




**Introducing our new
cleaner, greener fuel product**

HVO

Hydrotreated Vegetable Oil

For a cleaner, greener future.



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Ukay energy always strive towards quality in everything we do and are aware of the pressures on the environment.

We are therefore proud to announce our NEW cleaner, greener HVO fuel.

This is a diesel and gas oil alternative fuel, **HVO** (Hydrotreated Vegetable Oil) is a fossil free, paraffinic fuel made from 100% raw materials.

A more sustainable, high quality of diesel fuel, that is suitable for all diesel-powered vehicles and industrial powered generators. Produced from waste fats and vegetable oils, the fats are transformed into biofuel by hydrogenation.

HVO can reduce emissions by as much as 90% and has excellent cold weather performance.

Providing a cleaner, greener future.





HVO

What is HVO?

HVO (Hydrotreated Vegetable Oil), is a fossil-free, paraffinic fuel made from 100% renewable raw materials. A more sustainable, high quality of diesel fuel, that is suitable for all diesel-powered vehicles and industrial powered generators.

Produced from waste fats and vegetable oils, the fats are transformed into biofuel by hydrogenation.

With the Government pledging that by **2050** carbon emissions are to reduce by up to **80%**, the need for sustainable fuels has never been greater.

This means that emissions from homes, transport, farming and industry will have to be avoided completely.





HVO WHITE

HVO WHITE

Alternative Diesel

Our alternative fuel for diesel powered engines is **HVO** WHITE, this is a cleaner fuel than diesel, or FAME (fatty acid methyl ester – biodiesel); it complies with EN15940 & ASTM D97 5.

Unlike biodiesel it does not deteriorate over time and can be used in temperature extremes. **HVO** WHITE, is a drop-in replacement which can be used in all diesel engines.

HVO WHITE is an enhancement of HVO, achieved by inclusion of an additive system which chemically reduces NO_x (to N₂) in the exhaust gases whilst oxidizing incomplete combustion products (HC, PM and CO).

Our fuel is formulated as HVO WHITE and then enhanced with our proprietary additive package to produce **HVO** WHITE.

The base HVO is sourced from two European Suppliers including the world's leading supplier of renewable diesel.



HVO RED

HVO RED

Alternative Gas Oil

HVO is affected by the duty changes from April 2022 so therefore only those who are exempt from those changes are able to use HVO RED. If you are not eligible to use rebated fuels but are looking for a more environmentally sustainable alternative to standard diesel you can use HVO WHITE.

Our alternative fuel for off road vehicles which are still eligible to use rebated fuels is **HVO RED**, this is a cleaner fuel than gas oil, or FAME (fatty acid methyl ester – biodiesel); it complies with EN15940 & ASTM D97 5.

Unlike biodiesel it does not deteriorate over time and can be used in temperature extremes.

HVO RED has been adopted as our solution to meet clients environmental obligations.



HVO WHITE HVO RED

The Benefits

KEY BENEFITS OF USING HVO



NO_x
NITROGEN OXIDES

LOWER NO_x
NO levels are reduced by **up to 30%**



PM
PARTICULATE
MATTER

LOWER PARTICULATES
Particulate, PM25 & PM10
are lowered by **up to 86%**



CO₂e
CARBON DIOXIDE

LOWER CO₂e LEVELS
HVO generates **up to 90%**
greenhouse gases (co₂e) and
emissions reducing your carbon
footprint significantly.

350L = 956KG

USED HVO

REDUCED CARBON OUTPUT

- ENVIRONMENTALLY FRIENDLY & SUSTAINABLE**
Made from sustainable and renewable raw materials, HVO reduces greenhouse emissions by as much as 90%.
- LOW VISCOSITY LEVELS**
Has excellent cold weather performance.
- GREAT ALTERNATIVE SOLUTION**
Compatible with diesel engines.
- LONG STORAGE SHELF LIFE**
Improved safety, shelf life and storage compared to regular diesel, therefore reducing the need for regular testing.
- DROP-IN FUEL**
HVO can be used a direct replacement for conventional diesel fuels in heavy-duty and light-duty engines.
- NOISE REDUCTION**
Noise levels in some engines can be reduced by 1-4 dB.



Technical Info.

HVO is a bio-based paraffinic diesel fuel defined in the EN15940 specification.

Our supplier guarantees no FAME is added in the product and that it does not contain manganese.

HVO is 100% renewable waste.

