

# THE VIEW

Economic Research

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## NEW CO<sub>2</sub> EMISSION REGULATIONS IN EUROPE: A PERFECT STORM FOR CAR MANUFACTURERS?

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# EXECUTIVE SUMMARY



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- The most pressing threat ahead of Europe's car industry isn't Brexit or potential U.S. tariffs. It's the EU's own regulations for limiting carbon dioxide (CO<sub>2</sub>) emissions: On April 15th 2019, the bloc finalized its regulatory framework, adding two ambitious targets to reduce CO<sub>2</sub> emissions, due to be met by 2025 and 2030, on top of the existing target of -20% in just two years.
- The emissions targets could potentially cause an adverse scenario for the car industry by creating a three-pronged challenge: First, an **industrial challenge** since such targets will require a drastic adjustment in the powertrain mix in favor of alternatively powered vehicles (APVs), notably electric vehicles (EVs). Second, a **financial challenge**: Based on 2018 figures, the total amount of the fines would reach EUR30bn, equivalent to half of the combined net profits registered by car manufacturers. As for production costs, they could increase by as much as +7% by the end of 2020 and by +15% by 2025. Last, a **commercial challenge**: A full pass-through of the extra costs of production to customers would lead to a decline of -9% in car sales by the end of 2020, and -18% by 2025. This would cost -0.1 pp of both French and German GDP growth in both 2019 and 2020, and put 160K jobs at risk. In addition, growing competition by EV manufacturers would add downside pressure on turnovers and margins.
- **Car makers will do their best to avoid this perfect storm** by using accrued financial buffers and reducing costs, tapping into "super credits", entering partnership agreements called "pools" and consolidating further. This partial adaptation strategy will only enable them to fulfill 30% of their obligations. As a result, by the end of 2020, we expect a +2.6% increase in average car prices; a -3.1% decline in new car registrations; a loss of EUR2.9bn in car sales; 60K jobs to be at risk and an almost certainty that car makers will **fail to comply with the CO<sub>2</sub> targets**. Given the size of the European auto industry, which accounts for 13% of manufacturing production and 13.3mn direct and indirect jobs, consumers and policymakers will have to chip in.



Photo by David Lee from Unsplash

**Reduction in CO<sub>2</sub> emissions required  
between 2019 and 2020**

**-20%**



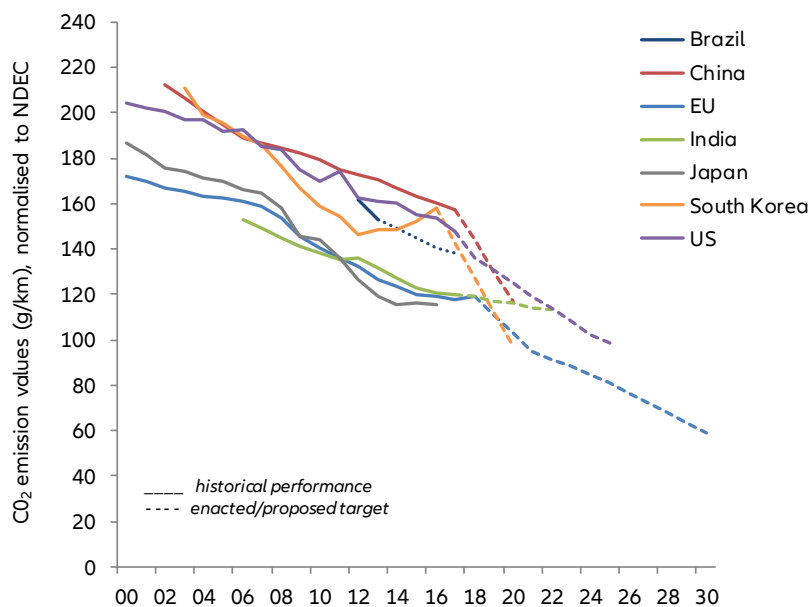
# CO<sub>2</sub> EMISSIONS REGULATION IS HIGH ON THE AGENDA OF CARMAKERS IN EUROPE

On April 15th 2019, after several rounds of meetings, representatives of the European Commission, the European Council and the European Parliament agreed<sup>1</sup> on reducing the average CO<sub>2</sub> emissions from new passenger cars by -15% in 2025, and by -37.5% in 2030, to achieve the interna-

tional objectives set out in the COP21/Paris Agreement. Tougher than the original proposals (-30% by 2030), these new targets are the most ambitious in the world (see Figure 1) and more than what carmakers expected. They also come on top of a -20% target set for 2021.

