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118TH CONGRESS
1ST SESSION

H. R. 3560

To provide for coordinated Federal efforts to accelerate civilian unmanned aircraft systems and advanced air mobility research and development for economic and national security, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 22, 2023

Mr. LUCAS introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committees on Oversight and Accountability, Homeland Security, and Transportation and Infrastructure, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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A BILL

To provide for coordinated Federal efforts to accelerate civilian unmanned aircraft systems and advanced air mobility research and development for economic and national security, 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 ''National Drone and Advanced Air Mobility Research and Development Act''.

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

SEC. 2. FINDINGS.

Congress finds the following:

(1) Unmanned aircraft systems have the potential to change and transform sectors of the United States economy.

(2) Advanced air mobility aims to transform the way people and goods are transported through new capabilities and applications.

(3) Current uses and applications of unmanned aircraft systems and advanced air mobility include agriculture, transportation, law enforcement, public safety, disaster evaluation and response, fire detection, border security, weather forecasting, construction, utility monitoring, and many other uses and applications.

(3) Research, development, demonstration, testing, and evaluation of counter-UAS systems and detection systems activities are critical to fully understand the capabilities of and threats posed by unmanned aircraft systems.

(4) Unmanned aircraft systems and advanced air mobility systems are subject to safety, privacy, cybersecurity, and supply chain risks, particularly as

most unmanned aircraft systems in the United States are manufactured or assembled from parts manufactured in foreign countries.

(5) National and homeland security threats posed by unmanned aircraft systems and advanced air mobility systems include criminal and terrorist use for espionage, surveillance, and intelligence gathering, smuggling drugs and contraband, and platforms to deliver explosives or chemicals, biological, radiological or nuclear weapons, and other firearms.

(6) The Federal Government has an important role in advancing research, development, voluntary consensus technical standards, and education activities in advanced air mobility and unmanned aircraft systems technologies through coordination and collaboration between State, local, Federal, and Tribal governments, academia, and the private sector.

(7) There is a lack of voluntary consensus technical standards for unmanned aircraft systems and advanced air mobility for academia and the public and private sectors.

(8) The United States needs to invest in domestic manufacturing and secure supply chains of unmanned aircraft systems and advanced air mobility systems to meet the demand by the Government and

the commercial sectors, to reduce reliance on foreign-made systems.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADVANCED AIR MOBILITY.—The term ''advanced air mobility'' means a transportation system that transports people and property by air between two points in the United States using aircraft with advanced technologies, including electric aircraft or electric vertical take-off and landing aircraft, in both controlled and uncontrolled airspace.

(2) COUNTER-UAS SYSTEM.—The term ''counter-UAS system'' has the meaning given such term in section 44801(5) of title 49, United States Code.

(3) INSTITUTE.—The term ''Institute'' means a Drone and Advanced Air Mobility Research Institute described in section 201(b).

(4) INTERAGENCY WORKING GROUP.—The term ''Interagency Working Group'' means the Advanced Air Mobility and Unmanned Aircraft Systems Interagency Working Group of the National Science and Technology Council.

(5) NATIONAL LABORATORY.—The term ''National Laboratory'' has the meaning given such term

in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801).

(6) TRIBAL GOVERNMENT.—The term ''Tribal government'' has the meaning given the term ''tribal government'' in section 421 of the Congressional Budget Act of 1974 (2 U.S.C. 658).

(7) UNMANNED AIRCRAFT SYSTEM.—The term ''unmanned aircraft system'' has the meaning given such term in section 44801(12) of title 49, United States Code.

SEC. 4. PURPOSES.

The purpose of this Act is to ensure United States leadership in advanced air mobility and unmanned aircraft systems, and maximize benefits and mitigate risks of such systems by—

(1) supporting research, development, demonstration, testing, and transition to operations of secure advanced air mobility systems and unmanned aircraft systems, including research and development to accelerate integration of such systems into the National Airspace System;

(2) improving the interagency planning and coordination of Federal research and development of advanced air mobility and unmanned aircraft systems and maximizing the effectiveness of the Fed-

eral Government's advanced air mobility and next generation unmanned aircraft systems research and development programs;

(3) promoting research and development collaboration among the Federal Government, State, local, and Tribal governments, National Laboratories, industry, and academic institutions;

(4) promoting domestic manufacturing of unmanned aircraft systems and mitigating supply chain risks;

(5) supporting activities to mitigate risks to public safety and national security and homeland security, including through response to disasters;

(6) preparing the present and future United States workforce for the integration of advanced air mobility and unmanned aircraft systems across sectors of the economy, including through support for curriculum development and research opportunities;

(7) supporting research, development, demonstration, and testing of civilian applications of unmanned aerial systems, including improved safety and sustainability of ground transportation, environmental monitoring, and disaster response;

(8) promoting research and development collaboration among the Federal Government, State,

local, and Tribal governments, National Laboratories, industry, and academic institutions;

(9) promoting the development of voluntary consensus technical standards and best practices for advanced air mobility and unmanned aircraft systems; and

(5) applying lessons learned from unmanned aircraft systems research, development, demonstration, and testing to advanced air mobility systems.

TITLE I —INTERAGENCY ACTIVITIES

SEC. 101. INTERAGENCY WORKING GROUP.

(a) DESIGNATION.—

(1) IN GENERAL.—The National Science and Technology Council shall establish an interagency working group on advanced air mobility and unmanned aircraft systems to coordinate Federal research, development, deployment, testing, and education activities to enable the advancement of advanced air mobility and unmanned aircraft systems.

(2) MEMBERSHIP.—The interagency working group shall be comprised of senior representatives from the National Aeronautics and Space Administration, the Department of Transportation, the National Oceanic and Atmospheric Administration, the

National Science Foundation, the National Institute of Standards and Technology, and such other Federal agencies as appropriate.

(b) DUTIES.—The interagency working group shall—

(1) develop a strategic research plan to guide Federal research to enable advanced air mobility and unmanned aircraft systems and oversee implementation of the plan;

(2) oversee the ongoing development of—

(A) an assessment of the current state of United States competitiveness and leadership in advanced air mobility and unmanned aircraft systems, including the scope and scale of United States investments in relevant research and development; and

(B) strategies to strengthen and secure the domestic supply chain for advanced air mobility systems and unmanned aircraft systems.

(3) facilitate communication and outreach opportunities with academia, industry, professional societies, the Federal Government, State, local, and Tribal governments, and other stakeholders;

(4) facilitate partnerships to leverage knowledge and resources from industry, the Federal Government, State, local, and Tribal governments, National

Laboratories, Unmanned Aircraft Systems Test Sites, academic institutions, and others;

(5) coordinate with the Advanced Air Mobility Working Group and heads of other Federal departments and agencies to avoid duplication of research and other activities to ensure the activities carried out by the interagency working group are complementary to those being undertaken by other interagency efforts; and

(6) coordinate with the National Security Council and other authorized agency coordinating bodies on the assessment of risks posed by the existing Federal unmanned aircraft systems fleet and outlining potential steps to mitigate such risks.

(c) REPORT TO CONGRESS.—

(1) INITIAL REPORT.—Not later than one year after the date of the enactment of this Act, the interagency working group shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that—

(A) includes a summary of federally funded advanced air mobility and unmanned aircraft systems research, development, deployment, and

testing activities, including the budget for each of these activities; and

(B) describes the progress in developing the plan required under section 102 of this Act.

(2) BIENNIAL REPORT.—Not later than two years after the delivery of the initial report under paragraph (1) and biennially thereafter until December 31, 2033, the interagency working group shall transmit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that includes—

(A) a summary of federally funded advanced air mobility and unmanned aircraft systems research, development, deployment, and testing activities, including the budget for each of such activities; and

(B) an analysis of the progress made towards achieving the goals and priorities for the interagency research plan developed by the interagency working group under sections 102 and 103.

(3) STRATEGIC RESEARCH PLAN.—Not later than two years after the date of the enactment of this Act, the interagency working group shall trans-

mit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the strategic research plan developed under section 102.

SEC. 102. STRATEGIC RESEARCH PLAN.

(a) IN GENERAL.—Not later than two years after the date of the enactment of this Act, the interagency working group shall develop and periodically update, as appropriate, a strategic plan for Federal research, development, deployment, and testing of advanced air mobility systems and unmanned aircraft systems. In developing the plan, the interagency working group shall consider and use information, reports, and studies on advanced air mobility and unmanned aircraft systems that have identified research, development, deployment, and testing needed, and recommendations made by the National Academy of Sciences, Engineering, and Medicine in the review of the plan under subsection (c).

