

118TH CONGRESS
2D SESSION

H. R. 8958

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 24, 2024

Received; read twice and referred to the Committee on Commerce, Science,
and Transportation

AN ACT

To reauthorize the National Aeronautics and Space
Administration, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

2 (a) SHORT TITLE.—This Act may be cited as the
3 “NASA Reauthorization Act of 2024”.

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

Sec. 1. Short title; table of contents.

Sec. 2. Definitions.

TITLE I—AUTHORIZATION OF APPROPRIATIONS

Sec. 101. Fiscal year 2025.

TITLE II—EXPLORATION

Sec. 201. Continuity of purpose for space exploration.

Sec. 202. Artemis program.

Sec. 203. Reaffirmation of the Space Launch System.

Sec. 204. Human-rated lunar landing capabilities.

Sec. 205. Advanced spacesuit capabilities.

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Sec. 302. International Space Station.

Sec. 303. Nongovernmental missions on the International Space Station.

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Sec. 309. Orbital debris research and development.

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scientific activities.

TITLE IV—SPACE TECHNOLOGY

Sec. 401. SBIR phase II flexibility.

Sec. 402. Lunar power purchase agreement program.

Sec. 403. Cryogenic fluid valve technology review.

Sec. 404. Lunar communications.

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TITLE V—AERONAUTICS

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Sec. 502. Experimental aircraft demonstrations.

Sec. 503. Hypersonic research.

Sec. 504. Advanced materials and manufacturing technology.

Sec. 505. Unmanned aircraft system and advanced air mobility.

Sec. 506. Advanced capabilities for emergency response operations.

Sec. 507. Hydrogen aviation.

Sec. 508. High-performance chase aircraft.

- Sec. 509. Collaboration with academia.
- Sec. 510. National student unmanned aircraft systems competition program.
- Sec. 511. Decadal survey for national aeronautics research and priorities review.
- Sec. 512. Making advancements in commercial hypersonics.

TITLE VI—SCIENCE

- Sec. 601. Maintaining a balanced science portfolio.
- Sec. 602. Implementation of science mission cost-caps.
- Sec. 603. Reexamination of decadal surveys.
- Sec. 604. Landsat.
- Sec. 605. Private earth observation data.
- Sec. 606. Commercial satellite data.
- Sec. 607. Greenhouse gas emission measurements.
- Sec. 608. NASA data for agricultural applications.
- Sec. 609. Planetary science portfolio.
- Sec. 610. Planetary defense.
- Sec. 611. Lunar discovery and exploration.
- Sec. 612. Commercial lunar payload services.
- Sec. 613. Planetary and lunar operations.
- Sec. 614. Mars sample return.
- Sec. 615. Hubble space telescope servicing.
- Sec. 616. Great observatories mission and technology maturation.
- Sec. 617. Nancy Grace Roman telescope.
- Sec. 618. Chandra X-Ray observatory.
- Sec. 619. Heliophysics research.
- Sec. 620. Study on commercial space weather data.
- Sec. 621. Geospace dynamics constellation.
- Sec. 622. Technology development for wildland fire science, management, and mitigation.
- Sec. 623. Implementation of recommendations by the National Wildland Fire Management and Mitigation Commission.

TITLE VII—STEM EDUCATION

- Sec. 701. National space grant college and fellowship program.
- Sec. 702. Skilled technical workforce education outreach.

TITLE VIII—POLICY/NASA

- Sec. 801. Major programs.
- Sec. 802. NASA advisory council.
- Sec. 803. NASA assessment of early cost estimates.
- Sec. 804. Independent cost estimate.
- Sec. 805. Office of Technology, Policy, and Strategy report.
- Sec. 806. Authorization for the transfer to NASA of funds from other agencies for scientific or engineering research or education.
- Sec. 807. Procedure for launch services risk mitigation.
- Sec. 808. Report on merits and options for establishing an institute relating to space resources.
- Sec. 809. Reports to Congress.
- Sec. 810. Contract flexibility.
- Sec. 811. GAO report.
- Sec. 812. NASA public-private talent program.
- Sec. 813. Report on Space Act agreements.

Sec. 814. Mentoring.

Sec. 815. Drinking water well replacement for Chincoteague, Virginia.

Sec. 816. Rule of construction.

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) ADMINISTRATOR.—The term “Adminis-
4 trator” means the Administrator of the National
5 Aeronautics and Space Administration.

6 (2) APPROPRIATE COMMITTEES OF CON-
7 GRESS.—The term “appropriate committees of Con-
8 gress” means—

9 (A) the Committee on Commerce, Science,
10 and Transportation of the Senate; and

11 (B) the Committee on Science, Space, and
12 Technology of the House of Representatives.

13 (3) CISLUNAR SPACE.—The term “cislunar
14 space” means the region of space beyond low-Earth
15 orbit out to and including the region around the sur-
16 face of the Moon.

17 (4) COMMERCIAL PROVIDER.—The term “com-
18 mercial provider” means any person providing space
19 services or space-related capabilities, primary control
20 of which is held by persons other than the Federal
21 Government, a State or local government, or a for-
22 eign government.

1 (5) DEEP SPACE.—The term “deep space”
2 means the region of space beyond low-Earth orbit,
3 which includes cislunar space.

4 (6) ISS.—The term “ISS” means the Inter-
5 national Space Station.

6 (7) NASA.—The term “NASA” means the Na-
7 tional Aeronautics and Space Administration.

8 (8) ORION.—The term “Orion” means the mul-
9 tipurpose crew vehicle described under section 303
10 of the National Aeronautics and Space Administra-
11 tion Authorization Act of 2010 (42 U.S.C. 18323).

12 (9) SPACE LAUNCH SYSTEM.—The term “Space
13 Launch System” means the Space Launch System
14 authorized under section 302 of the National Aero-
15 nautics and Space Administration Authorization Act
16 of 2010 (42 U.S.C. 18322).

17 **TITLE I—AUTHORIZATION OF** 18 **APPROPRIATIONS**

19 **SEC. 101. FISCAL YEAR 2025.**

20 For fiscal year 2025, there are authorized to be ap-
21 propriated to NASA \$25,224,640,000 as follows:

22 (1) For the Exploration Systems Development
23 Mission Directorate, \$7,618,200,000.

24 (2) For the Space Operations Mission Direc-
25 torate, \$4,473,500,000.

1 (3) For the Space Technology Mission Direc-
2 torate, \$1,181,800,000.

3 (4) For the Science Mission Directorate,
4 \$7,334,200,000.

5 (5) For the Aeronautics Research Mission Di-
6 rectorate, \$965,800,000.

7 (6) For the Office of STEM Engagement,
8 \$135,000,000.

9 (7) For Safety, Security, and Mission Services,
10 \$3,044,440,000.

11 (8) For Construction and Environmental Com-
12 pliance and Restoration, \$424,100,000.

13 (9) For Inspector General, \$47,600,000.

14 **TITLE II—EXPLORATION**

15 **SEC. 201. CONTINUITY OF PURPOSE FOR SPACE EXPLO-** 16 **RATION.**

17 (a) FINDINGS.—Congress finds the following:

18 (1) NASA continues to make progress in devel-
19 oping and testing the Space Launch System, Orion,
20 and associated ground systems, including through
21 the successful completion of the Artemis I mission in
22 November 2022 and through continued preparations
23 for the Artemis II crewed flight demonstration mis-
24 sion.

1 (2) The number of spacefaring countries is in-
2 creasing, and foreign countries have expanded activi-
3 ties for space exploration efforts, including efforts to
4 explore and utilize the Moon through human and
5 robotic missions.

6 (3) A strong and ambitious space exploration
7 program conducted with international and commer-
8 cial partners is important to maintaining United
9 States leadership in space and enhancing United
10 States international competitiveness.

11 (4) Clear mission objectives that tie to concrete,
12 long-term programmatic goals provide a measure to
13 ensure accountability, enhance public support for ex-
14 ploration missions, and provide a clear signal of
15 commitment to both international and domestic
16 partners.

17 (b) CONTINUITY OF EXISTING CAPABILITIES AND
18 PROGRAMS.—

19 (1) As part of the human exploration activities
20 of the Administration, including progress on Artemis
21 missions and activities, the Administrator shall con-
22 tinue development of space exploration elements pur-
23 suant to section 10811 of the National Aeronautics
24 and Space Administration Authorization Act of 2022
25 (Public Law 117–167; 51 U.S.C. 20302).

1 (2) The Administrator shall leverage the private
2 sector for logistical services to the extent practical,
3 consistent with the Moon to Mars architecture re-
4 quirements and in accordance with section 50131 of
5 title 51, United States Code.

6 (3) Congress reaffirms the sense of Congress to
7 maintain continuity of purpose as described in sec-
8 tion 201 of the 2017 NASA Transition Authoriza-
9 tion Act (Public Law 115–10; 131 Stat. 21).

10 **SEC. 202. ARTEMIS PROGRAM.**

11 (a) SENSE OF CONGRESS.—The following is the sense
12 of Congress:

13 (1) Exploration of outer space, including explo-
14 ration of the lunar surface and cislunar space, pro-
15 vides benefits and economic opportunity, including
16 by inspiring future generations and expanding the
17 science, technology, engineering, and mathematics
18 workforce needed to sustain United States leader-
19 ship in science, space, and technology.

