

Dear colleagues,

HEA Response to ‘Infrastructure for zero emission heavy goods vehicles and coaches’

I am writing on behalf of the Hydrogen Energy Association (Formerly the UK Hydrogen and Fuel Cell Association) and in response to your current call for evidence on Infrastructure for zero emission heavy goods vehicles and coaches. The Hydrogen Energy Association (HEA) is the leading pan-UK trade body in the hydrogen energy sector, with a Mission to support the growth of our members and the sector, and to ensure that the right policy framework is in place. Our 110 plus member companies represent over 200,000 employees globally, with combined revenues over £400 billion, and cover the entire value chain from raw material sourcing, to supply chain and components, financing, professional services, B2B and consumer facing solutions.

With over 15 years of experience, the HEA is a leader in advocating for and accelerating the transition to Net Zero in the UK through the deployment of hydrogen & fuel cell solutions. We promote and represent our members’ interests across the hydrogen value chain, and campaign for the best policy outcomes for the industry across the full range of production, distribution, storage, applications and opportunities. We also welcome the Government’s consultation and look forward to contributing constructively to the ongoing dialogue on shaping a sustainable future for the hydrogen energy sector.

Q7. Based on your knowledge and understanding of HGVs and road freight operations, what vehicle capabilities will be needed for zero emission HGVs to meet existing and future business needs?

When considering the transition to zero-emission Heavy Goods Vehicles (HGVs) and its implications for road freight operations, several critical considerations emerge. A major consideration is the need for zero-emission HGVs to meet existing and future business requirements, including attaining specific mileage capabilities based on vehicle type while achieving cost competitiveness with diesel and petrol fleets. Hydrogen is increasingly recognised as the best option to decarbonise a wide range of transport modes, while delivering on all business and operational needs of a freight operator. Hydrogen fuelled HGV’s provide un-paralleled range compared with other clean alternatives. Fewer, faster refuels mean that hydrogen fuelled HGV’s can remain on the road for longer periods, while being capable of carrying large payloads. These benefits make hydrogen HGV’s a strong option to decarbonise without altering day to day operations.

Q12. What is needed from infrastructure across the UK to support the adoption of zero emission HGVs in the UK, in and out of mainland Europe and Ireland?

In order to support the adoption of zero emission hydrogen HGVs in the UK, we will need a network of hydrogen refuelling stations across the country, both to support domestic vehicles and those coming from Europe. Today, the UK has less than 10 public hydrogen refuelling stations throughout the country. In Europe, we have seen progress from the EU to ensure hydrogen refuelling is available across the continent by mandating a hydrogen refuelling station every 200km. A similar action by the UK will be an important step to instil confidence in fleets across the UK to invest in zero-emission hydrogen HGVs and facilitate seamless refuelling without significant operational changes to both domestic fleets as well as hydrogen trucks from Europe coming to the UK. Alongside a mandate for the availability of hydrogen refuelling, there must be a support mechanism for these early years to ensure refuelling stations remain open while the number of Hydrogen HGVs on the road is low. Where these refuelling stations are located, and how many the UK will have must be strategically planned.

In considering a future which could involve a mix of electric and hydrogen fuelled vehicles it will be important to adopt a whole system approach. For example, electrification will necessitate substantial grid upgrades that can be avoided through the deployment of hydrogen refuelling stations .

Q13. Who should provide this infrastructure?

Q14. What implications do you foresee the transition to zero emission HGVs having on existing HGV operations?

Q15. What behavioural changes might be needed to accommodate the transition to zero emissions?

Collaboration between governmental bodies, industry stakeholders, and the private sector is essential in establishing a well-distributed network of hydrogen production and refuelling infrastructure strategically positioned to ensure full coverage to meet future needs . This collaborative approach must address challenges related to hydrogen transportation and also consider the importance and demand for alternative hydrogen carriers such as ammonia, methanol or liquid hydrogen.

To ensure a smooth transition to zero emission HGVs, it will be necessary to ensure that the roll-out and scale-up of refuelling infrastructure is carefully planned to support the pace and distribution of the roll-out of vehicles. A unified approach is essential to bridge gaps between the strategies of the national infrastructure commission's thinking, hydrogen production within DESNZ, and the transport network with DfT. There will be a need for a comprehensive package of Government support and a unified approach across Government to developing the required infrastructure based on clear targets for refuelling stations

Hydrogen based HGV transport offers a similar driving experience to that offered by conventional fuels, with similar range, and refuelling experience. Thus, behavioural impacts on fleet operators during the transition will be less than for alternative options. Training on certain aspects, such as refuelling, will be needed to manage and maintain this new infrastructure safely.

