

Greening Vehicle Excise Duty

Response to the Treasury Consultation

June 2020

Summary

Transport is the UK's biggest single source of CO₂ with approaching half of national CO₂ emissions from cars. The government has announced its intention to end sales of cars with engines by 2035 at the latest. Achieving such a rapid shift will require: regulations that mandate the car industry to sell increasing numbers of zero emission vehicles (ZEVs); progressive tax policies to stimulate customer demand; and, interventions to enable the fast rollout of adequate charging infrastructure. This briefing responds to the Treasury consultation, Vehicle Excise Duty: a call for evidence, which is both extremely timely and generally makes good proposals that will move the market towards the purchase of more low and zero emission vehicles. In recent years new car CO₂ emissions have been rising and the UK has slipped in rankings with other European countries. The purchase taxes levied on new cars in the UK are also lower than other major car buying countries - including Germany.

Increasing 1st year VED and introducing a more granular approach to tax bands, as proposed, are likely to drive the market in favour of lower CO₂ cars. In addition, earmarking some of the revenues raised from the higher 1st year VED on conventional cars to fund the plug-in car grant in coming years would encourage the shift to zero emission models. This change would send a clear message to new car buyers that if they choose a zero emission car the government will support their purchase with a grant. If they choose an ultra-low emission model they will pay no purchase tax. But if they choose conventional technology the higher the emissions the more tax you will pay to help fund the shift to zero emission cars. A clear message is essential to increase the effectiveness of the policy.

The benefits of linking VED to CO₂ emissions after the first year are much more marginal as there is virtually no import of second hand vehicles into the UK market. A better environmental outcome could be achieved by linking VED (after the first year) to the air pollution emissions from the car. A five band system would actively encourage the scrapping of the most polluting older cars by requiring these to pay higher taxes in recognition of their higher air pollution emissions. This should be complemented by a requirement that cars more than 15 years old (excluding heritage models) cannot be sold-on but must be scrapped when no longer required by their current owner.

The proposals to link VED to CO2 for motorcycles are unlikely to achieve any significant reduction in emissions from powered two-wheelers and do not focus on their principal environmental issues: air pollution and noise. Such a scheme is marginal and a better approach would be to announce the end of sale of new powered two-wheelers with engines by 2030 and a plug-in bike grant to support the transition.

1. This briefing

This briefing responds to the Treasury consultation: Vehicle Excise Duty: a call for evidence. It has been prepared by Transport and Environment (T&E), Europe's foremost sustainable transport think tank and environmental NGO. T&E is a federation of almost 60 national organisations across Europe campaigning for greener transport and now has staff based in the UK.

T&E has undertaken a range of past [research](#) on the impact of vehicle taxation across Europe and on policies to stimulate the uptake of low CO2 cars. It has also provided previous input to the Treasury on ways to reform VED and specifically fund purchase grants for zero emission vehicles through [reform](#) of 1st year VED. We have also been closely involved in defining the WLTP test and responded to your previous [consultation](#) on this topic.

The Treasury consultation largely concerns CO2 emissions from cars and how to drive the market to lower and zero emission vehicles. However, cars are also a major source of air pollution, particularly older vehicles. [96%](#) of the air quality management areas in the UK arise from traffic pollution. In responding to the questions posed T&E has therefore sought to balance the needs to encourage a shift to lower and zero emission vehicles and tackling the UK's air pollution crisis that is responsible for up to [36,000](#) premature deaths a year. The Coronavirus health crisis makes tackling air pollution even more urgent. Mortality rates for the disease are [higher](#) in areas of higher air pollution. Another tragic legacy of the disease will be large numbers of patients suffering respiratory disease as a result of contracting the virus that will be particularly affected by air pollution. In striving to achieve net zero emissions the need to tackle the UK's air pollution hotspots is now even more urgent and should be balanced against the need to address the climate challenge.

2. Reforming first licence VED rates

This section responds to Section 2 of the consultation and specifically the questions:

- Why are first licence VED rates currently failing to discourage many car buyers from making higher emitting choices?
- What are your views on higher first licence VED rates for more polluting vehicles?
- How would this impact the vehicles that manufacturers sell in the UK?
- What are your views on the potential ways of enhancing the impact of first licence VED outlined above?

2.1 Why is progress on new car CO2 emissions so slow?

Figure 1 and Table 1 illustrates both official CO2 emissions from new cars measured in laboratory tests and [real world](#) emissions. The data illustrates that the average CO2 emissions from new cars have only fallen significantly over the last two decades in discredited laboratory tests and not on the road. Similarly, improvements in NOx emissions from diesel cars also failed to improve on the road with the introduction of Euro 5 and Euro 6 vehicles until the latest version of the Euro 6d regulation.

