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112TH CONGRESS
1ST SESSION

H. R. 970

To reauthorize the civil aviation research and development projects and activities of the Federal Aviation Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 9, 2011

Mr. HALL (for himself and Mr. PALAZZO) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

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A BILL

To reauthorize the civil aviation research and development projects and activities of the Federal Aviation Administration, 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; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''Federal Aviation Research and Development Reauthorization Act of 2011''.

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

TITLE I—AUTHORIZATIONS

SEC. 2. AMENDMENTS TO TITLE 49, UNITED STATES CODE.

Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or a repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of title 49, United States Code.

SEC. 3. DEFINITIONS.

As used in this Act, the following definition apply:

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the Federal Aviation Administration.

(2) FAA.—The term ''FAA'' means the Federal Aviation Administration.

(3) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the same meaning given the term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

(4) NASA.—The term ''NASA'' means the National Aeronautics and Space Administration.

(5) NATIONAL RESEARCH COUNCIL.—The term ''National Research Council'' means the National Research Council of the National Academies of Science and Engineering.

(6) NOAA.—The term ''NOAA'' means the National Oceanic and Atmospheric Administration.

(7) SECRETARY.—The term ''Secretary'' means the Secretary of Transportation.

TITLE I—AUTHORIZATIONS

SEC. 101. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—Section 48102(a) is amended—

(1) in the matter before paragraph (1) by striking ''of this title'' and inserting ''of this title and, for each of fiscal years 2011 through 2014, under subsection (g)'';

(2) in paragraph (11)—

(A) in subparagraph (K) by inserting ''and'' at the end; and

(B) in subparagraph (L) by striking ''and'' at the end;

(3) in paragraph (12)(L) by striking ''and'' at the end;

(4) in paragraph (14) by striking the period at the end and inserting a semicolon; and

(5) by adding at the end the following:

''(15) for fiscal year 2011, $165,020,000; and

''(16) for each of the fiscal years 2012 through 2014, $146,827,000.''.

(b) SPECIFIC PROGRAM LIMITATIONS.—Section 48102 is amended by inserting after subsection (f) the following:

''(g) SPECIFIC AUTHORIZATIONS.—The following programs described in the research, engineering, and development account of the national aviation research plan required under section 44501(c) are authorized:

''(1) Fire Research and Safety.

''(2) Propulsion and Fuel Systems.

''(3) Advanced Materials/Structural Safety.

''(4) Atmospheric Hazards—Aircraft Icing/Digital System Safety.

''(5) Continued Airworthiness.

''(6) Aircraft Catastrophic Failure Prevention Research.

''(7) Flightdeck/Maintenance/System Integration Human Factors.

''(8) System Safety Management.

''(9) Air Traffic Control/Technical Operations Human Factors.

''(10) Aeromedical Research.

''(11) Weather Program.

''(12) Unmanned Aircraft Systems Research.

''(13) NextGen—Alternative Fuels for General Aviation.

''(14) Joint Planning and Development Office.

''(15) NextGen—Wake Turbulence research.

''(16) NextGen—Air Ground Integration Human Factors.

''(17) NextGen—Self Separation Human Factors.

''(18) NextGen—Weather Technology in the Cockpit.

''(19) Environment and Energy Research.

''(20) NextGen Environmental Research—Aircraft Technologies, Fuels, and Metrics.

''(21) System Planning and Resource Management.

''(22) The William J. Hughes Technical Center Laboratory Facility.''.

(c) PROGRAM AUTHORIZATIONS.—From the other accounts described in the national aviation research plan required under section 44501(c) of title 49, United States

Code, for each of the fiscal years 2011 through 2014, the following research and development activities are authorized:

(1) Runway Incursion Reduction.

(2) Systems Capacity, Planning and Improvement.

(3) Operations Concept Validation.

(4) NAS Weather Requirements.

(5) Airspace Management Program.

(6) NextGen—Air Traffic Control/Technical Operations Human Factors.

(7) NextGen—Environment and Energy—Environmental Management System and Advanced Noise and Emissions reduction.

(8) NextGen—New Air Traffic Management Requirements.

(9) NextGen—Operations Concept Validation—Validation Modeling.

(10) NextGen—System Safety Management Transformation.

(11) NextGen—Wake Turbulence—Recategorization.

(12) NextGen—Operational Assessments.

(13) NextGen—Staffed NextGen Towers.

(14) Center for Advanced Aviation System Development.

(15) Airports Technology Research Program—Capacity.

(16) Airports Technology Research Program—Safety.

(17) Airports Technology Research Program—Environment.

(18) Airport Cooperative Research—Capacity.

(19) Airport Cooperative Research—Environment.

(20) Airport Cooperative Research—Safety.

SEC. 102. UNMANNED AIRCRAFT SYSTEMS.

