

CO2 Emissions from New Cars

Position paper in response to the European Commission proposal

April 2008



**European Federation for
TRANSPORT and ENVIRONMENT**

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Summary

Tackling fuel consumption and CO₂ emissions of new cars is the single most effective policy measure the EU can take to simultaneously address climate change, reduce dependence on oil, spur investment in low-carbon car technologies in Europe and elsewhere, and lower energy bills for European citizens.

We welcome the European Commission's proposal to set binding fleet average CO₂ standards for new cars sold in Europe, following the failure of the decade-old voluntary industry commitment. However, the proposal has some serious shortcomings that must be addressed.

Targets and timetables

- **120g/km by vehicle measures alone in 2012**
The Commission has weakened the long-standing target of 120 g/km to 130 g/km by 2012. The 120 g/km figure was first proposed in 1994, originally with a 2005 deadline. 130 g/km by 2012 already represents a seven-year postponement and a 10 g/km weakening, resulting in an extraordinary 17-year lead-time. The target should be met with vehicle measures alone. Measures under the so-called 'integrated approach' or 'eco-innovations' should come on top of, rather than instead of, the 120 g/km target as measured on the EU test-cycle.
- **80 g/km by 2020, 60 by 2025**
It is crucial to set longer-term limits for new cars sold in the EU now in order to achieve the necessary cuts in greenhouse gases and to give certainty for the industry. Fleet-average CO₂ emissions of 80 g/km by 2020 and 60 g/km by 2025 are needed.

Parameter and limit value curve

- **No weight-based CO₂ standards**
They punish carmakers that make their vehicles lighter, one of the most important methods of reducing CO₂ and fuel consumption. They will make the regulation more costly, less effective, or both, and will not be beneficial in terms of safety.
- **Footprint-based standards**
It is better to base CO₂ standards on the vehicle 'footprint' (track width multiplied by wheel base). Footprint based standards leave more options open to carmakers for reducing CO₂ and do not penalise weight reduction as a compliance option.
- **Correction mechanism**
In any case, the achievement of the fleet average target must be guaranteed by correcting for unforeseen increases in average vehicle weight or footprint. Only a flat standard, not differentiated for vehicle weight or footprint (i.e. 0% slope), offers direct guarantees for hitting the fleet average target, without the need for a correction mechanism, and is therefore the best regulatory option.

Compliance

- **Penalties of €150 per g/km**

Manufacturers that fail to meet the standard should face a penalty high enough to ensure compliance rather than payment. A penalty in the range of €150 per g/km 'overshoot' per car will ensure that. The full level of the penalties should apply as of 2012. To postpone the penalties is to postpone the targets.

- **No exemptions for small-volume carmakers**

The proposed law has enough flexibility mechanisms. Exemptions create distortions of competition.

- **No credits or incentives for cars that can run on alternative fuels such as E85, LPG or CNG**

Such credits are a loophole to enable car manufacturers to avoid making cars more efficient. The responsibilities should be kept separate: this regulation should focus on making cars more efficient. The uptake of low-carbon fuels should be stimulated through fuels-oriented legislation such as the fuel quality directive.

I. Targets and timetables: 120 g/km in 2012 and 80 g/km in 2020

The deadline for reaching 120g target was first proposed in by Germany in the October 1994 Environment Council, with a target year of 2005. Since then it has already been postponed twice, first to 2010, then to 2012. It is a matter of political credibility not to postpone the deadline any further. Recent research shows that if all cars on the market were equivalent to today's 'state of the art', CO₂ emissions would already be 20-25% lower than today and that's without car engine downsizing, or a move to hybrid technology¹.

In terms of CO₂ reductions it is necessary that the limit values enter into force in 2012. Because of gradual fleet renewal the full reduction potential of this regulation can only be achieved some years after it enters into force. Postponing the introduction of limit values from 2012 to 2015 would cut their CO₂ reduction potential almost by half.²

There is evidence that carmakers have held back fuel efficient technology. Recently Thomas Weber, DaimlerChrysler's head of R&D, admitted the company had so-called 'start-stop' technology (that saves fuel by switching off the engine when the car is stationary) on the shelf, but had so far refused to deploy it: *"We had [stop-start] ready behind the curtain, but we held it back."*³

Automotive suppliers have long been frustrated about the lack of political action. *'Why isn't there a law stating that the target of 120 grams of CO₂ emissions per kilometre applies today, rather than in five years'* asked Thierry Molin, CEO of Valeo, a leading supplier⁴.

