Motorsport**

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Delta Motorsport is an automotive and motorsport engineering consultancy that prides itself in finding innovative solutions to a wide variety of problems. We have developed this problem-solving philosophy during the many years we have spent working in the high-pressure world of motorsport, but the philosophy is equally applicable to many other fields within engineering. Since the formation of Delta, we have completed a wide variety of project work for an equally wide range of customers, including road cars, race cars, vehicle development, early-stage concept projects and aerodynamics.

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**Drive System Design Ltd**

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Innovative transmission and driveline design and development company. Offering: transmission design, development and dynamic simulation. Significant experience and expertise in the design of low noise gears. Dynamic simulation specialists: Transmission and driveline dynamic system and subsystem performance. Drive cycle and detailed system simulation of hybrid/electric vehicles, using advanced optimisation techniques to fully understand subsystem performance and all interactions delivering optimal solutions.

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**E4tech**

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E4tech is a sustainable energy consulting firm operating at the intersection between business, technology and policy. Since our foundation in 1997 we have served a very broad range of private and public sector clients across the world from our offices in UK and Switzerland, with the goal of achieving solutions that are technologically, economically and environmentally sound. Our key areas of expertise include fuel cells, hydrogen, energy systems, buildings software, bioenergy, solar and novel energy.

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**Ecovector Consulting**

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Ecovector Consulting is a small consulting business specialising in providing strategy and technical advice to support sustainable transport implementation. Our staff have over 30 years of experience in transport and energy technology analysis, including alternative fuels, biofuels, energy efficiency in transport and transport environmental impacts. We provide clients with supporting evidence for policy decisions, assist programme management and undertake project assessment. Our clients include the European Commission, UK Government Departments and public sector agencies.

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### **European Advanced Lead Acid Battery Consortium**

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The EALABC is the European arm of the US-based Advanced Lead Acid Battery Consortium. The world-wide membership consists of battery manufacturers, lead producers, other suppliers to the battery industry and car manufacturers. The Consortium exists to promote research into lead-acid battery technology and has made significant progress in improving life and performance of valve-regulated lead-acid batteries in both EV and HEV operation. As well as promoting and assisting in the funding of research, the EALABC has also been involved in several very successful vehicle demonstration programmes.

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### **FiveBarGate Consultants Ltd**

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#### **Mr Ian Waller**

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FiveBarGate Consultants is lead by Ian Waller, a leading biofuels consultant and recognised expert in bio-diesel and renewable energy within the UK. Ian has experience in first and second generation biofuels production and technology; renewable power systems; renewable heat solutions; green house gas assessment; business development; sales and marketing of energy vectors;

international supply chain development and renewable energy policy, specialising in EU policy.

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### **Flybrid Systems**

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Flybrid Systems LLP has developed an entirely mechanical high-speed flywheel based energy storage and recovery system which meets the 2009 Formula One regulations but which is also suitable for other racing formulae and for road vehicles. The Flybrid device is powerful, small and light giving a high power to weight ratio. The system also has a high round trip efficiency of around 70%. Simulations show real world fuel and CO<sub>2</sub> savings of around 35% for cars fitted with the system. The device is readily recycled and promises to be low cost in volume production.

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### **FOCUS Consulting**

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#### **Dr Geoffrey May**

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Consultancy specialising in rechargeable batteries for transport and other applications with strong expertise in HEVs, PHEVs and pure EVs including infrastructure requirements.

### **Gordon Murray Design Limited**

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#### **Huw Owen**

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Gordon Murray Design aims to be the world leader in automotive design. Gordon Murray best known for his McLaren F1 and Formula One designs heads the Company with a team of world-class talent to undertake automotive engineering programmes in efficient and innovative ways, focusing on lightweight, low carbon vehicles. The Company reverses current industry trend for sub-contracting by having full in-house capability for research, design, prototyping and development.

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### **Green Energy Technologies Ltd**

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Marsh Barton Industrial Estate,  
Marsh Barton,  
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EX2 8PN

#### **Luke Dowell**

#### **Chief Executive Officer**

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The company's patented Split-Pi circuit topology promotes optimisation of component mass to provide high efficiency (>98%) up and down voltage conversion with the ability to seamlessly sink and source electrical current with identical forward and reverse transfer characteristics. The company also has a light weight, high torque motor design. By combining these technologies the company is aiming to deliver a

market leading low voltage gearless direct drive train solution for vehicles with efficiency in excess of 96%. The company is seeking partners to accelerate these developments.

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**Highbury Ltd**

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Highbury is a specialist consultancy with unrivalled expertise in maximising the value of original ideas and new products. This is achieved through Intellectual Property (IP) protection, valuation, development and licensing. Highbury focuses on low-carbon technologies that will make a significant difference, such as biofuels, alternate energy production, emission reduction and hybrid technologies. Highbury has the know-how and strategic vision to make a genuine, measurable and profitable impact on your business. We provide a customised approach to meet your needs and expectations.

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**HILTech Developments Limited**

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HILTech Developments Limited is a UK based private research and development, consultancy and engineering services SME. The company's team of engineers have some thirty-five years experience in

electronic drives and electric vehicle power train systems. HILTech is focused specifically on electric propulsion with plug-in hybrid or fuel cell power plants. The company is also involved in leading-edge research on which it has intellectual property.

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**Hugh Frost Designs**

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**Hugh Frost**

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On Route A real step change in city transportation logistics, Freight\*Bus operating within the On Route system marks the integration of passenger and freight transportation. It will have a profound impact on city infrastructure, providing increased passenger and freight capacity, improved convenience and service, whilst reducing congestion, pollution and real costs.

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**Ilmor Engineering Ltd**

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**Steve Miller**

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Ilmor Engineering is an advanced engine design and development specialist, which has extensive experience in the use of ethanol for Honda's Indycar engine programme and development of a downsized gasoline proof of concept engine. Ilmor's solutions are geared towards efficient, compact, lightweight, cost effective and high performance products. Ilmor has the skills and resources, to design, analyse and manufacture single engine

components through to complete engines, with facilities to carry out emissions measurement, performance development and durability testing of low carbon engines.

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**Infineum UK Ltd**

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**Dr Martin Dare-Edwards**

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Infineum develops & manufactures chemical additives for use in lubricants & fuels. 1 in 3 vehicles throughout the world contains Infineum Additives These additives are the essential active chemical ingredients used in Lubricants & Fuels to improve or create their functionality. Our Lubricant additives are used primarily in automotive, heavy-duty diesel & marine engines. We additionally develop & market additives used in refinery processing & in finished Fuels. Reducing the environmental impact of transportation is either directly or indirectly the driver for all our new product developments.

### **Innoval Technology**

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Innoval Technology is an independent consultancy providing high quality technical support to the global aluminium industry. The company's involvement in the low carbon transport agenda includes promoting the use of Al and Mg alloys in light weight vehicle structures suitable for the mass production of affordable vehicles with low CO<sub>2</sub> emissions. Innoval Technology is coordinating 3 TSB projects based on a novel Al and Mg melt processing technology, developed at Brunel University, aimed at producing high performance, low cost castings, extrusions and sheet products for automotive applications.

