March | 2021

# European Auto Makers

## Still in the slow lane?

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# Acknowledgements

We would like to thank the team at Transport & Environment for their contributions to this report.

# Contact

**Jana Maria Hock**
Senior Research Officer, Climate Change
jana.hock@shareaction.org

# Contents

# Executive Summary

Transport is responsible for over 24 per cent of global $CO_2$ emissions from fossil fuel combustion, of which road vehicles account for up to three quarters[i]. In Europe, transport is the biggest source of emissions at around 28 per cent, and is the only sector where emissions have risen since 1990[ii].

Hence, in order to achieve global net zero ambitions, road transport needs to decarbonise fully by 2050.

This report focuses on the five largest European owned and listed car manufacturers, off the back of a flurry of new decarbonisation commitments.

For the European Union (EU) to achieve its own net zero objectives under the EU Green Deal, it has targeted emissions from passenger cars through CO2 (carbon dioxide) standards, which are set to be reviewed, and likely tightened, in June 2021. Car manufacturers who sell vehicles that do not meet CO2 targets, as set out by the EU, face significant fines. This highlights the need for car makers to set net zero aligned ambitions and show true climate leadership, instead of only reacting to regulation.

*For failing to meet CO2 targets in 2020 by a small margin, Volkswagen is facing a predicted fine of about 240 million euros[iii].*

As CO2 standards are set to be re-assessed, more car manufacturers might be at risk of such heavy charges, if they do not step up their ambitions beyond their current targets.

With the political tides in Germany and France moving towards electric vehicles ahead of the countries' general elections later this year, and in early 2022, an internal combustion engine (ICE) phase out looms on the horizon. This would mean an end to all European sales of non-electric cars by 2035, and therefore the car manufacturers' traditional business.

Most German and French car manufacturers' current climate commitments severely lag behind what is needed under upcoming, probably tougher, emissions regulation in line with the EU's climate objectives and an ICE phase out (Figure 1).

Renault is the only company with net zero aligned commitments, with the acclaimed German electrification leader Volkswagen still playing catch-up. Daimler, BMW and Groupe PSA (Peugeot), who all significantly rank below their rivals, appear to be asleep at the wheel on climate change.

## Figure 1: Ranking of German and French OEMs against climate performance standards

| Ranking | OEM | Science-based Target | ICE Phase Out | Emission Strategy | Flexibilities |
|---|---|---|---|---|---|
| 1 | Renault | | | | |
| 2 | Volkswagen | | | | |
| 3 | Daimler | | | | |
| 4 | BMW | | | | |
| 5 | Groupe PSA/Peugeot | | | | |

If these laggards cannot mobilise quickly enough for a climate neutral future, they may follow the same fates as the likes of Nokia and Blackberry when the telecommunications industry was disrupted. They may find themselves displaced by competitors better positioned for the transition to zero-emissions mobility.

## Investor recommendations

Investors with holdings in car manufacturers should use the opportunity to engage with portfolio companies to ensure they are prepared in advance of regulatory changes, in order to safeguard their own investments and secure alignment with climate objectives.

**Key engagement questions include**:

1 Does the car manufacturer have a plausible net zero commitment for emissions from new vehicles in use by 2050, including short- to medium-term targets?

**Best practice:** *The company has an emission reduction target for vehicles in use of minimum 25 per cent by 2025, 40 per cent by 2027, 65 per cent by 2030, and 100 per cent by 2035.*

2 Does the car manufacturer have electric vehicle sales targets aligned with its emission reduction commitments?

**Best practice:** *The car manufacturer has sales targets corresponding to a minimum of 20 per cent fully electric vehicle sales by 2025, 35 per cent by 2027, 55 per cent by 2030, and 100 per cent fully electric vehicle sales by 2035.*

3 Does the car manufacturer have a commitment to stop selling internal combustion (ICE) engine cars?

**Best practice:** *The company has an ICE phase out date commitment for 2035 at the latest.*

4 Does the car manufacturer have plans to transition away from hybrids and towards fully electric vehicles, in light of a required ICE phase out by 2035 and net zero in 2050?

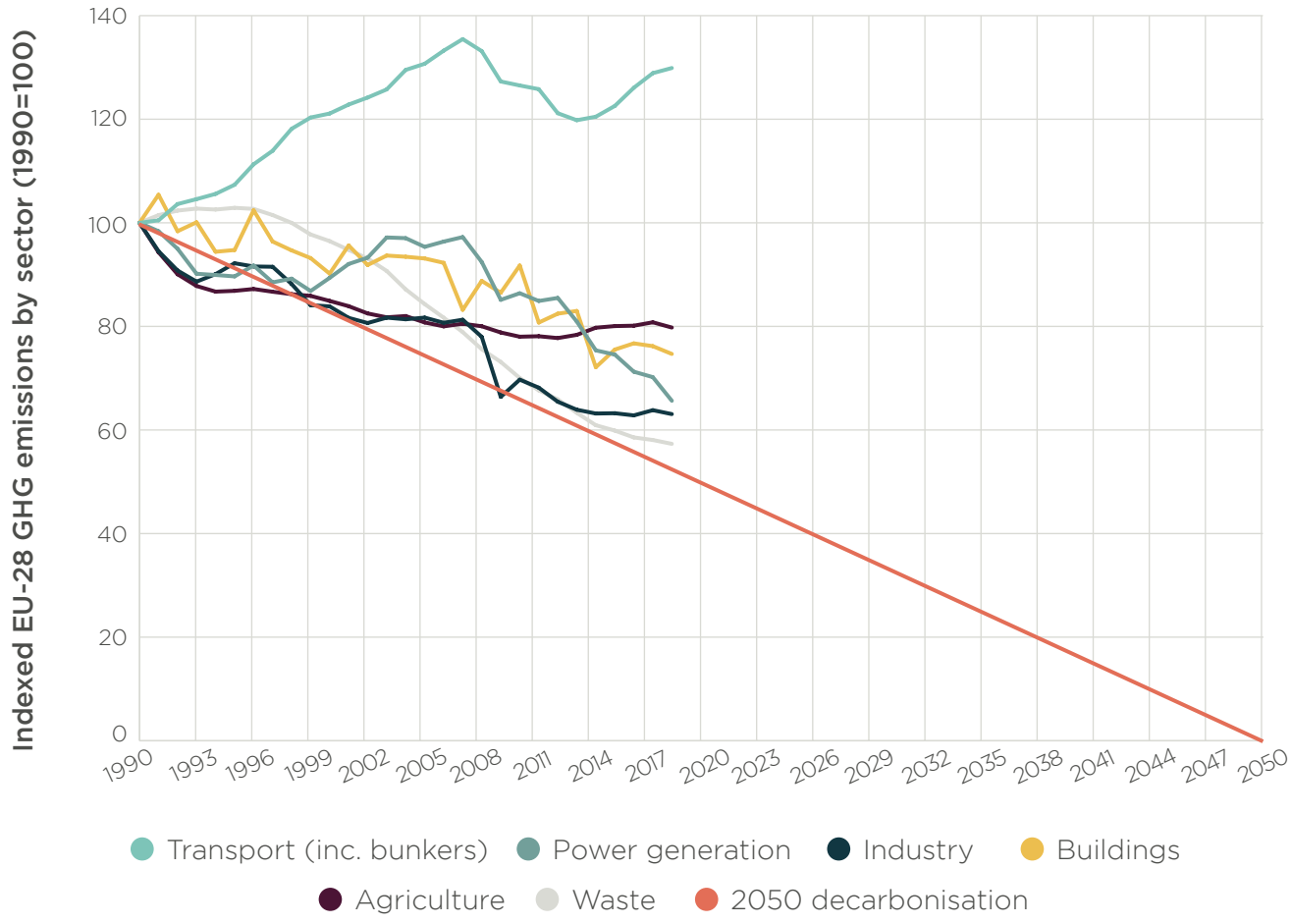
**Best practice:** *The company has a clear hybrid phase out date by 2035 at the latest, and out of all its electric vehicle sales it targets less than 35 per cent hybrids, including plug-in hybrids, in 2025, and less than 25 per cent in 2030.*

# The need to decarbonise road transport

Transport is responsible for over 24 per cent of global CO2 emissions from fossil fuel combustion, out of which road vehicles account for up to three quarters[iv]. Hence, in order to achieve global net zero ambitions, road transport needs to decarbonise fully by 2050, if not sooner.

Europe, as one of the largest contributors to emissions from transport, has a key role to play in realising net zero across the sector. In fact, transport represents Europe's biggest source of emissions at around 28 per cent, and is the only sector where emissions have risen since 1990 (Figure 2)[v].

## Figure 2: EU greenhouse gas emissions (GHG) by sector compared to a net zero by 2050 trajectory




Source: Transport & Environment (2020)

Cars and vans make up over 50 per cent of the EU emissions from transport, and their decarbonisation heavily relies on the replacement of internal combustion engine (ICE) vehicles with electric vehicles (EVs), and the decrease of overall kilometers driven[vi].

Given that the average lifespan of an ICE is around 15 years, and all transport needs to be zero emission by 2050, all new cars sold need to be fully electric by 2035 the latest [vii], requiring an ICE phase out by that date.

