

NESTE

A climate quantum leap! Sustainable aviation fuel is taking off in San Francisco

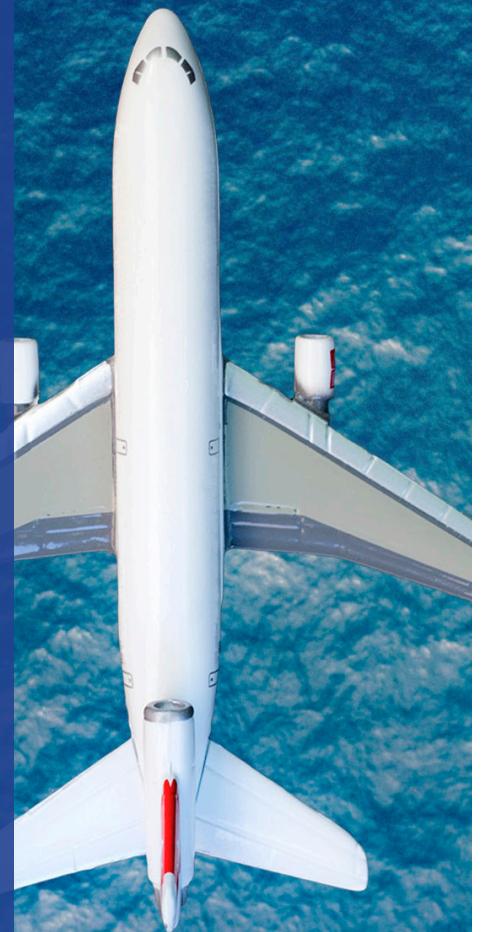
San Francisco International Airport and Neste work together to reduce carbon emissions of flying

A nationally recognized sustainability leader in the aviation industry and one of the 25 busiest airports in the world, San Francisco International Airport (SFO) set a goal to become the first triple zero airport - that is: net zero carbon, zero waste and net zero energy.

SFO has made extraordinary strides to reduce its environmental impact, including its boldest step yet of becoming one of the first major airports in the country to enable a continuous supply of Sustainable Aviation Fuel (SAF) for all commercial, cargo and private aircraft operators. This work supports the carbon reduction ambitions of its airlines and builds the airport's past leadership to certify the first LEED Platinum (2012), Net Zero Energy (2018) and Fitwel (2020) airport facilities and ban plastic beverage containers campus-wide (2021).

In 2016, Airports Council International awarded SFO "Level 3" certification under the Airport Carbon Accreditation (ACA) program, which recognizes its progress and collaborative commitment to reducing greenhouse gas emissions and energy consumption from operations across SFO. To date, SFO is one of just 10 airports in North America to have achieved such an advanced certification.

These efforts affirm SFO's commitment to the community and the environment by reducing emissions, improving health and advancing its ambitious mission. Looking to the future, there is one major opportunity to create a sustainable future for air travel that's drop-in and available now to power aircraft with SAF instead of conventional fossil jet fuel.



The journey

To become a leader in sustainable aviation fuel



“Airports, as integral parts of the aviation ecosystem, are key drivers of global prosperity, delivering economic and social benefits to the local, regional and international communities they serve. But we will only be given our permission to operate and grow if we continue to address, minimize and mitigate the environmental impacts of our operations.” said ACI World Director General Luis Felipe de Oliveira. ***Climate change is a global challenge requiring further and urgent global response and there is no doubt that the increased use of sustainable aviation fuels would have an immediate and positive effect on our collective efforts to combat climate change. It must be recognized, however, the aviation sector needs to collaborate to be able to decarbonize and partnerships like this one between Neste and San Francisco International Airport are a prime example of the cooperation and coordination we need across the industry. Partnerships like this show us that working closely with our partners in the aviation community with the support of governments and key stakeholders to facilitate and pave the way for sustainable aviation fuels will play a significant role in minimizing and mitigating the environmental impacts of aviation towards a net zero future.”***

On its campus, SFO had been working for years to build partnerships to expand deliveries and infrastructure for SAF. Beginning in 2018, SFO hosted multiple SAF-fueled gateway flights departing for destinations across California and around the world, totaling nearly 400,000 gallons of SAF delivered and avoiding roughly 40,000 tons of CO₂.

The flights’ successful outcome showcased the technology’s viability and potential for achieving significant carbon reductions and enabled SFO to onboard all its key stakeholders to ensure readiness for future use. SFO sought to further expand SAF use, but found the infrastructure and supply chain logistics to be a significant barrier.