### **Intelligent Energy**

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Intelligent Energy is a clean power systems company developing fuel cell systems for its business partners. Our PEM fuel cell systems are high power, compact, rugged, with less balance of plant and designed for mass manufacture. Intelligent Energy's partners include Suzuki, Peugeot Citroen, Boeing (first manned fuel cell aircraft powered by IE fuel cells) and Scottish & Southern Energy. The

company is working with Lotus Engineering, London Taxis International and TRW Conekt to produce fuel cell Black Cabs for London for 2012, in a programme part funded by the Technology Strategy Board.

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### **IQuad Technology Ltd**

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#### **Dan Parry-Williams**

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IQuad Technology is developing a radically innovative, low carbon footprint family of vehicles for a wide range of market sectors. A validation prototype is under construction and due for completion Q3 2009. The modular 80g/km of vehicle is fitted with a diesel powertrain but also designed for electric drive using compact high torque pm motor technology with flux weakening. IQuad Technology has developed an innovative hybrid structural solution combining new composite and aluminium technology for a low cost ultra high performance solution for lightweight structures.

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### **Libralato Engines Ltd**

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#### **Mr. Dan Aris**

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The Libralato rotary engine is an eco-engine for the 21st century. It has a completely new thermodynamic cycle, which is predicted to achieve over 40% efficiency using gasoline and 50%

using diesel because of its asymmetrical expansion and compression volumes, because it does not need to convert linear motion into rotary motion and because it partly recirculates exhaust gas integral to the engine cycle. The 50% size and weight savings of a 50kW Libralato engine would allow all the PHEV components (inc 5kWh batteries) to fit into existing engine cavities = EV urban + E-REV/HEV extra urban.

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### **London Hire Limited**

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#### **Peter Moxom**

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London Hire Ltd have been providing tailored vehicle rental solutions to the Public sector and charities for over 20 years. A full range of options including daily rental and contract hire are available. Vehicles currently supplied by London Hire include, passenger cars, Light Commercial vehicles, Passenger Vehicle (including fully accessible disabled adapted), Refrigerated Vehicles as well as a whole range of alternative fuelled vehicles. The company ethos is based on 3 elements - outstanding service, building relationships and innovation.

**Lotus Engineering**

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Lotus Engineering is internationally recognised as one of the worlds most exciting and dynamic automotive engineering consultancies. It is part of Group Lotus, renowned for manufacturing Lotus sports cars. With offices in the UK, US, Malaysia, China and Japan, Lotus Engineering provides professional consultancy services to many of the worlds vehicle manufacturers. We provide high technology and advanced engineering solutions to the whole industry for: Exciting Niche Vehicles Efficient Performance Driving Dynamics Lotus Technology and Research.

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**Lysanda Ltd**

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Lysanda produces the Eco-Log, an in vehicle device which reduces fleet running costs by providing accurate data on fuel consumption and wastage. Savings are made by improving driver behaviour using the Eco-Log in vehicle display and management tools. Benefits include; Reduced fuel consumption by 10-20%, reduced maintenance costs, carbon reporting, simple installation, low cost, non-invasive and does not impact on vehicle warranty or longevity. Please view our website for further information [www.lysanda.com](http://www.lysanda.com)

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**Ma2T4 Ltd**

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2009 National Winner of the Shell Springboard Award for the best small business idea for combating climate change. Ma2T4 Ltd received the award for its Supercharger Air Hybrid concept that makes green, hybrid cars with smaller engines even more fuel efficient and powerful.

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**MAHLE Powertrain Ltd**

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**Daren Mottershead**

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MAHLE Powertrain Ltd is the engineering services division of MAHLE GmbH. We specialise in the design, development and manufacture of high efficiency, gasoline engines. With R&D centres in Northampton, Stuttgart, Shanghai, Detroit and Sao Paulo, we support all major OEMs on a truly global basis. The MAHLE Advanced Downsizing Technology Demonstrator has become a recognised industry benchmark for highly optimised gasoline engine performance. From initial concept to series production, MAHLE Powertrain makes a significant contribution towards the Low Carbon Vehicles of the future.

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Matchtech Group is the UK's leading technical recruitment consultancy, with divisions covering every facet of engineering. Our Automotive division provides Engineers to the UK's OEMs, suppliers & consultancies, assisting them in the development of vehicles & new technologies. We have a strong history within powertrain engineering, which has recently shifted towards hybrid & low carbon solutions, to mirror the UK's lead in the development of such vehicles. We can provide engineering resource to the Automotive industry tailored to clients' individual needs.

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**Millbrook**

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Millbrook is at the forefront of the low carbon agenda and plays a leading role in bringing the benefits of new technology into the market place. We ensure that Green really is clean by demonstrating through rigorous testing the real environmental advantages of products across the broadest range of pollutants. This focus on what can be achieved today has carried Millbrook into development of hybrid, EV, and fuel cell vehicles and applying best available technology in novel applications. The experience of the Millbrook team is crucial in understanding key aspects of the new technology.

**MIRA Ltd**

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Vehicle engineering specialists, MIRA, believes hybrid and electric vehicles should offer additional desirable features over and above reduced energy consumption and lower emissions. The resultant vehicles benefit greatly from MIRA's ability to combine whole vehicle knowledge with systems integration expertise. Recent examples include advanced energy management; providing extended range, intelligent 4WD; for improved dynamic performance, clutchless gear shift and removable battery

cassettes – all ideal for city driving. Further gains come from non-powertrain features such as improved aerodynamics, reduced friction / light-weight materials, and incorporation of ITS technology.

**NexxtDrive Ltd**

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NexxtDrive is a technology development company with innovative hybrid technologies applicable to all automotive products as well as LEV's, marine, wind turbines. We are keen to engage with manufacturers or tier 1 suppliers who wish to develop such technologies. Our current technology line-up consists of a hybrid variable-speed supercharger, a variable speed belt drive system, an electro mechanical transmission.

**NHB Enterprises Limited**

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NHB Enterprises is a specialist provider of automotive homologation and legislation consultancy services to companies in the automotive sector, with wide ranging experience in the field of automotive type approval, certification and legal compliance in various markets around the world. NHB Enterprises can provide advice and assistance on all aspects of legal compliance and certification

applicable to a wide variety of vehicle types, including battery electric vehicles and hybrid vehicles.

**O&S Technology Ltd**

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**Rob Oldaker**

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O&S Technology (Rob Oldaker & Tony Spillane) come from the automotive industry, with experience in hybrid and electric vehicles, as well as motorsport, and agricultural industry equipment. We can provide technical consultancy, and design and prototyping services, using a large network of associates. By having minimal overheads, we can provide a very cost-effective solution. We are well networked into 'green technology', and have been successful in gaining grant support to assist in undertaking projects.

**Oaktec (Oak Technical Services)**

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Developing hybrid control and energy storage solutions for niche vehicle applications including motorsports. We have been competing in rallies with Honda Hybrids since 2005. We are exploring control strategies and system optimisation to maximise performance and energy efficiency and minimise emissions.