## Definition box[viii]

**ICE:** internal combustion engine vehicles are cars that use the combustion of fuels, such as petrol or diesel, within a motor

**EV:** the term stands for "electric vehicles" and refers to a number of different car types (as described below) that make use of electricity mainly in the form of a battery

**BEV/Fully electric:** battery electric vehicles are cars that run on a battery only, meaning they do not have a traditional motor burning fossil, or other, fuels; in this report, to avoid any confusion, we refer to them as "fully electric"

**PHEV:** plug-in hybrid electric vehicles are cars that have both a traditional internal combustion engine motor and a battery, which can be externally charged, and hence can be driven fully electric for a small range of kilometers (fewer than a fully electric vehicle) and otherwise by burning combustion fuels

**FCEV:** fuel cell electric vehicles are cars powered by a fuel cell, that produces electricity when fed with oxygen and a suitable fuel; the fuel is often hydrogen, and most electric motors work by using the electricity generated to power an electric motor in the form of a battery and through the interaction with magnetic fields

**ZEV:** the term stands for "zero emission vehicles" and includes fully electric cars and fuel cell electric vehicles but not PHEVs (which do emit CO2 when driven using their internal combustion engine motor)

## Myth Buster: Why should there only be zero emission vehicles on the road post 2035?[ix]

**The 2035 ICE phase out date:**

Emissions from passenger transport need to be zero by 2050. The average lifespan of a car is around 15 years. This means all new cars on the road from 2035 onwards need to be zero emission, steadily replacing traditional, emitting cars sold before 2035. Up until 2050, the last generation of ICEs would then be retired. Consequently, no car on the road can emit any new emissions past that date and passenger transport will be aligned with net zero.

**No PHEVs:**

Plug-in hybrids still have an internal combustion engine (in addition to their battery), which in use emits CO2. In fact, PHEVs cause up to 12 times more emissions that under official values[x], and are not the low-emission alternative to fully electric vehicles some advocate for. As they do cause emissions, and passenger road transport needs to be emissions-free by 2050, PHEVs need to face a similar phase out to other ICE cars by 2035 for all the same reasons. PHEVs are not a feasible mode of transport in a carbon neutral future.

While not explicitly mentioned in this report, other cars called "hybrids", that only use a battery to support the efficiency of their internal combustion engine, are not counted as electric vehicles as part of this report's assessment, as they are in fact ICE cars and therefore fall under the ICE phase out assessment.

**No alternative or synthetic fuels/e-fuels:**

Alternative and synthetic fuels refer to liquid fuels, which energy, and sometimes CO2, as an input, and can be used in an internal combustion engine[xi]. A well-known example of such a fuel would be hydrogen. As the oil and gas industry is facing the demise of fossil-fuel engines, they are increasingly asking for preferential treatment of such fuels as part of the upcoming CO2 standards. This is a net zero-unaligned suggestion, as car manufactures a) cannot control which fuel is used to drive the car, b) will potentially delay timely investments in actual zero emission vehicles, and c) will face a higher cost compliance pathway. Models show fully electric vehicles to be the cheapest and most environment friendly option for net zero. Hence, strategies based on alternative fuels are to be strongly discouraged.

**A note on hydrogen fuel cell vehicles:**

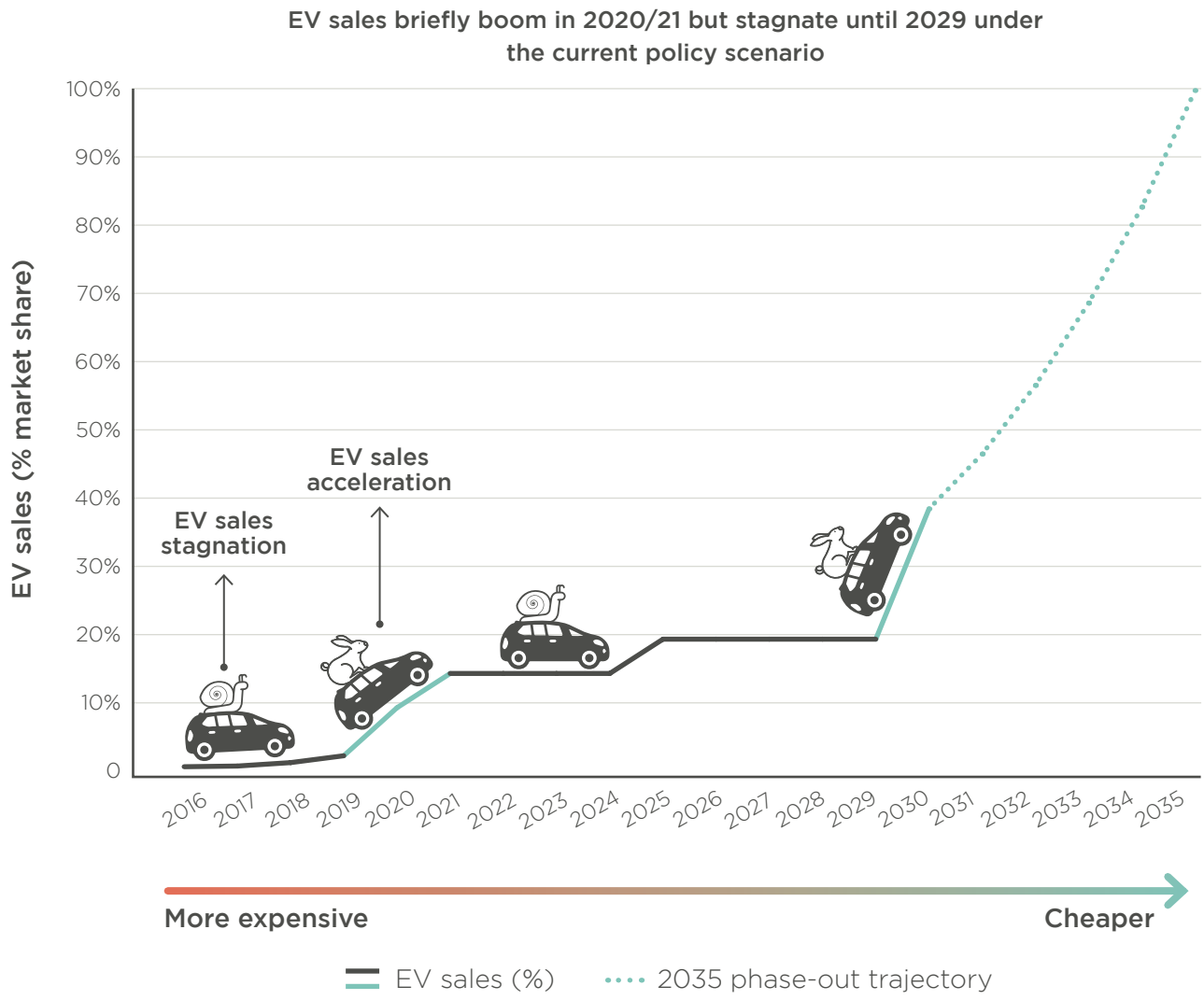
Hydrogen fuel cell cars count as ZEVs as they do not burn any CO2, however are far less efficient in using energy than fully electric vehicles, more costly and face a lower technical maturity[xii]. Compared to fully electric vehicles, they are therefore an inferior choice in meeting climate targets.

**The answer:** We need fully electric new vehicle sales from 2035 onwards, at the latest, to achieve Europe's net zero climate ambition for 2050.

Electric vehicles are expected to reach price parity with traditional engine cars between 2022 and 2029[xiii]. At this point, the sales price of a fully electric car will start becoming similar to that of an engine powered one. This means that electric vehicles should be entering a phase of exponential growth to reach 100 per cent ZEV sales by 2035[xiv].

However, under current C02 standards, which only require a 15 per cent and 37.5 per cent reduction of emissions vis-a-vis 2021 levels by 2025 and 2030 respectively, we are likely to see a stagnation of EV sales instead (Figure 3), as car manufacturers are not incentivized to take on the hurdle of changing production away from ICEs beyond what is required by regulation. This means under current policies, to reach zero emissions from all newly sold cars by 2035, most emission reductions must happen in the five years between 2030 and 2035 instead of the next 15 years, backdating needed climate action.

## Figure 3: EV sales prognosis under current policies




Source: Transport & Environment (2021)

As the EU has increased its net zero ambitions for 2050 under the EU Green Deal, to reach a further reduction in emissions of 55 per cent by 2030[xv] , it has begun reviewing CO2 standards related to transport.

As this report shows in a later section, car manufacturers are not yet aligned with the EU Green Deal, highlighting the importance of regulation in driving corporate action. Already for 2020, Volkswagen is facing a predicted fine of around 240 million euros for missing current CO2 targets by a small margin[xvi].

*Car manufacturers must step up on climate change to be able to call themselves leaders and reduce arising risks from a lack of action on net zero.*

# European car manufacturers in the spotlight

The upcoming years will likely be shaped by increased regulatory pressure for European car manufacturers, as the EU Green Deal comes into force and elections are being held across Germany and France, where support for green political parties is high.

