Review of the EU strategy to reduce CO₂ emissions and improve fuel efficiency from cars

Report on the Public Consultation June - August 2006

In line with the Commission’s commitment to transparent and interactive policy-making, this document aims at providing an overview and general impression of the feedback provided to the Commission in the context of a public consultation. The statements and opinions expressed in the document do therefore in no way necessarily reflect those of the Commission.
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1. **Summary**

1.1. General remarks

A public consultation on the review of the EU strategy to reduce CO₂ emissions and improve fuel efficiency from cars was held from 12 June to 21 August 2006 in preparation for a Communication from the Commission to the Council and European Parliament. An online questionnaire available in English, French and German was designed to gather the anonymous views and opinions of the general public on passenger road transport’s contributions to climate change and possible future ways to reduce it. The standard Commission internet tool for Interactive Policy Making was used. The objective was to allow as many as possible to express their views, but since the consultation was based on self-selection of those who wished to respond to the questionnaire, the views expressed by respondents cannot be regarded as representative of the views held by the EU population.

1.2. Results of the consultation

A total of 1215 responses were received, with a 2:1 male/female respondents' ratio. The largest number of respondents lived in the UK, followed by France and Germany. 77% of respondents owned a car and 23% did not. From the responses, these cars seem to be fairly consistent with the average EU fleet in terms of their size distribution and fuel consumption. However, there are indications that the sample of respondents may be more informed/concerned about environmental issues than the average citizen.

There was a large degree of agreement that road transport should make further efforts to mitigate climate change and to improve security of energy supply, but also that the responsibility for the reduction of CO₂ emissions from cars should be shared by various stakeholders (i.e. not only the car industry, but also the fuel industry, consumers, public authorities). Particularly strong support was voiced for the inclusion of light commercial vehicles in efforts to reduce CO₂ emissions, as well as for efforts to raise consumer awareness about CO₂ emissions from cars.

In terms of approaches to reduce the CO₂ emissions from cars, the questionnaire asked for the degree of support for seven different approaches: improving car technology; fiscal measures to support low CO₂ emissions; better consumer information on the fuel efficiency of cars, and of certain car components; promotion of alternative fuels; eco-driving; and support for more efficient tyres and lubricants. A majority of respondents considered all of these approaches as worthwhile by ticking the option "As soon as possible". Within this option, the improvement of car technology comes out top, followed by tax differentiation, consumer information about cars and the promotion of alternative fuels. Relatively lower urgency is expressed for the promotion of eco-driving and the promotion of efficient tyres and lubricants, with the least urgency for improving consumer information about the efficiency of components.

In exchange for an annual fuel cost reduction of €150, some 70% would be willing to pay more for the vehicle; half of these by no more than €1,000, another 22% by €1,000 to €1,500, with almost 20% above €1,500.

Somewhat less than half of all respondents also provided general comments. From these comments, strong support emerges for either binding regulatory measures or fiscal measures on CO₂ from cars, as well as for new technology. Many other comments highlighted the importance of other measures in transport policy as well in order to reduce CO₂ from transport, chiefly public transport and non-motorised transport as well as biofuels, a reduction of transport demand, instruments of urban transport planning and policy, and fuel taxation.
2. Introduction

A public consultation on the review of the EU strategy to reduce CO₂ emissions and improve fuel efficiency from cars was held from 12 June to 21 August 2006¹ in preparation for a Communication from the Commission to the Council and European Parliament to be adopted at the end of 2006. The consultation was carried out in line with the Commission’s policy of good governance, transparency and stakeholder involvement and using the standard Commission internet tool for Interactive Policy Making.

An online questionnaire available in English, French and German was designed to gather the anonymous views and opinions of the general public on passenger road transport’s contributions to climate change and possible future ways to reduce it. The objective was to allow as many as possible to express their views, but since the consultation was based on self-selection of those who wished to respond to the questionnaire, the views expressed by respondents cannot be regarded as representative of the views held by the EU population.