PROPERTIES	TEST METHOD	UNIT	EN590	ASTM D975	EN15940	HVO WHITE	
						MIN	MAX
Cetane number	ASTM D4737	-	> 51	> 40	> 70	> 70	-
Density at 15°C	ASTM D1298	kg/m ³	820-845	-	765 - 800	770	790
Sulfur content	EN ISO 20846	mg/kg	< 10.0	< 15.0	< 5.0	-	5.0
Flash point	ASTM D975	°C	> 55	> 52	> 55	61	-
Carbon residue (on 10% distillation residue)	ASTM D4530	%(m/m)	< 0.30	< 0.35	< 0.30	-	0.10
Ash content	ASTM D482	% mass	< 0.010	< 0.010	< 0.010	-	0.001
Water content	ENISO 12937	mg/kg	< 200	-	< 200	-	100
Total contamination	ENISO 12662	mg/kg	< 24	-	< 24	-	10
Copper strip corrosion (3h at 50 c)	ENISO 2160	Rating	Class 1	Class 3	Class 1	Class 1	
Oxidation stability	ENISO 12205	g/m ³	< 25	-	< 25	-	25
Lubricity, corrected wear scar diameter (wsd 1.4) at 60 c	ENISO 12156-1	mm	< 460	< 520	< 460	-	400
Viscosity at 40 c	ENISO 3104	mm ² /s	2.0 - 4.5	1.9- 4.1	2.0 - 4.5	2.0	4.0
Distillation IBP	ENISO 3405	°C	-	-	-	180	-
% (V/V) recovered at 250 C		% (V/V)	< 65	-	< 65	-	< 65
% (V/V) recovered at 350 C		% (V/V)	> 85	-	> 85	85	-
95% (V/V) recovered at		°C	< 360	-	< 360	-	320
Cloud point (Summer/Winter) & CFPP	ENISO 23015 - EN 116	°C	Down to -34	-	-	-15/-32 (CFPP reported)	
Appearance	Visual	-	-	-	-	Clear and Bright	
Total aromatics content	EN 12916	%(m/m)	-	< 35	< 1.1	-	1.0
Electrical Conductivity	ISO 6297	pS/m	-	-	-	100	-
Acidity total (TAN)	ASTM D3242	mgKOH/g	-	-	-	-	0.01
Sediment, particular matter	EN 12662	g/kg	-	-	10	-	< 1
Net heat of combustion, measured	ASTM D4809	MJ/kg	-	-	42	-	44

HVO WHITE
HVO RED

OEM Approved.

These OEMs (Original Equipment Manufacturers) have already approved HVO to use in heavy duty road vehicles, passenger cars and non-road vehicles.

OEM approvals include:

- DAF
- Scania
- Mercedes Benz
- Caterpillar
- IVECO



FAQ's.



CAN I USE HVO IN MY CURRENT OFF-ROAD DIESEL ENGINE?

Yes. HVO WHITE is a 100% drop in fuel and with any EN590 & ASTM D97 5 red diesel compatible engines, such as generators.

HOW LONG CAN I STORE HVO FOR?

Due to its chemical make-up, our HVO can be stored indefinitely without any performance loss.

DOES HVO COME FROM PALM OIL?

Our supply of HVO meets the regulations of the ICSS and has been sourced from 100% sustainable raw materials and waste.

DOES HVO SMELL LIKE DIESEL?

Our HVO is composed entirely of linear and branched paraffins with no aromaticity, no saturation, and no Sulphur compounds, making it odourless and biodegradable.

HAS HVO BEEN APPROVED BY OEMS?

HVO has been approved by many OEMs, including DAF, John Deere, Volvo, Mercedes- Benz, IVECO and many more.

HVO WHITE
HVO RED

Driving down emissions together.

Our aim is to help all businesses achieve their sustainability targets and help to protect our future. That's why we are dedicated to bringing you the best fuel solution for every business need.

Call our experienced Sales team today and start to see the benefits of using **HVO**.

