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117TH CONGRESS
2D SESSION

H. R. 8097

To amend title 51, United States Code, to direct the Administrator of the National Aeronautics and Space Administration to establish an initiative to conduct research, development, and demonstration on technologies capable of reducing both greenhouse gas emissions and noise emissions from aircraft, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 16, 2022

Mr. BEYER (for himself, Mr. LYNCH, Mr. LOWENTHAL, Mr. SHERMAN, Mr. HUFFMAN, Mr. COHEN, Ms. BASS, Mr. SUOZZI, and Mr. KHANNA) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

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A BILL

To amend title 51, United States Code, to direct the Administrator of the National Aeronautics and Space Administration to establish an initiative to conduct research, development, and demonstration on technologies capable of reducing both greenhouse gas emissions and noise emissions from aircraft, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Cleaner, Quieter Airplanes Act''.

SEC. 2. FINDINGS.

Congress makes the following findings:

(1) Air travel currently contributes approximately 3 percent to global carbon emissions, but emissions from this sector are expected to triple by 2050.

(2) A healthy, thriving aviation sector contributes to the quality of life and economic well-being of the United States. In 2016, the Federal Aviation Administration found that civil aviation accounted for 5.2 percent of the United States gross domestic product, generated $1.8 trillion, and supported 10,900,000 jobs.

(3) Existing aircraft technologies contribute to noise pollution that has adverse impacts on the quality of life in affected communities. As air traffic volumes increase and the adoption of performance-based navigation technology proceeds, the problem of noise pollution is becoming more severe in some areas.

(4) The United States has adopted a goal of net-zero greenhouse gas emissions from the United States aviation sector by 2050.

(5) Research on technologies to lessen the environmental and noise impacts of aviation is ongoing, but should accelerate, and should include work on

the further maturation and integration of multiple enabling technologies on production aircraft, including novel integrated systems at the aircraft level.

SEC. 3. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION INITIATIVE ON REDUCTION OF GREENHOUSE GAS AND NOISE EMISSIONS FROM AIRCRAFT.

(a) INITIATIVE REQUIRED.—Section 40112 of title 51, United States Code, is amended—

(1) by redesignating subsections (b) through (f) as subsections (c) through (g), respectively; and

(2) by inserting after subsection (a) the following:

''(b) RESEARCH AND DEVELOPMENT INITIATIVE ON REDUCTION OF GREENHOUSE GAS AND NOISE EMISSIONS FROM AIRCRAFT.—

''(1) IN GENERAL.—The Administrator shall establish an initiative to research, develop, and demonstrate new technologies and concepts for the purposes of reducing greenhouse gas emissions from aviation, including carbon dioxide, (CO2), nitrogen oxides (NOx), other greenhouse gases, water vapor, black carbon and sulfate aerosols, increased cloudiness due to contrail formation, noise emissions from

aircraft, and to enable associated aircraft performance characteristics.

''(2) GOALS.—The goals of the initiative shall be to—

''(A) ensure United States leadership in research and technology innovation leading to substantial reductions in aviation noise and greenhouse gas emissions;

''(B) enhance and expand basic research, and the translation of basic research into applications, that may lead to transformational advances in reducing aviation noise and greenhouse gas emissions;

''(C) accelerate research and development that contributes to maturing new technologies for reducing aircraft noise and greenhouse gas emissions; and

''(D) obtain and disseminate associated testing and performance data that facilitates the incorporation of new technologies into commercial aircraft development as soon as practicable.

''(3) OBJECTIVES.—The objectives of the initiative and goals in paragraph (1) shall include—

"(A) as soon as practicable, a reduction of greenhouse gas emissions from new aircraft by at least 50 percent compared to the highest-performing aircraft technologies in service as of December 31, 2021;

"(B) noise levels from aircraft throughout all phases of flight that do not exceed ambient noise levels in the absence of flight operations in the vicinity of the flight route;

"(C) net-zero greenhouse gas emissions from aircraft by 2050; and

"(D) demonstrating new technologies developed pursuant to the initiative established under paragraph (1) on regional aircraft intended to enter into service by 2030 and single-aisle aircraft designed to accommodate more than 125 passengers intended to enter into service by 2040.".

(b) TECHNOLOGY FOCUS AREAS.—In carrying out the research and development initiative established under subsection (b) of section 40112 of title 51, United States Code, the Administrator of the National Aeronautics and Space Administration shall advance research, development, and demonstration projects on promising technologies such as—

(1) advanced subsonic propulsion technology, design, and integration;

(2) electric and hybrid-electric propulsion, including battery electric and hydrogen fuel cell electric systems;

(3) airframe concepts and configurations;

(4) analysis of technology options, including cost-benefit analysis of greenhouse gas and noise emissions reduction technologies;

(5) analytical tools for system- and system-of-systems-level modeling and integration;

(6) airspace operations improvements;

(7) noise emission reduction; and

(8) other efforts, as determined by the Administration, that contribute to a sustainable future for aviation.

(c) IMPLEMENTATION.—In implementing the initiative established under subsection (b) of section 40112 of title 51, United States Code, the Administrator of the National Aeronautics and Space Administration shall, to the extent practicable—

(1) ensure that testing and performance data integrates the results of community acceptance surveys conducted by the Federal Aviation Administration and other relevant studies, including studies on

the impacts of new noise effects from novel propulsion systems and from airspace operations changes;

(2) provide testing and performance data on the technologies described in subsection (b) to the Administrator of the Federal Aviation Administration to facilitate the work of the Federal Aviation Administration in identifying new requirements for policy, infrastructure, and administrative capacity necessary to enable the safe integration of such technologies on aircraft;

(3) pursue partnerships with organizations, current commercial production aircraft providers, academic institutions, small businesses and new entrants, including partnerships to advance research and development activities related to both regional aircraft and aircraft designed to accommodate more than 125 passengers;

(4) include universities, academic institutions, and other research organizations in the partnerships under paragraph (3);

(5) expand basic research;

(6) ensure equity in research sponsorship and partnership opportunities with underrepresented students, faculty, and minority-serving-institutions;

(7) continue to coordinate with the Department of Energy on battery technology research;

(8) make available the research and development carried out under the initiative established under subsection (b) of section 40112 of title 51, United States Code, to help enable an industry-wide shift toward aircraft concepts that reduce greenhouse gas emissions and aircraft noise to achieve the goals and objectives under paragraphs (2) and (3) of such subsection; and

(9) continue to support research, development, and demonstration of aircraft concepts, including systems architecture, materials and components, integration of systems and airframe structures, human factors, airspace planning and operations, and the integration of related advanced technologies and concepts, with the goal of carrying out test flights with integrated subsystems by 2025.

(d) ANNUAL REPORT.—Not later than 1 year after the date of the enactment of this Act, and annually thereafter, the Administrator of the National Aeronautics and Space Administration shall submit a report to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the progress

of the work under the initiative established under subsection (b) of section 40112 of title 51, United States Code, including—

(1) the status of progress on the initiative under such subsection;

(2) an updated, anticipated timeframe for readiness of technologies and aircraft to be adopted by industry with the emissions reduction levels directed under such subsection; and

(3) an identification of fundamental aeronautics research activities contributing to achieving the initiative under such subsection, as well as a description of any obstacles to achieving such goals and objectives under paragraphs (2) and (3) of such subsection.

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