

Report

UCO (Unknown Cooking Oil): High hopes on limited and suspicious materials

June 18, 2024

Europe's increased consumption of used cooking oil biofuels has resulted in a heavy reliance on imports from Asian countries. T&E assesses recent trade flows.

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Europe burns through 130,000 barrels of used cooking oil a day - 8 times more than it collects. Following the introduction of Biden's Inflation Reduction Act, the US now consumes 40,000 barrels a day. To fill the gap, both are importing more and more UCO from China, as well as Indonesia and Malaysia. But as airlines start to get in on the act, demand is outstripping what can be sustainably collected.

Based on analysis from the consultancy Stratas Advisors', T&E assesses recent trade flows, economic dynamics and explores current and future limitations of UCO biofuels.

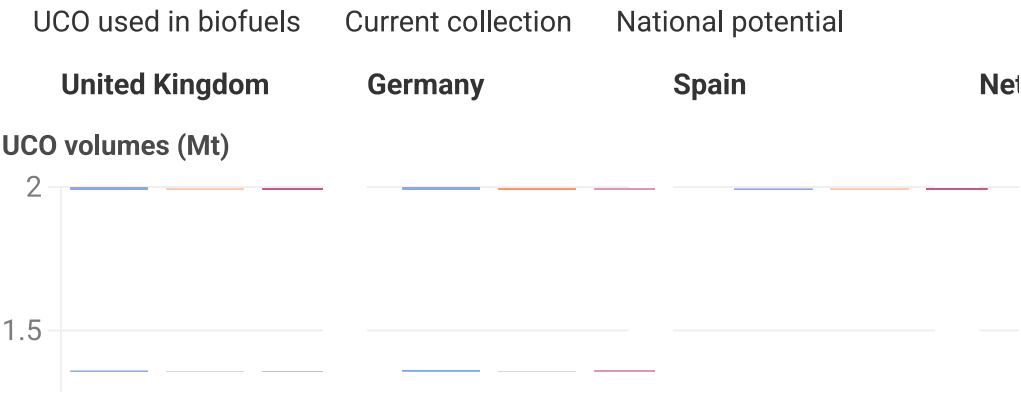
European supply of UCO already struggles to meet the increased demand

In 2023, European countries consumed close to seven million tonnes of UCO for biofuels according to Stratas' analysis, with the vast majority being blended for biodiesel to use in cars and trucks. This is close to eight times higher than the collected volumes estimates in 2023 and four times the continent's maximum potential, with demand growing much faster than domestic supply.

European UCO appears to come almost exclusively from restaurants, with less than 10% collected from households, and more than half of the continent's maximum potential already tapped. While a significant potential remains within European houses, improvements in collection infrastructure, logistics, and social awareness might be challenging in many countries.



European countries consumed 8 times more UCO than they collected and 4 times more than their maximum potential in 2023



7 million tonnes

European consumption of UCO for biofuels

4x

The continent’s maximum collection potential

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Cars, planes and ships all betting on the same horse



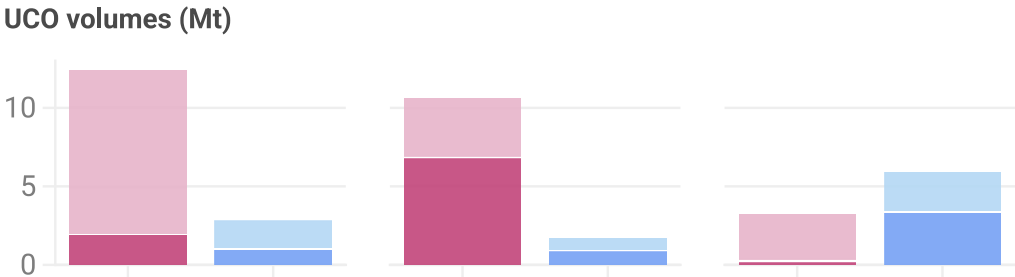
UCO accounted for one third of conventional biodiesel feedstocks and a quarter of hydrotreated vegetable oil (HVO) biofuels volumes in 2023. Most notably, UCO made up 80% of the increasing but still very limited sustainable aviation fuel (SAF) demand, which grew eight-fold between 2021 and 2023. While the EU and UK's green fuel mandates for planes and ships are forecasted to put even more pressure on cheap biofuels feedstocks, the United States committed to a three times bigger SAF target for 2030 and China is expected to announce a 2-5% blending target soon.



