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Briefing: Vans and CO_2

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Background

A proposal to regulate CO_2 emissions from new light commercial vehicles (vans) is currently being decided by the European institutions. The Commission proposed to set two targets – a target of 175 g CO_2/km in 2016 and a target of 135 g CO_2/km in 2020. Currently new vans emit about 203 g/km.[1]

The proposal to reduce CO_2 from light-commercial vehicles (vans) was published by the European Commission in October 2009 and is part of the so-called 'integrated approach' carmakers have called for, whereby less has to be done to improve fuel efficiency of cars (i.e. a 130 g/km target instead of 120). The Commission said the 10 g/km shortfall should be compensated for through measures on fuels, tyres, gear shift indicators, vehicle air conditioners and **vans**. This was announced as early as February 2007[2], in a Communication that recommended stricter targets, namely 175 g/km for 2012 and 160 g/km for 2015[3].

CO_2 emissions from vans and minibuses are rising rapidly

The EU's climate effort sharing agreement (Decision 406/2009/EC) sets out a 10% reduction target, compared to 2005 levels, for all sectors not covered by the Emissions Trading Scheme, including transport. This target is likely to rise to 15% in the case of an international climate agreement. In that context, the transport sector in particular will present a significant challenge. Its emissions increased by 36% between 1990 and 2007, while emissions from other sectors decreased by 9%[4].

Currently, 12% of Europe's fleet of light-duty vehicles are vans, but their number is rising fast. Between 1997 and 2007, the total fleet of vans increased by about 50%[5]. Light commercial vehicle (LCV) traffic is increasing. At the same time fleet average CO_2 emissions of new LCVs increased by 3 g/km between 2002 and 2007[6].

Regulation – a response to the environmental, energy and economic crises

Van fuel efficiency legislation would:

i) reduce CO_2 emissions, oil use and oil imports;

ii) create value, as well as high-tech and secure jobs in the automotive industry through increased use of low carbon technologies;

iii) reduce the €30bn fuel bill that Europe's businesses, particularly small and medium-sized enterprises, currently pay every year.

T&E recommendations

T&E believes the proposal should contain the following three key points:

1. The short-term target should be set at 160 g/km by 2015.
2. The 2020 target should be set at 125 g/km. This represents a 38% reduction based on 2007 levels, and matches in ambition the 40% reduction required for cars to achieve 95 g CO_2/km by 2020.
3. Vans should be equipped with speed limiters set at 100 km/h. This would reduce on-road CO_2 emissions by a further 8%.

A target of 160 g CO_2/km by 2015

If we are to achieve global abatement thresholds as set out by the IPCC we need to start reducing emissions as soon as possible. McKinsey stress that "action in the automotive sector is needed to prevent many more additional years' worth of CO_2 emissions growth and to prevent a high-carbon infrastructure from being locked in for

[1] This figure is from 2007. See: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:1454:FIN:EN:PDF

[2] eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0019:EN:NOT

[3] ec.europa.eu/environment/air/transport/co2/pdf/final_report_lcv_co2_250209.pdf

[4] www.transportenvironment.org/Publications/prep_hand_out/lid:545

[5] Compare: www.acea.be/images/uploads/files/20090218_EU_Motor_Vehicles_in_Use_2007.pdf and http://ec.europa.eu/transport/roadsafety_library/publications/improver_final_report_sp2_060430.pdf

[6] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:1454:FIN:EN:PDF

years to come"[7]. This is the time to make up for past inaction.

The Commission's consultants assume that achieving a 160 g/km target will require mild or full hybrid power trains and will hence be very costly.

In reality, reductions of about 20% have been reached on diesel cars without hybridisation but with a range of less expensive measures (see Table 1).

Table 1: Improvement of 'best practice' diesel cars 2007 and 2009[8]

Brand and model	CO_2 of best available diesel variant (g/km) 2007	2009	Decrease (%)	Fuel-saving programme	Power
VW Golf	135	99	-27%	BlueMotion	Remains 77kW
Volvo S40	129	104	-19%	DrivE	Remains 80kW
Ford Fiesta	116	98	-16%	Econetic	Increase 50→66kW
Mercedes C220	169	127	-25%	BlueEfficiency	Increase 105→125kW
BMW 118	150	119	-21%	Efficient Dynamics	Increase 90→105kW

As fuel saving technologies deployed are largely transferable to diesel vans, similar reductions can be achieved. A 160 g/km target by 2015 is therefore feasible and does not require excessive technological investment.

Significant van emission reductions have already been achieved

Also, significant reductions in popular van models have already been achieved in the last two years. The Commission impact assessment analysing the data for this proposal is based on vans emissions from the year 2007[9]. The 175 g/km standard represents a 14% reduction compared to the 2007 baseline.

In 2009 the VW T5 achieved a reduction of about 10% in fuel consumption and CO_2 compared to 2007[10]. The T5 was the 3rd biggest selling van in Europe in 2007 according to JATO dynamics[11].

The new Ford Transit ECOnetic version is on sale since late 2009. The new Ford Transit ECOnetic has CO_2 emissions 11% better than the most efficient Ford Transit previously available in the UK[12]. The Ford Transit was the best selling van in Europe in 2007 according to JATO dynamics[13].

Importantly, these improvements **have all been achieved without introducing a new model but via improvements of the existing one.** This is not uncommon – in fact most models receive facelifts and/or new engines during their product lifecycle. The VW T5 had a facelift in 2009 and the Ford ECOnetic modifications were improvements of the current Transit van.

Also Renault just introduced the new Renault Master, which emits 187 g/km[14]. This is already 15% more efficient than the best Renault Master from 2007[15].

Manufacturers' claims that the 175 g/km target could not be met before 2016 or even later therefore seem completely out of proportion.

