EUROPEAN STRATEGY ON CLEAN AND ENERGY EFFICIENT VEHICLES
Greenpeace contribution to the public consultation

BACKGROUND

Emissions of greenhouse gases (GHG) from road transport have increased by 29% between 1990 and 2007 in the EU-27. Today, road transport is responsible for 24% of all energy-related CO2 emissions in the EU, whereby passenger cars alone account for about 16% of all energy-related CO2 emissions.[1]

The Commission's announced Strategy to promote clean and energy efficient vehicles aims to "contribute to climate change action" i.e. to the decarbonisation of the road transport sector, and the car sector in particular.

The strategy should therefore support the sector's pathway to **full decarbonisation by 2050**, as part of cutting economy-wide emissions to practically zero in developed countries, including the EU. Only under these conditions will the EU respect its stated objective of limiting average temperature increase to below 2 degrees Celsius.

For the medium term, this means that emissions from road transport should be brought back to **levels well under 1990 by 2020**, as part of an economy-wide, domestic GHG reduction target of 30%. This represents a major challenge considering that the upward trend in road transport emissions is expected to continue under business-as-usual.[2]

Vehicle technology will have a major role in achieving these GHG reductions, by contributing to **lowering energy use** and **enabling the shift to renewable energy** in road transport.

In the 2020 perspective, the focus will be on dramatically lowering energy use in road vehicles, with only a smaller shift to renewable energy. By 2050, however, all remaining energy used in road vehicles should come from renewable sources. This requires a transition to alternative propulsion technologies such as electric vehicles (EVs). A simple replacement of fossil fuels with biofuels will not be possible since the limited amount of sustainable biomass will be best used in sectors other than road transport.

But vehicle technology alone will not do the trick. To be able to fully decarbonise road transport, and therefore replace all fossil fuels with renewable energy, energy consumption must be cut in three ways:

- by improving the energy efficiency of road vehicles,
- by shifting the demand to more energy efficient modes of transport, and
- by reducing transport demand altogether.

MAIN ELEMENTS OF AN INDUSTRY STRATEGY TO PROMOTE CLEAN VEHICLES

(1) The most important measure to achieve advances in vehicle technology, and to promote clean and energy efficient vehicles, is the adoption of stringent and mandatory efficiency standards.

Recent developments confirm this. Until the announcement, negotiation and final adoption of the EU's first ever fuel efficiency standard for passenger cars, fleet-wide efficiency increases were negligible, in the order of 1.2% per year. Since 2007, however, the rate of improvement

[1] EC 2010
[2] EC 2008, SEI 2009

has increased substantially. In 2008, CO2 emissions from new cars decreased by 3.3% in the EU.[3] In 2009, CO2 emissions decreased by 6.4% in Germany, and by 5.4% in the UK.[4]

The EU standard also sets a target of 95 g CO2/km for 2020. As a result, carmakers have not only accelerated the improvement of internal combustion engine vehicles (ICEVs) but also taken serious steps to introduce alternative vehicle technologies such as battery-electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).

It is our firm belief that these promising developments will not continue unless the 2020 target for passenger cars is reviewed, and the details of its implementation decided as early as possible.

- An EU strategy to promote clean and energy efficient vehicles will not be credible unless it includes a **firm commitment** by the European Commission to urgently present a legislative proposal to reach a **2020 target of 80 g CO2/km**. This will be, in our view, the most important element, which will provide the industry with a clear "medium-term orientation (up until 2020)".

(2) It is good practice to accompany industry standards with demand-side measures such as CO2-based vehicle taxation and feebates, as well as better information and awareness raising through CO2 labelling in advertising and in showrooms.

Energy taxation has an important role to play in promoting a shift to more efficient vehicles. A 10% increase in petrol prices through higher fuel taxes could result in a 4% decrease in fuel used per kilometre, achieved in part through the choice of more efficient cars.[5]

- An EU strategy to promote clean and energy efficient vehicles should include concrete steps to support the demand for such vehicles through **vehicle and energy taxation,** as well as **better information on CO2 emissions and fuel costs** for consumers.

(3) In the past, efficiency improvements in vehicles have been partly offset by increases in engine power and weight of vehicles. A limitation of maximum speed capacities of road vehicles would help to break this trend, and to exploit the full potential of energy efficiency improvements in road vehicles.

In the EU, speed limiters are mandatory on all road vehicle categories except passenger cars (M1) and light commercial vehicles (N1), which contribute most to energy wastage and CO2 emissions in the road sector.

- An EU strategy to promote clean and energy efficient vehicles should include concrete steps to **limit maximum speed capacities of M1 and N1 vehicles**, to ensure that future improvements in drivetrain efficiency are no longer offset by greater performance and weight of vehicles.

POSSIBLE PITFALLS OF AN INDUSTRY STRATEGY TO PROMOTE CLEAN VEHICLES

(1) Vehicle taxation and feebates are an important tool to stimulate a market shift toward more fficient vehicles. But this does not mean that EU countries should introduce new incentives and subsidies for the purchase of cars or other road vehicles.