20 (2) The lunar south pole is home to shadowed
21 craters that may contain water ice and other
22 volatiles. Understanding the nature of lunar polar
23 volatiles, such as water ice, would advance science
24 related to the origin and evolution of volatiles in the
25 inner solar system and could facilitate the long-term

1 future of space exploration. Water ice lunar re-
2 sources have the potential to become an enabling
3 component of future space exploration missions
4 throughout the solar system, including crewed mis-
5 sions to Mars.

6 (3) Other countries have demonstrated techno-
7 logical advances and successful robotic missions for
8 lunar exploration and have announced credible plans
9 for long-term human exploration of the Moon that
10 include the intent to establish lunar bases.

11 (4) United States leadership of and measurable
12 progress on the exploration of deep space is essential
13 for guiding development of norms related to oper-
14 ations on and around the Moon and for other space
15 destinations.

16 (5) It is in the national interest of the United
17 States to hold a leadership role in discussions of fu-
18 ture norms governing activities in space, including
19 those on the lunar surface and in cislunar space.

20 (b) IN GENERAL.—In carrying out activities to en-
21 able Artemis missions under the Moon to Mars Program
22 set forth in section 10811 of the National Aeronautics and
23 Space Administration Authorization Act of 2022 (Public
24 Law 117–167), the Administrator shall—

1 (1) use relevant elements set forth in section
2 10811(b)(2)(B) of the National Aeronautics and
3 Space Administration Authorization Act of 2022
4 (Public Law 117–167);

5 (2) continue to ensure that the elements under
6 paragraph (1) enable the human exploration of
7 Mars, consistent with section 10811(b)(2)(C)(i) of
8 the National Aeronautics and Space Administration
9 Authorization Act of 2022 (Public Law 117–167);

10 (3) engage with international partners, as ap-
11 propriate, in a manner that is consistent with sec-
12 tion 10811(b)(2)(C) the National Aeronautics and
13 Space Administration Authorization Act of 2022
14 (Public Law 117–167), and that increases redun-
15 dancy, efficiency, and cost savings; and

16 (4) leverage capabilities provided by United
17 States commercial providers, as appropriate and
18 practicable.

19 (c) UNITED STATES COMMERCIAL PROVIDER CAPA-
20 BILITIES IN SUPPORT OF LUNAR EXPLORATION EF-
21 FORTS.—The Administrator may enter into agreements
22 with United States commercial providers or engage in pub-
23 lic-private partnerships to procure capabilities and services
24 to support the human exploration of the Moon or cislunar
25 space.

1 **SEC. 203. REAFFIRMATION OF THE SPACE LAUNCH SYS-**
2 **TEM.**

3 (a) SPACE LAUNCH SYSTEM.—

4 (1) DEVELOPMENT AND CADENCE OBJEC-
5 TIVES.—Congress reaffirms—

6 (A) support for the full development of ca-
7 pabilities of the Space Launch System as set
8 forth in section 302(c) of the National Aero-
9 nautics and Space Administration Authorization
10 Act of 2010 (42 U.S.C. 18322(c)); and

11 (B) its commitment to the flight rate of
12 the integrated Space Launch System and Orion
13 crew vehicle missions set forth in section
14 10812(b) of the National Aeronautics and
15 Space Administration Authorization Act of
16 2022 (Public Law 117–167; 51 U.S.C. 20301
17 note).

18 (2) OTHER USES.—The Administrator shall as-
19 sess the demand for the Space Launch System by
20 entities other than NASA and shall break out such
21 demand according to the relevant Federal agency or
22 nongovernment sector. This assessment may—

23 (A) estimate cost and schedule savings
24 from reduced transit times and the potential for
25 increased returns enabled by the unique capa-
26 bilities of the Space Launch System;

1 (B) describe any barriers or challenges
2 that could impede use of the Space Launch
3 System by entities other than NASA; and

4 (C) identify potential actions and costs as-
5 sociated with overcoming barriers and chal-
6 lenges described in subparagraph (B).

7 (b) REPORT.—Not later than 180 days after the date
8 of the enactment of this Act, the Administrator shall sub-
9 mit to the appropriate committees of Congress a report
10 describing the following:

11 (1) NASA’s progress towards achieving the
12 flight rate referred to in subsection (a)(1)(B) and
13 the expected launch of the integrated Space Launch
14 System and Orion crew vehicle missions after which
15 such cadence shall be achieved.

16 (2) The results of the assessment conducted
17 pursuant to subsection (a)(2).

18 **SEC. 204. HUMAN-RATED LUNAR LANDING CAPABILITIES.**

19 (a) REAFFIRMATION.—Congress reaffirms that the
20 Moon to Mars program set forth in section 10811 of the
21 National Aeronautics and Space Administration Author-
22 ization Act of 2022 (Public Law 117–167; 51 U.S.C.
23 20302 note.; 136 Stat. 1732) shall include human-rated
24 lunar landing systems.

1 (b) HUMAN-RATED LUNAR LANDING CAPABILI-
2 TIES.—

3 (1) The Administrator shall support the devel-
4 opment and demonstration of, and shall obtain,
5 human-rated lunar landing capabilities to further
6 the goals of the human exploration roadmap under
7 section 432 of the National Aeronautics and Space
8 Administration Transition Authorization Act of
9 2017 (Public Law 115–10; 51 U.S.C. 20302 note)
10 and the Moon to Mars Program set forth in section
11 10811 of the National Aeronautics and Space Ad-
12 ministration Authorization Act of 2022 (Public Law
13 117–167).

14 (2) The Administrator shall ensure that such
15 human-rated lunar landing capabilities meet all rel-
16 evant requirements, including requirements of the
17 Moon to Mars program, and for human-rating and
18 certification.

19 (3) Any commercial provider from which the
20 Administrator obtains human-rated lunar landing
21 capabilities must be a United States commercial pro-
22 vider.

23 (4) In carrying out paragraph (1)—

24 (A) the Administrator may include
25 uncrewed lunar landing services; and

1 (B) the Administrator shall, subject to the
2 availability of appropriations for such purpose,
3 seek to obtain capabilities from not fewer than
4 two commercial providers.

5 (c) REPORT.—The Administrator shall submit to the
6 appropriate committees of Congress the following:

7 (1) Not later than 60 days after the date of the
8 enactment of this Act, a report—

9 (A) identifying the contribution over the
10 past five years, and the planned contribution
11 for 2024–2029, of government personnel, exper-
12 tise, technologies and infrastructure utilized
13 and to be utilized in support of design, develop-
14 ment, or operation of human lunar landing ca-
15 pabilities under this section; and

16 (B) setting forth details and the associated
17 costs of such government support, broken out
18 according to the areas of contribution specified
19 in subparagraph (A), as part of any develop-
20 ment initiative for obtaining human lunar land-
21 ing capabilities.

22 (2) Not later than 90 days after the date of the
23 enactment of this Act, a report that sets forth, for
24 any agreement with a United States commercial pro-

1 vider for human lunar landing capabilities, the fol-
2 lowing:

3 (A) The total value of the agreement when
4 awarded.

5 (B) If different from the amount in sub-
6 paragraph (A), the total value of the agreement
7 as of the date of the enactment of this Act, and
8 an explanation for any change in value, as well
9 as an identification of whether NASA or the
10 commercial partner is responsible for meeting
11 the change in value.

12 (C) The dollar amount invested and to be
13 invested by the Administration, and the dollar
14 amount invested and to be invested by the com-
15 mercial partner.

16 (D) The full requirements, including
17 human-rating and safety requirements, for
18 human lunar landing capabilities under the
19 agreement when awarded.

20 (E) If different from the amount specified
21 in subparagraph (C), the full requirements, in-
22 cluding human-rating and certification require-
23 ments, for the human lunar landing capabilities
24 under the agreement as of the date of the en-

1 actment of this Act and an explanation for any
2 changes in requirements.

3 (F) A description of milestone and associ-
4 ated payments provided for in the agreement,
5 including the following:

6 (i) An identification of all milestones
7 under the agreement.

8 (ii) The value of the associated pay-
9 ment for each milestone identified under
10 clause (i).

11 (iii) An identification of completed
12 milestones and the date of completion.

13 (iv) An identification of milestones
14 which have not yet been completed and an
15 estimated schedule for completion.

16 (v) The value of all NASA payments
17 under the agreement, outlays as of the
18 date of the enactment of this Act, and the
19 amount which as of the date of the enact-
20 ment of this Act has not yet been paid.

21 (vi) a description of any changes in
22 milestones and associated payments be-
23 tween the date of contract award and the
24 date of the enactment of this Act.

1 (G) Any cost, schedule, and performance
2 challenges as of the date of the enactment of
3 this Act in provider performance of the agree-
4 ment.

5 (H) A detailed justification of compliance
6 with section 30301 of title 51, United States
7 Code.

8 (I) A detailed certification and justification
9 of compliance with section 50503 of title 51,
10 United States Code.

11 (3) Not later than 180 days after the date of
12 the enactment of this Act, in consultation with any
13 United States commercial provider that is party to
14 an agreement with NASA for human lunar landing
15 capabilities under this section, a report on any steps
16 the Administrator and such providers are taking to
17 carry out the following:

18 (A) Address cost, schedule, and perform-
19 ance challenges faced by each commercial pro-
20 vider in development and performance of
21 human lunar landing capabilities described in
22 paragraph (2)(G).

