How the European car industry plans to meet the climate challenge

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A new study by Ricardo[i] highlights the key role of CO2 standards in 2025 and 2030 for cars, vans and trucks in meeting climate goals for 2030. The study, undertaken for the European Climate Foundation, shows that EU measures will play a very important role in achieving 2030 non-ETS targets and, if complemented with national measures, can put the EU transport sector in a decarbonisation trajectory towards 2050.

Standards for cars, vans and trucks

The Ricardo study looks at different combinations of policies for reducing road transport GHG emissions that could be implemented at the EU level and by member states. Policies at the EU level included car, van and truck standards, some advanced biofuels and implementation of intelligent transport systems. The vehicle standards in the central scenario are new car emissions of 78g/km in 2025 measured on the current test plus cost-effective truck technologies with a three-year payback time. These policies alone make a sizable contribution to the required reductions in road transport emissions.

Measures available to member states include: improvements to public transport, walking, cycling, and freight intermodality; fuel efficient driver training; internalisation of external costs; speed enforcement and harmonisation; and revisions to company-car taxation policies. These are cumulatively of a similar scale to the EU-level measures. Some EU-level and member state policies work well in combination such as vehicle standards and national taxation policies on vehicles. Changes to the Eurovignette Directive and the Energy Taxation Directive can also help internalise external costs. In combination, EU and national-level policies enable transport to be decarbonised in line with 2030 and ultimately 2050 goals.

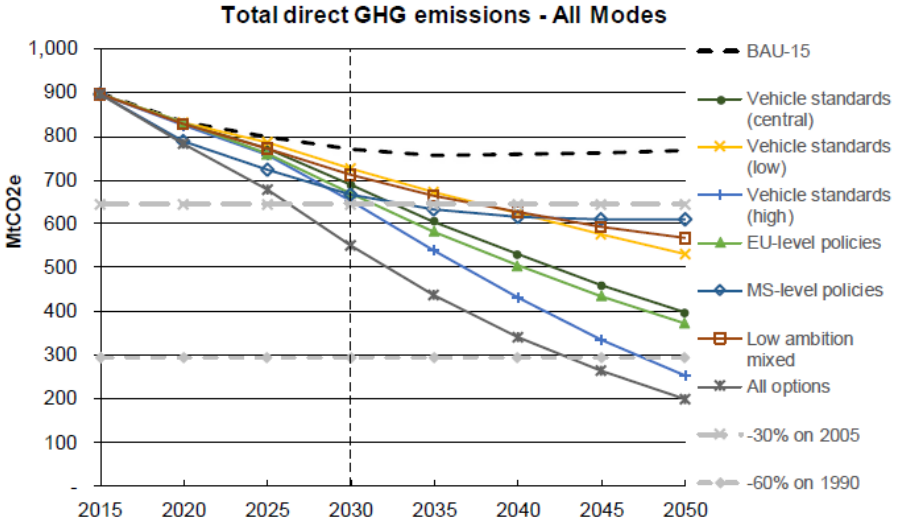


Figure 1: Timeseries trajectory for direct GHG emissions for various scenario packages in comparison to the baseline scenario (BAU-15)

A study by the European Automobile Manufacturers' Association (ACEA) has also looked at ways to reduce road transport greenhouse gas emissions to 2030. Its "Joining forces to tackle the road transport CO2 challenge" paper asked specific trade associations what they could do to reduce road transport emissions. At the same time vehicle manufacturers did not propose any further CO2 standards for vehicles after 2021 or any further improvements in the efficiency of vehicles. T&E has reviewed some of the key assumptions of the ACEA study, which are tabled on the next page.

The car industry view of the world

What the European car industry says[1]

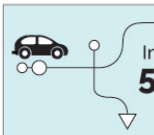
New cars in **2021** will produce **42%** less CO_2 per kilometre than a new car in **2005**

Innovative methods have been used to reduce the weight of vehicles.

Road transport emissions could go down by **5%** if all roads are resurfaced with lower-rolling resistance surfaces in next 20 years.

