



Immediate: 30 January 2013

ALABC and CPT receive Low Carbon Champions award for low cost LC Super Hybrid technology

The Advanced Lead-Acid Battery Consortium (ALABC) and Controlled Power Technologies (CPT) have been recognised for their affordable low cost LC Super Hybrid technology with a prestigious award presented last night by the UK's Low Carbon Vehicle Partnership (LowCVP). The award was presented in the category for 'Low Carbon Innovation by an SME' – an award open to small and medium sized enterprises such as CPT and academic institutions such as the ALABC research consortium.

Coinciding with its 10th anniversary celebrations, the LowCVP announced the winners of its 'Low Carbon Champions Awards' at One Birdcage Walk in Westminster – new headquarters of the LowCVP and for 114 years home of the Institution of Mechanical Engineers (IMechE), which also supported the event. The awards celebrate outstanding and innovative practice in accelerating the shift to lower carbon vehicles and fuels and reducing road transport emissions.

"The results achieved by Controlled Power Technologies and the Advanced Lead-Acid Battery Consortium in applying a number of technologies to deliver a practical and commercially viable large family low carbon car are truly impressive," said Jonathan Murray, deputy director of the LowCVP, one of the category judges.

"ALABC and CPT are delighted to receive this award in recognition of a range of technologies including the breakthrough we've achieved in developing high power density lead-carbon batteries, which are ideally suited to the new breed of low voltage micro-mild hybrids currently under development," said Allan Cooper European projects coordinator at the Advanced Lead-Acid Battery Consortium. "In combination with a range of switched reluctance technologies developed by CPT for automotive application, we are confident we have met the challenge facing the industry for cost-efficient CO₂ reduction, compatible with legislative demands and, most importantly, at potential showroom prices that consumers are willing and able to afford."

“This award is very timely as it will help raise awareness of the advanced work we’re doing with micro-mild hybrid vehicles,” commented Nick Pascoe chief executive Controlled Power Technologies, which is currently recruiting high calibre automotive engineers that will increase its research and development team from 35 to 50 people before the end of the year. “We have to compete with the big guns for the most talented automotive engineers, but what I can promise is exciting development and application engineering at the cutting edge of automotive technology working closely with trend-setting vehicle manufacturers in Europe, the US and Asia.”

LowCVP managing director Andy Eastlake commented: “These Awards recognise best practice, and outstanding leadership and innovation in cutting carbon from vehicles and fuels from every angle. The judges had a tough time deciding on the category winners as the variety and calibre of the entries were higher than ever, which just reflects how the whole industry is rising to the challenge of low carbon mobility.”

One of the judges, Philippa Oldham, Head of Transport at the Institution of Mechanical Engineers, said: “This year’s entrants demonstrate the commitment there is in this sector to shifting our vehicles and fuels towards low carbon. The award winners show that innovation and sustainability are areas that must be invested in by companies in order to succeed.”

The event was attended by UK Parliamentary Under-Secretary of State for Transport, Norman Baker MP, whose responsibilities include SMEs and growth. Former 'Tomorrow's World' presenter and engineer, Kate Bellingham was the Awards MC.

The LC Super Hybrid technology

The LC Super Hybrid programme was conceived by Controlled Power Technologies (CPT) and the Advanced Lead-Acid Battery Consortium (ALABC) to show that significant CO₂ reduction can be achieved through electric hybridisation at low voltages (12-48 volts) complemented by the breakthrough of new chemistry lead-carbon batteries.

The vehicle includes production-ready technology since sold by CPT to the leading French tier 1 supplier Valeo, thereby becoming the first global automotive component manufacturer to offer its OEM customers a range of electric superchargers. Other international companies involved are powertrain developer and systems integrator AVL Schrick based in Austria and Germany, drive belt specialist Mubea also from Germany, and Provector, a leading expert in battery management systems, based in the UK.

The range of technology offers at 12 volts the potential of a mass market, petrol-powered, large family car with superb drivability, impressive performance and excellent 5.6 litres/100km (50mpg) fuel economy achieved at substantially lower cost than an equivalent diesel or high

voltage full hybrid model. The relatively low cost low voltage technology enables aggressive yet near-term down-sizing and down-speeding of existing engine families.

The LC Super Hybrid technology, which is backed by more than 10 years of continuous development for the switched reluctance motor-generator technology and 20 years of solid research to achieve the lead-carbon battery breakthrough, has ingeniously delivered a cost effective reduction of CO₂ emissions and fuel consumption without destroying the fun-to-drive factor and high energy density liquid fuel range advantage of gasoline engines.

The initial 12V demonstrator vehicle embraces low voltage switched reluctance motor-generators, which are not yet currently employed by the automotive industry in mass production. The motors are of simple robust construction using steel, aluminium and copper and by avoiding the use of permanent magnets provide an innovative cost-effective solution to the growing problem of insufficient and ever more expensive rare earth materials.

Building on the success of their 12 volt technology demonstrator, CPT and ALABC are now in the vanguard of the new 48 volt vehicle grid proposed by leading German carmakers. The new standard provides an ideal compromise for performance and cost in the development of a new generation of affordable super fuel efficient cars. With global CO₂ emission targets rapidly converging, the auto industry has less than a decade to achieve almost another 30 per cent reduction by 2020 putting pressure on automakers to come up with innovative and affordable technical solutions.

