

Decarbonizing mission critical power: *HVO is the Key*

HVO can reduce greenhouse gas emissions, while ensuring you have reliable power to keep your business running.



We need reliable back-up power for mission-critical systems, supporting our essential infrastructures such as data centres, smart grids, hospitals, utilities, and airports. But we also need to drastically reduce our carbon emissions and other greenhouse gases, to win the fight against climate change.

With diesel generators so important in back-up power systems, how do we balance these two requirements? Reliable, lower-emission backup power might seem like a long-term goal, but it is, in fact, a simple and affordable solution that is available right now. Even better, we can use existing generators, and adoption is likely to be rapid.

New generator biofuel

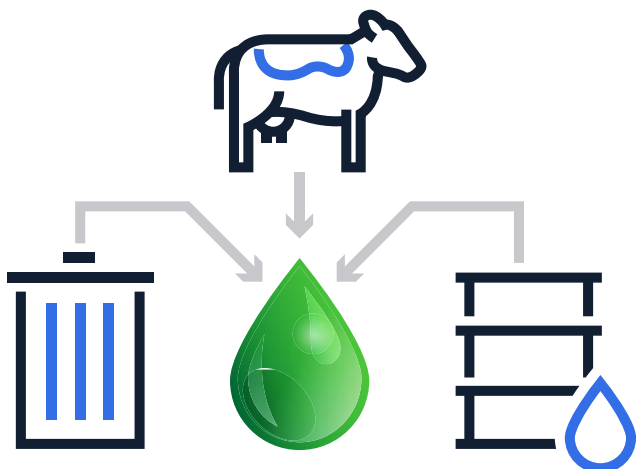
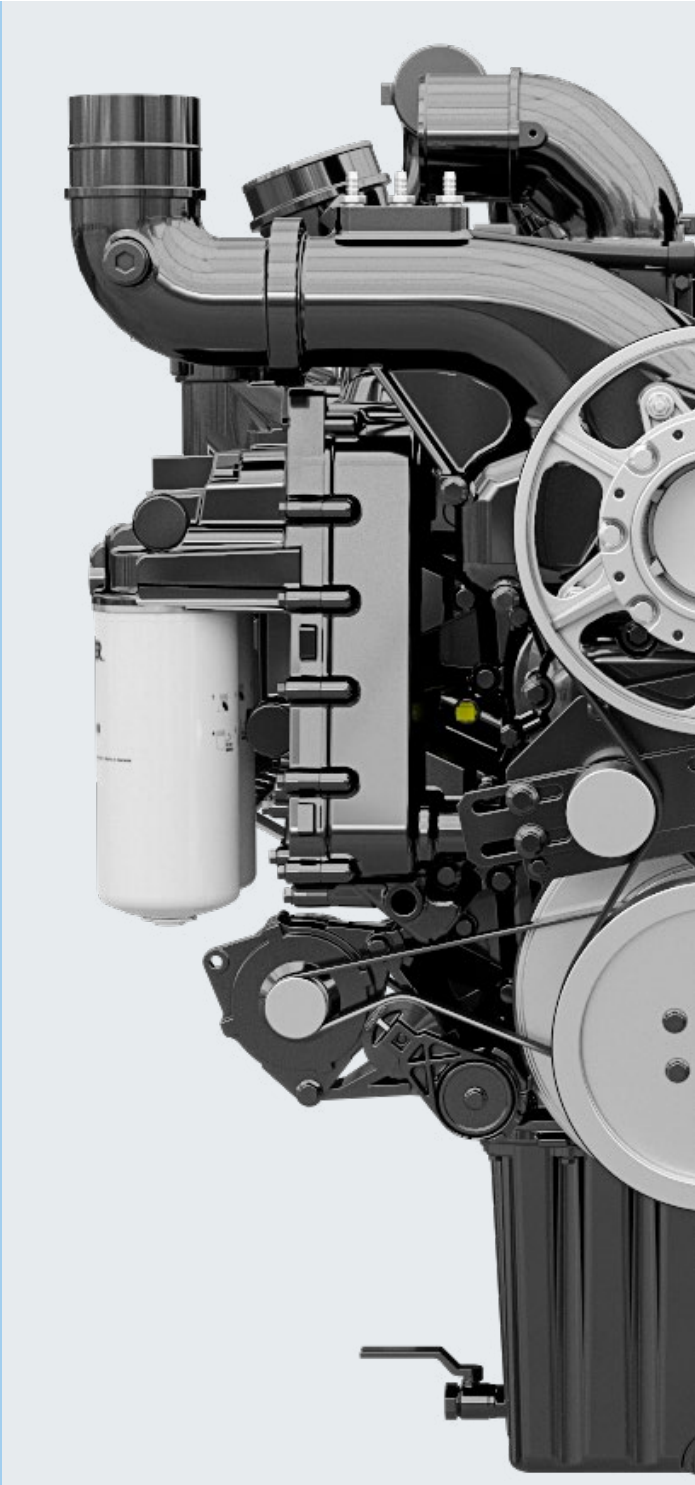
A key tool to achieving this decarbonization is Hydrotreated Vegetable Oil (HVO). Using HVO in existing generators, in place of fossil fuel diesel, can reduce lifecycle carbon emissions of the fuel used by up to 90%. HVO is produced from waste and residual fat from the food industry, as well as from non-food grade vegetable oils. After removing impurities, the raw materials undergo hydrogenation and hydrocracking using hydrogen at high temperatures and pressure. The end-product is straight-chained hydrocarbons (paraffin) of consistent quality, which have similar chemical properties to fossil diesel.

