OUR VISION

SUSTAINABLE AIR HUB

Our vision is to make air travel more sustainable and to build Changi as a sustainable air hub. In doing so, CAAS will:

1 Create a conducive environment for developing and introducing sustainable aviation products

2 Encourage greater use of Sustainable Aviation Fuel (SAF)

3 Enhance international partnerships on sustainable air travel

Recommendations of the International Advisory Panel on Sustainable Air Hub

Airport

a. Airfield solar deployment
b. Renewable electricity
c. Building energy efficiency
d. Clean energy airside vehicles
e. System optimisation with digital twin project
f. Resource circularity through on-site waste-to-energy facility

Airline

a. Roadmap to create long-term secured Sustainable Aviation Fuel (SAF) supply ecosystem
b. Corporate Buyers' Club
c. Structural offtake mechanism for SAF
d. Aviation vertical offerings in carbon markets, support ecosystem for and encourage uptake of aviation carbon offsets
e. Technical centre for capability-building in aircraft technology

Air Traffic Management

a. Advanced demand-capacity balancing
b. Performance-based navigation
c. Gate-to-gate trajectory optimisation
d. Trajectory-Based Operations and Free Route Airspace in collaboration with stakeholders and partner Air Navigation Service Providers

Enablers

a. Policy and regulation
b. Industry development
c. Infrastructure planning and provision
d. Workforce transformation

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AIRPORT:

CLEANER ENERGY AIRSIDE VEHICLES

SUSTAINABLE AIR HUB

SINGAPORE IS COMMITTED TO ENSURING ALL AIRSIDE VEHICLES AT CHANGI AIRPORT RUN ON CLEANER ENERGY BY 2040

- All new light vehicles to be electric from 2025
- Certain new heavy vehicles with viable electric models available to be electric from 2025
- The charging network on the airside will increase to more than 300 charging points in the coming years to support stakeholders' electrification efforts
- The airside community will commence trials on the use of renewable diesel, especially for specialised airport ground handling vehicles with no electric models

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AIRLINE:

SUSTAINABLE AVIATION FUEL

SUSTAINABLE AIR HUB

WHAT IS SUSTAINABLE AVIATION FUEL (SAF)?

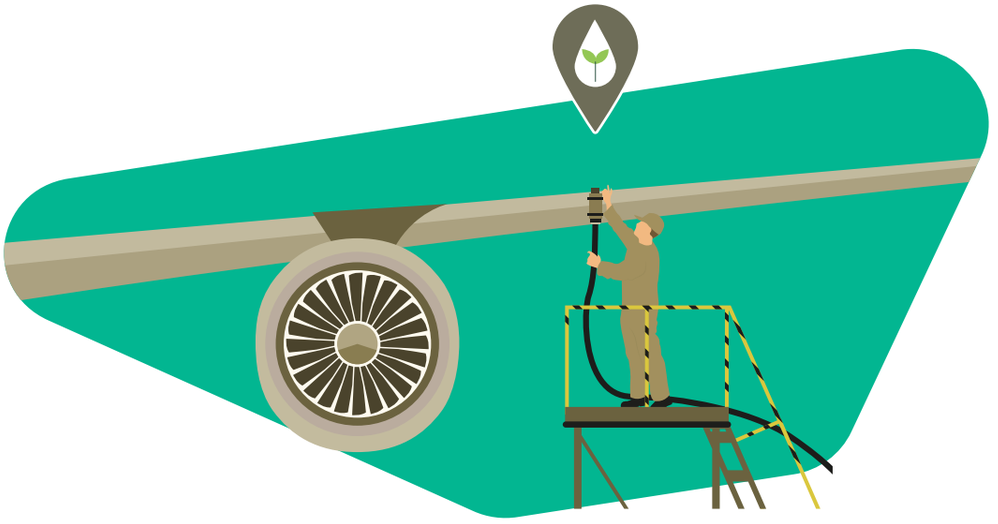
SAF is a form of alternative, non-fossil based, aviation fuel that can reduce up to 80% of carbon emissions compared to fossil jet fuel. SAF is traditionally produced from feedstocks like waste oils and agricultural waste, but these have diversified in recent years.

