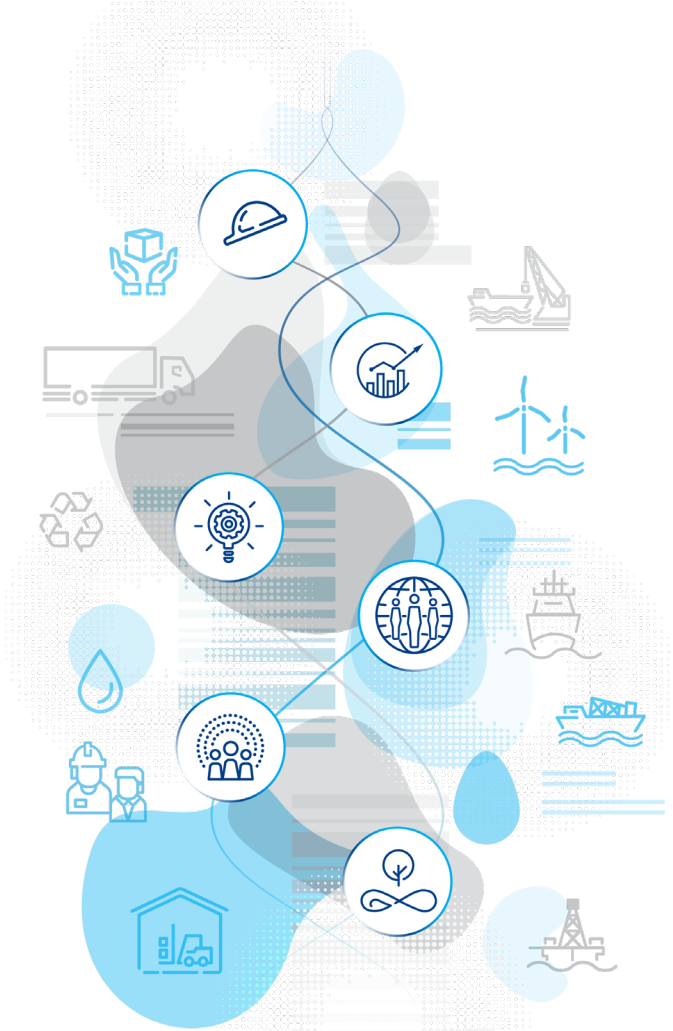
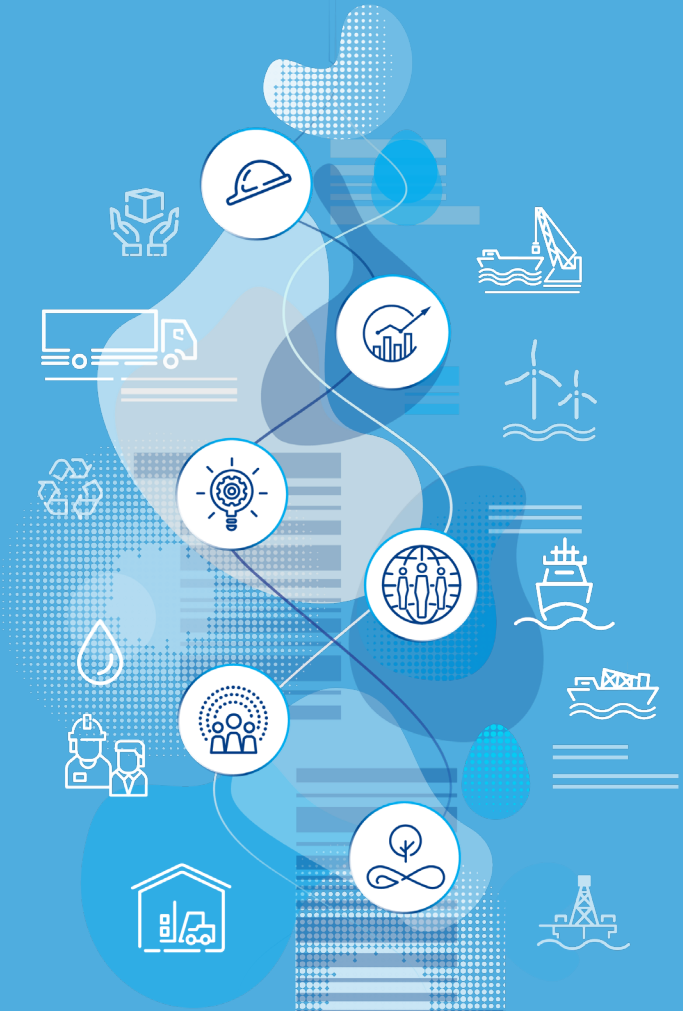