CALL

01376 574 650

EMAIL

sales@ukayenergy.co.uk

VISIT

www.ukayenergy.co.uk/HVO

For more FAQ's please visit our website

CASE STUDY

21 Moorfields

BARBICAN, LONDON

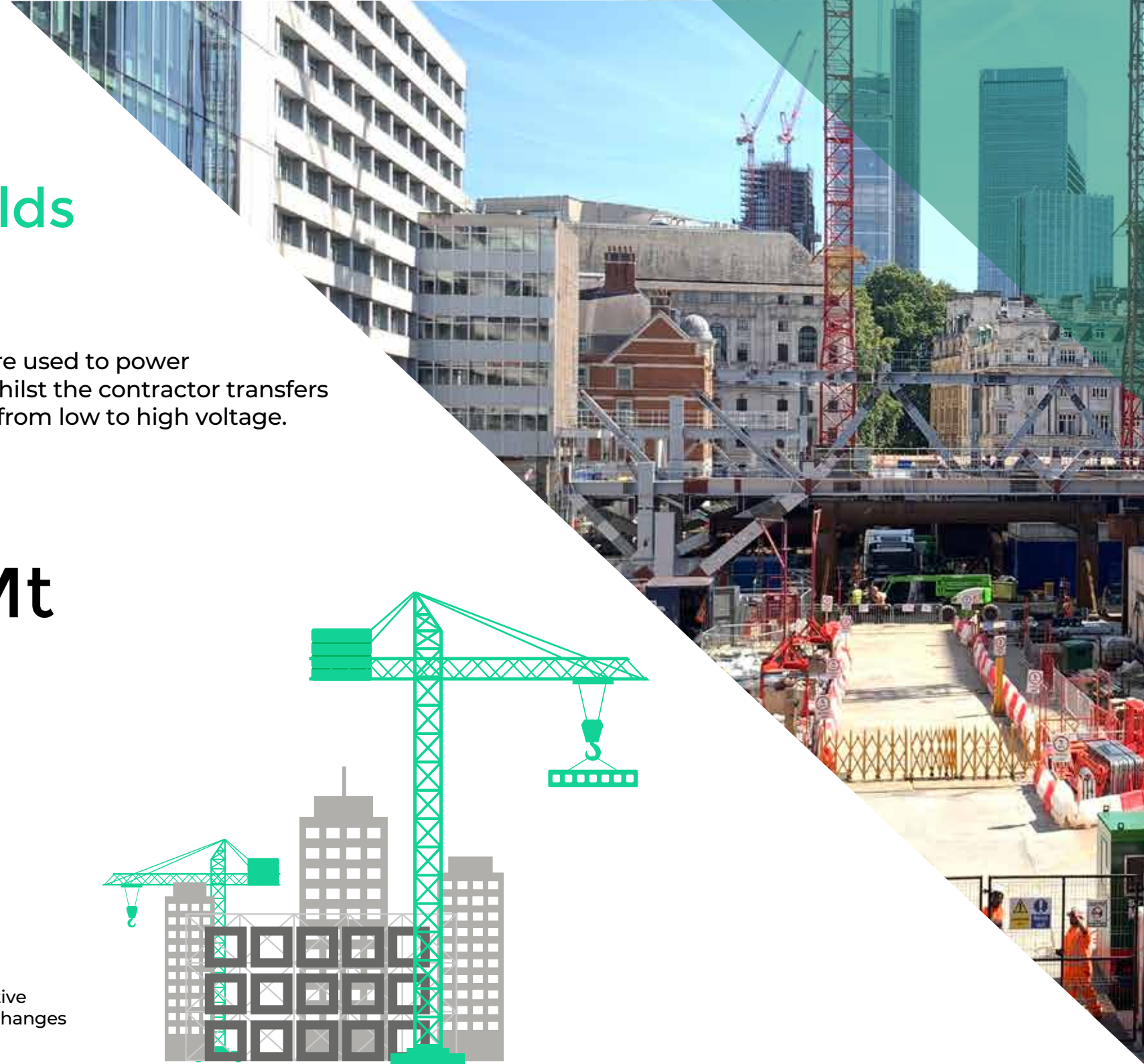
25,000 litres of **HVO*** were used to power two generators on site whilst the contractor transfers the mains power supply from low to high voltage.

REDUCED CO_{2e}
68.5Mt

REDUCED NO_x
29%

REDUCED PM
77%

* HVO RED was used as an alternative prior to April 2022 rebated fuel changes




CASE STUDY

Winter Wonderland

HYDE PARK LONDON

HVO* was supplied to Winter Wonderland in 2019 and powered over 30 generators across Hyde Park in London.

With our 3.5 million visitors, the use of HVO not only reduced the levels of CO₂ into the atmosphere, but the NO levels were reduced dramatically to enhance the visitors breathing air quality.

 **1,600,000L**
OF HVO RED REDUCED CO_{2e} LEVELS BY
4,368 Mt

* HVO RED was used as an alternative prior to April 2022 rebated fuel changes



For a cleaner, greener future.

HVO

If you would like to know more about our HVO product, please contact us on the details below and speak to one of our friendly advisors.

www.ukayenergy.co.uk

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