



New CO₂ emission standards for passenger cars

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Will car buyers play to the tune?

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The EU Commission proposed new mandatory CO₂ targets for passenger cars. These targets cannot be achieved with combustion engines alone. Stricter regulation thus enforces the electrification of the power train. However, the average car buyer currently does not play to the tune of regulatory policy and turns a cold shoulder on most alternative fuels. There are other climate policy instruments that outperform the CO₂ targets for passenger cars in terms of meeting the environmental targets and economic efficiency.

In early November, the EU Commission presented a proposal setting new mandatory CO₂ targets for passenger cars and (light commercial vehicles) for 2025 resp. 2030. Accordingly, the reduction of average CO₂ emissions of newly registered cars in the EU shall amount to 15% by 2025, resp. 30% by 2030, based on the benchmark of 95 grams CO₂ per kilometre (2016: 118.1 g/km), the EU fleet average to be achieved by new cars by 2021, at the latest. 95 grams of CO₂ per kilometre correspond to fuel consumption of approximately 3.6 litres of diesel or 4.1 litres of petrol per 100 kilometres. As current emission standards are based on a different test procedure than future targets (transition from the “New European Driving Cycle” (NEDC) to the more realistic “Worldwide Harmonised Light Vehicle Test Procedure” (WLTP)), the proposed reduction targets are not yet defined as absolute CO₂ values in grams per kilometre.

For manufacturers achieving a share of (locally) zero- and low-emission vehicles, which exceeds 15% and 30% of newly registered cars by 2025 and 2030, respectively, the proposal of the EU Commission sets a less strict CO₂ target. In essence, this applies to electric cars (including fuel cell vehicles) and plug-in hybrids. Car makers exceeding the emissions targets, on the other hand, have to pay a penalty of EUR 95 per gram of exceedance of their specific target. This excess premium is imposed on all vehicles sold by the respective manufacturer in the EU. If, for instance, the target is overshoot by 5 grams, the penalty payment amounts to EUR 475 for every newly registered passenger car of the manufacturer.

Reactions to the proposals of the EU Commission were mixed. Ecologically-oriented NGOs marked them as unambitious, whereas the automotive industry



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called them extremely challenging, thus raising the question of the CO₂ targets' feasibility.

Not surprisingly, the views are varied. The fact is that the proposed targets for average CO₂ emissions of the new passenger car fleet, which will continue to range from small cars to pickups in future, cannot be achieved with combustion engines alone. Even though further efficiency gains are to be expected, there are, of course, limits to physics. Stricter regulation thus enforces a declining market share of fossil fuel-driven cars. And as battery electric vehicles – irrespective of the electricity mix – are, by political definition, zero-emission vehicles, it is perfectly understandable that auto industry plans to bring more and more electric cars (and plug-in hybrids) to the market in the years ahead.

However, a fundamental problem is as yet unresolved: Turning a cold shoulder on most alternative fuels, the average car buyer currently does not play to the tune of regulatory policy. This particularly holds for countries that do not (massively) subsidise electric cars, whereas electric vehicles & co. meanwhile account for a substantial share of new registrations, if high government subsidies are granted (e.g. more than 40% in Norway in the third quarter of 2017). Overall, however, the key trend in new car sales at the EU level is currently the market move from diesel vehicles to petrol-driven cars.

Several options are conceivable: market outcome, subsidies, penalties

As regards the achievement (resp. non-achievement) of the proposed CO₂ targets, several scenarios are conceivable:

- Technologically optimistic: Firstly, technological progress in electromobility could make strong headway in the years ahead, which would sharply lower the cost of the respective vehicles. As a consequence, electric cars would be bought mainly because the package as a whole is attractive to the consumer. Courtesy of the higher market share, the CO₂ targets would be met, per regulation-motivated market outcome, so to speak.
- Internal subsidies: Secondly, auto makers could cross-subsidise electric car sales to generate sufficient market share and achieve the CO₂ emission standards, particularly if car buyers remain reluctant to purchase alternative fuel vehicles in future. It is, for example, extremely uncertain to what extent the current disadvantages of electric cars (higher prices, above all in the volume segment, short driving range, insufficient charging infrastructure, etc.) can be alleviated by 2030. From a purely economic perspective, car manufacturers would compare the required subsidies against the penalties they would have to pay for non-compliance with the CO₂ targets. Cross-subsidisation hence pays off if the subsidies for electric vehicles are lower than the penalties that would be imposed on total sales of the company concerned if it breaches the emission standards.
- State subsidies: Thirdly, the government (as is already common practice in some countries) could subsidise EV sales, in addition to the CO₂ targets, if it believes this to be a good idea from a climate-policy perspective. This would



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help to boost market penetration of electrical vehicles and would be a kind of carrot-and-stick politics.

- Penalties: Fourthly, car makers could pay the outlined penalties, should they miss the CO₂-target because of continuing consumer's reluctance to buy enough electric cars or low-emission vehicles. In purely arithmetical terms, this would pay off if the penalties are lower than the rebates manufacturers would otherwise have to offer on electric cars (cross-subsidies). It remains to be seen, however, whether auto makers would actually go along with this purely economic view, given the relatively high likelihood that the companies concerned would face permanent public criticism from ecologically-oriented NGOs for missing the targets – in addition to the penalty payments. Hence, the damage to the image would also have to be quantified in economic terms.

By 2030, we will quite probably see a mixture of the different options. How things evolve in reality ought to vary from country to country and from auto maker to auto maker.

CO₂ target with some fundamental disadvantages

Evidently, mitigating CO₂ emissions from road traffic, as pursued by the CO₂ targets, will be very costly relative to other CO₂ mitigation measures. But aren't we by now somehow used to the fact that CO₂ mitigation costs play only a subordinate role in climate policy. It sometimes appears as if the financial resources for climate protection were no limiting factor.

What is more, the CO₂ targets for newly registered passenger cars completely ignore the influence of important factors on real-world CO₂ emissions from road traffic (e.g. total mileage per passenger car, individual driving behaviour).

Last but not least, the effect of the emission standards on actual CO₂ mitigation will be moderate, even if the share of electric cars increases at a rapid pace. As electromobility advances, CO₂ emissions are eventually shifting from road traffic to the electricity sector, which is of course not carbon-neutral. But the good news is that CO₂ emissions in the electricity sector are capped, courtesy of the EU Emissions Trading System. As regards local pollutant and noise emissions, a high share of electric cars is certainly positive.

The upshot is that there are other climate policy instruments that outperform the CO₂ targets for passenger cars in terms of meeting the environmental targets and economic efficiency. In the final analysis, the proposed CO₂ targets will only be achieved, if the car buyer plays to the tune of regulatory policy.

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