23 (B) Facilitate the timely availability of
24 human lunar landing capabilities of each pro-
25 vider to support the schedule of Artemis mis-

1 sions in effect as of the date of the enactment
2 of this Act, as applicable to each provider.

3 (4) Not later than 180 days after the date of
4 the enactment of this Act, a report on alternative
5 approaches, and implementation plans for such ap-
6 proaches, including an estimate of needed budgetary
7 resources, for a human lunar landing capability that
8 meets NASA human-rating and certification require-
9 ments in the event challenges referred to in para-
10 graph (3)(A) cannot be overcome or the timeline
11 specified in paragraph (3)(B) cannot be met.

12 **SEC. 205. ADVANCED SPACESUIT CAPABILITIES.**

13 (a) FINDINGS.—Congress finds the following:

14 (1) Space suits and associated extravehicular
15 activity (EVA) technologies are critical exploration
16 technologies that are necessary for future human
17 deep space exploration efforts, including crewed mis-
18 sions to the Moon.

19 (2) The NASA civil service workforce at the
20 Johnson Space Center provides unique capabilities
21 to design, integrate, and validate Space Suits and
22 associated EVA technologies.

23 (3) Maintaining a strong NASA core com-
24 petency in the design, development, manufacture,
25 and operation of space suits and related technologies

1 allows NASA to be an informed purchaser of com-
2 petitively awarded commercial space suits and sub-
3 components.

4 (4) According to a 2018 NASA Office of In-
5 spector General (OIG) report, current EVAs space
6 suits, the Extravehicular Mobility Units (EMUs),
7 were developed in the late 1970s, are reaching the
8 end of their useful life, have experienced multiple
9 maintenance issues that threaten astronaut lives,
10 and no longer accommodate the varying sizes of a
11 diverse astronaut corps.

12 (5) The same NASA OIG report found that “*
13 * * manufacturers of several critical suit compo-
14 nents, including the very fibers of the suits, have
15 now gone out of business * * *,” which further rein-
16 forces the importance of NASA’s role in maintaining
17 a space suit core competency and limiting the risk
18 posed by outsourcing key national capabilities.

19 (6) The private sector currently is developing
20 space suit capabilities.

21 (7) Testing space suits and related technologies
22 on the International Space Station could reduce risk
23 and improve safety of such suits and technologies.

1 (b) IN GENERAL.—The Administrator shall obtain
2 advanced spacesuit capabilities necessary to achieve the
3 goals of NASA’s human spaceflight exploration programs.

4 (c) ELIGIBILITY.—Any commercial provider from
5 which the Administrator obtains advanced spaceflight ca-
6 pabilities must be a United States commercial provider,
7 as set forth in section 203(c) of this Act.

8 (d) PRESERVING SPACESUIT EXPERTISE.—

9 (1) In carrying out subsection (b), NASA shall
10 maintain the internal expertise necessary to develop
11 space suits for both extravehicular activity and sur-
12 face operations, including through partnerships with
13 the private sector.

14 (2) The Johnson Space Center shall continue to
15 manage NASA’s spacesuit and extravehicular activ-
16 ity programs.

17 (e) REPORT.—Not later than 180 days from the date
18 of the enactment of this Act, the Administrator shall sub-
19 mit to the appropriate committees of Congress a report—

20 (1) describing NASA’s plans for—

21 (A) in-space testing of advanced spacesuit
22 capabilities, including—

23 (i) space suit tests which must be con-
24 ducted in microgravity in low-Earth orbit;
25 and

1 (ii) space suit tests that must be con-
2 ducted on the International Space Station
3 before decommissioning of the Inter-
4 national Space Station;

5 (B) transitioning from existing spacesuits
6 in use on the International Space Station to use
7 of advanced spacesuit capabilities;

8 (C) future use of advanced spacesuit capa-
9 bilities by government astronauts with any non-
10 governmental platform in low-Earth orbit that
11 is certified for use by the Administration for
12 government astronauts (as such term is defined
13 in section 50902(4) of title 51, United States
14 Code); and

15 (D) disposition of retired spacesuits used
16 on the Space Shuttle or the International Space
17 Station; and

18 (2) including—

19 (A) a detailed justification of compliance
20 with section 30301 of title 51, United States
21 Code; and

22 (B) a detailed certification and justifica-
23 tion of compliance with section 50503 of title
24 51, United States Code.

1 (f) ASSESSMENT OF EXTRAVEHICULAR MOBILITY
2 UNITS USED ON THE ISS.—

3 (1) No later than 45 days after the date of en-
4 actment of this Act, the Administrator shall enter
5 into an arrangement with an independent science
6 and technical engineering organization to review the
7 technical status and performance of the Administra-
8 tion's existing extravehicular mobility units
9 ("EMUs"), to analyze the data associated with all
10 mishaps, anomalies, and off-nominal events related
11 to the EMUs used by government astronauts on the
12 International Space Station over the last 10 years,
13 and to make recommendations to the Administrator,
14 as a result of such assessment.

15 (2) The Administrator shall ensure that the en-
16 tity carrying out the assessment in paragraph (1)
17 consults with relevant industry contractors regarding
18 the Administration's EMUs and EMU capabilities,
19 and coordinates with the NASA Astronaut Office in
20 carrying out such assessment.

21 (3) The Administrator shall transmit the re-
22 sults of the assessment in paragraph (1) to the ap-
23 propriate committees of Congress as soon as prac-
24 ticable and no later than 270 days after the date of
25 enactment of this Act.

1 **TITLE III—SPACE OPERATIONS**

2 **SEC. 301. REPORT ON CONTINUED UNITED STATES PRES-**
3 **ENCE IN LOW EARTH ORBIT.**

4 Not later than 270 days after the date of the enact-
5 ment of this Act, the Comptroller General shall transmit
6 to the appropriate committees of Congress a report con-
7 taining information on the following:

8 (1) The United States Government description
9 of and plans for implementation of the policy on an
10 uninterrupted capability for human space flight and
11 operations in accordance with section 70501(a) of
12 title 51, United States Code, and section 201(b) of
13 the National Aeronautics and Space Administration
14 Authorization Act of 2010 (42 U.S.C. 18311(b)) re-
15 garding United States human space flight capabili-
16 ties.

17 (2) The preparedness of the Administration to
18 continue to meet statutory direction referenced in
19 paragraph (1) under the planned approach to
20 deorbit the International Space Station by not later
21 than the end of calendar year 2031.

22 **SEC. 302. INTERNATIONAL SPACE STATION.**

23 (a) SENSE OF CONGRESS.—It is the sense of Con-
24 gress that—

1 (1) ISS is a unique facility that provides the
2 United States with capabilities in space that are cur-
3 rently unmatched; NASA continues to make produc-
4 tive use of the ISS;

5 (2) the ISS serves several functions, including
6 establishing the United States as a leader in space
7 activities, acting as a beacon of international co-
8 operation, and conducting cutting-edge microgravity
9 and observational research in low-Earth orbit;

10 (3) NASA must complete certain objectives on
11 the ISS to facilitate deep space exploration efforts,
12 including carrying out human research and dem-
13 onstrating exploration-related technologies; and

14 (4) reducing crew size or cargo deliveries, or re-
15 ducing sustaining engineering capabilities, would re-
16 duce the scientific output of the ISS and potentially
17 increase the risk to the ISS and its crew.

18 (b) FULL UTILIZATION.—

19 (1) SENSE OF CONGRESS.—It is the sense of
20 Congress that, to ensure the greatest return on in-
21 vestments made by the United States and the Inter-
22 national Space Station partners in the development,
23 assembly, and operations of the International Space
24 Station, the Administrator should maximize the uti-
25 lization and productivity of the International Space

1 Station with respect to the priorities set forth in sec-
2 tion 10816 of the National Aeronautics and Space
3 Administration Authorization Act of 2022 (Public
4 Law 117–167; 51 U.S.C. 70901 note), which include
5 research of the human research program, risk reduc-
6 tion activities relevant to exploration technologies,
7 the advancement of United States leadership of
8 basic and applied space life and physical sciences,
9 and other research and development essential to
10 Moon to Mars program activities.

11 (2) AMENDMENT.—Section 502(a) of the Na-
12 tional Aeronautics and Space Administration Au-
13 thorization Act of 2010 (Public Law 111–267; 42
14 U.S.C. 18352(a)), is amended by striking “take
15 steps to”.

16 **SEC. 303. NONGOVERNMENTAL MISSIONS ON THE INTER-**
17 **NATIONAL SPACE STATION.**

18 (a) SENSE OF CONGRESS.—It is the sense of Con-
19 gress that—

20 (1) nongovernmental missions involving crew or
21 spaceflight participants on the International Space
22 Station carried out, as appropriate, pursuant to
23 NASA policies and procedures, and Federal Govern-
24 ment laws and regulations, can provide lessons and
25 learning experiences for both government and non-

1 government entities to inform the development of fu-
2 ture commercial low-Earth orbit platforms and a
3 low-Earth orbit economy; and

4 (2) the Administrator should share lessons
5 learned from nongovernmental missions on the
6 International Space Station to advance the commer-
7 cial human spaceflight industry, to promote the safe-
8 ty of future commercial low-Earth orbit platforms,
9 and to inform the evolution of policies guiding such
10 activities in low-Earth orbit.

