ASCENT Project 37

CLEEN II/III System Level Assessment

Georgia Institute of Technology

PI: Dimitri Mavris

Co-I: Jimmy Tai & Joshua Brooks

PM: Roxanna Moores

Cost Share Partner: Georgia Institute of Technology

Objective:

To support the FAA through independently modeling and assessing the technologies that are being developed under the CLEEN II/III at the system and fleet levels.

Project Benefits:

This project will quantify the expected U.S. fleet wide reductions in aviation fuel burn, airport community noise, and NOx emissions. These reductions are enabled by including CLEEN II/III technologies onboard future aircraft.

Research Approach:

- Perform modeling of individual CLEEN II/III fuel burn, noise, and emissions technologies
- Incorporate these models into vehicle level performance analyses
- Include a demand forecast, fleet replacement matrix, and set of technology introduction scenarios
- Evaluate the fuel burn, noise, and emissions performance of the US fleet across each of these scenarios to estimate impacts of the CLEEN program

Major Accomplishments (to date):

Of the 16 technologies in CLEEN II:

- 9 have been fully modeled
- 4 are in final contractor review
- 3 are awaiting data

Preliminary fleet fuel burn assessment completed

Future Work / Schedule:

- Completion of remaining technology modeling
- Incorporation of final technologies into fleet analysis
- Initiation of CLEEN III technology modeling

This research was funded by the U.S. Federal Aviation Administration Office of Environment and Energy through ASCENT, the FAA Center of Excellence for Alternative Jet Fuels and the Environment, project 37 through FAA Award Number 13-C-AJFE-GIT-013 under the supervision of Roxanna Moores. Any opinions, findings, conclusions or recommendations expressed in this this material are those of the authors and do not necessarily reflect the views of the FAA.