TRANSITION TO HVO ACROSS UK TRANSPORT FLEET



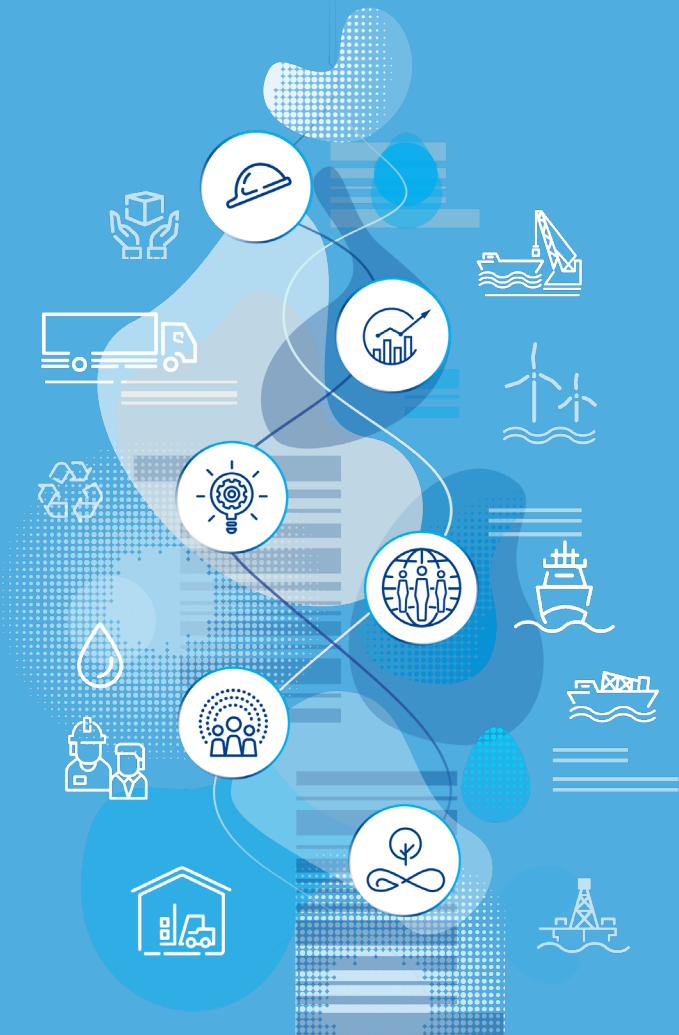


WHY HVO?

1. FROM A CARBON SAVING PERSPECTIVE
2. WHAT IS HVO?
3. OPERATIONS
4. HSSEQ
5. SUMMARY



FROM A CARBON EMISSIONS SAVING PERSPECTIVE

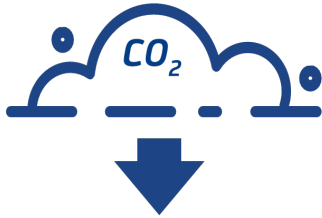


OUR COMMITMENTS TOWARDS THE ENVIRONMENT

PROTECTING THE PLANET



**Net Zero
Greenhouse Gas
Emissions by 2040**



**Protect our
natural resources
(water usage)**



**Zero Waste
to Landfill**



OUR GOALS AND OBJECTIVES FOR A CARBON NEUTRAL FUTURE

REDUCTION FROM 2019 TO 2024



SCOPE 1

Direct emissions from road haulage and transportation, operation of mobile plant and equipment

-30%

Road haulage and transportation



Emissions released by owned or leased cars, vans, trucks and forklifts

Mobile plant and equipment



Emissions released by owned or leased plant and equipment

SCOPE 2

Indirect emissions from Energy consumption for buildings

-15%

Electricity Consumption



Electricity drawn from grid

SCOPE 3

Indirect emissions from business travel, handling and processing of client waste and supplying bulk to client

