

Q: Are new liquid fuels good climate policy?

A: Pigs might fly

The federal government has recently provided \$1.7 billion in funding to commercialise ‘net zero innovations’ including low carbon liquid fuels and what is called a ‘Sustainable’ Aviation Fuel (SAF) manufacturing industry in Australia¹, on the grounds that this SAF supposedly creates fewer emissions than conventional jet diesel.

There are serious reasons why these new fuels are not sustainable at all and why their use will greenwash ongoing fossil fuels and a growing aviation sector.

These alternative fuels won’t cut warming by the aviation industry

Promotion of SAF by the government, industry and media as ‘sustainable’, ‘ecofriendly’, and cutting aviation emissions misleads the public into thinking they can be reduced sufficiently.

- **The same amount of CO₂** is emitted burning biofuels as jet diesel, not less. Graham Warwick, Aviation Week executive editor for technology says “*The big problem with bio-based SAF is you’re not reducing emissions ... you’re still pumping CO₂ out of the tailpipe of the engine.*”²

- **An accounting, not physical reduction:** CO₂ emissions from biofuels can only be said to be less than those from jet diesel in a ‘lifecycle emissions’ calculation, where the CO₂ drawn down months or years earlier in growing the biofuel feedstock, is subtracted from the in-flight CO₂ emissions.

- **Half measures:** To be used in the existing global airline fleet biofuels and eFuel must be blended 50:50 with fossil jet diesel, thereby halving claimed ‘lifecycle emission’ cuts.

- **Non-CO₂ emissions remain:** Burning biofuels and eFuels does not cut non-CO₂ emissions, which are twice as warming as CO₂ alone³

- **Flights growing 4% annually:** Any reduction in emissions from burning SAF will be more than countered by the extra emissions from increased flights^{4,5}.

From the horse’s mouth

“There is currently no realistic or scalable alternative to kerosene-based fuels that would meet current aviation needs, let alone the industry’s projections of future growth.”

— US Institute for Policy Studies ‘Greenwashing the skies’ report¹⁵

“If governments want airlines to burn sustainable aviation fuel, they’re going to need to devote extraordinary sums of taxpayers’ money to make it happen.”

— Aengus Kelly, CEO of the world’s number one lessor AerCap¹⁶

“I don’t think [SAF deployment & Net Zero 2050] goals are achievable. I don’t think they ever really were achievable.”

— William Moore, sustainable aerospace technology analyst¹⁷

“We believe that 5% of SAF in 2030 is exceedingly ambitious [and] won’t be achieved everywhere in the world.” — International Air Transport Association Director-General, Willie Walsh¹⁸

Using these alternative fuels won’t even make flight emissions ‘net zero by 2050’

Deployment of SAF will be too slow, very expensive, and too damaging.

Too slow: Constraints likely to prevent the domestic manufacture of enough SAF to supply total fuel demand include:

- > **Low industry ambition:** Qantas targets SAF replacing only 10% of fuel use by 2030, and only over 50% by 2050⁶.

- > **Feedstock shortages:** Federal Infrastructure and Transport Minister, Catherine King, has spruiked in parliament, canola and tallow as new low carbon liquid fuel feedstock⁷, despite CSIRO/Boeing suggesting they can replace at most 11% of domestic jet fuel demand, or only 4% of domestic and international demand⁸. While UK projections see eFuel providing only 3.5% of aviation fuel demand by 2040⁹.

- > **Land availability:** The production of enough biofuel to provide for Australia’s aviation needs “*would likely require an area in the order of that needed to grow Australia’s total wheat crop – around 11 million hectares.*”¹⁰

- **Very expensive:** Prohibitive costs include: SAF fuel production two to seven times higher than jet diesel¹¹, and the expense of modifying aircraft fuelling systems across the fleet to use 100% non-blended SAF¹².

- **Too damaging:** Monoculture SAF feedstock cropping damages biodiversity, takes land from food cropping, and prevents nature-based carbon sequestration¹³. IPCC climate scientist Brendan Mackey says “*Large-scale SAF deployment could undermine global climate efforts.*”¹⁴

Climate context

On our current emissions reduction path, we’ll likely pass 2°C before 2050. CO₂ already in the atmosphere has reached 427 parts per million (ppm), high enough to raise global sea levels 10 metres. Continuing emissions, aviation included, have already pushed global warming just short of the 1.5°C Paris limit¹⁹. For an acceptable likelihood of preventing warming of 2°C aviation emissions, like all emissions, need to be cut to near absolute zero at emergency speed. To have a chance of returning warming to a safe level (below 1°C) rapid sequestration of carbon is needed to cut 427ppm to less than 350ppm²⁰.

What is so-called Sustainable Aviation Fuel?

- **Biofuels** are hydrocarbons made from bio-crops (sugar, corn, canola) and bio-waste (fats such as pig fats or tallow, and oils including soybean oil and used cooking oil)
- **eFuel** is a synthetic hydrocarbon made from hydrogen (extracted from water) and carbon (either from industrial waste streams such as ammonia and ethanol production, or by combusting biomass to produce biogenic CO₂, or directly from the air using Direct Air Capture technologies) using electricity

Ineffective policy

- **Funding SAF is an inefficient use of financial resources.** The \$1.7 billion Australian taxpayer investment in low carbon liquid fuels that deliver minimal emissions cuts, on top the existing annual \$1.6 billion concessional tax subsidy of the aviation industry, takes funding away from greater emissions reductions in other sectors.

- **Manufacturing eFuel is an inefficient use of renewable electricity.**²¹ Aviation’s reliance on eFuels in the long term – to reach net zero 2050 – could require 9% of global renewable electricity in 2050²². Demand for huge quantities of renewables for eFuels would deprive all other sectors needing renewables to decarbonise²³.

Further reading

Go to <https://bit.ly/4bogHN7> for

- > ways to effectively cut aviation emissions
- > a PDF of this Briefing Note
- > links to all reference sources
- > links to additional sources



Low carbon liquid fuels briefing note