Carmakers STILL failing to hit their own goals for sales of electric cars

Missed targets due to a lack of choice, availability and advertisement

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Summary

Carmakers are failing to achieve their own targets for sales of battery electric and plug-in hybrid models as they do not increase the offer of these vehicles fast enough. Whilst manufacturers complain about a lack of recharging infrastructure and incentives, it is also clear they could have done significantly more to meet their own goals. There are just about 30 battery and fuel cell electric models on sale compared to about 370 conventionally-fuelled models. But it is now clear many models are simply not available for sale in showrooms and others have long waiting times. The very limited choice of electric cars, long waiting times to receive these cars, limited availability and crucially a lack of adverting investment are contributing for carmakers' lack of sales.

Data purchased from leading marketing analytical company Ebiquity shows that carmakers are making very little effort to market electric models. Whilst around 30% of British, French and German consumers say they would consider buying an electric car, just 1.5% of advertisement spend was on zero emission models and 1.4% on plug-in hybrid models in the EU's largest car markets: Germany, France, UK, Italy and Spain. Across the EU, advertising spend is likely to be significantly lower than this percentage as little promotion of zero emission models is likely out of the major new car markets. In Norway (where 4 out of 10 cars sold were battery or plug-in hybrids in 2017), OEM's advertising spend on zero emission cars as a proportion was much higher (10%), indicating companies tending to follow demand rather than creating a new market.

Analysis of future market growth by carmakers shows expectations are for strong growth, such that by 2025, 26% of new cars sold are expected to be electric. But past performance suggests without regulations they will fail to achieve their aspirations. This is why the forthcoming car CO_2 regulation is so important in defining the speed of transition to zero emission solutions and in particular a binding sales target of 20%, either through a sales target or through a crediting-debiting system for Zero and Low Emission Vehicles, along with CO_2 reduction targets of 50-60% in 2030, and 25% in 2025.

1. Introduction

Sales of battery and fuel cell cars are growing strongly in Europe from a low base and in 2017 accounted for 0.9% of new car sales (incl. Norway).[1] Around 30% of British, French and German consumers say they would consider buying an electric car,[2] but sales remain constrained by: a limited choice of models; availability in showrooms; long delivery times; and low levels of advertisement spend on zero emission models. This briefing presents evidence of the current market failures and also compares progress to manufacturers' own sales targets.

2. Availability of zero emission vehicles significantly constrains the market

In 2017, there were just 29 different zero emission models sold (27 battery and 2 fuel cell, according to EEA's 2017 provisional Monitoring CO_2 database), this compares to 370 conventionally-fuelled models. However, the 9 top selling EV models accounted for 91% of sales.[3] Compared to this, the 50 top selling conventional models account for about 57% of the market,[4] illustrating that the current EV market is dominated by a handful of models.

In the electric van market, there is even less choice, with the top two models manufactured by partner brands Renault and Nissan. In 2016, there were 20 electric models on sales compared to 269 ICE models. Despite that, from a very low basis of around 1,000 sales per year until 2014, there has been an increase to 10,500 Europe sales (including Norway) in 2016.[5] France is the largest market for electric vans and makes up nearly half of the EU total with 4,200 units, in part due to a national purchase incentive scheme. A key concern is the lack of choice of different van sizes. Almost all of the electric van units sold in 2016 were class II vans: Renault Kangoo ZE, Nissan e-NV200, DeutschePost DHL's StreetScooter Work, Peugeot Partner Electric and Citroën e-Berlingo were sold, compared to only 80 electric units sold in class I and even less in class III. Due to this lack of choice and availability, Deutsche Post DHL Group developed its own vehicle, the StreetScooter Work that started to be sold to other companies in 2017.

