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## **KinerStor project aims to demonstrate viability of low cost flywheel hybrid systems**

**Following the recent announcement of part funding by the Government-backed Technology Strategy Board, the partners in the KinerStor project have today announced further details of their collaborative programme to demonstrate the viability of low-cost flywheel hybrid systems**

The KinerStor project will be led by Ricardo and will comprise a consortium of industrial partners including CTG, JCB, Land Rover, SKF, Torotrak and Williams Hybrid Power. The project aims to demonstrate the potential of flywheel-based hybrid systems with the potential for 30 per cent fuel savings (and equivalent reductions in CO<sub>2</sub> emissions) at an on-cost of less than £1000, thus enabling the mass-market uptake of hybrid vehicles in price sensitive vehicle applications.

The project will research and de-risk the principle critical flywheel sub-systems individually, then bring them together for system optimisation in two forms of proprietary device; a mechanical/magnetic coupled flywheel system developed by Ricardo (known by the trade name KinerStor), and an electrically coupled unit developed by Williams Hybrid Power. The flywheel systems being developed by the KinerStor consortium partners are ideally suited for potential applications in passenger cars ranging from small, price-sensitive mass-market models through to large luxury SUVs, as well as in low-cost compact energy storage systems for application in industrial and construction equipment. The KinerStor project team aims to design, build and test a number of prototype units such that on completion, the developed technologies are ready for vehicle-based installation, testing and demonstration.

The KinerStor consortium brings together a critical mass of relevant skills and expertise in specialist areas, including: advanced flywheel systems, focusing on new material technologies including low-cost composite fibres and specialist steels; continuously variable transmissions; bearing and coupling design; drivetrain integration; and volume vehicle manufacturing. The project's structure will allow for the



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development of common core-technology solutions which can be tailored to the individual needs of vehicle manufacturers, maximising potential fuel saving and CO<sub>2</sub> emission reduction benefits.

Commenting on today's announcement, Ricardo group technology director Neville Jackson said:

“The development of highly optimised flywheel based technology offers the prospect of the effective and low-cost hybridisation of price-sensitive vehicle applications with consequent benefits to fuel economy and CO<sub>2</sub> emissions reduction. Ricardo is pleased to be able to lead the KinerStor consortium which brings together a crucial mass of skills and expertise in this important area of future automotive technology.”

The KinerStor project is supported by an investment from the Government-backed Technology Strategy Board with balancing resources provided by the project partners.

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## NOTES TO EDITORS

**Ricardo plc:** With technical centres and offices in the UK, USA, Germany, the Czech Republic, China, Japan, India and Korea, Ricardo is a leading independent technology provider and strategic consultant to the world's transportation sector 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. Its customers include the world's major vehicle, engine and transmission manufacturers, tier 1 suppliers and leading motorsport teams. 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 £197.7 million in financial year 2008 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](http://www.ricardo.com).

**Williams Hybrid Power Ltd (WHP)** has developed a novel, patented electromechanical composite flywheel system that provides a high-power, cost-effective and environmentally friendly solution for mobile or stationary energy recovery and storage. The company's first application of the technology was in the highly competitive and extremely harsh environment of Formula One racing. Through development of a flywheel for Williams F1's Kinetic Energy Recovery System, WHP has proved its world-class engineering capabilities in the composite flywheel field as well as radically improving aspects of the technology in the process. Building on the Formula One project, the company is now making the technology available to meet the high-power energy storage needs in a variety of applications including hybrid passenger vehicles, hybrid buses, electric trains, diesel-electric ships and wind power generation. [www.williamshybridpower.com](http://www.williamshybridpower.com)

**SKF** is a leading global supplier in the areas of bearings, seals, mechatronics, services and lubrication systems, including through the SKF Racing unit which will provide innovation and experience of use to the KinerStor project. SKF Group's service offer includes technical support, maintenance services, engineering consultancy and training. SKF is represented in more than 130 countries and has 15,000 distributor locations worldwide. The Group's annual sales 2008 were SEK 63,361 million. The number of employees was 44,799. [www.skf.com](http://www.skf.com).

**Torotrak** is the world's foremost developer of full-toroidal traction drive technology. The company, fully listed on the London Stock Exchange, designs and develops Continuously Variable (CVT) and Infinitely Variable (IVT) transmissions which deliver outstanding levels of performance and refinement along with improved fuel economy and reduced emissions. Torotrak develops main drive transmissions as well as variable ratio transmissions for application in flywheel-based mechanical hybrid systems and for use as auxiliary drives. Torotrak operates in the automotive, truck, bus, off-highway and agricultural markets, in motor sport and in outdoor power equipment. Its customers are equally widely spread across Europe, North America, India and Japan, and include major vehicle makers and tier one transmission manufacturers. [www.torotrak.com](http://www.torotrak.com)

**The Technology Strategy Board** is a business-led executive non-departmental public body, established by the UK government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve the quality of life. It is sponsored by the Department for Business, Innovation and Skills. For further information please visit [www.innovateuk.org](http://www.innovateuk.org).

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