To facilitate the analysis, some questions were structured and allowed an answer from a number of presented options. The consultation was aimed at giving a voice to members of the public on road transport and climate change, and not at providing a representative survey or opinion poll. However, it should be borne in mind that self-selection of the potential respondents may have introduced a bias towards certain views and ideas and the results should be interpreted accordingly.

This document does not in any way reflect the position of the European Commission. It merely attempts to summarise the comments received from members of the public.

¹ To compensate for the fact that the consultation partly took place during the summer period, the minimum consultation time of 8 weeks was raised to 10 weeks
3. Results of the consultation

3.1. Background information about participants

1215 submissions were received, with a 67%/33% male/female respondents ratio. The largest number of respondents lived in the UK, followed by France and Germany. This may have been partly due to the fact that the questionnaire was available in English, French and German but also because these are the larger Member States. The dominant age group was 30-39 (34%), followed by 40-49 (24%) and 18-29 (21%), with the remaining 21% from age 50 and higher. Thus, almost 80% of all respondents were below 50 years old.

77% of respondents owned a car and 23% did not. For comparison, the motorisation rate in the EU-25 is 468 per 1000 population\(^2\). Looking at the car fleet represented by those who own a car (Figure 2), almost two thirds use petrol, almost one third diesel, and 5% other fuels such as biofuels or natural gas. Half of the cars are of medium size, over one quarter are small, while the remaining, larger or more luxurious categories are making up 3-6% each (Figure 3).

The fuel consumption as indicated by those respondents who did supply this information was predominantly five to seven litres per 100km (35%) and seven to nine litres (20%), see Figure 4. Using straightforward assumptions, the average CO₂ emissions as implied by the respondents would then be around 177g/km. Looking at the monitoring data, this value would correspond to the newly sold vehicle fleet of 1999, or – allowing for higher consumption in real world driving⁵ - some

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³ Fuel consumption as shown on the figure, assuming an even spread of values within each fuel consumption category and a constant petrol to diesel split as found above. A fuel consumption of one l/100km corresponds to 24g/km of CO₂ for petrol, and 27g/km for diesel.

⁴ The average CO₂ emissions from newly sold cars in 1999 were 176g/km for EU-15. Source: Sixth annual Communication on the effectiveness of the Strategy to Reduce CO2 Emissions from Cars. COM(2006)463

⁵ The fuel consumption reported in the annual monitoring reports relates to the so-called NEDC test cycle.
time after that. The reported fuel consumption thus seems to be broadly consistent with the average fleet in the EU.

![Graph showing fuel consumption in litres per 100km](image)

**Figure 4**

![Graph showing modal split for daily travels](image)

**Figure 5**

For daily trips such as going to work (Figure 5), cars are being used in a little more than half of all cases (53%), mostly using an own car (38%), a company car (7%) or combining the car with public transport (8%). Non-motorised transport accounts for a quarter of all daily trips as reported, with 20% taken up by public transport (bus/tram/train).

The questionnaire invited the respondents to rank how important they felt that certain criteria were in buying a car, ranging from 1 (unimportant) to 6 (very important). The criteria were as follows:

- Vehicle type (e.g. SUV, sedan, hatchback)
- Number of seats
- Vehicle size (exterior, interior, boot space…)
• Fuel consumption
• Engine power
• Brand image/prestige
• Take back of end of life vehicle
• Design
• Safety standards
• Low emissions of CO2
• Low emissions of other pollutants
• Comfort
• Noise
• Vehicle price
• Reliability
• Alternative fuels compatibility (e.g. biofuels, natural gas)
• Cost of insurance
• Fuel used
• Maintenance/repair
• Tax
• Resale value
• Particulate filter (for diesel cars)

Looking at how many people gave the highest rank (6=very important) to the various criteria, a picture emerges where four criteria are clearly perceived as more important than the rest. These are fuel consumption, low CO₂ emissions, reliability, and low pollutant emissions. Brand image/prestige is the criterion identified by the smallest number of people as very important. Looking in turn at what people think is the least important criterion, brand image/prestige is identified by a strong majority as unimportant, while it appears that most other criteria are seen as important to a certain degree so there is only a comparatively small number of people ranking any of the other criteria as unimportant.

