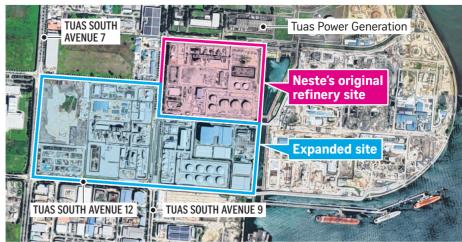
Scaling up green jet fuel production in Singapore

Finnish energy giant Neste officially opened its expanded refinery in Tuas South on Wednesday, making Singapore the world's largest producer of sustainable aviation fuel (SAF) by capacity. The Straits Times looks at what goes into making the renewable fuel.

TUAS SOUTH	
Tuas	Jurong Island

EXPANDED SINGAPORE REFINERY



WHAT SAF IS MADE FROM

It is made from recycled waste materials from various sources, including:



New raw materials

Algae, agricultural and

forest harvesting residues,

and municipal solid waste

HOW SAF IS MADE

Pre-treatment

Waste and

filtered to remove

impurities

materials are

residue

 Used cooking oil Waste oils and fats from restaurants and households

Neste is developing technology to tap:



Power to Liquid (e-SAF)

 Waste animal fat Derived from meat processing waste, including fish, from the food industry.



 Vegetable oils Examples include fats and fatty acids removed from food-safe palm oil during the refinement process, and oil waste recovered from the refining of other vegetable oils.



 Technical corn oil A processing residue generated during the production of ethanol from corn.

BY THE NUMBERS

Up to 80 per cent of greenhouse gas emissions reduced by replacing regular jet fuel with SAF

About \$2.3 billion invested into expansion of Neste's Singapore refinery

Expanded plant spans 45ha, or about 64 football fields. up from 19ha previously

Close to 300 workers employed, up from 120 before

HOW MUCH SAF CAN BE PRODUCED **IN SINGAPORE**

Neste's expanded refinery in Singapore can produce up to a million tonnes of SAF, or around 1.25 billion litres, a year. While this is enough to fill

500 Olympic-size swimming pools

and is 10 times Neste's previous SAF capacity, it represents

0.35 per cent of the 359 billion litres of fuel

consumed by airlines globally in 2019.

Source: NESTE TEXT: KOK YUFENG PHOTOS: CHONG JUN LIANG, GOOGLE MAPS STRAITS TIMES GRAPHICS

Refining Oxygen and other impurities like sulphur and nitrogen are removed from the treated renewable raw material to create pure hydrocarbons

A synthetic fuel created with renewable energy, which is

from the atmosphere or from industrial waste gas

used to combine hydrogen molecules with carbon extracted

Distillation The refined product is . distilled further to create SAF that meets





