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

UKPIA Response

Introduction

Thank you for responding to our consultation on setting phase out dates for the sale of new non-zero emission HGVs.

The closing date for this consultation in 23:45 on is 3rd September 2021. Please send your completed response form to HGVconsultation@dft.gov.uk

Due to remote working, we strongly encourage responses by email. If you are unable to respond by email, we would invite you to please let us know by asking someone to email on your behalf.

If none of the above is possible, then we invite you to send written responses to:

HGV phase out date consultation
Great Minister House
33 Horseferry Road
London
SW1P 4DR

About this consultation

Background

Transport is the largest contributor to domestic UK greenhouse gas (GHG) emissions, accounting for 27% of emissions in 2019. Within transport, HGVs are second only to cars and vans in terms of total GHG emissions. The proposed phase out dates put forward in this consultation reflect what is needed for the UK's HGV fleet to deliver its contribution to net zero by 2050.

Consultation proposals

We are seeking views on the following proposed phase out dates for the sale of new non-zero emission HGVs:

- **2035** (or earlier if a faster transition seems feasible) for vehicles weighing from 3.5 tonnes up to and including 26 tonnes.
- **2040** (or earlier if a faster transition seems feasible) for vehicles weighing more than 26 tonnes.

We are also seeking views on:

- whether to extend these phase out dates to HGVs using low carbon fuels.
- whether the maximum permissible weights of zero emission or alternatively fuelled HGVs should increase to allow for their generally heavier powertrains. Weight limits would increase by the additional weight of the powertrain, up to a maximum of 1 tonne for alternatively fuelled HGVs and 2 tonnes for zero emissions HGVs.

Confidentiality and data protection

Department for Transport (DfT) is running this survey to assist with setting appropriate phase out dates for the sale of new, non-zero emission HGVs.

We are asking for:

- your name and email address, in case we need to ask you follow-up questions about your responses (you do not have to give us this personal information, but if you do provide it, we will use it only for the purpose of asking follow-up questions.)

- whether you are representing an organisation or yourself.

- if you are representing an organisation, the name of the organisation or business you represent and the type. Please note, sole traders are not required to provide this information.

Your consultation response and the processing of personal data that it entails is necessary for the exercise of our functions as a government department. Any information you provide that allows individual people to be identified, including yourself, will be protected by data protection law and DfT will be the controller for this information.

DfT's privacy policy (open in new window) has more information about your rights in relation to your personal data, how to complain and how to contact the Data Protection Officer.

Your information will be kept securely and destroyed within 12 months after the closing date.

Your details

Questions in this section provide us with important information on your relationship to the consultation, whether your interest is as a member of the public, an academic or as the representative of an organisation. Understanding this information allows us to understand how different sectors of society view our proposals.

1. Your and email address:

Name:	Sebastian Hirsz
Email:	Seb.hirsz@ukpia.com

2. Are you responding: *

	as an individual?
✓	on behalf of an organisation?

Organisation details

3. Name of your organisation:

Please note sole traders are not required to provide this information.

Organisation name:	UKPIA

3. Are you responding as:

Please note sole traders are not required to provide this information.

	a representative of a business or firm?
✓	a representative for a trade body?
	a representative of an academic or research organisation?
	a representative of a local authority or other public body?
	from a community group?
	another organisation?

Consultation Questions

Please note none of the questions in this consultation are compulsory.

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?**

✓	Agree provided such a phase out is targeted on a technology neutral, cradle to grave lifecycle GHG emissions basis that does not prohibit any technology type
	Disagree
	Don't know

Please explain your answer.

To achieve Net Zero emissions by 2050, the UK must allow for all decarbonisation options across all sectors. Whilst some technologies or approaches may be more suitable than others depending on the application, an ends-focused policy allows the greatest scope for innovation and enables the evolving mosaic of solutions we need to decarbonise over the coming decades.