The strong emphasis on fuel consumption as the top criterion is not entirely surprising in view of the current high fuel prices, both experienced at the pump and extensively reported on in the media. The almost equally high emphasis on low CO₂ emissions can be explained by assuming a wide awareness among the population that CO₂ emissions are coupled to fuel consumption. However, an alternative explanation is that the sample was not fully representative of the average car buyer. The hypothesis of a self-selected audience with above-average knowledge of and concern for the environment is strengthened by the strong ranking of pollutant emissions as a criterion for the buying decision. It must also be noted that the observed profile of responses sits oddly with the realities of the car market, where image and prestige are all-important while environmental considerations are often reported as being of minor importance to the average customer. For example, a study on the effectiveness of the labelling Directive⁶ found that "Fuel economy and environmental impact are in general no major factor in vehicle purchase decisions". Specifically on the weak role of prestige and brand image, the reason for the observed behaviour may be an unrepresentative sample of respondents or a lack of honesty on this particular criterion.

The rest of the criteria achieve a variety of middle-ranking results as shown in Figure 6. They are not discussed in further detail here.

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The preferences for more power versus higher efficiency was probed by referring to a hypothetical situation in which the respondent was purchasing a new car of the same type and price as their current car, and giving the alternative of either purchasing a car as powerful as the current one but 20% more fuel efficient, or a car as fuel efficient as the current one but 20% more powerful. The response showed a strong preference (86%) for higher efficiency. Again this result seems at odds with recent trends in new car purchases, where the average (ACEA) car sold over the period 1995-2004 experienced a surge in power of +28% while CO₂ emissions decreased by a mere 12.4%, which would tend to indicate that power has been a strong selling point of cars, to some extent due to consumer preferences, and to some extent due to manufacturers' offer.

3.2. Awareness about climate change

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**Figure 6**

*Do you feel well informed about the climate change impacts of road transport?*

*Do you feel well informed about the impact of driving style on CO₂ emissions from cars?*

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**Figure 7 - Climate change impacts of road transport**

**Figure 8 - Impact of driving style on CO₂ emissions**
Circa two thirds of respondents felt well informed about the climate change impacts of road transport, and of the impact of driving style on CO2 emissions from cars (see Figure 7 and Figure 8). In order to test people's awareness of the orders of magnitude involved, one question asked "How much CO2 would you think a car emits if it consumes 6 litres of fuel per 100 kilometres?". About half of all respondents picked the correct response (about 150 g CO2/km), while 29% responded "don't know" (see Figure 9).

![Figure 9 - How much CO2 would you think a car emits if it consumes 6 litres of fuel per 100 kilometres?](image)

69% of respondents stated that they were aware of the existing Community strategy to reduce CO2 from cars. Two thirds of respondents feel well informed about the impacts of driving style and the use of air conditioning on CO2 emissions (Figure 10).

![Figure 10](image)

3.3. Policy objectives

In this section of the questionnaire, people were asked to indicate to what extent they agreed with certain policy objectives.

Figure 11 shows that there was a large degree of agreement that road transport should make further efforts to mitigate climate change and improve security of energy supply (e.g. by reducing fuel consumption and/or varying the fuels used) (90% either agree or strongly agree). There was also
pronounced agreement that the responsibility for the reduction of CO₂ emissions from cars should be shared by various stakeholders (i.e. not only the car industry, but also the fuel industry, consumers, public authorities…) (87% either agree or strongly agree), although for that second question the support was not quite as enthusiastic (66% strongly agree, as opposed to 77% with the first question).