**Origo Industries Ltd**

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The original concept was designed and built by Origo to prove concept on the feasibility of capturing emissions from a moving vehicle, coupling this with the ability to regenerate the CO<sub>2</sub>. Origo Industries is a research and development company based at Daresbury Science & Innovation Campus with core technologies in the automotive and energy sectors. Technologies include: Carbon capture through CO<sub>2</sub> and regeneration via biocatalytic processes New combustion chamber leading to higher engine power to wheel capacity, lower fuel input and reduced emissions.

**Ove Arup & Partners Ltd**

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10,000 strong global engineering consultancy - head office in UK. 20 years experience in vehicle design, with increasing emphasis on low carbon technology. Expertise in concept and package studies; complete vehicle simulation including crashworthiness, safety and NVH; lightweight body design. Authors 2008 BERR/DfT report on scope for transport sector to switch to electric vehicles. Transport system development - transport

planning, vehicle specification, emissions and energy demand prediction. Low carbon technology and fuels strategy. Design for environment, life cycle analysis using GaBi.

**Park and Power**

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Park and Power design and manufacture high quality electric vehicle recharge systems. It's systems have been installed since July 2007. Full matrix billing can be delivered to meet individual requirements along with a modular approach to the aesthetics to help integration with the streetscape. Each recharge facility incorporates two access controlled sockets which utilise a contact safety plug system. Ongoing development capability ensures that Park and Power are well placed to meet the challenges and opportunities for ev recharging.

**Pi Shurlok**

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Pi Shurlok is an engineering consultancy and manufacturer of automotive electronics. Pi Shurlok offers the OpenECU range of electronic controls which allow a seamless transition from prototyping to production by providing unparalleled flexibility in

pre-validated electronic hardware and software. The OpenECU range have been used in a number of low carbon vehicle systems, including a supervisory controller in a full electric vehicle and the engine controller in a petrol-electric hybrid.

**Prodrive**

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Prodrive is a world leading motorsport and automotive technology business. In recent years it has specialised in helping to bring new low carbon technologies to reality. Currently the business is leading a project to develop a flywheel hybrid system for road vehicles; a DC/DC convertor to improve the efficiency of electric hybrids; as well as transferring its skills to develop highly efficient combined heat and power systems which are small enough for domestic use.

**QinetiQ**

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QinetiQ provides design, analysis, development, build and test of hybrid-electric drive systems for vehicles. We specialise in high performance, lightweight and efficient solutions which improve vehicle performance, improve reliability, reduce weight, improve fuel consumption and reduce the cost of ownership for our customers. We also have considerable expertise in a broad range of electrochemical power sources. These are increasingly being used within hybrid vehicles and to power a range of electrically driven ancillaries to reduce fuel consumption and harmful emissions

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Services in Computational Fluid Dynamics (CFD), the virtual simulation of fluid dynamics and heat transfer phenomena including radiation and chemical reactions. Consulting studies, analysis, expertise, software programming, bespoke applications.

**Revolve Technologies Ltd**

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Revolve Technologies Ltd formally Part of Roush Industries, has been involved in the development of Alternative Fuels For the past 10 years. Revolve are currently assisting a number of OEMs in developing low carbon vehicles. Including Series and Parallel Hybrids and Electric Vehicles. Ranging from passenger car, light and heavy Buses, and commercial vehicles up to 40t. We are also developing a range of Hydrogen internal combustion engined vehicles. Supplementing our design and development and testing capability we have facilities for the manufacture Low Carbon vehicles and components

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Engineering and Strategic Consultancy to the Automotive and Clean Energy sectors. UK based plc with 1800 engineers at technical centres in the UK, US, Germany, Prague, China and Japan. Core expertise in powertrain and vehicle engineering, including diesel and gasoline engines, transmissions, driveline, chassis, hybrid and electric systems, fuels and lubricants. Experienced in development and delivery of new technologies through technical

demonstration and into market with major vehicle manufacturers. Regular participant in joint R+D programmes in UK, EU and US.

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Automotive consultant specialising in Low Carbon Vehicle Technology. 30 years experience in senior positions at Ford Motor Company Product Development. Highly successful track record writing TSB project proposals for Low Carbon Vehicles with experience as TSB Assessor for Innovation Programme projects. Chairman of IMechE Automobile Division with extensive network of industry and academic contacts. Royal Academy of Engineering Visiting Professor for Innovation and Design.

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Romax Technology is a leading global drivetrain consultants working with the world's top automotive OEMs. We develop our own unique advanced software and deliver engineering consultancy. Romax offers unique capabilities for hybrid vehicles including: Designing innovative driveline structures, comparing and contrasting different hybrid driveline structures, predicting efficiency of hybrid driveline sub-systems, optimise

driveline layout and operation, and analyse and improve fuel consumption across all operating conditions and vehicle life. We have a unique methodology for energy flow analysis.

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SAIC Motor UK provides an engineering service to the SAIC group. After successfully developing new vehicles and powertrains, it is now engaged in longer term 'advanced engineering' projects, including environmentally sound vehicles.

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**Scion-Sprays**

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Affordable engine management for small engines. Scion-Sprays has developed new fuel injection and engine management technologies specifically for the engines used in motorcycles <250cc and utility engines. The technologies result in component elimination and integration. The result is an engine management system that is around half the cost of a conventional system and very easy to engineer onto the engine or vehicle, meets upcoming emissions legislation and gives the end user better fuel consumption, starting and driveability than the existing carburettor engines.

**Tata Motors European Technical Centre plc**

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Development & Delivery of the Tata Motors Ltd Technology Roadmap - Advanced Engineering Projects (Research in Production) - Hybrid & Electric vehicles across all product sectors, Alternative Fuels, Innovative Transmissions, IC CO<sub>2</sub> Reduction Technologies. Expert leadership of some TML functions, such as styling, passenger cars engines, transmissions, homologation, quality & reliability (including training of Indian team). Research & Development into disruptive technologies (eg. infinitely variable transmission, compressed air engine, hybrid & electric vehicles) to leapfrog competitor offering

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**TEC Ltd**

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Turquoise Engineering Consulting (TEC Ltd) provides informed technical insight to private investors and to businesses seeking investment in the field of inherently lower carbon vehicle systems. Additionally, TEC Ltd advises companies in the same field seeking research funding from national and European sources. TEC Ltd calls upon a network of internationally active professionals who are experienced in technology

assessment and successful delivery to market, who are technically neutral, alert to technology policy developments and understand issues of industry and sector acceptability.

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Conekt delivers specialist engineering and testing services across a range of industries. With over 40 years of experience, Conekt enables its customers to become leaders in their chosen markets through the application of leading-edge technology. Conekt has been involved in the advancement of many ground-breaking technologies with proven capabilities in sensing, actuation and control. As well as being a UKAS accredited test centre, Conekt holds a number of required accreditations and certifications specific to the automotive industry.

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**TTXGP**

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**Rupal Patel**

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Racing series for Zero carbon and clean emission motorsports. Developing world wide multi-mode racing series from 2009. First event: Isle of Man TT, June 12th, 2009.