In UKPIA's *Future of Mobility in the UK* report[1], the range of technology options available to heavy goods vehicles (HGVs) is technically assessed, with low carbon fuels, hydrogen, and battery electrification each having a role in this difficult to decarbonise sector. Maintaining optionality across these transport energy types is the best way to provide certainty of decarbonising the sector independent of the timing of achieving zero tailpipe emissions. As is well recognised, achieving zero tailpipe emissions is no guarantee of a vehicle's or sector's sustainability. A poorly considered tailpipe-only approach may indeed increase transport GHG emissions – counter to the policy's objectives.

The government must focus on creating a regulatory framework that ensures net greenhouse gas (GHG) emissions are reduced across all powertrain technologies. Market-based, technology neutral regulatory frameworks will deliver emission reductions at the lowest societal cost. Tailpipe emissions are an important variable, but all other GHG emissions sources must also be accounted for if the UK is to become a truly Net Zero economy.

There is economic opportunity on this journey – with the right policies the UK could become a leader in low carbon fuels development, electric vehicle technologies and manufacture, and the production of low carbon hydrogen. This will only be possible when policies focus on total GHG emissions, and incorporate dependencies on other sectors as linked systems. It is crucial that the UK government – in seeking to decarbonise challenging sectors – does not risk the opposite

[1] The Future of Mobility in the UK, UKPIA, March 2021

and dissuade investors from investing in the readily-deployable, most value-adding decarbonisation approaches in the UK, such as low carbon fuels.

By legislating that the UK achieve net-zero GHG emissions by 2050, the government has effectively set a 'phase out date' for non-zero emission transport. Any further HGV-specific mandate should be set on a similar basis: net zero GHG emissions from cradle to grave for an HGV. This includes GHG emissions across vehicle production, re-energising, maintenance, and disposal (see Figure 1 below).

