



Dual-fuel duel

Alternatives to standard diesel are rising slowly up fleet engineers' agendas. But, as Dave Young finds out, they may be limited by refuelling infrastructure and operator acceptance

Above: Renault Premium rigid diesel-electric in service with Norbert Dentressangle on the Carrefour contract in France: not yet available in the UK

During the 1990s, two retailers, Body Shop and M&S, operated CNG-powered (compressed natural gas) trucks. The two upmarket chains shared an environmentally aware customer base and, as own account operators, could offset higher running costs against good PR. Gas powered vehicles weren't new even then; several local authority fleets (London Borough of Haringey, for example) ran dual-fuel petrol/methane LCVs, but these ERFs (now MANs) were rarities.

A generation hence and dual/alternative/hybrid fuel chassis have scarcely penetrated the HGV market. For LCVs, the picture is different: gas and electric power are making their ways onto fleets, not least because the shorter range and depot refuelling make such vans less vulnerable to the shortcomings of the fuel infrastructure.

Higher up the gvw range, however, and product is thin on the ground. A 6x2 rear-steer rigid diesel-electric Renault Premium Distribution is in service with Norbert Dentressangle, delivering wine in south east England, but it is not yet part of the UK model range. This truck's powertrain consists of an automated gearshift, DXi7 310bhp SCR (selective catalytic reduction) engine and a 120kW (peak power) electric motor, connected to lithium-ion traction batteries that generate a 20% diesel fuel saving and 6db noise reduction, at the cost of 800kg

of payload penalty. Braking is assisted by a retarder, simultaneously slowing the vehicle and generating electricity. By recovering and storing kinetic energy when decelerating, the batteries function autonomously – meaning no recharging.

Meanwhile, Warburtons has six dual-fuel (CNG/diesel) Mercedes-Benz Axor tractor units – converted by Hardstaff, with full manufacturer approval – on its distribution fleet, working double-shifted, seven days per week and averaging 100,000 miles per year. The baker has used gas-powered trucks for 10 years; indeed, 20% of its 100 tractors already run on CNG. Group transport manager Mark Sutcliffe says: "We're committed to gas for environmental reasons. It's a clean fuel that helps us to reduce our emissions, and so meet our own carbon management and corporate social responsibility targets. But the trucks also had to make financial sense and a dependable warranty is a key part of that equation." Warburtons' Axors are contract hired for seven years from CharterWay.

CCE's CBM Stralis

Elsewhere, Coca-Cola Enterprises (CCE) has begun trials with an Iveco Stralis Active Day 21-tonne distribution vehicle, running on compressed biomethane (CBM). Darren O'Donnell, logistics asset manager at CCE, explains: "Our primary reason for selecting CBM is that it has the lowest carbon



Electric dreams, diesel reality

For Nigel Emms, director of brand and communications at Iveco UK, the next few years are set for diesel domination. “The electric dream won’t go above 3.5-tonnes,” he predicts. Not for want of manufacturing technology, but because of “the limitations of existing refuelling infrastructure and lack of government backing,” he continues.

“Manufacturers need a clear minimum five-year political support strategy to justify investment, and are looking for a lead and incentives from a government that, thus far, has an inconsistent stop/start approach to green energy,” asserts Emms. He points, for example, to the withdrawal of Energy Savings Trust grants. “Other countries, such as Benelux, have subsidies and these can be soft or hard, product or infrastructural, tax breaks or price support. Such initiatives could stimulate the green manufacturing economy.”

For Iveco UK, its current multi-fuel focus is on the LCV market and the Daily range. “CNG has turned a corner,” reveals Emms. “That business is starting to move, because it’s a viable option. We see few heavy conversions, but lots of Daily conversions. Tesco has recently taken 25 on long-term evaluation. They’re also ideal for central London, being congestion charge exempt.” Indeed, Emms claims the payback on a CNG Daily is three to four years.

Iveco’s alternative fuel range is based upon CNG (UK) or electric for the Daily (lightweights); Eurocargo as hybrid or CNG



(mid-range); and Stralis, CNG or LNG (heavy, but not yet in the UK). Pricing is “dependent on volume and government support”, concludes Emms.

Clearly, given the advent of Euro 6 and many other means (both specification and operational) of reducing road transport’s carbon footprint, diesel-fuelled engines will dominate the heavy truck sector for the immediate future, with small numbers of dual/alternate fuel lorries employed on niche operations.

The product is present, but government’s role is lacking. As the FTA recently stated: “For the logistics sector, many opportunities to reduce CO₂ emissions have the potential to be a win-win... However, what can be done at an individual operator level and by vehicle manufacturers can only get us so far. We are looking to government to reward those embracing this philosophy, rather than punitively taxing them.”

intensity of all commercially available alternative fuels. The gas used to make CBM comes from a landfill site in Surrey, which means it’s not depleting any fossil resources.”

The Stralis – line-built for natural gas-powered applications – features a six cylinder, 7.8-litre, 300bhp Cursor engine, driven through an Allison six-speed automated gearbox. Its performance will be monitored by Cenex, the government’s centre of excellence for low carbon and fuel cell technologies.

Dual-fuel Sprinter trials

Waitrose, too, is operating five Mercedes-Benz Sprinters, also running partially on sustainable fuel made from landfill gas. The 3.5-tonne 316 NGTs, with insulated bodies, are bi-fuel vehicles, powered by either petrol or gas. Ray Collington, fleet engineer at John Lewis Partnership, says that the 1.8-litre, four-cylinder engines – upgraded to meet the EEV (enhanced environmentally friendly vehicle) emissions threshold – delivers 156bhp, irrespective of the fuel source. “We’re keen to learn from these new vehicles, because we firmly believe that gas has a future as an alternative fuel,” explains Collington.

And fuel innovation is also being pursued by firms in the component supply chain. Axion, Europe’s largest independent lithium-ion automotive battery supplier, has been awarded research funding from the EU to reduce the weight, volume and cost of

batteries in electric and hybrid vehicles, as part of a consortium programme called SmartBatt. Targets for a 20kWh battery include: weight down by 10-15%; volume 20-30%; and cost 5-10%.

However, major truck manufacturers are taking a cautious view. “We’re beginning to see volume take-up of small vehicles, which suit gas and electric power,” states Tony Pain, marketing director of DAF Trucks UK. “For heavies, though, the future will continue to be diesel powered. To get the same energy as a 400-litre diesel tank requires the equivalent of 108 tonnes of lead acid batteries.”

Why? Because a 44-tonne gvw truck needs around 200bhp on the motorway, but 400bhp to pull away from stationary. And Pain continues: “Not only can gas and electric fuel limit a vehicle’s range, but also its flexibility of operation. Recharging batteries overnight, for example, means a vehicle is not available for double shifting.”

Additionally, the fact is, without volume sales and economies of scale, the unit cost of multi-fuelled vehicles will remain high. Pain suggests prices can be double those of diesel-only trucks – tough in an industry with around 6% profit margin. Then there’s the unknown issue of residual value.

Meanwhile, UK buyers may purchase an AF 12-tonne hybrid (160bhp EEV diesel engine/60kW electric motor) off-the-peg, offering a “30-40% fuel and emissions reduction,” advises Pain. 