3. Advertisement spend is not at the level required to kick start sales of zero emission cars

A database of advertising spend in 6 major European markets (Germany, UK, France, Italy, Spain and Norway) was obtained by T&E from marketing analytics specialists Ebiquity.[6] The data includes a breakdown of the 2017 advertisement budgets allocated to conventional, hybrid, Plug-in Hybrid (PHEV) and Battery Electric models (BEV) from 60 brands. On average, in the analysed markets of the EU, 6.3% of OEM's advertising budget was spent on electrified cars – that are hybrids,[7] PHEVs and BEVs – but just 1.5% of car

[1] EEA's 2017 provisional Monitoring CO_2 database, April 2018 and Norwegian Advisory Council for Road Traffic's (OFVAS) 2017 car sales statistics

[2] Roland Berger, Automotive Disruption Radar Issue #1, Tracking disruption signals in the automotive industry, April 2017

[3] From the biggest 2017 sales to the lowest: Renault Zoe, Nissan Leaf, Tesla Model S, BMW i3, Tesla Model X, Volkswagen e-Golf, Smart Fortwo Electric Drive, Kia Soul EV and Hyundai Ioniq EV

[4] Automotive News Europe, Europe's Top 50 sellers in 2017, Volume 9, Issue 2, February 2018

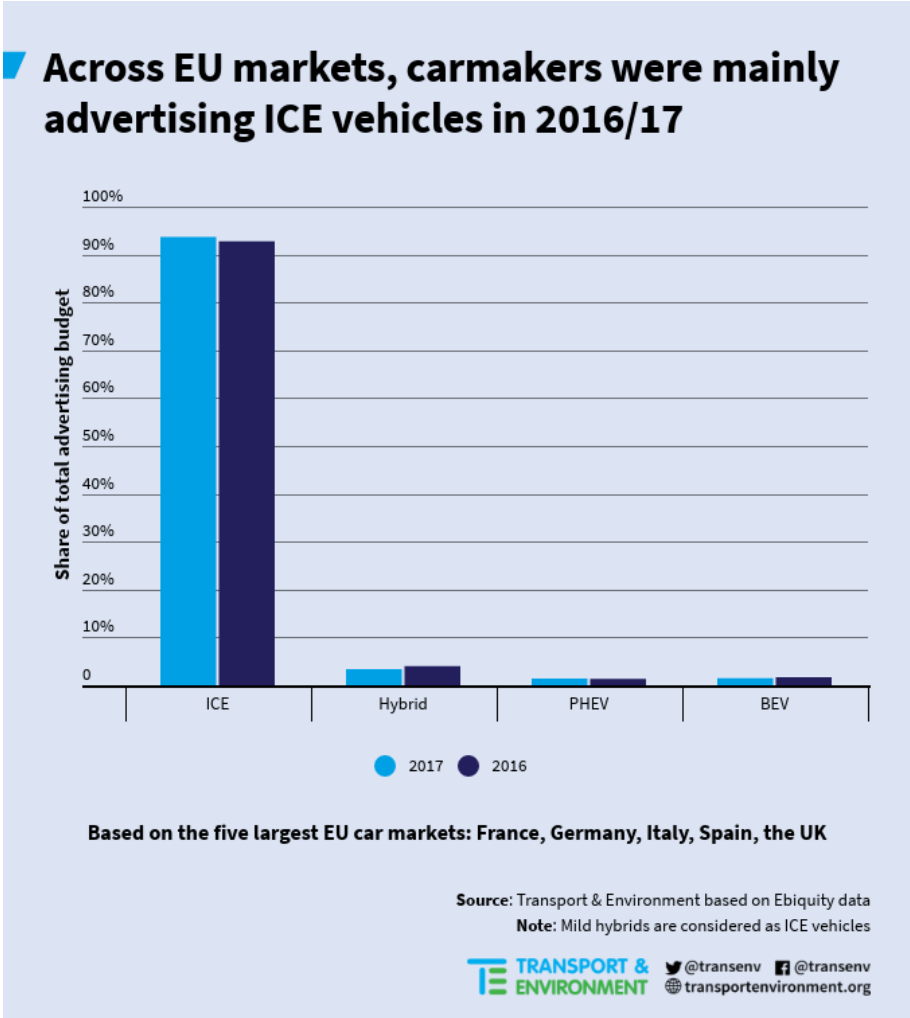
[5] EEA's 2016 final Monitoring CO_2 database, January 2018 and Norwegian Advisory Council for Road Traffic's (OFVAS) 2016 car sales statistics