Long-term targets of 80 g/km in 2020 and 60 g/km in 2025

The proposal from the Commission does not include stricter long-term targets for 2020 and 2025. There is no reason why reduction of CO₂ emissions should stop after 2012. Long-term targets for 2020 and 2025 are necessary to give the industry a long-term perspective for the development of more fuel-efficient cars and to stimulate innovation. Setting targets for 2020 would also better align this regulation with the European Union's energy package proposals on climate and energy and the proposed Fuel Quality Directive, which all have a horizon of 2020.

Car fuel efficiency should be doubled within the next decade, with stricter standards beyond, meaning targets of 80 g/km by 2020 and 60 g/km in 2025. In addition, ongoing passenger demand growth (about 2% per year) make such cuts necessary in order to come anything close to a 20% reduction of transport greenhouse gases from transport by 2020 compared with 1990 as demanded by the European Parliament.⁵

Recent estimates also show that emission savings will be at least 2.5 times greater in 2020 with legislation that includes the 120g/km (2012) and 80 g/km (2020) targets, as opposed to

¹ <http://www.cleangreencars.co.uk/jsp/cgcmmain.jsp?lnk=401&featureid=601&description=CO2%20targets%20-%20is%20the%20car%20industry%20crying%20wolf?&category=Clean%20Green%20Cars>

² The Greens / EFA 2007: Putting the brakes on climate change. CO₂ limit values for cars, p. 10-13, <http://www.greens-efa.org/cms/topics/dokbin/201/201906.pdf>

³ Automotive News Europe, 23 July 2007

⁴ <http://www.forbes.com/markets/feeds/afx/2008/01/07/afx4499702.html>

⁵ European Parliament resolution of 12 July 2007 on keeping Europe moving – Sustainable mobility for our continent (2006/2227(INI)); European Parliament resolution of 11 March 2008 on sustainable European transport policy, taking into account European energy and environment policies (2007/2147(INI))

the 130g/km target for 2012 proposed by the Commission. The Commission proposal of 130 g/km would lead to a reduction of 35 mio tonnes of CO₂ whereas reaching 120 g/km in 2012 and 80 g/km in 2020 would lead to a reduction of 95 mio tonnes.⁶

Deeper cuts in the longer term are also feasible. More advanced low carbon car *technology*, such as plug in hybrids, can deliver a very significant part of the savings. But for the longer term targets it will be critical to also modify the way a car is designed (the car's *specifications*). If cars are designed for lower top speed and equipped with lower power, not to mention if SUV-sized cars are eliminated from the car market, massive CO₂ savings will be attainable.

Simulations by the German Environment Agency show a 33% reduction in CO₂ emissions if the maximum speed of a car were capped at 160 km/h.⁷ The German company Loremo aims at producing a 40 g/km car by 2009, that can achieve 160 km/h.

⁶ Öko-Institut 2007: Kurzgutachten zu den CO₂-Minderungspotenzialen der auf EU-Ebene diskutierten Grenzwertvorschläge für neu zugelassene Pkw.

⁷See: www.greens-efa.org/cms/default/dokbin/187/187462.how_to_reduce_car_emissions_by_a_friedri@fr.pdf, slides 11/12

2. How to define the standards: parameter and limit value curve

No weight-based system

The Commission proposes to differentiate CO₂ limit values for different types of cars according to vehicle weight. Carmakers' corporate fleet average limits would be derived from a limit value curve, by which each car's CO₂ value is determined as a function of the weight of the vehicle. Under this system a heavier car would get a more lenient (ie higher) CO₂ standard than a lighter one.

T&E strongly opposes weight-based CO₂ standards. They punish car makers that make their vehicles lighter, one of the most important methods of reducing CO₂ and fuel consumption. An example: the Commission proposal penalises a car maker that makes its cars 100 kgs lighter with a 4.6 g/km tougher CO₂ standard. This is a strong discouragement for lightweighting technologies. This reduction of compliance options for car makers will make the regulation more costly, less effective, or both.