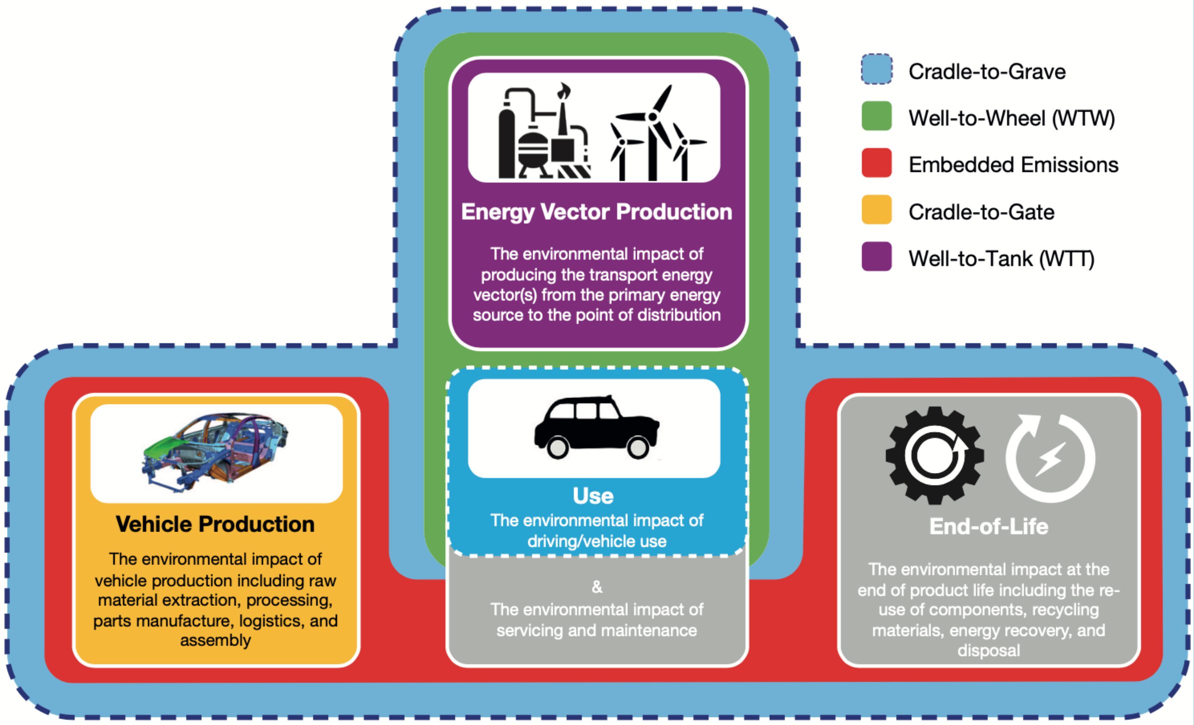

Figure 1: Schematic of cradle to grave lifecycle analysis and constituent analyses

It should be noted that energy vector production can be low carbon, zero carbon, and even negative carbon. Given the high utilisation of HGVs, energy vector production and use can contribute significantly to HGV cradle-to-grave emissions. The lowest carbon vehicle – currently an ICE (internal combustion engine) HGV[2] – can operated on carbon negative fuel – such as hydrogen produced from biomethane with carbon capture and storage (CCS)[3] – with zero tailpipe CO_2 emissions. Truly net zero road freight is technically feasible in the near-term with the right regulatory framework and, crucially, feasible via a variety of routes.

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?

[2] Market opportunities to decarbonise heavy duty vehicles using high blend renewable fuels, Zemo Partnership, March 2021

[3] Hydrogen production from natural gas and biomethane with carbon capture and storage – A techno-environmental analysis, C. Antonini et al, March 2020

	Agree
✓	Disagree with the categorisation
	Don't know

Please explain your answer.

As explored in UKPIA's *Future of Mobility in the UK* report, a powertrain's and energy vector's viability is dependent upon a vehicle's utilisation and duty cycle. Within the HDV sector, there is a range to these variables that would suggest a likely suitability to a phased approach. However, any phasing, if appropriate, must be closely tied to these technical limitations – a weight category alone does not capture this.

The technical and operational complexity of the sector requires a more nuanced approach, with the DfT's existing goods vehicle categorisations providing a potentially suitable foundation:

Category	Definition[4]	Chassis	Typical Range and Load
N1	Motor vehicle with at least four wheels designed and constructed for the carriage of goods and having a maximum mass not exceeding 3500 kg	Rigid	Included in cars and vans consultation
N2	Vehicles used for the carriage of goods and having a maximum mass exceeding 3.5 tonnes but not exceeding 12 tonnes.	Rigid	Short- and intermediate-range with some intermittent long-range use limited payload (relative to other goods vehicles)
N3	Vehicles used for the carriage of goods and having a maximum mass exceeding 12 tonnes.	Rigid	Generally greater range and power requirements than rigid N2, more variation in payload power demand than in N2 (e.g., refrigeration)
		Articulated	Long distance goods movement up to 44 tonnes total weight limit, variations in trailer power demand

The increasing energy density demands and decreased urban driving moving through N2 rigid → N3 rigid → N3 articulated suggests different levels of technically viable low carbon alternative – with the foremost category most suitable for battery electrification (of the three) whilst tractor

[4] Vehicle Type Approval, Vehicle Certification Agency, August 2021

units of articulated HGVs are challenging to battery electrify without in-journey charging such as via an overhead catenary (OHC) system.

Due to further variables highlighted in the table such as auxiliary power demand, even a three-category approach may be overly simplistic. A weight-only approach is unlikely to effectively meet the policy objectives whilst an overall GHG reduction approach as outlined in Q1 will drive all goods vehicle categories to decarbonise as effectively as possible for their utilisation and duty cycle.

3. Do you agree or disagree that 26 tonnes and under, and more than 26 tonnes are the right categories?

	Agree
✓	Disagree
	Don't know

What evidence do you have for or against?

See answer to Q2.

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?

	Agree
✓	Disagree
	Don't know

What evidence do you have for or against?