11 (b) NONGOVERNMENTAL MISSIONS ON THE ISS.—

12 The Administrator may enter into one or more agreements
13 to enable one or more United States commercial providers
14 to conduct nongovernmental missions on the International
15 Space Station pursuant to NASA policies and procedures,
16 and Federal government laws and regulations.

17 (c) REPORT.—Not later than 18 months after the
18 date of the enactment of this Act, the Comptroller General
19 of the United States shall submit to the appropriate com-
20 mittees of Congress a report containing information relat-
21 ing to the following:

22 (1) The number of nongovernmental missions
23 on the ISS planned.

24 (2) The number of nongovernmental missions
25 on the ISS completed.

1 (3) The extent to which commercial entities car-
2 rying out nongovernmental missions on the ISS fully
3 reimburse costs incurred by NASA in association
4 with any nongovernmental missions carried out on
5 the International Space Station.

6 (4) The extent to which nongovernmental mis-
7 sions on the International Space Station impact the
8 priorities specified in section 10816 of the National
9 Aeronautics and Space Administration Authorization
10 Act of 2022 (Public Law 117–167; 51 U.S.C. 70901
11 note).

12 (5) The impact, if any, to operations of or ac-
13 tivities on the International Space Station that are
14 not related to nongovernmental missions on the
15 International Space Station.

16 (6) The extent to which any nongovernmental
17 mission on the ISS—

18 (A) conforms with section 20102 of title
19 51, United States Code;

20 (B) adheres to the requirements of section
21 50131 of title 51, United States Code; and

22 (C) is consistent with the national security
23 or foreign policy interests of the United States.

24 (7) Any other issues related to nongovern-
25 mental missions on the International Space Station

1 that the Comptroller General determines are appro-
2 priate for review as part of undertaking the report
3 in subsection (c).

4 (d) DEFINITIONS.—In this section, the terms “crew”
5 and “spaceflight participant” have the meanings given
6 such terms in section 50902 of title 51, United States
7 Code.

8 **SEC. 304. REPORT ON SUBORBITAL CREW MISSIONS.**

9 Not later than 180 days after the date of the enact-
10 ment of this Act, the Administrator shall deliver to the
11 appropriate committees of Congress a report on the costs,
12 benefits, risks, training requirements, and policy or legal
13 implications, including liability matters, of launching
14 United States Government personnel on commercial sub-
15 orbital vehicles.

16 **SEC. 305. UNITED STATES DEORBIT CAPABILITIES.**

17 (a) SENSE OF CONGRESS.—It is the sense of Con-
18 gress that—

19 (1) the International Space Station is aging
20 and eventually will need to be deorbited safely and
21 disposed of in a controlled manner; and

22 (2) to protect the safety of the public, and to
23 avoid interfering with other space operators or ob-
24 jects, NASA plans to deorbit and disposition the

1 International Space Station through a controlled at-
2 mospheric reentry over an uninhabited region.

3 (b) AUTHORIZATION.—

4 (1) The Administrator shall acquire ISS deorbit
5 capabilities from one or more United States com-
6 mercial providers.

7 (2) In carrying out paragraph (1), the Adminis-
8 trator shall, to the greatest extent practicable, not
9 reduce or deprioritize NASA activities conducted on
10 and in support of the ISS to support the acquisition
11 of United States deorbit capabilities.

12 (c) COSTS.—

13 (1) INDEPENDENT COST ESTIMATE.—Before
14 entering into an agreement for the capabilities de-
15 scribed in subsection (b), the Administrator shall ob-
16 tain an independent life-cycle cost estimate for the
17 deorbit capability and shall report the results of
18 such estimate and a five-year budget profile to the
19 appropriate committees of Congress.

20 (2) REPORT.—

21 (A) Not later than one year after the date
22 of the enactment of this Act, the Administrator
23 shall submit to the appropriate committees of
24 Congress a report detailing the Administra-
25 tion's plan for the financial, logistical, and

1 operational responsibilities associated with the
2 deorbit capability.

3 (B) Annually, the Administrator shall sub-
4 mit to the appropriate committees of Congress
5 a report, to accompany the President's budget
6 request, containing a description of the annual
7 and lifecycle costs for activities related to the
8 deorbit of the International Space Station and
9 how such costs are shared among the ISS part-
10 ners.

11 **SEC. 306. COMMERCIAL LOW-EARTH ORBIT DEVELOPMENT.**

12 (a) STRATEGY.—Not later than 180 days after the
13 date of the enactment of this Act, the Administrator, in
14 consultation with the National Space Council, shall trans-
15 mit to the appropriate committees of Congress a strategy
16 for a robust and resilient architecture to advance NASA
17 and other relevant Federal government civil research, de-
18 velopment, and operational requirements in low-Earth
19 orbit. The architecture should—

20 (1) include a mix of crewed and uncrewed plat-
21 forms;

22 (2) consider an incremental approach to achiev-
23 ing the full suite of capabilities necessary to meet
24 NASA research, development, and operational re-
25 quirements in low-Earth orbit;

1 (3) consider the requirements described in sub-
2 section (b); and

3 (4) sustain and promote United States leader-
4 ship and international partnerships in carrying out
5 low-Earth orbit activities.

6 (b) REQUIREMENTS.—Not later than 90 days after
7 the date of the enactment of this Act, the Administrator
8 shall transmit to the appropriate committees of Congress
9 and make available to relevant United States commercial
10 industry entities, a detailed account of the research, devel-
11 opment, and operational requirements for NASA activities
12 in low-Earth orbit, including any requirements that could
13 affect the design, development, instrumentation, and long-
14 term operations of future United States commercial low-
15 Earth orbit platforms and supporting capabilities. In pre-
16 paring the detailed account of research, development, and
17 operational requirements, the Administrator may consider
18 the requirements of other relevant Federal agencies.

19 (c) AUTHORIZATION.—The Administrator is author-
20 ized to enter into agreements with one or more United
21 States commercial providers to enable the development
22 and certification of, and procure capabilities related to, a
23 United States private, low-Earth orbit platform or plat-
24 forms, and to use such platforms or platforms and related
25 capabilities to achieve the goals set forth in the strategy

1 under subsection (a), to sustain the priorities described
2 in section 10816 of the National Aeronautics and Space
3 Administration Authorization Act of 2022 (Public Law
4 117–167; 51 U.S.C. 70901 note) and the activities under
5 the Human Exploration Roadmap pursuant to section
6 432(b)(2)(J) of the National Aeronautics and Space Ad-
7 ministration Transition Authorization Act of 2017 (Public
8 Law 115–10), and to meet the requirements described in
9 subsection (b).

10 (d) ANCHOR TENANCY.—No later than November 15,
11 2025, the Administrator shall provide to the appropriate
12 committees of Congress the following:

13 (1) The results of a survey and assessment of
14 the market for capabilities and services that may be
15 provided through future United States commercial
16 low-Earth orbit platforms that shall be prepared by
17 an independent entity with appropriate expertise;

18 (2) A detailed justification of compliance with
19 section 30301 of title 51, United States Code.

20 (3) A detailed certification and justification of
21 compliance with section 50503 of title 51, United
22 States Code.

23 (e) USE OF UNITED STATES LAUNCH AND REENTRY
24 SERVICES.—As a term of an agreement entered into under
25 to subsection (c), the Administrator shall include a re-

1 quirement for the use of United States commercially-pro-
2 vided launch and reentry services to support all Adminis-
3 tration activities under the agreement, in accordance with
4 section 50131 of title 51, United States Code, as applica-
5 ble.

6 (f) SAFETY.—When an agreement under subsection
7 (c) involves a government astronaut (as such term is de-
8 fined in section 50902(4) of title 51, United States Code),
9 the Administrator shall protect the safety of the govern-
10 ment astronaut by ensuring that each platform under the
11 agreement meets all applicable human rating processes,
12 certification, and safety requirements.

13 **SEC. 307. RISK OF LOSING ACCESS TO LOW-EARTH ORBIT.**

14 Not later than 270 days after the date of the enact-
15 ment of this Act, the Administrator shall submit to the
16 appropriate committees of Congress a report that evalu-
17 ates the risk posed by a potential gap in access to low-
18 Earth orbit on science and technology research and devel-
19 opment conducted by NASA and private entities. The re-
20 port shall describe the following:

21 (1) The NASA science and exploration pro-
22 grams that may be adversely affected by the lack of
23 a United States presence in low-Earth orbit.

24 (2) The effects that a gap in low-Earth orbit
25 would have on the United States' competitiveness in

1 science and technology and in the development of
2 the United States-based commercial space industry.

3 (3) Potential options and associated costs for
4 preventing such a gap, including the following:

5 (A) Implementing the strategy described in
6 section 306.

7 (B) Supporting the operation of the Inter-
8 national Space Station beyond 2030.

9 (C) Increasing investment in and accel-
10 erating development of commercial space sta-
11 tions.

12 (D) Working with international partners to
13 establish alternative means for conducting re-
14 search in low-Earth orbit.

15 **SEC. 308. MAINTENANCE OF SERVICE FOR INTERNATIONAL**
16 **SPACE STATION.**

17 (a) IN GENERAL.—Subject to appropriations for such
18 purpose, the Administrator shall maintain a flight cadence
19 necessary to support the health and safety of the Inter-
20 national Space Station crew and the full and productive
21 utilization of the International Space Station through its
22 operational lifetime, consistent with the certification date
23 of the International Space Station. In maintaining such
24 flight cadence, the Administrator shall seek to carry out
25 not less than the average annual cadence for the imme-

1 diately preceding three fiscal years of crew and cargo
2 flights on United States vehicles certified under NASA's
3 Commercial Crew and Cargo Program as of the date of
4 the enactment of this Act.

