Policy briefing January 2013

The case for 2025 targets for CO_2 emissions from cars and vans

The EU has set a legally-binding target for new cars to emit no more than 95 grammes of CO_2 per kilometre (g/km) by 2020[1]. The target for vans is 147g/km[2]. In July 2012, the European Commission announced its proposals[3] on how these targets should be met. These proposals are currently being considered by the European Parliament and Council. The Commission did not propose further standards for 2025.

This briefing outlines the arguments for setting strong 2025 targets and explains why industry arguments for delaying these targets are unfounded and would set back progress. It is based on new research by consultancy Ricardo-AEA[4], as well as other evidence.

1. The case for setting 2025 targets now

There are four compelling reasons why targets for 2025 should be set without delay:

(a) To provide planning and investment certainty for the automotive industry;

(b) To stimulate the market for ultra-low carbon vehicles, such as electric cars;

(c) To preserve the EU's global leadership in making cleaner fuel efficient cars;

(d) To send a clear political signal to carmakers on the need for continued emission reductions.

(a) Planning and investment certainty for industry

Vehicle manufacturers state that the product cycles for vehicles are 5-7 years for cars and more than 10 years for vans.[5] As a consequence, the industry demands long regulatory lead-in times in order to develop and introduce changes needed to achieve environmental goals, and to avoid the need to discontinue or redesign production vehicles ahead of schedule.

In 2008, the Commission's original proposal for cars only included a CO_2 reduction target of 130g/km by 2012, which was subsequently delayed to 2015. The European Parliament voted to include a further target of 95g/km by 2020 that was adopted in the final regulation. This target has proved invaluable in driving improvement and has contributed to companies achieving the weak 2015 value ahead of schedule.

(b) Accelerated roll-out of ultra-low carbon vehicles

To achieve long-term climate goals, a shift to ultra-low carbon vehicles is essential. These vehicles also offer the potential to address the problems of air and noise pollution. Many European countries have set out ambitious objectives for the roll-out of electric vehicles (EVs): the national targets of eight EU countries amount to cumulative sales of 6.7 million by 2020.[6] The European Transport Research Advisory Council, an industry consortium, aims to achieve 5 million electric cars on Europe's roads by 2020.[7]

The TNO study[8], which underpins the Commission's impact assessment of the legislation, clearly shows that a 95g target for 2020 would not require manufacturers to sell electric vehicles to meet the targets – although some may choose to do so. The 95g target therefore fails to provide certainty for the development of ultra-low carbon technologies.

Ricardo-AEA analysed the technological requirements and costs for manufacturers to achieve different targets for 2025.[9] Calculations are based on an average-sized car in the EU and do not take into account a shift to smaller and less powerful vehicles as a potential source of cost-effective CO_2 reductions.

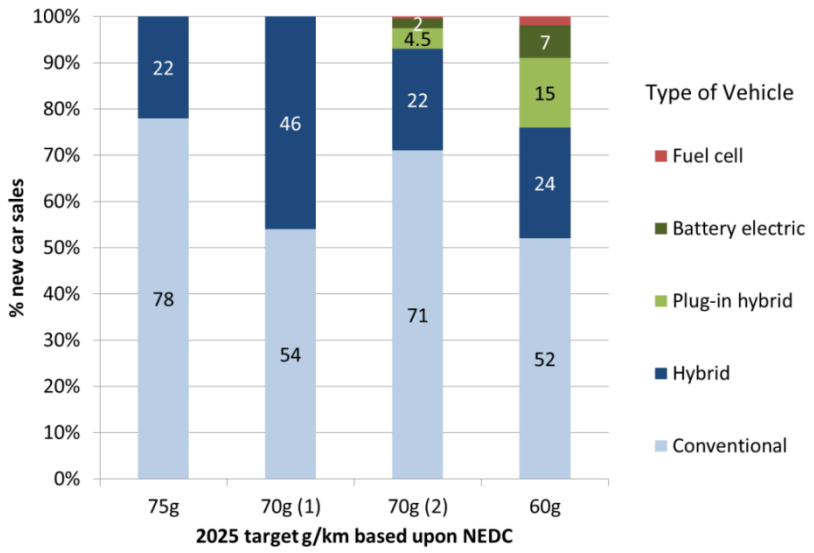

Figure 1: Technology mix to achieve 2025 targets (Ricardo-AEA, 2012)

The study shows that a target of **60g/km by 2025** for cars would be very likely to accelerate the introduction of ultra-low carbon technologies. This target cannot be reached using conventional and hybrid cars alone, if the size and performance of cars remains unchanged. Therefore some introduction of ultralow carbon vehicles would be needed in this case. A possible technology mix could consist of 24% electric cars, 24% hybrids and 52% conventional (petrol and diesel) cars (Figure 1). This level of uptake of electric vehicles is at the middle of the range of credible market projections and scenarios (Figure 2). Around 5.5 million EVs in total could be sold by 2020 under these conditions.