To overcome these hurdles, SFO signed a Memorandum of Understanding (MOU) with Neste and a group of eight airlines and fuel producers. The agreement was the first of its kind to include fuel suppliers, airlines, and airport agencies in a collaborative effort to accelerate the global and local transition to SAF. Since then, SFO’s

SAF Stakeholder Working Group (SWG) now includes nearly 150 members. Each provides a crucial voice in identifying and addressing infrastructure challenges to accelerate SAF delivery to the airport.

With more than a decade of experience with SAF and already the world’s largest SAF producer, Neste played a key role in this collaboration. To effectively deploy SAF, Neste was able to offer a breakthrough in the supply chain by directly delivering the fuel via pipeline, which serves as drop-in fuel for aircrafts at SFO. This allowed the process to become easier, safer and more climate-friendly. This partnership was critical in the airport’s ability to expand its use of the fuel and help achieve its sustainability goals, and those of its partner airlines.

“Right from the beginning, Neste was an active partner and essential collaborator in supporting our SAF-SWG and airport to collectively make a difference in reducing greenhouse gas emissions and improving air quality,” said Erin Cooke, San Francisco International Airport’s Sustainability Director. ***“Neste has gone above and beyond to help us not just continue, but amplify our climate commitment, which has led SFO to receive industry leading volumes of SAF in the U.S.”***

Together, Neste and SFO worked to secure support from the airport’s many stakeholders regarding the use of SAF. A critical achievement was joining a network formed to educate the California Air Resources Board (CARB) about the benefits of expanding the Low Carbon Fuel Standard (LCFS) to offer the opt-in inclusion of SAF. This created a level playing field between conventional fossil-based aviation fuel and SAF in California. Once activated in 2019, the LCFS made California SAF’s most competitive market.

“Our relationship with Neste and this incredible collective of SAF producers has secured our credibility and propelled our ability to make change happen in the state and industry. In 2019, SFO set a target to achieve 5% SAF use by 2025,” said Cooke. ***“Through the dedication of SAF-SWG, our strategic planning, focused advocacy, and Neste’s active deliveries, our campus is on track to become one of the first to reach that ambitious goal.”***

A pioneering partnership

To accelerate the use of sustainable aviation fuel

Today, Neste is delivering a continuous supply of SAF to SFO via existing pipeline infrastructure - the same pipelines that were originally designed to carry fossil fuels and other oil products.

“This is a major milestone in our goal to make SFO a hub for the use of SAF in our pursuit of net zero carbon,” said SFO Airport Director Ivar C. Satero. ***“By focusing on the entire supply chain process, achievements like this one have the power to transform the landscape of our entire industry.”***

Once Neste’s SAF enters SFO’s fuel consortium storage, it is available to all commercial, cargo or business aviation entities that operate at the airport. The SAF is blended into the jet fuel pool, and is being used by major airlines including American Airlines, JetBlue, Alaska Air and DHL Express, as well as for business and private aviation via Signature Flight Support.

Hailed as a “Climate Quantum Leap,” the seamless introduction of SAF into SFO’s existing jet fuel supply chain - from refinery to pipeline to airport fuel supply to aircraft - demonstrates SAF’s unique role as a today solution that works safely with existing engines and infrastructure. It is a model for the industry, and airports throughout North America.

“Air travel allows us to connect with each other, appreciate the natural wonders of the world, and experience the richness of diverse cultures. These are the things we want to preserve by fighting climate change,” said Chris Cooper, Vice President of Renewable Aviation at Neste US. ***“That’s why we are committed to growing the market for SAF in North America, so future generations can enjoy the many benefits of air travel.”***

