

India's First Sustainable Aviation Fuel Plant to Begin Production in 2025

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Sustainable Aviation Fuel India Latest News

- Indian Oil Corporation (IOC), India's largest refiner and fuel retailer, is set to begin **commercial production of Sustainable Aviation Fuel (SAF)** at its Panipat refinery by **December 2025**. The facility recently received international certification to manufacture biofuel from used cooking oil (UCO).
- By year-end, IOC will achieve a production capacity of **35,000 tonnes of SAF annually**, with raw material sourced from large hotel chains, restaurants, and food companies, which typically discard cooking oil after one-time use.
- This development marks a significant step in India's **green aviation push**, contributing to cleaner energy transition and reducing dependence on conventional jet fuel.

About Sustainable Aviation Fuel (SAF)

- SAF is a bio-based alternative to conventional jet fuel, produced from renewable feedstocks such as used cooking oil, agricultural residues, forestry waste, and non-edible crops.
- SAF is a “drop-in fuel,” meaning it can be blended with existing jet fuel and used in current aircraft engines without modification.
- International aviation bodies certify blending limits (usually up to 50%) to ensure safety and performance.

Benefits of Sustainable Aviation Fuel (SAF)

- **Engine and infrastructure compatibility** – SAF blended with conventional Jet A can be used in existing aircraft and infrastructure.
- **Fewer emissions** – Compared with conventional jet fuel, 100% SAF has the potential to reduce greenhouse gas emissions by up to 94% depending on feedstock and technology pathway.
- **More flexibility** – SAF is a replacement for conventional jet fuel, allowing for multiple products from various feedstocks and production technologies.
- **Energy Security** – It reduces dependence on imported crude oil.
- **Economic Opportunities** – It Creates new markets for farmers (through non-edible crops and residues) and waste collectors (used cooking oil, biomass).
- **Exports:** With Europe already enforcing SAF blending mandates, **European airlines** are seen as the first major buyers of IOC’s SAF when they land in India. IOC also plans to tap into **global export markets** as demand rises.

IOC’s First Commercial SAF Plant

- Indian Oil Corporation (IOC), the country’s largest refiner, will begin **commercial production of Sustainable Aviation Fuel (SAF)** at its Panipat refinery by **December 2025**.
- The plant is certified under **ISCC CORSIA standards**.
 - IOC is the first Indian company to receive ISCC CORSIA certification, a requirement under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
 - From 2027, airlines worldwide must offset emissions beyond 2020 levels, and using SAF blends will be a key compliance pathway.
- It will produce **35,000 tonnes of SAF annually** using **used cooking oil (UCO)**.
 - UCO refers to edible oils and fats that have been used for frying, cooking, or food preparation in both commercial and household settings.
 - It is essentially leftover oil from cooking processes.
 - While UCO can be a sustainable feedstock for biodiesel and other products, its improper disposal can lead to environmental and health issues.

Meeting India’s SAF Targets

- The initial production capacity will be sufficient to meet India’s 1% SAF blending target for international flights by 2027.
- The National Biofuel Coordination Committee (NBCC) has set indicative **targets of 1% blending in 2027 and 2% in 2028**.

- SAF blending for domestic flights is expected to follow, but only after international targets are in place.

Challenges Ahead

- **Collection bottlenecks:** While UCO collection from big hotel chains is easy, creating systems to collect oil from small eateries and households remains difficult.
- **High cost:** SAF is currently about three times more expensive than conventional jet fuel, raising concerns for airlines about higher operating costs.
- **Feedstock Availability:** Large-scale production requires a steady supply of sustainable feedstocks (used cooking oil, residues, waste).
- **Policy roadmap:** Although the government had earlier considered early SAF mandates, cost concerns have pushed implementation to 2027 onwards.

Future Pathways

- While IOC has started with the used cooking oil route, it is also working on **alcohol-to-jet (ATJ) technology**, which uses ethanol as feedstock.
- Other Indian companies are exploring similar SAF technologies, but all pathways require international certification before commercial rollout.

Source: [IE](#) | [BS](#) | [AFDC](#)

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