

How Clean is Your Car Brand ?

The car industry's commitment to the EU to reduce
CO₂ emissions: a brand-by-brand progress report

October 2006



European Federation for
TRANSPORT and ENVIRONMENT

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Note: The source of the sales and CO₂ data used for this publication is R.L. Polk Marketing Systems GmbH, Germany. Data analysis was performed by the Institute for European Environmental Policy (IEEP), London, UK.

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Background

EU climate change policy

The European Union is committed under the Kyoto Protocol of the United Nations Convention on Climate Change to reduce greenhouse gas emissions by 8 per cent by 2008-2012 compared to the 1990 level. This is a first step towards the EU objective of limiting man-induced global warming to 2 degrees Celsius.

Carbon dioxide (CO₂) is the most important greenhouse gas. Emissions of CO₂ are directly linked to fuel consumption. Burning a kg of petrol, diesel, kerosene and the like in a car, van, lorry, aircraft or ship leads to approximately 3.15 kg of CO₂ emissions.

The role of transport

Transport is the worst performing sector under 'Kyoto' and seriously jeopardizes the achievement of the Kyoto targets. Transport CO₂ emissions in the EU grew by 32% between 1990 and 2004. The share of transport in CO₂ emissions was 21% in 1990, but by 2004 this had grown to 28%¹.

Emissions from so-called 'light duty vehicles' (passenger cars and vans) are responsible for approximately half of this.

The oil used to power the wheels of cars and vans also greatly increases the EU's oil import dependence, that currently stands at 80 per cent and is rising. At € 55 a barrel, cars and vans cost the EU an extra €92 billions of oil imports – almost the size of the EU budget and twice the amount the EU spends on development aid..

All these figures would come down considerably if cars and vans were made more fuel efficient, something that would automatically follow from stricter CO₂ limits.

¹ Source: EEA, Annual European Community greenhouse gas emissions inventory and inventory report 2006, http://reports.eea.europa.eu/technical_report_2006_6/en. European Environment Agency, Copenhagen, June 2006

The car industry's commitment

140 g/km of CO₂ on average for new cars by 2008/9

In 1996, the EU's Member States and the European Parliament approved a 'Community Strategy to reduce CO₂ emissions from passenger cars'. The strategy's objective is to reduce the average CO₂ emissions of newly sold passenger cars in the EU to 120 grams per kilometre by 2005, or 2010 at the latest.

The 120 g/km target represents a 35% reduction over 1995 levels. As CO₂ is directly linked to fuel consumption, we can say that the 120 g/km target corresponds to a fuel consumption of 5 litres per 100 km for petrol cars and 4.5 litres per 100 km for diesel cars, to be measured on the official European driving cycle. This objective was to be reached through three 'pillars': technical measures, consumer information, and fiscal measures.

In 1998 the European Automobile Manufacturers Association (ACEA²) committed to the EU on behalf of its members to reduce the average CO₂ emissions from their new car sales in the EU to 140 g/km by 2008. This is a reduction of 25% over 1995 levels, and equivalent to a fuel consumption of 6.0 litres per 100 km for petrol cars and 5.3 litres for diesel cars. The 120 g/km objective was, informally, postponed to 2012.

In 1999, the Japan Automobile Manufacturers Association (JAMA) and the Korean Automobile Manufacturers Association (KAMA³) made similar commitments for their EU sales. The only difference is that their target year to achieve an average 140 g/km CO₂ figure is one year later, 2009. All three associations, in other words, were given a decade to comply.

² The car manufacturing members of ACEA are BMW AG, Daimler-Benz AG, Fiat Auto S.p.A., Ford of Europe Inc, General Motors Europe AG, F. Porsche AG, PSA Peugeot Citroën, Renault SA, Rover and Volkswagen AG. These firms also include brands such as Audi, Opel, Saab, Seat, Skoda, and Volvo. The commitment covers only passenger cars.

³ JAMA includes Daihatsu, Fuji Heavy Industries (Subaru), Honda, Isuzu, Mazda, Nissan, Mitsubishi, Suzuki and Toyota, KAMA includes Hyundai Motor Company, and Kia Motor Corporation

Overall progress of the commitment

The commitment is not on track. Carmakers are not reducing CO₂ emissions of their products fast enough to meet the 140 g/km target by 2008/9.