[6] https://www.ebiquity.com/

[7] Excluding mild hybrid vehicles

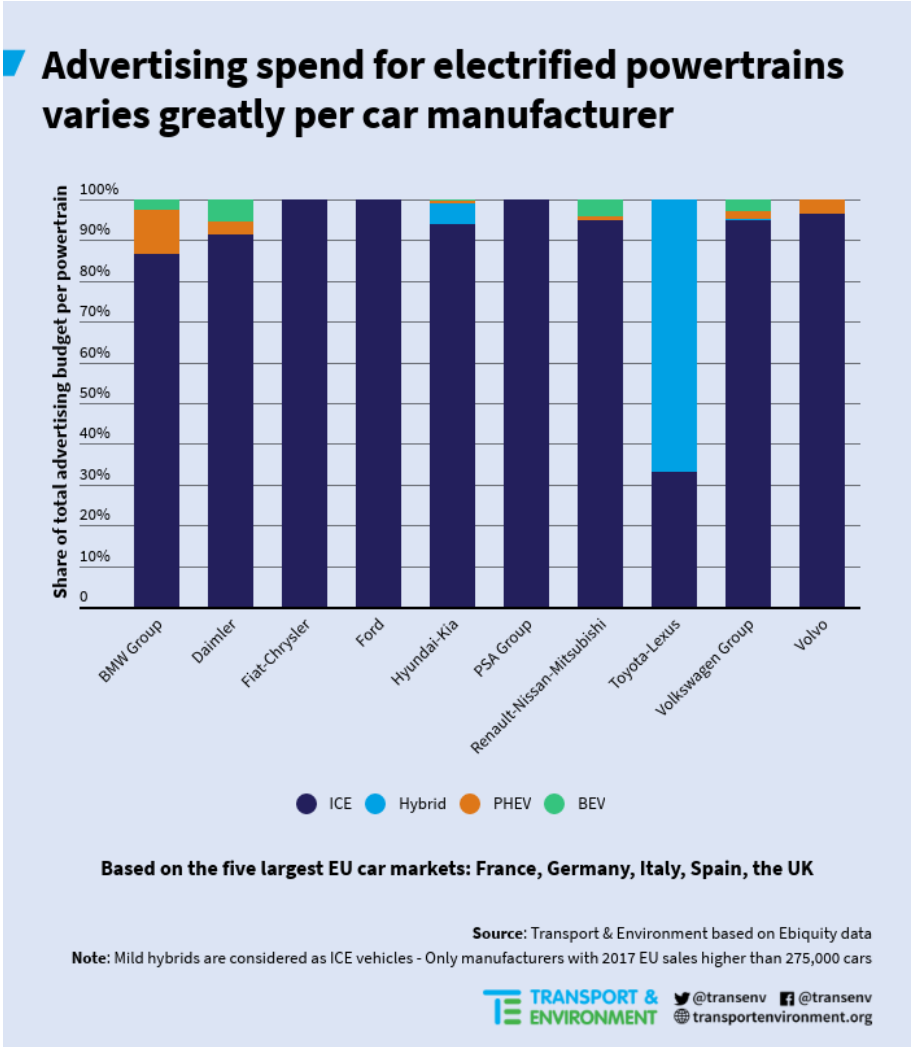
advertisement spend was promoting zero emission models in 2017 (1.4% on plug-in hybrid models). This compares to 93.7% of advertisement budget spent by the same companies on conventionally-fuelled (ICE) models.

A comparison of advertisement spend in 2016 and 2017 shows that across EU and Norway, OEMs have invested even less to advertise electrified cars in 2017 (6.6%), compared to the previous year (7.4% spend on promotion of hybrids, PHEV and BEVs). In Norway, the share of spend remained unchanged (25.5% in 2016 against 25.8% in 2017).



