

Project 82a

CAEP Stringency Analysis Modeling

Georgia Tech

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Cost Share Partner(s): Georgia Tech

Research Partners: Volpe, EPA, BlueSky, MIT



Objective:

This project will provide technical support to the FAA for the assessment of the 13th cycle of Committee on Aviation Environmental Protection's (CAEP/13) stringency analysis including cost estimation of various stringency options. The end result will provide the FAA with a data-driven process for decision-making, including the interdependencies between CO₂ and noise as well as the costs associated with their mitigation.

Project Benefits:

This project will provide the FAA with an understanding of the implications of different stringency analysis on the mitigation of the environmental impacts of aviation and the associated costs of achieving those benefits. The work will support FAA engagement and decision-making at the International Civil Aviation Organization under CAEP and will enhance the cost analysis of stringency options.

Research Approach:

- Review of the ANDES study and its short-comings to identify areas of improvement to current day technology levels
- Development of an updated operating cost model
- Assessment of the interdependencies of noise and CO₂ and the resulting costs associated with different stringency options across multiple aircraft classes
- Collaboration and dissemination of assumptions and results within the CAEP community

Major Accomplishments (to date):

- Developed an initial non-recurring cost model to quantify the economic implications of various stringency options
- Conducted an analysis on the noise margins as a function of takeoff mass and thrust
- Creating new technology response limits across aircraft classed
- Developed a notional A330-900 EDS model for the twin aisle class
- Contributed materials to various CAEP working groups

Future Work / Schedule:

- Finalize the technology responses
- Continue to develop the cost model and engage relevant stakeholders
- Collaborate with US Research Team to conduct the sample problem