

Supercredits in the EU CO₂ emission standard for passenger cars

Policy briefing, April 2013

Context

In 2009, the EU set legally binding targets for new cars to emit on average 130 grams of CO₂ per kilometer (g/km) by 2015 and 95g/km in 2020.¹ The way the 2020 target will be met is presently being considered by the European Parliament and Council following a Commission proposal in 2012.² The Commission proposed to reintroduce a system of “supercredits”, which proponents say will encourage supply of ultralow carbon vehicles (ULCVs), such as battery-electric and plug-in hybrid cars. Supercredits however also allow carmakers to supply less fuel-efficient conventional cars, weakening the emission target. This paper outlines the potential effects of different proposals for supercredits on the 95g target to help inform policymakers. It is based upon the results of an independent analysis of the options by Ricardo-AEA.³

What are supercredits?

The 2009 regulation requires cars sold in 2020 to achieve on average emissions of 95g/km and sets individual carmakers a target based upon the average size (mass) of the cars sold. The figure below illustrates that the CO₂ benefits of ultralow carbon vehicles are already exaggerated as emissions arising from producing the electricity are not counted. By selling one battery electric vehicle (0 g/km), for example, a carmaker will also be able to sell one gas-guzzler (190 g/km) and still, on average, achieve a 95g/km target.

Supercredits exaggerate the reward provided for supplying ULCVs. They do this through an accountancy trick that enables carmakers to earn additional credits for imaginary vehicles they have not actually sold. In the figure a supercredit multiplier of two is shown, so for every battery electric vehicle actually sold two are counted by the regulation, so that two gas-guzzlers could be sold and the 95g target still be met.



¹ Regulation (EC) No 443/2009

² EC 2012, Proposal for a Regulation to define the modalities for reaching the 2020 target for reducing CO₂ emissions from new passenger cars

³ Ricardo-AEA 2013, Low emission car measures under the EU's CO₂ regulations for passenger cars, www.greenpeace.org/eu-unit/en/Publications/2013/Report-Low-Emission-Car-Measures-Under-the-EUs-CO2-Regulations-for-Passenger-Cars/

What is the effect of supercredits?

Supercredits are a loophole that allows carmakers to artificially lower their emission average. Their consequence is that the 95 g/km target will be met on paper but not in reality. Yet carmakers can meet this target without any loopholes. Europe’s largest carmaker, VW, recently confirmed that it was “not speculating on any loopholes to achieve its target”⁴, and that it would meet its regulatory target “without any reservations”.⁵

Effectively, carmakers can achieve this emission level without any battery-electric or plug-in hybrid cars, by simply improving the efficiency of conventional vehicles burning fossil fuels in internal combustion engines. Some makers of large vehicles will also use hybrid technology that captures and reuses energy in braking. Even a target of 70g/km can be achieved without any advanced technologies, although this could require around 50% hybrid cars.⁶

How much do different supercredit proposals weaken the regulation?

The exact level of weakening depends on the design of the supercredit scheme, as well as the market penetration of ULCVs. Figure 1 illustrates the potential degree of weakening in 2020 for key current proposals for a market uptake of 2, 5, 10 and 15% by 2020.