(b) CONTENTS OF THE PLAN.—The plan shall—

(1) determine and prioritize areas of advanced air mobility and unmanned aircraft systems research, development, demonstration, and testing requiring Federal Government leadership and investment;

(2) establish, for the 10-year period beginning in the year the plan is submitted, the goals and priorities for Federal research, development, deployment, and testing which will—

(A) support the development of advanced air mobility technologies and the development of an advanced air mobility research, innovation, and manufacturing ecosystem;

(B) provide sustained, consistent, and coordinated support for advanced air mobility and unmanned aircraft systems research, development, and demonstration, including through grants, cooperative agreements, testbeds, and testing facilities;

(C) apply lessons learned from unmanned aircraft systems research, development, demonstration, and testing to advanced air mobility systems;

(D) support the development of voluntary consensus technical standards and best practices for the development and use of advanced air mobility and unmanned aircraft systems;

(E) support education and training activities at all levels to prepare the United States workforce to use and interact with advanced air

mobility systems and unmanned aircraft systems;

(F) support partnerships to leverage knowledge and resources from industry, the Federal Government, State, local, and Tribal governments, National Laboratories, Unmanned Aircraft Systems Test Ranges, academic institutions, and others to advance research activities;

(G) leverage existing Federal investments; and

(H) promote hardware inoperability, open-source systems, and standards-driven hardware;

(3) support research and other activities on the impacts of advanced air mobility and unmanned aircraft systems on national security, safety, economic, legal, workforce, and other appropriate societal issues;

(4) reduce barriers to transferring research findings, capabilities, and new technologies related to advanced air mobility and unmanned aircraft systems from the laboratory into operation for the benefit of society and United States competitiveness;

(5) in consultation with the Council of Economic Advisers, measure and track the contributions

of unmanned aircraft systems to United States economic growth and other societal indicators;

(6) identify relevant programs and make recommendations for the coordination of relevant activities of the Federal agencies and set forth the role of each Federal agency in implementing the plan; and

(7) consider and utilize, as appropriate, reports and studies conducted by Federal agencies, the National Research Council, or other entities.

(c) NATIONAL ACADEMIES OF SCIENCE, ENGINEERING, AND MEDICINE REVIEW.—The interagency working group under section 101 shall enter into an agreement with the National Academies of Sciences, Engineering, and Medicine to review the plan.

(d) PUBLIC PARTICIPATION.—In developing the plan, the interagency working group shall consult with representatives of academic, State, industry, local, Tribal, and other stakeholder groups. Not later than 90 days before the plan, or any revision thereof, is submitted to Congress, the plan shall be published in the Federal Register for a public comment period of not fewer than 60 days.

SEC. 103. COUNTER-UAS RESEARCH PLAN.

(a) IN GENERAL.—Not later than two years after the date of the enactment of this Act, the interagency working group shall develop and periodically update, as appro-

priate, a strategic plan for Federal research, development, evaluation, and testing of counter-UAS systems, as consistent with current counter-UAS systems legal authorities.

(b) CONTENTS OF THE PLAN.—The plan shall—

(1) determine and prioritize areas of counter-UAS systems research, development, evaluation, and testing requiring Federal Government leadership and investment;

(2) establish, for the 10-year period beginning in the year the plan is submitted, the goals and priorities for Federal research, development, evaluation, and testing which will—

(A) support the development of counter-UAS technologies and the development of a counter-UAS systems research, innovation, and manufacturing ecosystem;

(B) provide sustained, consistent, and coordinated support for counter-UAS systems research, development, and evaluation, including through grants, cooperative agreements, testbeds, and testing facilities;

(C) support education and training activities to prepare the United States workforce to use and interact with counter-UAS systems;

(D) support partnerships to leverage knowledge and resources from industry, the Federal Government, State, local, and Tribal governments, National Laboratories, Counter-UAS Test Ranges, academic institutions, and others to advance research activities;

(E) leverage existing Federal investments; and

(F) promote hardware inoperability, open-source systems, and standards-driven hardware;

(3) support research and other activities on the impacts of counter-UAS systems;

(4) in consultation with the Council of Economic Advisers, measure and track the contributions of counter-UAS systems to United States economic growth and other societal indicators; and

(5) identify relevant programs and make recommendations for the coordination of relevant activities of the Federal agencies and set forth the role of each Federal agency in implementing the plan.

SEC. 104. NATIONAL DRONE TECHNOLOGY CENTER.

(a) ESTABLISHMENT.—Subject to the availability of appropriations for such purpose, the Secretary of Commerce, in collaboration with the Secretary of Defense, may establish a national drone technology center to conduct re-

search and development of unmanned aircraft systems to strengthen the economic competitiveness and security of the domestic supply chain. Such center shall be operated as a public-private sector consortium with participation from the private sector and the National Institute of Standards and Technology.

(b) FUNCTIONS.—The functions of the center established under subsection (a) shall be to conduct research and development related to unmanned aircraft systems manufacturing, design and components, and prototyping that strengthens the entire domestic ecosystem and places emphasis on the following:

(1) Unmanned aircraft systems advanced testing and assembly capability in the domestic ecosystem.

(2) Materials characterization, instrumentation and testing for unmanned aircraft systems.

(3) Virtualization and automation of maintenance of unmanned aircraft systems machinery.

(4) Metrology for security and supply chain verification.

SEC. 105. GAO STUDY ON FOREIGN DRONES.

(a) STUDY.—The Comptroller General of the United States shall conduct a study on the use of foreign-made

unmanned aircraft systems in the Federal Government unmanned aircraft fleet.

(b) ELEMENTS.—The study under subsection (a) shall include an assessment of the following:

(1) The size of the Federal unmanned aircraft fleet and the extent to which any unmanned aircraft systems and components have been procured from a covered foreign entity on the list maintained in Supplement No. 4 to part 744 of title 15, Code of Federal Regulations.

(2) The operation of such systems across the Federal Government.

(3) Policies and practices governing the procurement of unmanned aircraft systems from covered foreign entities.

(4) The availability of unmanned aircraft systems from any domestic sources for government use.

(5) The risks associated with use of such systems by the Federal Government, including relating to physical safety, privacy, and cybersecurity.

(c) GAO REPORT.—Not later than one year after the date of the enactment of this Act, the Comptroller General of the United States shall report to Congress all findings and determinations made in carrying out the study under subsection (a).

TITLE II—NATIONAL DRONE AND ADVANCED AIR MOBILITY RESEARCH INSTITUTES

SEC. 201. NATIONAL DRONE AND ADVANCED AIR MOBILITY RESEARCH INSTITUTES.

(a) IN GENERAL.—The Administrator of the National Aeronautics and Space Administration shall establish a program to award financial assistance for the planning, establishment, and support of a network of Institutes (as described in subsection (b)(2)) in accordance with this section.

(b) FINANCIAL ASSISTANCE TO ESTABLISH AND SUPPORT NATIONAL DRONE AND ADVANCED AIR MOBILITY RESEARCH INSTITUTES.—

(1) IN GENERAL.—The Director of the National Institute of Standards and Technology, the Director of the National Science Foundation, the Administrator of the National Aeronautics and Space Administration, and any other agency head may award financial assistance to an eligible entity, or consortia thereof, as determined by an agency head, to establish and support an Institute.

(2) DRONE AND ADVANCED AIR MOBILITY INSTITUTES.—An Institute described in this subsection

is an unmanned aircraft systems research institute that—

(A) may focus on—

(i) a particular economic or social sector, including education, manufacturing, transportation, agriculture, security, energy, environment, and public safety, and includes a component that addresses the ethical, societal, safety, and security implications relevant to the application of advanced air mobility and unmanned aircraft systems in that sector; or

(ii) a cross-cutting challenge for research, development, testing, or use of advanced air mobility and unmanned aircraft systems;

(B) requires partnership among public and private organizations, including, as appropriate, Federal agencies, academic institutions, nonprofit research organizations, Federal laboratories, State, local, and Tribal governments, industry, and others (or consortia thereof);

(C) has the potential to create an innovation ecosystem, or enhance existing ecosystems, to translate Institute research into applications

and products, as appropriate to the topic of each Institute;

(D) supports and coordinates interdisciplinary research and development across multiple institutions and organizations involved in unmanned aircraft systems research and related disciplines, which may include physics, engineering, mathematical sciences, computer and information science, robotics, material science, cybersecurity, and technology ethics;

(E) supports interdisciplinary education activities at all levels, including curriculum development, research experiences, and faculty professional development across two-year, undergraduates, masters, and doctoral level programs;

(F) establishes a robust data management strategy that ensures digital access and machine-readability; that promotes findability, interoperability, analysis- and decision-readiness and reusability; and ensures applicable scientific data are managed for wide use by the Federal Government, State, local, and Tribal governments, academia, and the public;

(G) applies lessons learned from unmanned aircraft systems research, development, demonstration, and testing to advanced air mobility systems; and

(H) supports workforce development in advanced air mobility and unmanned aircraft systems related disciplines in the United States, including broadening participation of underrepresented communities.

(3) USE OF FUNDS.—Financial assistance awarded under paragraph (1) may be used by an Institute for—

(A) managing and making available to researchers accessible, curated, standardized, secure, and privacy protected data sets from the public and private sectors for the purposes of training and testing advanced air mobility systems and unmanned aircraft systems, and for research and development using advanced air mobility systems and unmanned aircraft systems;

(B) developing and managing testbeds, Unmanned Aircraft Systems Test Ranges, for advanced air mobility or unmanned aircraft systems, including sector-specific test beds, de-

signed to enable users to evaluate advanced air mobility systems and unmanned aircraft systems prior to deployment;

(C) conducting research and education activities involving advanced air mobility and unmanned aircraft systems to solve challenges with economic, scientific, and national security implications;

(D) conducting research and development on advanced air mobility and unmanned aircraft systems platform development and innovation;

(E) providing or brokering access to computing resources, networking, and data facilities for advanced air mobility and unmanned aircraft systems research and development relevant to the Institute's research goals;

(F) providing technical assistance to users, including software engineering support, for advanced air mobility systems and unmanned aircraft systems research and development relevant to the Institute's research goals;

(G) supporting the purchase of advanced air mobility and unmanned aircraft systems software;

(H) engaging in outreach and engagement to broaden participation in advanced air mobility and unmanned aircraft systems research, development and workforce;

(I) supporting artificial intelligence and machine learning research related to advanced air mobility and unmanned aircraft systems; and

(J) such other activities that an agency head whose agency's missions contribute to or are affected by advanced air mobility and unmanned aircraft systems determines is appropriate to fulfill the agency's missions.