A weight-based system would also favour weight-increasing technologies such as diesel engines. Diesel engines are 50 to 80 kgs heavier than petrol engines, giving diesel cars a 2 to 4 g/km more lenient CO₂ standard. Even more diesel cars on Europe's roads would further worsen air quality and would also worsen energy security as Europe already strongly depends on imports of diesel (while exporting petrol).

Weight based standards will not benefit safety. Mainly for this reason the US chose footprint as the parameter to regulate fuel efficiency of light trucks (see below).⁸

Footprint rather than weight

It is much better to base CO₂ standards on the vehicle 'footprint' (track width multiplied by wheel base). Footprint-based standards leave more options open to carmakers for reducing CO₂ and do not penalise weight reduction as a compliance option. A footprint-based system gives incentives for all manufacturers to choose the most appropriate means of CO₂ reduction freely for each market segment and to realise the full potential of all the measures available. It gives clear incentives to make vehicles lighter as each kilogram of vehicle weight reduced would bring the manufacturer closer to the target.

A footprint-based limit curve will be neutral to the technological choices made by a manufacturer - each gram of CO₂ saved will receive the same benefit.

Correction mechanism is needed

The 130 g/km proposed by the Commission is an average value which would apply to all vehicles sold in the EU in 2012. The limit value function in the Commission proposal based on the sales-averaged weight of all cars sold in 2006. The limits for cars however will only apply in 2012 and the average weight of the EU fleet of new cars might be different by then.

⁸ See: Danger ahead – why weight based CO₂ standards will make cars dirtier and less safe, http://www.transportenvironment.org/Publications/prep_hand_out/lid:482

In the last years the average weight of passenger cars increased by 1.5% each year. This increase was one of the main factors why cars could not reduce more CO₂ and therefore the industry missed its obligations under the voluntary agreement.⁹

If cars continue to get heavier this means that the average target proposed by the Commission would most likely be missed, if there is no correction mechanism. Therefore the correction mechanism for 'autonomous mass increase' as proposed by the Commission is vital for the environmental integrity of the system. A footprint-based system would also necessitate such a correction mechanism, but the correction is likely to be less severe because footprint has historically been more stable than weight.

The same CO₂ standard for all vehicles (i.e. a completely flat curve with a 0% slope) would make the correction mechanism redundant and is the simplest, clearest, and cheapest way to achieve the target. This is because every compliance option is completely open including downsizing and lightweighting of cars.

⁹ For more info on how the industry missed it's target in the voluntary agreement see: T&E 2006: How clean is your car brand?, http://www.transportenvironment.org/Publications/prep_hand_out/lid:442

3. Compliance: meaningful penalties and no exemptions

The Commission proposed a gradual phasing in of the penalties from 2012 to 2015 increasing each year. The levels proposed are €20 in 2012, €35 in 2013, €60 in 2014 and €95 in 2015. We believe that the full level of the penalties should apply as of 2012 and that the penalty level should be €150 per g of CO₂ 'overshoot' per car sold.

On the basis of the cost studies done for the Commission a penalty in this range seems to be sufficient to ensure compliance. The compliance mechanism is the cornerstone of the regulation – if this mechanism fails or is not strong enough, the whole regulation will fail. Therefore the penalties need to be high enough to ensure that the overall fleet average standard is met, and is met exclusively through sales of fuel efficient cars.

Loophole-free legislation: no exemptions

The Commission has also proposed that manufacturers producing less than 10.000 vehicles be exempt of the obligations set though the limit value curve and can apply to the Commission for a special derogation. We think the Commission proposal already provides ample flexibility for carmakers (it applies fleet-average standards, limits are differentiated for different types of car and there are possibilities for pooling between carmakers). Therefore such exemptions are unnecessary and inconsistent with the EU's policy objectives as they distort competition between carmakers.

Loophole-free legislation: no credits for flexfuel cars

There should be no credits or incentives for cars that can run on alternative fuels such as E85, LPG or CNG. Such credits would be a loophole which would enable car manufacturers to avoid making cars more efficient. It is essential that the responsibilities for car efficiency and biofuels are kept separate. The uptake of low-carbon fuels should be stimulated through fuels-oriented legislation such as the fuel quality directive.