Performance varies widely between companies as shown below. Toyota's high share of 67% is focused on promoting its hybrid range, while other companies have invested some budget into advertising plug-in hybrids: BMW Group has invested 11%, Daimler and Volvo around 3%, despite the latter's announcement of electrifying its entire offer by 2019.[8] On pure battery models, companies' advertisement spend is lower overall, with the highest expenditure by Daimler with 5%, followed by the Alliance Renault-Nissan-Mitsubishi (4%), Volkswagen Group (2.9%) and BMW Group (2.6%). Ford and PSA Group did not market their zero emission or PHEV models. Fiat-Chrysler has not increased its advertising spend despite planning to drop diesels by 2021, and recently announced plans to spend 9 bio € in electrifying Jeep, Alfa Romeo, Fiat and Maserati.[9]

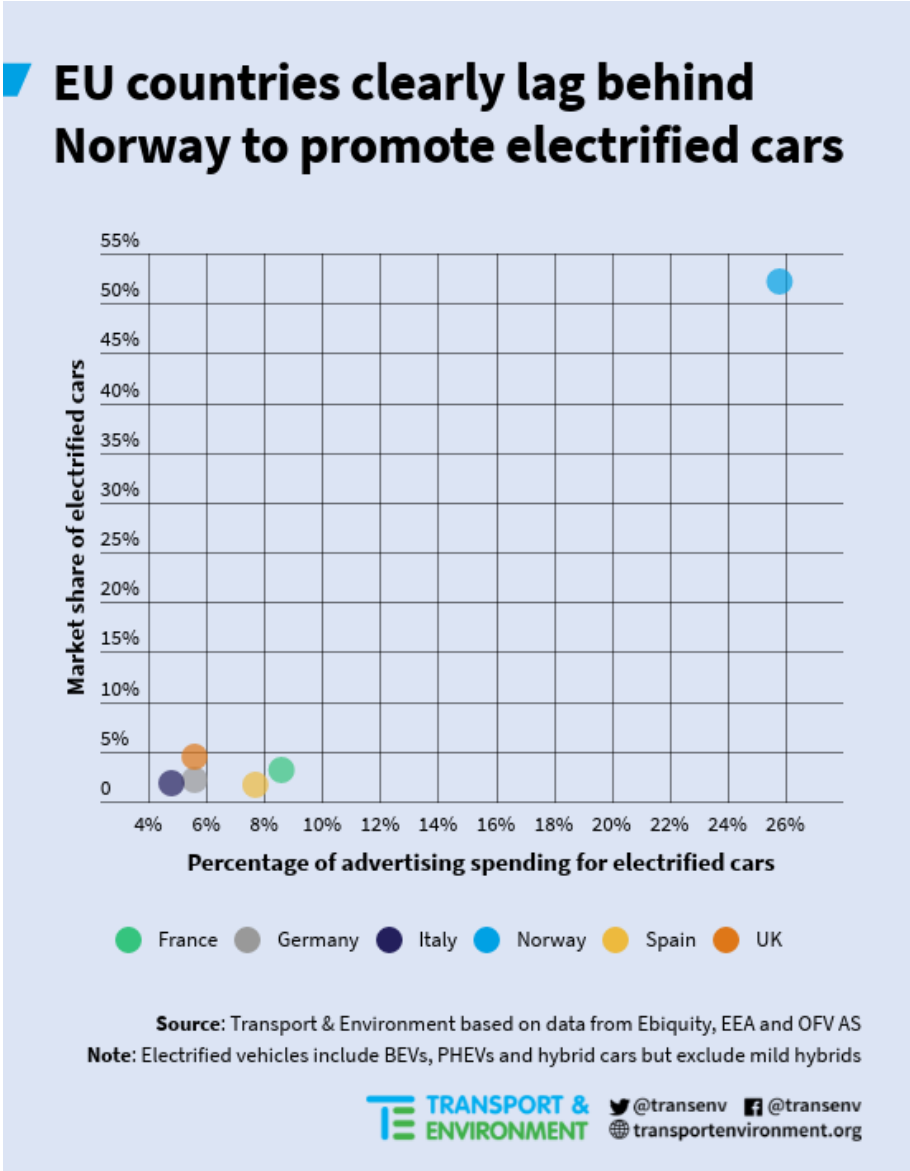
[8] The Guardian, All Volvo cars to be electric or hybrid from 2019, 05/07/2017
[9] FCA group, 1/6/2018



