

Consultation on when to phase out the sale of new, non-zero emission heavy goods vehicles

The Gas Vehicle Network (GVN) is an established trade body which represents a diverse range of businesses involved in the production of gas-derived fuels and gas-powered vehicles, particularly heavy goods vehicles. Given that air pollution, and related preventable deaths, are at unacceptably high levels, the work of our members is vital in developing the next generation of cleaner transport fuels and vehicles.

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1. Do you agree or disagree that introducing a phase out date for the sale of new non-zero emission HGVs will help us meet our legally binding net zero target? Please explain your answer.

Overall, GVN welcomes and supports the ambition of the proposed phase out date of 2040 as we believe it will provide the freight and haulage sector with much-needed certainty and a clear policy position. However, given that the ultimate aim of this proposal is to decarbonise the UK's HGVs as part of the effort to reach net zero by 2050, we are extremely concerned that HGVs using biomethane will be included within its scope.

Biomethane is a very different fuel to petrol or diesel, particularly given that it can be produced using waste feedstocks with no link to fossil fuels. Of particular note in the case of biomethane is the fact that it can already be produced as a carbon neutral fuel, three decades ahead of our net zero target; this can be achieved through usage of manure as a waste feedstock. Emissions savings from this cost effective carbon neutral fuel could potentially be built on further in the future, enabling biomethane to become a carbon *negative* transport fuel.

The focus of this policy should be on cutting carbon emissions and encouraging the use of technologies and fuels which achieve this, particularly where they can do so well in advance of 2050 in order to take advantage of cumulative emissions savings. Modelling carried out by the Zemo Partnership shows that even with a conservative estimate of growth in the biomethane market and assuming the current 84% average CO₂ reduction versus diesel, biomethane would deliver cumulative greenhouse gas emissions savings of 70 MTCO₂e by 2050. GVN believes that this focus on delivering emissions savings well ahead of 2040 should be a key focus of the Transport Decarbonisation Plan and these proposals. Following this logic, diesel HGVs should certainly be phased out as soon as practically possible, something which GVN has long called for. However, usage of demonstrably low (and carbon neutral) fuels should be allowed to

continue beyond 2040. To effectively ban the use of biomethane from 2040, as these proposals would in their current form, would be an act of self-sabotage as far as the UK meeting its net zero target is concerned.

The consultation defines a zero emission vehicle as one without emissions at the tailpipe, regardless of the fuel's full life cycle emissions. Consequently, this definition fails to account for emissions incurred from the production, transportation, and utilisation of these fuels. An HGV fuelled by grey hydrogen or fossil-generated electricity would qualify as a zero emission vehicle, despite their direct contribution to GHG emissions. Instead of decarbonising transport, this policy shifts its emissions to the broader energy sector.

To truly decarbonise HGVs and transport, the DfT must focus on the carbon intensity of fuel used (gCO_{2e}/MJ). The fuel-type alone does not determine its sustainability; the full well-to-wheel (WTW) emissions must be considered. As demonstrated by California's Low Carbon Fuels Standard, there are multiple different fuels capable of significantly decarbonising transport. Biomethane is recognised for its ability to deliver carbon negative energy – i.e. greater than 100% GHG emissions reduction compared to diesel – and to reverse net transport emissions.

The government must remain technology neutral. By focusing only on zero tailpipe emissions, the DfT's policy proposal acts to limit future HGV technologies to electricity or hydrogen only – regardless of these fuels' carbon intensity. Decarbonisation through this pathway is not assured.

A universal ban on any tailpipe emissions goes beyond what is necessary to mitigate the impacts of poor air quality, and actually hinders the policy's broader ambition. Very low levels of nitrous oxide and particulate matter pose a negligible risk to public health and the environment. Policy should instead target safe levels of emission related to air quality, allowing all technologies the opportunity to improve their operations and reach this obtainable goal. This way, both air quality and decarbonisation targets can be met.

For example, the latest models of gas-fuelled HGV have achieved a 99% reduction to nitrous oxide and particulate matter emissions, compared to an equivalent Euro V diesel truck. Technological improvements have all but negated these harmful emissions and their risk to public health. Despite these emissions being close to zero, the overly strict definition of 'zero emission vehicle' would disqualify them as a future-proof technology.