5 (b) WAIVER.—The Administrator may waive the re-
6 quirement under subsection (a) upon submission of a writ-
7 ten determination to Congress that—

8 (1) the health and safety of the International
9 Space Station requires a reduction in flights; or

10 (2) the International Space Station has con-
11 cluded its operational lifetime.

12 **SEC. 309. ORBITAL DEBRIS RESEARCH AND DEVELOPMENT.**

13 (a) SENSE OF CONGRESS.—It is the sense of Con-
14 gress that NASA's research and development activities re-
15 lated to understanding and mitigating the hazards posed
16 by orbital debris are critical to ensuring the continued safe
17 operation of NASA missions, including the safety of hu-
18 mans living and working in space, and such activities fur-
19 ther enable scientific and technological advances that can
20 be leveraged by the broader space operations community
21 to foster a sustainable space environment.

22 (b) RESEARCH AND DEVELOPMENT.—The Adminis-
23 trator shall, to the extent practicable, conduct research
24 and development to advance scientific understanding and

1 technological capabilities related to orbital debris charac-
2 terization and mitigation.

3 (c) CONSIDERATIONS.—In conducting the research
4 and development described in subsection (b), the Adminis-
5 trator may consider activities that—

6 (1) improve the characterization and modeling
7 of the space environment, including the characteriza-
8 tion and modeling of objects of both natural and an-
9 thropogenic origins that cannot be directly charac-
10 terized by ground-based measurements;

11 (2) leverage space weather research and devel-
12 opment elements within NASA’s Heliophysics pro-
13 gram, to the extent appropriate and in accordance
14 with the priorities established in the most recent
15 solar and space physics decadal survey; and

16 (3) support the application of relevant research,
17 tools, and technologies to advance orbital debris
18 characterization and mitigation and the transfer of
19 such research, tools, and technologies to stake-
20 holders, as appropriate and practicable.

21 **SEC. 310. RESTRICTION ON FEDERAL FUNDS RELATING TO**
22 **CERTAIN CHINESE SPACE AND SCIENTIFIC**
23 **ACTIVITIES.**

24 (a) IN GENERAL.—No Federal funds authorized in
25 this Act may be obligated or expended for the following:

1 (1) For the National Aeronautics and Space
2 Administration (NASA), the Office of Science and
3 Technology Policy (OSTP), or the National Space
4 Council (NSC) to develop, design, plan, promulgate,
5 implement, or execute a bilateral policy, program,
6 order, or contract of any kind to participate, collabo-
7 rate, or coordinate bilaterally in any way with China
8 or any Chinese-owned company unless such activities
9 are specifically authorized by a law enacted after the
10 date of the enactment of this Act.

11 (2) To effectuate the hosting of official Chinese
12 visitors at facilities belonging to or utilized by
13 NASA.

14 (b) EXCEPTION.—The restrictions described in sub-
15 section (a) shall not apply to activities with respect to
16 which NASA, OSTP, or NSC, after consultation with the
17 Federal Bureau of Investigation, have certified—

18 (1) pose no risk of resulting in the transfer of
19 technology, data, or other information with national
20 security or economic security implications to China
21 or a Chinese-owned company; and

22 (2) will not involve knowing interactions with
23 officials who have been determined by the United
24 States to have direct involvement with violations of
25 human rights.

1 (c) SUBMISSION.—Any certification made under sub-
2 section (b) shall be submitted to the Committee on
3 Science, Space, and Technology and the Committee on Ap-
4 propriations of the House of Representatives, the Com-
5 mittee on Commerce, Science, and Transportation and the
6 Committee on Appropriations of the Senate, and the Fed-
7 eral Bureau of Investigation, not later than 30 days prior
8 to the activity in question. Any such certification shall in-
9 clude a description of the purpose of such activity, its
10 agenda, its major participants, and its location and tim-
11 ing.

12 **TITLE IV—SPACE TECHNOLOGY**

13 **SEC. 401. SBIR PHASE II FLEXIBILITY.**

14 Section 9 of the Small Business Act (15 U.S.C. 638)
15 is amended in subsection (cc) by striking “and the Depart-
16 ment of Education” and inserting “the Department of
17 Education, and the National Aeronautics and Space Ad-
18 ministration”.

19 **SEC. 402. LUNAR POWER PURCHASE AGREEMENT PRO-** 20 **GRAM.**

21 (a) STUDY.—The Administrator may enter into an
22 arrangement with an independent entity with appropriate
23 expertise to conduct a study evaluating the feasibility of
24 using power purchase agreements to facilitate the develop-
25 ment and deployment of lunar surface power.

1 (b) CONTENTS.—The study conducted under sub-
2 section (a) may include the following:

3 (1) An identification of facilities and technical
4 capabilities needed to support lunar surface power
5 production.

6 (2) A demand forecast for lunar surface power,
7 including the following:

8 (A) Forecasted demand of both govern-
9 mental and nongovernmental users.

10 (B) To support the following:

11 (i) Near-term exploration activities.

12 (ii) Long-duration activities.

13 (3) Potential policy and legal issues associated
14 with lunar power purchase agreements between pro-
15 viders and the United States Government, inter-
16 national partners, and other private sector entities.

17 (c) COORDINATION.—In conducting the study under
18 this section, the Administrator may consult with the fol-
19 lowing:

20 (1) The Lunar Surface Innovation Consortium.

21 (2) The Department of Energy, the Depart-
22 ment of Commerce, and other Federal agencies, as
23 determined appropriate by the Administrator.

24 (3) International partners.

25 (4) Relevant private sector entities.

1 (d) REPORT.—Not later than 24 months after the
2 date of the enactment of this Act, the Administrator may
3 submit to the appropriate committees of Congress a report
4 that describes the results of the study conducted pursuant
5 to subsection (a).

6 **SEC. 403. CRYOGENIC FLUID VALVE TECHNOLOGY REVIEW.**

7 (a) SENSE OF CONGRESS.—It is the sense of Con-
8 gress that advancing cryogenic fluid valve technology
9 would support the Administration’s efforts to improve
10 cryogenic fluid management and improve space vehicle re-
11 liability and efficiency.

12 (b) TECHNOLOGY AND RESEARCH REVIEW.—Not
13 later than 90 days after the date of the enactment of this
14 Act, subject to the availability of appropriations, the Ad-
15 ministrator shall enter into an agreement with an inde-
16 pendent research and development center or other inde-
17 pendent nonprofit organization, as determined appropriate
18 by the Administrator, to conduct a review of cryogenic
19 fluid valve technology in accordance with this section. The
20 organization shall review recent advances in technologies
21 related to cryogenic fluid valve use in space applications
22 and assess opportunities to improve cryogenic fluid valve
23 technologies, including support for research and develop-
24 ment activities to advance materials engineering for cryo-
25 genic fluid valves.

1 (c) REPORT.—Not later than 18 months after the
2 date of the enactment of this Act, the organization con-
3 ducting the review shall submit to the Administrator and
4 the appropriate committees of Congress a report detailing
5 the results of the review conducted under this section.

6 **SEC. 404. LUNAR COMMUNICATIONS.**

7 (a) FINDINGS.—Congress finds the following:

8 (1) Reliable communication and navigation ca-
9 pabilities are essential for sustainable human and
10 robotic exploration of the Moon.

11 (2) Fostering the development of commercial
12 capabilities can accelerate the deployment of lunar
13 communication and navigation services.

14 (b) IN GENERAL.—The Administrator is authorized
15 to develop a robust and resilient architecture for lunar
16 communications and navigation to support the Adminis-
17 tration’s human and robotic lunar exploration activities.

18 (c) STUDY AND PLAN.—To inform the development
19 in subsection (a), the Administrator shall develop a study
20 and prepare a plan to—

21 (1) enable interoperable communications and
22 navigation services for cislunar missions;

23 (2) work with the private sector, other Federal
24 agencies, and, as appropriate, international partners
25 to establish technical standards, consistent with sec-

1 tion 12(d) of the National Technology Transfer and
2 Advancement Act of 1995 (Public Law 104–113),
3 protocols, and interface requirements for cislunar
4 communications and navigation services and sys-
5 tems;

6 (3) support NASA lunar activities;

7 (4) leverage NASA’s space technology research,
8 development, and demonstration activities related to
9 space communications and navigation; and

10 (5) evaluate the opportunities, benefits, feasi-
11 bility, and challenges of potentially using commercial
12 cislunar communication and navigation services, as
13 appropriate, by United States commercial providers.

14 **SEC. 405. CELESTIAL TIME STANDARDIZATION.**

15 (a) SENSE OF CONGRESS.—It is the sense of Con-
16 gress that—

17 (1) United States leadership of a sustained
18 presence on the Moon and in deep space exploration
19 is important for advancing science, exploration, com-
20 mercial growth, and international partnership;

21 (2) the Artemis and Moon to Mars program of
22 the National Aeronautics and Space Administration
23 (NASA) will involve governmental, commercial, aca-
24 demic, and international partners where there is a
25 need for interoperability between systems;

1 (3) the use of Coordinated Universal Time has
2 challenges when used beyond Earth at other celestial
3 bodies, due to relativistic effects;

4 (4) the United States should lead in developing
5 time standardization for the Moon and other cele-
6stial bodies other than Earth to support interoper-
7ability and safe and sustainable operations; and

8 (5) development of such standardization will ad-
9vance United States leadership in standards setting
10 for global competitiveness, and will benefit other
11 spacefaring countries and entities.

