

## Significant opportunities and hurdles in the move to zero emission trucks

The purpose of this paper is to draw on the detailed information presented in the background papers to distil key opportunities and hurdles presented by the move to zero emission trucks in Scotland.

It should be read in conjunction with those background papers, with particular regard to the structure of the road haulage and logistics sector.

The taskforce are invited to:

- a) agree, or propose amendments to, the outline of hurdles and opportunities given here;
- b) agree that this should form the basis of the taskforce's work plan for the coming 12 months;
- c) agree that the pathway that the taskforce will co-design by the end of its life will take the form of a set of high-level actions required to recognise the opportunities / knock-down the hurdles.

### Technological development

The technology for zero emission trucks is developing fast and vehicles are coming to market, but real world data are not yet available for operators to assess. The range of potential options combined with lack of operational and financial data makes it difficult for operators, particularly at smaller scale, to understand what is most likely to suit them or how to weigh up options.

There is an opportunity both for additional trials and a mechanism for identifying and sharing the key data that operators require from trials. This would need to respect commercial sensitivities, but could relatively quickly build a shared understanding of strengths and areas of challenge for each technology across use cases.

### Supply-chain

There are opportunities to build on Scotland's strong culture of innovation, R&D capacity, and to develop the domestic supply-chain for vehicle components, auxiliary equipment, battery manufacturing and hydrogen generation. This will drive down costs, provide high quality skilled jobs, and reduce carbon in the manufacturing and shipping of parts. There is a requirement to understand and support the skills required.

Given the high degree of fragmentation among operators and vehicle use-cases, and the strong ambition of EU nations to decarbonise road freight, there may be an opportunity to explore approaches to aggregating demand (perhaps initially in the public sector) to ensure a sufficient supply of vehicles, potentially at an improved cost.

## **Energy provision, technology and infrastructure**

There is a strong interplay between the different energy provision, technology and infrastructure requirements for zero-emission trucks and the potential for novel and innovative financial structures to enable the transition.

Where an operator chooses battery-electric or hydrogen fuel-cell trucks, charging or refuelling infrastructure is required either in a depot or at appropriate points en route. In many cases, both will be necessary. There is an opportunity to consider what requirements Scotland has for public charging/ refuelling infrastructure at this early stage, and to drive forward appropriate developments which meet the needs of both urban and rural areas.

Opportunities for collaboration with other energy users and providers emerge to ensure the most efficient use of infrastructure. This may relate to other energy users in the same geographical area (reconfiguring depots may, in some cases, be a significant undertaking) or in relation to the technology (e.g. batteries) having value to another part of the value-chain after the value to haulage and logistics operations has receded.

There is an opportunity and a need for greater information sharing and strategic planning between energy providers, technological innovators and operators, and there may be a need for awareness raising and knowledge sharing about infrastructure, grid and connection/ fuelling solutions across operators or sectors.

## **Finance**

Because of the early technological readiness levels of ZETs, the Total Cost of Ownership figures have not yet been fully quantified. It is already clear, however, that ZETs will have higher up-front purchase costs compared to diesel trucks.

This is exacerbated where charging/ refuelling infrastructure also has to be paid for up front. At any time this could reasonably be expected to incline operators to favour diesel trucks, and this is amplified by impact of EU exit, COVID, Ukraine and the resultant capacity to consider fleet transition at the current time. This challenge is particularly acute for small operators, and of the 5,592 fleets registered in Scotland, 90% run fewer than 10 trucks.

This presents a requirement for innovation and change with respect to the products offered by the financial, leasing and manufacturing sectors; an opportunity to build on Scotland's strong finance skills and capacity; and a need to understand what is required to build confidence among these partners and enable change at pace.