**Vulcan Dezign**

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Vulcan Dezign is a small Oxfordshire based concern that aims to embrace a greener attitude to motorsport. Alternative fuels and other sources of energy are being adopted for use in their new single seater hillclimb car that is under construction and will debut in Spring of 2010. The success of this project relies heavily on product sponsorship and it is anticipated that promoting the use of alternative fuels will encourage others to make the step away from fossil fuels and enter a new era of motorsport that will become acceptable

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**Williams Hybrid Power Limited**

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**Damien Scott**

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williamshybridpower.com  
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Williams Hybrid Power Limited has developed a novel, patented electromechanical flywheel technology aimed at providing a cost effective, environmentally friendly solution for mobile or stationary energy recovery and storage. Having developed the technology for the demanding and harsh environment of Grand Prix racing, the company is now making the technology available to meet the high-power electrical energy storage needs of the automotive industry and a variety of other applications.

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**Zeroshift**

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World's most efficient transmission  
leads to lower CO<sub>2</sub>.

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**Zircotec**

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Zircotecs high-temperature plasma-sprayed ceramic coatings provide lightweight, easily packaged and highly durable thermal barriers suitable for a wide range of highly aggressive environments. They protect heat sensitive components, improve safety and increase engine performance. Originally developed for the British nuclear industry it is now used in a variety of automotive applications with opportunities to manage heat for DPF, catalysts and regenerative technologies

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# Academic Research





**Brunel University, West London**

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The combustion engines and fuels research at Brunel University is carried out in the Centre for Advanced Powertrain and Fuels (CAPF), a recognised centre of excellence within the University. It is one of the largest and most active research groups in U.K academia and a core member of the European Unions Network of Excellence in Combustion Engines (ECO-Engines). The current research covers both gasoline and diesel combustion engines and their fuels, innovative air hybrid engines, aftertreatment, as well as advanced experimental and computational techniques.

**Cranfield University**

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Cranfield University has a long established reputation for relevance, focus and excellence in all aspects of its work. We have an established history of research and teaching for the automotive sector and have developed dedicated facilities to support this. Our low carbon vehicle involvement covers a very broad spectrum of activities in the automotive area that spans experimentation and analysis of a wide range of activities divided in work areas i.e. Materials, Electrical

& Electronics; User Interaction; User Interaction; System Integration and Aerodynamic Design.

**Cranfield University**

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The Power and Drive Systems Group at Cranfield specialises in advanced in-wheel traction motors, and electric drivetrain systems (with patents), and high speed motor compressors for fuel cells, and contactless recharge. Situated among the industry clusters of automotive and aerospace in Southern England, the Group has been successful in with our partnerships with defence and industry sectors.

**Ecolane Limited**

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Ecolane provides independent advice on how to reduce the environmental impact of road transport through the promotion of low carbon vehicles. The company's consultancy services include: Green Fleet Reviews, life cycle assessments (LCAs) of low carbon vehicles, vehicle emissions audits (CO<sub>2</sub>, NO<sub>x</sub>), car consumer attitude surveys, analysis of vehicle purchasing behaviour, and modelling the impacts of new systems of vehicle taxation.

**Fuel Cells Group**

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Bruno is Head of Proton Exchange Membrane Fuel cells & Lecturer in Hydrogen Energy and Fuel Cell Technologies. He is an expert in the area of PEMFC and Electrochemical Engineering. He is currently responsible for the 1.3M DECC HFCCAT HFC Vehicle project and PEMFC & MEA activities within the FCG. He is also the coordinator of the 5.5M EPSRC Doctoral Training Centre in Hydrogen, Fuel Cells and their Applications. He has successfully implemented a Hydrogen and Fuel Cell Supply Chain within the West Midlands with currently 50 SMEs involved in the development/manufacturing of HFC components.

**Imperial College London**

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A dynamic program of cutting edge research and undergraduate teaching make Imperial one of the world's most exciting and relevant places for electric and hybrid Vehicle research and development. The research activities span fuel cells, batteries, electric motors, power electronics, IC engines and vehicle architecture, from micro to macroscale and from test beds to policy. In the Imperial Racing Green team, undergraduates build and

compete with electric fuel cell race cars, continuously breaking new ground in vehicle architecture, cost and performance

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### **Imperial Racing Green**

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gregory.offer@imperial.ac.uk  
www.imperialracinggreen.com

Imperial Racing Green is an undergraduate teaching project at Imperial College London involving almost 100 students across 8 different engineering departments. We are the only UK team to participate in the worlds first ever hydrogen fuel cell race series, Formula Zero, along with teams from the US, Spain, the Netherlands and Belgium. Imperial Racing Green is also developing a track car sized vehicle for the new low carbon category (Class 1a) of the IMechEs Formula Student competition, where it will race against incumbent and other low carbon technologies on a level playing field.

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### **Institute for Automotive and Manufacturing Advanced Practice**

The Industry Centre,  
Sunderland Enterprise Park West,  
Sunderland  
SR5 3XB

### **Adrian Morris**

+44 (0)191 515 3888  
adrian.morris@sunderland.ac.uk  
www.amap.sunderland.ac.uk

We are a research and reach out institute that forms part of the Department of Computing, Engineering and Technology at the University of Sunderland. We are currently working on several Low Carbon Vehicle projects including a hydrogen ICE powered car, fuel cell

powered buses, novel gearboxes and energy management systems. We have strong R&D links with Oak Ridge National Laboratories in the USA and Shanghai Shen Li High Technologies in China.

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### **Loughborough University**

Stewart Miller Building,  
Loughborough University  
LE11 3TU

### **Rob Thring**

+44 (0)1509 227259  
R.H.Thring@lboro.ac.uk  
www.lboro.ac.uk

Research on the application of fuel cells to vehicles. Includes modelling of whole vehicles, reduced cost bi-polar plates, and heat transfer aspects.

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### **Newcastle University**

School of Electrical,  
Electronic and Computer  
Engineering,  
Newcastle upon Tyne  
NE17RU

### **Dr. Volker Pickert**

+44 (0)191 222 6684

The Power Electronics Drives and Machines Group (PEDM) at Newcastle University belongs to the top-ranked RAE Schools of Electrical and Electronic Engineering and has a strong track record for research in power electronics, machines, and control for automotive application. The group (9 members of staff, 45 research staff and PhD/ENGDOC students) routinely works with a range of industrial partners in DTI, EPSRC and EU funded programs and over the last ten years the group has cooperated with 50 different industrial partners e.g. Toyota, Volkswagen, Prodrive, Leyland, LDV, Eaton, Bosch, Hiltech.

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### **Pivotal Engineering Ltd**

40 Walker Street,  
CHCH,  
New Zealand

Establishing in the UK

### **Paul McLachlan**

+44 (0) 64 21 664082  
paul.mclachlan@pivotalengine.com  
www.pivotalengine.com

The Pivotal engine is a new mechanical means of harnessing the power from combustion fuels. It is an internal combustion engine design that overcomes inherent limitations of the conventional device. It delivers the potential for a significant advantage in power density and thermal efficiency on a wide range of fuels. With full thermal control of the combustion chamber environment it is a clear choice for hydrogen and will become the ubiquitous hydrogen engine of the future. The Pivotal piston is independently thermally controlled with independent internal water cooling.