These emissions regulations could cause an adverse situation for Europe's car industry by posing a three-pronged challenge.

**Figure 1** Passenger car CO<sub>2</sub> emissions - International comparison

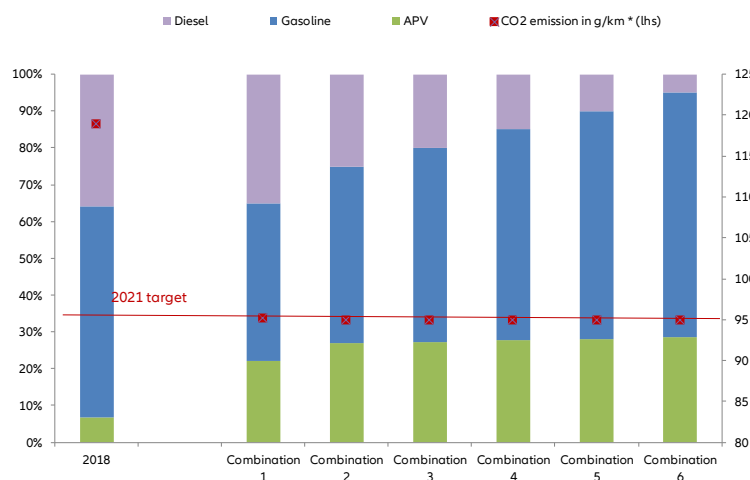


Sources: ICCT, ACEA, EU, Caremissionstestingfacts, Euler Hermes, Allianz Research

<sup>1</sup> [https://ec.europa.eu/clima/news/clean-mobility-new-co2-emission-standards-cars-and-vans-adopted\\_en](https://ec.europa.eu/clima/news/clean-mobility-new-co2-emission-standards-cars-and-vans-adopted_en)

# AN INDUSTRIAL CHALLENGE, NECESSITATING A MAJOR ROLL-OUT OF EVS

**Figure 2** Powertrains' market share scenario compliant with the 2021 CO<sub>2</sub> target



Sources: Euler Hermes, Allianz Research

(\*) including 'super-credits'

The EU regulations require the average CO<sub>2</sub> emissions of new cars to fall to 95 grams per kilometer (g/km) by 2021, from a previous mandatory standard settled in 2009 of 130 g/km for the fleet average in 2015. The most recent figures show that the level of CO<sub>2</sub> emissions of cars was just slightly below 120 g/km in 2018. Since the 2021 deadline will in practice look into the 2020 performance of the average fleet with, to be more accurate, a two-year phasing (95% of the fleet in 2020, 100% in 2021), car makers will face a huge challenge: cutting emissions by -20% between 2019 and 2020. For comparison, before this, it took the industry ten years to achieve a -25% decrease.

There isn't much more that can be done to improve the CO<sub>2</sub> efficiency of the internal combustion engines (ICE) used in gasoline (123 g/km) and diesel (110 g/km) cars. Car makers can only achieve the new targets with an increasing share of lower CO<sub>2</sub> emission powertrains, i.e. with a massive and drastic adjustment in favor of APVs, notably EVs. Battery-operated electric vehicles (BEV) produce no CO<sub>2</sub> emissions (estimated emissions of other APVs: 104g/km for mild hybrids, 86g/km for hybrid electric vehicles (HEV) and 48g/km for plug-in hybrid electric vehicles (PHEV)).

Using the average CO<sub>2</sub> emission per technology, and assuming car makers will do whatever necessary to benefit from the "super credit" system offered by the new regulations for 2021 (see details at the end of the report), we calculate that the market share of new APVs should exceed 25% to comply with the European regulations – regardless of the combinations of gasoline and diesel car market shares.

# A FINANCIAL CHALLENGE: THREATS OF FINES AND HIGH PRESSURE IN PRODUCTION COSTS

The EU regulation constitutes a strong incentive to act since CO<sub>2</sub> targets are not only mandatory but also combined with financial penalties. And the latter could be significant.