(a) RESEARCH INITIATIVE.—Section 44504(b) is amended—

(1) in paragraph (6) by striking ''and'' after the semicolon;

(2) in paragraph (7) by striking the period at the end and inserting ''; and''; and

(3) by adding at the end the following:

''(8) in conjunction with other Federal agencies, as appropriate, to develop technologies and methods to assess the risk of and prevent defects, failures, and malfunctions of products, parts, and processes, for use in all classes of unmanned aircraft systems

that could result in a catastrophic failure of the unmanned aircraft that would endanger other aircraft in the national airspace system.''.

(b) SYSTEMS, PROCEDURES, FACILITIES, AND DEVICES.—Section 44505(b) is amended—

(1) in paragraph (4) by striking ''and'' after the semicolon;

(2) in paragraph (5)(C) by striking the period at the end and inserting a semicolon; and

(3) by adding at the end the following:

''(6) to develop a better understanding of the relationship between human factors and unmanned aircraft system safety; and

''(7) to develop dynamic simulation models for integrating all classes of unmanned aircraft systems into the national airspace system without any degradation of existing levels of safety for all national airspace system users.''.

SEC. 103. RESEARCH PROGRAM ON RUNWAYS.

Section 44505(c) is amended—

(1) by redesignating paragraphs (3) through (6) as paragraphs (5) through (8); and

(2) by inserting after paragraph (2) the following:

''(3) improved runway surfaces;

''(4) engineered material restraining systems for runways at both general aviation airports and airports with commercial air carrier operations;''.

SEC. 104. RESEARCH ON DESIGN FOR CERTIFICATION.

Section 44505 is amended—

(1) by redesignating subsection (d) as subsection (e); and

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

''(d) RESEARCH ON DESIGN FOR CERTIFICATION.—

''(1) RESEARCH.—Not later than 1 year after the date of enactment of the Federal Aviation Research and Development Reauthorization Act of 2011, the Administrator shall conduct research on methods and procedures to improve both confidence in and the timeliness of certification of new technologies for their introduction into the national airspace system.

''(2) RESEARCH PLAN.—Not later than 6 months after the date of enactment of the Federal Aviation Research and Development Reauthorization Act of 2011, the Administrator shall develop a plan for the research under subsection (a) that contains the objectives, proposed tasks, milestones, and 5-year budgetary profile.

''(3) REVIEW.—The Administrator shall enter into an arrangement with the National Research Council to conduct an independent review of the plan developed under subsection (b) and shall provide the results of that review to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 18 months after the date of enactment of the Federal Aviation Research and Development Reauthorization Act of 2011.''.

SEC. 105. AIRPORT COOPERATIVE RESEARCH PROGRAM.

Section 44511(f) is amended—

(1) in paragraph (1) by striking ''establish a 4-year pilot'' and inserting ''maintain an''; and

(2) in paragraph (4)—

(A) by striking ''Not later than 6 months after the expiration of the program under this subsection,'' and inserting ''Not later than September 30, 2012,''; and

(B) by striking ''program, including recommendations as to the need for establishing a permanent airport cooperative research program'' and inserting ''program''.

SEC. 106. CENTERS OF EXCELLENCE.

(a) GOVERNMENT'S SHARE OF COSTS.—Section 44513(f) is amended to read as follows:

''(f) GOVERNMENT'S SHARE OF COSTS.—The United States Government's share of establishing and operating the center and all related research activities that grant recipients carry out shall not exceed 50 percent of the costs, except that the Administrator may increase such share to a maximum of 75 percent of the costs for any fiscal year if the Administrator determines that a center would be unable to carry out the authorized activities described in this section without additional funds.''.

(b) ANNUAL REPORT.—Section 44513 is amended by adding at the end the following:

''(h) ANNUAL REPORT.—The Administrator shall transmit annually to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at the time of the President's budget request a report that lists—

''(1) the research projects that have been initiated by each Center of Excellence in the preceding year;

''(2) the amount of funding for each research project and the funding source;

''(3) the institutions participating in each project and their shares of the overall funding for each research project; and

''(4) the level of cost-sharing for each research project.''.

SEC. 107. INTERAGENCY RESEARCH ON AVIATION AND THE ENVIRONMENT.

(a) IN GENERAL.—The Administrator, in coordination with NASA and after consultation with other relevant agencies, may maintain a research program to assess the potential effect of aviation on the environment and, if warranted, to evaluate approaches to address any such effect.

(b) RESEARCH PLAN.—

(1) IN GENERAL.—The Administrator, in coordination with NASA and after consultation with other relevant agencies, shall jointly develop a plan to carry out the research under subsection (a).

(2) CONTENTS.—Such plan shall contain an inventory of current interagency research being undertaken in this area, future research objectives, proposed tasks, milestones, and a 5-year budgetary profile.

(3) REQUIREMENTS.—Such plan—

(A) shall be completed not later than 1 year after the date of enactment of this Act;

(B) shall be submitted to Congress for review; and

(C) shall be updated, as appropriate, every 3 years after the initial submission.