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### **Science and Innovation Network, FCO**

BTO,  
Bangalore,  
BFPO 5433  
HA4 6EP

### **Rebecca Fairbairn**

091 80 2210 0200

SIN is a joint FCO DIUS operation that coordinates HMG's research and innovation activities overseas.

### Sciotech Projects

Sciotech Office,  
Engineering Building,  
University of Reading  
RG6 6AY

### Rayner Mayer

+44 (0)118 378 6357  
www.sciotech.info  
r.m.mayer@reading.ac.uk

Sciotech Projects works closely with a number of European industries and research laboratories including Reading University in two technology areas – design, manufacture and testing of advanced suspensions using light weight glass reinforced plastics to replace steel and air sprung suspensions; high efficiency drivelines which incorporate energy storage systems using a high speed flywheel and motor/generator which can recover the inertial energy when a vehicle slows down or stops; a battery pack can be added to provide longer term storage of energy

### TheGreenCarWebsite.co.uk

Domain House,  
4 Watchgate,  
Newby Road,  
Hazel Grove,  
Stockport  
SK7 5DB

### Faye Sunderland

+44 (0)161 482 7650  
www.TheGreenCarWebsite.co.uk

The definitive guide to green cars, providing a wealth of information on everything from electric cars, efficient petrol and diesel cars to biofuels and hydrogen technology. The green car advisory website is also the best place for all the latest news and events relating to green cars.

### TWI Limited

Granta Park  
CB21 6AL  
Mike Nunn  
+44 (0)1223 89 90 00

### mike.nunn@twi.co.uk

www.twi.co.uk

TWI is a global company delivering world class value to its Members and the engineering community, through research, consultancy and training services in welding and joining, engineering, NDT inspection, materials, surfacing, and lifecycle integrity – respected for its expertise, professionalism and independence. Our Automotive expertise include welding & joining, materials processing, plastics welding and adhesives bonding. TWI is committed to provision of services to the automotive industry worldwide, building up a vast reservoir of knowledge and experience to better serve the industry.

### UK Energy Research Centre

58 Princes Gate,  
London  
SW7 2PG

### Angela Knight

+44 (0)20 7594 1574  
angela.knight@ukerc.ac.uk  
www.ukerc.ac.uk

The UK Energy Research Centre is the focal point for UK research on sustainable energy. It takes an independent, whole-systems approach, drawing on engineering, economics and the physical, environmental and social sciences. The Centre's role is to promote cohesion within the overall UK energy research effort. It acts as a bridge between the UK energy research community and the wider world, including business, policymakers and the international energy research community and is the centrepiece of the Research Councils Energy Programme.

### University of Bradford

Gt Horton Road,  
Bradford,  
BD7 1DP

### Prof M K Ebrahimi

+44 (0)1274 234526  
m.ebrahimi@bradford.ac.uk  
www.eng.brad.ac.uk/research

Hybrid Vehicle modelling and Control. Brakes and braking systems Condition Monitoring Regenerative braking Driveline and powertrain mechatronics. Hardware in Loop Application. Engine testing and validation Piston Telemetry

### University of Manchester

School of Electrical and Electronic Engineering,  
Sackville Building,  
Sackville Street,  
Manchester  
M60 1QD

### Dr. Nigel Schofield

+44 (0)161 306 4793  
nigel.schofield@manchester.ac.uk  
www.eee.manchester.ac.uk

Dr. Nigel Schofield is a Lecturer in the School of Electrical and Electronic Engineering, at the University of Manchester, UK. His research interests include electro-magnetic power trains for all- and hybrid-electric vehicles, the vehicular application of hydrogen fuel cell systems, aerospace machines and actuators, the industrial applications of electro-magnetic devices and novel machines. Dr. Schofield is a Chartered Engineer and member of the IET.

**University of Nottingham**

Department of Mechanical  
Materials and Manufacturing  
Engineering,  
Faculty of Engineering,  
University of Nottingham,  
University Park,  
Nottingham  
NG7 2RD

**Professor P J Shayler**

+44 (0)115 951 3781  
[www.nottingham.ac.uk/engines-group/](http://www.nottingham.ac.uk/engines-group/)

The Engine Research Group works with industry and academic partners on s.i. and diesel engines for light duty vehicle applications. Expertise includes engine fundamentals, management, friction, combustion, emissions, and fuels, with high capability for experimental and modelling studies of between 1 and 4 years duration on a commercial and/or sponsored postgraduate basis. Facilities include modern test beds, chassis rolls and single cylinder research engines; most have low-temperature work capability. Simulink, Kiva CFD and GT Powers are used in current modelling studies.

---

**University College London,**

Mechanical Engineering  
Department,  
Internal Combustion Engines Group  
Torrington Place  
WC1E 7JE

**Dr.Pavlos G Aleiferis, Mr.Jose Serras-Pereira**

+44 (0)20 7679 3907  
[p\\_aleiferis@meng.ucl.ac.uk](mailto:p_aleiferis@meng.ucl.ac.uk)  
[www.mecheng.ucl.ac.uk/research/thermofluids/ic-engines/](http://www.mecheng.ucl.ac.uk/research/thermofluids/ic-engines/)

The Group's main focus is the study of:

- fuels,
- mixture preparation,
- combustion,
- and
- pollutant generation within spark ignition and diesel engines.

The Group has extensive equipment for carrying out work with test rigs and within intake ports, but a significant proportion of testing concentrates on the cylinder contents of optically-accessed research engines up to and after the point of ignition. Most standard laser diagnostic equipment is available, together with some specialist instrumentation techniques developed by the Group itself.

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**WMG**

Warwick University,  
IMC Building  
CV4 7AL

**Mark Pickering**

+44 (0)24 7652 2962  
[m.i.pickering@warwick.ac.uk](mailto:m.i.pickering@warwick.ac.uk)  
[www2.warwick.ac.uk/fac/sci/wmg/](http://www2.warwick.ac.uk/fac/sci/wmg/)

The strategic vision of WMG is to produce world-leading research, which is highly innovative and of exceptional quality; as the foundation for WMGs excellence in post-graduate training and its unrivalled record of knowledge transfer through engagement with industry and other users. WMG is

committed to attracting and developing talented people, and to producing highly-professional research, training and knowledge transfer that fully meet the needs of users from industry and elsewhere.

# Aftermarket





**Armstrong Nisbet Ltd**

33 St James's Square,  
London  
SW1Y 4JS

**Belinda Nisbet**

+44 (0)7920 855 529  
www.armstrongnisbet.com

Armstrong Nisbet Ltd is a strategy consulting business with a speciality in climate change and carbon markets; commercialising new businesses and products for a low carbon economy. Strategy for businesses for climate change strategy, carbon management, competitor analysis and benchmarking, carbon innovation through new product development or existing product enhancement commercialisation of new low carbon technologies. carbon investment consulting climate change communications strategy & stakeholder engagement offset advisory.

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**Automotive Engineer & Trader**

B-159 (FF),  
Shivalik,  
New Delhi-110017 (India)  
110017

T.W. Balchandani  
1 11 26691893

I (T.W. Balchandani) am the Editor & Publisher of a monthly Automotive Magazine "AUTOMOTIVE ENGINEER & TRADER" which is published from New Delhi.