(4) DURATION.—

(A) INITIAL PERIODS.—An award of financial assistance under paragraph (1) shall be for an initial period of up to five years, subject to Office of Management and Budget uniform guidance for Federal assistance.

(B) EXTENSION.—An established Institute may apply for, and the agency head may grant, extended funding for periods of up to five years on a merit-reviewed basis using the merit review criteria of the sponsoring agency, subject

to Office of Management and Budget uniform guidance for Federal assistance.

(5) APPLICATION FOR FINANCIAL ASSISTANCE.—

(A) IN GENERAL.—An entity seeking financial assistance under paragraph (1) shall submit to an agency head an application at such time, in such manner, and containing such information as the agency head may require.

(B) REQUIREMENTS.—An application submitted under subparagraph (A) for an Institute shall, at a minimum, include the following:

(i) A plan for the Institute, including—

(I) the proposed goals and activities of the Institute;

(II) a description of how the Institute will form partnerships with other research institutions, industry, nonprofits, academic institutions, and others to leverage expertise in advanced air mobility and unmanned aircraft systems and access to data;

(III) a description of how the institute will support long-term and

short-term education and workforce development in advanced air mobility and unmanned aircraft systems, including broadening participation of underrepresented communities; and

(IV) a description of how the Institute will transition from planning into operations.

(ii) A description of the anticipated sources and nature of any non-Federal contributions or other Federal agency funding.

(iii) A data management plan that addresses the collection, use, retention, protection, dissemination, and management of data collected, consistent with the purposes of this Act.

(iv) A description of the anticipated long-term impact of such Institute.

(6) COMPETITIVE MERIT REVIEW.—In awarding financial assistance under paragraph (1), the agency shall—

(A) use a competitive merit review process that includes peer review by a diverse group of

individuals with relevant expertise from both the private and public sectors; and

(B) ensure the focus areas of the Institute do not substantially duplicate the efforts of any other Institute.

(7) COLLABORATION.—

(A) IN GENERAL.—In awarding financial assistance under paragraph (1), an agency head may collaborate with Federal departments and agencies the missions of which contribute to or are affected by advanced air mobility and unmanned aircraft systems.

(B) NONDUPLICATION.—In carrying out the program under this section, the Administrator of the National Aeronautics and Space Administration shall coordinate with the heads of other Federal departments and agencies to avoid duplication of research and other activities to ensure that the activities carried out by Institutes are complementary to those being undertaken by other agencies.

(C) COORDINATING NETWORK.—The Administrator of the National Aeronautics and Space Administration shall establish a network of Institutes receiving financial assistance under

this subsection, to be known as the ''Drone Leadership Network'', to coordinate cross-cutting research and other activities carried out by the Institutes.

(D) FUNDING.—The head of an agency may request, accept, and provide funds from other Federal departments and agencies, State, United States territory, local, or Tribal government agencies, private sector for-profit entities, and nonprofit entities, to be available to the extent provided by appropriations Acts, to support an Institute's activities. The head of an agency may not give any special consideration to any agency or entity in return for a donation.

(c) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the National Aeronautics and Space Administration $5,000,000 for each of fiscal years 2024 through 2028 to carry out the activities authorized in section 201(a).

TITLE III—NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACTIVITIES

SEC. 301. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACTIVITIES.

(a) IN GENERAL.—The Director of the National Institute of Standards and Technology shall—

(1) support measurement research and development of best practices and voluntary consensus technical standards for advanced air mobility and unmanned aircraft systems, including for—

(A) privacy, security, and cybersecurity of advanced air mobility and unmanned aircraft systems;

(B) safety and operational performance of advanced air mobility and unmanned aircraft systems;

(C) hardware and components designed for advanced air mobility and unmanned aircraft systems;

(D) data management and techniques to increase the usability of data for advanced air mobility and unmanned aircraft systems;

(E) supply chain risks for advanced air mobility and unmanned aircraft systems; and

(F) all other areas deemed by the Director to be critical to the development and deployment of advanced air mobility and unmanned aircraft systems;

(2) support one or more Institutes as described in section 201(a) of this Act for the purpose of advancing advanced air mobility and unmanned aircraft systems;

(3) produce curated, standardized, representative, secure, and privacy-protected data sets for advanced air mobility and unmanned aircraft systems research, development, and use, prioritizing data for high-value, high-risk research;

(4) support and strategically engage in the development of voluntary consensus technical standards, including international standards, through open, transparent, and consensus-based processes;

(5) enter into and perform such contracts, including cooperative research and development arrangements and grants and cooperative agreements or other transactions, as may be necessary in the conduct of the work of the National Institute of Standards and Technology and on such terms as the Director considers appropriate, in furtherance of the purposes of this Act;

(6) applies lessons learned from unmanned aircraft systems research, development, demonstration, and testing to advanced air mobility systems; and

(7) coordinate the development of voluntary and consensus technical standards and best practices with other Federal agencies as appropriate.

(b) SOLICITATION OF INPUT.—In carrying out the activities under subsection (a), the Director of the National Institute of Standards and Technology shall—

(1) solicit input from university researchers, private sector experts, relevant Federal agencies, Federal laboratories, State, local, and Tribal governments, civil society groups, and other relevant stakeholders; and

(2) provide opportunity for public comment on guidelines and best practices, as appropriate.

(c) DRONE RESEARCH CHALLENGES.—

(1) PRIZE COMPETITION.—Pursuant to section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719), the Director of the National Institute of Standards and Technology shall carry out a program to award prizes competitively to stimulate research and development of innovative advanced air mobility and unmanned aircraft

systems technologies to expand upon and improve emergency response operations.

(2) PLAN FOR EMERGENCY RESPONSE OPERATIONS.—Each prize competition entry submitted pursuant to paragraph (1) shall include a plan for advanced air mobility and unmanned aircraft systems implementation in emergency response operations.

(3) PRIZE AMOUNT.—In carrying out the program under paragraph (1), the Director of the National Institute of Standards and Technology may award not more than a total of $2,250,000 to one or more winners of the prize competition.

(4) REPORT.—Not later than 60 days after the date on which a prize is awarded under the prize competition, the Director of the National Institute of Standards and Technology shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that describes the winning entry of the prize competition.

(5) CONSULTATION.—In carrying out the program under paragraph (1), the Director of the National Institute of Standards and Technology may

consult with the heads of relevant departments and agencies of the Federal Government.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Institute of Standards and Technology to carry out this section—

(1) $20,000,000 for fiscal year 2024;

(2) $21,000,000 for fiscal year 2025;

(3) $22,050,000 for fiscal year 2026;

(4) $23,152,500 for fiscal year 2027; and

(5) $24,310,125 for fiscal year 2028.

SEC. 302. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY MANUFACTURING ACTIVITIES.

(a) ESTABLISHMENT OF ADVANCED AIR MOBILITY AND UNMANNED AIRCRAFT SYSTEMS PILOT PROGRAM AS A PART OF THE MANUFACTURING EXTENSION PARTNERSHIP.—The National Institute of Standards and Technology Act is amended by inserting after section 25B (15 U.S.C. 278k–2) the following new section:

"SEC. 25C. EXPANSION AWARDS FOR UNMANNED AIRCRAFT SYSTEMS PILOT PROGRAM.

''(a) DEFINITIONS.—The terms used in this section have the meanings given the terms in section 25.

''(b) ESTABLISHMENT.—The Director shall establish as a part of the Hollings Manufacturing Extension Partnership a pilot program of expansion awards among par-

ticipants referred to in subsection (c) for the purposes described in subsection (e).

''(c) PARTICIPANTS.—Participants receiving awards under this section shall be Centers, or a consortium of Centers.

''(d) AWARD AMOUNTS.—An award for a recipient under this section shall be in an amount equal to the sum of the following:

''(1) Such amount as the Director considers appropriate as a minimum base funding level for each award under this section.

''(2) Such additional amount as the Director considers in proportion to the manufacturing density of the region of the recipient.

''(3) Such supplemental amounts as the Director considers appropriate.

''(e) PURPOSE OF AWARDS.—An award under this section shall be made for one or more of the following purposes:

''(1) To provide coordinating services on—

''(A) the development of working concepts for new advanced air mobility and unmanned aircraft systems products, including review and design analysis;

"(B) the review and optimization of current advanced air mobility and unmanned aircraft systems designs and components, including industrial engineering and manufacturing design upgrades;

"(C) rapid advanced air mobility and unmanned aircraft systems prototyping services, including three-dimensional modeling;

"(D) software development for advanced air mobility and unmanned aircraft systems application;

"(E) commercialization of new products and technology to improve performance of advanced air mobility and unmanned aircraft systems; and

"(F) supporting existing advanced air mobility and unmanned aircraft systems and components manufacturing operations and the development of unmanned aircraft systems and components manufacturing operations.