-25%

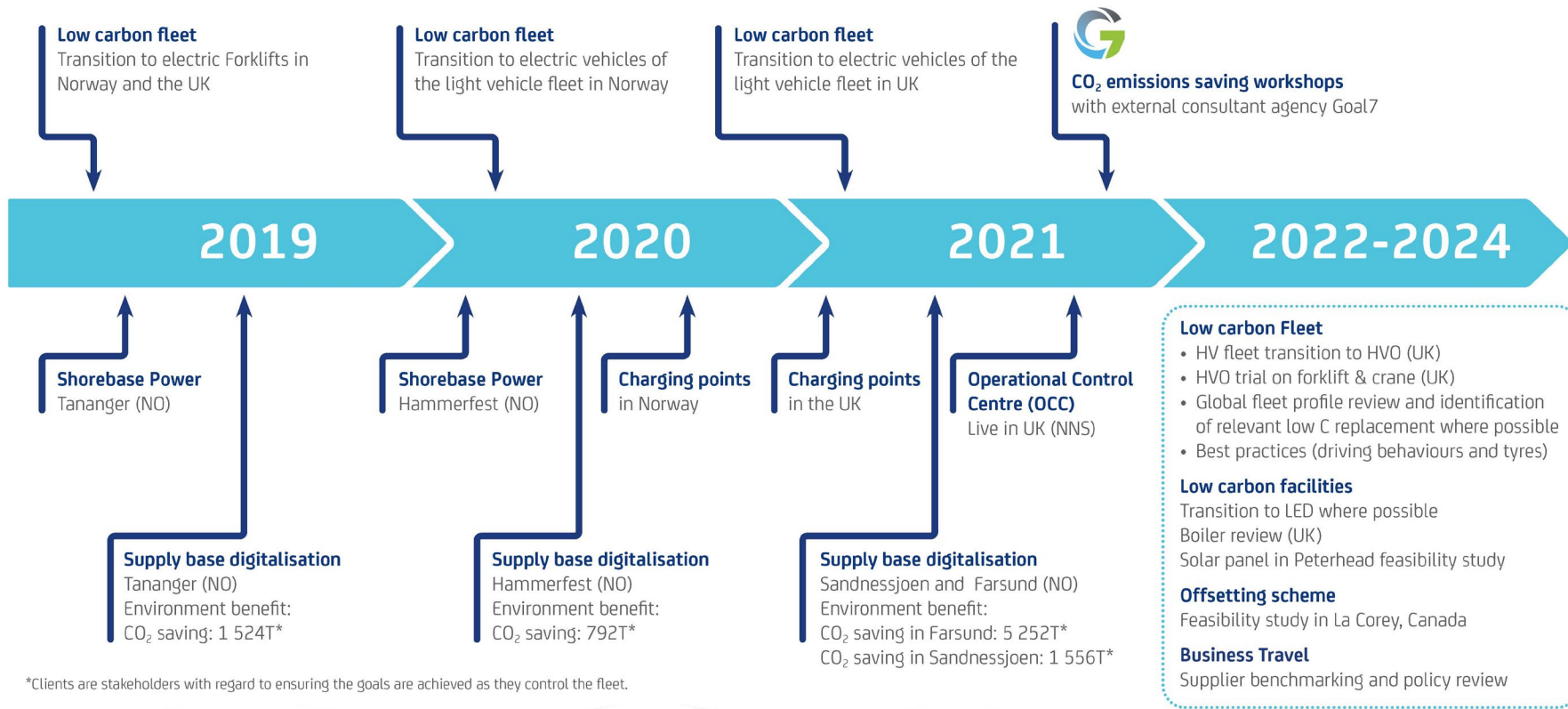
Transport Emissions



Emissions from business travel

CARBON EMISSIONS SAVING INITIATIVES

TOWARDS A CARBON NEUTRAL FUTURE



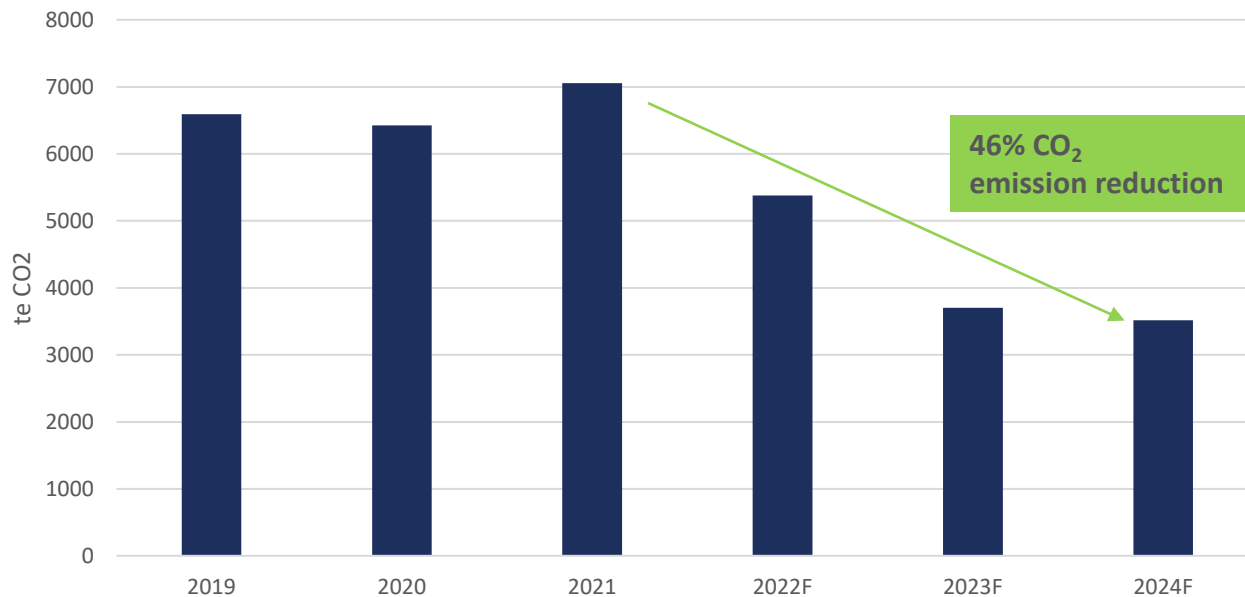
