# Wales's Future Fuels: Powering Industrial Vehicles and Plant in a Net Zero Wales

## Introduction

On 19 November 2025 Wales & West Utilities convened a roundtable with public, private and third sector stakeholders to explore the pressing challenges of decarbonising hard-to-abate fleet. The session comprised presentations from fleet and decarbonisation managers from both the public and private sectors, and from alternative fuel providers, followed by a rich discussion that covered policy, investment, impact on workforce, public perception, driver experience and the opportunities for shared approaches and collaboration.

The session was hosted and facilitated by Welsh sustainability charity Cynnal Cymru – Sustain Wales.

## Key Findings

1. Operation of fleet forms a large share of emissions of many large organisations and service providers.
2. There is a policy mismatch between the UK Government's current focus on electric vehicles (EVs) and the reality that most fleets have vehicles that cannot operate on current battery-electric technology and infrastructure alone without compromising service delivery and operational efficiencies. This is a serious concern for emergency response vehicles and relevant to all vehicles with significant auxiliary energy consumption, services operating in remote and rural locations, construction machinery, and agricultural vehicles. It is also a strategic consideration for the development of the haulage sector.
3. Fleet managers are delaying transitioning to alternative fuels due to:
    - A lack of available insight and data about current or planned availability of alternative fuels.
    - A lack of clear policy direction and lack of parity of investment in different fuels by the UK and Welsh Governments.
    - A sense that the experience of those 'on the ground' is not being fully recognised, generating a loss of confidence.

- Difficulty in assessing Total Cost of Ownership (TCO) of different alternative fuel pathways to ensure that these have 'parity with diesel'.
- The limited availability of alternative refuelling and recharging infrastructure, which erodes confidence in investing in alternative fuel vehicles.

In terms of moving forward:

4. There is a need for communication externally as well as behaviour change and training internally to successfully trial new fuels.
5. The use of demonstrator vehicles would improve public and driver perception of new fuels, but current access is generally limited to EVs.
6. Spatial (multi-stakeholder) and sectoral collaboration around shared refuelling infrastructure could accelerate the transition away from diesel through creating projects of sufficient scale to be financially viable and to attract large-scale funding from public and private investors.
7. There is an urgent need for policymakers to hear the experiences of front-line staff and fleet managers so this can be recognised in appropriate policy responses. This could be amplified if there was an intermediary body or forum that could help operators from different sectors – local authorities, utilities, emergency services and private logistics operators – to 'speak with one voice'.

## Potential policy asks:

1. Recognition that, for most large fleet operators with diverse operational requirements, a multi-fuel strategy will be required and this should be explicitly recognised in Wales's Regional Energy Strategic Planning.
2. Recognition that more progress is urgently needed on non-EV options to achieve decarbonisation in line with UK and Welsh emissions reduction targets, including equitable investment across multiple alternative fuel types.
3. Greater visibility as to how fuelling infrastructure is being embedded into regional transport, energy grid and economic development plans.

4. Support or requirement for alternative fuel providers to provide or collaborate on TCO models that demonstrate how their fuel provides parity with diesel.
5. Support for fleet managers, including access to early adopters or specialist consultancy, to:
    - Conduct fleet segmentation analysis to determine which vehicles are suitable for which fuel type based on duty cycles, geography, payload and response requirements, taking into account productivity impacts.
    - Develop TCO models for each decarbonisation pathway, including vehicles, maintenance, infrastructure, staff training and operational changes.
    - Gain access to demonstrator vehicles for trials.

# Discussion Notes

## Setting the Scene

For most organisations that operate large fleets of vehicles, the associated emissions typically constitute a significant share of overall carbon footprint.

Where large fleets are necessary, they often comprise a wide mix of vehicles with different operational characteristics and energy demands. For the representatives attending, these included heavy-duty vans, towing vehicles, emergency response and other specialist vehicles e.g. waste collection trucks.

Many fleets are operating in challenging environments across Wales, often in poor weather conditions, serving remote or rural communities.