Transparency and reporting

The proposal is not specific enough on reporting mechanisms. It should be ensured that carmakers that form a 'pool' still report separately. This is important for public information and transparency. Similarly, reporting should be done on a brand-specific basis, rather than on a carmaker-specific basis.

4. Background: The importance of reducing CO₂ emissions and fuel consumption

There is wide agreement among climate researchers that man-made emissions of greenhouse gases are affecting the Earth's climate. This could lead to global mean temperature increases of 1.8 – 4.0° C during this century¹⁰. To avert the most devastating impacts of climate change the European Union has a stated objective of limiting global temperature rise to below 2 degrees Celsius on average. The UN scientific body, the International Panel on Climate Change (IPCC) forecasts a three-degree rise this century under business as usual.

Effects of climate change

Climate change will have many negative consequences for our environment and society. It will make dry areas drier and increase the risk of flooding in others. Among the other consequences of a changing climate are droughts, forest fires and health problems due to heat waves. Water availability is projected to decrease in Southern Europe and the Mediterranean especially¹¹.

Climate change will also lead to widespread biodiversity loss. With a temperature rise of less than one degree, species such as the Bengal tiger and the mountain gorilla are threatened, while a rise of 1-2°C affects coral reefs, and coastal wetlands. Overall some 20 to 30 per cent of plant and animal species will face an increased risk of extinction if the average global temperature increases by more than 1.5 to 2.5°C.

Efficient cars are important to meet the EU's climate change objectives

In order to avoid the most damaging consequences of climate change the emissions of greenhouse gases must start to decline very soon. In line with its overall objective of keeping global temperature increase below 2 degrees Celsius, EU leaders committed in March 2007 to cut greenhouse gas emissions until 2020 by 30% over 1990 levels, as part of a global deal. In the meantime, they agreed to unilaterally cut EU emissions by 20% by 2020 and the European Commission proposed legislation to this effect in January 2008. But the EU's climate targets will not be reached unless emissions from car transport are curbed.

Between 1990 and 2005, EU CO₂ emissions from transport increased by 32% or 2% per year. Over this period the share of transport in the EU's CO₂ emissions has risen from 20.5 to 27.4%.¹² In the future, transport emissions are projected to continue increasing if no further actions are implemented¹³. This means that the transport sector will continue to undermine EU climate policy unless it is made much more efficient.

¹⁰ IPCC 2007: Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Print_SPM.pdf

¹¹ EEA 2007: Europe's environment – The fourth assessment, http://reports.eea.europa.eu/state_of_environment_report_2007_1/en

¹² T&E 2007: CO₂ emissions from transport in the EU27: an analysis of 2005 data submitted to the UNFCCC. http://www.transportenvironment.org/Publications/prep_hand_out/lid:464

¹³ EEA 2007: Europe's environment – The fourth assessment, http://reports.eea.europa.eu/state_of_environment_report_2007_1/en

According to EEA figures, almost half of transport CO₂ emissions, or 13% of the EU's total CO₂ emissions, come from passenger cars. If light duty commercial vehicles (vans) are added the share reaches 15%. The high share of cars and vans in the EU's transport emissions means that reducing emissions from cars has great potential to bring down the EU's transport emissions.

Efficient cars are an important element of the EU energy package

Efficient cars link to the energy package¹⁴ in two important ways: in relation to the overall greenhouse gas reduction target and as part of the non-ETS emissions. With regard to the overall target and with regard to the non-ETS emissions cars play an important role in reaching and going beyond the targets proposed by the Commission. Parliament has consistently reminded the Commission that the overall ambition of the EU's climate policy should be to strive for a 30% reduction of greenhouse gasses in 2020.¹⁵ In the past year Parliament has also adopted two resolutions that set a target for the transport sector of -20% by 2020¹⁶. This position is in line with advice from the IPCC on reductions, which are necessary to stay below the 2 degree target adopted by EU leaders. Because of the significant CO₂ savings that can be achieved with this policy it is an essential element necessary for going beyond the proposed 20% target and for being in line with the EU's international objectives endorsed in Bali. With regard to the non-ETS emission they are necessary to curb the increase in transport emissions as outlined above.

