



**Report Reference Number:** E/22/8

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**To:** Executive  
**Date:** 7 July 2022  
**Status:** Non-key  
**Ward(s) Affected:** All  
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**Lead Executive Member:** Councillor Tim Grogan, Executive Lead Member for Health and Culture  
**Lead Officer:** Suzan Harrington, Director of Corporate Services and Commissioning

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**Title: Outcomes of the trial of alternative fuel to fossil diesel**

**Summary:**

Hydrogenated Vegetable Oil (HVO) is an alternative fuel to fossil diesel that has significant carbon reduction benefits. A 12-week trial was undertaken between December 2021 and February 2022 to assess carbon reductions together with vehicle and driver impacts of using HVO fuel as an alternative to fossil diesel. The trial was funded and conducted by Urbaser Ltd who produced the outcome report at Appendix A. The trial was successful and demonstrated the expected carbon reductions. In addition, there were no vehicle or driver issues arising from the HVO fuel trial.

HVO fuel is more expensive per litre than fossil diesel and since the trial outcomes were reported, HVO fuel has increased at a faster rate per litre than fossil diesel resulting in the adoption of HVO fuel currently being financially unsustainable. However, the trial results have been shared with fleet operations for the new North Yorkshire Council to assist any future decisions regarding alternative fuel for a much larger fleet.

**Recommendation:**

**That the Executive note the contents of the report and refer the trial outcomes to North Yorkshire Council for consideration when markets and price differentials return to pre-2022 levels.**

**Reasons for recommendation**

The implementation of HVO fuel would save 890 tonnes of carbon from Environmental Services fleet operations for Selby and make a significant contribution to carbon zero

by 2030. However, due to current market conditions and world events the increased cost is currently unsustainable and likely to increase in the short to medium term.

## **1. Report**

- 1.1 Urbaser approached Officers in September 2021 with a business case and proposal for a trial of HVO fuel as an alternative to fossil diesel which was expected to make significant reductions in carbon emissions and support progress towards net zero by 2030.
- 1.2 The Selby contract was selected for the trial by Urbaser due to Selby having a modern fleet with a range of waste collection, street cleansing and grounds maintenance vehicles that could be included in the scope of the trial. It also has a proactive local management team and local authority client that would provide the necessary support to the trial. Approval for the trial was agreed with the Selby client in September and a fuel tank was ordered and commissioned at the end of November 2021.
- 1.3 HVO fuel is renewable, sustainable and 100% biodegradable: synthesised from waste fats and vegetable oils. There is full traceability of the feedstock, and it is palm oil free. It is a 100% drop in replacement fuel meaning that it can directly replace fossil diesel without any engine modifications. HVO fuel is certified by the ISCC to reduce carbon emissions by 90% compared to fossil diesel and reduces Particulates by 85% and NOx by 30%.
- 1.4 The HVO fuel tank was installed and commissioned in November 2021 with the 3-month trial starting in December 2021. A selection of six vehicles were utilised for the trial, consisting of four refuse vehicles, a mechanical sweeper and a caged vehicle.
- 1.5 The anticipated outcomes of the trial were summarised in the original business case as:
  - The tonnage of CO<sub>2</sub>e/L displaced by the HVO fuel during the trial period
  - Confirmation of total cost difference of switching fuel including any other unforeseen cost
  - Any difference in MPG of the vehicles using HVO fuel
  - Any difference in AdBlue usage of the vehicles using HVO fuel
  - Any noticeable drive difference or vehicle noise reduction compared to conventional diesel
  - Any changes to operational practices or staff training required
- 1.6 Details of the trial outcomes are contained in the report at Appendix A but in summary the trial of six vehicles saved 68.17 tonnes of carbon and showed minor changes to MPG with no adverse driver or vehicle issues.
- 1.7 HVO fuel is more expensive than fossil diesel and it is estimated that a switch to this fuel will increase annual fuel costs by approximately £110k based on latest available prices – significantly higher than indicated by the trial. Set out in the table below are the comparable cost per litre of HVO and fossil diesel fuel

over a seven-month period which has been a particularly volatile period of fuel cost increases. The HVO index for May 2022 showed a price difference of 35p per litre but the HVO supplier Green Biofuels advise this jump in price has been caused by two factors, a) surge in demand for the fuel from European markets and b) feedstock supply issues due to the war in Ukraine. In the medium to long term, it is expected that supply will catch up to meet demand and it is understood there are plans to open UK refineries for HVO but unfortunately that does not address the issues in the short term.