Feedstocks suitable for SAF production

- Oil seed plants and energy grasses
- Algae
- Municipal solid waste
- Fats, oils, and greases from cooking waste and meat production
- Agricultural and forestry residue
- Industrial carbon monoxide waste gas

SAF PILOT IN SINGAPORE

CAAS partnered with Singapore Airlines, Changi Airport Group, Temasek Holdings, ExxonMobil and Neste to conduct a pilot to uplift SAF at Changi Airport in July 2022. As part of the pilot, Singapore Airlines has piloted the sale of SAF credits to encourage corporates and cargo users to reduce their carbon footprint and stimulate the demand for SAF.



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AIR TRAFFIC MANAGEMENT:

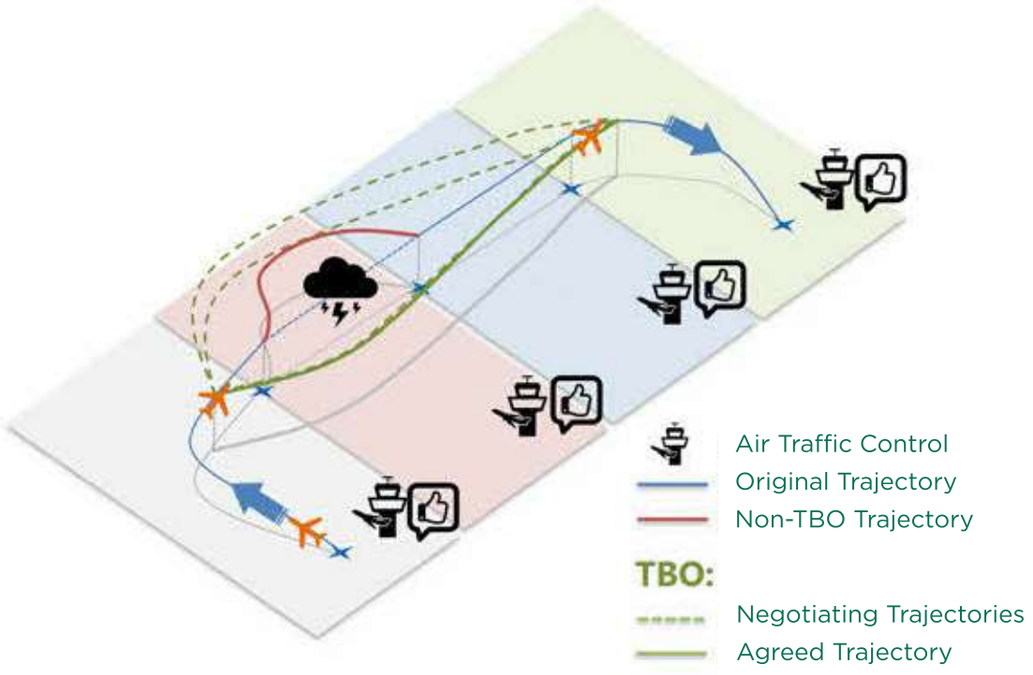
TRAJECTORY BASED OPERATIONS

Trajectory Based Operations (TBO) presents significant sustainability benefits by optimising flight efficiency, which will reduce delays, fuel burn and emissions.

TBO allows flight trajectories to be planned and executed more precisely to improve Air Traffic Management (ATM).

Today, international flights are coordinated through multiple Flight Information Regions (FIRs) by respective Air Navigation Service Providers (ANSPs), with each ANSP focusing on providing air traffic control services in their respective areas of responsibility independently.

Under TBO, ANSPs and airspace users will share information such as detailed flight intent, weather and aerial activities, and work together to plan and optimise an aircraft's flight trajectory across FIRs from take-off to touchdown.



Singapore, Japan, Thailand and the United States successfully conducted the world's first-ever Multi-Regional TBO demonstration flight in June 2023.

The demonstration flight was part of a three-year collaboration programme aimed at improving flight efficiencies and reducing carbon emissions. TBO and other sustainable ATM initiatives, have the potential of cutting an aircraft's additional fuel burn by up to 10%.

Technical capabilities developed for the project enabled functions such as air and ground exchange of live flight information and the negotiation of flight trajectory between multiple ANSPs and the aircraft.

CAAS and Boeing celebrating the successful MR-TBO flight in June 2023

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