In addition, the vast majority of HGV operational time occurs on motorways and industrial sites, away from the public. HGVs are not the primary source of air quality pollutants in towns and cities, and their direct impact on public health is minimal. When combined with the aforementioned reductions to emissions from modern trucks, the policy's focus on air quality is over-exaggerated and obstructs the ability of industry to decarbonise transport, which is now the sector with the greatest annual emissions.

Biomethane offers HGV drivers and fleet operators a familiar technology and driving experience whilst delivering average emissions reductions of 84% compared to diesel, a figure which continues to improve year-on-year. As suitable waste feedstocks, such as food waste, become more readily available and as manure-derived biomethane becomes more common, the ability of biomethane to cut emissions in these particularly difficult to decarbonise vehicles classes will only grow. The continued support of biomethane via the Renewable Transport Fuel Obligation and Fuel Duty differential shows that the Government has hitherto valued biomethane as a low carbon fuel, however, further investment in this carbon neutral alternative to fossil fuel HGVs could be hampered or severely restricted if these proposals go ahead in their current form.

Biomethane HGV development has been a significant, largely unnoticed, success story thus far with a significant amount of refuelling infrastructure having been developed using private investment with little or no government subsidies. This is a significant undertaking given that it will typically take three to five years to plan and deliver a gas refuelling station. The clear message from our members is that the Government should allow the biomethane transport sector to continue to develop without an arbitrary cut-off date in 2040. Within the next five or so years, deployment of biomethane and reductions in its carbon intensity will continue whilst the viability of the alternative HGV technologies set out in the Transport Decarbonisation Plan will become clearer. It therefore feels illogical to effectively rule out carbon neutral biomethane as a fuel for decarbonising HGVs this far out from our 2050 net zero target.

Another concern shared by our members is that if a very limited range of technologies are available post-2040, a cliff edge could be created which would be problematic for the freight sector. Many companies and fleet operators could opt to put off switching from petrol and diesel as late as possible, even to the point of purposefully renewing their fleet towards the end of the 2030s. This could be a very negative unintended consequence of the proposals as they stand which would clearly hamper our ability to meet our next few carbon budgets and the interim target of a 78% reduction in greenhouse gas emissions by 2030. Conversely, supporting the continued shift of HGVs from diesel to biomethane would help to deliver a gradual reduction in emissions from the sector, in line with desired economy-wide progress. The consultation document states that the maintenance of the Fuel Duty differential until 2032 is designed “to encourage the use of biomethane and other gaseous fuels that create carbon savings compared to fossil fuels”. However, this objective could be undermined by the proposal to effectively relegate those fuels to the status of 18-year bridging fuels. Emissions reductions today are exponentially superior to waiting decades to transition, particularly in sectors with disproportionately high emissions such as HGVs.

In light of the current proposals, which would effectively ban all of the petrol, diesel and gas HGVs currently available, it is important to consider the alternative technologies on which the Government is placing so much emphasis.

Aside from the multiple issues that could arise from heavier HGVs, which we will address later on in our response, battery electric HGVs, would also face significant hurdles when it comes to

recharging. For example, the consultation document appears to suggest that recharging could take place during the rest breaks drivers are required to take. This assertion ignores the fact that rests are often not taken at service stations where high-powered recharging infrastructure would likely be sited. Rather, drivers regularly stop off for rest breaks at designated rest stops and lay-bys which are often in remote locations where it would be uneconomical to install chargers capable of rapidly recharging an HGV; for reference, an HGV with 700 kWh of capacity would require a connection of at least 1 MWh to enable a 45-minute charge. Rests may also be taken at a driver's destination whilst the HGV is being unloaded; in this scenario, it is difficult to see the destination organisation having sufficient infrastructure and being willing to allow a large HGV to recharge at their cost. In addition to this, the assumption that an HGV could be charged sufficiently during a rest break relies on a driver taking a 45-minute rest in one go; drivers will often split the 45 minutes over more than one rest period which would make rapid charging all the more logistically and technically difficult.

The provision of charging infrastructure in one location to serve large fleets, a key requirement for the freight industry, could also be problematic. Many depots and distribution centres do not currently have sufficient supply to meet the needs of a fleet of BEV HGVs, necessitating huge upgrades of substations in many areas. Distribution network operators will have to carry out these upgrades but the facility owners will ultimately have to pay for the work because legislation limits the ability of DNOs to recover the cost of investment in the grid. Where depots are leased rather than owned, freeholders may be reluctant to allow such an upgrade to take place as it could lead to a substantial increase in the site's daily standing charge, which could cause them difficulty in finding a new leaseholder after the current tenant vacates the site.