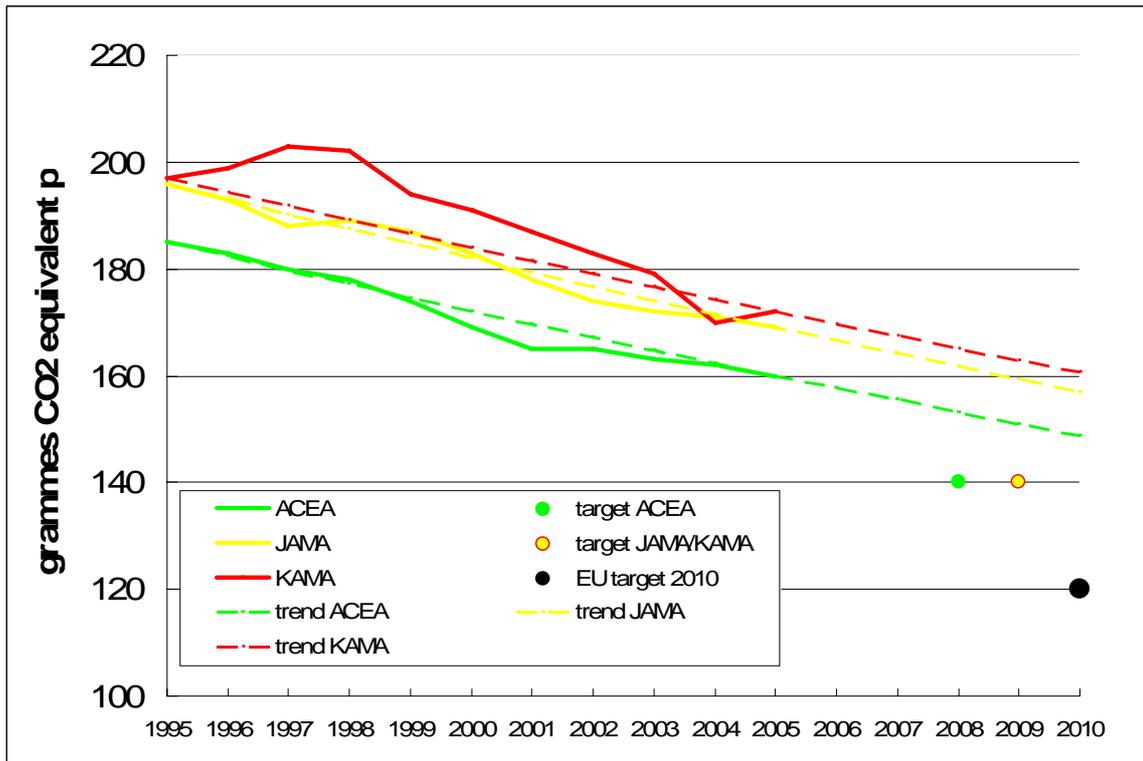
On 19 April 2006⁴, T&E presented the latest evidence of this - the progress of the commitment in 2005. The results are shown below in a table and a graph.

Table 1: progress in 2005 in the CO₂ commitment of the three car manufacturing associations, and annual rate of progress needed to meet the 140 g/km objective

	ACEA	JAMA	KAMA	total
2004 (g CO ₂ /km)	162	172	169	164
2005 (g CO ₂ /km)	160	169	172	162
% change	-1%	-2%	+2%	-1%
% change per year required as of 2006 to meet 140 g/km	-4%	-5%	-5%	

This table shows that for the remaining 3 or 4 years, the car makers will have to reduce the CO₂ emission and fuel consumption of their products at an annual rate of 4 to 5 per cent. This is an unprecedented rate and 3 to 4 times the rate of reduction achieved in previous years.

Graph: progress over time in the CO₂ commitment of the three car manufacturing associations, and distance to target if historic rate of improvement is not changed.



Extrapolation of historic reductions would lead to ACEA missing the 140 g/km target by approximately 13 grams, and JAMA/KAMA missing the 2009 targets even by 20 grams or more.

⁴ See: <http://www.transportenvironment.org/Article185.html>

T&E took the initiative to purchase and publish the 2005 data because the official monitoring of the commitment is unreasonably slow. It took until September 2006 for the European Commission to publish the monitoring report for the 2004 statistical year.

Performance per brand and manufacturer unknown until now

As well as the slow rate of progress, an equally pressing problem with the commitment until now has been the lack of transparency and accountability of the commitments.

Having signed the voluntary commitment, the EU agreed with the car industry not to publish the performance of individual companies in cutting emissions. An unpublished memo on the monitoring process obtained by T&E contains the wording: 'the Commission's official reports on the monitoring results will not refer to the individual company's (*sic*) achievements'

So far, it has been impossible for the public to find out which companies and brands are on track and which ones are not. In other words, it has not been possible for the public to see which companies are responsible for the overall failure of the voluntary agreement. Individual car brands could not be held accountable. Until now.