Any phase out date must be based on a holistic GHG emissions view with a credible pathway to implementation including (but not limited to):

- Optimised modal routing of freight

- Vehicle re-energising infrastructure deployment
- Additional renewable energy generation to displace fossil-derived energy
- Establishment of sufficient scale low carbon HGV supply chain
- Appropriate regulatory framework for drivers, chassis, and sites

These items must be considered essential prerequisites to the consideration of a phase out date, as underdevelopment of any of these areas may result in reduced or even negative GHG emissions savings. For example, should additional energy demand not be met via renewables, power generation will need to be provided via higher carbon intensity sources – undermining the policy objectives.

This risk cannot be considered theoretical – only recently the National Grid required the reactivation of a coal-fired power station to meet demand as natural gas increased in cost and renewable generation load was insufficient to meet demand.[5] The battery electrification of the approximately 300,000 HGVs with a gross vehicle weight (GVW) <26 tonnes in the UK[6] would require a minimum of 70 GWh of energy *per charge*[7]. If this energy demand cannot be met by low carbon generation, alternative energy vectors such as renewable fuels offer the most pragmatic low carbon approach – utilising existing infrastructure – and should be supported.

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

As >26 tonnes GVW HGVs represent the most significant energy requirements of the UK HGV sector, the challenges are outlined in Q8. The challenges should be considered similar for <26 tonnes GVW HGVs but *generally* lessened in severity, as the lightest of HGVs will have reduced range and power requirements.

Increased urban and sub-urban routing of lighter HGVs will result in increased reliance upon public vehicle re-energising outlets. For example, the EV charger network in the case of BEV HGVs. Currently these are installed for light-duty vehicles and often unsuitable for even N2 HGVs (e.g., allocated space is too small). Suitable public EV charger availability will need to be provided for the lighter HGV fleet.

6. How can these barriers be addressed?

See answer to Q9.

[5] https://www.bbc.co.uk/news/business-58469238
[6] Data on licensed and registered heavy goods and goods vehicles over 3.5 tonnes, DfT, May 2021
[7] Assuming average 185 kWh battery capacity per HGV and accounting for heat losses associated with ultra-rapid charging required for operational feasibility https://www.man.eu/uk/en/trucks/all-models/the-man-etgm/etgm.html

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?

	Agree
✓	Disagree
	Don't know

What evidence do you have for or against?

See answer to Q4. The battery electrification of the approximately 210,000 >26 tonnes GVW HGVs in the UK would require a minimum of 80 GWh *per charge*[8] in addition to the power demand for <26 tonnes HGVs. >41 tonnes GVW HGVs are the largest single GVW category of HGV in the UK, accounting for approximately one quarter of the UK's HGVs. Therefore, the utilisation, duty cycle, and associated vehicle re-energising requirements must be robustly mapped prior to any consideration of a phase out date (for any energy vector).

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

Suitable re-energising requirements for HGV fleet operators are more complex than for light duty vehicles. Increased utilisation, power demand, and cost sensitivity presents additional challenges that present higher barriers for adoption for battery electrification or hydrogen fuelling. The main challenges are summarised below.

Recharging/energising requirements

As the consultation document highlights, HGV drivers are required to take a minimum 45 minutes break every 4.5 hours. However, the break need not be taken all at once, with this often flexed depending on variables such as road conditions, mealtimes, and regional distribution centre (RDC) or delivery site loading/unloading. Drivers must adapt HGV operation according to road and business demands (e.g., road traffic accidents or evolving customer requirements) and must re-energise their vehicle outside of their required breaks.

These requirements place significant importance on swift and flexible vehicle re-energising, which can present significant challenges for battery electric HGVs. The latest battery electric >41 tonnes GVW HGVs feature a 300 kWh capacity battery, providing ~250 km of range. For such a battery to be charged in 45 mins (the upper operational limit based on the considerations above), charging approaching 0.5 MW would be required (the highest power charger currently available

[8] Assuming average 300 kWh battery capacity per HGV and accounting for heat losses associated with ultra-rapid charging required for operational feasibility
https://www.scania.com/uk/en/home/products-and-services/trucks/our-range/scania-battery-electric-truck.html

for light duty vehicles is 0.35 MW). The power demand will be greater for battery electric HGVs with increased range and therefore battery capacity.