In summary, a successful transition to zero-emission HGVs necessitates a holistic approach, encompassing fit for purpose vehicle solutions, a well-designed and distributed infrastructure, collaborative efforts across various stakeholders, and addressing the operational implications associated with this transformative journey.

Q17. Based on your knowledge of current operations, what proportion of zero emission HGV hydrogen refuelling do you estimate will take place at the following locations, and why?

a. depots

b. destinations (for example, warehouses, distribution centres)

- c. **public locations (for example, motorway service areas, trunk road (A-road)service areas, truck stops)**
- d. **transport hubs (for example, ports, airports, rail freight terminals)**
- e. other locations (please specify)

A data-driven approach will help to ensure that refuelling is optimally planned to evolve in line with vehicle availability. We recommend that collecting data from fuel distributors to provide valuable insights into the dynamics of refuelling today. This will need to be combined with modelling to determine future patterns.

To optimise the future distribution of zero-emission HGV hydrogen refuelling, the HEA propose a hub and spoke system. This approach aims to optimise the distribution of hydrogen by establishing aggregated refuelling locations. The idea is to develop hubs which hydrogen can be supplied to efficiently, beginning with exclusively road-based transport of hydrogen prior to a pipeline network being implemented.

A key point to raise here is the anticipation that the future landscape of zero-emission HGV hydrogen refuelling will likely involve a diversified fuel mix, which could encompass other hydrogen carriers in the distribution chain. The development of strategically located aggregated hubs is crucial to minimise transportation distances and contribute to an efficient and sustainable hydrogen refuelling network.

Q19. What do you consider to be the barriers to installing and accessing hydrogen refuelling infrastructure for zero emission HGVs at the following locations (be clear if you are referring specifically to barriers in rural or urban locations)?

- a. depots
- b. destinations (for example, warehouses, distribution centres)
- c. **public locations (for example, motorway service areas, trunk road (A-road)service areas, truck stops)**
- d. **transport hubs (for example, ports, airports, rail freight terminals)**
- e. other locations (please specify)

Regarding the barriers to installing and accessing hydrogen refuelling infrastructure for zero-emission HGVs, our response identifies some critical considerations. One major impediment is the lack of a cohesive approach between hydrogen production and local infrastructure. An approach based on structured planning combined with active engagement with councils and local bodies will be key to success.

The importance of joined-up planning and clustering cannot be understated, and we highlight the role of the Government in facilitating such initiatives. Specific actions include planning HRS logistics carefully – for example co-locating refuelling stations with established hubs and clusters, and setting clear goals, such as 200km for hydrogen refuelling on major infrastructure routes.

In summary, the barriers identified revolve around a lack of coordination and available financial support. The HEA's recommendations involve structured planning, financial support, and government facilitation to drive the development of hubs and clusters, aiming to overcome barriers and ensure a viable pathway toward hydrogen adoption before 2030.

Q21. Do you think that members of the HGV sector could benefit from working together to support their transition to zero emission, particularly in terms of infrastructure?

Q22. How do you think that members of the HGV sector could benefit from working together to support their transition to zero emission, particularly in terms of infrastructure?

Yes, members of the HGV sector can benefit from working together, especially with regards to the development of hubs and refuelling clusters for transport fleet operators. Collaborative initiatives will be a useful tool leading to the sharing of best practices, fostering innovative infrastructure solutions, and creating a supportive network.

Q33. What specific infrastructure considerations are there for zero emission coaches travelling across international borders?

When considering infrastructure across the UK and EU, there first must be hydrogen refuelling stations available to refuel coaches coming in from the EU. There must also be alignment around common features, such as refuelling pressures - which will be 350 bar and 700 bar for the foreseeable future - standardised refuelling nozzles. These two measures will ensure that all refuelling stations work for all Coaches and HGV's. There also need to be a common agreement on low carbon hydrogen standards between the UK and Europe.

Q36. Do you think that zero emission HGVs and zero emission coaches will have similar infrastructure requirements?

HGVs, being a broad term with diverse applications, may differ from coaches in some applications. We envisage both 350 and 700 bar pressure refuelling as being the short-term fuel options, with a potential shift to liquid in the future, highlighting the importance of a support mechanism that allows for flexibility and evolution in infrastructure to accommodate changing needs as technologies evolve. Whilst this is directed at HGVs and Coaches, there should be a focus on multi-user refuelling where possible, enabling car owners and other users to access the refuelling station. This will help in enabling other sectors to benefit from the infrastructure, while providing another opportunity for revenue.

We would welcome the opportunity to discuss our recommendations further.

Kind Regards,



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CEO