In the 2020 perspective, road transport will continue to be much more energy intensive than public transport, walking and cycling. This is why no measure should be taken which promotes or subsidises road transport at the expense of these other modes.

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[3] COM/2009/0713 final
[4] Kba press release of 11 February 2010; SMMT press release of 10 March 2010
[5] UK CCC 2009

It is worth bearing in mind that vehicle efficiency is not an end in itself, and that full decarbonisation cannot be reached without curbing the growth in road transport.

This is why lower taxes or other incentives for efficient vehicles should always be balanced by higher taxes and fees for inefficient vehicles. Otherwise, the existing market distortion in favour of road transport vis-à-vis other, more energy efficient modes of transport, would only be exacerbated.

- An EU strategy to promote clean and energy efficient vehicles should *not* promote the purchase and use of road vehicles at the expense of other, inherently more efficient modes of transport. It should promote, not hinder, the shift toward more efficient modes of transport.

(2) A shift to grid-connected vehicles makes sense both in terms of increasing vehicle efficiency and the use of renewable energy. This is because EVs and PHEVs offer greater energy efficiency than ICEVs, and can run on all types of renewable energy.[6]

However, as traditional liquid fuels are replaced with electricity, care must be taken not to substitute dirty energy from crude oil with dirty energy from coal or nuclear power. This would effectively hamper the sector's move to greater energy efficiency and use of renewable energy sources.[7]

This is why the additional power demand from grid-connected EVs should be covered by additional renewable power supply. Moreover, EVs should play their full role in contributing to a flexible power system that enables the large-scale integration of a fluctuating supply from wind and solar energy.

- An EU strategy to promote clean and energy efficient vehicles should *not* stand in the way of decarbonising other sectors, such as the power supply. It should promote, not hinder, the shift to 100% renewables in the power sector.

(3) The EU's long-term climate objectives can only be reached if conventional internal combustion engine vehicles are replaced by new vehicle technologies. However, efficiency increases in conventional vehicles will also be required.

There is still a huge potential to improve ICEVs, including through measures that can be applied to all types of vehicles such as reductions in air drag and rolling resistance, light-weighting and de-powering. This potential should be exploited to the full in the 2020 perspective. Bringing down road transport emissions to 1990 levels cannot be achieved without this.

- An EU strategy to promote clean and energy efficient vehicles should *not* promote specific technologies but rather efficiency increases across the board.

(4) In the past, a lot of attention has been given to measures outside the control of the car industry, such as the use of biofuels, as part of the so-called "integrated approach to reduce CO2 from cars".

However, a strategy that aims to provide orientation for the car industry should limit itself to measures related to the supply and uptake of clean and energy efficient vehicles. Measures such as guidelines on eco-driving and the application of Intelligent Transport Systems should not be considered.

- An EU strategy to promote clean and energy efficient vehicles should *not* divert into areas that are not linked to the supply and uptake of such vehicles.

[6] EEA 2009
[7] CE Delft 2010

ANSWERS TO THE QUESTIONS

(1) *Should the vision agreed in the CARS 21 mid-term review be now adjusted? (i.e. 2020 perspective of improved combustion engine's market dominance combined with growing market penetration of electric and hydrogen vehicles and hybridisation conceived as the bridging technology and 2050 perspective of transport decarbonisation).*

Until 2020, improvements on internal combustion engine vehicles (ICEVs) will be the most important way of improving the energy efficiency of vehicles. In addition to that, alternative technologies that combine a high level of energy efficiency with the use of renewable energy, such as electric vehicles that run on renewable power, will need to be introduced in that timeframe to allow large-scale deployment at a later stage.

(2) *What is the potential of different clean automotive propulsion technologies (improved fuel efficiency, hybridisation and alternative powertrains) for contributing to decarbonisation objective in the short, medium and long term?*

What is the decarbonisation potential of the complementary measures in the short, medium and long term (e.g. guidelines on eco-driving, application of Intelligent Transport Systems) and how reliable are these potentials?

Vehicle technology advances are one of three pillars of lowering energy use in road transport, in combination with demand reduction and a shift to more efficient modes.

By 2020, energy consumption in new cars can and should be reduced to no more than 0.33 kWh/km (80 g CO2/km) on average. By 2030, this value can and should be no higher than 0.20 kWh/km (50 g CO2/km). By 2050, alternative powertrains should also enable road vehicles to be driven on 100% renewable energy.

Measures such as guidelines on eco-driving and the application of Intelligent Transport Systems should not replace energy efficiency improvements in vehicles. They should therefore not be considered in a strategy to promote clean and energy efficient road vehicles.

