Breaking into fort NOx

Natural gas to biomethane can alleviate the health and pollution problems caused by the commercial vehicle sector, argues Joulevert Ltd Director Colin Matthews…

A decade on from the start of dieselisation of the vehicle fleet, and what is the net result? There is no doubt that improving miles per gallon (mpg) has led to a reduction in carbon dioxide emissions overall, and the utilisation of particulate traps has eliminated a large amount of the black soot that we were used to seeing splurge out of exhaust pipes – but at what cost overall?

The elephant in the room is NOx, or more precisely NO_2, which has placed an ever-increasing demand on the health service as a result of the breathing difficulties it creates. The way that particulate traps work means that NO_2 levels are increased.

Therefore, using diesel is a bit like playing whac-a-mole. No sooner is one issue apparently solved when another one pops up. The concerns over air quality and NOx in particular are gaining more and more focus, with the EU breathing down our necks to improve the atmosphere in our towns and cities. Who would want to be in charge of air quality these days with so many conflicting priorities?

How can we break into this NOx stronghold without affecting other areas and, more importantly, in a coordinated and economic way? A quick look at global developments in the commercial vehicle sector soon reveals a proven way forward that ticks almost all the boxes. Natural gas to biomethane provides a stable method of solving all these diverse problems. New Delhi transformed its air quality in one stroke of the pen by demanding that all buses run on natural gas. Overnight, both particulate and NOx virtually disappeared. The US has gone the same way with its school buses – why do we continue to ferry our children to school in the oldest and most polluting buses?

The question then is how we make this happen. The answer can be found in the cohesive engagement between councils, bus operators, and truck fleets working together to develop an open network of fast-fill compressed natural gas refuelling stations. Scale brings the economics to the fuel. A large station capable of refuelling 500 vehicles a day can deliver the fuel at a diesel equivalency price of 65p per litre before VAT, whilst giving an acceptable payback to the station provider. At this price the short-term additional cost of the vehicles is quickly paid back within two to three years.

In carbon terms, natural gas from the high pressure grid matrix can save up to 23% carbon before the utilisation of biomethane that is being injected into the gas grid. Green Gas Certificates allow for clear usage of biomethane in vehicles, which leads to a carbon neutral position. The large volume of indigenous shale gas further enhances the carbon reductions going forward – no need to import energy sapping liquified natural gas (LNG), and our balance of payments benefits as well.

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This strategy is being rolled-out in certain enlightened councils around the country and, scratching beneath the surface, it becomes clear that the haulage industry is quietly embracing the natural gas revolution. A combination of a continually rising fuel price, married to a tightening in diesel supply as global dieselisation takes place, along with the inability for refineries to be reconfigured to balance the reducing petrol demand with the rising diesel demand – to be able to break even, let alone be profitable – means future cost profiles are there for all who care to look. You have to pay upfront for bunkered diesel, whereas natural gas is a pay-as-you-use fuel and can be hedged forward, particularly if you have a heat demand to increase the volumes you are using.

So if we are prepared to work together, then the journey ahead can deliver on all fronts and improve all aspects of this transport dilemma.

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