

WHITE PAPER // JULY 2021

SUSTAINABLE AVIATION FUEL (SAF)

FUELING THE FUTURE OF AVIATION

The Critical Role of Sustainable Aviation
Fuel in the Future of Aerospace



THE CRITICAL ROLE OF SUSTAINABLE AVIATION FUEL IN THE FUTURE OF AEROSPACE

As Collins Aerospace continues to collaborate on and develop a wide range of innovative technologies for a sustainable future, the company recognizes that Sustainable Aviation Fuel (SAF) is essential to achieve substantial reductions in net carbon emissions for aviation. This is due in part to the fact that it can be deployed relatively quickly across a wide range of aircraft types. Collins fully supports the efforts of the aerospace industry to move as soon as possible towards the use of up to 100% SAF.

BACKGROUND

SAF is an alternative to fossil fuels and includes biofuels, which are made from agricultural products that absorb carbon dioxide before they're harvested. On a net basis, these fuels have the potential to reduce CO₂ emissions by up to 80%.

Other SAF would include e-fuels, where renewable energy from wind, solar or nuclear power is used to create hydrogen, which is then turned into jet fuel through chemical processes. Today, SAF makes up less than 0.1% of global jet fuel consumption. Building the capabilities to use SAF at scale in aviation could cancel out the net growth in emissions.

COLLINS AEROSPACE CONTRIBUTION TO SAF USAGE

Collins designs and integrates advanced fuel measurement and management systems as well as other fuel system components, such as fuel controls, pumps, valves and nozzles, for nearly every type of engine and aircraft. Today these systems and components are compatible with at least seven biofuels currently approved

for use in commercial aircraft with a blend of up to 50% that meet the Jet A ASTM requirements.

In collaboration with the engine and aircraft manufacturers, we are working to ensure compatibility with unblended sustainable fuels. This may require testing, requalification or recertification and in some cases the redesign of components or subcomponents depending on the future standards of SAF. For example, for current fuel gauging systems Collins has developed a densitometer device that directly measures the density of fuel thus allowing to maintain a 1% fuel quantity accuracy regardless of fuel type. For new aircraft, Collins is developing a pressure-based fuel gauging system that directly measures the pressure of fuel so we can accurately calculate fuel quantity regardless of fuel type.

Collins fuel systems experts also support the industry in defining the standards of SAF to clear the path for use of unblended SAF, thus enabling and contributing to the de-carbonization of commercial aviation.

MOVING TOWARDS A MORE SUSTAINABLE FUTURE

The effort to adopt SAF in aviation goes well beyond the industry. It will require energy companies to build the necessary production infrastructure and governments around the world to encourage and support that development. This collaborative approach is at the core of how we will lead substantial gains in achieving up to 100% use of SAF.

Learn more about Sustainability at Collins Aerospace:
collinsaerospace.com/sustainability