Natural gas cars deliver **30% CO_2** savings compared to a conventional car

Wide use of biodiesel could produce CO_2 reductions of around **9-15%** across the car fleet



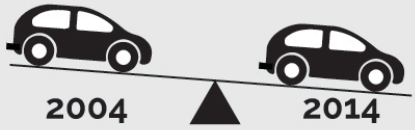
Intelligent transport systems can deliver **5-15% CO_2 reductions** compared to **2015**

Eco-driving behaviour combined with specific technologies could deliver **10% CO_2 reduction by 2030**

Meanwhile, in the real world

Around **50%** of the **claimed savings** are achieved in **laboratories,** not in the real world.

Real-world improvement by **2021** is likely to be around **20%** compared to **2005**[2]



2004 **2014**

On average new cars in 2014 were heavier than in 2004[3].

The growth in crossover vehicles makes it unlikely the average car will be significantly lighter in 2020.

Even if those calculations are correct, it would cost more than **€30 billion per year** according to that same report, which means an average abatement cost of more than **€1,000 per tonne of CO_2**

From well-to-wheel, a shift from diesel to natural gas would **not** deliver GHG savings. Compared to petrol, it would deliver around 15% savings[4].

A shift to gasoline hybrid cars saves significantly more than gas.

ACEA assume that all of Europe's sustainably available biomass from wastes and residues will be converted to road transport fuels.

They assume no more first generation biofuels will be used.

A 2016 study by independent research institute Ricardo, estimates that the **rapid deployment of C-ITS could deliver less than 1%** compared to a business-as-usual scenario

In the latest modelling study done by Ricardo, they estimated that fuel efficient driver training could deliver **less than 2%** compared to a business-as-usual scenario

[1] ACEA, 2015 (draft). Joining forces to tackle the road transport CO_2 challenge.
[2] EEA, 2015. Monitoring CO_2 emissions from new passenger cars and vans in 2014 & T&E, 2015. Mind the Gap. Data for 2004 was 162.4 g/km. Considering a deviation of 14% compared to real world means 185.1 g/km. 95 g/km, with a widening gap, would translate into 150 g/km.
[3] EEA, 2015. Monitoring CO_2 emissions from new passenger cars and vans in 2014.
[4] Study to be published by T&E in Q1 2016.

Comparison of the Ricardo and ACEA studies

There are vast differences between the Ricardo study and that undertaken by ACEA. Firstly, the Ricardo study follows a clear methodology, uses a recognised transport model, and includes transparent and rigorous assumptions. It is a scientific and technology-neutral approach. In contrast the ACEA report describes the views of different trade associations, each with a vested interest in promoting their own solution to decarbonise transport.

The "low ambition mixed" scenario developed by Ricardo includes some of the main measures that ACEA also proposes to tackle the road transport CO2 challenge. That scenario delivers only part of the required emissions reductions from transport to meet 2030 climate goals.

It is clear that many of the measures that ACEA propose will deliver *some* GHG emission reductions. However, ACEA massively overstate their potential. For example, assumptions on the benefits of the rapid deployment of C-ITS, fuel-efficient driver training or use of biofuels.

EU-level vehicle standards complemented by measures at member-state level are the way to decarbonise transport

Road transport emissions are part of so called non-ETS emissions and are therefore included in the Effort Sharing Decision (ESD), together with buildings and agriculture, among others. These sectors combined must reduce emissions by 30% compared to 2005 in order to achieve the GHG targets that the EU agreed by 2030. Transport emissions, being the largest sector in the ESD, have a key role to play in meeting the 2030 targets.

The Ricardo study clearly shows EU standards for cars, vans and trucks, if they are ambitious enough, will deliver an indispensable part of the effort required to meet the non-ETS emissions reductions. But they are not the only measure that is required. Action will also be needed at national level, such as speed enforcement, road charging, smarter taxation policy, support for electrification of transport, etc. The ACEA report's suggestion that all the required emissions reductions can be made without vehicle standards is a gross distortion of the facts.

In light of the Paris climate agreement and commitment to limit global warming to 1.5°C, a 30% reduction from the transport sector (from 2005 to 2030) will not be sufficient. The Ricardo study shows that transport can go considerably beyond the current 30% goal if all measures, both at EU and national level, are combined. These include 2025 high-ambition standards for cars, vans and trucks. The ACEA report, in contrast, shows quite how out of touch with reality carmakers are.

Further information

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[i] Ricardo Energy & Environment, 2016. SULTAN modelling to explore the wider potential impacts of transport GHG reduction policies in 2030.