



PRESS INFORMATION

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RESEARCH PARTNERSHIP AIMS TO USE EXHAUST ENERGY TO IMPROVE BUS FUEL ECONOMY AND REDUCE CO₂

A UK consortium led by Wrightbus and including Queen's University Belfast, Revolve Technologies and Ricardo is to carry out research in a complex project, which aims to further reduce power consumption and CO₂ emissions in hybrid diesel-electric buses.

The three-year **"TERS" (Thermal Energy Recovery Systems)** project will utilise market-leading technology to research, design and integrate pioneering thermal managing concepts into hybrid diesel-electric buses. The project aims to reduce vehicle CO₂ emissions by 10 per cent through the use of waste heat recovery systems while also reducing the average power consumption of air conditioning systems by half, further improving fuel consumption.

The TERS project partners have secured the necessary funding for this important work from a research and development competition managed by the government-backed Technology Strategy Board. The objective of the partners to demonstrate the opportunity for improving bus fuel consumption and reducing emissions through the capture and use of heat otherwise lost during bus operation, was seen as a potentially important step forward in public transport technology.

Mark Nodder, Wright Group Managing Director, said: "Wrightbus is a company where innovation and technology is at the core of everything we do, and we have led the way in the practical development of hybrid technology in buses over a number of years. TERS brings an interesting new dimension to the development of hybrid bus technology and seeks to find responsible solutions to the world's environmental challenges. This exciting new initiative, in close co-operation with our TERS Project partners, is a key strand of our on-going work to deliver the next generation of hybrid buses."

Professor Roy Douglas, who leads the research team at Queen's, said: "The TERS project is the latest development in the University's longstanding research partnership with Wrightbus. In this concept, we

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are capturing heat energy that would normally be wasted and converting it into useful power. The challenges are huge but the potential for fuel economy improvement is also huge.

“The targets for the project are to reduce fuel consumption by 10 to 20 per cent on top of the 30 per cent already delivered by the hybrid technology. It is this new hybrid technology that is the key enabler for waste heat recovery. Queen’s has been developing this research for many years, and it is very exciting to have the opportunity to put it into practice.”

Ricardo project director for research and collaboration, Nick Owen, said: “Heat lost in the exhaust of a modern diesel engine can represent up to 40 percent of the available chemical energy content of the fuel used by the vehicle. A major current focus of Ricardo’s R&D efforts is therefore on the development of robust and cost-effective solutions aimed at harnessing this currently wasted energy in order to improve fuel consumption and reduce CO2 emissions in both hybrid and conventionally powered vehicles. We are extremely pleased to be able to play an active part in the TERS project research, which will see the tangible demonstration of technologies on a modern hybrid bus.”

Paul Turner, Technical Director at Revolve states: “Revolve Technologies has vast experience in many alternative energy and Hybrid environments. With a firm focus on energy recovery and maximisation, CO2 efficiency and Powertrain Technologies of the future, we are very proud to be part of this highly skilled TERS system collaboration combining industry leaders and innovators. Investing in state-of-the-art testing equipment and capability to meet today’s stringent CO2 industry demands, Revolve has achieved immeasurable successes and gained invaluable knowledge across the Automotive Hybrid Technologies arena. With the combination of shared expertise and knowledge base, this TERS research and development project, will provide invaluable solutions to not just the modern Hybrid bus, but to the future of all powered vehicles.”

The TERS Project has already created four new jobs at Queen’s University Belfast – three postgraduate and one post-doctoral position. All four graduates will be mentored throughout the development by University staff. In addition, six existing Wrightbus employees will also be heavily involved in the complex scheme, along with engineers and technical specialists from Revolve Technologies and Ricardo.

Getting the first generation of devices safely up and running will be no mean feat. The consortium aims to have a production ready system available within a six-year timeframe.



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Captions for Photograph; A Gemini 2 Hybrid Electric Vehicle from The Wright Group

Notes to Editors

The Technology Strategy Board is a business-led government body which works to create economic growth by ensuring that the UK is a global leader in innovation. Sponsored by the Department for Business, Innovation and Skills (BIS), the Technology Strategy Board brings together business, research and the public sector, supporting and accelerating the development of innovative products and services to meet market needs, tackle major societal challenges and help build the future economy. For more information please visit www.innovateuk.org.

Wrightbus Limited is the United Kingdom's leading independent supplier of accessible buses for public transportation systems throughout the country. Founded in 1946, and still a family owned and managed company, Wrightbus has pioneered low floor buses in the UK, and has earned a reputation for producing vehicles which are stylish, durable, high in quality and packed with innovative features. In the last two months (Feb/March 2011) Wrightbus has announced major orders valued in excess £100m from Arriva PLC & FirstGroup PLC. In September last year The Wright Group was awarded an Asian export deal worth £21m to deliver 300 double deck bus kits to SBS Transit for assembly in Singapore. In December 2009 Wrightbus secured the prestigious New Bus for London contract to make the eco-friendly replacement for the iconic London Route master bus.

Queen's University Belfast: As a member of the Russell Group of the UK's 20 top research-intensive universities, Queen's is one of the leading universities in the UK and Ireland, providing world-class education underpinned by world-class research. Founded as Queen's College in 1845, it became a university in its own right in 1908. Today, it is an international centre of research and education rooted at the heart of Northern Ireland. As the UK's Entrepreneurial University of the Year in 2009 and winner of the Times Higher Education Outstanding Engineering Research Team of the Year, Queen's impact on society in Northern Ireland and around the world is immense. With more than 17,000 students and 3,500 staff, it is a dynamic and diverse institution, a magnet for inward investment, a patron of the arts and a global player in areas ranging from cancer studies to sustainability, and from pharmaceuticals to creative writing.

Ricardo plc: With technical centres and offices in the UK, USA, Germany, the Czech Republic, France, Italy, Russia, China, Japan, India and Korea, Ricardo is a leading independent technology provider and strategic consultant to the world's transportation sector and clean energy industries. The company's engineering expertise ranges from vehicle systems integration, controls, electronics and software development, to the latest driveline and transmission systems and gasoline, diesel, hybrid and fuel cell powertrain technologies, as well as wind energy and tidal power systems. Ricardo is committed to excellence and industry leadership in people, technology and knowledge; approximately 70 per cent of its employees are highly qualified multi-disciplined professional engineers and technicians. A public company, Ricardo plc posted sales of £162.8 million in financial year 2010 and is a constituent of the FTSE techMark 100 index – a group of innovative technology companies listed on the London Stock Exchange. For more information, visit www.ricardo.com.

Revolve Technologies Ltd. serves a diverse portfolio of multi-tier automotive and non-automotive clients across a broad spectrum of industries including car and commercial vehicles, transportation, infrastructure, agriculture, defence and energy. With defined areas of expertise including Product Development, Powertrain design and development, Vehicle subsystems and Performance, Revolve Technologies can offer its customer base, full CAD concept and detail design, FE analysis, prototyping, plastics modeling, fabrication, assembly build and state of the art testing all operated within a secure environment where confidentiality is paramount. Revolve Technologies remain committed as being the first choice for engineering solutions through the responsiveness and quality of our integrated services.

For further information, please contact Miss Claire Coulter, Wrightbus Marketing Manager on telephone +44 (0) 28 2564 1212.

Please note that it is not the policy of Wrightbus to pay for colour separations.



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