## Current and upcoming regulation

Current EU regulation contains a number of CO2 targets for passenger cars, which are supported by regional and city-wide phase outs of internal combustion engine vehicles. As of the end of 2020, the European Commission has also set out new climate ambitions for transport under its "Sustainable and Smart Mobility Strategy", which is covered in more detail later in this section.

### CO2 targets[xvii]

To meet the EU's 2020/21 emissions target, new passenger cars need to have emissions lower or equal to 95gCO2/km on average across a car manufacturer's fleet. Car manufacturers pay heavy fines of  95 for each gram of additional CO2 per kilometer across its fleet[xviii]. All European car manufacturers, other than VW have already succeeded in meeting these targets in 2020, proving the efficacy of the CO2 standard regulation in lowering emissions in the sector.

In 2018 the EU set further CO2 targets for 2025 and 2030, which require a 15 per cent and 37.5 per cent reduction from 2021 levels respectively.

*However, these targets are set to be reviewed, and likely tightened, in June 2021.*[xix]

The section "What needs to happen from here?" of this report delves into what these revised targets could look like under the EU's climate neutrality commitment for 2050, according to research by Transport & Environment, a European organisation focused on sustainable transport[1].

### Flexibilities[xx]

However, there are some flexibilities to the stringent CO2 standards that allow for manufacturers to exceed the target, namely:

- **Mass-based target:** Each manufacturer's CO2 target is adjusted by the average mass of its vehicle pool, hence the heavier its cars are, the more lenient the target. A mass above the average of 1379.88 kg means the CO2 target rises above 95 gCO2/km, while a mass lower than that results in a target below 95 gCO2/km. Due to increasing demand for larger cars, and SUVs in particular, the average mass of passenger cars has been steadily rising.
- **Pooling:** Different car manufacturers can form joint pools, allowing for CO2 emissions to be averaged out between manufacturers. This has led to pools between manufacturers who do not produce many electric cars with those that do, e.g., the FCA-Tesla pool.

1 Website: https://www.transportenvironment.org/

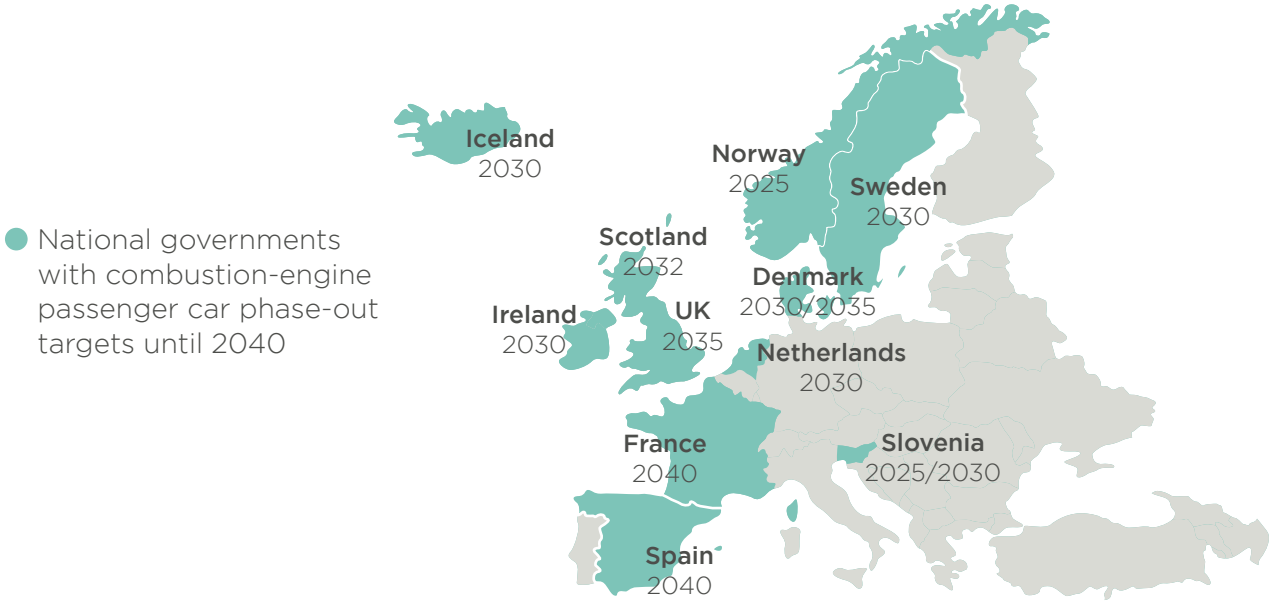
- **Eco-innovations:** If manufacturers equip cars with technology that reduces emissions not in the laboratory test at the car manufacturer but on the road, for example, by installing LED headlights, they can claim eco-innovation credits of up to 7 gCO2/km.
- **Super credits:** Car manufacturers can claim super credits for up to 7.5 gCO2/km on the sales of cars with emissions below 50 gCO2/km. These credits can be used until 2022. Cars below the 50 gC02/km threshold are being weighted 1.67 in 2021 and 1.33 in 2022, giving original equipment manufacturers (OEMs) an additional advantage for such sales. In effect, this means car manufacturers have avoided fines from higher-emission vehicles due to the offsetting natures of additional credits for lower-emission, electric vehicles.

## ICE phase outs

While the flexibilities under current regulations give car manufacturers some additional leeway in transitioning away from the internal combustion engine, a number of country and city-wide phase outs, or bans, on ICEs are exerting pressure beyond slowly decreasing CO2 targets.

As the breakdown in Figure 4[xxi] shows, there is an increasing convergence on ICE phase outs by 2030, with the UK having recently brought forward their national target from 2035 to 2030[xxii].

### Figure 4: Timeline of ICE phase outs across countries and cities; where there are two dates, the first one refers to a diesel phase out and the second one to a gasoline phase out in most cases




| 2025 | 2030 | | 2035 | 2040 |
|---|---|---|---|---|
| Norway | Iceland | City of Milan (Italy) | Denmark | France |
| | Ireland | | | Spain |
| City of Bergen (Norway) | Netherlands | City of Paris (France) | Brussels Capital Region (Belgium) | |
| City of London (UK) | Slovenia | | | |
| City of Strasbourg (France) | Sweden | City of Rome (Italy) | | |
| | UK | | | |

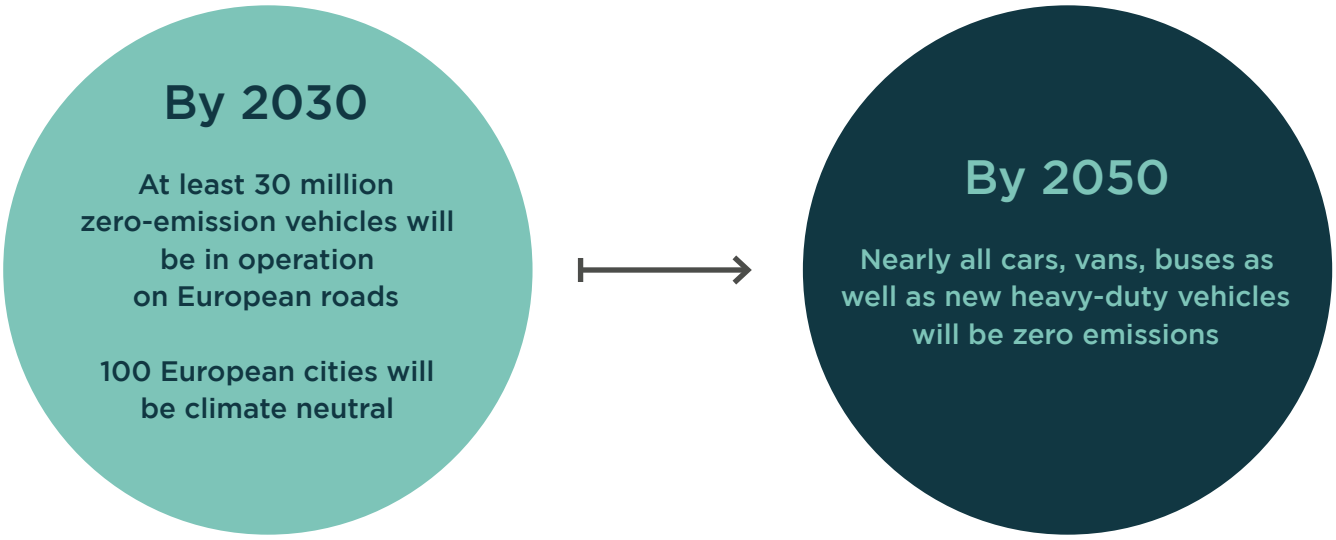
Source: ICCT (2020)

**Sustainable and Smart Mobility Strategy**[xxiii]

The mobility strategy, published in December 2020, outlines the European Commission's ambition to: a) take measures to replace existing fleets with low- and zero-emission vehicles, and b) internalising external costs through the "polluter pays" and "user pays" principles.

