

NEWCASTLE-UNDER-LYME BOROUGH COUNCIL

REPORT TO CABINET

06 September 2022

Report Title: **Alternative Fuels – Recycling, & Waste, and Streetscene HGV's.**

Submitted by: **Executive Director of Sustainable Environment**

Portfolios: **ENVIRONMENT & RECYCLING**

Ward(s) affected: **All**

<p><u>Purpose of Report</u></p> <p>For Cabinet to approve the trial use of Hydrotreated Vegetable Oil (HVO) in the Councils HGV fleet as part of its commitment to reduce its Carbon emissions to net zero by 2030.</p>	<p><u>Key Decision</u> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p><u>Recommendations</u></p> <p>To approve the use of Hydrotreated Vegetable Oil (HVO) a renewable diesel alternative for the Council's HGV fleet operating in the Recycling & Waste and Street Cleansing operations on a trial basis.</p>	
<p><u>Reasons</u></p> <p>The Council has a target of achievement of net zero carbon emissions by 2030. This proposal could reduce CO2 emissions from the Council's HGV fleet by up to 723 tonnes, which will have a significant positive impact and contribution in reducing the Council's the carbon emissions.</p>	

1. Background

- 1.1** At its meeting on 4th November 2020, Cabinet received and endorsed the Council's reviewed Medium Term Financial Strategy including a mid-term review of the Council Plan. Under Priority 3 – a Healthy, Active and Safe Borough, Cabinet reaffirmed its commitment to establish a Sustainable Environment Strategy for the Council and the Borough linked to Government targets.
- 1.2** In order to translate the Council's ambitions in respect of the environment, a Sustainable Environment Strategy was approved by Cabinet at its December 2020 meeting and is the vehicle for helping the Council achieve its aims of caring for and enhancing our natural environment and to adapt and mitigate the effects of climate change.
- 1.3** Energy and fuel are the biggest contributor to the Council's current carbon emissions, (scope 1 in our annual carbon reporting) and therefore needs to be our initial focus in looking at ways to reduce emissions, in order for the Council to meet its net zero carbon emissions by 2030.

2. Issues

- 2.1 While green technology in cars and small vans has developed significantly over the last ten years, based around electric and electric hybrid technology, there is currently little in the way of viable alternative options for heavy goods vehicles (HGV's) such as the Council's recycling and waste collection vehicles (RCV's), and large road sweepers.
- 2.2 There are now fully electric RCV's available, but only single body, 26tonne arrangement, although others such as the twin packs we use for recycling collections are in the pipeline. The cost of purchase however is significantly more expensive than a standard RCV powered by diesel, with prices starting around the £400k mark opposed to around £170 k for a traditional diesel engine vehicle. Additional special charging infrastructure is also required, which is more complex than the EV charging you would use for a care or small van.
- 2.3 Hydrogen fuel cell technology is another possibility, but this technology is in its infancy, with only one RCV currently operating in the UK. This technology has the potential to being a long-term solution, but is a number of years away from being a credible and affordable alternative. There is however, research ongoing and Keele University have a demonstration plant where they are able to produce hydrogen as a fuel. We are keen to work with them and the current only RCV vehicle manufacturer to help in the development of this technology. This will be the subject of a future report to Cabinet.
- 2.4 In the next couple of years, the Council will need to replace 10 of its RCV's, which are employed collecting domestic and garden waste. While we could consider electric RCV's the cost would be considerable as outlined above, therefore existing diesel driven vehicles will be the only choice for the majority of the vehicles we need to replace.
- 2.5 There is a need therefore to look at lower emission fuels which can work in a diesel engine as a suitable solution for the short to medium term while other technologies as mentioned above are more fully developed.

3. Proposal

- 3.1 Hydrotreated Vegetable Oil (HVO) is a credible alternative to diesel. HVO fuel is a 100% renewable diesel that will help the UK achieve its net zero carbon target. It is a member of the paraffinic family of fuels, being virtually chemically identical to regular diesel, allowing it to be used as a drop-in alternative to white diesel while reducing up to 90% of net CO2 emissions. HVO fuel is made from 100% renewable raw materials; it is sustainable and biodegradable. As well as reducing CO2 emissions, it is stated by manufacturers to also reduce NOx, PM and CO emissions also.
- 3.2 HVO can only be used reliably, in vehicles fitted with Euro 6 engines. All the Council's HGV's apart from one sweeper have Euro 6 engines. No adjustments or additions are required for Euro 6 engines, and they can revert to at any time to using regular white diesel, should there be a need, again without any modifications being required. The Council's smaller vehicle fleet, vans, pickups, tractors and so on are not all equipped with Euro 6 engines, and will have to continue to run on white diesel.
- 3.3 It is proposed to trial the use of HVO in the suitable parts of the Council fleet, and evaluate its performance in terms of cost and fuel efficiency.

