GATEWAYS TO
BLUESKIES

Inspire. Innovate. Impact.

2023 Theme: Clean Aviation Energy

NASA Aeronautics' collegiate-level design competition asks student teams to conceptualize the source-to-flight lifecycle of one potential clean aviation energy source of the 2050s, in terms of feasibility, viability, and environmental impact.

Initial participation involves a design study and submission of a 5-7 page proposal and two-minute video. Based on a review of these submissions, up to 8 finalist teams will be selected to develop a final research paper, infographic, and present their work in a competitive design review during the 2023 Gateways to Blue Skies Forum at a NASA Center in June 2023.

About the Competition

The 2050s aviation landscape will incorporate technologies and designs enabling new aircraft to fly safer, faster, cleaner, and quieter. This future landscape includes the use of alternative fuels (electric, hydrogen, ammonia, etc.) to reduce the climate impacts caused by aviation. Although the proportion of emissions from aviation is low, they are released high in the atmosphere and create a relatively larger climate impact than emissions released at ground level. This triggers chemical reactions and atmospheric effects that heat the planet. Increased air travel demand and dependence on fossil fuels has created a critical global issue that necessitates the move toward new energy sources. **This competition seeks to crowdsource potential new energy sources, analyzing the entirety of the supply chain, to determine the "clean aviation energy" source of the 2050s.**

The 2023 Gateways to Blue Skies: Clean Aviation Energy competition specifically asks teams to assess the energy landscape in which a selected energy source will be implemented, including a justification, technology readiness, and a timeline towards implementation. Proposing teams should select one alternate energy source (*excluding Jet A and Sustainable Aviation Fuel),* that could power long-distance aviation. Assuming an aircraft can be designed to use that energy source, teams must show that it can theoretically produce enough power to propel the aircraft and is likely to have zero or close-to-zero harmful emissions. Teams will conduct an analysis of the energy supply chain as it relates to climate-friendly aviation, including availability for world-wide aviation use, potential-hazard assessment, supply readiness levels, and an energy/fuel path infographic from source-to-consumption. NASA encourages teams to consider creative energy ideas for the 2050s.

Full competition details will be available at https://blueskies.nianet.org after July 26, 2022. Some details may be subject to change.

Awards & Prizes

Each finalist team will receive a $6,000 award to facilitate full participation in the 2023 Blue Skies Forum in June 2023.

Winners will be offered the opportunity to intern within NASA's Aeronautics Research Mission Directorate in the academic year following the Forum.
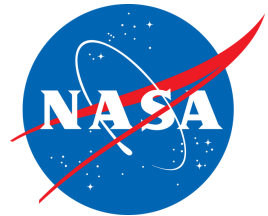
Eligibility*

Open to teams of undergrad and/or grad students at accredited U.S.-based colleges and universities. Team size can range from 2-6 participants.

*See website for full program eligibility.

Interdisciplinary teams and Minority Serving Institutions are encouraged to apply!

Submissions from ALL academic levels (i.e., freshman, sophomore, junior, senior, and graduate) are highly encouraged and anticipated.

Important Dates

Notice of Intent Deadline
October 17, 2022

Proposal Submission Deadline
February 28, 2023

Selection Notifications
March 28, 2023

Final Deliverables Submission Deadline
May 14, 2023

2023 Blue Skies Forum at a NASA Center:
June 1-2, 2023