*Clients are stakeholders with regard to ensuring the goals are achieved as they control the fleet.

2022 ENVIRONMENT SUSTAINABILITY PLAN

CO2 EMISSION REDUCTION

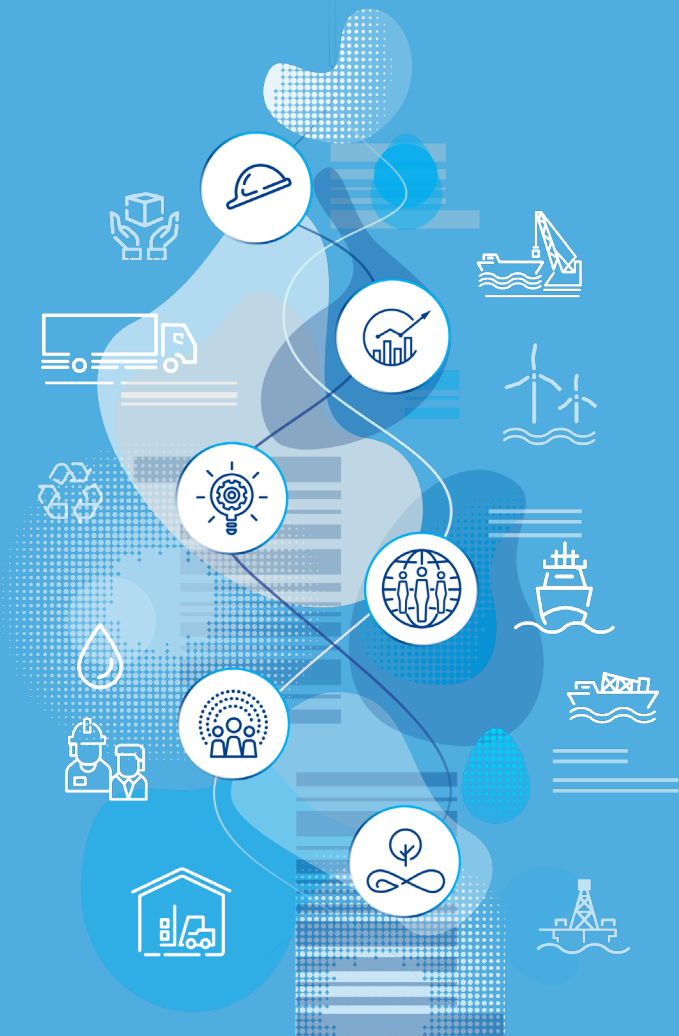


UK Scope 1 CO₂ Emission





WHAT IS HVO?