Performance by brand: T&E's analysis

Progress between 1997 and 2005

We have measured progress in average CO₂ reduction per brand in the EU15 between 1997 and 2005. 1997 was the first year manufacturers were obliged to provide CO₂ figures based on the official EU test-cycle, following the coming-into-force of EU directive 93/116. The year 1997 also coincides well with the start of the EU's cars and CO₂ policy (see above).

The geographic coverage is the old EU15, before the 2004 enlargement when ten new member states joined the EU. Formally car sales in the ten new EU Member States do not fall under the industry commitment.

Brands with over 150,000 sales in 2005

We included the performance of the 20 car brands that sold over 150,000 cars in the EU15 in 2005. Together they represent over 90% of car sales in the EU.

Tracking progress

We assessed whether each of these brands were on track to meet the commitment. We calculated the rate of progress that each of the brands should have achieved by 2005 in order to achieve the 140 objective in 2008 or 2009, under a reduction pathway with a constant percentage of improvement per year.

An example: Toyota had an average of 189 g/km for new cars sold in 1997. In order to meet the 140 g/km objective in 2008 they have to reduce average emissions by 2.5% reduction per year between 1997 and 2009 (the end year of the JAMA commitment), which translates into a 35 g/km CO₂ reduction target between 1997 and 2005. In 2005 Toyota achieved 163 g/km, or a 26 g/km reduction. This is 76% of the 35 g/km they should have achieved in order to be on track.

The source of the data for 1997 and 2005 is Polk Marketing Systems GmbH, Germany. Polk holds the most comprehensive database of car sales in Europe and is the primary data source used by the European car manufacturing industry.

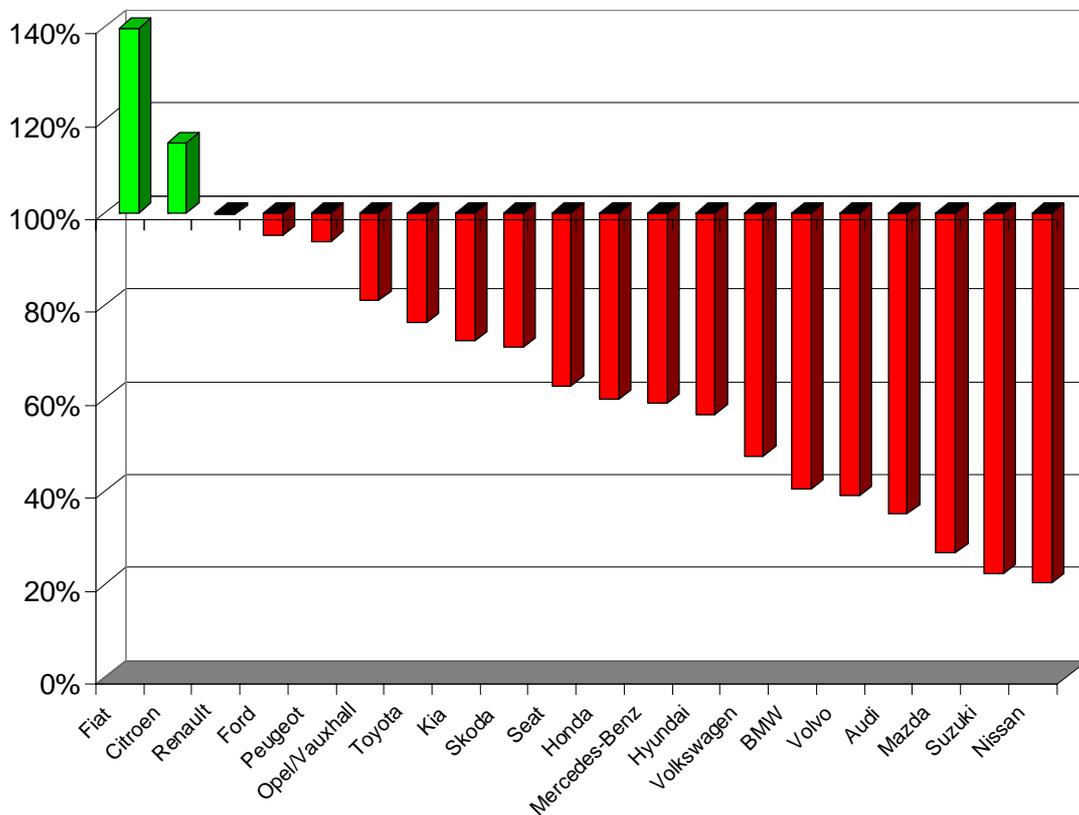
T&E commissioned the Institute for European Environmental Policy (IEEP) in London to analyse the data⁵.

