

Environment & Climate Change  
Town Hall, Upper Street, N1

Report of: Corporate Director of Environment

Meeting of:

Date:

Ward(s): All

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**APPENDIX 1 - Procurement strategy and contract award for Liquid Fuels for the Council's fleet vehicles**

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## Subject: Hydrotreated Vegetable Oil (HVO)

### **What is Hydrotreated Vegetable Oil?**

1. HVO is a fuel, sometimes known as Renewable Diesel is a popular fuel which is expanding in popularity with many local authorities making the transition from traditional white diesel to this type of fuel. HVO is part of the paraffinic family of fuels and is a fossil-free alternative to mineral/white diesel, resulting in up to 90% reduction in Greenhouse Gas emissions. It is also specially formulated to deliver a cleaner burn, and produces significantly lower NOx and particulate matter than conventional white diesel.
2. HVO fuel is created from renewable waste resources, it is 100% biodegradable, odourless, and virtually non-toxic. As such, it is completely safe to use as a diesel fuel alternative. HVO is created to EN 15940 standards, which is the specification required for paraffinic diesel fuels. This means in effect that it can be used interchangeably for fossil fuels without any need to upgrade your existing infrastructure.
3. The adverse environmental effects of HVO fuel are so low because it primarily uses renewable waste materials in its manufacturing. HVO fuel carries International Sustainability and Carbon Certification (ISCC), which is an independent certification system that rates various fuels based on their environmental effects. This means that HVO meets the minimum environmental, traceability, and social requirements.

4. HVO fuel can be used as a direct drop-in alternative for regular diesel without needing to amend existing infrastructure or modify vehicles. Paraffinic fuels can be blended with current stocks without having to empty tanks, no upfront investment is needed to make the switch from regular diesel to HVO.
5. HVO fuel is also fully accepted by the UK Government, which has classified it as a renewable fuel within the Road Transport Fuel Obligation (RTFO). HVO is also fully biodegradable, which means that in the event of a leak or a spillage of this fuel, any potential environmental damage will be minimal. HVO fuel is compliant with the EU REACH regulations under the OECD test guideline 301 B, which is another point in favour of its biodegradability.

### **Environmental Benefits**

6. The crops used in manufacturing HVO fuel do not damage the environment or the ecosystem.
7. The environmental benefits of using HVO reduces greenhouse gas/CO<sub>2</sub> emissions by up to 90%, reduces NO<sub>x</sub> emissions by up to 27%, reduces particulate matter emissions by up to 30% and reduces carbon monoxide emissions by up to 24%. In comparison for every 1,000 litres of diesel burned, you will produce 3.6 tonnes CO<sub>2</sub>; for every 1,000 litres of HVO burned, you will produce 0.195 tonnes CO<sub>2</sub>.
8. To demonstrate the reduction of emissions from using HVO fuel, independent test centre 'Applied Emissions' carried out a study to compare the chemical output of the fuel in a 275 KVA generator. The results showed a significant NO<sub>x</sub> reduction of 7.5% across tests, showing that using HVO fuel improves air quality by simply changing the fuel in non-designated areas. The CO, CO<sub>2</sub> and hydrocarbons (HC) results highlighted the improved burning characteristic of HVO fuel compared to white diesel. In particular, the large reduction in HC demonstrated that more of the HVO injected into the cylinder is combusted, reflecting the consistent nature of the fuel in terms of hydrocarbon molecules that it contains.

The table below compares the different characteristics of HVO fuel, FAME, and regular diesel.

Characteristics	<b>Diesel</b>	<b>HVO Fuel</b>
<b>BIO Content</b>	0	100
<b>Oxygen Level</b>	0	0
<b>Sulphur Content</b>	<10	<5
<b>Specific Gravity</b>	0,84	0,78
<b>Distillation Level, C</b>	200 – 350	200 – 320
<b>Cetane Level</b>	51	70 – 90
<b>Stability from Oxidation</b>	Average	Excellent

## **Costs**

9. The Council had been actively exploring the possibility of switching from diesel to Hydrotreated Vegetable Oil (HVO) fuel to power diesel vehicles in 2022/23 but due to the significantly higher cost per litre of HVO compared to diesel this would have resulted in additional annual costs for the council services of over £350k based on estimated usage for 2022/23.
10. Currently HVO can only be procured via the CCS framework and there is a 50 pence per litre (ppl) premium on this fuel in comparison to diesel i.e., the price of HVO will always be 50ppl more expensive than diesel through the life of the CCS framework. Currently (April 2023) the price of HVO would be £1.64 per litre (white diesel £1.14 per litre).
11. Discussions had taken place with colleagues at LB Hackney in 2022 regarding the potential joint procurement of HVO but their procurement procedures and protocols as well as timeframes were not comparable to LB Islington's and as such LB Hackney entered their own new agreement for the procurement of HVO. LB Hackney have been using HVO for a number of years.
12. The Council will continue to explore the purchase of HVO fuel and monitor costs throughout the period of the upcoming frameworks and thereafter.

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