

Green red buses

Some 900 Euro 3 engined London buses are being converted to achieve near Euro 6 emissions standards, with grant funding from Transport for London. Steve Banner finds out more

Tfl (Transport for London) and DfT (Department for Transport) have been taking further steps to clean up the capital, driving to remove more particulates and NOx (oxides of nitrogen) from Euro 3 buses – and specifically targeting NO₂ (nitrogen dioxide) reductions of 50%. That's without increasing emissions of other pollutants, and not just meeting the new standard on test cycles, but in real-world operations.

Some 900 buses will have been upgraded by March, under £10m funding, with Eminox converting the lion's share, and Proventia the rest. Eminox head of retrofit engineering Steve Rawson explains that his firm met the new target by combining two exhaust after-treatment systems – SCR (selective catalytic reduction) and CRT (continuously regenerating trap) under its SCRT banner – using new catalyst formulations developed with specialist Johnson Matthey.

In brief detail, the CRT houses an oxidation catalyst and ceramic wall flow filter capable of trapping particulates. That is followed by the SCR section, which uses AdBlue to convert NOx into nitrogen and water. The whole system is managed by an ECU that also prevents ammonia slip, using a clean-up catalyst.

Taking the heat

With any system like this running on urban work, the ability of the CRT to regenerate at what tend to be low temperatures can be a problem. The solution: "On Volvo B7 buses we've mounted [the system] in the engine bay and positioned the SCR catalysts under the vehicle," explains Rawson. Indeed, Eminox had its package independently verified on the MLTB (Millbrook London Transport Bus) cycle, which replicates the behaviour of a bus on Route 159, from Streatham to Baker Street via Whitehall and Oxford Street.

That showed NO₂ down 55% and overall NOx an impressive 88% – figures subsequently confirmed with one of Go-Ahead's London's Euro 3 buses. "We can also confirm that there has been no impact on fuel consumption and no

increase in vehicle downtime," comments Go-Ahead fleet manager Jim Collins. And Eminox claims that its SCRT also cuts hydrocarbons and carbon monoxide – and can even bring Euro 2 engines up to near Euro 6 emissions standards.

It takes around 14 hours to install and around 15 buses can be upgraded for the price of one new vehicle, according to Eminox, which is currently upgrading 259 of Go-Ahead's Euro 3 London buses. That's just part of a wider programme to upgrade 592 buses operated by five major fleets, according to Rawson. "We've already done over 430," he says. Eminox is not the only company: Finnish Proventia is in the process of upgrading more than 170, in conjunction with UK partner Excalibre Technologies.

Around the UK

Public funding for cleaner buses is not restricted to London. Eminox points out that the DfT and DEFRA (Department of the Environment, Food, and Rural Affairs) are backing efforts to cut passenger transport emissions across England, as councils fight to meet air quality targets.

Grants are being made through the Clean Bus Technology Fund. Two funding packages were released in 2013:

£5m in June and a further £1.4m in October, again with a target of cutting NOx and particulates. Among the beneficiaries are West Yorkshire Passenger Transport Executive and Merseytravel, with the money available for everything from SCRT to hybrids.

Scotland, too, is cleaning up its act. Edinburgh operator Lothian Buses has been busy having Eminox's SCRT systems retrofitted to some 50 of its vehicles – an initiative that helped the operator scoop the Contribution to Sustainable Transport prize at the National Transport Awards last year.

"The Scottish government and the City of Edinburgh's council have both invested in the project, having seen how SCRT technology can help keep older buses on the road for longer by upgrading them," says Eminox sales and marketing director Jog Lall.

Given the high price of new vehicles, anything that can help extend their working lives without compromising efficiency has to be welcomed. 