12 (b) DEVELOPMENT OF CELESTIAL TIME STANDARD-
13 IZATION.—The Administrator of NASA, in consultation
14 with the Director of the Office of Science and Technology
15 Policy, shall carry out the following:

16 (1) Enable the development of celestial time
17 standardization, including by leading the study and
18 definition of a coordinated lunar time.

19 (2) Develop a strategy to implement a coordi-
20nated lunar time that would support future oper-
21ations and infrastructure on and around the Moon.

22 (3) In carrying out paragraphs (1) and (2)—

23 (A) coordinate with relevant Federal enti-
24ties, including the Department of Commerce,
25 the Department of Defense, the Department of

1 State, and the Department of Transportation;
2 and

3 (B) consult with—

4 (i) relevant private sector entities;

5 (ii) relevant academic entities; and

6 (iii) relevant international standards
7 setting bodies.

8 (4) Incorporate the following features of a co-
9 ordinated lunar time, to the extent practicable, in
10 the development of the strategy developed pursuant
11 to paragraph (2):

12 (A) Traceability to Coordinated Universal
13 Time.

14 (B) Accuracy sufficient to support preci-
15 sion navigation and science.

16 (C) Resilience to loss of contact with
17 Earth.

18 (D) Scalability to space environments be-
19 yond the Earth-Moon system.

20 (c) REPORT.—Not later than two years after the date
21 of the enactment of this Act, the Administrator of NASA
22 shall submit to the Committee on Science, Space, and
23 Technology of the House of Representatives and the Com-
24 mittee on Commerce, Science, and Transportation of the
25 Senate a report describing the strategy developed pursu-

1 ant to subsection (b)(2), including relevant plans,
2 timelines, and resources required for the implementation
3 of a coordinated lunar time pursuant to such strategy.

4 **TITLE V—AERONAUTICS**

5 **SEC. 501. DEFINITIONS.**

6 In this title:

7 (1) **ADVANCED AIR MOBILITY; AAM.**—The terms
8 “advanced air mobility” and “AAM” mean a trans-
9 portation system that is comprised of urban air mo-
10 bility and regional air mobility using manned or un-
11 manned aircraft.

12 (2) **REGIONAL AIR MOBILITY.**—The term “re-
13 gional air mobility” means the movement of pas-
14 sengers or property by air between 2 points using an
15 airworthy aircraft that—

16 (A) has advanced technologies, such as dis-
17 tributed propulsion, vertical takeoff and land-
18 ing, powered lift, nontraditional power systems,
19 or autonomous technologies;

20 (B) has a maximum takeoff weight of
21 greater than 1,320 pounds; and

22 (C) is not urban air mobility.

23 (3) **UNMANNED AIRCRAFT SYSTEM.**—The term
24 “unmanned aircraft system” has the meanings given

1 such term in section 44801 of title 49, United
2 States Code.

3 (4) URBAN AIR MOBILITY.—The term “urban
4 air mobility” means the movement of passengers or
5 property by air between 2 points in different cities
6 or 2 points within the same city using an airworthy
7 aircraft that—

8 (A) has advanced technologies, such as dis-
9 tributed propulsion, vertical takeoff and land-
10 ing, powered lift, nontraditional power systems,
11 or autonomous technologies; and

12 (B) has a maximum takeoff weight of
13 greater than 1,320 pounds.

14 (5) UTM.—The term “UTM” means an un-
15 manned aircraft system traffic management system
16 or service.

17 **SEC. 502. EXPERIMENTAL AIRCRAFT DEMONSTRATIONS.**

18 (a) STUDY.—Not later than 1 year after the date of
19 the enactment of this Act, the Administrator, in consulta-
20 tion with industry and academia, shall conduct a study
21 of past and future administration of the experimental air-
22 craft demonstrator projects.

23 (b) FUTURE DEMONSTRATIONS.—The study under
24 subsection (a) shall identify systems, capabilities, and
25 technologies that could be viable candidates for matura-

1 tion and demonstration through the development of an ex-
2 perimental aircraft demonstrator. Such systems, capabili-
3 ties, and technologies may include technological advance-
4 ments related to structures, aerodynamics, propulsion,
5 controls, and autonomous capabilities. The study shall in-
6 clude a description of criteria and performance metrics
7 used to determine the readiness of a system, capability,
8 or technology to be demonstrated on a future experimental
9 aircraft demonstrator.

10 (c) LESSONS LEARNED.—The study under subsection
11 (a) also shall include an assessment of lessons learned
12 from the Administration’s previous experimental aircraft
13 demonstration projects over the last decade, including the
14 projects set forth under section 10831 of the National
15 Aeronautics and Space Administration Authorization Act
16 of 2022 (Public Law 117–167). This assessment shall in-
17 clude—

18 (1) a quantitative assessment of each experi-
19 mental aircraft demonstration project’s ability to
20 meet cost, schedule and performance goals, as de-
21 fined at the time of project confirmation;

22 (2) the extent to which the project’s objectives
23 or performance goals were changed or descoped;

24 (3) the extent to which the system, capability,
25 or technology that was the subject of the project was

1 matured as a result of its demonstration on an ex-
2 perimental aircraft demonstrator; and

3 (4) the extent to which the project has contrib-
4 uted to advancing the capabilities of and innovation
5 in the United States aircraft and aviation industries.

6 **SEC. 503. HYPERSONIC RESEARCH.**

7 (a) SENSE OF CONGRESS.—It is the sense of Con-
8 gress that—

9 (1) basic and applied hypersonic research—

10 (A) is critical for enabling the development
11 of advanced high-speed aeronautical and space
12 systems; and

13 (B) can improve understanding of tech-
14 nical challenges related to high-speed and reus-
15 able vehicle technologies, including those related
16 to propulsion, noise, advanced materials, and
17 entry, descent, and landing operations;

18 (2) investments in hypersonic research are crit-
19 ical to sustaining United States global leadership in
20 space and aeronautics; and

21 (3) NASA efforts to study hypersonic research
22 should complement research supported by the De-
23 partment of Defense and, when appropriate, be con-
24 ducted in partnership with universities and industry.

1 (b) HYPERSONIC RESEARCH.—The Administrator, in
2 coordination with the Administrator of the Federal Avia-
3 tion Administration and the Secretary of the Department
4 of Defense, and in consultation with industry and aca-
5 demia, shall continue to carry out basic and applied
6 hypersonic research.

7 (c) HYPERSONIC RESEARCH ROADMAP.—Not later
8 than 180 days after the date of the enactment of this Act,
9 the Administrator, in consultation with the Administrator
10 of the Federal Aviation Administration and the Secretary
11 of the Department of Defense, and with industry and aca-
12 demic institutions, shall update the hypersonic research
13 roadmap required under section 603 of the National Aero-
14 nautics and Space Administration Transition Authoriza-
15 tion Act of 2017 (Public Law 115–10; 51 U.S.C. 20302
16 note). In updating the research roadmap, the Adminis-
17 trator may consider advancements in—

18 (1) system level design, analysis, and validation
19 of hypersonic aircraft technologies;

20 (2) propulsion capabilities and technologies;

21 (3) vehicle technologies to include vehicle flow
22 physics and vehicle thermal management associated
23 with aerodynamic heating;

24 (4) advanced materials, including materials ca-
25 pable of withstanding high temperatures and dem-

1 onstrating durable materials, and efforts to create
2 models and simulate use of such materials; and

3 (5) other areas of hypersonic research as deter-
4 mined appropriate by the Administrator.

5 (d) REPORT AND BRIEFING.—Not later than 1 year
6 after the date of the enactment of this Act, the Adminis-
7 trator shall—

8 (1) transmit the updated research roadmap
9 under subsection (c) to the appropriate committees
10 of Congress; and

11 (2) provide a briefing on the research conducted
12 under subsection (b), including how such research
13 aligns with the updated research roadmap under
14 subsection (c).

15 **SEC. 504. ADVANCED MATERIALS AND MANUFACTURING**
16 **TECHNOLOGY.**

17 Not later than 1 year after the date of the enactment
18 of this Act, the Administrator shall transmit a report to
19 the appropriate committees of Congress on the status of
20 NASA activities relating to section 10831(e), the Ad-
21 vanced Materials and Manufacturing Technology Pro-
22 gram, and section 10831(f), regarding relevant Research
23 Partnerships, as set forth in the National Aeronautics and
24 Space Administration Authorization Act of 2022 (Public
25 Law 117–167).

1 **SEC. 505. UNMANNED AIRCRAFT SYSTEM AND ADVANCED**
2 **AIR MOBILITY.**

3 (a) FINDING.—Congress finds that research and de-
4 velopment related to autonomous aviation is vital to en-
5 sure United States competitiveness as the National Air-
6 space System evolves from trajectory-based operations to
7 collaborative and highly automated operations.

8 (b) COLLABORATION.—The Administrator shall, in
9 collaboration with the Administrator of Federal Aviation
10 Administration, the heads of other relevant Federal agen-
11 cies, and appropriate representatives of academia and in-
12 dustry, continue its research on unmanned aircraft sys-
13 tems and advanced air mobility, including research related
14 to UTM and autonomous capabilities, as practicable.