"(2) To provide services to improve the resiliency of domestic advanced air mobility and unmanned aircraft system supply chains.

"(3) To expand advanced air mobility and unmanned aircraft systems technology services to small

and medium-sized manufacturers and software developers, which may include—

"(A) facilitating the adoption of technologies, including smart manufacturing technologies and practices; and

"(B) establishing partnerships, for the development, demonstration, and deployment of unmanned aircraft systems technologies, with—

"(i) National Laboratories (as defined in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801));

"(ii) Federal laboratories;

"(iii) Manufacturing USA institutes;

"(iv) Unmanned Aircraft Systems Industry; and

"(v) institutions of higher education.

"(f) APPLICATIONS.—Applications for awards under this section shall be submitted in such manner, at such time, and containing such information as the Director shall require in consultation with the Manufacturing Extension Partnership Advisory Board.

"(g) SELECTION.—

"(1) REVIEWED AND MERIT-BASED.—The Director shall ensure that awards under this section are reviewed and merit-based.

''(2) GEOGRAPHIC DIVERSITY.—The Director shall endeavor to have broad geographic diversity among selected proposals.

''(3) CRITERIA.—The Director shall select applications consistent with the purposes identified pursuant to subsection (e) to receive awards the Director determines will achieve one or more of the following:

''(A) Improvement of the competitiveness of domestic advanced air mobility and unmanned aircraft systems industries in the region in which the Center or Centers are located.

''(B) Creation of jobs or training of newly hired employees.

''(C) Promotion of the transfer and commercialization of research and technology from institutions of higher education, national laboratories, or other federally funded research programs, and nonprofit research institutes.

''(D) Any other result the Director determines will advance the objective set forth in section 25(c) or 26.

''(h) GLOBAL MARKETPLACE PROJECTS.—In making an award under this section, the Director, in consultation with the Manufacturing Extension Partnership Advisory

Board and the Secretary, may take into consideration whether an application has significant potential for enhancing the competitiveness of small and medium-sized United States manufacturers in the global marketplace for advanced air mobility and unmanned aircraft systems technologies.

''(i) DURATION.—The Director shall ensure that the duration of an award under this section is aligned and consistent with a Center's cooperative agreement established in section 25(e).

''(j) REPORT.—After the completion of the pilot program under subsection (b) and not later than October 1, 2025, the Director shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that includes—

''(1) a summary description of what activities were funded and the measurable outcomes of such activities;

''(2) a description of which types of activities under paragraph (1) could be integrated into, and supported under, the program under section 25;

''(3) a description of which types of activities under paragraph (1) could be integrated into, and

supported under, the competitive awards program under section 25A; and

''(4) a recommendation, supported by a clear explanation, as to whether the pilot program should be continued.

''(k) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out the pilot program under this section $10,000,000 for each of fiscal years 2024 through 2026.''.

(b) MANUFACTURING EXTENSION PARTNERSHIP SURVEY.—

(1) SURVEY.—Not later than one year after the date of the enactment of this Act, the Director of the National Institute of Standards and Technology shall carry out a survey of the Manufacturing Extension Partnership Centers (referred to in this section as the ''Centers'') to understand the manufacturing capabilities of the United States manufacturers to support robust advanced air mobility and unmanned aircraft systems industries in the United States.

(2) CONTENTS.—In conducting the survey required under subsection (a), the Director of the National Institute of Standards and Technology shall solicit feedback regarding the following:

(A) Familiarity and current manufacturing work by small and mid-sized manufacturers on advanced air mobility and unmanned aircraft systems, including components, software, sensors, or other technology associated with advanced air mobility systems and unmanned aircraft systems.

(B) A list of the basic manufacturing procedures that can be easily converted to conduct the manufacturing of advanced air mobility systems and unmanned aircraft systems projects.

(C) Potential for small-and mid-sized manufacturing to work with industry and academia to support the manufacturers of advanced air mobility systems and unmanned aircraft systems prototypes.

(D) Potential for commercialization of ongoing manufacturing development research related to advanced air mobility and unmanned aircraft systems projects.

(E) A description of supply chain and technological challenges that small and mid-sized manufacturers face in building up advanced air mobility and unmanned aircraft systems capacity, and the prevalence of such challenges.

(F) Regulatory and legal barriers faced by small and mid-sized manufacturers and developers.

(G) Any challenges that small and mid-sized manufacturers experience in recruiting skilled workers familiar with advanced air mobility and unmanned aircraft systems manufacturing.

(H) Any other information that the Director or the Manufacturing Extension Partnership Advisory Board determine is appropriate.

(3) REPORT.—Not later than 60 days after completing the survey required under paragraph (1), the Director of the National Institute of Standards and Technology, in consultation with the Manufacturing Extension Partnership Advisory Board, shall provide to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report summarizing the results of the survey.

(c) MANUFACTURING USA PROGRAM.—The Director of the National Institute of Standards and Technology, acting through the Manufacturing USA Program, shall prioritize research, development, and demonstration activi-

ties to enhance and grow the domestic manufacturing capacity of advanced air mobility systems and unmanned aircraft systems and components. Such activities may include—

(1) rapid-prototyping and reproduction of advanced air mobility and unmanned aircraft systems structures;

(2) additive manufacturing to improve capabilities to produce large tools, dies, and molds for advanced air mobility systems and unmanned aircraft systems and components;

(3) testing innovative manufacturing processes and manufactured components to improve safety, endurance, and quality of advanced air mobility systems and unmanned aircraft systems;

(4) development of software to streamline fabrication and integration of manufacturing components, such as sensors for use in advanced air mobility systems and unmanned aircraft systems; and

(5) any other activities that the Director considers appropriate.

TITLE IV—NATIONAL SCIENCE FOUNDATION ACTIVITIES

SEC. 401. NATIONAL SCIENCE FOUNDATION ACTIVITIES.

(a) IN GENERAL.—The Director of the National Science Foundation shall support research and STEM education and related activities in advanced air mobility and unmanned aircraft systems, components, and related technologies, including competitive awards or grants to institutions of higher education or eligible nonprofit organizations (or consortia thereof).

(b) USE OF FUNDS.—In carrying out the activities under subsection (a), the Director of the National Science Foundation shall—

(1) support fundamental research on the underlying technologies for advanced air mobility and unmanned aircraft systems, components, and related technologies, which may include—

(A) improving the safety and reliability of operation systems;

(B) developing and improving autonomous control systems, including real-time control and autonomous decisionmaking;

(C) incorporating the use of artificial intelligence into systems;

(D) improving or developing materials for advanced air mobility and unmanned aircraft systems;

(E) understanding safety and sustainability of advanced air mobility and unmanned aircraft systems as a part of a transportation system, including the impacts of advanced air mobility and unmanned aircraft systems on ground transportation;

(F) developing and improving communications systems, including multivehicle coordination and task and path planning; and

(G) understanding the human-drone interface;

(2) support research and development of advanced air mobility and unmanned aircraft system enabled uses, which may include—

(A) creating new sensing tools to improve understanding, prediction, and detection of severe weather and natural hazards, including wildfires;

(B) enabling advanced air mobility;

(C) monitoring and surveying infrastructure;

(D) disaster reconnaissance, including the collection of data to model and simulate disasters and assist responders; and

(E) improving the reliable use of advanced sensing systems in rural and agricultural settings;

(3) support research on data modeling and validation of the use of advanced air mobility and unmanned aircraft systems;

(4) support research and development on security, including the cybersecurity, of advanced air mobility systems and unmanned aerial aircraft systems;

(5) support research on the ethical use of advanced air mobility and unmanned aircraft systems, including protection of individual privacy;

(6) support middle school and high school level STEM education research and related activities related to advanced air mobility and unmanned aircraft systems and related technologies, which may include—

(A) supporting curriculum development relating to advanced air mobility and unmanned aircraft system applications, including developing place-based learning curriculum, particu-

larly for students in poor, rural, or Tribal communities;

(B) utilizing advanced air mobility and unmanned aircraft systems technologies to advance the engagement of students, including students in poor, rural, or Tribal communities, in STEM through providing before school, after-school, out-of-school, or summer activities;

(C) developing professional development resources for STEM educators in utilizing advanced air mobility and unmanned aircraft systems technologies and applications in their curriculum and classrooms, including through distance-delivered courses;

(D) connecting relevant STEM curriculum to the design, construction and demonstration of advanced air mobility and unmanned aircraft systems; and

(E) designing advanced air mobility and unmanned aircraft system related activities designed to help students make real-world connections to STEM content and educate students on the relevance and significance of STEM careers;

(7) support undergraduate and graduate education and workforce development research and related activities related to advanced air mobility and unmanned aircraft systems and related technologies, which may include—

(A) supporting curriculum development relating to advanced air mobility and unmanned aircraft systems applications and technologies;

(B) supporting hands-on research opportunities at institutions of higher education, research institutions, including National Labs, and industry for undergraduate and graduate students relating to advanced air mobility and unmanned aircraft systems applications and technologies;