At the European level, the fine was set at €95 for every gram that exceeds the target (95 g/km), to be multiplied by the number of vehicles sold in the EU from January 1st to December 31th each year. In practice, all car makers have specific targets depending on the characteristics of their own fleets. Individual goals are calculated using the average CO<sub>2</sub> emissions of their fleets over the period of reference but also some fine-tunings, such as the average mass of their fleets

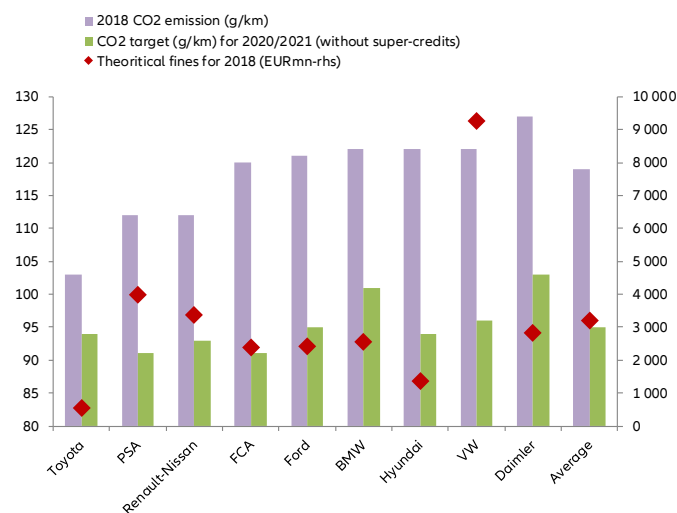
(the heavier the fleet, the higher the CO<sub>2</sub> target) and a comparison to the average mass of all carmakers. Specific conditions have also been decided for manufacturers selling less than 300k units per year in Europe.

Based on 2018 data for new car registrations and CO<sub>2</sub> emissions, the total amount of penalties could reach EUR30bn for our panel of global car makers most involved in the European market (VW, PSA, Renault-Nissan, FCA, BMW, Ford, Daimler, Toyota and Hyundai), none of which have met the 2021 CO<sub>2</sub> target yet. This amount represents almost 18% of their combined EBITDA and almost half (45%) of their combined

net profits registered in 2018 (EUR67bn).

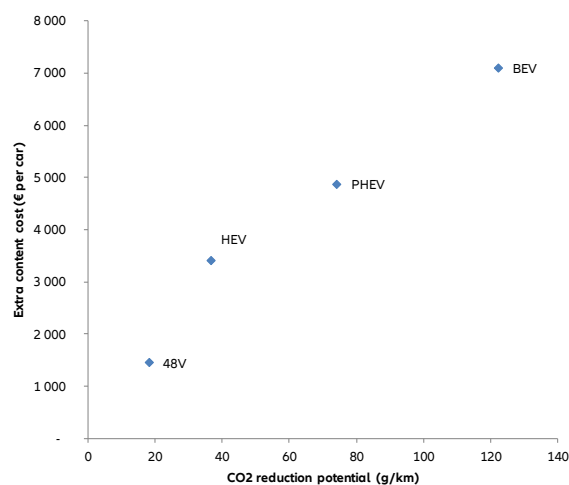
To add to this, the drastic adjustment in powertrain mix will imply a significant increase in production costs. De facto, the lower CO<sub>2</sub> emission powertrains all have an extra cost compared to ICEs, with a strong correlation between the potential of CO<sub>2</sub> reduction and the extra cost of each technology. As shown in figure 4, the higher the CO<sub>2</sub> reduction, the higher the extra cost. Full compliance with CO<sub>2</sub> targets, looking at all compatible scenarios in terms of the powertrain mix, would increase the average cost of cars by +7% by the end of 2020 and by +15% by 2025.

**Figure 3** The uneven situation of companies regarding CO<sub>2</sub> objectives



Sources: ICCT, ACEA, companies, Euler Hermes, Allianz Research

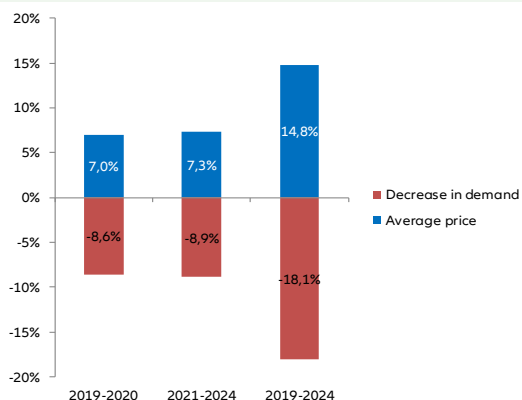
**Figure 4** Average reduction in CO<sub>2</sub> emission (in g/km) and extra cost of production (in €) per car by type of powertrain



