

2025 Jet Fuel and Gasoline Demand Forecasts and Environmental Impact

Jet Fuel Demand:

IEA Forecast: The International Energy Agency (IEA) projects global oil demand will reach 105.7 million barrels per day (b/d) by 2028. Aviation demand continues to grow as international travel rebounds.

EIA SAF Forecast: U.S. production of sustainable aviation fuel (SAF) is forecast to rise from 19,000 b/d in 2023 to 51,000 b/d by 2025. SAF is considered vital to decarbonizing air travel.

Link: <https://www.eia.gov/todayinenergy/detail.php?id=62504>

Link: <https://www.iea.org/news/growth-in-global-oil-demand-is-set-to-slow-significantly-by-2028>

Gasoline Consumption:

Global Use: In 2023, gasoline consumption hit 26.9 million b/d (approx. 1.13 billion gallons/day), exceeding pre-pandemic levels. Demand is expected to peak in 2025, driven by vehicle efficiency and electric vehicle adoption.

U.S. Outlook: The EIA projects average U.S. gasoline prices to be \$3.20/gallon in 2025 and decline to \$3.00 in 2026.

Link: https://www.eia.gov/outlooks/steo/pdf/steo_full.pdf

Environmental Impact of Jet Fuel Combustion:

Pollutants per Gallon of Jet Fuel:

CO₂: ~21.1 lbs (9.57 kg)

Other Emissions: NO_x (ozone & smog), soot (cloud nucleation), water vapor (contrails)

High-Altitude Effects: Water vapor and soot from jet exhaust form contrails and cirrus clouds that

trap infrared radiation, increasing net warming—known as radiative forcing.

CO₂ Persistence: CO₂ has an atmospheric lifetime of over 100 years, locking in long-term climate effects.

Link: <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>

Link: <https://www.nasa.gov/centers-and-facilities/armstrong/nasa-partners-explore-sustainable-fuels-effects-on-aircraft-contrails/>

Atmospheric Behavior:

Troposphere (0–12 km): Pollutants like NO_x and soot are generally removed within weeks through precipitation.

Stratosphere (> 12 km): Emissions persist for years due to limited mixing and dry conditions—significantly magnifying aviation’s climate impact.

Mitigation Strategies:

SAF Benefits: Sustainable aviation fuels can reduce life-cycle CO₂ emissions by up to 80%.

California SAF Initiative: California plans to scale SAF production to 200 million gallons annually by 2035—targeting 40% of in-state aviation demand.

Link: <https://www.reuters.com/sustainability/california-major-airlines-work-boost-sustainable-aviation-fuel-use-2024-10-30/>

Summary:

While global gasoline demand may peak by 2025, jet fuel use is still climbing. Due to the altitude at which emissions are released, aviation contributes disproportionately to global warming. Long-lived CO₂, along with short-lived but potent high-altitude effects like contrails, reinforces the urgent need for global SAF adoption and climate-conscious aviation policy.