(C) facilitating participation in collegiate level advanced air mobility and unmanned systems robotic competitions; and

(D) ensuring that students pursuing master's degrees and doctoral degrees in fields relating to advanced air mobility and unmanned aircraft systems are considered as applicants for scholarships and graduate fellowships under the Graduate Research Fellowship Program

under section 10 of the National Science Foundation Act of 1950 (42 U.S.C. 1869);

(8) support activities to develop a skilled technical workforce for supporting and operating advanced air mobility and unmanned aircraft systems, which may include establishing national centers focused on educating and training the skilled technical workforce in advanced air mobility and unmanned aircraft system applications and technologies through the Advanced Scientific and Technical Education Program as authorized by the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862i), including by—

(A) expanding educational resources to address current workforce demands in advanced air mobility and unmanned aircraft system applications and technologies;

(B) developing curriculum for community and technical colleges to train and upskill the skilled technical workforce in advanced air mobility and unmanned aircraft system applications and technologies;

(C) engaging the skilled technical workforce community in STEM, advanced air mobil-

ity and unmanned aircraft system applications and technologies; and

(D) in partnership with industry, employing activities to increase the visibility and utility of careers in advanced air mobility and unmanned aircraft applications and technologies;

(9) engage veterans and departing members of the Armed Forces in activities specified in paragraphs (7) and (8);

(10) support one or more Institutes as described in section 201(a) for the purpose of advancing the field of advanced air mobility and unmanned aircraft systems;

(11) support prize competitions pursuant to section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719);

(12) establish a robust data management strategy that ensures digital access and machine-readability; that promotes findability, interoperability, analysis- and decision-readiness and reusability; and ensures applicable scientific data are managed for wide use by the Federal Government, State, local and Tribal governments, academia, and the public;

(13) applies lessons learned from unmanned aircraft systems research, development, demonstra-

tion, and testing to advanced air mobility systems; and

(14) any other activities the Director determines necessary to meet the goals specified in subsection (a).

(c) PUBLIC-PRIVATE PARTNERSHIPS.—As part of the activities under subsection (a), the Director of the National Science Foundation shall support public-private partnerships to support domestic development of advanced air mobility and unmanned aircraft systems in the United States and address pre-competitive industry challenges.

(d) INTERAGENCY COORDINATION.—In carrying out the program under this section, the Director of the National Science Foundation shall coordinate with the heads of other Federal departments and agencies to avoid duplication of research and other activities to ensure that the activities carried out under this section are complementary to those being undertaken by such other agencies.

(e) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section—

(1) $50,000,000 for fiscal year 2024;

(2) $52,500,000 for fiscal year 2025;

(3) $55,125,000 for fiscal year 2026;

(4) $57,881,775 for fiscal year 2027; and

(5) $60,775,863 for fiscal year 2028.

TITLE V—NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ACTIVITIES

SEC. 501. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ACTIVITIES.

(a) IN GENERAL.—The Administrator of the National Aeronautics and Space Administration, in consultation with the Administrator of the Federal Aviation Administration and other relevant Federal agencies, shall direct research and technological development to facilitate the safe integration of advanced air mobility and unmanned aircraft systems into the National Airspace System, including—

(1) positioning and navigation systems;

(2) sense and avoid capabilities;

(3) secure data and communication links;

(4) flight recovery systems;

(5) human systems integration; and

(6) hazardous weather condition avoidance.

(b) COOPERATIVE UNMANNED AIRCRAFT SYSTEM ACTIVITIES.—Section 31504 of title 51, United States Code, is amended by adding at the end the following new sentence: ''Operational flight data derived from these cooperative agreements shall be made available, in appro-

priate and usable formats, to the Administration and the Federal Aviation Administration for the development of regulatory standards.''.

(c) POLICY.—The Administrator of the National Aeronautics and Space Administration shall work with industry, the Federal Aviation Administration, the Department of Defense, the Department of Homeland Security, and academia to mature and help operationalize advanced air mobility and unmanned aircraft system traffic management related concepts, architecture, services, and strategic as well as tactical deconfliction to ensure safe integration of advanced air mobility and unmanned aircraft systems in airspace in presence of other aircraft. As part of such activities, the National Aeronautics and Space Administration shall consider commercial and public good use cases, such as wildfire and disaster monitoring and mitigation, with a primary focus on enabling many simultaneous drone operations beyond visual line of sight.

(d) LESSONS LEARNED.—The Administrator of the National Aeronautics and Space Administration shall apply lessons learned from unmanned aircraft systems research, development, demonstration, and testing to advanced air mobility systems.

(e) COORDINATION.—The Administrator of the National Aeronautics and Space Administration shall coordi-

nate with the Administrator of the Federal Aviation Administration, the Director of the National Institutes of Standards and Technology, State, local and Tribal governments, and industry to inform the development of voluntary consensus-based technical standards to facilitate the incorporation of advanced air mobility and unmanned aircraft systems into the National Airspace System and decrease the need for regulations.

(f) ASSESSMENT.—The Administrator of the National Aeronautics and Space Administration shall coordinate with the Administrator of the Federal Aviation Administration to conduct an assessment to identify metrics and performance measures necessary to safely integrate unmanned aircraft systems and advanced air mobility systems into the National Airspace System.

(g) REPORT.—Not later than 60 days after the completion of the assessment under subsection (f), the Administrator of the National Aeronautics and Space Administration shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the progress toward meeting metric and performance measures referred to in such subsection.

SEC. 502. NATIONAL STUDENT UNMANNED AIRCRAFT SYSTEMS COMPETITION PROGRAM.

(a) IN GENERAL.—The Administrator of the National Aeronautics and Space Administration shall establish a national program to carry out unmanned aircraft systems technology competitions for students at the high school and undergraduate level (in this section referred to as ''competitions'') in which students shall compete to design, create, and demonstrate an unmanned aircraft system.

(b) COMPETITION ADMINISTRATION.—The Administrator of the National Aeronautics and Space Administration shall select, on a merit-reviewed, competitive basis, an institution of higher education to administer the competitions (in this section referred to as the ''competition administrator'').

(c) CONSIDERATIONS FOR SELECTING COMPETITION ADMINISTRATOR.—In selecting an institution of higher education to administer the competition, the Administrator of the National Aeronautics and Space Administration shall consider the institution of higher education's prior experience in—

(1) administering such competitions;

(2) administering national STEM engagement programs;

(3) engaging eligible institutions from diverse geographic areas, including poor, rural, and Tribal communities; and

(4) connecting STEM activities to Administration missions and centers.

(d) COMPETITION ADMINISTRATOR RESPONSIBILITIES.—The competition administrator shall be responsible for—

(1) awarding grants to institutions of higher education or nonprofit organizations (or a consortium of such institutions or organizations) on a merit-reviewed, competitive basis to host individual competitions;

(2) developing STEM curriculum to be utilized by the competition awardees to help students make the connection to the design, construction, and demonstration of the unmanned aircraft systems;

(3) developing curriculum to assist students in making real-world connections to STEM content and educate students on the relevance and significance of STEM careers;

(4) ensuring awardees are supporting the activities laid out in subsection (f);

(5) conducting performance evaluations of competitions, including data collection on—

(A) the number of students engaged;

(B) geographic and institutional diversity of participating schools and institutions of higher education; and

(6) any other activities the Administrator finds necessary to ensure the competitions are successful.

(e) ADDITIONAL CONSIDERATIONS.—In awarding grants authorized in subsection (d), the competition administrator shall give priority to applications that include a partnership with that State's space grant program under chapter 403 of title 51, United States Code.

(f) PERMITTED ACTIVITIES.—In carrying out the competitions authorized in subsection (a), the competition administrator shall ensure competitions occurring at both the high school and undergraduate levels—

(1) allow students to design, construct, and demonstrate an unmanned aircraft system;

(2) allow students to compete with other teams in the performance of the constructed unmanned aircraft system;

(3) connect to relevant missions and Center activities of the Administration;

(4) connect relevant STEM curriculum to the design, construction, and demonstration of unmanned aircraft systems;

(5) support activities designed to help students make real-world connections to STEM content and educate students on the relevance and significance of STEM careers; and

(6) are geographically dispersed in order to serve a broad student population, including those in rural and underserved communities.

(g) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Administrator of the National Aeronautics and Space Administration $6,000,000 for each of fiscal years 2024 through 2028 to carry out this section. Of the funds authorized for each such fiscal year—

(1) $1,000,000 shall be for the competition administrator as authorized in subsection (b); and

(2) $5,000,000 shall be awarded for grants to carry out competitions as authorized by subsection (d).

TITLE VI—DEPARTMENT OF ENERGY ACTIVITIES

SEC. 601. DEPARTMENT OF ENERGY RESEARCH PROGRAM.

(a) IN GENERAL.—The Secretary of Energy shall carry out a cross-cutting research, development, and demonstration program to advance unmanned aircraft system technologies, capabilities, and workforce needs and to im-

prove the reliability of unmanned aircraft systems implementation methods relevant to the mission of the Department of Energy. In carrying out such program, the Secretary shall coordinate across all relevant offices and activities at the Department, including the Office of Science, the Office of Energy Efficiency and Renewable Energy, the Office of Nuclear Energy, the Office of Fossil Energy, the Office of Electricity, the Office of Cybersecurity, Energy Security, and Emergency Response, the Advanced Research Projects Agency–Energy, the Office of Environmental Management, the Office of Environment, Health, Safety and Security, the National Nuclear Security Administration, the Artificial Intelligence Technology Office, the UAS Research and Engineering Center, and any other relevant office or activity as determined appropriate by the Secretary.

