FROM FRYER TO FLYER: CONVERTING USED COOKING OIL INTO SUSTAINABLE AVIATION FUEL

News / Manufacturer



Sustainable Aviation Fuel often begins its journey in an unexpected place: the restaurant deep fryer. Through a long-term partnership, Phillips 66 and Restaurant Technologies, Inc. (RTI) are transforming used cooking oil collected from restaurants across the United States into renewable fuels, helping strengthen the supply chain for lower-carbon energy solutions.

RTI provides Phillips 66 with high-quality, fully traceable, and ISCC-certified used cooking oil (UCO), which serves as a key feedstock for the production of renewable diesel and SAF at the **Phillips 66 Rodeo Renewable Energy Complex** in California. As one of the world's largest renewable fuels facilities, the complex plays a significant role in advancing sustainable transportation fuels.

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The ISCC certification reflects adherence to rigorous international standards aligned with the United Nations Global Compact, ensuring responsible sourcing of renewable feedstocks, verified greenhouse gas reductions, and strong circular economy practices throughout the production process.

Mark Hughes, Senior Vice President, Commercial, Phillips 66 commented: “This strategic agreement delivers feedstock optionality and reliable, domestic supply to support renewable fuels production at our Rodeo Renewable Energy Complex. It underscores the strength of our Commercial organization and our ability to actively connect domestic supply with operations and customers for a more robust integrated value chain.SAF is an investment in energy security because it diversifies aviation fuel supply options. The world needs all forms of energy, and Phillips 66 is uniquely positioned to provide both conventional and renewable fuels, which are supported by securing reliable feedstocks.”

Ronald Cardwell, Director of Commodity Strategy at RTI stated: “Quality starts in the kitchen. Our system keeps impurities out, so more of every gallon we collect can be transformed into renewable fuel, which improves efficiency from collection to production. Airlines and corporate customers need solutions they can use now, to support supply needs and decarbonization commitments. This agreement demonstrates that the pieces are in place to scale high-quality feedstocks and renewable fuels production capability to make lower carbon flight more available and more achievable.”

RTI operates a closed-loop, automated cooking oil management system designed to keep used cooking oil clean, segregated and largely free from excess water, food waste and other contaminants from the point of collection. Compared with traditional open-collection methods, this approach delivers a more consistent, higher-quality feedstock, reducing pretreatment requirements and improving fuel production yields.

Through its nationwide network of more than 45,000 restaurants, hotels, casinos, colleges and other foodservice establishments across 41 markets, RTI collects used cooking oil that is then supplied to the Phillips 66 Rodeo Renewable Energy Complex in California. There, the waste oil and other renewable feedstocks are converted into low-carbon transportation fuels.

The process begins with cleaning the used cooking oil before it is heated and combined with hydrogen to create neat, unblended Sustainable Aviation Fuel (SAF). During this conversion, the oil’s molecular structure is transformed into aviation-grade hydrocarbons, which are subsequently blended and certified to meet ASTM renewable jet fuel specifications.

SAF has the potential to reduce lifecycle greenhouse gas emissions by up to 80% compared with conventional jet fuel, with these reductions measurable, certifiable and available for customer emissions reporting. Once produced, SAF is marketed by the Phillips 66 Aviation team to airlines and other customers seeking to advance their decarbonization goals.

By converting waste streams and renewable byproducts into valuable energy resources, feedstocks such as used cooking oil play an increasingly important role in the circular economy. The collaboration between Phillips 66 and RTI demonstrates how everyday restaurant operations can contribute to expanding renewable fuel production and supporting the transition to a lower-carbon aviation sector.

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02 NOVEMBER 2026

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