It has set out key milestone targets for 2030 and 2050 (Figure 5) in line with net zero by 2050. This lends further support to the fact that CO2 targets are set to become more stringent after their review in June 2021 to "internalise" the external cost of carbon. The increased push for electric vehicles, as set out in the strategy and reflected in the 2030 milestone target, could be a tailwind for well-prepared car manufacturers, or a headwind for those asleep at the wheel.

## Figure 5: Milestone targets as part of the EU's Sustainable and Smart Mobility Strategy




In addition to CO2 regulation, ICE phase outs, and the EU's recent mobility strategy, there are numerous incentives for electric vehicles at the country level. However, due to this report's focus on the supply side, these demand-side incentives do not form part of this report.

# Tipping point: German and French elections

European e-mobility in the upcoming years, and 2021 in particular, will be especially marked by two European elections – the German election on 26 September 2021[xxiv] and the French election in spring 2022[xxv].

Both countries host the largest European car manufacturers, need to increase decarbonisation efforts drastically to reach net zero by 2050, and are facing rising pressure from green political parties, which stand to gain more ground in the upcoming elections[xxvi].

As research by Agora[xxvii] - a German energy policy think tank - shows, in order for Germany and the EU to reach their net zero commitments by 2050, Germany would have to reduce emissions by 65 per cent in time for 2030 from a 1990 baseline. However, the country's current commitments only stand at a 55 per cent reduction by 2030.

With the upcoming election in sight, the German green party (Die Grünen) is currently polling at over 19 per cent[xxviii], and is likely to form part of the next governing coalition, setting the country's course for the upcoming 4 years. They advocate for stronger environmental protection and accelerated action on climate change.

If successful, their policy demands will likely include a phase out of internal combustion engines by 2030[xxix]. Even the CDU/CSU (Christian Democrats) party, which has so far been protective of traditional industry, is starting to warm to the idea of a fossil fuel vehicle phase out by 2035. This plan is being advocated for by Markus Söder, leader of the Bavarian CSU (where BMW has its headquarters), and potential next Chancellor of Germany[xxx].

It is clear that the political stance towards traditional car engines is changing in Germany, and with Die Grünen and CDU/CSU likely to form the next governing coalition, an ICE phase out seems to be on the horizon.

Similarly, in France the proposed "Climate law" is being put forward to parliament to enshrine climate protection in legislation[xxxi]. This includes transport as a key source of emissions. Only this year, a Paris court has convicted the French state of failing to tackle climate change[xxxii] . With more legislation to come, environmental protection measures in the transport space are likely to increase. This comes in addition to the French ban on fossil-fuel powered cars by 2040[xxxiii].

Changing tides in Germany and France are giving the European Union support for an EU-wide ICE phase out, which it is starting to consider, according to a public communication from September 2020[xxxiv]: "The Commission will also assess in the coming months what would be required in practice for this sector to contribute to achieving climate neutrality by 2050 and at what point in time internal combustion engines in cars should stop coming to the market."

*The EU Comission will also assess in the coming months ... at what point in time internal combustion engine cars should stop coming to the market*

# What needs to happen from here?

A decision on CO2 standards for passenger cars is likely to result in a regulatory tightening in June 2021, as the EU pushes towards its net zero target. Diving into what net zero aligned standards would look like for Europe can give OEMs and investors alike an idea of how to position themselves.

## ICE phase out

For the EU to achieve its goal of having nearly all cars on the road be zero emission by 2050, all new vehicles sold need to be ZEVs by 2035 the latest. By that date ICEs, including PHEVs (which also have an internal combustion engine motor), need to be phased out. This results from the fact that the average lifespan of a car is about 15 years[xxxv], and is further explained in a previous section of this report titled "Myth Buster".

It should, however, be noted that only 55 per cent of cars are retired after 15 years (rising to 97 per cent after 20 years), hence a phase out date before 2035 and closer to 2030 could also be in the picture[xxxvi].

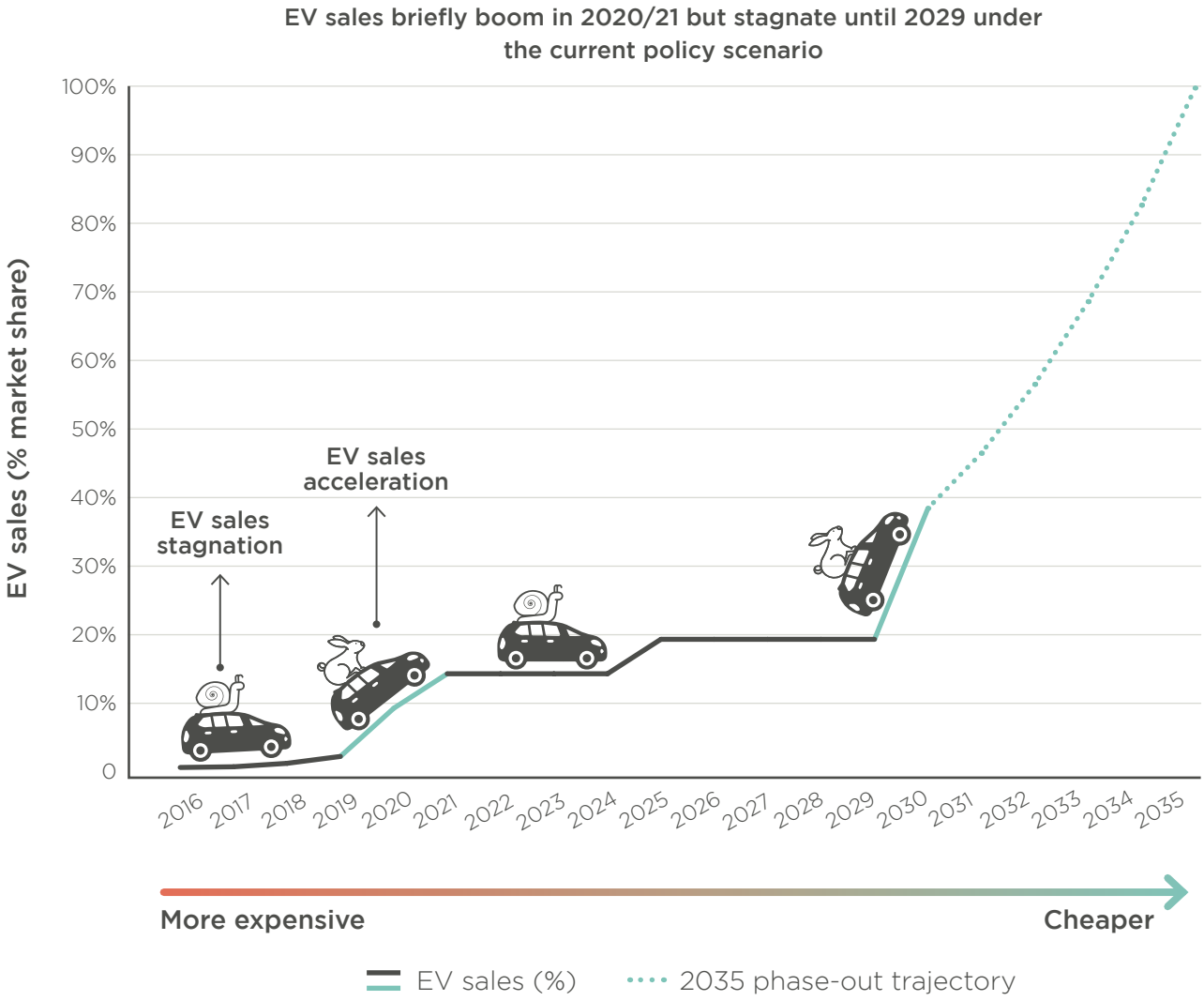
In regards to ICE phase outs:

- car manufacturers should be prepared for a phase out of internal combustion engine vehicles (ICEs) by 2035, this also includes the phase out of plug-in hybrid cars (PHEVs)

## CO2 targets[xxxvii]

As described earlier in this report, with current CO2 targets demanding a 15 per cent reduction by 2025 and a 37.5 per cent reduction by 2030, EV sales would be stagnating for the coming years, as car manufacturers aim to meet regulatory targets without going beyond them. Consequently, a fast acceleration of sales would then be needed after 2030 (Figure 6) to reach 100 per cent electrified sales by 2035. See "The need to decarbonise road transport" for more information on this graph.