The infrastructure requirements for such a charger are significant and compounded should multiple chargers be needed – such as at a RDC or depot. Significant network upgrades well beyond the average capex potential of highly margin sensitive fleet operators. Distribution Network Operators (DNOs) are also limited as under current regulations they can only spread the costs of network strengthening if sufficient demand is demonstrated. There may also be further challenges if the fleet operator(s) lease rather than own their RDC/depot (as is often the case).

In-journey charging via OHC may offer a means to ease plug power requirements, however this also presents a significant infrastructure challenge. Installing cabling would cost at least £20 billion not including the economic impact of significant disruption to the UK's strategic road network (SRN).[9]

Refuelling with hydrogen for producing power via a fuel cell can offer an alternative to battery charging with faster re-energising times. Significant infrastructure development would be needed but at an order of magnitude lower than for a battery electric HGV fleet.[9]

Additional low carbon energy supply

However, there remains a significant challenge with low carbon hydrogen availability. Whilst hydrogen may present an attractive low/zero carbon energy vector for heavier duty applications such as road and sea freight, significant development is required (both from a policy and technology perspective) in supplying low carbon hydrogen at scale – and at sufficient purity for fuel cell applications as needed.

For battery electric vehicles, increased electricity demand must be met via additional renewable energy to prevent reactivation/increased use of fossil-fuel power generation assets. This requires close synchronisation of DfT vehicle policy with BEIS power generation policy.

Vehicle Cost

Both battery electric and hydrogen fuel cell electric powertrains are significantly more expensive than ICE equivalent.[10] Whilst most HGVs are leased by fleet operators, any energy vector cost efficiencies to create a compelling total cost of ownership (TCO) case must be realised immediately in such a margin sensitive sector. Given the aforementioned power requirements, and costs of achieving suitable charging rates, commercial viability of BEV and FCEV HGVs may be challenging for many fleet operators until vehicle costs reduce.

The UK and Republic of Ireland are the only right hand drive (RHD) HGV markets in Europe which requires dedicated design and manufacture by supplying OEMs (other RHD markets have different type approvals). OEMs are not obliged to manufacture RHD HGVs for the UK, therefore UK policy must ensure it does not introduce additional complexity that either dissuades OEMs or increases engineering costs.

Low carbon HGV supply chain

Whilst domestic/EU supply chains are growing to meet battery demand, lithium demand is forecast to outstrip all projects that are operational, planned, unfinanced and recycling

[9] Zero Emission HGV Infrastructure Requirements, Ricardo for the CCC, May 2019
[10] Fueling the Future of Mobility: Hydrogen and fuel cell solutions for transportation, Deloitte, 2020

initiatives.[11] As aforementioned, leading UK scientists have also expressed concerns regarding the cobalt, neodymium, and copper supply chains[12] as neodymium is a critical element for the manufacture of electric motors.

Whilst efforts are underway to develop batteries less reliant on cobalt, and European supply chains are seeking to improve their resilience to elemental exposure, what is clear is that in even the most optimistic scenarios, European countries will be exposed to lithium and neodymium supply chain volatility.[13]

The most commonly used battery anode material in EVs is graphite obtained from petroleum coke. Despite the UK being one of few major producers of high-grade graphite coke, it is currently exported to China for manufacture of EV batteries.[14] At present, production of synthetic graphite coke relies on refining of crude oil, with demand rising steadily as the EV market also develops. This is likely to continue for the foreseeable future and supports the need to not only decarbonise coke manufacture along with other refining processes to produce low carbon liquid fuels but maintain suitable demand for refinery products to ensure the necessary anode and plastics materials continue to be produced at low carbon, domestic plants.