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**Automotive PR**

21-25 St. Anne's Court,  
Soho,  
London  
W1F 0BJ

**Tom Callow**

+44 (0)20 7494 8050  
tcallow@automotivepr.com  
www.automotivepr.com

Automotive PR is the leading consultancy providing PR services to the global motor industry. Our clients include vehicle manufacturers, as well as Tier 1 suppliers, who are working to produce the next generation, low carbon vehicles, materials and technologies. We are experienced in assisting companies operating in the low carbon vehicle sector in communicating their activities in UK and Europe, as well as in North America and China, where we also have Automotive PR offices. Previous and current clients include Valence Technology, Tesla, Optare, Bosch, Corus, Connaught, GreenChem and Axion.

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**Carmen Data Ltd**

15A Etloe Road  
BS6 7NZ

**Rupert Russell**

+44 (0)117 330 1439  
rtr@comcar.co.uk  
www.comcar.co.uk

Through websites such as www.comcar.co.uk we provide selection, comparison and configuration tools for UK vehicles. There is a strong focus on emissions and fuel costs, as well as comprehensive tax calculators. Tax and cost information is provided on the latest low carbon vehicles in the market, so car buyers and drivers can see the savings that are possible due to fuel efficiency and the multiple tax benefits now accruing from UK legislation.

---

**ChemEcol (UK) Limited**

3 Swallow End,  
Swallowfields,  
Welwyn Garden City,  
Hertfordshire  
AL7 1JA

**Dr. S. O. Hayat**

+44 (0) 1707 330 400  
www.chemecol.net  
chemecoluk@chemecol.net

ChemEcol is a private limited company with its main facilities in the UK and representative offices in South America, South Africa and South Asia. ChemEcol products are non-metallic fuel treatments to improve combustion of hydrocarbon fuels. ChemEcol's products all contribute to the reduction of CO<sub>2</sub>, CO, NO<sub>x</sub>, HC<sub>x</sub>, particulate matter (PM10 and smaller) and reduce fuel consumption. ChemEcol products are used by local governmental authorities & transport companies eg. freight, bus & train to reduce their fuel consumption and carbon footprint. The products are supplied from the UK in 200li drums.

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**evstores Ltd**

118-127 Park Lane  
London  
W1K 7AF

**Julian Wilford**

+44 (0)8456 250675  
julian@evstores.co.uk  
www.evstores.co.uk

Electric Vehicle Stores (evstores) sells a range of electric cars, scooters and commercial vehicles. It is the distributor for the MyCar city car, Tazzari city car, Micro-Vett commercial vehicles and e-max scooters. The product range will be expanding. evstores has also announced that it is considering local electric vehicle production before the start of the 2012 Olympics in London.

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**Michelin Tyre plc**

Campbell Road,  
Stoke-on-Trent  
ST4 4EY  
Peter Snelling  
+44 (0)1782 402000  
www.michelin.co.uk

Supplier of class leading latest generation low rolling resistance tyres for cars, vans and trucks. Delivering at least 4gm/km reduction in CO<sub>2</sub> when fitted. Michelin energy saver tyres manufactured at 'low carbon' Dundee factory.

---

**Motability**

Warwick House,  
Roydon Road,  
Harlow  
CM19 5PX

**Tony Rogers**

+44 (0)1279 635999  
anthonyr@motability.co.uk  
www.motability.co.uk

Motability is a charity set up by the Government in 1977, with the objective of enhancing the mobility of disabled people. In particular, we help disabled people by enabling them to use their government-funded mobility allowances to obtain a car, powered wheelchair or scooter typically on contract hire. In 2008 Motability purchased around 200,000 new cars and currently has a contract hire fleet of more than 500,000 vehicles.

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**Noyle Fleet Solutions**

Prospect House,  
18 Pentrich Road,  
Swanwick,  
Alfreton,  
Derbyshire  
DE55 1BN

**Malcolm Noyle**

+44 (0)1773 608591  
malcolm.noyle@  
noyle-fleet-solutions.co.uk  
www.noyle-fleet-solutions.co.uk

Noyle Fleet Solutions has a lifetime of experience right across the fleet industry, including the more complex areas of the most Innovative General Fleet Management, environmental technologies, Environmental Fleet Management and Work Related Road Safety/Duty of Care and Telematics. What drives us is working to create fleet solutions that are as unique as the businesses they serve. Whatever your needs, we will work with you to identify the most effective ways of creating financial savings from your fleet choices, reducing carbon at the same time. For free advice and support call now.

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**Oxonica Energy**

8 Begbroke Science Park,  
Yarnton,  
Oxon  
OX5 1PF

**Mike Attfield**

+44 (0)1865 856700  
mike.attfield@oxonica.com  
www.oxonica.com

Envirox - Fuel Efficiency Additive  
Envirox, a diesel fuel additive produced by the Oxford University technology spin out company Oxonica, is based on a well-known oxidation catalyst widely used in catalytic converters. The material cerium oxide, has been re-engineered using nanotechnology to allow it to be delivered as a fuel treatment. Fuel economy improvements of 4-11% have been observed in major field trials with bus fleets like Stagecoach. Stagecoach have used Envirox in their UK bus fleet of 7000 buses since 2004 and estimate annual net savings of 3.8m and 24,500 tonnes of CO<sub>2</sub>.

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**Tristar Worldwide Chauffeur Services**

Unit 1-2, Horton Road,  
West Drayton  
UB7 8BQ

**Sylvia Manser**

[www.tristarworldwide.com](http://www.tristarworldwide.com)

Tristar is one of the worlds leading chauffeur companies, completing over 500,000 journeys a year in 60 countries worldwide. With offices in London, Manchester, the US, France and soon Asia, Tristar offers a consistently reliable service, a 24-hour reservation centre and accurate invoicing and management information.

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**Venson Automotive Solutions Limited**

Venson House,  
1 AC Court, High Street,  
Thames Ditton,  
Surrey  
KT7 0SR

**Alison Bell**

+44 (0)8444 991400  
[a.bell@venson.com](mailto:a.bell@venson.com)  
[www.venson.com](http://www.venson.com)

An independent fleet company we're not driven by bank, finance house or manufacturer priorities. So there are no prescribed services. Our solutions are purpose built to meet the operational and financial requirements of the customer, including helping them to adopt a more green approach to their fleet. An example is our annual 'Drive Electric' event, providing a forum for both fleet decision-makers and vehicle manufacturers to discuss and demonstrate the practicalities of adopting electric vehicles as part of a robust fleet policy.

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**VEPower Ltd**

4 Rivers House,  
Fentiman Walk,  
Hertford  
SG14 1DB

**Neil Faulkner**

+44 (0)20 3286 8771  
[info@vepower.com](mailto:info@vepower.com)  
[www.vepower.com](http://www.vepower.com)

VEPower supplies biodiesel blends to hauliers, local authorities, bus fleets and other bulk users of diesel fuel who elect to reduce their carbon footprint. VEPower supplies blends from B20 to B100 to suit our clients. All the FAME O used is compliant with BS EN 14214. VEPower includes a complete additive pack with the fuel for lubricity etc. VEPower is dedicated to sustainability in all activities and so supply only the 'greenest' fuels. The feedstock and processing are all sustainable.