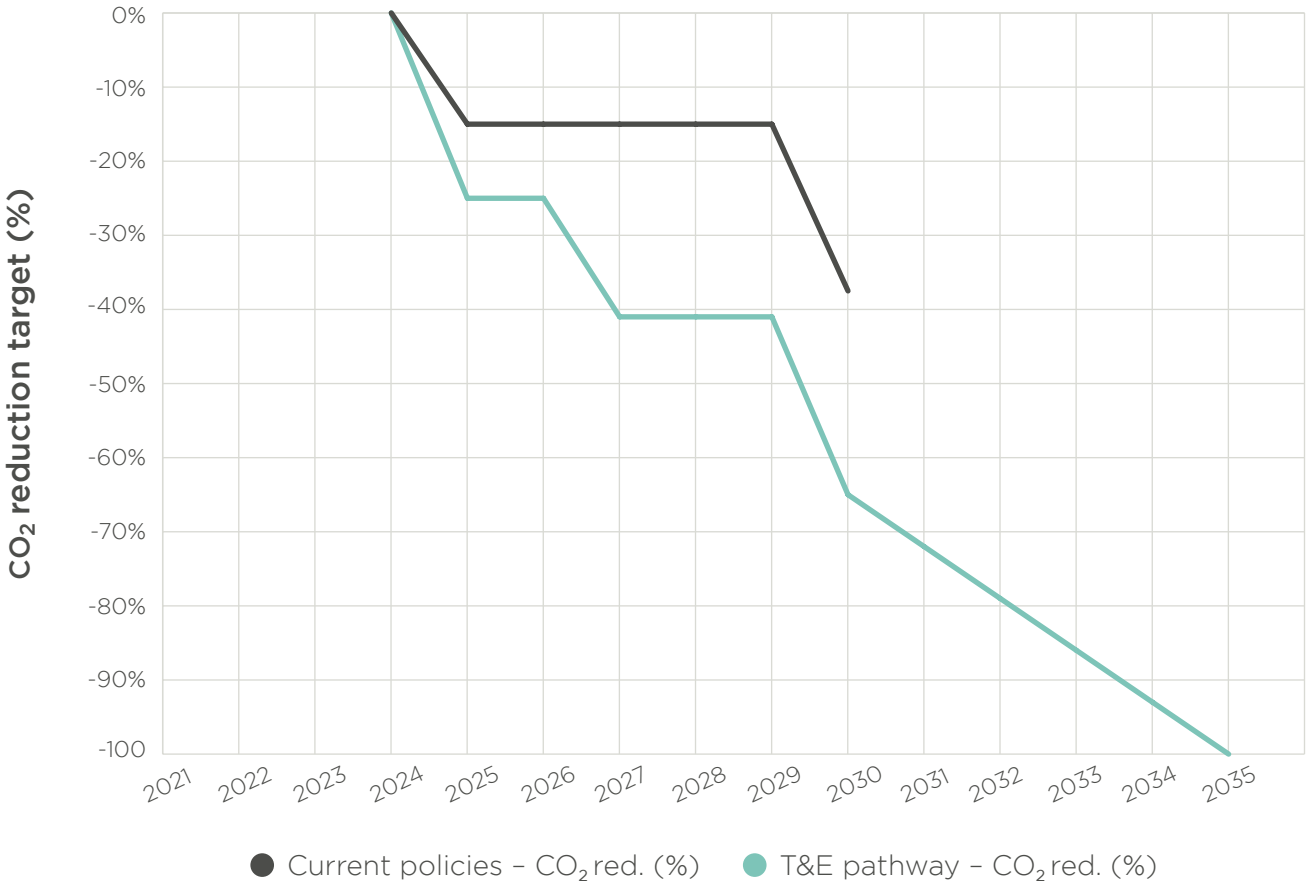
## Figure 6: EV sales prognosis under current policies




Source: Transport & Environment (2021)

A more cost-efficient way, as modelled by Transport & Environment[xxxviii], would suggest that a 25 per cent reduction by 2025 and a 65 per cent reduction by 2050 is needed instead. This would help bridge the gap in acceleration of the EV rollout compared to the current policies scenario (Figure 7).

## Figure 7: T&E CO2 reduction pathway compared to current policies




Source: Transport & Environment (2021)

In addition to more stringent targets for 2025 and 2030, the inclusion of a 2027 target would further help create a steady path for EV sales until 2030 and have a larger impact on reducing emissions than a scenario without an intermediate target[xxxix].

For cost-efficient net zero alignment for passenger car fleets, CO2 targets could be adjusted to the following levels[xl]:

- fleet emissions should not increase beyond 2021 emission levels at any point in time
- fleet emissions should be reduced by –25 per cent for 2025, compared to 2021 baseline emission levels; which would correspond to a minimum share of 20 per cent fully electric vehicle sales
- fleet emissions should be reduced by –40 per cent for 2027, compared to 2021 baseline emission levels; which would correspond to a minimum share of 35 per cent fully electric vehicle sales
- fleet emissions should be reduced by –65 per cent for 2030, compared to 2021 baseline emission levels; which would correspond to a minimum share of a 55 per cent fully electric vehicle sales
- fleet emissions should be reduced by –100 per cent for 2035, compared to 2021 baseline emission levels; which would correspond to 100 per cent fully electric vehicle sales (full ICE phase out by 2035)

## Flexibilities[xli]

The way in which some of the current regulatory flexibilities around the CO2 targets are designed can potentially inhibit the effectiveness of emission regulation for passenger cars. Hence, as targets are being redesigned, in the most likely case, those flexibilities will also see changes.

- **Plug-in hybrids**

Under the current regulation plug-in hybrids (PHEVs) earn the same super-credits as fully electric vehicles, despite having an ICE. These credits are also built into the current 2025 and 2030 targets, albeit at a lower rate for PHEVs compared to full electric vehicles. However, a 0.7 multiplier still awards additional credits per PHEV.

There is some concern about the environmental benefits of PHEVs, as recent tests show them to be up to 12 times more polluting than advertised[xlii]. More information can be found in the earlier "Myth Buster" section of this report. Yet, the current regulatory design would mean that nearly half of all EVs being sold between 2025 and 2030 would be PHEVs, only produced for compliance reasons and with limited potential to actually reduce CO2 emissions on the road. As PHEVs still have an internal combustion engine, they need to be phased out by 2035, indicating the requirement for PHEV sales to decrease in line.

In order to prevent a PHEV "dieselgate", regulation might change to:

- any credits for PHEVs, including the 0.7 multiplier for the 2025 and 2030 targets, to be removed
- the split between fully electric vehicles and PHEVs should be, at a minimum, 65/35 per cent in 2025 and 75/25 per cent in 2030

- **Mass-based targets**

The current mass adjustment allows car manufacturers to have increased emissions if the mass of their fleets is higher than average. However, as electric vehicles tend to weigh more than their traditional, fossil-fuel powered counterparts (due to the weight of the battery), this mass adjustment would be counterproductive to achieving the EU's climate goals as EVs are rolled out.

Therefore, in June 2021:

- mass-based adjustments should be removed, requiring all OEMs to achieve the same CO2 targets irrespective of fleet weights

- **Alternative and synthetic fuels**

There are some calls from the oil and gas industry to include credits for synthetic or alternative fuel passenger cars. However, there are a few limitations to such an idea:

1. Car manufacturers have no control over the fuel used by consumers
2. Such fuels will not be available in the required quantity before 2030
3. By 2025 electric vehicles will already be the cheapest compliance strategy for OEMs (biodiesel – which would not be in line with the EUs climate goals – would be slightly more costly, while e-diesel and e-petrol compliance would be two-to-three times more costly than compliance through EVs)

Hence, for upcoming emission standards:

- no credits should be allocated to synthetic or alternative fuel cars

## Case study : EV100 – Car manufacturers are not meeting client demand for EVs

EV100 is a corporate initiative bringing together companies committed to accelerating the transition to electric vehicles (EV). Companies can do so by committing to switch their fleets to EVs, require EVs in service contracts, and/or install charging for staff and/or customers at all corporate locations.

Throughout the years one major obstacle for EV100 members to decarbonise their fleets fully has been a lack of supply from the car manufacturer side, with 64 per cent of EV100 members citing a lack of correct vehicle type as a significant barrier to electrification[xliii].

While increased political pressure is likely to force OEMs to adjust their product portfolio in time, car manufacturers have already been losing out by not adjusting to the pace of the transition. New incumbents such as Tesla have seen massive tailwinds due to the lack of serious competition. **By now, European car manufacturers have already fallen behind on new technology and have years of catching up to do if they are to maintain their dominance in the European market.**

Demand for EVs is there, as the EV100 initiative shows, and regulatory pressure is only set to increase – the onus is on OEMs to catch up to their competition fast.

# How prepared are OEMs?

## 1 Methodology

In order to assess car manufacturers' alignment with the EU Green Deal, and consequently tightening CO2 standards, we will use a set of four categories with six indicators in total to compare them against.

**A) Science-based target (SBTi):**

- Does the company have a validated science-based target to reduce emissions in line with 1.5 degrees Celsius?

**B) ICE phase out:**

- Does the company commit to phasing out the production and sales of internal combustion engine cars, including plug-in hybrids (PHEVs), before 2035?

**C) Net zero commitments and emissions strategy:**

- Does the company have a credible net zero commitment for 2050, including short- to medium-term targets?
- Are the car manufacturer's current and targeted sales of fully electric vehicles in line with emission reduction targets set out in this report, namely do they correspond to a minimum share of 20 per cent fully electric vehicle sales by 2025, 35 per cent by 2027, 55 per cent by 2030, and 100 per cent by 2035?

**D) Flexibilities**

- Does the company target less than 35 per cent PHEVs in 2025 and less than 25 per cent in 2030 out of all their EV sales?
- Does the company recognize the limitations of alternative and synthetic fuels, and bases its strategy on fully electric vehicles instead?

A traffic light system (green to red) will indicate each car manufacturer's performance against these targets.