15 (c) BRIEF.—Not later than 18 months after the date
16 of the enactment of this Act, the Administrator shall brief
17 the appropriate committees of Congress on the progress
18 of the research under subsection (b).

19 **SEC. 506. ADVANCED CAPABILITIES FOR EMERGENCY RE-**
20 **SPONSE OPERATIONS.**

21 (a) IN GENERAL.—The Administrator shall leverage
22 NASA-developed tools and technologies to conduct re-
23 search and development activities under the Advanced Ca-
24 pabilities for Emergency Response Operations (ACERO)
25 project, or appropriate successor project or projects, to im-
26 prove aerial responses to wildfires.

1 (b) GOALS.—The research and development activities
2 conducted under subsection (a) may include the following:

3 (1) Advanced aircraft technologies and airspace
4 management efforts to assist in the management,
5 deconfliction, and coordination of aerial assets dur-
6 ing wildfire response efforts.

7 (2) Information sharing and real-time data ex-
8 change for wildfire response teams.

9 (3) Development of an interoperable platform to
10 provide situational awareness of aerial assets during
11 wildfire response.

12 (4) Establishment of a multi-agency concept of
13 operations, which may involve Federal, State, and
14 local government agencies, to enable coordination of
15 aerial activities for wildfire response.

16 (c) COLLABORATION.—In carrying out this section,
17 the Administrator—

18 (1) may coordinate and collaborate with other
19 Federal, State, and local government agencies, re-
20 gional organizations, and commercial partners and
21 academic institutions involved in wildfire manage-
22 ment; and

23 (2) shall, to the maximum extent practicable,
24 consult with the heads of other Federal departments
25 and agencies to avoid duplication of activities.

1 (d) PROHIBITION.—

2 (1) IN GENERAL.—Except as provided in this
3 subsection, the Administrator may not procure an
4 unmanned aircraft system to conduct activities de-
5 scribed in this section if such unmanned aircraft sys-
6 tem is manufactured or assembled by a covered for-
7 eign entity.

8 (2) EXEMPTION.—The Administrator may
9 waive the prohibition under paragraph (1) on a case-
10 by-case basis if the Administrator—

11 (A) determines that the procurement of an
12 unmanned aircraft system is—

13 (i) in the national interest of the
14 United States; and

15 (ii) necessary for the sole purpose of
16 improving aerial responses to wildfires; and

17 (B) notifies the Committee on Science,
18 Space, and Technology of the House of Rep-
19 resentatives and the Committee on Commerce,
20 Science, and Transportation of the Senate not
21 later than 30 days after a determination in the
22 affirmative under subparagraph (A).

23 (e) ANNUAL REPORTS.—Not later than one year
24 after the date of the enactment of this Act and annually
25 thereafter until December 31, 2029, the Administrator

1 shall submit to the Committee on Science, Space and
2 Technology of the House of Representatives and the Com-
3 mittee on Commerce, Science, and Transportation of the
4 Senate a report describing the activities, including results,
5 carried out pursuant to this section 2. Each such report,
6 at minimum, shall contain the following:

7 (1) A description of any research and develop-
8 ment activities.

9 (2) A description of the Administrator’s activi-
10 ties pursuant to subsection (c).

11 (3) An identification of any topics related to
12 improvement of aerial responses to wildfires that
13 could benefit from further research.

14 (4) A description of any continuing efforts
15 under this section.

16 (5) Any other information determined appro-
17 priate by the Administrator.

18 (f) DEFINITION.—In this section:

19 (1) COVERED FOREIGN ENTITY.—The term
20 “covered foreign entity” has the meaning given such
21 term in section 1832 of the National Defense Au-
22 thorization Act for Fiscal Year 2024 (Public Law
23 118–31).

24 (2) UNMANNED AIRCRAFT SYSTEM.—The term
25 “unmanned aircraft system” has the meaning given

1 such term in section 44801 of title 49, United
2 States Code.

3 **SEC. 507. HYDROGEN AVIATION.**

4 (a) IN GENERAL.—Subject to the availability of ap-
5 propriations for such purpose, and taking into consider-
6 ation the strategy developed under and research conducted
7 pursuant to section 1019 of the FAA Reauthorization Act
8 of 2024 (Public Law 118–63), the Administrator may
9 carry out research on emerging technologies related to hy-
10 drogen aviation.

11 (b) REPORT.—Not later than 18 months after the
12 date of the enactment of this Act, the Administrator shall
13 submit to the appropriate committees of Congress a report
14 on the findings of the research under subsection (a).

15 **SEC. 508. HIGH-PERFORMANCE CHASE AIRCRAFT.**

16 (a) SENSE OF CONGRESS.—It is the sense of Con-
17 gress that—

18 (1) NASA programs benefit from and rely upon
19 high-performance chase aircraft for providing re-
20 search and mission support; and

21 (2) NASA currently faces maintenance chal-
22 lenges related to its aging high-performance aircraft
23 fleet, which is resulting in increased program costs.

24 (b) BRIEFING.—Not later than 60 days after the date
25 of the enactment of this Act and biannually thereafter,

1 the Administrator shall provide to the appropriate com-
2 mittees of Congress a briefing on the strategy of NASA
3 relating to the following:

4 (1) Collaboration with the Department of De-
5 fense on efforts for research and flight asset sharing
6 to support NASA's research mission support and
7 pilot training requirements.

8 (2) Efforts to seek aircraft parts and engines to
9 keep NASA's current fleet of chase aircraft oper-
10 ational, including potential use of 3D additive manu-
11 factured parts.

12 (3) Strategies for acquiring or using through
13 loan, sharing, or other agreements, as appropriate,
14 Department of Defense aircraft to support NASA's
15 research and mission support activities, as required.

16 **SEC. 509. COLLABORATION WITH ACADEMIA.**

17 It is the sense of Congress that—

18 (1) colleges and universities are hubs of re-
19 search and innovation, with expertise in various
20 fields of science and aeronautics;

21 (2) collaborating with academia allows NASA to
22 access cutting-edge research and expertise that can
23 further enable advancements in aeronautics research
24 and technology and address complex aeronautical
25 challenges;

1 (3) a cutting-edge civil aeronautics research and
2 development program can inspire the next genera-
3 tion to pursue education and careers in science,
4 technology, engineering, and mathematics, including
5 aeronautics; and

6 (4) opportunities for students to participate in
7 NASA-supported academic research and develop-
8 ment projects, such as the University Leadership
9 Initiative, the University Students Research Chal-
10 lenge, and related aeronautic projects and competi-
11 tions, contributes to training the next generation
12 and developing the aeronautics workforce to support
13 continued United States leadership and economic
14 growth in civil aeronautics and aviation.

15 **SEC. 510. NATIONAL STUDENT UNMANNED AIRCRAFT SYS-**
16 **TEMS COMPETITION PROGRAM.**

17 (a) **IN GENERAL.**—The Administrator shall lead a
18 national pilot program to carry out unmanned aircraft sys-
19 tems technology competitions for students at the high
20 school and undergraduate level (in this section referred to
21 as “competitions”) in which students shall compete to de-
22 sign, create, and demonstrate an unmanned aircraft sys-
23 tem.

24 (b) **COMPETITION ADMINISTRATION.**—The Adminis-
25 trator shall award, on a merit-reviewed, competitive basis,

1 a grant to a nonprofit organization, an institution of high-
2 er education, or a consortium thereof, to administer the
3 pilot program under subsection (a) (in this section re-
4 ferred to as the “competition administrator”).

5 (c) AWARD CRITERIA.—The Administrator shall en-
6 sure that the award decision made under subsection (b)
7 take into account the extent to which the eligible entity—

8 (1) identifies a plan for engaging eligible insti-
9 tutions from diverse geographic areas, including
10 poor, rural, and Tribal communities; and

11 (2) identifies a plan for connecting science,
12 technology, engineering, and medicine (STEM) ac-
13 tivities to Administration missions and centers.

14 (d) COMPETITION ADMINISTRATOR RESPONSIBIL-
15 ITIES.—In carrying out the pilot program, the competition
16 administrator shall be responsible for the following:

17 (1) Awarding grants to institutions of higher
18 education or nonprofit organizations (or a consor-
19 tium thereof) on a merit-reviewed, competitive basis
20 to host individual competitions.

21 (2) Developing STEM curriculum to be utilized
22 by the competition awardees to help students make
23 the connection to the design, construction, and dem-
24 onstration of unmanned aircraft systems.

1 (3) Developing curriculum to assist students in
2 making real-world connections to STEM content and
3 educate students on the relevance and significance of
4 STEM careers.

5 (4) Ensuring competition awardees are sup-
6 porting the activities specified in subsection (f).

7 (5) Conducting performance evaluations of com-
8 petitions, including data collection, on the following:

9 (A) The number of students engaged.

10 (B) Geographic and institutional diversity
11 of participating schools and institutions of high-
12 er education.

13 (6) Any other activities the Administrator finds
14 necessary to ensure the competitions are successful.

15 (e) **ADDITIONAL CONSIDERATIONS.**—In awarding
16 grants in subsection (d), the competition administrator
17 shall consider applications that include a partnership with
18 that State’s space grant program under chapter 403 of
19 title 51, United States Code.