Efficient cars will reduce the cost of oil imports and associated geopolitical risks

High oil prices and the fact that transport is responsible for most of our oil use mean high net costs for our economy. A tonne of CO₂ is the result of burning approximately two barrels of crude oil. Transport is already responsible for almost 70% of the EU's oil use, and cars and vans are responsible for the majority of this. This means cars and vans alone make up for around 35% of the EU's oil use.

At \$100 (€65) a barrel and 80% dependence on oil from outside Europe, the annual transfer of wealth from Europe caused by this oil use is €80 bn. Dependence will soon grow to 90% and reserves of conventional oil are increasingly concentrated in politically unstable regions.

The money we spend on oil represents a net cost to the economy. On the other hand investing in lower consuming cars would be an investment into future technology that also pays off in terms of lower oil bills.

Efficient cars will reduce energy prices

Oil prices are very sensitive to oil demand. Evidence suggests that a 1% lower global oil demand would reduce prices by approximately 10% in the short term and 5% in the medium

¹⁴ The EU energy package was proposed in January 2008 and outlines a number of directive proposals for how to meet the climate target of minus 20% to 30% greenhouse gas emissions adopted by EU leaders in 2007. An essential part of the energy package is the revision of the EU's emissions trading system (ETS). Emissions of other sectors such as transport are covered in the "non-ETS" part of the package.

¹⁵ European Parliament 2007: Resolution on Climate Change, 14 February 2007, Strasbourg, <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2007-0038+0+DOC+XML+V0//EN&language=EN>

¹⁶ European Parliament resolution of 12 July 2007 on keeping Europe moving – Sustainable mobility for our continent (2006/2227(INI)), European Parliament resolution of 11 March 2008 on sustainable European transport policy, taking into account European energy and environment policies (2007/2147(INI))

term¹⁷. Successful policies implemented in the 1970s to reduce oil demand, such as the American Corporate Average Fuel Economy (CAFE) laws for cars, have been hugely successful in relaxing the oil market.

As an indication: if the EU's policy would reduce oil demand from cars and vans by a third, compared to 'no action', this would lead to 10% lower oil prices in the medium term. At €50 a barrel, the EU spends approx. €250bn a year on oil. At 80% import dependence, a 10% lower oil price would hence mean a net annual saving of €20bn to the EU economy.¹⁸

Also, lower oil prices could limit a rush to alternatives to conventional oil, which are often very harmful to the environment and require a lot of energy to produce. Oil from tar sands, oil shale and 'coal-to-liquid' processes are extremely damaging to the climate: up to twice as much as conventional crude oil. Dirty 'unconventional oil' becomes economically viable at oil prices sustained over roughly \$40 a barrel.

Efficient cars will save fuel for consumers and benefit low-income groups

The Commission's impact assessment has shown that fuel savings over the lifetime of the car (€2,700) would be twice as high as the possible increases in car price (€1,300). This means that this policy creates a €1,400 per car net economic benefit for consumers. In addition, this policy would specifically benefit lower income groups. Lower income groups usually buy second hand cars rather than new cars. This means they would get to benefit from the fuel economy of the more efficient cars while not having to pay for the investment cost (as that will be paid by the first hand buyer). This effect will be all the more pronounced if the oil price stays high.

Efficient cars will lead to more high-quality jobs in Europe

Legislation on CO₂ from cars will oblige carmakers to invest in CO₂-saving technologies on their vehicles. Such technologies have been developed, and in many cases applied, but far from the fullest extent possible. CO₂ regulation will lead to a quicker and more widespread adoption of fuel-saving technology across Europe's car fleet. These technologies will be developed close to market by an extensive network of European suppliers. If Europe takes the lead, it will attract lots of investment, particularly by suppliers. These investments will bring high-quality jobs to Europe.

¹⁷ The one-year price elasticity of global oil demand for the oil price is estimated at -0.1, the five- to ten years' elasticity at -0.2. Source: Congressional Budget Office, China's Growing Demand for Oil and Its Impact on U.S. Petroleum Markets, Washington, April 2006, p.33.

¹⁸ For more detail see also: T&E 2007: Regulating CO₂ emissions of new cars, http://www.transportenvironment.org/Publications/prep_hand_out/lid:466