BIOFUELS

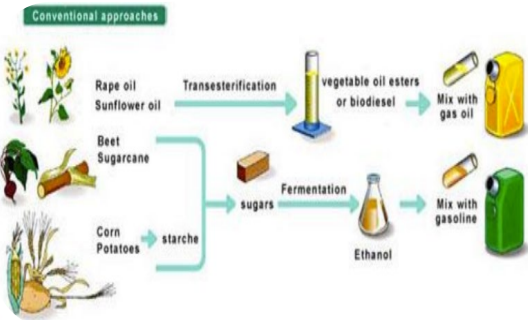


AN INTRODUCTION

Not all biofuels are created equally, typically they are categorized in to 3 'generations' which is based on the biomass source. Select the wrong biomass source and the result could be a biofuel with a carbon footprint worse than its fossil fuel counterpart

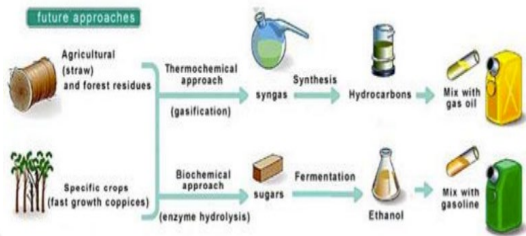
1st Generation

- Source: sugar, starch or vegetable oil i.e. biomass that is a food crop. Wheat, sugar and oil seed rape have been popular
- Processes: fermentation, distillation and transesterification
- Issues: fuel vs food, land in direct competition between crops for fuel or food



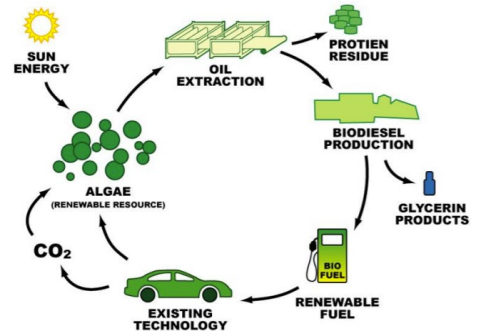
2nd Generation

- Source: non-food crops i.e. wood, organic waste, food waste and specific biomass crops
- Processes: thermochemical or biochemical reactions to 'unlock' the sugar then fermentation or synthesis. HVO = hydrotreatment
- Issues: still some land competition as growth in the same climate as that for food. Potential to remove nutrients from the ground



3rd Generation

- Source: specifically engineered crops such as algae
- Processes: extraction of oil and then refined into fuel
- Issues: immature process, expensive, large space requirements for growth of algae



WHAT IS HVO?

HYDROTREATED VEGETABLE OIL



HVO stands for hydrotreated vegetable oil and is a paraffinic diesel fuel. Because it meets EN 15940 standards and Fuel Quality Directive 2009/30/EC Annex II, it can be used as a direct drop-in alternative for diesel with little or no modification needed to our engines.

HVO is stable, renewable, sustainable and high-quality, and therefore offers better combustion, filterability and cold temperature performance than fossil diesel, whilst significantly reducing greenhouse gas emissions on combustion.



CURRENT ALTERNATE FUEL OPTIONS



WHAT ELSE IS OUT THERE?

Electric Vehicle (EV), Hydrogen Vehicles (FCEV) & Renewable Diesel (HVO)

EV

FCEV

HVO

Pros	Cons
Less maintenance requirements	Refuelling times can take hours
Zero tail pipe emissions	Infrastructure required at operating bases
Battery technology is becoming more reliable (8 years lifespan on avg)	Not strictly zero emissions (Only at point of use)
Cheapest running costs (Both fuel and maintenance)	Adverse effect on payload, due to weight of batteries. No 44-tonne options available to buy at present (2023 forecast).
	Vehicles cost substantially more than conventional.
	Shortest range from full charge/tank

Pros	Cons
Greenest fuel source (dependant on type of hydrogen)	Highest cost vehicles (Based on current prices)
Short fuelling time (9 mins approx.)	Lack of infrastructure universally
Medium to long range capability	Technology not mature. First HGV trials, in the UK, began in August 2021.
The only by-product from the tailpipe is o2.	Hydrogen production may not be eco-friendly
	High fuel cost

Pros	Cons
Reduces tail pipe emissions by up to 90%	More expensive running cost (around 0.08ppl more than diesel)
Drop-in fuel, no infrastructure or asset changes required	Surge in demand from other markets may affect price & supply
Long shelf life, can be stored in bulk tanks for longer	
Fastest fuelling time (5 mins approx.)	
Availability to reduce carbon output immediately (Ready to go now)	

WHY HVO?