1.8 When the original proposal and trial was pulled together, prices over a 6-month period indicated that an additional £49k in the revenue budget was required to fund HVO as opposed to diesel. Since then, the gap has widened in May 2022 to 35p driven by supply issues as a result of the crisis in Ukraine and increasing demand for the product. Taking the latest differential an additional £110.6k of revenue costs would be required per annum to run the fleet on HVO fuel, which equates to £73.7k for the current year with supply commencing at the start of August 2022. Whilst there is an expectation in the longer term that supply will begin to meet demand, it is not expected that there will be a resolution to the increasing price as a result of issues of supply in the short term. It is therefore quite feasible that there may be further increases in the gap between cost of HVO and diesel in future months.

1.9 The table below demonstrates the unpredictable fluctuation in the difference between HVO and diesel per litre price over time and illustrates three future scenarios in the price gap – 20% increase, 20% decrease and maintaining May 22 levels.

Fuel Price Date	Fossil Diesel Price (PPL)	HVO Fuel Price (PPL)	Fuel Price Difference per litre	Fuel Usage litre 000's	Annual Fuel Price increase £	Forecast Gap Reduction by 20% on May 22 Levels	Forecast Gap Reduction Maintained at May 22 Levels	Forecast Gap Increase by 20% on May 22 Levels
Nov 21	119.13	124.31	5.18	316	16,369			
Dec 21	112.06	136.14	24.08	316	76,093			
Jan 22	116.73	132.16	15.43	316	48,759			
Feb 22	119.96	133.85	13.89	316	43,892			
Mar 22	126.16	134.08	7.92	316	25,027			
Apr 22	137.73	165.26	27.53	316	86,995			
May 22			35.00	316	110,600			
	<b>Forecast</b>			316		88,480	110,600	132,720

1.10 Appendix A (5.2) also outlines the sharp increase in price comparable to Diesel through increased cost of HVO production and the impact of the current crisis in Ukraine and overall increased demand. It is reasonable to assume in the longer-term assumptions can be made about the increasing demand for HVO Fuel or other alternatives to meet net zero emissions by 2030. Currently increased demand is driving prices up but is expected that more suppliers will

come to the market which should have a positive impact on pricing, whether this will still track diesel pricing which is continually rising remains to be seen.

- 1.11 One further point of note is that vehicles can be switched from diesel to HVO and back easily, with just a tank clean at very low cost required. This does minimise risk if HVO was adopted should supplies run short and availability be an issue.

## **2. Implications**

### **2.1 Legal Implications**

There are no direct legal implications of this report.

### **2.2 Financial Implications**

None arising from the recommendation in this report.

### **2.3 Policy and Risk Implications**

Given the pressure on markets, there is significant volatility in HVO prices at this time and therefore a very real risk of further price rises. The financial assessment above models a further 20% increase which would add £132k to the Council's costs. However, this clearly cannot be viewed as a maximum.

The Low Carbon Strategy 2021-2030 was approved in February 2022 and outlines the Council's ambition to become carbon neutral by 2030. One objective of meeting this target is to reduce our scope 1 and 2 emissions through divestment from fossil fuel energy sources and encourage sustainable transport.

The trial outcomes have been shared with NYCC fleet operations for consideration by the new North Yorkshire Unitary council.

### **2.4 Corporate Plan Implications**

The Council Plan 2020-2030 sets out the vision for the Council over the next ten years. As part of this vision the strategic priority, 'a great place to ENJOY' includes the objective to improve environmental quality and sustainable transport. The headline delivery priorities for this objective are to reduce our carbon footprint and aim to be carbon neutral before 2050. This is to be achieved by actively reducing our carbon footprint, supporting low carbon projects that benefit the district through close working with local partners, improving air quality and promoting sustainable transport.

### **2.5 Resource Implications**

None directly from this report.

### **2.6 Other Implications**

Scarborough Borough Council have also recently undertaken a HVO trial with similar outcomes and adopted HVO fuel earlier this year. However, Scarborough have advised that due to significant price increases in HVO fuel they are monitoring expenditure monthly to potentially revert to fossil diesel when HVO budgets have been exhausted. The Local Government Reorganisation Fleet workstream have requested and been provided information by Selby and Scarborough regarding the HVO trial.

## **2.7 Equalities Impact Assessment**

None directly from this report.

## **3. Conclusion**

Whilst a switch to HVO fuel will save significant amounts of carbon the currently volatility of prices due to world events is such that the cost in the short to medium term is prohibitive.

## **4. Background Documents**

None.

## **5. Appendices**

Appendix A - Selby HVO Fuel Trial Outcome Report

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