(b) PROGRAM COMPONENTS.—In carrying out the program under subsection (a), the Secretary of Energy shall—

(1) formulate goals for unmanned aircraft systems research activities to be supported by the Department of Energy, including in the research areas under subsection (c);

(2) leverage the collective body of knowledge from existing unmanned aircraft systems research

and development activities, including the work underway by the Unmanned Aircraft Systems Research and Engineering Center;

(3) provide research experiences and training for undergraduate and graduate students in unmanned aircraft systems research and development, including in the fields of—

(A) artificial intelligence and machine learning;

(B) applied mathematics and algorithm development;

(C) advanced imaging, sensing, and detection technologies;

(D) materials science and engineering; and

(E) advanced energy technologies and propulsion approaches;

(4) establish a robust data management strategy that—

(A) ensures digital access and machine-readability;

(B) promotes findability, interoperability, analysis- and decision-readiness and reusability; and

(C) ensures applicable scientific data are managed for wide use by the Federal Govern-

ment, State, local, and Tribal governments, academia, and the public; and

(5) support one or more Institutes as described in section 201(a) for the purpose of advancing the fields of unmanned aircraft systems and the mission of the Department.

(c) RESEARCH AREAS.—In carrying out the program under subsection (a), the Secretary of Energy shall award financial assistance to eligible entities to carry out research, development, and demonstration projects over a range of subject areas including—

(1) fundamental science and technology areas, which may include—

(A) advanced sensor technologies and processes, including—

(i) optical capabilities, including Light Detection and Ranging, hyperspectral, thermographic, and visible imaging capabilities;

(ii) nonoptical electromagnetic capabilities, including radar and radiofrequency capabilities;

(iii) acoustic capabilities, including ultrasonic capabilities; and

(iv) radiation detection, gravimetric, hyperspectral or other measurement modalities;

(B) advanced technologies and methods for remote handling, precision positioning, and navigation control;

(C) advanced technologies for secure autonomous operation, including edge computing and artificial intelligence;

(D) power electronics and wireless charging systems;

(E) novel materials, including lightweight and radiation-resistant materials;

(F) scalability of unmanned aircraft systems for increased payload capacity;

(G) technologies and processes to improve secure interoperability practices, including with existing satellites, constellation networks, and surface-based facilities;

(H) strategies and technologies for integrated cybersecurity considerations;

(I) strategies and technologies for improved endurance, including lightweight long duration fuels, batteries, and fuel cells;

(J) open architectures and advanced algorithms to enable multi-sensor fusion and tracking of unmanned aircraft systems; and

(K) swarm and cooperative drone data collection and operation, and integration of drone control systems with dynamic sampling and real-time digital twin simulations; and

(2) approaches for leveraging unmanned aircraft systems for diverse applications, which may include—

(A) advanced assessment, characterization, mapping, and recovery of energy resources, such as geothermal energy, biofuels, and critical minerals resources;

(B) field testing and monitoring of energy systems, such as onshore and offshore wind energy, fossil energy, solar energy, marine energy, nuclear energy, and hydropower systems;

(C) damage assessment of the electric grid and energy infrastructure following physical events such as wildland fires, including prescribed burns containment and emissions measurements, potential health and safety effects from contaminant releases and dispersals, and real-time analysis of impacted assets;

(D) leak detection of greenhouse gases related to energy production, including methane leak detection;

(E) agriculture and aquaculture applications;

(F) integrated data collection to inform and enhance Department of Energy modeling capabilities, including the development of climate and earth systems models;

(G) assistance in environmental management and cleanup activities;

(H) assistance in Department infrastructure management at National Laboratories and other relevant Department sites;

(I) intrusion detection and facility monitoring for physical security applications; and

(J) asset extraction of building envelope features and characteristics for rapid energy modeling purposes.

(d) TECHNOLOGY TRANSFER.—In carrying out the program under subsection (a), and in coordination with the Office of Technology Transitions, the Secretary of Energy shall support technology transfer of unmanned aircraft systems research by partnering with industry.

(e) FACILITY USE.—In carrying out the program under subsection (a), the Secretary of Energy shall make available high-performance computing infrastructure and other relevant research facilities and test beds at the National Laboratories.

(f) INTERAGENCY COORDINATION AND NONDUPLICATION.—In carrying out the program under subsection (a), the Secretary of Energy shall coordinate with the heads of other Federal departments and agencies to avoid duplication of research and other activities and to ensure that the activities carried out under such program are complementary to those currently being undertaken by such other departments and agencies.

(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Department of Energy to carry out this section—

(1) $50,000,000 for fiscal year 2024;

(2) $52,500,000 for fiscal year 2025;

(3) $55,125,000 for fiscal year 2026;

(4) $57,881,775 for fiscal year 2027; and

(5) $60,775,863 for fiscal year 2028.

(h) ELIGIBLE ENTITIES DEFINED.—In this title, the term ''eligible entity'' means—

(1) an institution of higher education;

(2) a National Laboratory;

(3) a State, local, territorial, or Tribal government research agency;

(4) a nonprofit research organization;

(5) a private sector entity; or

(6) a consortium of two or more entities described in any of paragraphs (1) through (5).

TITLE VII—DEPARTMENT OF HOMELAND SECURITY ACTIVITIES

SEC. 701. DEPARTMENT OF HOMELAND SECURITY ACTIVITIES.

(a) IN GENERAL.—The Secretary of Homeland Security, acting through the Under Secretary for Science and Technology of the Department of Homeland Security, shall—

(1) support research, development, evaluation and testing for advanced air mobility, unmanned aircraft systems, counter-UAS systems, and detection systems capabilities, including for—

(A) air domain awareness and advanced air mobility and unmanned aircraft systems traffic monitoring;

(B) privacy, security, and cybersecurity of advanced air mobility systems, unmanned air-

craft systems, and counter-UAS systems capabilities;

(C) safety of advanced air mobility and unmanned aircraft systems;

(D) safety of operations in the National Airspace System; and

(E) testing and evaluation of unmanned aircraft systems and counter-UAS systems capabilities, performance systems engineering, and operational analysis;

(2) coordinate with all relevant offices and programs of the Department of Homeland Security, including the Cybersecurity and Infrastructure Security Agency, U.S. Customs and Border Protection, the Federal Emergency Management Agency, the Federal Protective Service, the Transportation Security Administration, the United States Coast Guard, and the United States Secret Service;

(3) produce curated, standardized, representative, secure, and privacy protected data sets for advanced air mobility systems, unmanned aircraft systems, and counter-UAS systems, including detection systems, development, archiving, and use, prioritizing data for high-value, high-risk research;

(4) support one or more Institutes as described in section 201(a) for the purpose of advancing the field of advanced air mobility, unmanned aircraft systems, and counter-UAS systems, including detection systems capabilities;

(5) apply lessons learned from unmanned aircraft systems research, development, evaluation, and testing to advanced air mobility systems; and

(6) enter into and perform such contracts, including cooperative research and development arrangements and grants and cooperative agreements or other transactions, as may be necessary in the conduct of the work of the Department and on such terms as the Secretary considers appropriate, in furtherance of the purposes of this Act.

(b) COUNTER–UAS CENTER OF EXCELLENCE.—

(1) IN GENERAL.—The Secretary of Homeland Security shall establish in the Department of Homeland Security a center of excellence to carry out research and development that advances counter-UAS systems capabilities.

(2) SELECTION OF HOST INSTITUTION.—

(A) IN GENERAL.—The Secretary of Homeland Security shall make a grant to one institution of higher education, or a consortium

of institutions of higher education, to host and maintain the center of excellence established under this subsection.

(B) SELECTION CRITERIA.—In selecting such an institution or consortium, the Secretary of Homeland Security shall—

(i) give preference to applicants with strong past performance related to counter-UAS systems research, education, and workforce development activities;

(ii) give preference to applicants geographically collocated within 100 miles of Federal departments or agencies that currently possess or operate extant counter-UAS system facilities;

(iii) give preference to applicants having proven abilities and strong research enterprises in systems engineering, radio frequency (RF) directed energy, radar and antenna research and development, atmospheric monitoring that can support chemical, biological, radiological and nuclear detection to include trace gases and particular matter (PM), target tracking, remote sensing, and the ability to leverage

artificial intelligence and machine learning to support the required data analytics;

(iv) consider the extent to which the applicant would involve the public and private sectors; and

(v) consider the regional and national impacts of the applicant's proposed research and development activities.

(3) USE OF FUNDS.—The institution of higher education or consortium may use funds provided under this subsection to carry out fundamental research, evaluation, education, workforce development, and training efforts related to counter-UAS systems subject areas, including safety, privacy, security, cybersecurity, detecting, identifying, monitoring, tracking, disrupting and seizing control, confiscating, disabling, damaging, destruction, remote sensing, forensics, testing and evaluation of systems capabilities, performance, systems engineering, operational analysis, and advanced technologies.

