

Low carbon a high priority

Under the Climate Change Act 2008, the UK has new, legally binding, greenhouse gas emission reduction targets and carbon budgeting system that sets out our trajectory to 2050. So 'M' takes 5 minutes with Derek Charters, MIRA's Advanced Powertrain Manager, to see what can be done to ensure these aspirations become reality.

By some measures the low carbon market is quite mature, since man's impact on the planet has been a focus for engineering for decades; yet in many other respects the sector is immature and developing rapidly. So where does MIRA fit, what is MIRA for?

MIRA is an independent arbitrator of technology. We have no pre-conceived idea about which technology can best solve the problem. We offer credible objective comment on technology solutions ...and you can only do this if you have experience of those technologies and you understand where they have come from and where they fit.

“ Our experience really has been invaluable to our partners. ”

Knowledge and independence are very important qualities, but who really needs MIRA?

Everybody can use MIRA. What I mean by that is ... if you make a product, if you are a motor manufacturer, if you make a battery, an energy storage system, or a fuel injection system – we can assess that technology using our expert knowledge of the other technologies that are available and test it, benchmark it against competing solutions. So our customers understand what its capabilities are – and that by taking it forward it really will deliver the best outcome. That's the first stage. The second stage is where all this technology needs to be integrated into a vehicle. That is a massive task that is underestimated by most people. You're into

standards, safe working practices, safety critical software, risk analysis, homologation and so on. We can assist by taking the technology and showing it off in the best way. And making it work properly!

How do you demonstrate this capability?

With new technology, people are best convinced by seeing a working example. Our technology demonstrators like the Intelligent Speed Adaptation (ISA) vehicle fleet, the MG TF hybrid performance upgrade and the 'H4V' plug-in show that we understand all the issues involved in delivering working vehicles with desirable features, not just concept cars.

Are all low carbon solutions complicated?

For me yes, deliberately complicated. This is so we develop a fundamental understanding of the complex issues at stake. Take the H4V plug-in hybrid as an example. You need to know how to make an automated manual transmission work, how battery management systems work, how

motor controllers and CAN networks exchange, whilst considering the human machine interface effects ...and so on.

You must have quite a collection of valuable automotive antiques by now?

Well no actually. For one of our latest projects 'Limo Green' we have already cannibalised the H4V car to serve as a mule to test prototype battery packs. This way we are up and running only a few weeks into the project, performing HIL testing and getting data back about how the batteries are performing. Without our previous experience and hardware it would be months down the line before we would be at this stage. We also have confidence in the motors we can use, the speed and torque

characteristics and the drive cycle analysis ...hey, let's not forget the end user. Sure there's the legislative requirements but we also have to ensure that people want to buy this car and that it will deliver the performance they expect, day in - day out. We can't forget about individuals, fleet operators or the county councils – all of which have distinct requirements. Remember, this kind of drive cycle and usage data cannot be carried across from more traditional vehicle architectures. This is where the new city circuit on our proving ground really comes into play.

From my position, focussing on fuel efficient vehicles that may integrate in transport infrastructure, like our ISA cars – endless laps of our high speed circuit are pointless. Modern cars don't overheat like they used to, that's an issue from the 1950s. My 2010 issues don't occur at 150mph; mine are congestion, stop/start conditions, and intelligent choices about when to burn fuel.

Euro 5 Emissions Standards Scheduled for 2009

The new Euro 5 standards will apply from 1st September 2009 and are not only restricting vehicle emissions but are also enforcing stricter testing procedures upon testing facilities. The standards which refer to both diesel and petrol vehicles focus in particular on limiting nitrogen oxides (NOx) and particulate matter (PM) from exhaust gasses. Both present serious environmental and health issues and the reduction of these will help to ensure the EU can achieve its goal of limiting the pollution caused by road vehicles. MIRA Ltd will of course be upgrading its facilities to ensure that testing and development work can continue to be conducted on site.

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