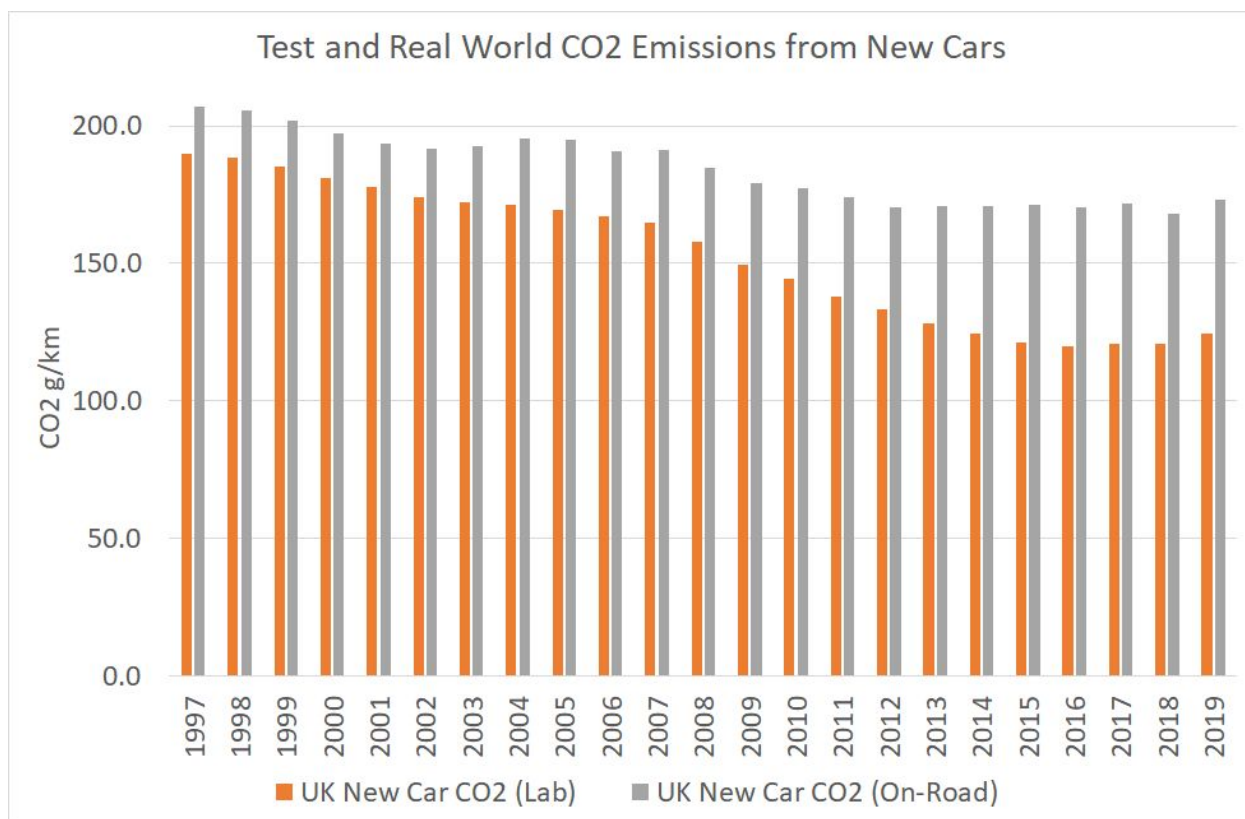


Figure 1: UK new Car CO2 emissions trends

Decade	Official improvement new car CO2 emissions g/km	Real world improvement new car CO2 emissions g/km
1999-2009	-35.5g/km (-19%)	-22.3 g/km (-12%)
2009-2019	-25.0g/km (-17%)	-6.3g/km (-3%)

Table 1: Official and [real world](#) changes in new car CO2 emissions

It is important from both an environmental and equity perspective to take account of the real world emissions from cars and to design tax systems accordingly. Whilst T&E supports the use of the WLTP test as the basis for setting future CO2 based vehicle taxes, the failure to improve real world emissions is an important consideration in the design of effective tax schemes and the level of tax that should be levied.

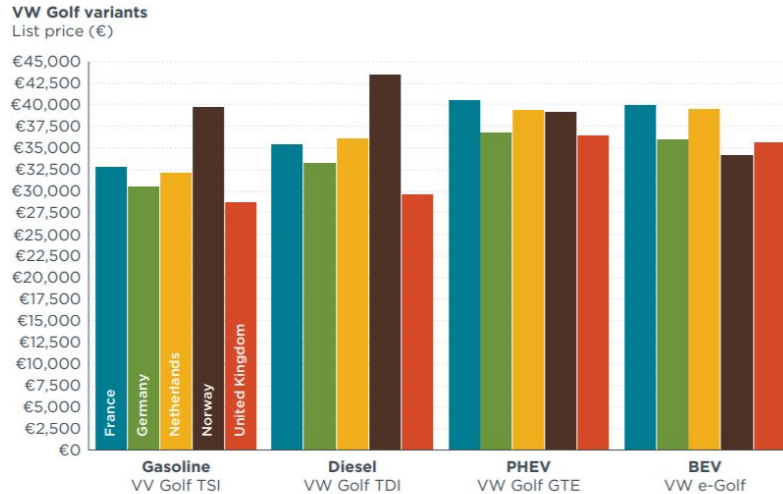
There are several reasons why progress has been much slower in the last decade than anticipated:

1. The manipulation of NEDC tests to lower CO2 leading to less technology being deployed on vehicles to deliver real world CO2 emissions reductions
2. The weakness of EU regulations for 2015 that required only a small improvement in CO2 emissions; and choice of most carmakers to delay the introduction of lower CO2 technologies to deliver the 2020/1 targets to the last possible moment
3. The poor availability of zero and ultralow emissions vehicles and limited supply of hybrids throughout the 2010's
4. The weak cost signal provided by VED and 1st year VED and unhelpful past reform of VED that weakened the link to CO2 emissions
5. The fuel duty freeze that has artificially reduced fuel prices and added the equivalent of [2.5 million cars](#) onto the UK's roads reducing the cost of fuel and benefit of more efficient cars
6. The strong trend to sales of [SUVs](#) - an effect that has had a much greater impact than the decline in diesel sales.

The weak signal created by VED and its misjudged past reform has certainly contributed to the slow progress, but other factors are almost certainly more important. Reform of VED will not on its own transform the new car market - although a much stronger VED tax signal will make a difference.