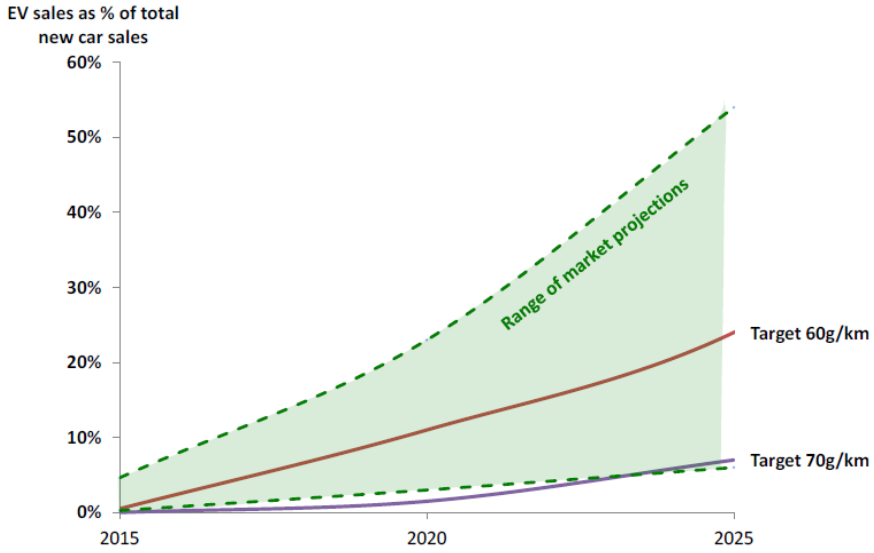

Figure 2: Projected EV sales to meet 70g/km and 60g/km targets (Ricardo-AEA, 2012)

A target of **70g/km by 2025** could be achieved with roughly equal shares of conventional and hybrid car sales (Scenario (1), Figure 1). Alternatively, a modest penetration of around 7% electric vehicles would allow for a larger proportion (around 71%) of conventional cars and smaller proportion (around 22%) of hybrid cars (Scenario (2), Figure 1). This level of EV uptake is at the low end of the various scenarios and market share projections for electric vehicles by 2025 (Figure 2).

(c) Global technology leadership

The European Union has the most stringent car CO_2 emissions regulations for 2020 of any major global market. However, the gap between EU and other global standards is closing (Figure 3). For example, in the US, a new fuel economy and greenhouse gas standard was passed in August 2012, requiring a doubling of fuel economy in passenger cars between 2011 and 2025.

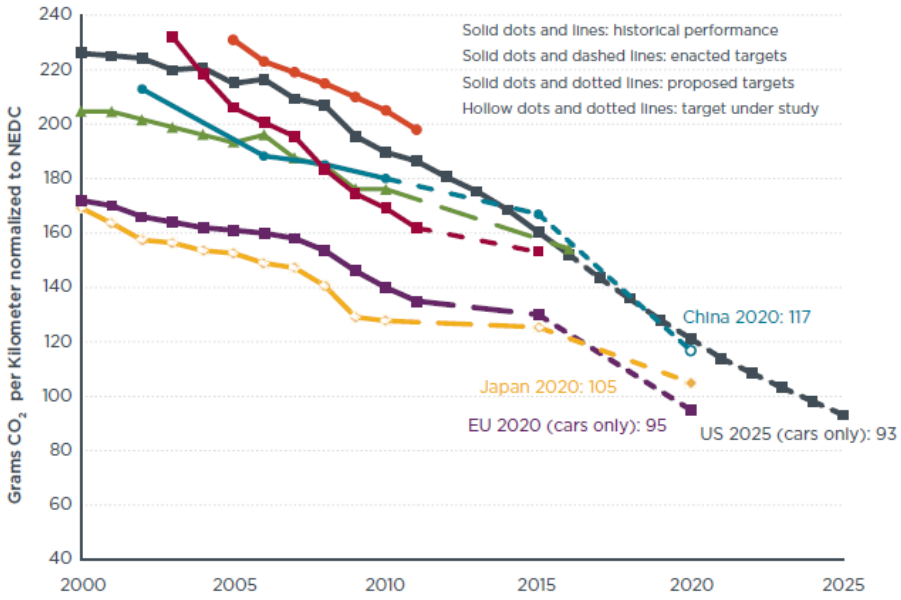

Figure 3: Global CO_2 and fuel economy standards (ICCT, 2012)[10]

Vehicle manufacturers argue today, as they did in 2008, that it is too early (12 years in advance) to set a 2025 target. Manufacturers claim they cannot influence customer demand, especially for electric vehicles. But in the US, 13 global manufacturers (including BMW, Toyota and Ford) signed up to the proposed 2025 target, which entails some penetration of advanced technologies.[11]

(d) To provide an unambiguous political signal now

The Commission's directorate on climate change has indicated that it plans to consult on post-2020 targets in 2013 and bring forward proposals in 2014. However, some parts of the Commission[12] are actively opposing setting post-2020 targets, making it unlikely that the Commission will table a new proposal in 2014. Further delays would inevitably cause manufacturers to call for weaker targets in view of the shorter lead-in time. This risk can be managed by including a 2025 value now, as the European Parliament did for the 2020 target that the Commission failed to propose in 2007.