The question whether CO₂ reduction efforts should include also light commercial vehicles (e.g. delivery vans) achieved the strongest agreement of all questions in this section (95% either agree or strongly agree, see Figure 12, left). Despite their own relatively high level of awareness about CO₂ emissions from cars, the respondents also overwhelmingly support efforts to improve the consumer awareness about the CO₂ emissions of their cars (89% either agree or strongly agree, see Figure 12, right).
3.4. Approaches to reducing CO₂ emissions from road passenger transport

In this section, people were asked to rate various approaches to reducing the CO₂ emissions from road passenger transport. They were also asked how much they were willing to pay for this. The possible approaches identified on the questionnaire were as follows:

- Gradually improve car technology for example through legislation or voluntary efforts by the industry?
- Reduce car taxes for cars that emit less CO₂ and increase them for cars that emit more, in order to promote fuel efficient cars?
- Better inform consumers when they are buying a car about the fuel efficiency and CO₂ emissions of the car?
- Better inform consumers, when they are buying a car, about how much the components on the car influences the fuel consumption and CO₂ emissions (such as tyres with high or low rolling resistance, different types of lubrication oil)?
- Promote the use of alternative fuels, like bio-fuels or natural gas which lead to less CO₂ emissions
- Teach "eco-driving" (driving in a way that uses less fuel) as part of the training for obtaining a driving licence, and through campaigns for experienced drivers
- Promote the purchase of more eco-friendly tyres and engine lubricants, which would have a positive impact on fuel consumption and CO₂ emissions?

The pattern of the responses overall is such that all these options are considered worthwhile doing. The two possible negative response types (not so interesting / not a good approach at all) did not draw much support for any of the options. However, some options are clearly identified as more urgent than others. The improvement of car technology comes out top, with 70% of respondents saying that this should be done as soon as possible. It is followed by tax differentiation, consumer information about cars and the promotion of alternative fuels. Relatively lower urgency is expressed for the promotion of eco-driving and the promotion of efficient tyres and lubricants, with the least urgency for improving consumer information about the efficiency of components, which just 55% of respondents feel should be done as soon as possible. The order of preference is practically inverse in the category "worth examining". This means that most respondents who did not consider a certain option as an urgent priority still thought that it would be worthwhile pursuing.
The last two questions in this section concerned the willingness of consumers to pay more for a vehicle in return for a certain reduction in the cost of fuel of €150 each year. It can be seen in Figure 14 that some 70% would be willing to pay more in principle for this. Of those who gave an indication how much this would be, 50% would be willing to pay no more than €1,000 (Figure 15), with a majority of some 40% willing to pay between €500 and €1,000. Another 22% would be willing to pay between €1,000 and €1,500, with almost 20% willing to pay more than €1,500.

These responses can be used to deduct de facto discount rates, using assumptions about the time horizon considered for the fuel savings. Assuming a long-term time horizon, the sum of €1,000 corresponds to the net present value of the stated amount of annual fuel saving if the discount rate is assumed to be slightly less than 12%. Therefore, half of those who provided a response seem to apply an implied discount rate of less than 12% under these assumptions. This is at odds with the usual notion of consumer myopia which would imply much higher discount rates, but it is consistent with the high rating for fuel consumption as a criterion for vehicle purchase expressed by the respondents, as shown above. For the largest group of respondents (between €500 and €1,000), the implied discount rate is around 18%\(^8\). For the second-largest group (between €1,000 and €1,500), it is below 8%.

\[^7\] 14 years, taken to be the average lifetime of the car

\[^8\] Assuming a price increase of €750, and assuming an annual saving of €150 over 14 years.
Are you ready to pay more money to purchase a car if it has lower fuel consumption and will save you 150 € of fuel costs every year?

![Figure 14 Willingness to pay for a more fuel efficient car](image)

If yes, how much?

![Figure 15 - If willing to pay more for a fuel efficient car, how much?](image)

3.5. Additional comments

The questionnaire allowed for the free formulation of additional comments. Somewhat less than half of all respondents made use of this possibility. Individual comments often contained more than one argument. In the detailed lists below, groups of equal or similar arguments are shown if these arguments were made more than two times.

Comments that concern cars directly, including the car market and the way it is regulated

This group of remarks relates directly the subject of the questionnaire itself, CO₂ from cars. There were a large number of comments that demanded regulatory action (44), and almost as many that wanted to see more pronounced fiscal instruments (38). Support for new technologies and research was also strong (33, and 29 for hybrids).

The table shows the number of times a particular argument has been made.