A target of 125 g CO_2/km by 2020

A 2020 target is needed to provide planning certainty for the industry, to increase CO_2 savings and to make this legislation consistent with the legislation for CO_2 and cars and with other EU

[7] www.mckinsey.com/clientservice/ccsi/pdf/roads_toward_low_carbon_future.pdf

[8] The year 2007 is chosen because it is the baseline for van emission data, which has been used in the supporting study.

[9] See: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:1454:FIN:EN:PDF

[10] See www.volkswagen.co.nz/media/country/nz/x/company.Par.0054.File.pdf/vwmr0909_new_generation.pdf, or http://www.redstore24.de/T5GP_2010/VW-T5-Modelljahr-2010-GP-grosse-Produktaufwertung-und-Facelift-im-Herbst-2009.html or http://www.vanlocator.co.uk/van-for-sale-marques.php?van=11

[11] http://www.jato.com/PressReleases/LCV%20volumes%20rise%20in%20European%20markets%2026.11.2007.pdf

[12] See UK website: http://www.ford.co.uk/AboutFord/News/VehicleNews/IconicFordTransit: The new Transit ECOnetic is based on the front-wheel drive Transit 280 panel van with short wheelbase and 2.2-litre 115PS Duratorq TDCi engine. Target fuel economy is 39.2mpg*, while average CO2 emissions are 189 g/km. The lowest-emitting current version of this van emits 213 g/km. Data for this is taken from the VCA database, which gives fuel consumption and CO_2 emissions figures for new vans and other light commercial vehicles currently available in the UK: http://www.vca.gov.uk/vandata/?xgovk3w=bl1000&xgovf0p=|xgovs9k=vca|xgovr3h=vanfueldata|xgovc8h=1000|xgovk3w=bl1000|&xgovd2v=en&xgovj6d=bed1209b148a554435b5f25e32a24e18017ae270

[13] http://www.jato.com/PressReleases/LCV%20volumes%20rise%20in%20European%20markets%2026.11.2007.pdf

[14] http://www.renault.com/SiteCollectionDocuments/Communiqu%C3%A9%20de%20presse/en-EN/Pieces%20jointes/21477_20100125_CP_reveal_New_Master_GB_E23F245E.pdf

[15] Kraftfahrtbundesamt; Fuel Consumption and Emissions Type, Approval Figures for Motor Vehicles with a National or EC Whole Vehicle Type Approval, SV 2, 17th Edition, State: 1st March 2007

legislation on reducing CO_2 emissions. A target of 125 g CO_2/km would represent a 38% reduction over 2007 levels, less than the 40% cut expected from cars.

The Commission's Impact Assessment calculates net savings for van operators of €2000 over the lifetime of a van, to be achieved through targets of 135 g/km or 125 g/km respectively[16]. An analysis of the regulation by the UK Department of Transport goes even further, suggesting that "the increase in purchase prices will be recouped in less than 4 years. Over the lifetime of the vehicle". The UK report also estimates that "the amount of money saved on fuel would be around two and a half times greater than the original increase in purchase price"[17].

It also highlights that saving CO_2 from vans is extremely cost-efficient compared to other climate policies and calculates a net cost of about €6 EUR per ton of CO_2 abated[18].

A 100 km/h speed limiter would reduce CO_2 emissions by 7%

Following EU legislation adopted in 1992, Europe's lorries have been fitted with a speed limiter which prevents them from going faster than 90 km/h. Buses are limited at 100 km/h.

Vans are therefore the only commercial goods vehicles left without a limit to their top speed. This despite the fact that they can, unlike lorries and buses, be driven with a standard 'B' type car licence i.e. by non-professional drivers.

T&E commissioned CE Delft and TNO to analyse the effects of limiting the top speed of vans to 100 km/h – the speed at which buses are currently limited. The report concludes that this would cut the number of deaths that occur as a result of accidents involving vans on motorways by around half, and would cut CO_2 emissions by 6-7%[19].

The latter figure assumes, however, that the average engine power of vans stays the same after introduction of speed limiters. Customers might as a result of the limited top speed choose vans with less powerful engines, which would further increase the CO_2 and fuel saving benefits of speed limiters.

Several large companies already use speed limiters on vans to minimise total cost of ownership (TCO). Examples are British Gas, TNT and Royal Mail. Their experiences are positive and there is no reason why the rest of the market should not be obliged to fit limiters as well.

Deeper cuts possible at lower cost through lower engine power

T&E also asked TNO and CE Delft to investigate an overlooked, but quick and cheap way to reduce fuel use and CO_2 emissions of vans, namely 'optimal engine sizing'[20] i.e. offering vans with smaller and less powerful engines.

The TNO study for T&E shows that 'optimal engine sizing', i.e. returning to engine power levels of 1997, can cut fuel costs and CO_2 emissions by up to 16%, cut vehicle purchase costs by up to 10%, and cut total cost of ownership by up to 12%. Moreover, optimal engine sizing can be introduced quickly and in existing models.

The short-term target of 175 g/km proposed by the Commission could be met using optimal engine sizing alone, and at the same time make vans cheaper to buy instead of more expensive. In addition the long-term target of 135 g/km would be significantly easier to meet.

The European Commission's impact assessment completely ignored this potential and is hence far too pessimistic about how far fuel consumption can be cut, at what speed, and at what cost. This is wrong because it is likely to be one of the ways industry reacts to CO_2 challenges – the data on cars certainly testifies to this.

[16] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2009:1454:FIN:EN:PDF

[17] http://www.dft.gov.uk/consultations/closed/2010-19/ia.pdf

[18] See above.

[19] www.transportenvironment.org/Publications/prep_hand_out/lid/581

[20] www.transportenvironment.org/Publications/prep_hand_out/lid/586