Sources: ACEA, Jato, Moody's, UBS, Euler Hermes, Allianz Research

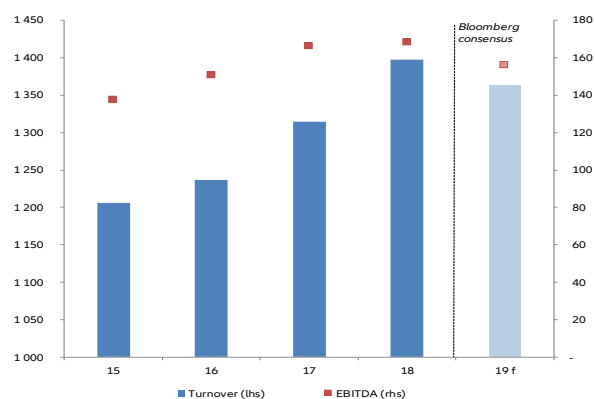
# A COMMERCIAL CHALLENGE: PRESSURE ON TURNOVERS AND MARGINS DUE TO PRICE SENSITIVITY OF DEMAND AND GROWING EV COMPETITION

**Figure 5** Increase in car price – impact on demand (CO<sub>2</sub> target compliant scenario)



Sources: OECD, Eurostat, ICCT, Euler Hermes, Allianz Research

**Figure 6** Global turnover and profitability (EBITDA) of top players active in the European market\* - in EURbn



Sources: Bloomberg, Euler Hermes, Allianz Research

(\*) VW, PSA, Renault-Nissan, FCA, BMW, Ford, Daimler, Toyota and Hyundai

Increased production costs will in turn pose a commercial challenge, partly because car demand is price-sensitive. We estimate the elasticity of demand to prices to average 1.2. Given this, a full pass-through of extra costs of production to customers is too risky an option since it would reduce demand by -9% by the end of 2020, and by -18% by 2025, at a time when the European car market is currently still struggling to recover from the the Worldwide Harmonized Light Vehicles Test Procedures (WLTP) - related perturbations (new car registrations remained down -3.3% y/y in Q1 2019, after a -3% decline in H2-2018, which was masking a -24% y/y drop in September – when the WLTP came into force - and another -8% decline in Q4).

This reduced demand would in turn cut GDP growth by -0.1pp in Germany and France in both in 2019 and 2020, taking into account the direct impact through consumption only, given the share of car purchases in household expenditures. Importantly, this drop in demand also would put at risk 160K jobs on the manufacturing side of the European car industry by 2020, given the average number of employees per motor vehicle produced (7.8 for the European average).

The “good” news is that the growing competition between EV manufacturers, with the accelerating roll-out of EVs, the need to protect their market share and, in some cases, to reduce

their inventories, should anyway limit the average sale price of new cars in the short term. But in this scenario we expect car makers still will not be able to sell enough APVs in order to be compliant with the emissions regulations

Over 2019-2020, we expect the European car market to register a +2.6% increase in average price, along with a -3.1% decline in new registrations, with less than 14.7 million units. This would represent a EUR2.9bn loss in car sales.

# NEXT STEPS: CAR MAKERS AND POLICY MAKERS

## Carmakers: Growing pressure to avoid fines and protect financial metrics

Carmakers have accumulated financial buffers in the recent period, thanks to the prolonged upward trend of the global market since 2010 and, in particular, the recovery of the European market since 2014. Figure 6 shows that our panel of global car makers most involved in the European market posted a +16% increase in annual turnover from 2015 to 2018 (to USD1400bn) and a +22% increase in annual EBITDA (to USD159bn), which helped them deliver more than USD250bn of combined profits.

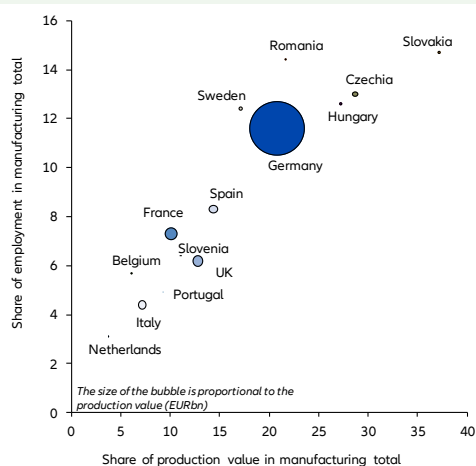
Given the downside pressure on turnovers and margins from the European emissions regulations, and the fact that two other key markets (China and the

US) are both expected to be weaker in 2019, there's a strong incentive for car makers to protect their financial metrics. On the one hand, we expect them to multiply the cost-reduction measures, from dropping models and downsizing catalogs to reducing staff. We also expect car makers to optimize all the flexibilities offered by European regulations to reduce the potential penalties related to the CO<sub>2</sub> targets. These include three non-exclusive strategies:

