

Co-processing

Working towards a sustainable energy solution at scale

The aviation industry is in the midst of a pivotal transition period as it aims to attain its goal of achieving net-zero emissions by 2050¹. Providing the energy needed to support the increasing demand of air travel



while reducing greenhouse gas emissions will require many technical solutions, including the production and adoption of Sustainable Aviation Fuels (SAF). SAF is a lower carbon intensity² alternative to traditional jet fuel and is made from a blend of fuels from both renewable and petroleum sources.

The question is how do we scale up production of SAF? At ExxonMobil we are working to advance lower-emission energy solutions on several fronts. While we move forward with plans to produce SAF through

currently approved pathways, we are also championing the development of new ASTM International (ASTM) pathways.

Co-processing is the simultaneous processing of renewable feedstocks like vegetable oils or animal fats, with petroleum feedstocks such as crude oil. The resulting fuels contain renewable content which can help accelerate the airline industry's energy transition when considering the scale of existing refinery production. When these fuels are used to power aircraft, the resulting net GHG emissions are lower³ than for a petroleum based fuel alone. And because safety is of paramount importance to the airline industry, it is critical that organizations like ASTM evaluate these new fuel production processes to ensure that the resulting fuels are fit for use in their intended application.

ASTM International is a technical organization comprised of representatives from key industry stakeholders, including aircraft and engine manufacturers, fuel producers, and airlines that work to agree

Leveraging existing facilities = Increase SAF supply today

on global industry standards. As an active member of this organization, ExxonMobil advocates for increased flexibility in the

types and amounts of renewable feedstocks that may be co-processed in a refinery that could scale the industry supply of SAF more quickly, but always with the highest regard for safety.

Co-processing is a smart solution that could bring lower emission aviation fuels to the industry more rapidly. For example, a manufacturing facility producing 230k tonnes per year (~5 KBD) of SAF could take years to construct and could cost hundreds of millions of dollars. Similarly, co-processing 10% renewable feedstock in an existing 50 KBD refinery unit could be implemented more quickly and efficiently, yielding the exact same volume of renewable product. And as feedstock and associated technology solutions become more widely available, the ability to gradually increase the percentage of renewable feedstock becomes a viable option in a large refinery versus having to construct new production units. In addition to the scale and economic benefits, using existing facilities further mitigates the environmental impact and associated GHG emissions related to the construction of new standalone manufacturing facilities.

Making co-processing a viable solution will require government policy that supports this technology. ExxonMobil is a strong advocate for sound government policy to encourage investment and adoption of lower-emission fuels at scale. Moreover, we believe methodology and protocols that govern renewable fuels and carbon intensity of co-processed products must be clear, practical, consistent, and science-based. These methodologies should work for all technologies that may be used to process feedstocks to ensure that the renewable portion of co-processed fuels and carbon intensity calculation are comparable.

It will take many pathways and processes for the aviation industry to transition to a lower-emissions future. At ExxonMobil, we are committing our leadership and expertise in manufacturing, R&D, and supply chain logistics to develop and deliver product solutions needed to help the aviation industry meet its net-zero ambitions.

For more information, visit
www.exxonmobil.com

¹Net zero carbon 2050 resolution (iata.org)

²IATA Net Zero 2050: sustainable aviation fuels fact sheet

³IATA Net Zero 2050: sustainable aviation fuels fact sheet