WHAT MAKES HVO THE BEST OPTION FOR EVERYONE, TODAY.

Be a step ahead of the competitor

Compatible with 89% of our current HGV fleet

A huge step towards our 2024 sustainability goals

Ready to go now. No alterations required

The most carbon friendly alternative to fossil diesel, at this current point in time

While EV and FCEV vehicles give zero tailpipe emissions, this doesn't account for the Co2 emitted when charging a vehicle using the UK's electricity grid, which is made up of power from a mixture of primarily gas, some coal, nuclear and renewable energy too. In reality, when considering the CO2 emissions released from the electricity grid to charge the EV battery, an all-battery EV emits 51 grammes of CO2 per mile travelled – this is of course better than a fossil diesel vehicle, but still notable. By contrast, a similar vehicle running on HVO emits just 3.6 grammes of CO2 per mile. (Crown oil, 2021)

Parameter	Forecourt diesel (B7)	EV	HVO
Grammes of CO ₂ per mile	251.7	51.4	3.6

HVO TRIALS

CO₂ SAVING AND TRIAL OVERVIEW

A fuel switch to HVO represents a significant emissions reduction for Asco



Based on 2022 forecast

	Unit	Diesel	HVO
Volume	Litres	1139043.82	1200000.00
Emission Factor	kgCO ₂ e/litre	2.71	0.04
NCV	kWh/litre	10.04	9.53
Energy	kWh	11436000.00	11436000.00
Total CO ₂ e	Tonnes	3081.72	42.70
		CO ₂ e Saving	3039.02



Trial Overview

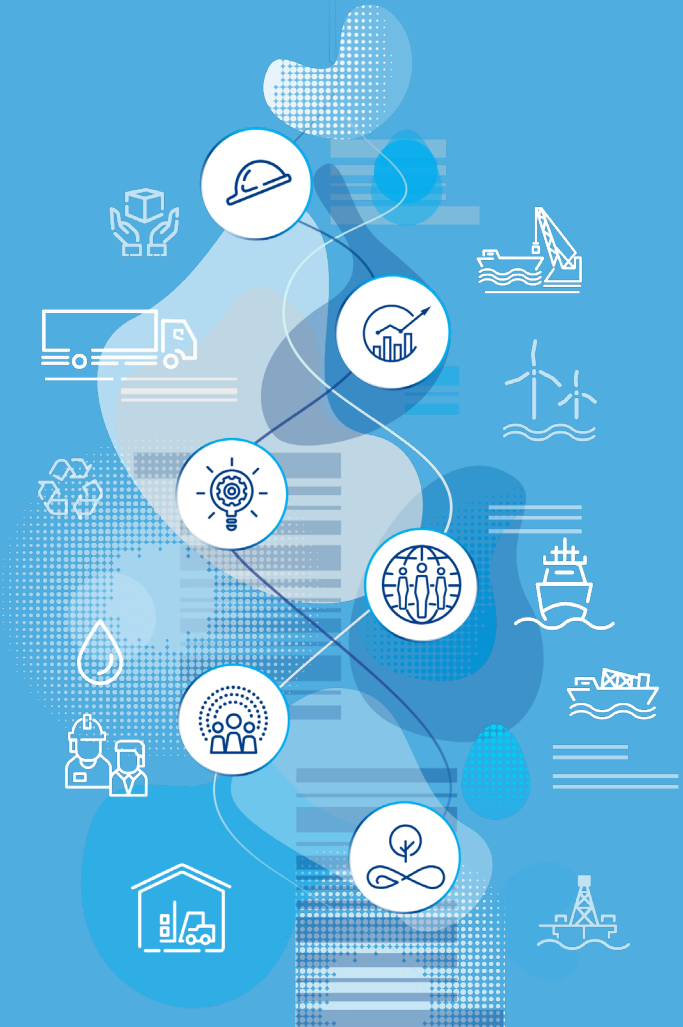
- Trial carried out in May / June 2021 – Renault Truck
- which is successful showing non adverse affects on operational performance
- Journeys typically between Peterhead and Aberdeen
- Up to a 98.6% reduction in CO₂e, per vehicle transitioned to HVO
- Another successful trial completed in Feb. 2022 on forklift truck
- Next step: engage with crane OEM to switch to HVO