Insufficient advertising spend goes in pair with minimal availability of some models, long waiting times and very few models to view in showrooms. Volkswagen ordered halt in May for Golf and Passat GTE in Germany and the UK, not being able to meet demand with foreseen production, while facing delays in delivering earlier orders.[10] On its website, the company states: "Due to unprecedented demand, leading to long delivery lead times, Golf GTE is currently closed to ordering".[11] In France, all orders for German PHEVs are suspended or subject to very long delays, including blocked orders of the Audi A3 and Q7 e-tron, Mercedes C Class, E Class, GLC and S Class. BMW has stopped Series 3 and X5 orders while the 225xe Active Tourer is available with a 5 month waiting list. Mercedes and Audi argue that they are preparing for new generation of PHEVs for 2019, while BMW's delay is reported part of a "planned renewal of the models".[12]

Recent research confirms supply remains constrained and dealerships reluctant to sell. A recent survey across 126 shopping experiences, at 82 car dealerships in Denmark, Finland, Iceland, Norway and Sweden, showed dealers were dismissive of EVs, misinformed shoppers on vehicle specifications, omitted EVs from the sales conversation and strongly oriented customers towards petrol and diesel vehicle options.[13]

[10] Electrive, VW: order halt for Golf GTE & Passat GTE in Germany, 25/05/2018
[11] www.volkswagen.co.uk , 4/6/2018
[12] Autoactu.com, Hybrides rechargeables : les commandes suspendues chez Mercedes et Audi, 04/05/2018
[13] Nature, Dismissive and deceptive car dealerships create barriers to electric vehicle adoption at the point of sale, 21/05/2018



The 2017 advertising budget for BEVs in Norway, where the government substantially incentivizes their use, are much more significant. On average carmakers spent 25.8% of their advertising budget on electrified models: 10% for ZEVs, 10% for PHEVs, 5% for hybrids and 74.2% for ICE models. The shares also vary greatly by manufacturer. The Alliance Renault-Nissan-Mitsubishi have allocated 64% of their advertisement spend to electrified cars – against 5% in the core EU markets. BMW Group spends 49% of its advertising budget on electrified models in Norway, Hyundai 40% and Toyota 45%. This indicates companies tending to follow demand rather than creating the market.

In comparison to the previous year, Daimler did increase its advertising spend in EU markets for electrified models from 1.4% to 8.5% in 2017, but reduced spend by 12 percentage points to 24.7% of the budget in Norway. Hyundai decreased spending in EU markets from 15% in 2016 to 6% in 2017 and also reduced spend in Norway by 5% to 40% in 2017. It is to be noted that Hyundai is on track to miss its CO_2 targets for 2021.[14]

[14] T&E, CO_2 emissions from cars: The facts, 09/04/2018

4. Carmakers commit to a quarter of European cars sales being electric in 2025

The disappointing advertisement spend is more notable since companies are generally not meeting their own targets for sales of ZEVs. In a previous study,[15] T&E analysed stated commitments and compared these to actual performance. This showed overall sales are around half the level or forecasts made by 2017. No carmaker has met their announced EV sales targets and there have been many announcements of pull-backs or stops in production, such as Daimler stopping the production of the electric B Class, Audi stopping the production of the R8 e-tron, or the very limited availability of the Opel Ampera-e and the slow sales of the Toyota Prius in its plug-in hybrid version. As a consequence, in 2017, only half of the targeted EVs were sold.

Many carmakers' estimates of the projected market shares of EVs in 2025 are bullish but, to be met, will require significant investments in model ranges, their manufacturing output and advertisement.

Car manufacturer	Commitment	Time horizon
Alliance Renault-Nissan-Mitsubishi	30% of sales should be 'electrified'	2022
Audi	Aim to sell 800,000 electric and hybrid cars (about 50% of new sales)	2025
BMW Group	15-25% of sales should be plug-in or battery electric - all conventional vehicles should be mild hybrids	2025
Daimler (Smart)	15-25% of sales in 2025 should be all electric (100% electric in Europe)	2025 (2020)
Fiat-Chrysler	20% mix of hybrid, PHEVs and BEV 40% mild hybrids in 2022	2022
Honda	15% of car sales should be EVs	2030
Nissan	20% of its sales would be zero emission vehicles	2020
Porsche	50% of new sales to be electric	2023
Toyota	1 million ZEVs per year	2030
Volkswagen Group	Electric cars to account for 25% of the sales	2025
Volvo	All new models will be electrified (48V mild hybrid, PHEV and BEV) 50% of sales would be fully electric	2019 2025