(4) FEDERAL SHARE.—The Department of Homeland Security share of a grant under this subsection shall not exceed 75 percent of the costs of establishing and operating the center of excellence

and related research activities carried out by the grant recipient.

(5) AUTHORIZATION OF APPROPRIATIONS.—

(A) FISCAL YEAR 2024.—There is authorized to be appropriated to the Secretary of Homeland Security $10,000,000 for fiscal year 2024 for making grants under this subsection.

(B) FISCAL YEARS 2025 THROUGH 2028.—There are authorized to be appropriated to the Secretary of Homeland Security $5,000,000 in each of fiscal years 2025 through 2028 for making grants under this subsection.

(6) INSTITUTION OF HIGHER EDUCATION.—In this subsection, the term ''institution of higher education'' has the meaning given the term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

(c) INTERAGENCY COORDINATION.—In carrying out the activities under subsection (a), the Secretary of Homeland Security shall coordinate with the heads of other Federal departments and agencies to avoid duplication of research and other activities and to ensure such activities are complimentary to those currently being undertaken by such other departments and agencies.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary of Homeland Security to carry out this section—

(1) $30,000,000 for fiscal year 2024;

(2) $31,500,000 for fiscal year 2025;

(3) $33,075,000 for fiscal year 2026;

(4) $34,728,750 for fiscal year 2027; and

(5) $36,465,187 for fiscal year 2028.

TITLE VIII—NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ACTIVITIES

SEC. 801. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION RESEARCH AND DEVELOPMENT.

(a) IN GENERAL.—The Administrator of the National Oceanic and Atmospheric Administration shall carry out and support research, development, and demonstration activities to advance unmanned aircraft systems technologies, and capabilities, and to enhance the deployment of, and data collected by, unmanned aircraft systems relevant to the mission of the Administration, incorporate such data into operations, and ensure data are managed, stewarded, and archived appropriately. In carrying out such activities, the Administrator shall coordinate across all relevant offices and programs of the Administration, including the Office of Oceanic and Atmos-

pheric Research, National Environmental Satellite, Data, and Information Service, National Marine Fisheries Service, National Ocean Service, National Weather Service, and the Office of Marine and Aviation Operations.

(b) PROGRAM COMPONENTS.—In carrying out subsection (a), the Administrator of the National Oceanic and Atmospheric Administration shall—

(1) test, evaluate, and demonstrate the utility of unmanned aircraft systems technologies for the Administration;

(2) support Administration activities and Cooperative Institute referred to in subsection (i)(3) projects, and support and encourage Federal and State agencies, academic institutions, nongovernmental organizations, industry representatives, and others to—

(A) accelerate the transition of unmanned aircraft systems capabilities from research to operations and other uses and facilitate new unmanned aircraft systems applications within the Administration;

(B) evaluate current observation strategies and identify critical data gaps best suited for advanced unmanned aircraft systems;

(C) prioritize activities that collect or acquire routine observations which feed forecasts and models;

(D) test, develop, and evaluate safe systems capable of safely operating beyond visual line of sight;

(E) collect or acquire measurements of atmospheric and oceanic parameters; and

(F) ensure the archiving, stewardship, utility, and preservation of and public accessibility to the observations collected are shared with the Administration;

(3) provide and support research experiences and training for undergraduate and graduate students in unmanned aircraft systems research, development, and operations relevant to the mission of the Administration, and other education and training opportunities consistent with the purpose of this section;

(4) contribute to and supplement field campaigns at the Department of Energy's Atmospheric Radiation Measurement user facility in order to incorporate unmanned aircraft systems and resulting data into the development of combined observational and modeling elements; and

(5) support and conduct leading-edge research and development of innovative unmanned aircraft systems technologies and concepts to advance research areas in subsection (c).

(c) RESEARCH AREAS.—In carrying out subsection (a), the Administrator of the National Oceanic and Atmospheric Administration shall award financial assistance to eligible entities to carry out projects on the use of unmanned aircraft systems to collect environmental data and monitor climate impacts, including—

(1) severe weather forecasts and damage assessments;

(2) rapid flood mapping;

(3) real-time hurricane data, including close-to-surface and low altitude meteorological measurements;

(4) enhanced atmospheric monitoring and sampling, including physical and chemical measurements in the atmospheric boundary layer;

(5) marine mammal detection and monitoring;

(6) near-real time harmful algal bloom measurements for rapid response efforts;

(7) coastal restoration and habitation monitoring, including detection and monitoring of marine debris, oil spill, and hazardous materials;

(8) mapping, charting, and geodesy applications to support safety of navigation;

(9) wildfire observations and data to improve fire weather modeling;

(10) other areas related to science and stewardship of the climate, weather, oceans, coasts, and Great Lakes; and

(11) any other areas the Administrator determines necessary and appropriate.

(d) PRIORITY.—In carrying out the research areas in subsection (c), the Administrator of the National Oceanic and Atmospheric Administration shall, to the maximum extent practicable, prioritize activities that increase the Administration's operational use of unmanned aircraft systems by extending the range of times, location, and conditions in which observations can be made at lower cost. As part of such activities, the Administrator may—

(1) enter into contracts with one or more entities in the commercial data sector to acquire data collected by unmanned aircraft systems; and

(2) leverage existing facilities, instruments, and tools, including the Administration's satellites, fleet of ships, and crewed aircraft.

(e) TECHNOLOGY TRANSFER.—In carrying out subsection (a), and in coordination with the Small Business

Innovation Research program of the National Oceanic and Atmospheric Administration, the Administrator of the Administration shall support technology transfer of unmanned aircraft systems research by partnering with Federal agencies and industry.

(f) COORDINATION.—The Administrator of the National Oceanic and Atmospheric Administration shall coordinate the activities authorized under this section with the activities authorized in section 3 of the Commercial Engagement Through Ocean Technology Act of 2018 (33 U.S.C. 4102) and engage with other Federal departments and agencies, research communities, nongovernmental organizations, and industry stakeholders through the interagency working group under section 101.

(g) SUPPORT OF INSTITUTES.—For the purposes of subsection (a), the Administrator of the National Oceanic and Atmospheric Administration may support relevant activities at one or more Institutes under section 201(a) for the purpose of advancing the field of unmanned aircraft systems.

(h) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator of the National Oceanic and Atmospheric Administration to carry out this section—

(1) $15,000,000 for fiscal year 2024;

(2) $15,750,000 for fiscal year 2025;

(3) $16,537,500 for fiscal year 2026;

(4) $17,364,375 for fiscal year 2027; and

(5) $18,232,593 for fiscal year 2028.

(i) ELIGIBLE ENTITIES.—In this title, the term ''eligible entities'' means—

(1) an institution of higher education;

(2) a National Laboratory;

(3) a NOAA Cooperative Institute;

(4) a State, local, territorial, or Tribal government agency;

(5) a nonprofit organization;

(6) a private sector entity; or

(7) a consortium of 2 or more entities described in subparagraphs (A) through (F).

TITLE IX—FEDERAL AVIATION ADMINISTRATION ACTIVITIES

SEC. 901. FEDERAL AVIATION ADMINISTRATION RESEARCH AND DEVELOPMENT.

(a) IN GENERAL.—The Administrator of the Federal Aviation Administration, in coordination with the Administrator of the National Aeronautics and Space Administration and the heads of other Federal agencies, shall carry out and support research, development, testing, and demonstration activities to—

(1) advance advanced air mobility and unmanned aircraft systems; and

(2) facilitate the safe integration of advanced air mobility and unmanned aircraft systems into the national airspace system.

(b) LESSONS LEARNED.—The Administrator of the Federal Aviation Administration shall apply lessons learned from unmanned aircraft systems research, development, demonstration, and testing to advanced air mobility systems.

(c) UNMANNED AND MANNED AIRCRAFT SAFETY RESEARCH.—As part of the activities under subsection (a), the Administrator of the Federal Aviation Administration shall conduct comprehensive research and testing for advanced air mobility and unmanned aircraft systems safety, including—

(1) collisions between advanced air mobility and unmanned aircraft systems of various sizes, traveling at various speeds, and commercial jet airliners of various sizes, traveling at various speeds;

(2) collisions between advanced air mobility and unmanned aircraft systems of various sizes, traveling at various speeds, and propeller planes of various sizes, traveling at various speeds;

(3) collisions between advanced air mobility and unmanned aircraft systems of various sizes, traveling at various speeds, and blimps of various sizes, traveling at various speeds;

(4) collisions between advanced air mobility and unmanned aircraft systems of various sizes, traveling at various speeds, and rotorcraft of various sizes, traveling at various speeds; and

(5) collisions between advanced air mobility and unmanned aircraft systems and various parts of the aircraft specified in paragraph (1) through (4), including—

(A) windshields;

(B) noses;

(C) engines;

(D) radomes;

(E) propellers; and

(F) wings.

(d) REPORT.—Not later than one year after the date of the enactment of this Act, the Administrator of the Federal Aviation Administration shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report sum-

marizing the costs and results of research under subsection (c).

(e) STUDY.—Not later than 30 days after the date of the enactment of this Act, the Administrator of the Federal Aviation Administration shall commission an independent study to—

(1) develop parameters to conduct research and development for probabilistic metrics to enable the identification of hazards and the assessment of risks as necessary to make determinations under section 44807 of title 49, United States Code, that certain advanced air mobility and unmanned aircraft systems may operate safely in the national airspace system; and

(2) identify additional research needed to more effectively develop and use such metrics and make such determinations.