4. Reasons for Proposed Solution

- 4.1 Use of HVO fuel as a replacement for diesel in the Council's fleet able to operate on it would give significant reductions in carbon emissions. Using UK government conversion factors

and using the last year's full figures on fuel usage, moving to HVO could result in a reduction in carbon of up to 723 tonnes assuming no interruption in supply.

- 4.2** Based on our last calculated year outcome (2020/21) of 2176 tonnes of carbon emitted for all of the Council's operations, the use of HVO could net up to a 33% reduction overall in emissions generated by the Council. For the purposes of this business case, it is proposed to use a benefit range of between 25% to 33% over a full year to allow for potential issues with supply. Therefore, should the Council commence use of HVO in September this year, the benefit range would be a reduction of between 12.5% and 17.5% of the Council's overall carbon emissions this year 2022/23, with a further 12.5% to 17.5% being saved in 2023/24. This represents a very significant reduction in the Council's carbon emissions and makes a major contribution to the Council's target to become a carbon neutral Council by 2030.

5. Options Considered

- 5.1** The only options to moving over to HVO is to either remain on traditional white diesel, or look to move towards a fully electric fleet of HGV's.
- 5.2** Remaining on the use of white diesel will not allow the Council to move forward on its net zero target, and as stated in paragraph 2.2 a move to fully electric HGV's is not viable from a supply point or affordability at this time. However, procurement of electric RCV's will be considered as part of the next phase of vehicle replacements in the Recycling and Waste Service.

Legal and Statutory Implications

- 6.1** The Climate Change Act 2008 has the following provisions:
- Carbon targets and carbon budgeting – The Act places the government under a legal duty to reduce greenhouse gas emissions by 80% below 1990 levels by 2050
 - The committee on Climate Change – The Act also establishes the Committee on Climate Change, an independent, expert body to advise government on the appropriate level for target, budgets, and on matters relating to mitigation and adaptation. The Committee will submit annual reports to parliament on progress towards the targets and government must respond to this report.
- 6.2** The Council's Duty to reduce carbon emissions, which are further, legislated for as part of the environment.
- 6.3** All Local Authorities have a 'biodiversity duty' under the Natural Environment & Rural Communities Act 2006.

7. Equality Impact Assessment

- 7.1** No equality issues identified as part of the delivery of the service.

8. Financial and Resource Implications

- 8.1** While the benefits in reducing emissions are evident, the cost of HVO is significantly dearer than diesel, currently around 40p a litre than diesel, and it is showing the same signs of price volatility in the market as is being experienced with regular petrol and diesel, even though HVO is not crude oil based.

- 8.2 The Council spent £425k on fuel for its fleet operations in 2021/22 and is expected to spend £700k to £750k this year, with price increases and changes to red diesel rules.
- 8.3 Looking at fuel usage for the vehicles which could run on HVO, there would be an additional cost of £60K to £80K a year. This would be in addition to the current volatility and increasing costs of diesel already predicted.
- 8.4 Assuming the Council started using HVO around September, the financial impact for 2022/23 would be between £30k to £40K.
- 8.5 There are no resource implications from this change other than monitoring the vehicles to see how emissions are being reduced.
- 8.6 It is proposed to fund the additional costs of the HVO fuel in 2022/23 from the Sustainable Environment element of the Borough Growth Fund and the Budget Support Fund. As part of the 2023/24 budget setting process, a Carbon Budget will be set up to fund ongoing costs together with new carbon reduction initiatives.

9. Major Risks & Mitigation

- 9.1 The main risk to the proposed switch is currently sufficiency of supply. It is likely that demand will rise significantly as fleet operators of suitable diesel engine fleets, both in the public and private sectors, consider a move to HVO in view of the very significant environmental and carbon reduction benefits.
- 9.2 Price volatility and supply are the major risks with moving over to HVO. Production of HVO is much smaller in scale than that of traditional fuels, and demand is rising as an effective way for organisations to reduce their carbon footprint. This may result in prices for HVO rising significantly more as supply and demand factors play through the market. Fortunately, as stated in paragraph 2.10 it is easy to swap vehicles back to operating on diesel, as no changes are required to the vehicle engine and associated emission control equipment.

10. Sustainability and Climate Change Implications

- 10.1 The introduction of the use of HVO supports in addressing:



- 10.2 The adoption of HVO fuel to the Council's HGV fleet would yield significant reduction CO2 emissions, removing 723 tonnes of carbon. This would equate to around a 33% reduction in the Council's overall carbon emissions, for a full year, representing a significant step change towards the target of net zero by 2030.
- 10.3 As stated in paragraph 5.2, if the Council commenced using HVO fuel around September, the reduction in CO2 emissions would be between 12 and 17% for this financial year.

11. Key Decision Information

- 11.1 To approve the use of Hydrotreated Vegetable Oil (HVO) as a renewable diesel alternative for the Council's HGV fleet operating in the Recycling & waste and Street Cleansing operations.

12. **Appendices**

- 12.1 None.