These considerable infrastructure costs would be recovered through the unit price of electricity, which could be an enormous challenge for the freight industry, which already works with slim profit margins. With the typical unit cost of electricity having risen from 14p to 20p per kWh in recent years, it is not inconceivable for it to rise to 30p per kWh by the end of the decade and possibly even higher by 2040. These unit costs, combined with the added costs of the infrastructure itself, are likely to present an unaffordable technology for the freight sector without huge compensatory subsidies, something HM Treasury is unlikely to support.

Lithium iron ferrous phosphate (LFP) batteries are likely to be the most suitable for HGVs due to cost and cooling requirements but are very heavy, which is a key consideration for weight-based sectors such as freight transport. With a typical weight of 10kg per kilowatt-hour, a set of LFP batteries meeting the needs of an HGV could weigh around seven tonnes, far exceeding the typical 2.5 tonne weight of an internal combustion engine. Such a weight would have implications for loading limits under current UK legislation as well as space limitations on an articulated unit.

If catenaries are focused on as an alternative to battery HGVs, these would also face numerous issues. For example, it would be impossible to situate catenaries between a typical HGV height of 16 feet and 4 inches and a typical motorway bridge at 17 feet. HGVs operating on catenaries

would therefore have to be capable of detecting bridges, automatically lowering the pantograph, run on battery power and then reconnect to the pantograph. Is this technology likely to be developed and become commercially viable within the timeframes set out in the Transport Decarbonisation Plan? The availability of sufficient electricity supplies in the remote reaches of the motorway network would also be a challenging and costly consideration. This would clearly not compare favourably to biomethane refuelling stations, which are already being strategically located along the UK's major roads.

Another key consideration must also be the market penetration that as-of-yet undeveloped electric HGVs are likely to achieve by 2040. Early emissions savings will be important, as will displacing as many diesel HGVs as possible by 2040. In the car market, we currently see that around 10% of sales are electric but BEVs account for nowhere near 10% of the cars on road. This shows that there could be a huge number of polluting HGVs on the road beyond 2040, and even 2050, if these proposals go ahead and stifle the growth of the biomethane market.

A separate but related issue is whether enough manufacturers will invest in production of electric HGVs specifically for the relatively small right-hand drive market in time for the 2040 proposals. A lot will need to happen for such vehicles, and their associated infrastructure, to become commercially viable and mainstream within just over 18 years. The Transport Decarbonisation Plan does not appear to offer an answer to this issue, nor to give a clear back-up plan should the expected investment in zero carbon HGV technologies, other than biomethane, not materialise.

2. Do you agree or disagree with our approach to split the phase out dates for new non-zero emission HGVs into two weight categories? Please explain your answer.

Yes, we agree. Splitting the phase out dates for polluting HGVs by weight seems to be a sensible approach which recognises the particular challenges of decarbonising heavier HGVs.

3. Do you agree or disagree that 26 tonnes and under, and more than 26 tonnes are the right categories? What evidence do you have for or against?

Yes, we agree. 26 tonnes would be an appropriate weight at which to divide HGVs.

4. Do you agree or disagree with our proposal to end the sale of new non-zero emission HGVs, for vehicles weighing from 3.5 up to and including 26 tonnes, by 2035? What evidence do you have for or against?

Yes, we agree but we reiterate our comments from question 1 around the short-sightedness of phasing out carbon neutral biomethane.

5. What do you consider the main challenges and barriers to meeting this target for HGVs 26 tonnes and under?

Informing fleet operators about the need to transition and how they can do this whilst balancing the narrow profit margins that many operate under will be a key challenge. Whilst some fleet operators and procurers of HGVs have their own decarbonisation plans in place (many of which currently revolve around replacing diesel HGVs with biomethane), most operators are naturally sceptical of radically different technologies and fuels than they are used to. Some operators are likely to aim to replace their diesel fleet shortly before any 2040 cut-off date in order to avoid the likely increased costs associated with other technologies. This would clearly be counterproductive to the aims of the Transport Decarbonisation Plan and adds further weight to the argument for delivering cumulative emissions reductions by encouraging early transitions to biomethane.

