

Australia to develop Sustainable Aviation Fuel (SAF) from agricultural waste, animal fats, vegetable oils

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A new roadmap released by Australia's national science agency, CSIRO and Boeing Australia provides a moment-in-time opportunity for Australia to build a sovereign sustainable aviation fuel (SAF) industry. Domestic jet fuel demand is expected to rise by 75% by 2050.

Unlike conventional jet fuel, SAF is produced from renewable sources — like agricultural waste, animal fats and vegetable oils — and significantly reduces carbon emissions over the fuel's life-cycle making it a more sustainable alternative for powering aircraft.

The *Sustainable Aviation Fuel* Roadmap builds consensus on developing an Australian sustainable aviation fuel (SAF) industry, identifying opportunities to produce and scale production using Australian feedstocks.

CSIRO Senior Manager and lead Roadmap author, Max Temminghoff, said Australia was in a prime position to develop a domestic industry.

By actively working to liberate feedstocks, the roadmap estimates that Australia is currently sitting on enough resources to produce almost 5 billion litres of SAF by 2025. This could supply nearly 60% of jet fuel demand projected for that year. That's enough fuel to power 640,000 Melbourne to Sydney return flights on a Boeing 737, said Temminghoff.

Through a combination of feedstocks and mature technologies, a large and growing portion of Australia's jet fuel demand can be met with local materials such as agricultural waste and residues. To convert these feedstocks into viable jet fuel, the report identifies the Alcohol-to-Jet and the Fischer-Tropsch process – a process currently conducted at CSIRO's Perth laboratory – as ideal technology options to propel a sovereign SAF industry.

The challenges that the Australian SAF industry must address include feedstock availability, supply chain constraints, and aligning to international standards and regulation. Max Temminghoff emphasized on collaboration among the Australian government, industry and research to overcome key challenges to realize the economic and sustainability benefits of a domestic SAF industry. The roadmap points to biogenic materials in the near term, such as sugarcane, sawmill residues, and municipal solid waste, as well as hydrogen and CO2 in the medium to long term, as key feedstocks.

Boeing Regional Sustainability Lead APAC and Roadmap co-author, Heidi Hauf, said the findings highlighted that a local SAF industry will contribute to decarbonisation and energy security while also generating more regional jobs and new export markets.

CSIRO Energy Director Dr Dietmar Tourbier said the roadmap aligns with the Federal Government's recently established Jet Zero Council – of which CSIRO and Boeing are members – and supports the commercial aviation industry's commitment to net-zero carbon emissions by 2050.

The roadmap is part of the critical work CSIRO is undertaking to support Australia's hardest to abate sectors to halve their emissions by 2035, and forms part of our Towards Net Zero Mission