Renault Truck

- Manufacturer: Renault
- Model: T460 6x2
- Year: 2018
- Warranty for use of HVO
- Euro 6 Step C
- Fuel Type: Diesel
- Gross Vehicle Weight – 44 tonnes



OPERATIONS



IMPLEMENTATION TIMELINE

WHEN IS THIS HAPPENING AND WHAT DOES IT MEAN FOR YOU?

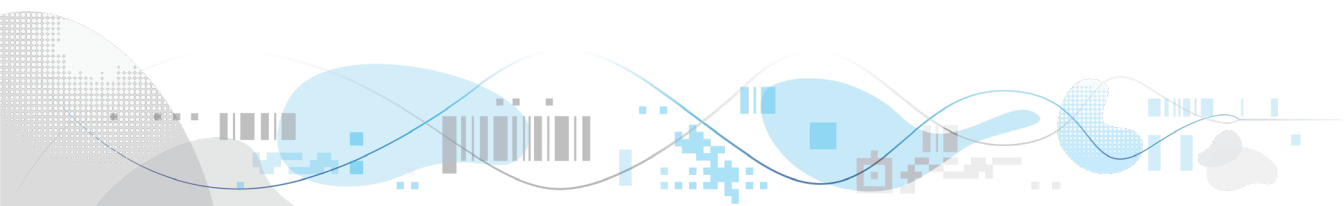


When is this happening?

- March 2022 - Peterhead / South Base DERV tank to be reallocated for HVO use
- April/May 2022 - GY DERV tank to be reallocated for HVO use
- Date TBC – New tank to be located in Aberdeen, to allow for internal fuelling of HVO, site TBC

What this means for you...

- If your truck is fitted with a “HVO” sticker (details on next slide) you will continue to fuel internally, as much as possible. External fuelling can still be used where necessary (long distance trips etc.)
- If your truck is fitted with a “Diesel” sticker (details on next slide) you will only fuel your vehicle at external fuelling stations, using the vehicles allocated fuel card



VEHICLES IMPACTED



89% of Heavy good vehicle will transition over to HVO.

To help you to identify which vehicles are impacted by this change, the following stickers will be placed on each vehicle:



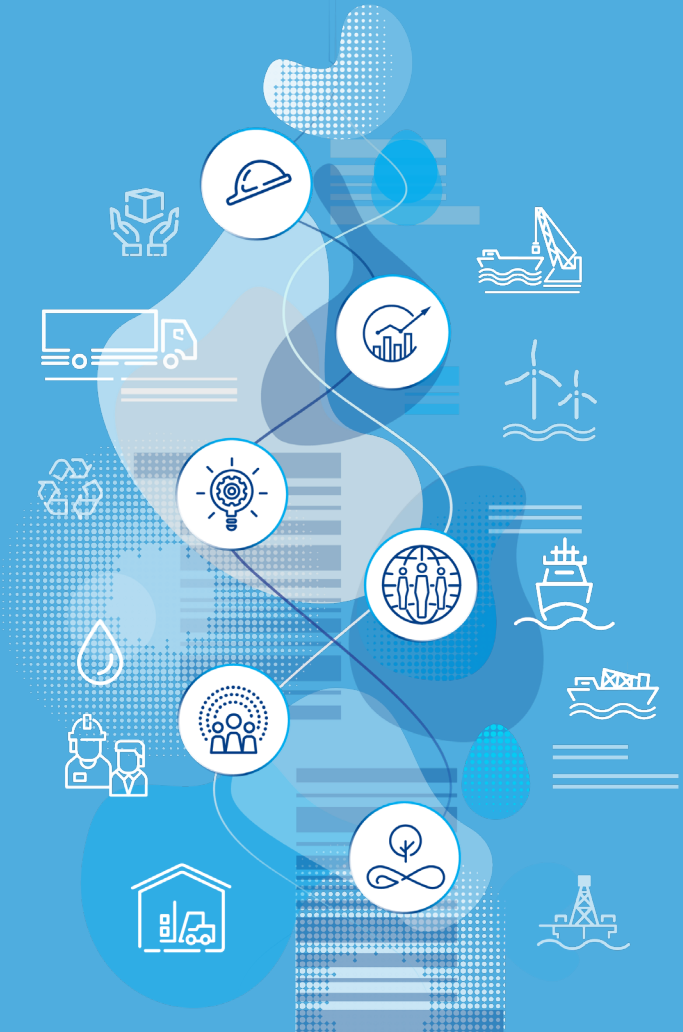
Fuel internally, however, can still fuel with diesel if far from the base