In the near-to-medium term, HVO could also be made from photosynthetic organisms such as algae. HVO overcomes many of the problems typically associated with first generation biofuels, such as instability and limited storage life. While first-generation solutions had a maximum storage life of just six months, HVO can be kept for several years without notable degradation. It is also resistant to oxidation, water absorption, and bacterial growth.

Compared to both existing biofuels and to fossil diesel, HVO has a higher cetane number, typically between 70-90. This results in improved cold-start performance, reduced emissions, and more efficient combustion. It can be used in temperatures as low as -32°C, while also being safe in warmer climates.

As the benefits of HVO are becoming widely recognised, its supply base is growing quickly around the world. Europe, Asia, and North America are scaling up HVO output to meet surging demand. In Portugal, **Galp Energia** and **Mitsui** are investing €400 million in a new HVO plant at the Sines refinery, projected to produce 270,000 metric tons of biofuel annually by 2026.¹ Meanwhile, in Asia, **Clariant's** partnership with South Korea's **DS Dansuk**, announced in October 2024, aims to enhance HVO production by improving the pre-treatment of used cooking oil, a key feedstock for renewable fuel.² In the U.S., **Digital Realty** is expanding its use of HVO at data centers in California and Oregon, a move expected to prevent approximately 12,000 metric tons of CO₂ emissions.³

These investments reflect a global shift toward sustainable fuels, propelled by regulatory pressures and the urgent need for decarbonization.



HVO-ready generators

Rehlko, formerly Kohler Energy, has recently announced that its entire mission-critical diesel generator range is approved for HVO, including its KD Series™. No adaptations to the installed generators will be required, allowing for the immediate rollout of renewable fuel to all Rehlko customers who want to reduce their carbon footprint. There is no adverse impact on performance and no requirement for additional maintenance. HVO is so similar to existing fossil diesel that it can be used as a direct, 'drop in' replacement without any engine modifications. It can also be mixed with fossil diesel, directly in the tank, in any proportion. This means that it can be used immediately as the sole fuel supply for all Rehlko generators, whether they are new or already installed.

Rehlko has already made its generators inherently more efficient, with optimized engines and after-treatment systems reducing emissions irrespective of which fuel is used. Now, adopting HVO has enabled us to take a huge step in our journey to reducing greenhouse gas emissions, while ensuring you have reliable power to keep your business running.

¹ <https://www.reuters.com/business/energy/portugals-galp-plans-start-producing-biofuels-2026-2024-12-19>
² <https://www.safinvestor.com/news/146142/clariant/>
³ <https://www.digitalrealty.com/about/newsroom/press-releases/123258/digital-realty-expands-renewable-generator-fuel-rollout-to-the-u.s.->