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# Matrix of UK low carbon capabilities









Key																				
Stakeholder Organisations																				
Production/Manufacture																				
Training and Qualifications																				
Development																				
Academic Research																				
Aftermarket																				
		CAN Systems Ltd	Chesterfield BioGas	Comesys Europe Limited	Connaught Engineering	Controlled Power Technologies Ltd	Corus Strip Products UK	Cummins Westport Inc.	EcoCa Ltd	Elektromotive Ltd	Elsbett Limited	EVO Electric Ltd	FCL Petroleum Ltd	Ford Component Sales Ltd	Formtech Composites	Gasfill Limited	Greenergy International	HGCA		
Advanced Materials and Fluids:															•					
Specialist Manufacturing:		•							•			•			•					
Engines and Engine Components:								•			•			•						
Transmissions and Drive Trains:														•						
Energy Recovery and Storage:			•		•	•														
Electrical Recharging Infrastructure:										•										
Low Carbon Fuels and Infrastructure:			•								•		•			•			•	
Emissions Control:				•		•		•												
Systems Integration & Power Management:																				
Design and Simulation:							•					•								
Monitoring and Evaluation:																				
End of Life Vehicle Recycling:							•													
Fuel Cells:																				
Entire Vehicles:					•															
<b>Applicable Vehicle Types</b>																				
Scooters/Motorcycles:			•							•							•			
Specialist/Niche Vehicles:		•	•	•	•	•				•		•	•	•	•	•			•	
Passenger Cars:		•	•	•		•	•		•	•	•		•	•		•			•	
Buses:		•	•	•				•			•		•	•			•		•	
Light Commercial/Goods:		•	•	•	•	•	•	•		•	•	•	•	•		•	•		•	
Heavy Commercial/Goods:		•	•	•				•			•		•	•			•			
Motorsport:		•	•	•		•				•		•	•	•	•					

	Honda (UK)	Hug Engineering Ltd	INEOS Bio Limited	International Rectifier	LiFeBATT	Market Engineering	Microcab Industries Limited	Modec	Robert Bosch Ltd	SCANIA GB	Smith Electric Vehicles	Stadco Ltd	Tesla Vehicles Limited	TomTom WORK	UOP (A Honeywell Company)	Wrightbus Ltd	Zytek Automotive Ltd
Advanced Materials and Fluids:																	
Specialist Manufacturing:		•						•			•	•					
Engines and Engine Components:		•							•	•							
Transmissions and Drive Trains:																	•
Energy Recovery and Storage:					•												•
Electrical Recharging Infrastructure:					•												
Low Carbon Fuels and Infrastructure:			•												•		
Emissions Control:																	
Systems Integration & Power Management:																	
Design and Simulation:												•					
Monitoring and Evaluation:														•			
End of Life Vehicle Recycling:																	
Fuel Cells:							•										
Entire Vehicles:	•						•	•		•	•		•			•	
<b>Applicable Vehicle Types</b>																	
Scooters/Motorcycles:				•	•	•			•						•		•
Specialist/Niche Vehicles:		•		•	•	•	•		•			•	•		•		•
Passenger Cars:	•		•	•	•	•			•		•	•			•		•
Buses:		•		•	•	•			•	•	•		•		•	•	•
Light Commercial/Goods:		•	•	•	•	•		•	•		•			•	•		•
Heavy Commercial/Goods:		•		•	•	•			•	•	•		•	•	•		•
Motorsport:			•		•	•			•						•		•

Key	Institution of Mechanical Engineers (Automobile Division)																
Stakeholder Organisations	Admeasure Scanning	AEA Plc	Airmax Remote Ltd	Amzel Ltd	Antonov Automotive Technologies Ltd	Artemis Intelligent Power	AVL Powertrain UK Ltd	BAE Systems	BERU f1systems	Bio Engine Technology Ltd	Biofuel Matters Ltd	Caparo Vehicle Technologies	CENEX	Centre for Process Innovation (CPI)	CNG Services Ltd	CO2ST Limited	
Production/Manufacture																	
Training and Qualifications																	
Development																	
Academic Research																	
Aftermarket																	
Advanced Materials and Fluids:																	
Specialist Manufacturing:																	
Engines and Engine Components:																	
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Passenger Cars:																	
Buses:																	
Light Commercial/Goods:																	
Heavy Commercial/Goods:																	
Motorsport:																	

	Cold Logic Limited	Curtis Instruments UK Ltd	David Lemon Consultants	Delta Motorsport	Drive System Design Ltd	E4tech	Ecovector Consulting	European Advanced Lead Acid Battery Consortium	FiveBarGate Consultants Ltd	Flybrid Systems	FOCUS Consulting	Gordon Murray Design Limited	Green Energy Technologies Ltd	Highbury Ltd	HILLTech Developments Limited	Hugh Frost Designs	Ilmor Engineering Ltd
Advanced Materials and Fluids:												•					
Specialist Manufacturing:																	•
Engines and Engine Components:			•														•
Transmissions and Drive Trains:		•			•								•		•		
Energy Recovery and Storage:								•		•	•		•	•	•		
Electrical Recharging Infrastructure:											•						
Low Carbon Fuels and Infrastructure:			•			•	•		•								
Emissions Control:									•								
Systems Integration & Power Management:																	
Design and Simulation:				•	•					•						•	
Monitoring and Evaluation:							•										
End of Life Vehicle Recycling:																	
Fuel Cells:						•											
Entire Vehicles:	•			•								•		•		•	
<b>Applicable Vehicle Types</b>																	
Scooters/Motorcycles:		•			•	•					•		•				
Specialist/Niche Vehicles:		•	•		•	•		•		•	•		•	•	•		•
Passenger Cars:		•	•	•	•	•	•	•		•	•	•	•	•	•		•
Buses:		•	•		•	•	•	•		•	•		•		•	•	
Light Commercial/Goods:	•	•	•		•	•	•	•		•	•		•	•	•		
Heavy Commercial/Goods:			•		•	•	•			•	•		•	•	•	•	
Motorsport:				•	•	•				•	•	•	•				•