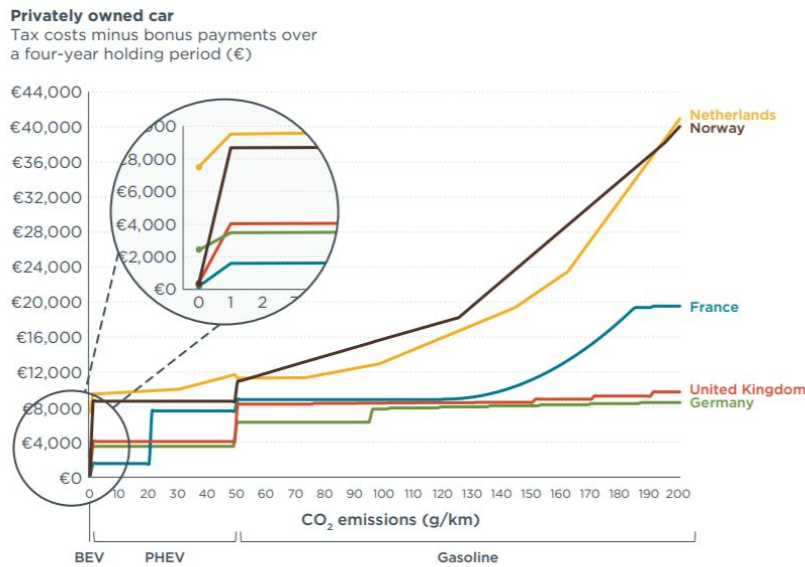
2.2 International comparisons

Comparison of car purchase prices in 5 different European markets by the [ICCT](#) (Figures 2 and 3) shows that the UK has the lowest taxes for conventional cars - notably even lower than Germany. Only the cost of battery electric cars (BEVs) in Norway is lower than the UK. There is considerable potential to increase taxes in the UK - particularly for conventional cars.



List prices including VAT as well as registration tax in the case of the Netherlands and Norway for the VW Golf vehicle variants selected for our analysis. Prices based on car manufacturers' data, before the application of initial one-time subsidies.

Figure 2: Comparison of list prices including taxes for VW Golf variants in 5 western European markets (ICCT)



Comparison of tax liability for a privately owned car depending on CO₂ emissions. Vehicle specifications for the battery electric vehicle (BEV), plug-in hybrid electric vehicle (PHEV) and gasoline bands are based on comparable VW Golf models. Applicable for the tax year 2018 (starting April 2018).

Figure 3: Comparison of taxes minus grants over 4 years in 5 western European markets (ICCT)

Compared to other European countries the UK ranking on new car CO2 emissions has been sliding. In 2009, the UK was [11th](#) in the ranking of 27 countries. By 2018, this has slipped to 18th with average CO2 emissions of 124.5g/km. The Netherlands ranked 10th in 2009 (15th in 2008) but by 2018 had the lowest new car CO2 emissions of all EU countries (105.5g/km). The Netherlands has adopted strong policies to discourage buying of high emitting cars and supported the shift to zero emissions. France operates an effective bonus-malus scheme ranking 6th in the EU with average CO2 of 112.1g/km. Germany ranked 26th with 129,4g/km, tax systems in Germany are very weakly linked to CO2 emissions. The ICCT study highlights the characteristics of effective car taxation schemes to drive the shift to lower CO2 and ZEVs:

- Creating significant tax advantages for zero & low-emission vehicles **at the point of purchase**, with a bigger bonus provided for ZEV
- Ensuring continued tax benefits for zero & low-emission vehicles **during their use** (this refers to maintaining high fuel taxes and low electricity taxes)
- Accounting for the emissions of a vehicle as part of the **company-car tax system** (the UK is doing this very effectively)
- Balancing and regularly **re-adjust** the tax system to be self-sustaining.

T&E advice on the design of future VED and first year VED builds on these principles of effective policy.

2.3 The impact of VED and first year VED on the car market

Analysis of the costs of car ownership in the UK shows VED represents just [3%](#) of the total costs (7% of costs excluding purchasing or finance). Even a doubling of VED would therefore make only a relatively small impact on the costs of owning the car. For private car buyers (half the new car market) the key purchase criteria are brand, appearance, size and safety. Only then are fuel costs considered with environmental considerations a priority for only a minority of buyers.

A typical new small car with an [engine](#) is priced on the road between £12,000 - £17,000 with battery electric vehicle ([BEV](#)) [equivalent](#) around double this (£25,000 - £30,000). A medium sized engined car typically costs £22,000 - £36,000 and a similar BEV generally £30,000 - £40,000. The average SUV is £23,000 - £28,000 and a large BEV £60,000 - £70,000. First year VED, strongly differentiated for CO2, in combination with the Plug-in Car Grant, can help to reduce the current price differential to support sales of BEVs over the next few years until manufacturing costs for BEVs reach parity with conventional cars. Behavioural economics also shows that the design of taxes can have impacts beyond their financial value. The design and communication of VED alongside other measures could therefore make a disproportionate impact on private customer choices to encourage the shift to ZEVs and lower CO2 vehicles.

Fleets and leasing companies, that also represent about 50% of the market, make purchase choices based upon the total costs of ownership. Leasing prices for an electric car are typically [20%](#) more at present but the very low Benefit in Kind rates for BEVs are having a significant impact on purchase choices. For leasing, the residual value of the car when the first lease ends plays a key role in the total cost of ownership. VED measures that help to enhance the residual value of low and zero CO2 vehicles will therefore encourage the purchase of lower emission new vehicles. However, once a new car has entered the car parc it will continue to be driven until it is scrapped, typically after 18 years. Higher rates of VED on older cars are unlikely to have a significant impact on the use of these cars or the age they are scrapped. Fuel prices and limits on the age of cars (excluding heritage models) are likely to be more effective policies and are considered further in Section 3.

