

## Context

In 2009, the EU set legally-binding targets for new cars to emit, on average, 130 grammes of CO<sub>2</sub> per km by 2015 and 95g in 2020. Regulation (EC) No 443/2009 also requires the Commission to carry out a review of "...the modalities for reaching, by the year 2020, a long-term target of 95 g CO<sub>2</sub>/km in a cost-effective manner..." The outcomes of this review are expected in July and will include a formal proposal for average car CO<sub>2</sub> emissions in 2020.

The Regulation includes a mechanism to share the burden of emissions reductions between vehicle manufacturers. Manufacturers of predominantly larger (heavier) vehicles are allowed to produce cars with higher average CO<sub>2</sub> emissions per car than manufacturers of smaller (lighter) vehicles. The additional permitted allowance is currently the subject of intense lobbying by German producers of larger vehicles: Daimler, BMW and VW. This paper considers the issue and the implications of allowing more generous allowances for larger vehicles.

## How are car CO<sub>2</sub> emissions regulated?

The European Commission is expected to confirm imminently that by 2020 new cars will be required on average to emit 95g CO<sub>2</sub> per km. The targets to be achieved are the average across all new cars sold in 2020; individual cars can be above or below the limit. Vehicle manufacturers have to ensure that the average of their new sales meets these levels.

The CO<sub>2</sub> emissions of a car directly relate to the fuel economy – such that a 95g/km target is equivalent to average fuel economy of around 4.5 l/100km on the road.<sup>i</sup> The lower the CO<sub>2</sub> emissions the better the fuel economy. Typically for each 10g/km of lower CO<sub>2</sub> emissions a driver will save around 125 Euros per year in lower fuel bills.<sup>ii</sup>

## What is the argument about?

Each manufacturer gets an individual annual target linked to the average weight of new cars it registers in the EU in a given year. If car manufacturers exceed these limits they are obliged to pay fines. The Regulation states the "slope of the line" that relates the CO<sub>2</sub> emissions target that are allowed to be emitted per kilogram of average weight for each manufacturer.

The 'slope' for hitting 130 g/km by 2015 is 0.0457. In other words: a carmaker who makes cars that are on average 100 kg heavier than the fleet average receives a target of 134.57 g/km for 2015.

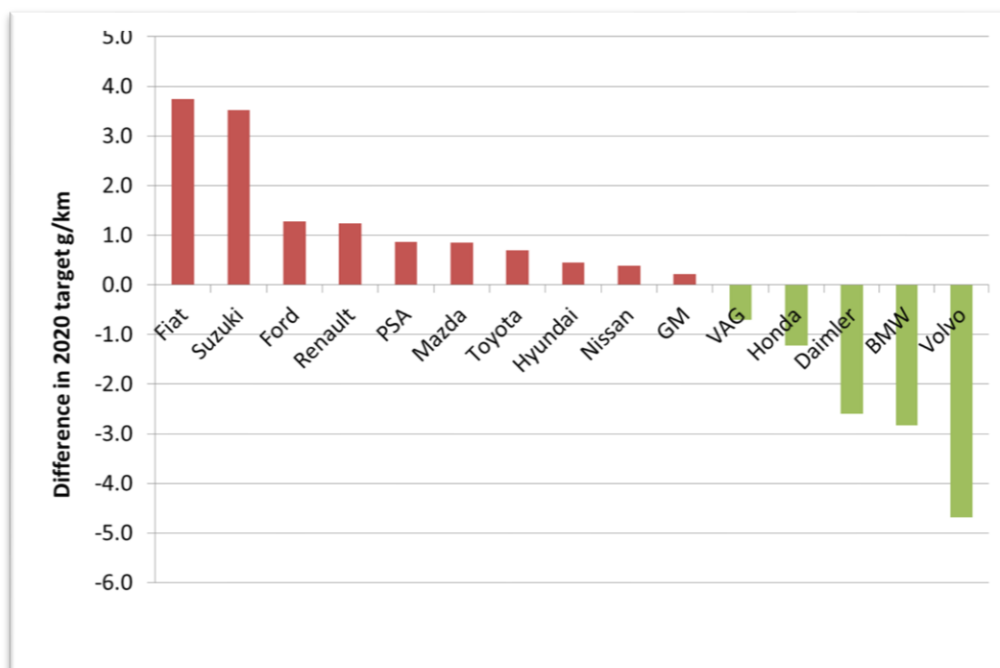
In a draft proposal prepared by DG Clima for consideration across the European Commission the slope of the line for compliance with the 95 g/km target was proposed to be 0.0296 gCO<sub>2</sub>/kg (2.96 g/km per 100kg). Subsequent negotiations within the Commission are expected to result in a compromise slope of 0.0333 (3.33 g/km per 100kg).