[15] T&E, Slow electric car uptake due to lack of choice, availability and marketing spend, 05/09/2017

To estimate each carmaker's announced EV sales for Europe in 2025, global EV sales announcements were adjusted for the European market, averaging the share of EV sales in EU for each manufacturer from 2016 and 2017 compared to global sales. The expected EV share is extrapolated to 2025 based on BNEF's Electric Vehicle Outlook 2018.[16] Overall, the analysis shows carmakers' expected EV shares in the European market by 2025 will lie at round 26% of sales which translates into around 4 million EVs. The table below shows an estimate for all carmakers that made a future sales target announcement for EVs.[17] Overall manufacturers are targeting at more than 1 in 4 cars should be electric by 2025.

Car manufacturer	EV sales (2025)	Share of EVs (2025)
Alliance Renault-Nissan-Mitsubishi	**825,000**	**36%**
Nissan	250,000	*44%*
Renault & Mitsubishi	575,000	*33%*
BMW Group	**292,000**	**28%**
Daimler	**340,000**	**34%**
Fiat-Chrysler	**433,000**	**41%**
Honda	**54,000**	**39%**
Hyundai-Kia	**72,000**	**7%**
PSA Group	**119,000**	**5%**
Citroën, DS & Peugeot	77,000	*5%*
Opel & Vauxhall	42,000	*4%*
Toyota	**66,000**	**10%**
Volkswagen Group	**1,674,000**	**45%**
Audi	326,000	*40%*
Porsche	51,000	*70%*
Škoda	176,000	*25%*
Volkswagen	1,121,000	*66%*
Volvo	**168,000**	**56%**
TOTAL	**4,086,000**	**26%**

5. A binding European sales target for low and Zero Emission Vehicles drives investment

The car industry has repeatedly talked down the growth in electric cars and claimed there is no consumer demand blaming the lack of recharging infrastructure.[18] However, consumer surveys and studies of the rollout of public recharging points across the EU show that whilst the network is not complete there are an appropriate number of public recharging points for the number of cars on the road.[19] This short report

[16] Bloomberg New Energy Finance, Electric Vehicle Outlook 2018

[17] Note that the following car makers/brands have not announced targets for the share of EVs: Ford, Jaguar-Land Rover, Mazda, Seat, Subaru and Suzuki. Tesla, as a producer of EVs only, is also excluded as this study focuses on traditional OEMs. However, Tesla contributes, with sales of 28,183 cars, to about 10% of the overall EV sales that will rise to almost 800,000 sales, i.e. 30-fold, according to the company's plans. Adding sales of other smaller manufacturers, the total EV sales figure for the year 2017 was 306,143.

[18] ACEA, Insufficient Support for Electric Vehicle Infrastructure Hampers Uptake, 12/4/2018

[19] Platform Electromobility

shows that contrary to industry claims, the primary reason for the limited growth in EVs sales is the limited supply. There is insufficient choice with few electric cars outside the C segment and few vans that are not Class II. There are few cars displayed in dealerships and salespeople have a "can't do" attitude to selling EVs. There is also minimal advertising spend to promote the vehicles. Carmakers do not want EVs to be a success at present as this would require significant investment in new manufacturing capacity and this investment is being made in China, not in the EU.

There are however signs that as a result of regulation, things may be about to change. T&E estimates that, to comply with 2020/21 regulations, carmakers will need, on average, to sell 5-7% plug-in vehicles because they have failed to fit sufficient technology to cars to improve their efficiency. To make use of the super-credit flexibility that double counts EV sales in 2020, there will be a huge increase in the number of electric models available with over 100 battery models on sale by 2021. The regulation, and high penalties for non-compliance, are succeeding in lowering emissions (although not as much as originally hoped due to abuses of the test).[20]

In the absence of regulation, carmakers are very unlikely to be launching so many models into the market or allow sales to increase from their current niche. With so many electric cars on the market in 2020 and the necessity for these to sell to help avoid fines, there is likely to be considerable competition and possibly tight margins. Advertising spend is likely to rise, dealers will be set targets for sales (as they are for other models). All this will happen as a result of the regulation.