Most new cars now have low air pollution emissions for NOx and particulates compared to older vehicles (although they could be lower). However, a minority of end of series diesel cars are still not RDE2 compliant (Euro 6d). T&E is therefore in favour of significantly increasing the premium for non RDE2 compliant diesel cars to at least £1000. These cars have [significantly higher NOx emissions](#) and now represent a small share of the new car diesel market. Most cars being sold today will be on the road in the period 2035-40 and manufacturers have had ample time to complete upgrades to exhaust treatment systems. **The Treasury should make clear there is no room for more dirty diesels on the UK's roads by significantly raising the tax premium for non-RDE2 compliant diesels.**

2.3 Design of an effective first year VED scheme

For first year VED to drive significantly lower CO2 emissions from new cars it needs to achieve 3 objectives:

1. To support the shift to ZEVs - T&E proposes that the revenues raised from 1st Year VED should be used to fund the Plug-in Car Grant providing a sustainable basis for funding in the medium term.
2. It must encourage buyers of high emission cars to choose a much lower CO2 model, such as a plug-in hybrid. To drive this shift requires levying higher levels of tax on the most polluting vehicles and no 1st year VED tax on PHEVs
3. It must encourage buyers of mainstream vehicles to opt for lower CO2 models - this requires bigger tax differentials for each addition g/km and ideally a shift to a graduated scheme as proposed by the consultation.

Figure 4, illustrates cumulative CO2 emissions of UK sales for 2019 and T&E's forecast of the likely change in distribution in the next few years. These forecasts assume: EU CO2 emissions regulations are met in 2020 & UK sales are at the EU average; the UK either continues in the EU car CO2 regulation after 2020 or develops an equivalent national scheme; and in 2024 the UK commences its own ZEV mandate with the aim for a complete phase out of cars with engines by 2035.

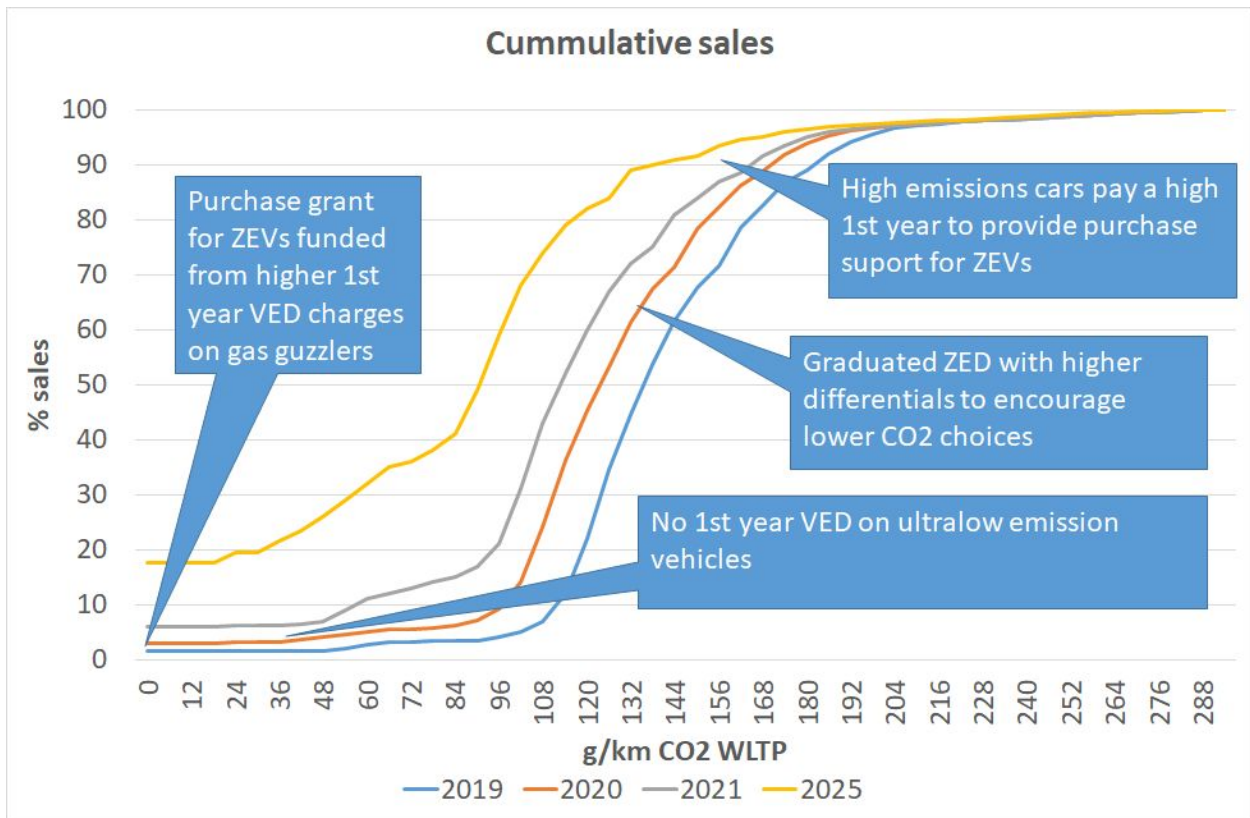


Figure 4: Forecast changes in future new car CO2 emissions and how 1st year VED reform can drive the transition

T&E has applied the principles illustrated in Figure 4 to propose a series of new 1st year VED rates. The approach is summarised in Table 2 and illustrated in Figure 5 which shows the evolution of the first year VED scheme compared to the current system.