It is logical to flatten the slope between 2015 and 2020 because if the overall CO2 targets decrease, the extra CO2 emission to move an extra 100 kg of cars should decrease too. If not, eventually manufacturers of light cars would get a below-zero CO2 target to balance the emissions of heavier vehicles.

In spite of this technical justification for a flatter slope, a number of German manufacturers: BMW, Daimler and VW are currently intensively lobbying to keep the 2015 slope for 2020 too. They still want 4.57 g/km extra for 100kg heavier cars by 2020, just like in 2015. Such a position is not only technically unjustified, see above, but would also eradicate any incentives for lightweighting of vehicles, as lighter vehicles would get much tougher targets.

### What is the effect of the slope on targets?

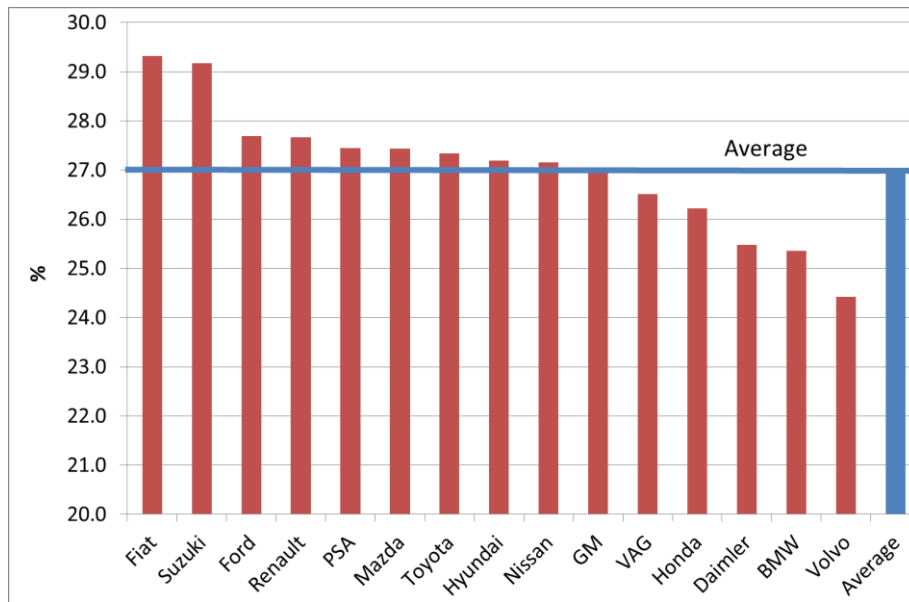
The choice of the slope affects how much different manufacturers are required to reduce their emissions. The German plan would mean that manufacturers of smaller, lighter vehicles would be required to reduce their emissions more; in contrast producers of mainly larger heavier vehicles would have to make smaller improvements. The effect of the different slopes of the line between the draft DG Clima (Commission) proposal (0.0296) and German manufactures position (0.0457) are shown in Figure 1.



**Figure 1: Winners and losers if the German position is adopted in place of those of DG Clima**

The chart shows that Fiat, for example, would have a target nearly 4g/km more demanding (84 g/km instead of 88 g/km) if the German proposal was adopted. In contrast, the average CO<sub>2</sub> emissions from a BMW would be 103 g/km using their approach instead of 100g/km in the DG Clima proposal. The graph clearly shows there are a small number of big winners if the German position was adopted – but lots of manufactures would have higher targets.

Figure 2 shows how much different manufactures would need to reduce their emissions between 2015 and 2020 if the German position was adopted. The chart shows manufactures of small, light cars, such as Fiat, Suzuki and Ford actually have to reduce their CO<sub>2</sub> emissions more over this period than manufactures of larger, more powerful vehicles!



