April 2023
Contact: pressoffice@faa.gov

FACT SHEET
6 New Ways Your Aircraft May Be Flying Through the Sky During the Coming Decades

Sustainable Aviation Fuel – Used cooking oil, grease, municipal solid waste, cornhusks, sugar cane and sugar beets, seaweed and algae – jet fuel may come from any or all of these substances. Sustainable aviation fuels produced from renewable and waste feedstock can provide the greatest impact in our effort to reduce greenhouse gas emissions from aircraft. Such fuels will be critical to the aviation industry's ability to meet the net-zero emissions goal and they have the potential to slash emissions by up to 100 percent.

Electric Propulsion – Small start-ups and large aircraft manufacturers around the world are building new planes and retrofitting current planes that use clean and quiet electric power for propulsion. A large hurdle is developing safe batteries that provide more power, but not more weight. The technologies most likely will be introduced first on small aircraft and shorter routes, while implementation on longer routes is further down the road. The FAA provides support for

battery research and for other safety and certification topics involving electric propulsion for planes. More information on this topic can be found in a recent FAA The Air Up There podcast.

Hybrid-Electric – A hybrid electric aircraft uses two or more sources of propulsion in one design. The battery and the aviation fuel usually can be used either together or alternately. Because of the power capacity of current lithium-ion batteries being developed for flying, a hybrid electric powertrain would effectively increase flight range compared to a pure electric aircraft.

Hydrogen Energy – Hydrogen can be burned as propulsion for a jet engine, or liquid hydrogen can be used to power a fuel cell that generates electricity to power a propeller. In addition, current hydrogen-based technology requires large fuel tanks and the tanks need to be frozen to minus 420 degrees Fahrenheit to liquefy the hydrogen. Much work needs to be accomplished, but aircraft manufacturers are working on the issues.

Solar Power – Current solar-powered planes have more than 17,000 solar cells installed on their surface. The electricity these produce powers the aircraft's motors, which turns the propellers and charges the onboard batteries. These batteries power the plane during the day and they preserve

the power required by the aircraft to fly at night. The biggest challenge is reducing the weight of the plane.

Supersonic Engines – Companies in the United States and abroad are now taking a new look at supersonic air travel. Lighter and more efficient composite materials, combined with new engine and airframe designs, may offer the potential for introduction of a viable supersonic transport. In the area of supersonic aircraft noise, the FAA continually works to ensure the United States keeps pace with latest scientific, technological, and environmental advancements to maintain the safest, most efficient, and advanced airspace system in the world. As part of their priority on innovation in transportation, the DOT and the FAA are taking steps to advance the development of civil supersonic aircraft.