

LCV 2015 - the UK's largest technology showcase and networking event for the low-carbon vehicle community - takes place next month (9 and 10 September) at Millbrook. And, while the most exhibitors (and the conference programme), is unsurprisingly focused on the automotive sector, the show looks set to cover technology for commercial vehicles too.

The event is run by Cenex, the UK's centre of excellence for low-carbon and fuel cell technologies. However, that organisation also lists key partners as Innovate UK, BIS (the Department of Business Innovation and Skills), LowCVP (Low Carbon Vehicle Partnership), OLEV (Office for Low Emission Vehicles), SMMT (Society of Motor Manufacturers and Traders) and UKTI (UK Trade and Investment). So it's a weighty affair.

That said, the organisers are keen to emphasise the event's role in stimulating fleet managers' interest in low-carbon vehicles. To this end, visitors will find some 180 technology and service exhibitors, as well as a technical seminar programme. There's also a ride and drive aspect, with prototypes as well as commercially available vehicles.

All this comes at an auspicious moment for transport and low-carbon vehicles in particular. At a pre-event launch last month, former Ford UK chairman Jo Greenwell (now head of the Automotive Investment Organisation at UKTI) quoted SMMT figures indicating that the UK is now the third largest manufacturer of cars in Europe and the second largest market.

Further, UK vehicle CO₂ emissions have fallen 31% since 2000, production sustainability has improved and the country now produces 11.5 cars and CVs per person per year - way



CARBON RATING

With the LCV 2015 exhibition and conference opening its doors next month at Millbrook, Brian Tingham examines the prospects for low-carbon commercial vehicle technologies



ahead of rivals Germany and France (source: ACEA). What's more, sales of ULEVs (ultra-low emission vehicles) have quadrupled against last year. "The UK is surging ahead," asserted Greenwell.

Why? In part, because of government support. "We've implemented a series of measures to ensure that the UK maintains its lead, spearheaded by a £500 million budget for ULEVs from 2015 to 2020." That includes £5,000 grants for ULEV purchasers and £30 million support for

other vehicle types, including vans. There is also: £30 million for green cities, £20 million for local authorities (ULEV taxis, etc); £30 million for ultra-low emission buses; £100 million for ULEV R&D; and £5 million to support ULEV uptake in government fleets.

And there is the 10-year, £1 billion investment in low-carbon drivetrains, in the form of the Advanced Propulsion Centre (APC); £200 million in 'intelligent mobility'; and the country's impressive light-weighting community at Warwick Manufacturing (home of the National Propulsion Showcase).

Clearly, the climate in the UK is good for low-emission vehicles. Look at the APC's role in co-funding development of GKN's Gyrodrive flywheel energy storage system, now being fitted to city buses by Alexander Dennis. And Innovate UK's part in co-funding DAF's lightweight 12-tonne LF truck.

So what can you expect at the event? Ones to watch include Autogas, Integral Powertrain, Intelligent Energy, Intertek, Millbrook, MIRA, Ogunmuyiwa, Tevva Motors and ULEMCo.

Autogas is promising more than its LPG (liquefied petroleum gas) fuelled Fiat Doblo. The company is working to



“The UK is now the third largest manufacturer of cars in Europe and the second largest market, with growth far exceeding the rest of the continent”

Joe Greenwell

promote the virtues of LPG (nationwide refuelling infrastructure; 40% fuel cost saving) and says key to its approach is getting away from cowboy converters by certifying approved installers. To date, the organisation is listing five, but says that will rise to 20 by year end. And with conversion costs set at £1,000–2,000, payback of 12 months seems realistic.

As for Integral Powertrain, the firm says it will reveal latest developments with its engine downsizing technology SuperGen, plus enhancements for micro and mild hybrids. SuperGen combines a two electrical machine B-ISG (belt-driven integrated starter-generator) with an intermediate epicyclic traction drive and centrifugal compressor (mechanical drive with electrical assist).

This booster is claimed to enable 60% downsizing, while retaining transient response, as well as down-speeding to further reduce emissions. Chief engineer Jason King says that, following the company's joint venture with Magna Powertrain, we can expect to see its technology in heavy-duty vehicles by 2020. “We're already working with one of the OEMs.”

Meanwhile, Intelligent Energy will focus on hydrogen fuel cells, including the new evaporatively-cooled 100kW motive power version, designed to

Clockwise from top left: Integral Powertrain's Supergen booster; Intertek's latest test bed; Intelligent Energy's 100kW fuel cell; and Tevva's electric range-extended truck

deliver rapid refuelling for range-extended electric LCVs. This technology is the result of a £6.3m, three-year APC-funded consortium project with Frost EV, Millbrook, Cenex, British Gas and DHL.

Dan Skelton, business development director, says the consortium has developed a package that can be integrated into vehicles at OEM end of line or by vehicle converters. Initially targeted at return-to-base operators, advantages include: increased access to



restricted emission zones; and faster refuelling times than straight recharging.

Elsewhere, engineering test specialist Intertek will major on its new low-carbon powertrain development facility in Milton Keynes. The site – acquired from Tickford Powertrain Test in 2013 – is now Intertek's European centre of excellence for electric and hybrid drivetrain testing. Chief engineer David Meek says the centre's 1,000kW test cells are designed for truck, bus and off-highway, while its 1,000V, 300kW battery simulator and 300kW traction motor dynamometer rig are aimed squarely at chunky electric machines and EV drivelines.

But mechanical engineering will also feature. Ogunmuyiwa will be talking about its novel take on the ICE.

This centres on the founder's patented planetary gear piston engine, said to offer far higher thermal efficiency than conventional equivalents. The secret is his

tangential arrangement of the cylinder axes to the main shaft, enabling higher power densities and reduced emissions, without the sealing problems associated with Wankel engines.

Meanwhile, Tevva Motors intends to show its battery-electric 7.5-tonne delivery truck, which includes a diesel range extender (1.6 litre, replacing the original 4.5-litre engine) and the ability to convert to hydrogen. Chief executive Robin Hilton says the vehicle, currently undergoing durability tests at Millbrook, is based on a JAC chassis cab (China's second largest truck manufacturer and exporter), so won't fall at the first hurdle of volume production.

This is clever: TEVVA is offering PREMS (predictive range extender management) software, which automatically optimises range extender usage against daily duty (minimising emissions in sensitive areas). Additionally, charging is via a conventional three-phase depot power supply. And while wannabe users will lose 2 tonnes of payload (batteries), Hilton claims they can expect significant fuel savings. He also says that Tevva is retrofitting a Mercedes Vario delivery truck for UPS ahead of an 18-month trial.

What about hydrogen? Diesel-to-hydrogen conversion specialist ULEMCo will show its ultra-low emission dual-fuel Ford Transits, which have now clocked up 20,000 miles. These vehicles have been running at 59g/km CO₂, compared with 234g/km standard diesel. CEO Amanda Lyne says the firm is targeting fleet owners who want to reduce CO₂ emissions, but retain the unrestricted range and robust engineering of conventional vehicles. **TE**

REGISTRATION FOR THE LCV 2015 EVENT IS FREE. VISIT: WWW.CENEX-LCV.CO.UK