CO2 g/km	1st year VED 2021	Average proposed tax 2021	Average current VED 2021	Explanation
0	-£3000	-£3000	£0	Plug-in grant continues to be offered for ZEVs meeting existing criteria. Value of the grant to be reduced over time
1-50	£0	£0	£12	No tax and no grant on ultra-low emission vehicles
51-100	£25 +£5 /g/km	£150	£68	Small increase in tax with CO2 emissions
101-140	+£10 /g/km	£475	£182	Steeper increase in tax with CO2 emissions and higher level of tax overall to encourage the purchase of lower emission vehicles
141-180	+£20 /g/km	£1,075	£505	Steeper increase in tax still with CO2 emissions and higher level of tax overall to encourage the purchase of ultra-low emission vehicles
>181	+£40 /g/km	£2,600	£1,446	Steeper increase in tax with CO2 emissions and higher level of tax overall to encourage the purchase of ultra-low emission vehicles

Table 2: Proposed design of reformed 1st year VED in 2021

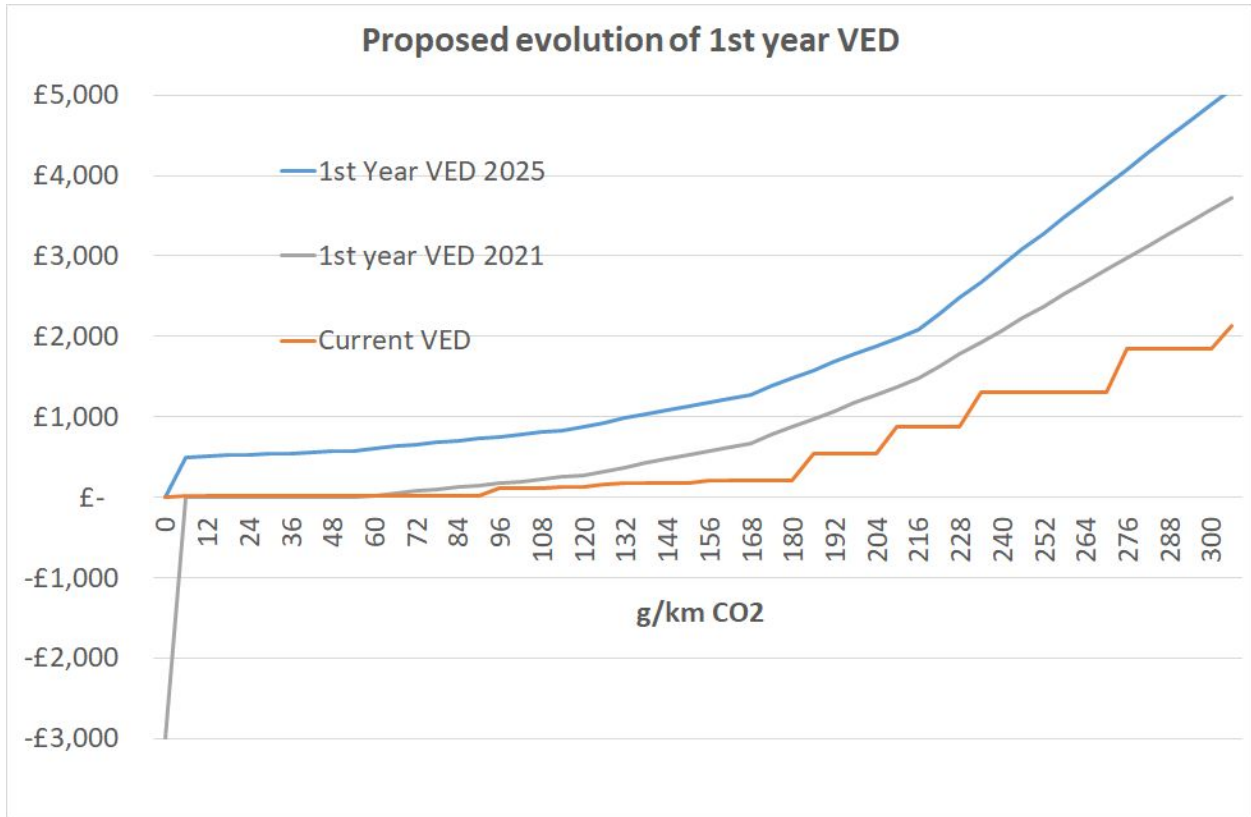


Figure 5: Proposed evolution of 1st year VED

The proposed scheme for 2021 can be defined by a polynomial where:

$$y = 0.0192x^3 + 0.6304x^2 - 9.6621x + 29.252$$

where x is the CO2 in g/km >0g/km.

The proposal provides 3 simple messages for car buyers. If you choose:

- A zero emission car the government will support your purchase with a grant
- An ultra-low emission car (below 50g/km) you will pay no tax
- Conventional technology the higher the emissions the more tax you will pay to help fund the shift to zero emission cars.

Table 3 illustrates the net costs and revenues of such a scheme in coming years. It shows by raising the 1st year VED on conventional vehicles it is possible to still maintain the tax receipts and fund the plug-in car grant. As ZEV sales grow the plug-in grant would need to be progressively reduced as illustrated for 2024 where the grant is reduced to £1000 after which it

could be ended. Overtime it would also be necessary to amend the tax payable for each g/km as CO2 emissions from new cars progressively decrease.