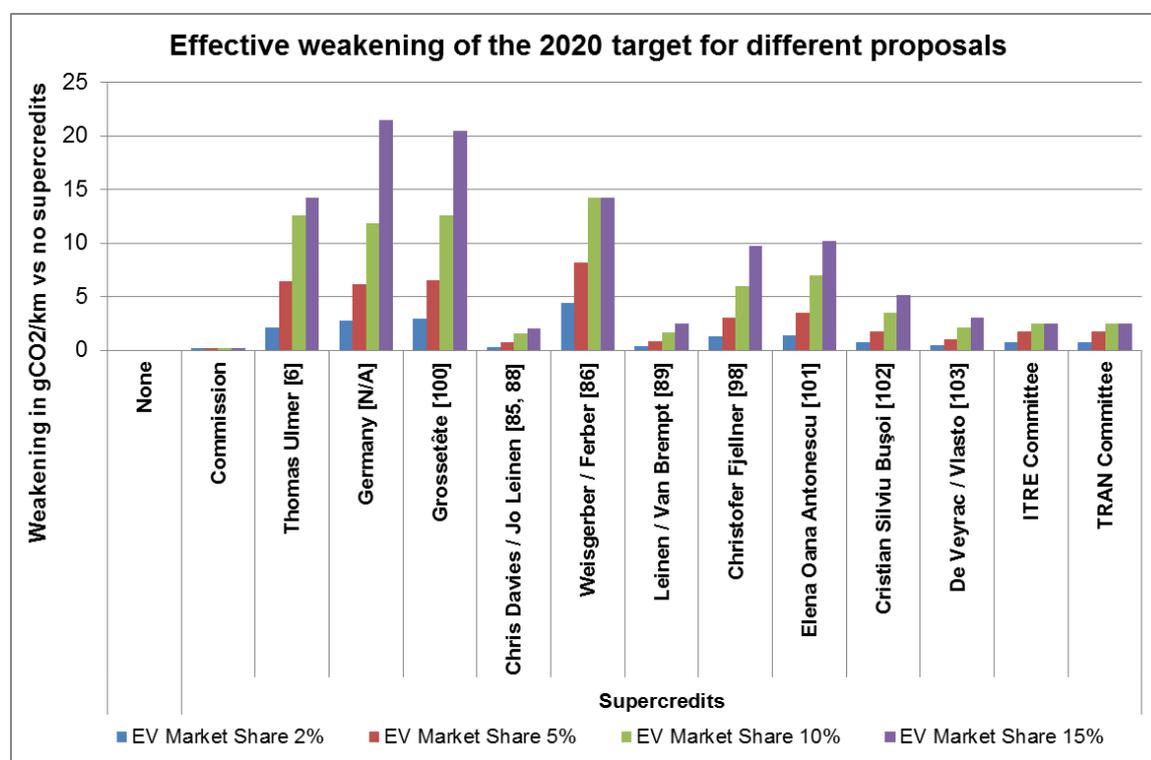


Fig 1 Effective weakening of the 2020 target for different proposals⁷ (The numbers next to names of MEPs refer to the numbering of amendments tabled in the Environment Committee.)

⁴ VW 2013, Volkswagen Group to reduce CO₂ emissions to 95 g/km by 2020, http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2013/03/CO2.html

⁵ VW 2013, Volkswagen and Greenpeace underline strict CO₂ limits for new cars, http://www.volkswagenag.com/content/vwcorp/info_center/en/news/2013/03/Volkswagen_and_Greenpeace_underline_strict_CO2_limits_for_new_cars.html

⁶ Ricardo-AEA 2012, Exploring possible car and van CO₂ emission targets for 2025 in Europe, <http://www.greenpeace.org/eu-unit/en/Publications/2012/Exploring-possible-car-and-van-CO2-emission-targets-for-2025-in-Europe/>

⁷ Ricardo-AEA 2013, Low emission car measures under the EU’s CO₂ regulations for passenger cars, www.greenpeace.org/eu-unit/en/Publications/2013/Report-Low-Emission-Car-Measures-Under-the-EUs-CO2-Regulations-for-Passenger-Cars/

There are five principal elements that influence how much supercredits could weaken the regulation:

- **A cap on sales or CO₂ emissions increase**

The Commission proposed a cap on cumulative sales of qualifying vehicles per manufacturer. Its proposal could limit the weakening of the 2020 target to no more than 0.2 g/km. If the cap is removed, the weakening could be up to ~2.4 g/km (with 15% ULCV sales by 2020).

Several MEPs have proposed to introduce a cap on the increase of each manufacturer’s target, to **limit the weakening of the 95g target**. The ITRE and TRAN Committees’ recommendation, for example, include a cap of 2.5 g/km (multiplier of 1.5, emissions threshold of 50g/km). If the cap is removed, the weakening is estimated to be 5.1g/km (leading to an effective target of 100.1g/km).

- **Multiplier**

In the absence of a meaningful cap, the credit multiplier has a **rapid and significant effect** on weakening the 2020 target as illustrated in Table 1 below.

- **Banking**

In the absence of a cap, the banking of supercredits earned until 2020 could **almost double the impact of each multiplier**. For example, a 2.0 multiplier level could lead to a maximum weakening of 8.1 g/km, raising the average emissions to 103.1 g/km (for the 15% ULCV sales case). However, applying banking of supercredits from 2016 could increase the level of weakening to 15.9 g/km (an effective CO₂ target of 110.9 g/km).