It was generally understood that many services and vehicle types cannot transition to EVs alone without compromising service delivery and/or increasing business cost and thus cost to the consumer.

Alongside capital costs of moving to alternative fuel vehicles, the productivity costs in terms of time taken to charge, fuel or travel to appropriate infrastructure also need to be included in cost modelling.

Given the complexity of different vehicle limitations and requirements, it was also acknowledged that multiple fuels would be needed, highlighting that there is often no ‘silver bullet’ to decarbonise fleets, even within single organisations.

---

## Challenges

Contributions from attendees highlighted that:

There is a need to recognise that staff across all sectors are expressing anxiety that changes in fleet vehicles and fuelling could limit their ability to do their jobs well. Most commonly articulated are the risks attached to EVs – although this could be simply because this is the most common 'non-traditional' fuel currently used. These concerns included:

- Range limitations – although suitable for vehicles with shorter and more predictable duty-cycles, such as urban waste collection, EVs are currently less suited to longer journeys or those with unpredictable routes.
- Charging times – especially where on-demand or rapid response is required.
- A lack of home charging infrastructure – for employees who routinely take their Light Commercial Vehicle home, especially those living far from central depots.
- The capacity of current battery-electric to fuel vehicles providing auxiliary services e.g. 30% of WWU vans operate on work sites as 'mobile power plants'; others owned by local authorities provide services such as Meals on Wheels requiring an auxiliary energy supply whilst driving. While some models incorporating an alternative auxiliary power supply have been trialled, these have proven to be prohibitively expensive.

More generally across fuel types:

- There were concerns about supply chain gaps, limited availability of spare parts and a shortage of technicians trained in alternative fuel systems, all of which could impact fleet maintenance and reliability.
- There is a need to consider the unladen weight penalties of batteries and alternative fuels, especially for vehicles where the existing diesel type is already operating at maximum gross weight.
- Whilst some alternative fuels provide significant carbon savings, they are not zero-emissions as required by some organisational strategies.

It is significant that whilst these concerns were articulated initially by representatives of public bodies, it was noted that 'unprompted' these mirrored the concerns being widely raised by private sector haulage operators also.

---

## Decarbonisation Pathways

Contributions from CEVA Logistics, Metier Technologies Ltd, HyHaul Mobility and CNG Fuels, focusing on alternative fuel sources, highlighted that:

Vehicles fuelled by hydrogen, Hydrotreated Vegetable Oil (HVO) and biomethane are closer to those with internal combustion engines (ICE) in terms of refuelling, driving and payload potential than EVs; this may help to allay anxieties among drivers, making the transition to new fleet systems easier.

These fuels may also provide a solution for vehicles where mileage is high, duty-cycles unpredictable, rapid response is required and/or driving conditions are challenging.

Hydrogen internal combustion engines represent an alternative to hydrogen fuel cells. Metier Technologies Ltd have produced a hydrogen combustion engine that can be fitted to replace the diesel engine of an existing vehicle. Replacing the engine, fuel tanks and other systems can be done within 3-4 weeks. As only a fraction of an existing vehicle would need to be replaced, this also has benefits in terms of a circular economy model.

Biomethane requires an ICE vehicle to be replaced with one built for use with compressed natural gas (CNG), which typically costs around £25,000 more. However, this can be driven and refuelled in the same way as a diesel-fuelled vehicle and can provide a significant decrease (around 90%) in emissions and a cost saving for the client over the vehicle lifetime.

There is already a network of CNG refuelling stations across the UK and more are expected to be built. The stations currently operating can fill 500-800 trucks per day and refill a high-capacity trailer in 2 hours. The stations are not staffed and are simple to use, generating little resistance from drivers.

Refuelling times for HVO, CNG and hydrogen are comparable to diesel, and do not require a home charging network.

Deployable refuellers can be used to provide fuelling solutions until the infrastructure is more readily available. As deployable infrastructure is expensive, ideally a collaboration will share initial costs between operators. Deployable refuellers can be cheaply relocated to any suitable site for further use or to create another new ‘cluster’, building demand.

