AVIATION'S ROLE IN MINIMIZING ENVIRONMENTAL IMPACTS:

An AIAA Information Paper

ABSTRACT

With air traffic projected to triple in the next decade, the American Institute of Aeronautics and Astronautics (AIAA) is concerned about addressing aviation’s environmental impacts that may limit its ability to grow as predicted. Noise and emissions are becoming bigger problems around airports and regulations on carbon emissions are proliferating. Last year the European Union capped emissions from aircraft and now requires airlines arriving or leaving Europe to purchase pollution credits. The European Union is investing heavily in research and technology to reduce emissions while the U.S. budget for aeronautics is stagnant at best. The US created the Joint Planning and Development Office (JPDO) to formulate strategy for and to implement the Next Generation Air Transportation System. Both FAA and NASA have plans to address noise and emissions but funding for the Next Generation Air Transportation System (NextGen) and other environmental programs has remained elusive.

ISSUE

With air travel projected to increase over the next decade, there is growing recognition of the impact of aviation on the environment. Aeronautics technology can reduce aviation noise, reduce greenhouse gases and lessen dependence on foreign oil. Yet important programs are not being given appropriate priority, and adequate resources are not currently being devoted to addressing these critical challenges.

BACKGROUND

Current US policy includes goals to reduce fuel consumption and lessen aviation’s impact on the environment. Aviation is a crucial mode of transportation for commerce and the general public. Simply curtailing aviation will not produce net environmental impacts as people and cargo would then utilize other modes of transportation which are less efficient and potentially less safe. Unfortunately regulations limiting emissions are preceding the technology needed to address them. The European Union’s recent cap-trade regulations will seriously hamper air travel to and from Europe, raising fares and negatively impacting airlines. Thus important action is necessary to address these environmental challenges. Application of existing aerospace technology can be a start, but increased leadership and further investment is needed.

The 2007 National Aeronautics Research and Technology Plan established goals to mitigate aviation environmental impact by reducing aircraft noise, increasing energy efficiency, reducing emissions and developing alternate fuels. But specific programs to achieve these goals have not been put in place because funding remains unidentified or insufficient. FAA’s Continuous Lower Energy, Emissions and Noise (CLEEN) initiative focuses on reducing current levels of aircraft
noise and greenhouse gas emissions and improving air quality. However, this new initiative is being held up in the FAA Reauthorization Bill, which has yet to be passed.

A February 2009 statement by the General Accounting Office (GAO) on the National Airspace System (GAO-09-377T) found that it is essential that FAA transform and operate the national airspace system safely, efficiently and with limited environmental impact. The report found that “FAA will need to accelerate the implementation of new and existing technologies.” In their conclusion the GAO recommends “timely reauthorization of FAA programs.”

Congress established the Joint Planning and Development Office (JPDO) to create and implement the strategy for the Next Generation Air Transportation System (NextGen). While this program has a focus on improving the efficiency of air traffic operations, NextGen would mitigate aviation’s environmental impact by applying flight procedures such as continuous climb-out and descent, which would reduce fuel consumption and emission. Similarly, flight trajectories can reduce the impact of aircraft noise on communities. Further technological advances to improve airspace and the aircraft that fly in it could be made with additional investment, but NextGen continues to be inadequately funded and was not included in the President’s recent Stimulus bill.

RECOMMENDATIONS

- Make implementation of the Next Generation Air Transportation System a top priority, with strong, accountable leadership.
- Take the necessary steps to authorize implementation of the CLEEN initiative
- Develop programs with specific milestones, agency responsibility and budgets to address the environmental goals contained in the 2007 National Aeronautics Research and Technology Plan.
- Provide sufficient Government investments that facilitate the above recommendations.