

The rise and rise of diesel electric hybrids

Yes, series diesel-electric hybrid powertrains are now well established in the bus sector, but, in the HGV world, until recently the story of parallel hybrids has been quite different. Practically all the truck OEMs now have prototypes, but only a few brave souls – such as DAF and Iveco – have launched even limited production runs.

It was only last month, for example, at Rockingham Motor Speedway's Low Carbon Vehicle event, that Iveco finally unveiled its 12 tonne Eurocargo hybrid, using the Eaton-designed parallel hybrid drive and Hitachi Li-Ion batteries.

Iveco product manager Martin Flach claims this new truck – which uses a 180hp Tector EEV diesel engine, a 60hp electric motor-generator and auto transmission – is good for multi-drop distribution in towns and cities. It also only carries a 250kg payload penalty and doesn't sacrifice motorway performance, he adds.

While that is by no means shabby, it's not difficult to see the limitation imposed by the electrical side of the power plant, which fundamentally lacks the necessary beef to scale up to anything much bigger than 12 tonnes. And hence, in part, the relatively slow development and uptake of hybrid trucks: OEMs and the wider operator community have remained wary of both the constantly evolving technology and its promised payback periods.

But all this is about to change. RCVs (refuse collection vehicles) specialist Dennis Eagle is set to ship its first diesel-electric parallel hybrid technology vehicle – and this is a full 6x2 26-tonner, powered by BAE Systems' new HybriDrive parallel hybrid powertrain. The truck, seen for the first time at last month's RWM (Recycling Waste Management) show, at the NEC, in the guise of a Volvo FE chassis, will go to an unnamed local authority on trial in the next few weeks.

This vehicle is powered by a 300hp Volvo D7 Euro 5 (and EEV – enhanced environmentally friendly vehicle) engine, working with BAE Systems' new clutch and electric machine (motor, electronic controls and batteries) and matched to a Caterpillar CX fully automatic transmission. Andy Graves, technical sales engineer with Dennis Eagle, tells TE that, while the penalties for going hybrid include a payload deficit of 350kg and some £30,000 on the vehicle price tag, payback from 20–30% fuel savings (on the urban cycle) will be within four or five years.

Assuming success and rising production volumes – likely, given Dennis Eagle's claimed high levels of interest in the vehicle – this on-cost should fall. Indeed, Dr Mike Mekhiche, BAE Systems director of programmes, power and energy management systems, suggests the figure should be “no more than a few per cent rise in the vehicle price”, compared with a traditional diesel unit.

Crucially, though, Mekhiche also observes that the new parallel diesel-electric hybrid offers up to three times the power and torque of current Eaton parallel drive units. And he states that it still provides “at least 30% fuel economy at the same price”. Further, he indicates that his new electric machine supports from 350hp to 650hp diesel engines, with its 95 and 135hp variants.

“New York City, where we are currently trialling hybrid RCVs, likes to run large engines,” he quips, adding that five HybriDrive trucks in Classes N2 to N3 (construction, RCV, pickup and delivery vehicles) are now on trial in the US. Stand by for some very convincing hybrid trucks.



Brian Tinham BSc CEng MInstMC FSOE FIRTE

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President: Garry Gilby MBA IEng FSOE FSOE FIPlantE

Chief Executive: Nick Jones FCA

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Registered Office: 22 Greencoat Place,

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Tel: 020 7630 1111

Fax: 020 7630 6677

Email: soe@soe.org.uk

www.soe.org.uk

Editor: John Challen

Email: jchallen@findlay.co.uk

Editorial Director: Brian Tinham BSc

CEng MInstMC FSOE FIPlantE FIRTE

Email: btinham@findlay.co.uk

Contributing Editors: Dave Young,

Ian Norwell, John Kendall, Keith Read

Art Editors: Martin Cherry, Neil Young

Illustrations: Phil Holmes

Production Manager: Nicki McKenna

Email: nmckenna@findlay.co.uk

Advertisement Manager: Craig Molloy

Email: cmolloy@findlay.co.uk

Tel: 01322 221144

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