Fuel at the pump externally, with your fuel card.
Do not use the internal tank



HSSEQ



HVO VS DIESEL



SOME ADDITIONAL SAFETY BENEFITS AND RISK REDUCTION FROM SWITCHING TO HVO

- Significant reduction in risk to the environment, not just from emissions but also as a result of accidental release
- HVO has a very low toxicity to Aquatic Life, whereas regular Diesel is toxic to Aquatic Life with long-lasting effects
- Significant reduction in harmful effects related to exposure – very low toxicity, not classified as an irritant or skin sensitiser

Extracts from Safety Data Sheets:

Hazard Statements associated with regular Diesel Fuel:



DANGER

H227 - Combustible liquid.
H332 - Harmful if inhaled.
H315 - Causes skin irritation.
H351 - Suspected of causing cancer.
H304 - May be fatal if swallowed and enters airways.
H373 - May cause damage to organs through prolonged or repeated exposure.
(bone marrow, liver, thymus)

Hazard Statements associated with HVO:

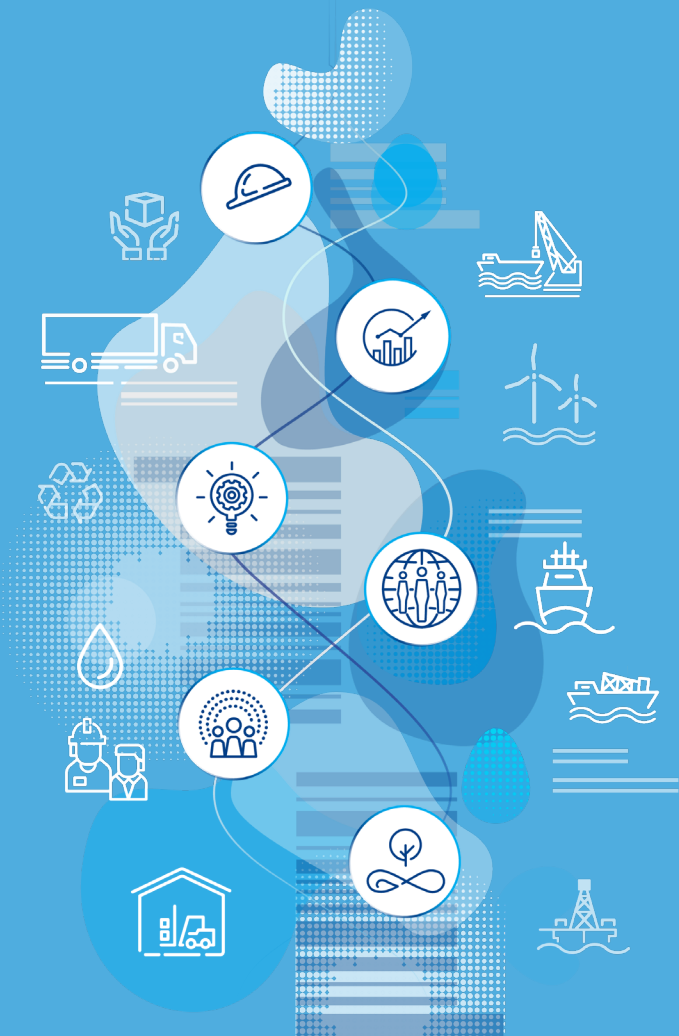


Danger

H304: May be fatal if swallowed and enters airways.
EUH066 Repeated exposure may cause skin dryness or cracking.



SUMMARY





Switch to HVO: W/C 14/03 2022



THANK YOU

ANY QUESTIONS