	2019	2020	2021	2024 (£1000)
BEV total grant	-£112,500,000	-£225,000,000	-£ 450,000,000	-£437,500,000
ICE total tax	£ 1,341,750,000	£1,093,312,500	£922,500,000	£570,250,000
Balance	£1,229,250,000	£868,312,500	£472,500,000	£132,750,000
Current VED rates	£576,062,500	£480,262,500	£417,237,500	£273,025,000

Table 3: Net costs and revenues compared to current VED rates (assumes 2.5million sales)

By 2025, the Plug-in Grant is phased out and ZEVs pay no 1st year VED with the lowest CO2 PHEV charged £500 and charges rising with the CO2 emissions from the car. This retains the incentive to choose a ZEV over a PHEV.

Raising first year VED will unquestionably be unpopular with carmakers that will argue it will reduce the new car market and increase the age of the vehicle fleet. However, the impact upon the new car market is likely to be small. The average price of a new car is now £29,000 and the average tax of the proposal would be £369 (based upon 2021 figures), this represents just 1.5% of the purchase price. In addition, some of the tax revenues would be redistributed to support the purchase of ZEVs that will stimulate their sale. Section 2.3 also showed the tax levied on cars in the UK is less than in other major EU markets including Germany. The proposed reform is therefore proportionate.

The UK has [announced](#) it intends to deliver a complete phase out of cars with engines by 2035, at the latest. Such a policy will require a rapid ramp up in sales of ZEVs to about 17% by 2025 and 69% by 2030. To drive this shift supporting the purchase of EVs will be essential along with discouraging ICE sales. The proposal to fund the plug-in grant through higher 1st year VED charges on conventional cars provides a mechanism to stimulate the market in early years.

3. Greening vehicles after first registration

This section relates to reform of VED after 1st registration and specifically the questions:

- For new vehicles, do you think that the government should base ongoing VED liabilities on carbon emissions, rather than just at first registration?
- Do you think the government should reform VED rates for vehicles registered from 1 April 2017 so their liabilities reflect their carbon emissions?
- Are you aware of any unintentional perverse environmental incentives that have developed over time relating to VED on vehicles first registered prior to April 2017?
- Do you think the government should take any action relating to this?

Once a vehicle enters the UK vehicle parc it will remain in use until it is scrapped. There is no significant import of second hand cars into the UK market, largely because UK models are right hand drive and there is no equivalent market in Europe to import vehicles from. Analysis of the current makeup of the vehicle fleet does not show any significant tendency for diesel cars to remain in use for longer than petrol cars despite their greater durability or typically lower annual VED rate. Figure 6 illustrates the age and powertrain (petrol or diesel) of cars in the UK fleet in 2018 which follows the pattern of new car sales in past years.

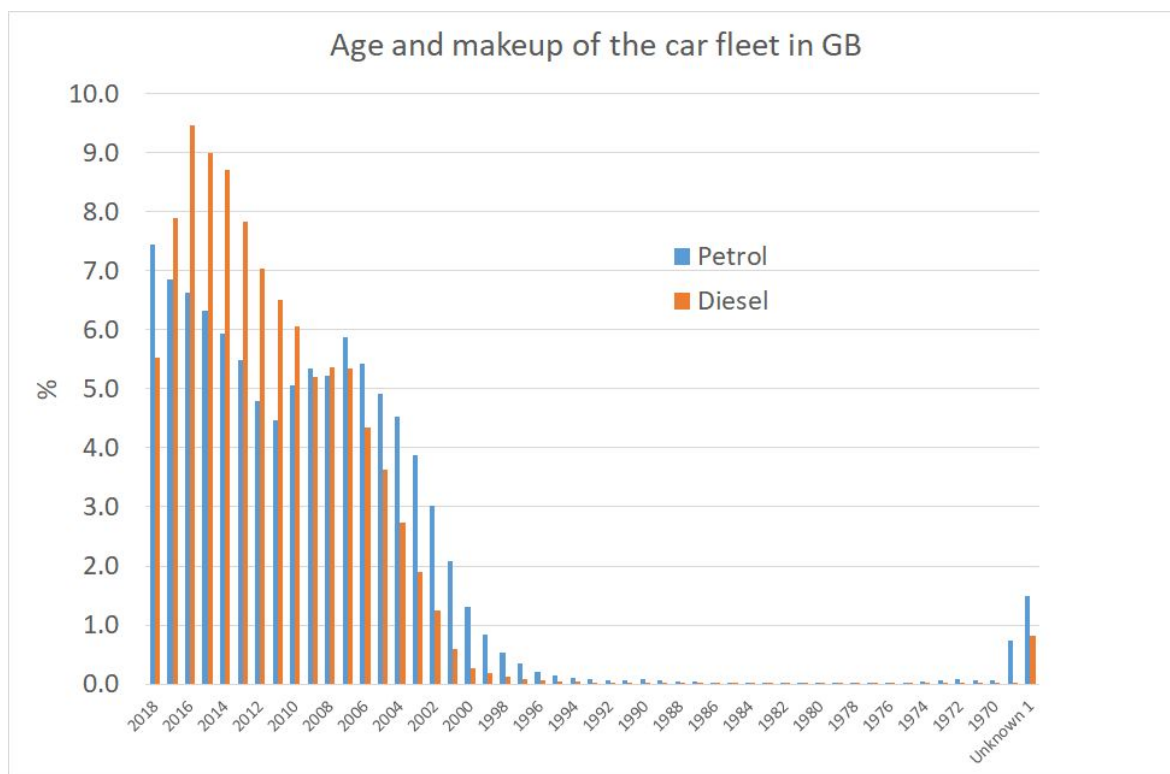


Figure 6: Share of the GB car fleet by age and engine

The data can also be used to calculate the distribution of the age of cars on the UK's roads and shows one-half are 7 or less years old; three-quarters are 12 or less years old; and just one in ten are more than 15 years old. The age of the car has a notable impact on the air pollution emissions for 2 reasons: the age of the car relates to the Euro standard (which has some bearing on the air pollution emissions from the car); and as a car ages the exhaust treatment and engine degrade and emissions typically increase. Specifically using remote sensing and other studies of real world air pollution emissions (illustrated in Figure 7) shows:

- Diesel cars before 2010/11 (Euro 5) have much higher pollution with both high NOx and high particles (these cars do not have a diesel particle filter)
- Only the most recent Euro 6d diesel cars have low NOx, there is little differences between Euro 4, 5 and 6 diesel cars NOx emissions - this was exposed by the Dieselgate scandal
- More petrol cars have progressively higher NOx emissions as they age. Two-thirds of petrol cars 10 years or older have significantly raised NOx emissions.

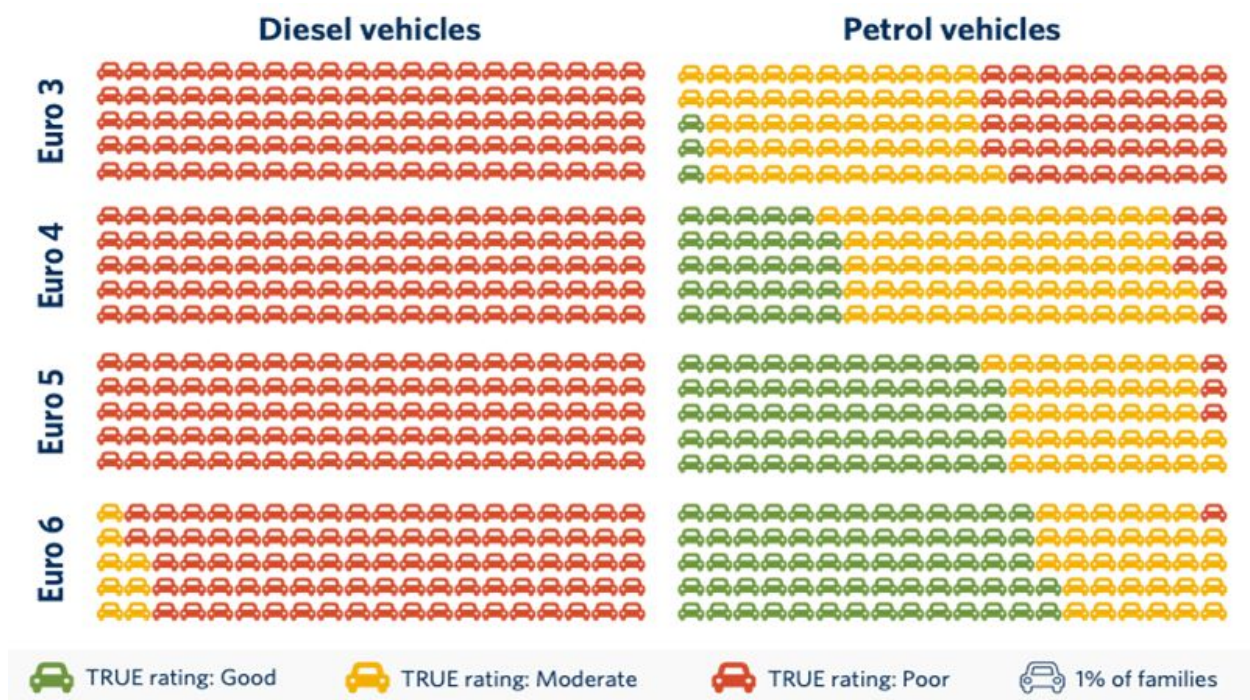


Figure 7: Results of remote sensing of real world car NOx emissions ([ICCT](#))

Section 2.1 showed that there has been no improvement in new car CO2 emissions on the road for a decade. In addition, the CO2 emissions of the car appear to have no impact on its longevity or use after the first owner. Whilst linking CO2 to the VED for cars after registration may have a small effect on

the residual value (and therefore the CO2 emissions of new lease cars) this lower CO2 from these cars can more directly be achieved through more effective 1st year VED rates as described in Section 2. Strongly linking VED after the first year to CO2 emissions is unlikely to have a significant impact on the use of the car or how long it remains in use before being scrapped. Higher rates of excise duty to raise fuel prices would have a much greater impact on the CO2 emissions of the car by affecting its use.

A more effective environmental approach is for VED (after the first year) to be linked to the air pollution emissions of the car rather than the CO2 emissions as imposing higher tax on more polluting cars will encourage these to be scrapped earlier. To practically achieve this a system with five bands is proposed linked to the relative real world emissions of the main pollutants (particles and NOx). The principles of the scheme are:

- Band 1 - ZEVs that have no tailpipe emissions
- Band 2 - includes new Euro 6d diesel cars and Euro 5 and 6 petrol cars which now have similar NOx and particulate number emissions (excluding unregulated ultrafine particles)
- Band 3 - Euro 4 petrol cars typically have higher NOx emissions as the car ages
- Band 4 - Euro 6 (except Euro 6d) and Euro 5 diesels typically have very high on road NOx emissions
- Band 5 - restricted to petrol cars without a three-way catalysts (pre-Euro 4) and diesel cars without a diesel particle filter (pre-Euro 5).

