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FAA FACT SHEET

Putting Our Heads Together:
FAA Invests $35M in Environmental Partnership with Top Universities

Taking aim to achieve net-zero greenhouse gas emissions from the U.S. aviation sector by 2050, the Federal Aviation Administration invested $35 million during 2022 in environmental projects by 14 universities across the country as part of the Aviation Sustainability Center (ASCENT) research effort.

Project teams are focused on sustainable fuel, emissions, electric and hydrogen propulsion, noise, measurement and other sustainability and environmental topics. Key research efforts include:

Sustainable Fuel

- Evaluate regional sustainable aviation fuel supply chains and quantify their environmental and economic attributes: $2.5 million
- Ensure that novel sustainable aviation fuel pathways are safe for use: $4.5 million
- Measure reductions in combustion emissions from the use of sustainable aviation fuels in jet engines – both on the ground and in flight: $3.8M
- Evaluate global sustainable aviation fuel supply chains and assess global availability for sustainable aviation fuel production: $1.2 million
- Analyze opportunities to use low carbon electricity to power future aircraft: $1.2 million

Emissions

- Advance the state of the art in gas turbine design to reduce fuel use and emissions from subsonic aircraft: $2.6M
- Evaluate opportunities to reduce fuel use and emissions from supersonic aircraft through improved combustor and engine designs: $1.5M
- Examine how fuel heating and aero-engine fuel injector design can reduce emissions: $750,000
- Develop decision support tools to cost effectively reduce the climate impacts of contrails and aviation induced cloudiness: $550,000
- Evaluate the air quality impacts of aviation emissions: $1.2M
- Evaluate the climate impacts of future supersonic aviation emissions: $700,000
- Estimate the climate impacts of commercial space launch vehicle emissions: $425,000
- Improve predictive capabilities of soot from combustion in gas turbine engines: $500,000

Noise

- Assess potential correlations among aircraft noise, sleep, cardiovascular health, mental health, and the economics of those in affected communities: $3.5 million
- Develop tools to reduce noise generated by jet engine combustors: $1.5 million
- Develop analytical tools to evaluate and reduce noise from Advanced Air Mobility vehicles: $1.1M
- Develop improved noise liners to reduce engine noise: $900,000
- Develop improved supersonic aircraft noise prediction methods: $850,000
- Develop improved models of fan noise from gas turbine engines: $400,000
- Evaluate opportunities to reduce noise from the existing fleet of aircraft and helicopters through changes in operational procedures: $420,000
- Examine the potential fuel use and noise reduction benefits of an over-wing jet engine design concept: $300,000
- Develop improved modeling capabilities to calculate noise from drone operations: $300,000

Support Decision Making

- Provide data and analysis to support the development of noise and emissions standards for civil subsonic aircraft within the International Civil Aviation Organization: $2.6M
- Quantify how fleet evolution and technology development will impact noise, emissions, and fuel use by aviation: $950,000
- Simulate sonic booms in realistic environments to create noise certification standards for future low-boom supersonic aircraft: $330,000
- Provide modeling and validations to support development of the Aviation Environmental Design Tool: $1.8M

ASCENT participants include: Boston University, Georgia Institute of Technology, Massachusetts Institute of Technology, Missouri University of Science and Technology, Pennsylvania State University, Purdue University, Stanford University, University of Dayton, University of Hawaii, University of Illinois, University of North Carolina, University of Pennsylvania, University of Tennessee, and Washington State University.

Detailed descriptions of all ASCENT projects and the grant amounts can be found here.
Find more information about the FAA and its environmental efforts at its Sustainability Gateway Page and its list of action plan accomplishments.