**Traffic light:** green: the car manufacturer performs well against standards, yellow: the car manufacturer performs somewhat well against standards but lacks ambition, red: the car manufacturer does not perform well against standards

**For the assessment only publicly disclosed data and various research institutes' modelling is used. This does not constitute a forward-looking assessment or investment advice.**

**Where we could not find official company commitments on their group website, we did use press releases and newspaper articles in best faith. For some of the latter sources, official commitments via the company website might still remain to be seen, though.**

# 2 Ranking

While most German or French car manufacturers climate targets compare poorly against a potential tightening of upcoming CO2 standards in line with what is needed for net zero by 2050, or an EU-wide ICE phase out announcement, some companies are performing better than others (Figure 8).

Renault leads the group due to its ambitious EV sales strategy and announcement of an ICE phase out by 2035, which gives its net zero target credibility, with acclaimed German electrification leader Volkswagen still playing catch up. Daimler, BMW and Groupe PSA (Peugeot) severely lag behind their rivals and appear to be asleep at the wheel on climate change.

## Figure 8: Ranking of German and French OEMs against climate performance standards

| Ranking | OEM | Science-based Target | ICE Phase Out | Emission Strategy | Flexibilities |
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| 1 | Renault | | | | |
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| 3 | Daimler | | | | |
| 4 | BMW | | | | |
| 5 | Groupe PSA/ Peugeot | | | | |

Only Renault shows an emission strategy aligned with net zero by 2050, setting a goal of 70 per cent electric vehicle (albeit including hybrids) sales by 2025 and an ICE phase out target by 2035 the latest.

While Volkswagen does commit to net zero by 2050, it only targets 20 per cent fully electric sales by 2025, despite an ambitious 70 per cent target for 2030, and has set no clear ICE phase out date. The comparable lack of short-term ambition to competitor Renault, and missing ICE phase out commitment before 2035, puts Volkswagen's climate neutrality commitment by 2050 into question.

*All other car manufacturers assessed have unaligned emission strategies and no ICE phase out targets.*

Despite aiming for a carbon neutral fleet by 2039, Daimler has set no clear short-term emission reduction targets, and is therefore backloading climate action, with over 50 per cent of emission reductions having to happen within the nine years between 2030 and 2039. Further, Daimler has no clear ICE phase out commitment, which makes its carbon neutrality target appear lacking in strategic support.

Both BMW and Groupe PSA (which includes the Peugeot and Opel brands), do not include passenger car emissions on the road (scope 3 emissions) in their climate neutrality commitments for 2050. BMW has set no EV sales target as a per centage of their fleet, while Groupe PSA's one and only EV sales target is completely unaligned with an ICE phase out by 2035, which is needed for Europe to reach net zero by 2050. These facts place the two car manufacturers at the bottom of the pile among their peers, and highlight the risk of them being severely unaligned with more stringent CO2 regulation, if they do not up their climate ambitions.

BMW is showing some signs of wanting to enhance its targets on net zero by committing to set science-based targets through the SBT initiative, however their level of ambition remains to be seen.

All car manufacturers, other than Volkswagen, do not have a fully aligned strategy on hybrids and plug-in hybrids (PHEVs), with some, namely Daimler, BMW and Groupe PSA, heavily reliant on PHEVs to meet their climate targets. Seeing as all ICEs, including hybrids and PHEVs, need to be phased out by 2035 at the latest, this could expose car manufacturers to increased risks of loss-making models and fines. Volkswagen is the only car manufacturer clearly stating its EV targets for only fully electric cars.

Last but not least, apart from Renault, all car manufacturers are involved in the development of alternative fuel cars, putting them at risk of developing Paris-unaligned and costly models instead of prioritising fully electric vehicles.

Overall, only Renault stands out as being well-prepared for Paris-aligned CO2 targets, with all other car manufacturers having to catch up. Detailed company assessments can be found in the following section of this report.

*Despite a flurry of new climate announcements by these car manufacturers, investors should hold back from applauding too soon, and rather use the opportunity to engage with their portfolio holdings to ensure climate alignment ahead of new risks arising from potentially tightened CO2 standards.*

# 3 Company Assessments

## Germany

### VW

Volkswagen ranks 2nd out of the 5 car manufacturers. Its decarbonisation strategy is relatively weaker than Renault's but stronger than that of other car manufacturers. Volkswagen must still announce a clear ICE phase out commitment before 2035 to be considered fully Paris-aligned, and is lagging behind Renault on this front. Of all European car manufacturers assessed in this report, Volkswagen is showing the clearest commitment to fully electric cars, rather than including hybrids and PHEVs in its sales mix targets.

## Figure 9: Volkswagen assessment

| Volkswagen | | | | | |
|---|---|---|---|---|---|
| Science-based Target | ICE Phase Out | Emission Strategy | | Flexibilities | |
| SBTi – 1.5? | Before 2035? | Net zero 2050 commitment? | Net zero aligned EV sales targets? | Net zero aligned hybrid targets? | No alternative and synthetic fuels? |

Volkswagen has set a well-below 2 degree Celsius target with the CDP-led Science-Based Targets initiative (SBTi), committing to reduce scope 1 and 2 emissions by 30 per cent by 2030, and scope 3 emissions by 30 per cent per vehicle kilometer by 2030[xliv].

## Definition Box:[xlv]

**Scope 1 emissions:** All direct emissions. For a car manufacturer this would include gas emissions from boilers, employee cars emissions, and any other emissions directly caused at the company's facilities.

**Scope 2 emissions:** All indirect emissions from purchased electricity. Includes emissions caused at the electricity generation stage and eventually used by the car manufacturer for its production, computers, cooling, etc.

**Scope 3 emissions:** All emissions caused by upstream or downstream activities linked to the product sold. For a car manufacturer, upstream emissions would include the emissions caused by the production of car parts (e.g. aluminum), while downstream emissions include emissions caused by the car on the road (e.g. fuel burnt).

The company has so far made no clear commitment to phasing out ICEs, however some of its own analysis for Paris-alignment suggests an "EOP", end of production, of conventional platforms and projects before 2040[xlvi], and announcements have been made that the final generation of ICE vehicles will roll out in 2026[xlvii].

Volkswagen in its "go to zero"[xlviii] strategy commits to carbon neutrality by 2050, and a 30 per cent lifecycle emission reduction by 2025. The carbon neutrality commitment sees weak strategic support due to the lack of medium-term targets and a concrete ICE phase out date.

However, Volkswagen's share of electric vehicle (including hybrid) sales in Europe has seen a strong increase over the last few months of 2020, with the average for the whole year standing at 11 per cent, and December sales at 25 per cent[xlix]. It has set itself a global goal of 20 per cent fully electric sales by 2025, and 70 per cent by 2030[l]. This aligns closely with the suggested targets under a cost-efficient trajectory for the EU, but should be supplemented with an intermediate target for 2027, and a 100 per cent electric sales target for 2035.

The explicit commitment to fully electric vehicles, underlines the company's understanding of the limitation surrounding hybrids and plug-in hybrids (PHEVs). The sales share of hybrids compared to fully electric vehicles stood at 37 per cent and 63 per cent in 2020 respectively[li], indicating that the company will likely reach a PHEV share of below 35 per cent by 2025.

In regards to alternative and synthetic fuels, Volkswagen is developing a pilot project on hydrogen for Porsche in collaboration with the petroleum company ENAP[lii]. This comes despite the firm's agreement with academics that alternative fuels such as hydrogen "should [just be used] where it makes sense – and that's not in the car"[liii]. Without a clear commitment to the phase out of ICEs, the support of inefficient alternative or synthetic fuels can undermine the company's EV sales strategy and carbon neutrality commitments.

## Daimler

Daimler ranks 3rd out of the 5 car manufacturers, lacking clear short-term emission reduction targets and an aligned EV sales strategy to support its 2039 carbon neutral fleet commitment. It has also not made an ICE phase out commitment. Daimler's strategy is highly reliant on hybrids and plug-in hybrids (PHEVs), exposing it to substantial risk once ICEs - including hybrids and PHEVs - are phased out in a Paris-aligned pathway before 2035.

### Figure 10: Daimler assessment

| Daimler | | | | | |
|---|---|---|---|---|---|
| Science-based Target | ICE Phase Out | Emission Strategy | | Flexibilities | |
| SBTi – 1.5? | Before 2035? | Net zero 2050 commitment? | Net zero aligned EV sales targets? | Net zero aligned hybrid targets? | No alternative and synthetic fuels? |

Daimler has set an emission reduction target trough SBTi in line with keeping global warming to 1.5 degree Celsius, by committing to reduce scope 1 and 2 emissions by 50 per cent by 2030, and scope 3 emissions by 41 per cent per vehicle kilometer by 2030[liv].

The company further commits to a carbon neutral fleet of new vehicles by 2039 and a 42 per cent reduction of emissions per vehicle kilometer by 2030, but without short-term emission reduction targets, and no clear ICE phase out date before 2035[lv]. However, Daimler does target EV sales, including hybrids and PHEVs, of up to 25 per cent in 2025 and a minimum of 50 per cent in 2030[lvi]. These targets could be closely aligned with the suggested targets under a cost-efficient trajectory for the EU if they were only to include fully electric (and no hybrid) cars, **which is not the case**. They should also be supplemented with an intermediate target for 2027, and a 100 per cent fully electric sales target for 2035.