By levying a higher rate of VED on more polluting cars there would be an incentive for these to be scrapped as their annual running costs would become increasingly expensive. Figure 8 illustrates the proposed banding scheme for VED after the first year.

Band	Petrol (including hybrid)	Diesel	Zero-emission
Euro 6d	2	2	1
Euro 6	2	4	1
Euro 5	2	4	1
Euro 4	3	5	1
Euro 3	5	5	1
Euro 2 or older	5	5	1

Figure 8: Proposed bands for VED

Now the UK has left the EU it could also impose a legal limit on the lifetime of a car. Such an approach could initially prevent the sale of any car more than 15 years old (excluding heritage models) other than for scrappage. This would eliminate the 10% of cars older than 15 years more quickly and help to reduce pollution levels.

Either approach would be regressive in so much as older cars are predominantly driven by less wealthy individuals. However, high levels of urban air pollution are a serious health and environmental issue in the UK with vehicles the dominant source of NO_x as demonstrated by the cleaner air in [London](#) during the lockdown. There is emerging evidence of higher mortality rates from Coronavirus in areas of high [fine particulates](#) and many recovering patients likely to be left with long term respiratory illness and greatly impacted by air pollution. As a result, air pollution is likely to have a much higher environmental profile in coming years. Linking VED to vehicle emissions would show the government is as focused both on tackling air pollution and achieving climate goals.

3. Motorcycles

This section considers the scope for further changes to VED and the questions:

- Do you think motorcycles should be taxed based on carbon emissions?
- What impact would this have on the behaviour of those looking to purchase a new motorcycle?
- Should the government continue to take account of NO_x emissions if it reforms the VED system?

The question, “Is the signal to purchase RDE2 compliant diesel cars strong enough?” was answered in Section 2.

Motorcycles represent a tiny proportion of UK CO₂ emissions and typically emit less CO₂ per km than cars. On road air pollution emissions from motorcycles can however be significantly more than cars. The impact of CO₂ bands on the market for motorcycles is likely to be much more limited than for cars. Motorcycles are as much a form of leisure as practical transport mode and purchase choices are not made on the basis of fuel economy. Linking VED to motorcycle CO₂ is tinkering at the margins and not focused on the main environmental issues they cause: noise and air pollution.

A more effective strategy for decarbonising motorcycles would be to introduce an end date for the sale of motorcycles with an engine that would tackle all of the environmental issues (2030 should be possible). This should be supported by a plug-in grant for electric motorcycles and scooters and consideration of the optimal form for charging. Developing such a policy would be more useful than reform of VED which is unlikely to achieve any significant change.

4. Conclusions

There is much to commend in the approaches outlined in the Treasury consultation paper - in contrast to the past revisions to VED which have contributed to rising CO2 emissions from new cars and the UK slipping in terms of progress in reducing CO2 emissions compared to other European countries. Purchase taxes in the UK on new cars are now the lowest amongst major car buying countries and the current system fails to send the right messages to buyers to choose more efficient models.

Increasing 1st year VED and introducing a more granular approach are likely to drive the market in favour of lower CO2 cars. However, T&E would propose in addition to explicitly use some of the revenues raised from the higher 1st year VED on conventional cars to fund the plug-in car grant in coming years and to zero rate first year VED for plug-in hybrid cars with emissions between 1 and 50g/km. This would enable the government to communicate clearly to new car buyers that if you choose a zero emission car the government will support your purchase with a grant. If you choose an ultra-low emission you will pay no purchase tax. But if you choose conventional technology the higher the emissions the more tax you will pay to help fund the shift to zero emission cars.

This response focuses on the opportunities presented by reform of VED but the announcement to bring forward the phase out to 2035 at the latest will also require a rapid acceleration of sales of zero emission vehicles (ZEV). T&E estimates to achieve the 2035 phase out 17% of sales must be ZEV by 2024 and 69% by 2030. To achieve such a shift T&E has proposed the UK introduce a [ZEV Mandate](#) requiring carmakers to progressively increase sales of ZEVs in 3 yearly steps commencing in 2024. Regulation alone will not be sufficient without complementary policies to ensure sufficient charging points and particularly continuing tax breaks and purchase support for ZEVs in the early years. Reform of VED can therefore play a key role in ensuring there is sufficient demand for ZEVs to match industry regulatory targets.

The benefits of linking VED to CO2 emissions after the first year are marginal as once a vehicle has been purchased it will remain in the car fleet until scrapped. Average 10 year old cars also have similar on road CO2 emissions to new ones. A better environmental outcome could be achieved by linking VED (after the first year) to the air pollution emissions from the car. A 5 band system would actively encourage the scrappage of the most polluting older cars by requiring these to pay higher taxes in recognition of their higher emissions. This could be complemented by a requirement that cars more than 15 years old cannot be sold-on but must be scrapped when no longer required by their owner. Imposing a lifetime on the use of a vehicle (excluding specifically designated heritage models) will tackle the 10% of the oldest and most polluting cars on the road and help tackle the air pollution crisis.

The proposals to link VED to CO2 for motorcycles is highly unlikely to achieve any significant reduction in emissions from powered two-wheelers and does not focus on their principal environmental issues: air pollution and noise. Such a scheme is tinkering at the margins and a better approach would be to announce the end of sale of new powered 2 wheelers with engines by 2030 and a plug-in bike grant to support the transition.

Further information

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