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Some of the articles and guidance included in *Transport Engineer* may make a contribution to your personal CPD requirements.

The natural option?

Natural-gas powered drivelines are a major focus of your package this month; they are covered in two lead magazine articles, plus a third in the attached IRTE Conference report.

As emissions regulations on road transport tighten, gas may just offer the best medium-term eco-alternative to diesel engines, particularly for heavy trucks. (Those operators that still wish to reduce their carbon footprint without changing the fleet might consider drop-in replacements such as HVO; many modern engines have the OEMs' blessing to run on so-called 'biodiesel'.)

Why gas?

First, as it is relatively clean-burning, it produces much smaller quantities of nitrogen oxides than diesel. Emissions are a key limitation for trucks operating in urban environments. Second, mineral gas produces slightly less CO_2 – perhaps 15% – than diesel. And there is an opportunity for much greater reductions: gas produced from recycling food and other wastes in anaerobic digestion facilities, 'biogas', could reduce that carbon footprint by much more, up to 90-95%.

Third, the engines, and refuelling facilities, are available now (p10 and p15, respectively). While there are a few medium-sized trucks running on battery power scattered around Europe undergoing trials, Scania, IVECO and Volvo currently offer heavy-duty vehicles in series production that run on gas. Indeed, those trucks dominated the stands of at least the former two at the IAA show in September.

Fourth, gas engine designs are continuing to be developed (p16, supplement); profiled is a European project looking into so-called 'lean burn' gas engines. They cut down the amount of gas in the combustion mix, compared to 'rich burn' designs, to reduce NOx emissions.

One exciting area of commercial vehicle development with a relatively low profile so far is alternative powertrains in refuse collection vehicles. Several new models sport battery-electric versions, to cope with stringent local emission regulations (p16). It is perhaps telling, though, that one of the largest variants of these developed by Dennis Eagle and Horiba-MIRA is powered by compressed natural gas.

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Editor