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<thead>
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<tbody>
<tr>
<td>44</td>
<td>Binding CO₂ standards for cars or other regulatory action needed</td>
</tr>
<tr>
<td>38</td>
<td>Fiscal instruments should be more developed: tax large cars / SUVs more strongly; tax fuel more or by carbon content</td>
</tr>
<tr>
<td>33</td>
<td>Support or develop new propulsion technologies such as hydrogen fuel, electric vehicles, new vehicle concepts, undertake more research</td>
</tr>
<tr>
<td>29</td>
<td>Support for hybrid technology</td>
</tr>
<tr>
<td>9</td>
<td>Cars are not as bad as thought, other modes are worse; cars are singled out unfairly</td>
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<tr>
<td>5</td>
<td>Ban the sale of high consuming cars</td>
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Comments on wider transport issues and fuels

Many respondents also commented that CO₂ emissions of the transport system overall needed attention, either in addition or instead of CO₂ from cars. Indeed the largest number of comments on any single issue (61) was the proposal for more support for public transport. Biofuels received expressions of support (38) but also critical remarks (11). Non-motorised transport (cycling and walking, 35) and transport demand management (27) were advocated frequently. Urban transport
policy and the instruments available to it received considerable attention too (21). A number of responses (18) favoured fuel tax as an alternative to vehicle tax, or gave conditions on how to tax fuel.

| 61 | More support needed for public transport and rail, including higher investment |
| 38 | Support for biofuels and renewable energy; also through fiscal measures |
| 35 | Support for non-motorised transport (cycling and walking); combined with public transport |
| 27 | Reduce the demand for transport; also for freight; support local production |
| 21 | Use various instruments of urban transport policy, including urban planning; company transport plans; urban road charging |
| 18 | Higher fuel tax / energy tax / fuel tax on C basis, instead of vehicles tax |
| 15 | Support for 2 wheelers |
| 12 | Educate drivers and their children; the public; raise awareness; driver training |
| 11 | Action is urgent |
| 11 | Critical view of biofuels, doubts on well-to-wheel effectiveness, concern about side effects |
| 10 | Consumers won't pay more for green cars, must coerce or give incentives |
| 10 | Must also look at other pollutants, air quality |
| 9 | Ban / restrict SUVs from cities or from city centres |
| 8 | Maintain old cars better, producing new ones consumes too much energy; look also at emissions from car production |
| 7 | Reduce CO2 emissions from aviation - in addition to or instead of cars |
| 7 | Support car sharing / pool cars |
| 7 | Need a new transport policy / approach to transport overall |
| 6 | Concern about impact on vintage car collectors |
| 6 | Include other transport modes / other vehicles / other sectors as well |
| 4 | Tackle industry / power generation instead |
| 4 | Ban all car transport in cities / city centres |
| 4 | Support efficient cars rather than penalise inefficient ones – social implications; affordability |
| 4 | Support telecommuting, videoconferencing |
| 3 | Ban car advertising |
| 3 | Speed limits, speed limitation of cars to 120 / 130 km/h |

**Other comments**

A number of critical remarks was received on the questionnaire itself (35). In addition, some respondents from the UK (14) complained that litres per 100 km was an unsuitable unit for them and they would need miles per gallon instead.

| 35 | Various critiques of the questionnaire: biased; unintelligible; not sufficiently publicised; too restrictive; superficial; method of cost question unclear; leading questions |
A certain number of respondents questioned the existence of climate change, or the contribution of CO₂ to it, or the contribution of cars to CO₂.

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<tbody>
<tr>
<td>14</td>
<td>Complaints from UK respondents that they were used to miles per gallon and could not cope with l/100km</td>
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<tr>
<td>25</td>
<td>Solar activity / water vapour is the cause of climate change; climate change not man-made; climate change doesn't exist</td>
</tr>
<tr>
<td>14</td>
<td>Question evidence that transport is causing climate change, or that anything can be done about climate change</td>
</tr>
<tr>
<td>3</td>
<td>keep energy and CO2 separate as CO2 is the wrong issue</td>
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