Ensuring enough notice is given to allow for the industry to transition will also be crucial given the renewal cycles of most HGV fleets as well as the reliance of many smaller operators on the second hand market. Particular attention must also be paid to addressing the needs of more niche vehicles, such as refuse collection vehicles.

6. How can these barriers be addressed?

These barriers can be addressed by the Government providing policy certainty, clear guidance and expectations for the industry as well as by enabling operators to choose from a range of technologies to suit their business needs with subsidies to assist some operators to make the transition.

7. Do you agree or disagree with our proposal to end the sale of new non-zero emission HGVs, for vehicles weighing more than 26 tonnes, by 2040? What evidence do you have for or against?

We reiterate the points raised in our responses to questions 1 and 5. The Government's focus should be on cutting greenhouse gas emissions derived from HGVs to zero and biomethane is a viable option for doing that *today*. To put arbitrary restrictions on the sale of biomethane HGVs when we will be just a decade away from our 2050 net zero target and will need to be ramping up emissions reductions from transport, does not align with the Government's overall decarbonisation agenda.

8. What do you consider the main challenges and barriers to meeting this target for HGVs weighing more than 26 tonnes?

The points raised in our response to question 5 apply to this question as well but many of those challenges will be even more acute for heavier HGVs as they are costlier and are often part of larger fleets with more complex renewal cycles.

9. How can these barriers be addressed?

Again, policy certainty and clear guidance will be crucial, as will flexibility in the Government's approach to 'picking winners' amongst carbon neutral HGV technologies. Options for the lighter end of the HGV market are more plentiful than for the heavier end, which faces numerous challenge outlined in our response to question 1. A 'one-size-fits-all' approach, which is effectively what is being proposed in this consultation, will therefore add to the barriers to decarbonisation as opposed to easing them.

10. Do you agree or disagree that these phase out dates should be extended to all non-zero emission HGVs, including those using low carbon fuels, in their respective weight categories? Please explain your answer.

We strongly disagree with this approach for the reasons already outlined in this response. It should be recognised that carbon neutral biomethane HGVs fit our ultimate end goal of net zero and should therefore be considered a vital, 'no regrets' option for these difficult to decarbonise vehicle classes. The new strategy for low carbon fuels up to 2050 must be as clear and robust as possible on what investors need to put capital into now so as not to create stranded assets and missed opportunities to contribute to decarbonisation where alternative technologies may fall short. The Transport Decarbonisation Plan seems to recognise that there is an ongoing role for low (and zero) carbon fuels, yet there is no definition of what the strategy or its scope will be.

Above all, infrastructure is a consideration that should prompt a rethink of these proposals. As previously mentioned, the nationwide network of biomethane refuelling stations has been developed largely independent of Government oversight and subsidies and it continues to grow through continual opening of new stations. On the other hand, the infrastructure required to serve large electric HGVs, such as catenaries or 1MW rapid chargers, is non-existent. Rapidly rolling out such to meet the needs of the freight sector could cause significant disruption and entail huge costs that the Government would most likely have to meet.

11. Do you agree or disagree that maximum permissible weights for certain zero emission vehicles (mainly HGVs) on both international and domestic journeys should increase by up to 2 tonnes (without exceeding 44 tonnes)? Please explain your answer.

We disagree with this proposal as we believe it could compromise the safety of vehicle operations and could have unintended consequences for road infrastructure in the UK. The safety case for increasing permitted weights has not been made but must be made before the Government makes any rush to increasing limits in order to allow for certain alternative technologies. Heavier HGVs could present many challenges; for example, bridges across the country will need to be risk assessed to ensure they could cope with the additional weight.

The Government must also be mindful of the fact that many HGVs travel to other countries, particularly the Republic of Ireland and the European continent. The UK cannot set international rules, particularly since our withdrawal from the EU, so an increase in the permitted weight of HGVs could have knock-on effects, both for cross-border logistics and for cost if manufacturers are producing HGVs for the UK market only.

12. Do you agree or disagree that weight limits should increase by up to a maximum of 1 tonne for certain alternatively fuelled HGVs on both international and domestic journeys (without exceeding 44 tonnes)? Please explain your answer.

We disagree for the same reasons set out in our response to question 11.

13. Do you agree or disagree that weight limit increases should only offset any additional weight due to the alternatively fuelled or zero emissions technology? Please explain your answer.

We agree as increases in weight limits should not be used to enable greater payloads for certain vehicles.