Daimler's EV sales share for 2020 was 7.9 per cent, of which 85 per cent were hybrids[lvii]. The explicit inclusion of plug-in hybrids in their 2030 targets highlights the manufacturer's focus on PHEVs over fully electric vehicles, and means it is unlikely to meet the Paris-aligned ambition of fewer than 35 per cent PHEVs in 2025 out of all electric vehicles sold, as set out by Transport & Environment. This raises the question as to how prepared Daimler will be for a potential ICE phase out, including PHEVs, by 2035, and undermines their carbon neutrality commitment for 2039.

According to the then Head of Research and Development, Markus Schafer, in May 2020, Daimler is not expecting alternative or synthetic fuels to be a solution for carbon neutrality in the passenger car sector. However, the company does state that is has "an eye on alternative fuels and [does] actively participate in research and testing", despite its "electric first" message[lviii].

**BMW**

BMW ranks 4th out of the 5 car manufacturers, due to its lack of a clear net zero commitment for 2050, including emissions from cars in use, missing ICE phase out commitment and unclear EV sales targets. It is basing much of its strategy on a "broad drivetrain technology base", which includes PHEVs and alternative fuels in a Paris-unaligned strategy. BMW is showing some signs of wanting to up its targets on net zero by committing to set science-based targets through the SBT initiative, however the level of ambition remains to be seen.

## Figure 11: BMW assessment

| BMW | | | | | |
|---|---|---|---|---|---|
| Science-based Target | ICE Phase Out | Emission Strategy | | Flexibilities | |
| SBTi – 1.5? | Before 2035? | Net zero 2050 commitment? | Net zero aligned EV sales targets? | Net zero aligned hybrid targets? | No alternative and synthetic fuels? |

The BMW Group has committed to setting an SBTi target in June 2020, but has not clarified its level of ambition yet[lix]. To keep up with competitors such as Volkswagen and Renault it should strive to verify a well-below 2 degree or 1.5 degree Celsius target, including scope 3 emissions.

The company has not yet set an ICE phase out date, or committed to net zero by 2050. Most of its current emission reduction targets for 2050 exclude emissions caused by the car on the road (scope 3)[lx], apart from one target to reduce emissions from vehicles in use by 40 per cent per kilometer driven, in time for 2030[lxi]. This stands in contrast to required fleet emission reductions of 65 per cent by that date, according to Transport & Environment[lxii]. Hence, BMW's current emission reduction commitments are insufficient in reducing the main emission source from passenger cars, and cannot be considered fully aligned with net zero by 2050. The car manufacture does however set a best practice in providing targets for every year until 2030[lxiii].

The car manufacturer recognizes that even under current emission regulation, it must significantly increase the share of electrified vehicles in its fleet to 25 per cent by 2021, 33 per cent by 2025, and 50 per cent by 2030[lxiv]. It does not specify if "electrified" refers to fully electric or a mix of fully electric, hybrid and PHEV vehicles.

While these milestones could be closely aligned with the suggested targets under a cost-efficient trajectory for the EU if they were to include only fully electric cars, BMW provides no clear commitment to achieving these targets[lxv].

Moreover, it appears that BMW is focusing much of its strategy to comply with CO2 standards on plug-in hybrids and alternative fuels.

It does set out a target of two thirds of their EVs on the road to be fully electric by 2030[lxvi], which fails to meet the standard set out by Transport & Environment, requiring fewer than 25 per cent of EV vehicles to be hybrids by that date.

In 2020, the company only offered one fully electric vehicle model, the BMW i3, and does not report on its share of fully electric compared to PHEV sales[lxvii]. The number of its fully electric models will increase to five in 2021[lxviii]. However, BMW is also committed to the development of a "broad drivetrain technology base", which would allow for cars running on alternative or synthetic fuel[lxix], to be produced alongside fully electric vehicles.

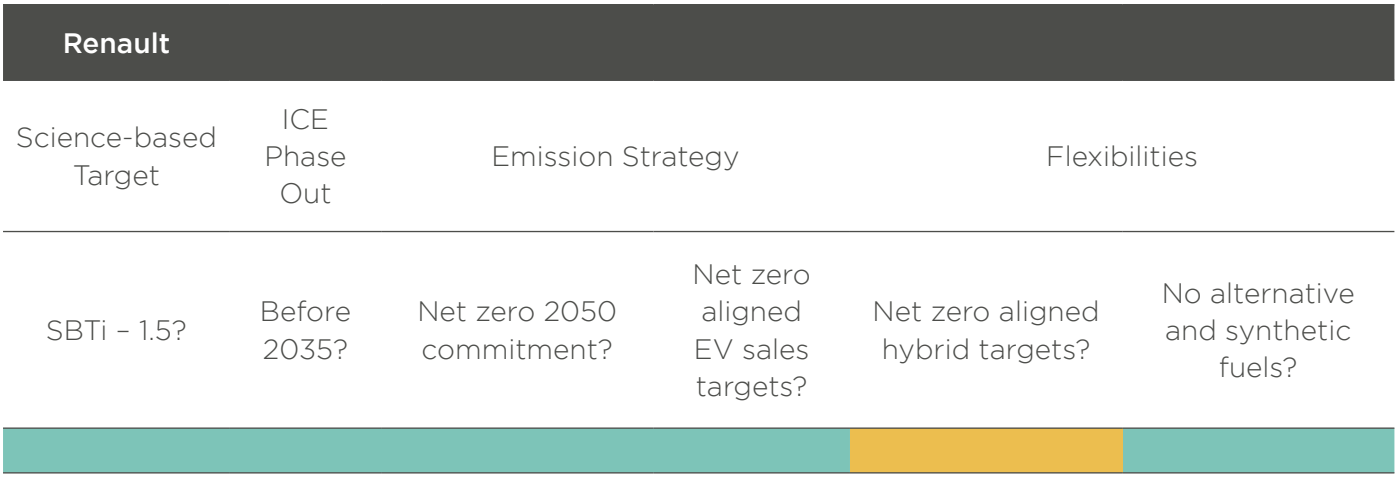
BMW's lack of a clear 2050 net zero commitment with relevant fully electric sales targets, and continued focus on hybrids, including PHEVs, and alternative fuels puts it at risk of falling significantly behind peers, and losing any existing competitive advantage in a carbon neutral future.

## France

### Renault

Renault performs best out of the 5 car manufacturers, showing a clear 2050 net zero target, backed by ambitious EV sales targets and an ICE phase out announcement. The only area of underperformance is its lack of clarity on the gradual phase out of hybrids, where Volkswagen is showing more ambition.

### Figure 12: Renault assessment




Renault has set a well-below 2 degree Celsius target with the CDP-led Science-Based Targets initiative (SBTi), committing to reducing scope 1 and 2 emissions per car by 60 per cent by 2030, and scope 3 emissions per vehicle kilometer by 41 per cent by 2030[lxx].

The company has further acknowledged the need for a phase out of internal combustion engine cars by 2030-2035[lxxi], making a relevant comment towards a target[lxxii].

Renault has committed to net zero by 2050 in Europe and set intermediate emission reduction targets of 25 per cent by 2022 and 50 per cent by 2030[lxxiii]. The carbon neutrality commitment sees strong strategic support with a targeted ICE phase out date by 2035 and ambitious EV sales target for 2025.

The car manufacturer has set targets for 50 per cent of its models to be electrified by 2022[lxxiv] and for half of its new model launches to be fully electric by 2025[lxxv]. This translates to a target of 70 per cent EV sales by 2025[lxxvi], which is clearly aligned with a Paris trajectory in combination with their 2035 ICE phase out target. The company has, however, mentioned a 35 per cent hybrid mix by 2025 in its newest "Renaulution" plan[lxxvii], which is roughly in line with best-practice standards, but gives no indication of further plans regarding the PHEV to fully electric split towards 2030.

Renault's involvement with synthetic or alternative fuels seems to be limited to the (light) commercial vehicle segment, rather than passenger cars[lxxviii]. The company states itself that for passenger cars: "electric vehicles form the only practical and affordable solution in existence today"[lxxix].

**Groupe PSA/Peugeot**

Groupe PSA, which includes brands such as Peugeot and Opel, ranks last out of the 5 car manufacturers. It has not set a science-based target or clear 2050 net zero commitment, including emissions from cars in use. The car manufacturer is lacking an ICE phase out target and aligned EV sales strategy, while heavily relying on plug-in hybrids (PHEVs), which need to be phased out by 2035 under a Paris-aligned trajectory. Its current compliance with CO2 standards is mainly due to ICE efficiency gains, which does not form a sustainable long-term strategy.

## Figure 13: Groupe PSA assessment

| Groupe | | | | | |
|---|---|---|---|---|---|
| Science-based Target | ICE Phase Out | Emission Strategy | | Flexibilities | |
| SBTi – 1.5? | Before 2035? | Net zero 2050 commitment? | Net zero aligned EV sales targets? | Net zero aligned hybrid targets? | No alternative and synthetic fuels? |

Groupe PSA has set no emission reduction target trough SBTi[lxxx], and no ICE phase out date.