“Energy recuperation is the key to ground-breaking solutions that the motorist can afford and this has caused the industry to re-visit the previously mooted higher than 12 volts, but less than 60 volts, electrical architecture,” says Pascoe. “Mild electrification deploying a proposed nominal 48 volt standard will be a major factor for enabling the required motor-generator efficiency and power levels.”

Pascoe says the industry has reckoned the additional cost to the motorist to achieve the required 30 per cent reduction in CO₂ emissions is estimated at less than £1,000 for an equivalent performance family sized saloon. This is significantly less than the £5,000 UK government subsidy for electric vehicles; an on cost that would seem to remain unavoidable unless there is a significant breakthrough to reduce the cost of the high energy density batteries required for full hybrid and electric vehicle traction motors.

CPT’s elite team of development and application engineers is currently focused on bringing three switched reluctance automotive technologies to market readiness. Cobra is a water cooled electric supercharger for commercial vehicle and off highway applications. SpeedStart is a powerful water cooled starter-motor and generator able to provide torque assist to the

engine and harvest kinetic energy. Last but not least the CPT technology known as Tigers is a water-cooled turbine integrated gas energy recovery system.

CPT and ALABC will have a 48 volt version of the LC Super Hybrid running in 2013 able to provide torque assist to the engine for launch and acceleration, optimise fuelling during cruise conditions, and harvest kinetic energy during braking.

Note to editors

The judging panel for the 'Low Carbon Champions Awards' comprised 28 senior executives from across a range of organisations. A total of 39 entries were shortlisted for awards.

Reflecting the high quality of entries, ALABC/CPT were joint winners in the innovative SME category with Williams Hybrid Power and the Go-Ahead Group. Williams Hybrid Power Ltd (WHP) is a clean technology SME developing a magnetically loaded composite flywheel energy storage system. In March 2012 the company announced an innovative partnership with Go-Ahead Group to produce six hybrid buses fitted with flywheel technology.

Controlled Power Technologies (CPT) is an independent, award winning, clean-tech company specialising in the development of cost-effective CO₂ reduction measures for the global automotive industry that avoid major redesign of the powertrain or vehicle electrical system. Its core competencies include low voltage power electronics, advanced control software and the application of low voltage electrical machines to vehicle powertrains. The company is a spin-off from the advanced powertrain development team established in the UK more than 10 years ago by Visteon, a spin out from Ford, when electric supercharging and other switched reluctance motor technology applications were first mooted, and its technology development partner Emerson Corporation, whose motor business has since been acquired by Nidec. CPT was established in 2007 as a management buy-in funded by venture capital to acquire this advanced powertrain business. The company comes with a highly experienced team of automotive engineers and is backed by a number of prominent investors specialising in the energy and environmental sectors. Further information on CPT is available at www.cpowert.com.

The Advanced Lead-Acid Battery Consortium (ALABC) is an international research consortium formed in 1992 to advance the capabilities of the valve-regulated lead-acid battery in order to help electric and hybrid electric vehicles become a reality. The research resources of the world-wide membership of ALABC are pooled to carry out a large program of research and development that would otherwise not be possible. The ALABC is managed by the International Lead Zinc Research Organization based in North Carolina. ALABC membership currently stands at over 70 organisations. Further information is available at www.alabc.org.

Ends

ALABC/CPT media contact: For a test drive of the LC Super Hybrid or to request a media interview with Allan Cooper or Nick Pascoe, please contact Rob Palmer on +44 7768 242761 or email: rpalmer@palmerpr.com. High resolution images of the thumbnails below and previous announcements can be downloaded at www.newspress.co.uk.

LowCVP media contacts: Karen Parry on 01784 456526 and 07903 955696 at karen@prandmediaworks.com also Neil Wallis head of communications LowCVP on 0207 304 6806 and 07974 25572 at neil.wallis@lowcvp.org.uk



Pic 1 Pictured (from left to right) is James Primrose global strategy manager BP Biofuels presenting award to Nick Pascoe chief executive CPT and Allan Cooper European Projects Coordinator ALABC overseen by Professor Neville Jackson chairman LowCVP. The LowCVP Champions Award for Low Carbon Innovation by an SME is given in recognition to small and medium sized enterprises such as CPT and academic institutions such as the ALABC research consortium.



Pic 2 LC Super Hybrid technology demonstrator is based on a VW Passat 1.4-litre TSI model



Pic 3 LC Super Hybrid features an electric supercharger developed by CPT. This particular application of its 12-48V switched reluctance motor-generator technology has since been acquired by tier 1 manufacturer Valeo for high volume implementation of the technology.



Pic 4 LC Super Hybrid features CPT SpeedStart advanced next generation stop-start technology (top right) and Mubea belt tensioner



Pic 5 LC Super Hybrid advanced next generation lead-carbon battery installation and test equipment



Pic 6 LC Super Hybrid stop-start appraisal at Millbrook proving ground



Pic 7 LC Super Hybrid stop-start assessment on Millbrook city course



Pic 8 LC Super Hybrid drivability assessment on Millbrook hill route



Pic 9 LC Super Hybrid performance assessment on Millbrook high speed circuit