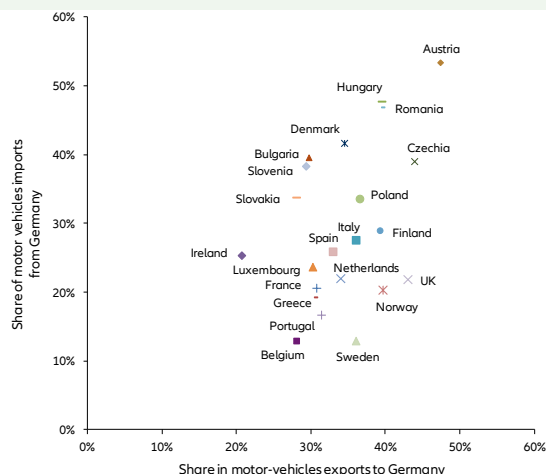
- The so-called "super-credit" system under which cars with CO<sub>2</sub> emissions below 50g/km will be counted as two cars in 2020, 1.67 in 2021, 1.33 in 2022 and 1 from 2023 (the objective is to achieve the annual cap settled at 7.5g).

- The "eco-innovations credits", which take into account the technologies lowering emissions not visible through the testing procedures (with the objective to reach the limit).
- The "pools" system, which allows car-makers to form pools in order to jointly meet their targets (FCA and Tesla already announced this).

**Figure 7** Motor vehicles - Production value by country and share in manufacturing and employment



**Figure 8** Germany's position in motor vehicles trade in Europe



Sources: Eurostat, Euler Hermes, Allianz Research

Sources: Eurostat, Euler Hermes, Allianz Research





Photo Forrest Cavale from Unsplash

**Figure 9** Motor vehicles – EU structural business statistics

	Manufacture of motor vehicles, trailers and semi-trailers								
	Number of companies	Turnover (EURbn)	Production value			Share of production value in manufacturing total - %			Share of employment in manufacturing total - %
			Total	Motor vehicles	Parts and others	Total	Motor vehicles	Parts and others	
Germany	2 569	482	<b>384</b>	262	112	<b>21</b>	19	2	<b>11,6</b>
France	1 925	118	<b>84</b>	63	21	<b>10</b>	10	0	<b>7,3</b>
United Kingdom	3 222	92	<b>79</b>	59	23	<b>13</b>	11	2	<b>6,2</b>
Spain	1 638	69	<b>64</b>	45	19	<b>14</b>	10	4	<b>8,3</b>
Italy	2 267	75	<b>63</b>	38	24	<b>7</b>	6	1	<b>4,4</b>
Czechia	1 119	45	<b>44</b>	23	22	<b>29</b>	13	16	<b>13,0</b>
Poland	1 298	34	<b>33</b>	14	19	<b>12</b>	5	7	<b>7,3</b>
Sweden	1 050	40	<b>30</b>	26	2	<b>17</b>	17	1	<b>12,4</b>
Slovakia	387	26	<b>25</b>	16	10	<b>37</b>	22	15	<b>14,7</b>
Hungary	487	26	<b>25</b>	13	12	<b>27</b>	13	14	<b>12,6</b>
Romania	465	17	<b>15</b>	5	11	<b>22</b>	7	14	<b>14,4</b>
Other countries	3 955	61	<b>57</b>	33	25				
Total	20 382	1 085	<b>903</b>	596	297				

Sources: Eurostat, Euler Hermes, Allianz Research

### Carmakers and policymakers: Fighting against the consumer's "wait-and-see" mode regarding EVs

On the supply-side, even if car makers have no other choice than to switch from ICE powertrain to non-ICE powertrain, they still have to make their offerings match consumer expectations, and, notably, to keep on addressing their issues in terms of range, autonomy and charging issues when it comes to EVs. Yet, within the European market, the declining sales in diesel (-281K units y/y in Q1 2019) continue to benefit petrol cars more (+76k), notably Sport

Utility Vehicles (SUV), rather than APVs (+70K). In particular, BEVs and PHEVs only represented 2.5% of new registrations in Q1 2019 (+28K). This is adding further pressure on car makers since diesel cars are more CO<sub>2</sub> efficient than petrol cars - and could force several rounds of adjustments on their side.

Given the important role of the overall automotive sector in Europe, as well as the interconnectedness of plants and suppliers (see figures 7-8-9), this could quickly become an incentive for policymakers to also address the "wait-and-see" attitude of consumers regarding

EVs. Along with charging issues (infrastructure) and fiscal incentives (subsidies), consumers still need to have more clarity on the prospects of each alternative source of energy (electricity, hydrogen pile, natural gas) and on the various national/local announcements (i.e. city bans and access restriction for ICEs) that are contributing to the fall in diesel.

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