Multiplier	1.1		1.3		1.5		2		2.5	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
2% ULCVs	95.1	95.2	95.3	95.6	95.6	96.1	96.1	97.1	96.7	98.2
5% ULCVs	95.3	95.5	95.8	96.5	96.4	97.5	97.8	100.0	99.2	102.5
10% ULCVs	95.6	96.0	96.7	97.9	97.8	99.9	100.6	104.8	103.4	109.7
15% ULCVs	95.8	96.6	97.4	99.8	99.1	103.0	103.1	110.9	107.2	118.9

Table 1 Effective 2020 CO₂ target (in g/km) with different multipliers, banking 2016-2019 (for ULCVs below 35 g/km)

- **Emissions threshold**

The definition (‘emissions threshold’) of what constitutes an ULCV (35g/km, 50g/km etc) has a **relatively small effect** on the level of weakening as shown in Table 2.

	35 g/km	50 g/km	70 g/km	40%	50%	60%
2% ULCVs	95.3	95.4	96.3	95.4	95.4	95.3
5% ULCVs	95.8	96.0	96.8	96.1	96.0	95.8
10% ULCVs	96.7	97.1	97.7	97.1	97.0	96.7
15% ULCVs	97.4	98.0	98.4	98.1	98.0	97.5

Table 2 Effective 2020 CO₂ target (in g/km) with different emission thresholds for qualifying vehicles (with 1.3 multiplier consistent with the Commission proposal)

- **Period of application**

The period of application determines the **delay in meeting the 95g target**. Proposals to extend the supercredits to 2025 effectively mean that the 95 g/km target may not be reached before 2026.

How do supercredits affect the costs and benefits of the regulation?

Ricardo-AEA has examined how different supercredit proposals could affect the costs and benefits of the regulation. The results are summarized in Table 3 for a range of proposals.

Supercredit proposal	Marginal capital costs for average car in 2020, compared to 2010	Lifetime fuel costs for average car in 2020, compared to 2010	WTW GHG emissions from total car fleet in 2030	Oil consumption in 2030 (presented in terms of the cost of imported oil per barrel)
No supercredits	€ 1.003	- € 3.328	434,6 MtCO ₂ e	€bn 80,65
European Commission	€ 998	- € 3.305	435,1 MtCO ₂ e	€bn 80,76
Thomas Ulmer (AM 6)	€ 857	- € 2.604	453,2 MtCO ₂ e	€bn 84,11
German Government	€ 865	- € 2.639	453,5 MtCO ₂ e	€bn 84,17
Françoise Grossetête (AM 100)	€ 856	- € 2.597	454,7 MtCO ₂ e	€bn 84,40
TRAN and ITRE compromises	€ 960	- € 3.134	440,0 MtCO ₂ e	€bn 81,67

Table 3 Wider impacts of different supercredit proposals (with 5% ULCV share in 2020)

The table above shows that the more generous the supercredit proposals, the lower the expected additional marginal capital cost for cars sold in 2020, but also the higher the lifetime fuel costs for the drivers. For example, the German government proposal could reduce the cost to manufacturers of meeting the target (with a 5% ULCV share) by around € 140, compared to a situation without supercredits. However, the lifetime fuel cost for drivers would increase by around € 690. Additionally, the overall greenhouse gas emissions from the car sector would increase, as well as Europe's oil import bill.

Conclusion

The crucial elements that determine the extent to which supercredits undermine the environmental and economic benefits of the regulation are:

1. Whether or not a tight cap is applied on the maximum amount of weakening of manufacturer targets;
2. Whether or not banking of supercredits is allowed;
3. The level of multiplier used;
4. The period of application;
5. The emissions threshold for qualifying vehicles.

T&E and Greenpeace oppose any super-credits being included in the regulation, since they diminish the benefits of the regulation, and carmakers do not need them to achieve their 2020 targets.

We support the shift to ultralow carbon cars that are needed to achieve the required emission reductions from road transport. However, this is not a panacea and the way in which the market for ULCVs develops, and the way they are used, will profoundly affect how sustainable the solution becomes.

One of the most effective ways to stimulate investment in ultralow carbon technologies is to set a long-term target that would require their adoption. T&E and Greenpeace advocate a target of not more than 60g/km by 2025.

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