⁵ IEEP prepared national databases for each Member State, filtering out a small number of zero values and calculating sales weighted emission totals. These were then converted to pivot tables and relevant totals calculated for all relevant values. In cases where CO₂ figures were not available for specific models, the CO₂ emission level was calculated on the basis of fuel consumption figures using the relationship between the two for those models for which both data were available. Although this gave accurate results, one additional correction step was taken. For those models for which neither CO₂ nor fuel consumption figures were available, the overall sales-weighted average kerb weight for each country and each brand was calculated and compared to that of the part of the fleet for which CO₂ data or fuel consumption data were known. Where these differed, a further adjustment was made to the average CO₂ calculation using a formula taken from the latest draft report from TNO for the European Commission that is written as a basis for the Commission's impact assessment on meeting the 120 g/km CO₂ target by 2012.

Results: brand-by-brand progress

Ranking	Brand	2005 sales	CO ₂ emissions in g/km				% of target achieved
			1997 average	2005 average	reduction 1997 - 2005	reduction target	
1	Fiat	681,613	169	139	-30	-21	140%
2	Citroen	875,389	172	144	-28	-24	115%
3	Renault	1,361,607	173	149	-25	-25	100%
4	Ford	1,167,602	180	151	-29	-30	95%
5	Peugeot	1,049,819	177	151	-26	-28	94%
6	Opel/Vauxhall	1,262,798	180	156	-24	-30	81%
7	Toyota	704,723	189	163	-26	-35	76%
8	Kia	231,434	202	170	-32	-44	72%
9	Skoda	265,486	165	152	-13	-19	71%
10	Seat	344,693	158	150	-8	-13	63%
11	Honda	224,258	184	166	-18	-31	60%
12	Mercedes-Benz	626,824	223	185	-38	-64	59%
13	Hyundai	294,468	189	170	-19	-34	57%
14	Volkswagen	1,387,628	170	159	-11	-22	48%
15	BMW	575,087	216	192	-23	-58	40%
16	Volvo	224,415	219	195	-24	-61	39%
17	Audi	582,220	190	177	-13	-38	35%
18	Mazda	214,105	186	177	-9	-32	27%
19	Suzuki	172,941	169	165	-4	-20	22%
20	Nissan	332,742	177	172	-5	-26	20%

Source: R.L. Polk Marketing Systems GmbH



Results: performance per brand

1. Only three of 20 car brands, Fiat, Citroen and Renault are on track to meet the 140 g/km commitment. Ford and Peugeot are almost on track. Fiat has already achieved the 140 g/km objective.
2. The top five were also relatively good performers in 1997, and yet still managed to reduce their CO₂ emissions significantly.
3. Seven brands are more than 50 per cent off track – they have reduced less than 50 per cent of their interim reduction target.
4. The two best-selling brands, Volkswagen and Renault, also fierce competitors, have a starkly different performance. Although Volkswagen started off with better CO₂ figures than Renault (170 and 173 g/km respectively) the brand now has a much poorer performance because it reduced its fleet average emissions by less than half the rate Renault achieved (11 vs 25 g/km respectively over the period)
5. Japanese and Korean brands generally have a disappointing performance. They do not appear in the top-six, and the three worst performers are all Japanese brands.
6. Specifically, Toyota, the biggest Japanese brand, appears only at number seven in the ranking, despite the high profile of their fuel-efficient 'hybrid' technology on several models such as the 'Prius'. This shows that ultimately it is fleet-wide emissions reductions that count, not the introduction of a few models that perform much better than average.

The way forward

The analysis leads T&E to draw the following conclusions on the way forward:

It is clearly possible to meet the 140 g//km target, as five brands have demonstrated. The failing brands are often competing directly with those that have fulfilled their reduction commitment.

The fact that the industry as a whole will not meet the 140 g/km target is due to the fact that the EU's current voluntary regime offers car makers no incentives (positive or negative) to comply. Even brand reputation has not been a factor because the performance of individual brands was unknown – until now. More importantly, there are no financial or market access consequences of improvements or deterioration of the CO₂ performance of car sales.

The EU is the only big economic region without legally binding rules for fuel efficiency of vehicles. America (both the USA in general and California in particular), China and Japan all have binding rules.

It is high time that the EU introduced legally-binding fuel efficiency targets to ensure new cars double their fuel efficiency within the next decade.