Relative to EVs, these fuels also provide a more familiar driving experience, potentially easing behavioural change amongst fleet staff.

However, any replacement fuel must have parity with diesel to be financially and operationally viable in terms of cost, availability of refuelling and practicality of use.

---

## Infrastructure

The infrastructure currently available is aimed at large-scale models of refuelling and supply in order to meet the necessary overheads. Smaller-scale solutions are not financially viable. For CNG Fuels, this has involved working with partners to place stations in logistical hubs where they can also be publicly accessible.

This model of shared infrastructure could accelerate progress in roll out of any new fuel, but this requires extensive collaboration.

The large investment in new fuel technologies and adoption represents enormous opportunities that can be harnessed to also benefit communities and local economies, although this will need to be prioritised and managed consistently to materialise.

---

## Public Perceptions and Communication

Despite high legislative requirements, misconceptions or a lack of understanding around new fuels – especially hydrogen – has the potential to influence the willingness of both staff and the public to accept them.

Acceptance of new fuels can be helped by emphasising the high risk-management standards required and ensuring that safety considerations are given paramount importance. All stakeholders were content that all safety concerns could be effectively mitigated with examples of Health and Safety Executive approval for trials and commercially operating infrastructure being available.

Allowing staff to trial demonstrator vehicles would help to allay apprehension and improve public and driver perception but current access is generally limited to EVs. The hydrogen combustion engine truck produced by Metier Technologies Ltd will be available as a demonstrator from late spring 2026.

Early collaboration with regulators such as Natural Resources Wales and the Health and Safety Executive is essential to ensure that permitting and certification is proportionate and enabling, based on the proven and tested safety performance of each of the new fuel types.

There is a need for communication externally about new fuels, as well as behaviour change and training internally to successfully conduct new fuel trials.

---

## Finance

Fleet decarbonisation requires a significant level of capital investment along with ongoing revenue costs. In considering transitioning away from diesel, investment is needed not only for vehicles and infrastructure but also for training programmes, workforce development, internal change management and external communication to service users and the general public.

'Parity with diesel' is the current benchmark used by most fleet operators in considering costs, which stakeholders felt would need to be maintained if they were to be persuaded to use an alternative fuel. The inherent risk in this concept was, however, noted: waiting for parity with diesel may hold back some operators. An incentive for early adopters could potentially mitigate this risk. It was suggested that alternative fuel providers could also contribute significantly to the transition if they could provide TCO models that demonstrate how their alternative fuel provided parity with diesel.

---

## Triggering a market shift

There is an issue of confidence in terms of which fuel/s the UK and Welsh Governments might choose to champion. This is causing delays in organisations investing in fleet transitions and a fear that they 'might back the wrong horse' and be left without a viable long-term model.

It was generally understood that, whilst significant funding is being put into battery electric by the UK Government, there has not been parity of investment into other fuels.

Similarly, whilst spatial data around EV charging infrastructure is widely available, there are data gaps in terms of which alternative fuel sources are – or potentially could be – available in different locations and at what scale, hindering transition mapping and planning.

Whilst EV-focused policy supports household and light-vehicle transition, it does not reflect the reality that many fleet types cannot transition to EVs without compromising current service delivery. Stakeholders voiced an urgent need to articulate user experience, with as many sector voices as possible, to persuade policymakers of the need to consider other approaches.

An intermediary body that could allow different stakeholders to 'speak with one voice' to government was suggested, with Net Zero Industry Wales being suggested as a model.

A government report on the phase-out of new diesel vehicles may provide a suitable platform to raise awareness of the potential of alternative fuels, although the timescale for the report and consultation is currently unclear.

A mapping exercise to identify areas in Wales where each alternative fuel would be most viable was also suggested.

---

## Next steps

There was a strong desire for continued collaboration to share learning and experience. This could be through further meetings of this group, or alternative forums can be suggested.

The key outputs from the meeting will be circulated to be shared with other industry colleagues and networks once finalised, as appropriate.