



## IDP15 Winning Projects

### Feasibility Studies

Application Title	Scope	Lead Organisation	Cost Amount (£)	Funding Sought (£)
Zero Emissions capable Ready for Autonomous Urban Deliveries (ZERAUD)	Project ZERAUD will add an electric drive axle to a conventional diesel driven truck, creating a hybrid engine which will store the electrical energy on the trailer in the space that is often left empty at the front of the lower deck of a double deck trailer.	CLAIRVAUX LTD	121,269	84,888
Advanced Materials for Highly Integrated Drives	This project is investigating the development of a novel highly integrated electric drive unit. These will improve operation efficiency and help towards the delivery of zero emissions.	DRIVE SYSTEM DESIGN LIMITED	249,220	179,435
Using aviation based reclaimed carbon fibres for BMC.	The objective of the project is to research and develop a range of composite materials (known as bulk moulding compounds) using recycled carbon fibres reclaimed from end-of-life aircraft and aerospace production waste. The material will be suitable for large scale volume production of lightweight automotive components, using material that is currently sent to landfill or burned.	TOYOTA TSUSHO U.K. LIMITED	208,507	143,581
Ultra Low Cost Electric Vehicle Platform	Understanding the technical and commercial viability of a common chassis that allows installation of a configurable upper section to meet a variety of electric vehicle designs.	D2H ENGINEERING SERVICES LTD	249,546	193,965
INEOS Grenadier	This project will assess the feasibility and production of a hydrogen fuel cell powered 4x4, including the vehicle requirements, system design and component supply.	INEOS AUTOMOTIVE LIMITED	248,675	124,338
CURVE -- Compact Urban Vehicle	CURVE will assess the feasibility of a narrow leaning electric vehicle that increases the lean angle (and hence speed) of the vehicle, whilst maintaining suspension at full lean. This improves both performance and comfort.	STRYKER DESIGN LIMITED	249,653	174,757
Combined Battery-electric technology and Dearman System (CBDS)	This project aims to assess the feasibility of a new combined battery-electric transport refrigeration unit for vans.	DEARMAN ENGINE COMPANY LIMITED	243,405	174,463

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High Speed, Magnet Free Traction Motors and Drives	This feasibility study is looking at a different type of electric motor: the Switched Reluctance Motor which contains no magnet and has a simple construction. The motor can run fast enabling the same power to weight as the permanent magnet motor, has no drag torque and a longer life in the harsh automotive environment.	TECHNELEC LIMITED	249,696	197,229
Totals			2,069,931	1,272,656

### Collaborative R&D

<b>Application Title</b>	<b>Scope</b>	<b>Lead Organisation</b>	<b>Cost Amount (£)</b>	<b>Funding Sought (£)</b>
ZERRO - Zero Emission Rapid Response Operations Ambulance	This project, will deliver an operational prototype zero emission ambulance, for Yorkshire Ambulance Service using of a fuel cell electric range extension. The demonstration prototype will be tested around the Sheffield area, where the hydrogen will be sourced at publicly available stations.	ULEMCO LTD	2,444,176	1,897,908
AMPERE - Additive Manufacturing for Power-dense Electric motor Enhancements	This project aims to utilise additive manufacturing (building 3D objects by adding layer-upon-layer of material) to address the key issues with current electric motor design to deliver step changes in power density.	HIETA TECHNOLOGIES LTD	1,999,123	1,332,200
ASIT - Advanced Silicon Carbide Inverter Technology	Using the latest generation Silicon Carbide technology combined with advanced laminated packaging techniques from healthcare, to design a power inverter that is small enough to be mounted directly onto or into the electric motor offering significant weight and space saving over conventional product.	MICROSEMI SEMICONDUCTOR LIMITED	1,080,943	738,203
High Performance Electric Compressor (HiComp2)	This project will develop a novel high speed twin turbine compressor to producing a more efficient, significantly lighter and lower cost compressor.	EQUIPMAKE LIMITED	2,373,544	1,758,796
100kVA/litre power density motor controller	A manufacturing technique used to make Printed Circuit Boards will be applied to a high power motor. This allows for tight integration of components with a cooling system resulting in increased power densities.	PULSE POWER AND MEASUREMENT LIMITED	1,352,374	1,006,774

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GaNTT - Gallium Nitride Trench-FET Development for Automotive Power Applications	This project will drive the development of a new Gallium Nitride (GaN) based process platform for Automotive Power Electronics	COMPOUND SEMICONDUCTOR CENTRE LIMITED	1,366,691	888,252
TIGER	TIGER will develop an electric motorcycle using innovative integrated solutions for battery, motor, power electronics and vehicle control systems.	TRIUMPH MOTORCYCLES LIMITED	3,991,900	2,490,637
Advanced Multispeed Powershifting 48V traction drive: AMP-48V	The Partners will develop a 48V clutch-less four-speed powershifting electronic-axle for city car applications and validate its performance in a physical demonstrator electric vehicle.	VOCIS LIMITED	683,666	404,667
Lightweight Innovative Battery Enclosures using Recycled Aluminium TEchnologies (LIBERATE)	The project will design and develop recyclable aluminium intensive components for a battery enclosure for vehicles.	CONSTELLIUM UK LIMITED	3,301,333	2,036,754
RaRE – Rare-Earth Recycling for E-Machines	RaRE will establish an end to end supply chain for recycled rare-earth motors.	ADVANCED ELECTRIC MACHINES RESEARCH LIMITED	2,619,984	1,900,889
HiTEV- High Torque Electric Vehicle Motor	The project will develop and deliver a high torque electrical machine and drive system for electric vehicles.	NISSAN MOTOR MANUFACTURING (UK) LIMITED	1,560,281	1,014,063
Integrated Inverter-Converter System with Si-SiC Hybrid Modules	This new technology, an integrated inverter-converter system (ICS) will reduced the volume of the electric vehicle powertrain, while addressing concerns of reliability and fault protection.	ZHUZHOU CRRC TIMES ELECTRIC UK INNOVATION CENTER	1,740,653	1,318,083
ElecTra	ElecTra brings together research in Electric Machine design and Vehicle Control Unit development, together with mechanical powertrain systems design and integration expertise, to deliver a breakthrough in electrification of the agricultural vehicle sector.	ADVANCED ELECTRIC MACHINES RESEARCH LIMITED	3,875,589	2,719,901

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			28,390,257	19,507,127

#### Large R&D

OCTOPUS: Optimised Components, Test and simulation toolkits for Powertrains which integrate Ultra high speed motor Solutions	This project will fully integrating leading motor technologies into the electronic axle. This includes all the power electronics, transmission, materials, simulation, testing and manufacture.	ADVANCED ELECTRIC MACHINES RESEARCH LIMITED	5,009,023	3,743,918
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<b>Totals</b>			35,469,211	24,694,422
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