SEC. 108. AVIATION FUEL RESEARCH AND DEVELOPMENT PROGRAM.

(a) IN GENERAL.—Using amounts made available under section 48102(a) of title 49, United States Code, the Administrator, in coordination with the NASA Administrator, shall continue research and development activities into the qualification of an unleaded aviation fuel and safe transition to this fuel for the fleet of piston engine aircraft.

(b) REQUIREMENTS.—In carrying out the program under subsection (a), the Administrator shall, at a minimum—

(1) not later than 120 days after the date of enactment of this Act, develop a research and development plan containing the specific research and development objectives, including consideration of aviation safety, technical feasibility, and other relevant factors, and the anticipated timetable for achieving the objectives;

(2) assess the methods and processes by which the FAA and industry may expeditiously certify and

approve new aircraft and recertify existing aircraft with respect to unleaded aviation fuel;

(3) assess technologies that modify existing piston engine aircraft to enable safe operation of the aircraft using unleaded aviation fuel and determine the resources necessary to certify those technologies; and

(4) develop recommendations for appropriate policies and guidelines to facilitate a transition to unleaded aviation fuel for piston engine aircraft.

(c) COLLABORATIONS.—In carrying out the program under subsection (a), the Administrator shall collaborate with—

(1) industry groups representing aviation consumers, manufacturers, and fuel producers and distributors; and

(2) other appropriate Federal agencies.

(d) REPORT.—Not later than 270 days after the date of enactment of this Act, the Administrator shall provide 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 plan, information obtained, and policies and guidelines developed pursuant to subsection (b).

SEC. 109. RESEARCH PROGRAM ON ALTERNATIVE JET FUEL TECHNOLOGY FOR CIVIL AIRCRAFT.

(a) RESEARCH PROGRAM.—Using amounts made available under section 48102(a) of title 49, United States Code, the Secretary shall conduct a research program related to developing and certifying jet fuel from alternative sources (such as coal, natural gas, biomass, ethanol, butanol, and hydrogen) through grants or other measures authorized under section 106(l)(6) of such title, including reimbursable agreements with other Federal agencies.

(b) PARTICIPATION BY STAKEHOLDERS.—In conducting the program, the Secretary shall provide for participation by educational and research institutions and by industry partners that have existing facilities and experience in the research and development of technology for alternative jet fuels.

(c) COLLABORATIONS.—In conducting the program, the Secretary may collaborate with existing interagency programs—

(1) to further the research and development of alternative jet fuel technology for civil aircraft, including feasibility studies; and

(2) to exchange information with the participants in the Commercial Aviation Alternative Fuels Initiative.

SEC. 110. REVIEW OF FAA'S ENERGY- AND ENVIRONMENT-RELATED RESEARCH PROGRAMS.

(a) REVIEW.—The Administrator shall enter into an arrangement with the National Research Council for a review of FAA energy-related and environment-related research programs. The review shall assess whether—

(1) the programs have well-defined, prioritized, and appropriate research objectives;

(2) the programs are properly coordinated with the energy- and environment-related research programs at NASA, NOAA, and other relevant agencies;

(3) the programs have allocated appropriate resources to each of the research objectives; and

(4) there exist suitable mechanisms for transitioning the research results into FAA's operational technologies and procedures and certification activities.

(b) REPORT.—A report containing the results of such review shall be provided to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 18 months after the date of enactment of this Act.

SEC. 111. REVIEW OF FAA'S AVIATION SAFETY-RELATED RESEARCH PROGRAMS.

(a) REVIEW.—The Administrator shall enter into an arrangement with the National Research Council for an independent review of the FAA's aviation safety-related research programs. The review shall assess whether—

(1) the programs have well-defined, prioritized, and appropriate research objectives;

(2) the programs are properly coordinated with the safety research programs of NASA and other relevant Federal agencies;

(3) the programs have allocated appropriate resources to each of the research objectives; and

(4) there exist suitable mechanisms for transitioning the research results from the programs into the FAA's operational technologies and procedures and certification activities in a timely manner.

(b) AVIATION SAFETY-RELATED RESEARCH PROGRAMS TO BE ASSESSED.—The FAA aviation safety-related research programs to be assessed under the review shall include, at a minimum, the following:

(1) Air traffic control/technical operations human factors.

(2) Runway incursion reduction.

(3) Flightdeck/maintenance system integration human factors.

(4) Airports technology research—safety.

(5) Airport Cooperative Research Program—safety.

(6) Weather Program.

(7) Atmospheric hazards/digital system safety.

(8) Fire research and safety.

(9) Propulsion and fuel systems.

(10) Advanced materials/structural safety.

(11) Aging aircraft.

(12) Aircraft catastrophic failure prevention research.

(13) Aeromedical research.

(14) Aviation safety risk analysis.

(15) Unmanned aircraft systems research.

(c) REPORT.—Not later than 14 months after the date of enactment of this Act, the Administrator shall submit to Congress a report on the results of such review.

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