**Figure 2: Reduction in CO<sub>2</sub> emissions 2015-20 if the German position is adopted**

**Keeping the 2015 slope for 2020, as German carmakers are calling for, is unfair, technically unjustifiable, leads to extra emissions, and gives no rewards for lightweighting**

**What will be the effects if the Commission accepts the German position?**

If the German position were adopted it would mean that manufactures of heavier vehicles would not have to use so much technology and these vehicles would not need to become so efficient raising fuel bills. Manufacturers of larger premium vehicles achieve much higher prices and larger margins than small economical models. It is therefore much easier for the potential costs of technology to improve fuel economy to be borne by buyers of premium vehicles. The Commission proposal is more socially equitable and cost-effective as it leads to a smaller relative price increase and has less of a distortionary effect on the new car market and inter-manufacturer competition. The additional purchase costs of technology will anyway be recovered in less than 2 years through cheaper fuel costs and higher resale values,<sup>iii</sup> the regulation is therefore good for car buyers who will achieve a lower overall cost of ownership.

Overall CO<sub>2</sub> emissions would also be lower under the Commission proposal as heavier vehicles on average drive longer distances than lighter vehicles. Typically a small petrol vehicle has an annual average mileage of around 14,500km per year compared to a large diesel of over 26,000km and which in its lifetime can be expected to drive nearly 200,000km further. Improving the efficiency of larger vehicles, especially diesels that dominant the larger premium car segments is therefore strongly beneficial for the environment and overall fuel consumption and security of supply.

## **Don't these manufacturers claim they have outstanding technology to improve the efficiency of their cars?**

VW recently announced that they planned to become “the leading automaker in ecological terms.”<sup>iv</sup>

BMW has filled pages of advertising promoting its Efficient Dynamics vehicles that are to be used as part of the Olympic fleet of vehicles to transport VIPs around London. It has also been keen to claim to be associated with green messages sponsoring the recent Rio + 20 summit. It has also been strongly promoting its new range of electric vehicles.

## **Why are vehicle manufacturers opposing regulations to improve fuel efficiency that their customers want?**

Vehicle manufacturers have a long history of attempting to weaken environmental legislation – even when it would directly improve fuel efficiency and benefit their customers. The European Consumers Organisation (BEUC) has said, “We welcome the emission target of 95 g CO<sub>2</sub>/km for the new passenger car fleet for the year 2020 as we expect this target to reduce CO<sub>2</sub> emissions of the transport sector, reduce the dependence on foreign oil imports, protect consumers from steady increases in fuel prices and prevent further air quality pollution.”

A number of leading leasing companies (part of a sector that buys around 40% of all new cars) said in a recent letter to the Commission that “95 gr CO<sub>2</sub>/km in 2020 is the minimum ambition level we expect.”<sup>v</sup>

## **Business and private car buyers are calling greater fuel efficiency, but some vehicle manufacturers appear to want to keep supplying the same old gas-guzzlers**

New CO<sub>2</sub> regulations for cars will put money in driver's pockets through lower fuel bills. It will also reduce dependency on oil and drive innovation in the sector creating high value engineering jobs. The development of fuel efficient technologies and vehicles also create export opportunities for both suppliers and the manufacturers themselves. Fuel efficient vehicles are good for drivers, good for the environment and good for the economy.

## **How has T&E undertaken the calculations?**

T&E has based the analysis on its 2011 analysis of CO<sub>2</sub> emissions from new cars. From this it has derived targets for different manufacturers in 2020 using the DG Clima proposed slope (0.0296) and German position of (0.0457). To calculate the targets for each manufacturer we used the average weight of cars sold in 2010.

The calculation gives a good indication of how the different slopes affect CO<sub>2</sub> targets and average annual fuel consumption for different manufacturers. The formal targets for manufacturers in 2020 will depend upon the choice of the base-year of data and actual mass of the vehicles sold. The actual fuel consumed will depend upon the ratio of petrol to diesel sales and how far the average performance of vehicles on the road deviates from the test results. The analysis however provides a good indication of the scale of the effects.

[www.transportenvironment.org/what-we-do/cars-and-co2](http://www.transportenvironment.org/what-we-do/cars-and-co2)

## References

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<sup>i</sup> Assumes 50% sales of petrol and diesel vehicles. Fuel economy measured on the standard test cycle

<sup>ii</sup> Assuming a 50% mix of petrol and diesel vehicles and fuel price of 1.6 Euros per litre

<sup>iii</sup> Good for the environment and good for your pocket: Consumer benefits of CO2 emissions targets for passenger vehicles, BEUC, 2012

<sup>iv</sup> Prof. Dr. Martin Winterkorn, Chairman of the Volkswagen Group Board of Management, VW press release March 2012

<sup>v</sup> Cleaner car contracts, letter to President Barroso, July 2012