The impact of regulation on driving the market for plug-in cars has also been clearly demonstrated in China and California. China's EV quota is spurring a wave of investments by OEMs increasing production of electric cars and led by VW's decision to invest €15 billion in building 6 EV factories in China – half of its €34 billion global investments.[21] BMW has announced that it will produce the iX3 in China "following the market".[22] Volvo Cars' CEO said: "China's electric future is Volvo car's electric future".[23] Ford has already created a joint venture to develop and produce full electric cars for the Chinese market, aiming at offering 70% of its models in an electric version by 2025.[24] With full production volumes of EVs being built in China, the cost of manufacturing there will be significantly lower than on the low volume production lines in use in Europe. If the EU market remains small, it is therefore likely that companies will look to supply the EU market in part from importing cars produced in China. This will result in a shift in jobs and value from the EU to China.[25]

The US EV market is also growing strongly (sales increasing by 37% in 2016), mainly driven by California and 9 other US states that already incentivizes ZEV sales with a ZEV credit scheme. California aims at 22% of credits at zero emission vehicles in 2025.[26] The Californian scheme allows carmakers to trade credits they earned by selling ZEVs, providing flexibility for companies that have either not met or exceeded their target and favouring EV specialist new market entrants.

But what will happen in Europe after 2021? The CO_2 regulation will continue at the same level, but in the absence of further tightening through the post-2020 proposal, it is unlikely the carmakers will actively grow the market for plug-in cars further, unless battery prices decline quickly and they can significantly increase margins to more than those on conventional cars. In summary, in the absence of further effective

[20] T&E, Carmakers delaying more efficient models until 2019 to maximise profit, but most remain on track to meet 2021 CO_2 targets, 09/04/2018
[21] Nikkei Asian Review, Volkswagen to invest $18bn in China by 2022, 24/04/2018
[22] WirtschaftsWoche, „Wir müssen Kundendaten besser nutzen", 07/05/2018
[23] Volvo, Volvo Cars aims for 50 per cent of sales to be electric by 2025, 25/04/2018
[24] Electrive, Ford nennt Elektrifizierungspläne für China, 06/04/2017
[25] T&E, How will electric vehicle transition impact EU jobs?, 09/2017
[26] California Air Resources Board, Zero Emission Vehicle standards for 2018 and subsequent model years

regulation, the market for plug-in cars will stagnate, this is why post-2020 standards and particularly a 2025 target is so important to continue to drive the transformation.

The car industry is campaigning to scrap the Commission's proposed 2025 target. If this was successful, the 2021 target would remain in force until 2029 with no regulatory reason to accelerate the plug-in market until then. Progress towards the 2020/21 targets shows the car industry back-ends emissions reductions until just before the target must be met.[27]

Alongside the 2025 target, a binding ZEV target of 20% of EV sales for 2025 (or two-way adjustment[28]) is needed to both reward carmakers trying to create the market for low and zero emission vehicles and to require those not making this investment to improve the efficiency of their conventional vehicles more. It is also important to ensure PHEV models are not over incentivized by sticking to the Commission's proposal to reward PHEVs with emissions below 50g/km in proportion to their emissions, such that a vehicle with CO_2 emissions of 0g/km (BEV) counts 1 and a PHEV with CO_2 emissions of 25g/km counts 0.5.

Experience from Europe regarding the 2020/21 targets and regulations in China and California, all are driving the market for low and zero emission. National incentives and recharging networks are also needed but, in the absence of regulation, manufacturers will not make available cars to buy or market and promote their take-up. In the absence of a significant EU market, a higher proportion of the small EU sales of plug-in cars will be met through imports rather than from EU manufacturing, impacting on jobs and competitiveness. The shift to plug-in vehicles is a challenging transition but is better made sooner than later, if Europe is to remain a major global vehicle manufacturing and research centre.

Further information

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[27] T&E, Carmakers delaying more efficient models until 2019 to maximise profit, but most remain on track to meet 2021 CO_2 targets, 09/04/2018
[28] DG Clima, Impact Assessment of proposal for cars and vans CO_2 standards