In developing parameters for probabilistic metrics, the study conducted pursuant to this subsection shall take into account the utility of performance standards to make determinations under section 44809 of title 49, United States Code. The Administrator shall consider the results of the study when making a determination under such section 44809.

(f) STUDY SUBMISSION.—Not later than nine months after the date of the enactment of this Act, the Administrator of the Federal Aviation Administration shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the results of the study conducted under subsection (e).

(g) PROBABILISTIC ASSESSMENT OF RISKS.—The Administrator of the Federal Aviation Administration shall conduct research and development to enable a probabilistic assessment of risks to inform requirements for standards for operational certification of public advanced air mobility systems and unmanned aircraft systems in the national airspace.

(h) SUPPORT FOR INSTITUTES.—The Administrator of the Federal Aviation Administration may support one or more institutes described in section 201(a) for the purpose of advancing the field of unmanned aircraft systems and supporting the mission of the Administration.

SEC. 902. UNIVERSITY UNMANNED AIRCRAFT SYSTEMS AND ADVANCE AIR MOBILITY CENTERS.

(a) GRANTS FOR ESTABLISHMENT AND OPERATION.—The Administrator of the Federal Aviation Administration shall make grants to one or more institutions of higher education to establish and operate one regional

university advanced air mobility and unmanned aircraft system center in each of the ten Federal regions which compromise the Standards Federal Regions established by the Office of Management and Budget in the document entitled ''Standard Federal Regions'' and dated April 1974 (circular A–105).

(b) RESPONSIBILITIES.—The responsibilities of the unmanned aircraft systems and advanced air mobility center established under this section shall include the conduct of advanced air mobility research and research concerning safely integrating unmanned aircraft systems into the national airspace system and the interpretation, publication, and dissemination of the results of such research. The responsibility of one such center may include research on detection and avoidance capabilities.

(c) APPLICATION.—An institution of higher education interested in receiving a grant under this section shall submit to the Administrator of the Federal Aviation Administration an application in such form and containing such information as the Administrator may require.

(d) SELECTION CRITERIA.—The Administrator of the Federal Aviation Administration shall select recipients of grants under this section on the basis of the following criteria:

(1) The grant recipient shall have demonstrated research and extension resources available for carrying out this subsection.

(2) The grant recipient shall have demonstrated its capability to provide leadership in making national and regional contributions for addressing long-range and immediate advanced air mobility and unmanned aircraft systems issues.

(3) The grant recipient shall have an established advanced air mobility and unmanned aircraft systems or related research program.

(4) The grant recipient shall have a demonstrated commitment to supporting ongoing advanced air mobility and unmanned aircraft systems research programs.

(5) The grant recipient shall have demonstrated ability to disseminate results of advanced air mobility and unmanned aircraft systems research and educational programs through a statewide or regionwide continuing education program.

(e) CONSIDERATION.—In making a selection of a grant recipient, the Administrator shall consider the projects which the grant recipient proposes to carry out under the grant.

(f) LOCATION.—The unmanned aircraft system and advanced air mobility center shall be located in a State which is representative of the needs of the Federal region for improved advanced air mobility and unmanned aircraft systems test facilities.

(g) FEDERAL SHARE.—The Federal share of a grant under this section shall be 75 percent of the costs of establishing and operating the regional center and related research activities carried out by the grant recipient.

(h) NATIONAL ADVISORY COUNCIL.—

(1) ESTABLISHMENT; FUNCTIONS.—The Administrator of the Federal Aviation Administration shall establish in the Administration a national advisory council to—

(A) coordinate the research and training to be carried out by grant recipients;

(B) disseminate the results of such research;

(C) act as a clearing house between such centers and the advanced air mobility and unmanned aircraft systems industry; and

(D) review and evaluate programs carried out by such centers.

(2) MEMBERS.—The national advisory council established under this subsection shall be composed

of the directors of the advanced air mobility and unmanned aircraft systems centers and 19 other members appointed by the Administrator of the Federal Aviation Administration as follows:

(A) Six officers of the Federal Aviation Administration, of whom—

(i) one represents the Office of the Administrator;

(ii) one represents the Unmanned Aircraft Systems Integration Office;

(iii) one represents the Office of NextGen;

(iv) one represents the Office of Aviation Safety;

(v) one represents the Office of Air Traffic Organization; and

(vi) one represents the Mike Monroney Aeronautical Center.

(B) Five representatives of State, local, Tribal, or territorial governments.

(C) Eight representatives of the unmanned aircraft systems industry, including private industry.

(3) TERM OF OFFICE; PAY; CHAIRMAN.—Each of the members appointed by the Administrator of

the Federal Aviation Administration shall serve without pay. The chairman of the national advisory council shall be designated by the Administrator.

(4) MEETINGS.—The national advisory council shall meet at least annually and at such other times as the chairman may designate.

(5) AGENCY INFORMATION.—Subject to subchapter II of chapter 5 of title 5, United States Code, the national advisory council may secure directly from any department or agency of the United States information necessary to enable it to carry out this subsection. Upon request from the chairman of the council, the head of such department or agency shall furnish such information to the council.

(6) TERMINATION DATE INAPPLICABLE.—Section 14 of the Federal Advisory Committee Act shall not apply to the council.

(i) ALLOCATION OF FUNDS.—The Administrator of the Federal Aviation Administration shall allocate funds made available to carry out this section equitably among Federal regions.

(j) TECHNOLOGY TRANSFER SET-ASIDE.—Not less than five percent of the funds made available to carry out this section for any fiscal year shall be available to carry out technology transfer activities.

SEC. 903. ALLOWANCE FOR THE PURPOSES OF RESEARCH AND DEVELOPMENT.

Except as necessary to support enforcement action under applicable provisions of law against persons operating an advanced air mobility system or unmanned aircraft in a manner that endangers the safety of the National Airspace System, and notwithstanding any other provision of law relating to the incorporation of advanced air mobility and unmanned aircraft systems into Federal Aviation Administration plans and policies, the Administrator of the Federal Aviation Administration may not promulgate any rule or regulation regarding the operation of an unmanned aircraft system—

(1) that is flown strictly for research and development use;

(2) that is operated less than 400 feet above the ground and in Class G airspace;

(3) that is operated in a manner that does not interfere with and gives way to any manned aircraft; and

(4) with respect to which, in any case in which the unmanned aircraft system is flown within five miles of an airport, the operator of the aircraft provides the airport operator and the airport air traffic control tower (when an air traffic facility is located at the airport) with prior notice of such operation,

including by establishing a mutually agreed upon operating procedure in cases with respect to which such unmanned aircraft system is flown from a permanent location within five miles of an airport.

SEC. 904. AUTHORIZATION OF APPROPRIATIONS.

(a) FEDERAL AVIATION ADMINISTRATION RESEARCH AND DEVELOPMENT FUNDING.—There are authorized to be appropriated to the Administrator of the Federal Aviation Administration to carry out section 901—

(1) $20,000,000 for fiscal year 2024;

(2) $21,000,000 for fiscal year 2025;

(3) $22,050,000 for fiscal year 2026;

(4) $23,152,500 for fiscal year 2027; and

(5) $24,310,125 for fiscal year 2028.

(b) UNIVERSITY UNMANNED AIRCRAFT SYSTEMS CENTER FUNDING.—There are authorized to be appropriated to the Administrator of the Federal Aviation Administration to carry out section 902—

(1) $100,000,000 for fiscal year 2024;

(2) $105,000,000 for fiscal year 2025;

(3) $110,250,000 for fiscal year 2026;

(4) $115,762,500 for fiscal year 2027; and

(5) $121,550,625 for fiscal year 2028.

TITLE X—LIMITATION

SEC. 1001. LIMITATION.

(a) IN GENERAL.—Except as otherwise provided in this section, none of the funds authorized to be appropriated by this Act may be used for the purchase, acquisition, or operation of advanced air mobility and unmanned aircraft systems—

(1) produced or assembled in, or containing components produced or assembled in, a foreign country of concern; or

(2) produced or assembled by entities owned, controlled by, or subject to the jurisdiction or direction of the government of, a foreign country of concern.

(b) EXCEPTION.—The limitation in subsection (a) shall not apply to the acquisition of advanced air mobility and unmanned aircraft systems for the purposes of research and development for improving the United States counter-unmanned aircraft systems capabilities.

(c) WAIVER.—The Secretary of Commerce may waive the limitation in subsection (a) if the Secretary determines, in consultation with the Director of National Intelligence, that such waiver is in the national security interest of the United States.

(d) REPORT TO CONGRESS.—The Secretary of Commerce shall report the issuance of such a waiver to the relevant committees of jurisdiction of Congress not later than 30 days after issuing such waiver.

(e) DEFINITION.—In this section, the term ''foreign country of concern'' means—

(1) a country that is a covered nation (as defined in section 4872(d) of title 10 United States Code); and

(2) any country that the Secretary of Commerce, in consultation with the Secretary of Defense and the Director of National Intelligence, determines to be engaged in conduct that is detrimental to the national security or foreign policy of the United States.

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