As highlighted in Q1, an essential means of lowering lifecycle GHG emissions is in reducing end-of-life emissions. Larger-scale recycling of metals and repurposing of components such as batteries must be developed with circularity embedded into the HGV and overlapping supply chains.

Supporting the growth of resilient, low carbon HGV supply chains must be supported, however, this is a significant, multi-year undertaking. Therefore, maintaining technology optionality in any HGV decarbonisation policy is essential to allow HGV decarbonisation as far as possible in parallel with supply chain development and HGV fleet renewal.

Utilisation paradigm based around liquid fuels

The vehicle re-energising demands of fleet operators are discussed under 'recharging/energising requirements' however what must also be considered is the evolution of commercial operations around this paradigm. Fleet operators approach scheduling, driver employment, leasing, and many other commercially sensitive decisions based on vehicle re-energising being brief and flexible. Businesses reliant on 'just-on-time' delivery are also, indirectly, reliant on this paradigm.

Concurrently, light duty goods vehicles are increasingly downsizing and electrifying (from vans to e-bikes), meeting demand for evolving consumer purchasing habits. Therefore, transitioning to alternative vehicles and vehicle re-energising approaches will require evolution of freight operations (consolidation, other modes, etc) that must be supported.

9. How can these barriers be addressed?

Some of the barriers above can be addressed or circumvented via the following:

[11] Sustainable Supply Chains, Benchmark Mineral Intelligence, July 2020
[12] https://www.nhm.ac.uk/press-office/press-releases/leading-scientists-set-out-resource-challenge-of-meeting-net-zer.html
[13] Assessment of potential bottlenecks along the materials supply chain for the future deployment of low-carbon energy and transport technologies in the EU, EC JRC Science for Policy Report, 2016
[14] The Economic Contribution of the UK Downstream Oil Sector, UKPIA, 2019

Recharging requirements

- Reduce/remove the regulatory burdens for DNOs to upgrade local networks and support the installation of substations.
- Trial new technologies to prove operational viability. The Zero Emission Road Freight Trial (ZERFT) is a positive step in this direction; however, any conclusions will follow in the mid-2020s, and more is needed to demonstrate low carbon options at scale.

Additional low carbon energy supply

- Support all forms of low carbon hydrogen under the RTFO.
- Work with BEIS to implement supply-side incentives for low carbon hydrogen production.
- The additionality requirement embedded in the RTFO for gaseous and liquid fuels must be mirrored in policy for transport electricity to ensure demand is met via renewable energy.

Low carbon HGV supply chain

- Positive announcements are being made by many HGV OEMs regarding the establishment of a suitable supply chain to meet increasing demand. However, such a supply chain must also be sustainable and ideally support UK employment.
- Implement a lifecycle GHG emission-based policy for HGVs to drive CO_2 reductions across manufacture, maintenance, and disposal.
- Embed domestic low or lowering carbon industries such as UK downstream in the UK HGV supply chain to ensure a low carbon HGV supply chain and protect domestic employment.

Utilisation paradigm based around liquid fuels

- Support a continued role for liquid and gaseous fuels – the RTFO provides a solid foundation, but more policy support could increase GHG savings via liquid and gaseous fuels:
    - Fuel duty rebate for higher blends of renewable fuels – Zemo Partnership's detailed study into decarbonising HGVs via renewable fuels highlights a rebate mechanism as a suitable policy intervention to stimulate low carbon energy take-up by fleet operators.[2]
    - Support novel fuelling frameworks such as implementation of an investment framework operating in parallel with an emissions regulation (e.g., tailpipe emissions standard) that can enable suitable levels of investment for low carbon energy scale-up. In turn, the investor (likely a vehicle manufacturer or fleet operator) may then claim GHG emissions savings towards their GHG obligation through fulfilment of the 'contract'.[15]
- Maintain a level-playing field for fleet operators through modal shifts and new paradigms – operators should not be disadvantaged due to geographical or digital inequalities.