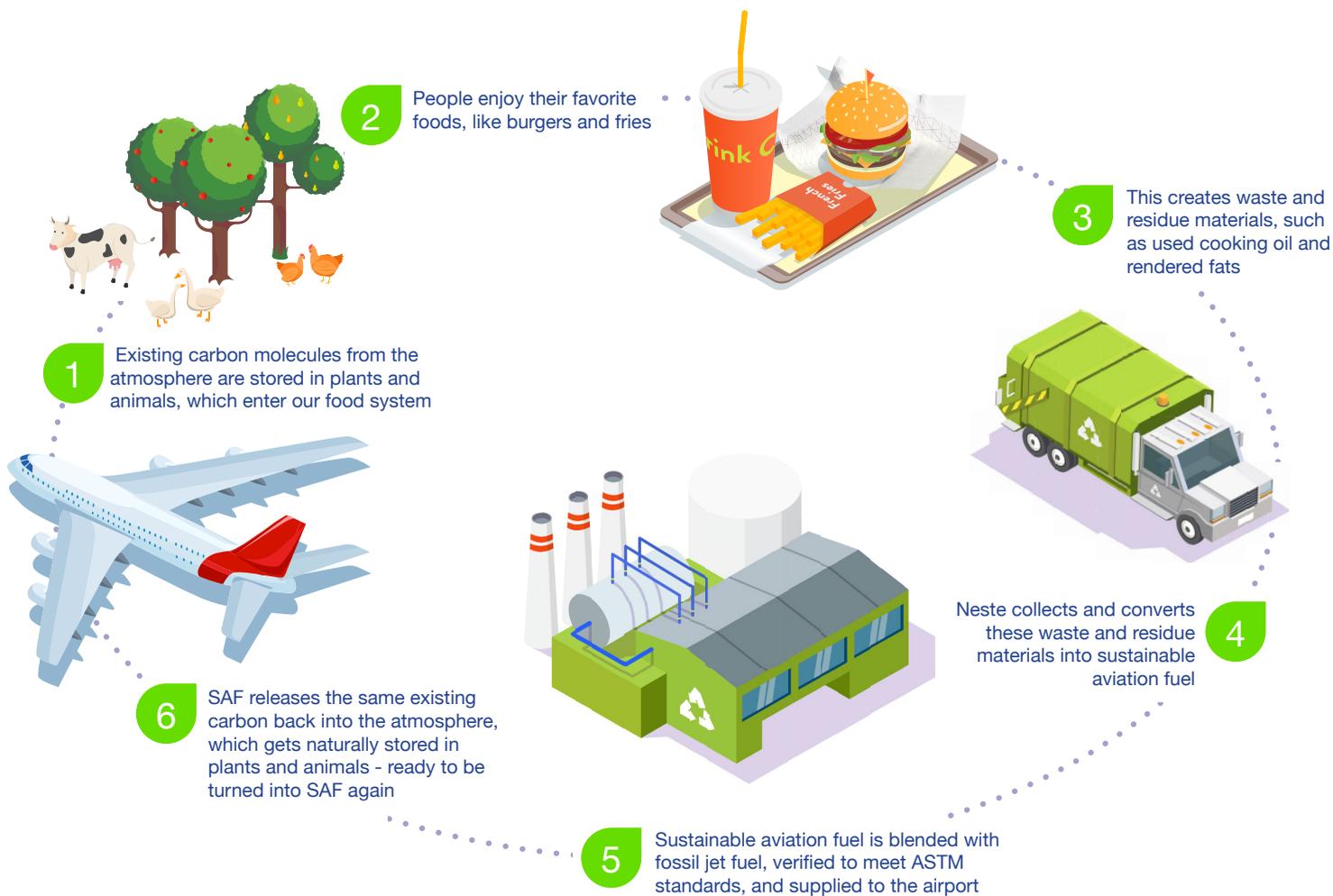


Key Facts about sustainable aviation fuel

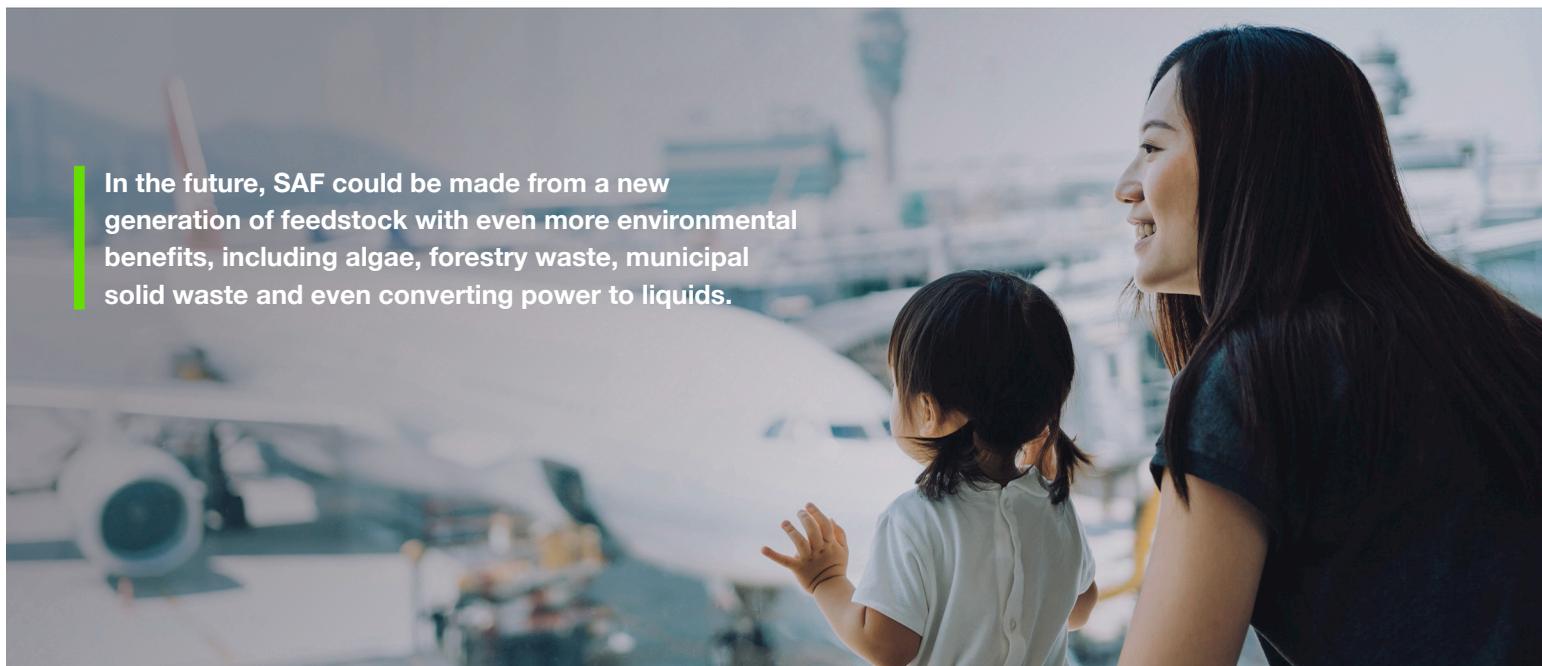
- 1 Reduces direct carbon emissions and other pollution from aircraft
- 2 Works seamlessly with existing aircraft engines and airport fueling infrastructure; no need for additional investment
- 3 Made from sustainably sourced, renewable raw materials, not from crude oil

How it works:

The circular economy with a big return



In the future, SAF could be made from a new generation of feedstock with even more environmental benefits, including algae, forestry waste, municipal solid waste and even converting power to liquids.





The state of sustainable aviation fuel

U.S. aviation (airlines, general and business aviation, the US military) currently accounts for 2.6% of total domestic emissions and 9% of the emissions from the broader U.S. transportation sector. The Federal Aviation Administration (FAA) forecasts an increase in U.S. airline passengers from **917 million in 2019 to 1.31 billion in 2039—43% growth over a 20-year period.**

Over the same period, the FAA projects that jet fuel consumption will increase from **24.08 billion gallons to 30.64 billion gallons.** Hydrogen and electrification will take longer to be commercially viable, and SAF can enable the industry to immediately reduce emissions right now and accelerate the phase out of fossil fuels. The steady growth in air travel also highlights the support that is needed from the industry to scale up the use of SAF.

In addition, the U.S. private aviation sector is the largest in the world and is expected to keep growing. In fact, the industry currently consumes more than 1.8 billion gallons of fossil jet fuel each year.

That's why Neste established a partnership with Signature Flight Support and NetJets at SFO to accelerate the use of SAF in the business and private aviation sector. Signature Flight Support has pumped more than one million gallons of SAF through its Signature Renew program at SFO, resulting in a more than 10,000-tonne reduction in aircraft CO2 emissions. The one million gallon milestone is a significant achievement that continues to propel the business aviation industry toward adopting sustainable fuel on a consistent basis, and netting the emissions benefits in returns for their users.

Given the projected growth of passenger air travel and freight, the increase in aircraft emissions is also expected over the next few years, so the necessity for SAF couldn't be clearer.

By the numbers



Over the lifecycle, **SAF reduces greenhouse gas (GHG) emissions by up to 80%** compared to fossil jet fuel



200,000 commercial flights have used SAF **since 2011**



More than **40 airlines** and **13 major airports** already use and supply **SAF**