2. A 2025 target for vans

A 2025 target would stimulate progress in improving the fuel economy of vans, since the current 147g/km 2020 target is significantly weaker than the 95g/km target proposed for cars. The Ricardo-AEA study shows that for vans a target of **100g/km by 2025** could be met if about half of new vans sold were hybrids, or if a small share of 1.5 percent electric vans were introduced alongside 22 percent of hybrids. A target of around 85g/km could be achieved by new vans in 2025 with about half conventional vehicles, a quarter hybrids and a quarter electric or hydrogen vehicles.

Targets for cars and vans should be of equivalent stringency. The available evidence indicates that a 60g/km 2025 target for cars is equivalent to a 85-105g/km value for vans, depending on what basis the equivalency is calculated.[13] The balance of evidence suggests the vans target for 2025 should be below 100g/km.

3. The cost and benefits of achieving 2025 targets

The additional purchase costs and benefits in fuel savings of the targets for 2025 are summarised below. They show that for both cars and vans the payback is within three years, well within the period of first ownership.

Target	60g/km (cars)	100g/km (vans)
Fuel economy (real world driving - l/km)[14]	0.029	0.039
Additional purchase cost[15]	€2553	€2225
Annual fuel cost[16]	€937	€1243
Fuel cost saving (compared to 2010 vehicle)[17]	€1224	€765
Simple payback – years	2.1	2.9

4. Is it possible to set a target for 2025 now, when the test cycle is going to change?

It is essential to revise the test cycle in order to bring official test results and real-world fuel economy into line. The gap between test and real-world performance is over 20 percent and widening, largely as a result of carmakers using flexibilities in the test procedure. A new test is being developed and should be deployed in 2015. The Commission is also considering whether to move away from regulating tailpipe CO_2 emissions only. As the share of electric driving increases, reductions in vehicle tailpipe emissions may be offset partially by an increase in emissions from electricity generation (unless the power used for electric driving is sourced from additional renewable energy sources).

Both a change in test cycle and a change in the scope of the regulations would mean that the targets need to be amended. However, the stringency of the target would still be reflected in the new value and so this should not prevent policymakers from setting the level of ambition for 2025 now.

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Notes:

[1] Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009.
[2] Regulation (EC) No 510/2011 of the European Parliament and of the Council of 11 May 2011.
[3] COM/2012/393 and COM/2012/394.
[4] Ricardo-AEA 2012, Exploring possible car and van CO_2 emission targets for 2025 in Europe, https://docs.google.com/a/greenpeace.org/file/d/0By9ihXbQd9skQWNEZmMzNHI5R0k/edit.
[5] ACEA remarks on LCV, March 2009, http://ec.europa.eu/clima/events/0019/acea_en.pdf.
[6] JRC 2010, Plug-in Hybrid and Battery Electric Vehicles. http://ftp.jrc.es/EURdoc/JRC58748_TN.pdf
[7] ERTRAC 2012, European Roadmap Electrification of Road Transport, http://www.ertrac.org/pictures/downloadmanager/1/52/electrification_roadmap_june2012_62.pdf.
[8] TNO 2011, Support for the revision of Regulation (EC) No 443/2009 on CO_2 emissions from cars, http://ec.europa.eu/clima/policies/transport/vehicles/cars/docs/study_car_2011_en.pdf.
[9] Ibid 4.
[10] ICCT 2012, European CO_2 Emission Performance Standards for Passenger Cars and Light Commercial Vehicles, http://www.theicct.org/sites/default/files/publications/ICCT%20Policy%20Update%20EU%20PV_LCV%20CO2%20July2012final.pdf
[11] White House 2012, Obama Administration Finalizes Historic 54.5 MPG Fuel Efficiency Standards, http://www.whitehouse.gov/the-press-office/2012/08/28/obama-administration-finalizes-historic-545-mpg-fuel-efficiency-standard.
[12] Süddeutsche Zeitung 2012, Oettinger, Freund der Autoindustrie, http://www.sueddeutsche.de/wirtschaft/kampf-gegen-harte-co-auflagen-oettinger-freund-der-autoindustrie-1.1492871.
[13] Ricardo-AEA indicates that an 85g/km target for vans is equivalent to a passenger cars target of 60g/km – both require similar levels of technology deployment. A comparison by the ICCT of additional manufacturing costs to achieve different targets in 2025 indicates a 60g/km target for cars is equivalent to about 105g/km for vans. In terms of costs, a study by TNO calculates that a vans target of 105g/km is equivalent to around 70g/km for cars.
[14] Assumes 50% diesel for cars and 100% diesel for vans. Conversion factor from test cycle to real world: 1.195.
[15] Additional manufacturer cost of €2,300 for cars and €2,500 for vans derived from Ibid 4; costs could potentially be further reduced with a higher degree of vehicle downsizing. Indirect cost factor of 1.11 applied to additional manufacturing costs. Assumes all costs are passed through to consumers; this has not happened in the past.
[16] Fuel cost average for cars €1.6 (average of petrol and diesel, including VAT) average mileage 20,000km per year; for vans €1.2/l diesel (no VAT), 23,500km per year.
[17] 2010 car 140g/km (test-cycle); vans 180g/km – fuel costs as in note 16.