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?

[15] Truckin' on: Using the heavy duty CO_2 standard to drive investment in fuel decarbonisation, Cerulogy, 2019

	Agree
✓	Disagree – low carbon fuels should be permitted
	Don't know

Please explain your answer.

Low carbon fuels have a key role to play in decarbonising heavy-duty applications such as HGVs. HGV engines are typically the most efficient available in road vehicles (up to 47% thermal efficiency) with efficiencies expected to continue to improve through the 2020s and 2030s.[16] Heavy duty cycles and competition between cargo and fuel or energy storage space have and continue to drive these efficiency improvements, but the volumetric efficiency of high energy density liquid fuels and their conversion into power makes this a difficult-to-decarbonise sector.

Given energy densities for batteries are unlikely to come close to liquids (even accounting for ICE's conversion efficiency), electricity is only likely to become a suitable energy vector option for most HGVs if in-journey charging, such as via OHC systems, is possible (see Q8). Partial electrification, via hybrid powertrains, offers significant opportunity to further increase ICE efficiency – enabling steady-state operation at peak thermal efficiency – which, combined with low carbon fuels, could offer carbon-neutral GHG reductions[17]. A hybrid approach may also offer zero tailpipe emission operation through urban centres if needed (see Q13).

There are multiple studies, by a range of reputable organisations, that highlight the important role of low carbon fuels in decarbonising HGVs:

- **Zemo Partnership** highlight the essential role low carbon fuels must play in decarbonising HGVs through to at least 2050. Even under the most ambitious electrification scenario modelled, they anticipate liquid fuel demand well into the 2040s.**Error! Bookmark not defined.**
- **Advanced Propulsion Centre**, via their cross-sectoral Transport Energy Network report, highlight the need for pursuing sustainable fuels, sustainable hydrogen, and electrification via OHC for the on-road heavy duty sector given the range in energy density demands.[18]
- **Cerulogy's** Truckin' On report recognises the challenges of decarbonising HGVs compared to light duty vehicles, and therefore low carbon fuel adoption in this sector must be accelerated as far as possible.[15]
- **Mckinsey** outline 4 zero-emissions powertrain technologies for trucks: battery electric vehicles, hydrogen fuel-cell electric vehicles, hydrogen internal combustion engines, and biofuel or synthetic fuel internal combustion engines.[19]

[16] Thermal Propulsion Systems Roadmap, Automotive Council UK and APC, 2021
[17] Dedicated Hybrid Engines and Sustainable Fuels: Steps Towards Net-Zero Propulsion, Ricardo, July 2021
[18] Transport Energy Network: A collaborative approach to understanding decarbonised transport in 2050, APC, LowCVP, and University of Brighton, November 2020
[19] https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/how-hydrogen-combustion-engines-can-contribute-to-zero-emissions

Almost invariably, it is highlighted that low carbon fuels present *one of multiple low carbon energy vector options for HGVs*, with battery electrification, hydrogen, and hybrid approaches playing key roles. Energy conversion/powertrain technology will also diversify, with hydrogen's greater energy density compared to batteries potentially utilised via internal combustion engine or fuel cell – either converter resulting in zero CO_2 emissions at the tailpipe. Any HGV policy should not seek to restrict any technology type from being utilised.

Any policy should also ensure that other environmental considerations such as air quality and land use are also rigorously protected. In-use emissions must continue to be subject to strict NO_x and particulate limits across all powertrain technologies, and energy vector sustainability ensured (such as is already done under the RTFO for fuels). This will continue to promote innovation (e.g., negligible NO_x ICE vehicles and lighter EVs to reduce PM emissions) whilst promoting the diverse low carbon technologies needed to decarbonise this challenging sector.

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)?

✓	Agree but should be extended to all HGVs if safe
	Disagree
	Don't know

Please explain your answer.