Key																	
Stakeholder Organisations																	
Production/Manufacture																	
Training and Qualifications																	
Development																	
Academic Research																	
Aftermarket																	
	Infineum UK Ltd	Innoval Technology	Intelligent Energy	IQuad Technology Ltd	Libralato Engines Ltd	London Hire Limited	Lotus Engineering	Lysanda Ltd	Ma2T4 Ltd	MAHLE Powertrain Ltd	Matchtech Group PLC	Millbrook	MIRA Ltd	NexxtDrive Ltd	NHB Enterprises Limited	O&S Technology Ltd	Oaktec (Oak Technical Services)
Advanced Materials and Fluids:	●	●		●													
Specialist Manufacturing:		●								●							
Engines and Engine Components:					●		●			●				●			
Transmissions and Drive Trains:														●			
Energy Recovery and Storage:									●								●
Electrical Recharging Infrastructure:																	
Low Carbon Fuels and Infrastructure:			●														
Emissions Control:	●																
Systems Integration & Power Management:																	
Design and Simulation:				●					●				●		●	●	
Monitoring and Evaluation:								●				●					
End of Life Vehicle Recycling:																	
Fuel Cells:			●														
Entire Vehicles:						●	●				●	●	●		●	●	
Applicable Vehicle Types																	
Scooters/Motorcycles:	●		●		●		●		●		●	●	●	●		●	●
Specialist/Niche Vehicles:	●		●	●	●	●	●		●		●	●	●	●	●	●	●
Passenger Cars:	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Buses:	●	●	●	●	●	●		●	●		●	●	●	●	●	●	●
Light Commercial/Goods:	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
Heavy Commercial/Goods:	●	●	●					●	●		●	●	●	●	●	●	●
Motorsport:	●			●			●		●		●	●	●	●		●	●



	Origo Industries Ltd	Ove Arup & Partners Ltd	Park and Power	Pi Shurlok	Prodrive	QinetiQ	Renuda UK	Revolve Technologies Ltd	Ricardo UK Ltd	Richard Folkson Automotive	Romax Technology	SAIC Motor UK	Scion-Sprays	Tata Motors European Technical Centre plc	TEC Ltd	TRW Conekt	TTXGP
Advanced Materials and Fluids:							•										
Specialist Manufacturing:																	
Engines and Engine Components:								•				•	•				
Transmissions and Drive Trains:	•				•						•						
Energy Recovery and Storage:					•	•			•								
Electrical Recharging Infrastructure:		•	•														
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<b>Applicable Vehicle Types:</b>																	
Scooters/Motorcycles:			•	•	•		•	•	•		•		•				•
Specialist/Niche Vehicles:		•	•	•	•	•	•	•	•	•	•		•			•	•
Passenger Cars:	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•
Buses:	•	•	•	•	•	•	•	•	•	•	•			•	•		
Light Commercial/Goods:	•	•	•	•	•	•	•	•	•	•	•			•	•	•	
Heavy Commercial/Goods:	•	•	•	•	•	•	•	•	•	•	•			•	•		
Motorsport:			•		•		•	•	•		•					•	

Key																				
Stakeholder Organisations																				
Production/Manufacture																				
Training and Qualifications																				
Development																				
Academic Research																				
Aftermarket																				
		Vulcan Design	Williams Hybrid Power Limited	Zeroshift	Zircotec	Brunel University, West London	Cranfield University – Bedford	Cranfield University – Shrivenham	Ecolane limited	Fuel Cells Group, The University of Birmingham	Imperial College London	Imperial Racing Green	Institute for Automotive and Manufacturing Advanced Practice	Loughborough University	Newcastle University	Pivotal Engineering Ltd	Science and Innovation Network, FCO	Sciotech Projects		
Advanced Materials and Fluids:					•		•													
Specialist Manufacturing:		•																		
Engines and Engine Components:					•	•										•				
Transmissions and Drive Trains:				•				•							•					
Energy Recovery and Storage:			•			•		•		•										
Electrical Recharging Infrastructure:																			•	
Low Carbon Fuels and Infrastructure:										•		•					•			
Emissions Control:																				
Systems Integration & Power Management:																				
Design and Simulation:			•	•			•						•	•	•	•				
Monitoring and Evaluation:									•											
End of Life Vehicle Recycling:																				
Fuel Cells:										•	•	•		•						
Entire Vehicles:		•							•								•			
<b>Applicable Vehicle Types</b>																				
Scooters/Motorcycles:				•	•		•	•		•	•				•	•				
Specialist/Niche Vehicles:		•	•	•	•		•	•		•	•				•	•				
Passenger Cars:			•	•	•	•	•	•	•	•	•		•	•	•	•	•			
Buses:			•	•	•		•	•			•		•	•	•	•			•	
Light Commercial/Goods:			•	•	•	•	•	•			•		•		•	•				
Heavy Commercial/Goods:			•	•	•		•	•							•	•				
Motorsport:		•	•	•	•	•	•	•			•	•			•		•			

	TheGreenCarWebsite.co.uk	TWI Limited	UK Energy Research Centre	University of Bradford	University of Manchester	University of Nottingham	University College London, Mechanical Engineering Department, Internal Combustion Engines Group	WMG	Armstrong Nisbet Ltd	Automotive Engineer & Trader	Automotive PR	Carmen Data Ltd	ChemEcol (UK) Limited	evstores ltd	Michelin Tyre PLC	Motability
Advanced Materials and Fluids:		•														
Specialist Manufacturing:		•												•	•	
Engines and Engine Components:						•	•									
Transmissions and Drive Trains:				•	•											
Energy Recovery and Storage:					•											
Electrical Recharging Infrastructure:										•						
Low Carbon Fuels and Infrastructure:	•		•				•	•	•				•			
Emissions Control:			•						•	•						
Systems Integration & Power Management:																
Design and Simulation:																
Monitoring and Evaluation:				•								•				•
End of Life Vehicle Recycling:															•	
Fuel Cells:	•															
Entire Vehicles:														•		
<b>Applicable Vehicle Types:</b>																
Scooters/Motorcycles:		•											•	•		
Specialist/Niche Vehicles:	•	•		•	•		•	•					•	•		•
Passenger Cars:	•	•		•	•	•	•	•	•	•		•	•	•	•	•
Buses:		•		•	•				•				•		•	
Light Commercial/Goods:		•		•	•	•	•	•	•	•		•	•	•	•	
Heavy Commercial/Goods:		•		•	•				•				•	•	•	
Motorsport:		•					•	•					•			

<b>Key</b>
<b>Stakeholder Organisations</b>
<b>Production/Manufacture</b>
<b>Training and Qualifications</b>
<b>Development</b>
<b>Academic Research</b>
<b>Aftermarket</b>

	Noyle Fleet Solutions	Oxonica Energy	Tristar Worldwide Chauffeur Services	Venson Automotive Solutions Limited	VEPower Ltd
Advanced Materials and Fluids:		•			
Specialist Manufacturing:					
Engines and Engine Components:					
Transmissions and Drive Trains:					
Energy Recovery and Storage:					
Electrical Recharging Infrastructure:					
Low Carbon Fuels and Infrastructure:	•				•
Emissions Control:		•			
Systems Integration & Power Management:					
Design and Simulation:					
Monitoring and Evaluation:	•				
End of Life Vehicle Recycling:					
Fuel Cells:					
Entire Vehicles:			•		
<b>Applicable Vehicle Types</b>					
Scooters/Motorcycles:				•	
Specialist/Niche Vehicles:	•			•	•
Passenger Cars:	•	•	•	•	•
Buses:	•	•			•
Light Commercial/Goods:	•	•		•	•
Heavy Commercial/Goods:		•		•	•
Motorsport:					•





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We also help overseas companies bring their high-quality investment to the UK’s dynamic economy – acknowledged as Europe’s best place from which to succeed in global business.

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Published July 2009 by UK Trade & Investment  
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URN 09/1071