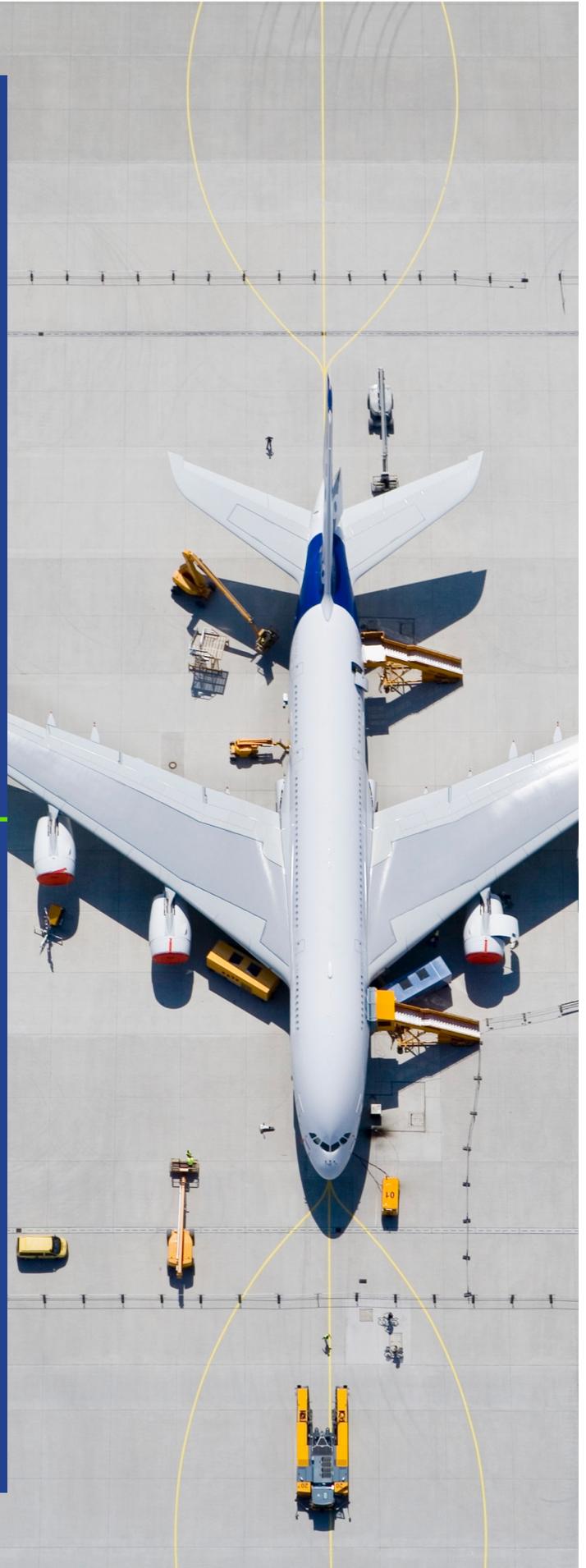
1.6 billion gallons of SAF committed to forward purchasing agreements

“The aviation industry is not alone in its journey toward reduced emissions and increased sustainability,” said Chris Cooper, Vice President of Renewable Aviation at Neste US. “Solutions like SAF address both today’s needs and long-term goals, and collaboration is essential to enacting a greener future.”

Contributing to cleaner air

SAF also reduces pollution from aircraft engine operation: particulate matter (PM) and sulphur compared to conventional jet fuel. Reducing these emissions contributes to cleaner air, which is particularly important for addressing environmental justice issues in communities near airports.

In many cases, economically disadvantaged communities live near airports. They experience poorer air quality due to airport operations and associated adverse health impacts. It is critically important to accelerate the use of SAF to ensure that communities neighboring airports can breathe clean air and so can all airport airfield workers. It is critically important to accelerate the use of SAF to help ensure that communities neighboring airports can breathe clean air and so can all airport airfield workers.





The future is bright For cleaner skies

Neste sees significant growth potential for renewable fuels in the aviation market and has been at the vanguard of SAF production for nearly a decade. The demand is there – from airlines, business aviation and end customers.

That is why Neste has set an ambitious target to bring online more than **515 million gallons of SAF production capacity by 2023**. At the same time, Neste is entering into bold, new partnerships to increase the availability of SAF.

“All it takes is forward thinking cities, businesses and airlines that choose to make fighting climate change and air pollution a priority,” said Lana Van Marter, Commercial Development Manager at Neste. “Airports can take action to obtain SAF for use in their systems, airlines can support SAF and the public can let airlines know that they want to fly with SAF.”

It’s a small switch with a big impact for a healthier planet.

Working together to make a difference

Working together **to increase the supply of SAF** into airports around the world



Partnering with **leading airlines around the world** to accelerate the use of SAF



Supplying SAF to businesses aviation in the **US and EU**



Collaborating **with leading OEMs** to drive towards 100% SAF use in aircrafts and promote innovation within the industry



For more information, please visit:
<https://www.neste.us/>