The DfT recently published the outcome of its longer semi-trailer (LST) trial, highlighting the importance of consolidating road freight into fewer journeys as an important means of achieving GHG emissions savings.[20] Therefore, if weight limit increases can be made without compromise to road safety or other sustainability factors, these should be permitted across all HGVs to enable freight consolidation.

Within the boundary of road safety and infrastructure protection, increased weight limits serve to reduce overall HGV kilometres travelled – and therefore reduce overall HGV energy demand. This is an essential measure in seeking to achieve net zero, however it is independent of the type of energy used. Increased weight limits (if safe) should be implemented in parallel with a technology neutral regulatory framework that drives decarbonisation of HGVs and their energy vectors.

[20] https://www.gov.uk/government/consultations/ending-the-longer-semi-trailer-trial/longer-semi-trailer-trial

Assessing the safety and infrastructure impact of increased HGV weight limits sits outside of UKPIA's expertise. However, it advises that, unless new evidence has come to light, current axle load limits are maintained to prevent inadvertent impacts on road safety or maintenance.

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)?

	Agree
✓	Disagree
	Don't know

Please explain your answer.

See answer to Q11 – alternatively fuelled and 'conventionally fuelled' HGVs should also have their maximum permissible weight limits increased by 2 tonnes (without exceeding 44 tonnes) if this has been concluded to be safe.

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?

	Agree
✓	Disagree
	Don't know

Please explain your answer.

Whilst the intent for restricting weight limit increases to alternatively fuelled or zero emissions technology is clear this approach prevents opportunity for freight consolidation across 'conventionally fuelled' HGVs in the short-term.

Fleet operators should be encouraged to consolidate goods movement into as few journeys as possible – irrespective of powertrain/energy vector – to reduce overall road freight energy demand. In parallel, the GHG emissions of the HGVs' powertrains and energy vectors should be reduced via a robust lifecycle GHG emissions reduction regulatory framework. A weight limit increase across all HGVs (without exceeding 44 tonnes) could offer a means for short-term CO_2 savings for HGVs utilising fossil-derived fuels but, for clarity, should not be considered a means of ongoing 'support' for HGVs utilising fossil-derived fuels.

The DfT's *Decarbonising Transport* plan highlights the importance of rerouting HGV-based road freight onto more efficient modes (such as rail). This is an essential means of decarbonising the UK's freight and any weight limit reclassification for HGVs should not be executed in a manner that may adversely impact this policy.

Final comments

Do you have any other comments?

The joint DfT-DEFRA Clean Air Zone (CAZ) framework[21] provides local authorities with a clear and consistent means of addressing local air quality with Classes B, C, and D all requiring that HGVs meet the Euro VI emissions standard. This evidence-based framework recognises the cleanliness standard of the most modern ICE HGVs and therefore allows low carbon ICE HGVs opportunity to decarbonise UK road freight without excessive impact on urban air quality.

However, some local authorities are seeking to deviate from the CAZ framework and implement technology-specific restrictions. This may have a local/regional impact on permitted HGV technology that may run counter to this policy's objectives. (For example, not permitting ICE-containing HGVs even if they utilise zero carbon fuels.) Central government should seek consistency across local authorities as far as possible.

UKPIA noted that a detailed impact assessment did not accompany this consultation and would suggest such analysis be published to understand the environmental and economic modelling/assessment undertaken by the DfT to inform its consultation development.

[21] Clean Air Zone Framework, February 2020, Joint Air Quality Unit

Glossary

BEV	Battery Electric Vehicle
CAZ	Clean Air Zone
CCS	Carbon Capture and Storage
DNO	Distribution Network Operator
FCEV	Fuel Cell Electric Vehicle
GHG	Greenhouse Gas
GVW	Gross Vehicle Weight
ICE	Internal Combustion Engine
LST	Longer Semi-trailer
OHC	Overhead Catenary
RHD	Right-hand Drive
SRN	Strategic Road Network
WTT	Well-to-tank
WTW	Well-to-wheel