Demand for UCO much larger than potential supply

2023 use of UCO in road transport 2030 SAF mandates 2023 UCO collection
Remaining UCO collection potential

US EU27+UK China



Source: Transport & Environment, based on data from Stratas Advisors, ICCT and own calculations



As a result of limited collection potential, even in China, today's biggest producer, combined current UCO biofuels consumption and projected SAF demand will fall short of supply if they were to bet only on this feedstock. For instance, Ryanair, Europe's most polluting airline, will alone require all of the European UCO collection potential to meet its own voluntary 12.5% SAF target by 2030.

Likely discrepancy between collection and export figures, another sign of fraud

2023 saw a pivot in UCO trade flows with half of Chinese UCO previously exported to Europe redirected to the United States, as a result of Biden's Inflation Reduction Act (IRA). At the same time, presumably waste-based biodiesel imports from China to Europe jumped by 40% and raised serious suspicions about the authenticity of such large quantities.



China, Indonesia, and Malaysia have increased their collection of waste cooking oil to around 4 million tonnes in 2023, with over three-quarters supplied by China alone. However, irregularities in collection and export rates also raise serious concerns over **fraud**. Malaysia already exports three times more UCO than it collects according to Stratas' analysis, meaning **fraud** is very likely happening at scale, benefiting from high incentives for advanced and waste biofuels in Europe.

On the other hand, while Chinese collection of UCO roughly matches up official exports and domestic uses, the picture is obscured by a robust gutter oil market. In reality, the country is likely consuming significant volumes of UCO domestically, raising strong suspicions over virgin vegetable oil being mislabelled as waste oils.

Cheap Asian UCO biofuels, despite high transport costs

Stratas' assessment shows that collecting UCO in Asia is around a third cheaper than in Europe but that import costs and excise duties can lead to a higher final UCO cost for European buyers, depending on quality and variable freight costs. As a result of the combined competitive advantage of Asian UCO biofuels, oversupply of Chinese biodiesel and limited increase in demand, European biofuels market prices have been driven down in 2023.

Following the outcry of European biodiesel producers, that claimed to be flooded with cheap and fraudulent products, the European Commission launched an anti-dumping investigation in December 2023 to assess whether unfair and illegal practices have been held. While the official results of such a probe are still to be disclosed, the second half of 2023 saw a decline in imports of Chinese biodiesel.

T&E recommendations

There is no silver bullet that can rectify the economic, political and environmental problems that arise from UCO import dependence and **fraud**. Instead, there are multiple fronts on which the EU and Member States must work in order to adjust their policies and practices.

- At the national level, governments should ensure that UCO imports from outside the EU no longer count towards renewable targets, thus eliminating a key incentive for their demand.



- Furthermore, national governments should impose more stringent caps on incentivizing UCO biofuels.
- At the EU level, a dedicated **fraud** investigation unit should be established to investigate **fraud** cases. A **fraud** investigation could be triggered by a variety of reasons, such as an alert through industry whistleblowers, suspicious transactions or suspected market distortions likely caused by **fraud**.
- A complete review of the certification system needs to be carried out, moving away from independent, industry-led voluntary schemes in favour of more stringent EU and national regulation. A supervision procedure for national governments to better oversee the work of voluntary schemes should be established, including cooperation frameworks with third countries to supervise in their territories.
- Finally, these recommendations should be complemented with support for cleaner alternatives. Direct electrification must be the preferred option for road transport. For sectors that are harder to electrify, such as aviation and shipping, hydrogen-based fuels should play the key role.

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