While the company recognises the need to decarbonise in its "Push to Pass"[lxxxi] strategy, it only sets an emission reduction target for vehicles sold of 25 per cent by 2025 and 55 per cent by 2035, excluding emissions from cars on the road in its net zero ambitions for 2050.

By 2025 the car manufacturer wants to offer an electrified version of 100 per cent of its models[lxxxii]. It, however, has only set one specific EV sales target of over 50 per cent by 2035[lxxxiii], which is not line with an ICE phase out at that date, and without any further intermediate targets, or specification on whether this would only include fully electric vehicles. Out of its electric vehicles sales it expects PHEVs to represent over 50 per cent in the European market in 2025[lxxxiv], far off the below 35 per cent recommended.

Last but not least, Groupe PSA has so far only managed to outperform the EU's CO2 standards due to significant efficiency gains in its ICE vehicles, and puts a strong focus on alternative fuels such as biofuels[lxxxv]. This will leave them unaligned with Paris-compliant CO2 standards in the long run, and considering the company's current situation as a laggard on electric vehicles it would stand to gain from a commitment away from ICEs and towards carbon neutrality sooner rather than later.

# The role of investors: Engagement guidance

Investors engaging with the car manufacturers analysed in this report can use the below guidance questions and target tracking as part of their stewardship activities.

## Volkswagen

1. What is the company's thinking around a phase out of internal combustion engine cars (ICEs) before 2035? Does Volkswagen plan to make a commitment soon?

   **Tracking target:** *An ICE phase out on or before 2035 is required for Paris-alignment.*

2. Does Volkswagen plan to increase its fully electric vehicle sales targets before 2030 in light of a potential tightening of CO2 standards in June 2021?

   **Tracking target:** *The car manufacturer's current and targeted sales are in line with emission reduction targets set out by Transport & Environment, namely they correspond to a minimum share of 20 per cent fully electric vehicle sales by 2025, 35 per cent by 2027, 55 per cent by 2030, and 100 per cent fully electric vehicle sales by 2035.*

3. Does Volkswagen aim to set more short- and medium-term emission reduction targets for its vehicles in use, beyond its commitment to reduce lifecycle emissions by 30 per cent by 2025, to uphold its net zero commitment for 2050?

   **Tracking target:** *The company sets emission reduction targets of minimum 25 per cent by 2025, 40 per cent by 2027, 65 per cent by 2030, and 100 per cent by 2035, for vehicle emissions on the road.*

4. Does Volkswagen plan to make a clear commitment towards fully electric vehicles and away from the development of alternative and synthetic fuels?

   **Tracking target:** *The company does not develop passenger cars making use of alternative and synthetic fuels.*

## Daimler

1. What is the company's thinking around a phase out of internal combustion engine cars (ICEs) before 2035? Does Daimler plan to make a commitment soon?

   **Tracking target:** *An ICE phase out on or before 2035 is required for Paris-alignment.*

2. Does Daimler aim to strengthen its EV sales targets (of 25 per cent in 2025 and a minimum of 50 per cent in 2030) to include only fully electric vehicles, and set an ambition for 35 per cent fully electric vehicle sales in 2027 and 55 per cent in 2030?

   **Tracking target:** *The car manufacturer's current and targeted sales are in line with emission reduction targets set out by Transport & Environment, namely they correspond to a minimum share of 20 per cent fully electric vehicle sales by 2025, 35 per cent by 2027, 55 per cent by 2030, and 100 per cent fully electric vehicle sales by 2035.*

3. Does Daimler aim to set more short- and medium-term emission reduction targets for its vehicles in use, beyond its commitment to reduce vehicle in use emissions by 42 per cent by 2030, to uphold its net zero commitment for 2039?

   **Tracking target:** *The company sets emission reduction targets for vehicles in use of minimum 25 per cent by 2025, 40 per cent by 2027, 65 per cent by 2030, and 100 per cent by 2035.*

4. 85 per cent of Daimler's EV sales are currently hybrids. Does the company have plans to transition away from hybrids and towards fully electric vehicles, in light of a required ICE phase out by 2035 for net zero in 2050?

   **Tracking target:** *The company has a clear hybrid phase out date by 2035 the latest, and out of all its EV sales it targets less than 35 per cent PHEVs in 2025 and less than 25 per cent in 2030.*

5. Does Daimler plan to make a clear commitment towards fully electric vehicles and away from the development of alternative and synthetic fuels?

   **Tracking target:** *The company does not develop passenger cars making use of alternative and synthetic fuels.*

## BMW

1. Does BMW plan to set a net zero 2050 target, including emissions from cars in use? Does it intend to raise the ambition of its 2030 emission reduction target for vehicle emissions per kilometer driven from 40 per cent to at least 65 per cent?

   **Tracking target:** *The company sets a net zero target by 2050. It further sets emission reduction targets for vehicles in use of minimum 25 per cent by 2025, 40 per cent by 2027, 65 per cent by 2030, and 100 per cent by 2035.*

2. Does BMW plan to commit to an ICE phase out by 2035 the latest, seeing as this is the required date to reach net zero by 2050 in Europe?

   **Tracking target:** *An ICE phase out on or before 2035 is required for Paris-alignment.*

3. Does BMW plan to target Paris-aligned fully electric vehicle sales?

**Tracking target:** *The car manufacturer's current and targeted sales are in line with emission reduction targets set out by Transport & Environment, namely they correspond to a minimum share of 20 per cent fully electric vehicle sales by 2025, 35 per cent by 2027, 55 per cent by 2030, and 100 per cent fully electric vehicle sales by 2035.*

4. Does BMW have plans to transition away from hybrids and towards fully electric vehicles, in light of a required ICE phase out by 2035 for net zero in 2050? What is the thinking around alternative and synthetic fuels for passenger cars?

   **Tracking target:** *The company has a clear hybrid phase out date by 2035 the latest, and out of all its EV sales it targets less than 35 per cent PHEVs in 2025 and less than 25 per cent in 2030. Alternative fuels also require combustion engines, meaning they need to face a similar phase out for passenger cars by 2035.*

## Groupe PSA/Peugeot

1. Does Groupe PSA plan to make a 1.5 degree aligned science-based target commitment through SBTi?

   **Tracking target:** *The company has a SBT verified science-bases target aligned with a 1.5 degree Celsius pathway.*

2. Does Groupe PSA plan to set a net zero 2050 target, including emissions from cars in use? Will it supplement this ambition with an additional 2027 target, and a more ambitious 2030 target aiming at a minimum 65 per cent reduction in vehicle emissions on the road?

   **Tracking target:** *The company sets a net zero target by 2050. It further sets emission reduction targets for vehicles in use of minimum 25 per cent by 2025, 40 per cent by 2027, 65 per cent by 2030, and 100 per cent by 2035.*

3. Does Groupe PSA plan to commit to an ICE phase out by 2035 the latest, seeing as this is the required date to reach net zero by 2050 in Europe?

   **Tracking target:** *An ICE phase out on or before 2035 is required for Paris-alignment.*

4. Does Groupe PSA plan to target Paris-aligned fully electric sales and increase the ambition of its current 2030 EV sales target of 50 per cent?

   **Tracking target:** *The car manufacturer's current and targeted sales are in line with emission reduction targets set out by Transport & Environment, namely they correspond to a minimum share of 20 per cent fully electric vehicle sales by 2025, 35 per cent by 2027, 55 per cent by 2030, and 100 per cent fully electric vehicle sales by 2035.*

5. Does Groupe PSA have plans to transition away from hybrids and towards fully electric vehicles, in light of a required ICE phase out by 2035 for net zero in 2050? What is the thinking around alternative and synthetic fuels for passenger cars?

**Tracking target:** *The company has a clear hybrid phase out date by 2035 the latest, and out of all its EV sales it targets less than 35 per cent PHEVs in 2025 and less than 25 per cent in 2030. Alternative fuels also require combustion engines, meaning they need to face a similar phase out for passenger cars by 2035.*

## Renault

1. Does Renault plan to set out a strategic plan of intermediate targets on how it aims to achieve its ambition of 70 per cent EV sales by 2025 and an ICE phase out by 2035 the latest?

   **Tracking target:** *The company discloses on more intermediate EV sales targets between 2021 and 2035.*

2. How does Renault plan to transition away from hybrids and towards fully electric vehicles, in light of a required ICE phase out by 2035 for net zero in 2050? Does it have a hybrid target for after 2025?

   **Tracking target:** *The company targets less than 25 per cent PHEVs in 2030 out of all its EV sales.*

3. Does Renault plan to make a clear commitment towards fully electric vehicles and away from the development of alternative and synthetic fuels?

   **Tracking target:** *The company does not develop passenger cars making use of alternative and synthetic fuels.*

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## Authors

**Report authors:** Jana Maria Hock

ShareAction»

shareaction.org
info@shareaction.org
+44 (0)20 7403 7800

63/66 Hatton Garden
Fifth Floor, Suite 23
London
EC1N 8LE