(3) *What are the implications of new propulsion technologies in a lifecycle analysis perspective as regards vehicles, and in a well-to-wheel perspective as regards energy supply chains? What are the resource implications in introducing innovative propulsion technologies?*

The well-to-wheel CO2 emissions of a grid-connected electric vehicle crucially depend on the marginal power plant that provides the electricity for charging that vehicle. If the power supply comes from a wind turbine, the emissions will be practically zero. It if comes from a coal-fired power plant, they will be considerably higher than the emissions of a comparable ICEV.[8]

(4) *What are the state of play and the future scenarios of technological developments in alternative powertrains (electric and hydrogen) and their market penetration? What are major risks and opportunities associated for different stakeholders? What will be the economic, societal, employment and environmental impacts brought by these developments?*

Under the current EU legislative framework, the market introduction of electric vehicles would result in:

- An increase in oil consumption and CO2 emissions in the EU car sector, compared to a situation without electric vehicles.

[8] EEA 2009, WWF 2009

- An increase in coal- and nuclear-based electricity production, instead of an increase in energy production from renewable sources.[9]

This means that simply pushing EVs into the market would be counterproductive without changes in regulation. Greenpeace, Friends of the Earth and T&E have made relevant recommendations in the briefing paper on CE Delft 2010, released on 8 February 2010.[10]

(5) *How can a trade-off situation be avoided where electrifying the power train would reduce or reverse improvements made in conventional technologies in the framework of existing and upcoming legislation on the CO2 emissions of road vehicles?*

Under the current CO2 legislation for cars and the related proposal for vans, the introduction of electric vehicles will effectively reduce the effort to cut CO2 emissions from conventional cars.

This is because of two reasons. Firstly, the standard regulates Tank-To-Wheel CO2 emissions and means that a carmaker can offset each of these vehicles with a vehicle that has twice the emission level allowed for the total fleet of that carmaker. At EU-level this means that, for each EV sold, carmakers can sell a car that has CO2 emissions of 260 g/km. Consequently, the introduction of EVs will lead to reduced efforts to enhance the efficiency of ICEVs.

Secondly, both the car and the proposed van standard include so-called supercredits for ultra-low emission vehicles. Under this provision, a carmaker can offset each of these vehicles with up to 3.5 vehicles that have twice the emission level allowed for the total fleet of that carmaker. This further obstructs efforts to improve the efficiency of ICEVs.

Moreover, the standards regulate only the efficiency of ICEVs but not of battery-electric vehicles (BEVs) or fuel-cell electric vehicles (FCEVs), which have no tailpipe emissions yet differ greatly in their energy efficiency. These differences are not captured under the current system, which fails to stimulate efficiency in these vehicle types.

It is therefore important that, as these alternatives to ICEVs become available, standards refer to a direct indicator of energy efficiency, such as kWh/km. Supercredits are an ill-designed incentive to promote EVs and PHEVs and should be scrapped.

(6) *What actions should be best taken at regional/ national /European or international level to promote technology development and market uptake of alternative powertrains (electric and hydrogen)?*

Vehicle standards

The most important action at the EU level are stringent mandatory standards for the energy efficiency of vehicles, encompassing all types of road vehicles. In relation to cars, this means that the European Commission should renew its commitment to review Regulation 443/2009 as soon as possible to set an ambitious 2020 target of 0.33 kWh/km or 80 g CO2/km.

In relation to light commercial vehicles (vans), the final legislation should mandate an average of 160 g CO2/km by 2015, and 125 g CO2/km by 2020. Further, the European Commission should urgently prepare stringent standards for the remaining goods and passenger vehicles (i.e. M2, N2 and upward).

The European Commission should also propose to extend the scope of Directive 2004/11 to include speed limiters for M1 and N1 vehicles, and to lower the maximum speed of trucks to 80 km/h.

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[9] CE Delft 2010

[10] See http://www.greenpeace.org/eu-unit/press-centre/policy-papers-briefings/green-power-for-electric-cars-08-02-10

Demand-side measures

Member States should support these standards through demand-side measures such as CO2-based vehicle taxation and feebates, as well as better consumer information through CO2 labelling in advertising and in showrooms. The CO2 labelling should allow consumers to compare different models based on CO2 emissions and fuel costs. The European Commission should present its proposal to increase the effectivenes of Directive 1999/94/EC as soon as possible.

Member States should also raise the taxation of road fuels, and in particular of diesel. A 10% increase in petrol prices through higher fuel taxes could result in a 4% decrease in fuel used per kilometre, achieved in part via choice of more efficient cars.[11]

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Sources

CE Delft (2010), Green Power for Electric Cars. Development of policy recommendations to harvest the potential of electric vehicles

European Commission - Directorate General for Energy and Transport (2008), *European Energy and Transport: Trends to 2030, Update 2007*

European Commission - Directorate General for Energy and Transport (2010), Statistical Pocketbook 2010

European Environmental Agency (2009), Environmental impacts and impacts on the electricity market of a large scale introduction of electric cars in Europe. Critical review of literature.

Stockholm Environment Institute (2009), Europe's Share of the Climate Challenge Domestic Actions and International Obligations to Protect the Planet

UK Climate Change Committee (2009), Meeting Carbon Budgets - the need for a step change

Word Wide Fund for Nature (2009), Auswirkungen von Elektroautos auf den Kraftwerkspark und die CO2-Emissionen in Deutschland. Kurzstudie

[11] UK CCC 2009