20 (f) **PERMITTED ACTIVITIES.**—In carrying out the
21 pilot program under subsection (a), the competition ad-
22 ministrator shall ensure competitions occurring at both
23 the high school and undergraduate levels—

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

1 (2) allow students to compete with other teams
2 in the performance of the constructed unmanned air-
3 craft system;

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

6 (4) connect relevant STEM curriculum to the
7 design, construction, and demonstration of un-
8 manned aircraft systems;

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

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

16 (7) encourage, to the greatest extent prac-
17 ticable, the participation of students from groups
18 historically underrepresented in STEM.

19 (g) REPORT TO CONGRESS.—Not later than six
20 months after the end of the pilot program under sub-
21 section (a), the Administrator shall submit to the appro-
22 priate committees of Congress a report describing the ac-
23 complishments, lessons learned, any challenges in the im-
24 plementation of the pilot program, and recommendations
25 for whether to continue the pilot program.

1 (h) DEFINITION.—In this section, the term “eligible
2 institution” means—

- 3 (1) an institution of higher education;
- 4 (2) a nonprofit research institution;
- 5 (3) a high school; or
- 6 (4) a consortium of 2 or more entities described
7 in any of paragraphs (1) through (3).

8 **SEC. 511. DECADAL SURVEY FOR NATIONAL AERONAUTICS**
9 **RESEARCH AND PRIORITIES REVIEW.**

10 (a) FINDING.—Congress finds the following:

11 (1) Engaging the science and engineering com-
12 munities, along with industry, through the develop-
13 ment of a National Academies of Science, Engineer-
14 ing, and Medicine decadal survey in aeronautics re-
15 search and development can provide a science and
16 engineering community consensus on key research
17 and development priorities in national civil aero-
18 nautics programs.

19 (2) A decadal survey entails a comprehensive
20 review of and strategy and priorities for civil na-
21 tional aeronautics research and development and
22 prioritizes for the next decade.

23 (3) A decadal survey for civil aeronautics re-
24 search and development can serve as a guiding
25 framework for strategic planning and resource allo-

1 cation in the field of civil aeronautics for the coming
2 decade.

3 (b) STUDY.—The Administrator in consultation with
4 the heads of other relevant Federal Government agencies
5 and in accordance with section 20305 of title 51, United
6 States Code, shall seek to enter into an arrangement with
7 the National Academies of Sciences, Engineering, and
8 Medicine (in this section referred to as the “National
9 Academies”) to conduct a decadal survey of civil aero-
10 nautics research and development for the 2025—2035
11 decade. The survey shall recommend research priorities to
12 sustain United States leadership in civil aeronautics re-
13 search and development and support a safe and sustain-
14 able future for aviation. The survey may also include rec-
15 ommendations related to the dissemination and transition
16 of such research and development to the United States
17 commercial aviation and aircraft industries, to enabling
18 innovation, and to ensuring a world-class workforce for
19 aeronautics research and development and related United
20 States commercial industries and activities.

21 (c) TRANSMITTAL.—Not later than 2 years after the
22 date of enactment of this Act, the Administrator shall sub-
23 mit to the Committee on Science, Space, and Technology
24 of the House of Representatives and the Committee on

1 Commerce, Science, and Transportation of the Senate the
2 results of such survey, including any recommendations.

3 **SEC. 512. MAKING ADVANCEMENTS IN COMMERCIAL**
4 **HYPersonICS.**

5 (a) IN GENERAL.—In conducting the hypersonics re-
6 search in section 40112(d) of title 51, United States Code,
7 the Administrator may establish the Making Advance-
8 ments in Commercial Hypersonics Program (in this sec-
9 tion referred to as the “Program”), which shall facilitate
10 opportunities for testing of high-speed aircraft and other
11 technologies that advance scientific research and tech-
12 nology development related to hypersonic aircraft.

13 (b) LIMITATION.—The Program under subsection (a)
14 shall not fund the development of technologies that are
15 supported by such testing opportunities.

16 (c) PLAN.—Not later than 60 days after the date of
17 the enactment of this Act, the Administrator, acting
18 through the Aeronautics Research Mission Directorate,
19 shall develop a strategic plan for activities under sub-
20 section (a) that aligns with the research roadmap under
21 section 503 of this Act.

22 (d) COORDINATION, CONSULTATION AND COLLABO-
23 RATION.—

24 (1) The Administrator shall ensure coordination
25 between the Aeronautics Research Mission Direc-

1 torate and other Mission Directorates, as appro-
2 priate, to identify technologies eligible for testing op-
3 portunities under the Program.

4 (2) The Administrator shall consult and seek to
5 collaborate with, as appropriate, with the Secretary
6 of Defense and the Administrator of the Federal
7 Aviation Administration on activities related to the
8 Program, including development, testing, and eval-
9 uation of high-speed aircraft and related tech-
10 nologies.

11 (e) REPORT.—The Administrator shall submit to the
12 appropriate committees of Congress, and the Committee
13 on Armed Services of the House of Representatives and
14 the Committee on Armed Services of the Senate—

15 (1) not later than 80 days after the date of the
16 enactment of this section, a report that—

17 (A) describes activities of the program es-
18 tablished under subsection (a); and

19 (B) includes the strategic plan produced
20 under subsection (c); and

21 (2) not later than 1 year after the date of the
22 enactment of this Act, and annually thereafter, a re-
23 port describing progress in carrying out the pro-
24 gram, including the number and type of testing op-

1 portunities executed in the previous fiscal year and
2 planned for the upcoming fiscal year.

3 (f) RESEARCH SECURITY.—Nothing under this sec-
4 tion authorizes the Administrator to develop, implement,
5 or execute an agreement related to technologies under this
6 section with any entity of concern, a foreign business enti-
7 ty, or a foreign country of concern.

8 (g) DEFINITIONS.—In this section—

9 (1) ENTITY OF CONCERN.—the term “entity of
10 concern” has the meaning given such term in section
11 10114 of the Research and Development, Competi-
12 tion, and Innovation Act (Public Law 117–167; 42
13 U.S.C. 18912).

14 (2) FOREIGN BUSINESS ENTITY.—The term
15 “foreign business entity” means an entity that is
16 majority-owned or majority-controlled (as such term
17 is defined in section 800.208 of title 31, Code of
18 Federal Regulations, or a successor regulation), or
19 minority owned greater than 25 percent by—

20 (A) any governmental organization of a
21 foreign country of concern; or

22 (B) any other entity that is—

23 (i) known to be owned or controlled
24 by any governmental organization of a for-
25 eign country of concern; or

1 (ii) organized under, or otherwise sub-
2 ject to, the laws of a foreign country of
3 concern.

4 (3) FOREIGN COUNTRY OF CONCERN.—The
5 term “foreign country of concern” has the meaning
6 given such term in section 9901 of title XCIX of di-
7 vision H of the William M. (Mac) Thornberry Na-
8 tional Defense Authorization Act for Fiscal Year
9 2021 (15 U.S.C. 4651).

10 (4) HIGH-SPEED AIRCRAFT.—The term “high-
11 speed aircraft” has the meaning given such term in
12 section 1009 of the Federal Aviation Reauthoriza-
13 tion Act of 2024 (Public Law 118–63).

14 **TITLE VI—SCIENCE**

15 **SEC. 601. MAINTAINING A BALANCED SCIENCE PORTFOLIO.**

16 (a) SENSE OF CONGRESS.—Congress reaffirms the
17 sense of Congress that—

18 (1) a balanced and adequately funded set of ac-
19 tivities consisting of research and analysis grant pro-
20 grams, technology development, suborbital research
21 activities, and small, medium, and large space mis-
22 sions, contributes to a robust and productive science
23 program and serves as a catalyst for innovation and
24 discovery; and

1 (2) the Administrator should set science prior-
 2 ities by following the recommendations and guidance
 3 provided by the scientific community through the
 4 National Academies of Sciences, Engineering, and
 5 Medicine decadal surveys.

6 (b) **POLICY REAFFIRMATION.**—Congress reaffirms
 7 the policy of the United States set forth in section 501(c)
 8 of the National Aeronautics and Space Administration
 9 Transition Authorization Act of 2017 (Public Law 115–
 10 10; 51 U.S.C. 20302 note), which states, “It is the policy
 11 of the United States to ensure, to the extent practicable,
 12 a steady cadence of large, medium, and small science mis-
 13 sions”.

14 **SEC. 602. IMPLEMENTATION OF SCIENCE MISSION COST-**
 15 **CAPS.**

16 (a) **SENSE OF CONGRESS.**—It is the sense of Con-
 17 gress that—

18 (1) NASA science missions address compelling
 19 scientific questions prioritized by the National Acad-
 20 emies decadal surveys, and often such missions ex-
 21 ceed expectations in terms of performance, longevity,
 22 and scientific impact;

23 (2) the Administrator should continue to pursue
 24 an ambitious science program while also seeking to
 25 avoid excessive cost growth that has the potential to

1 affect the balance across the Science portfolio and
2 within the Science Divisions;

3 (3) audits by the NASA Inspector General and
4 the Government Accountability Office have reported
5 that early cost estimates for missions in the prelimi-
6 nary phases of conception and development are im-
7 mature and unreliable, and the cost of a mission
8 typically is not well-understood until the project is
9 further along in the development process;

10 (4) cost growth of a mission beyond its early
11 cost estimates is a challenge for budget planning
12 and has the potential to affect other missions in the
13 Science Mission Directorate portfolio, including
14 through delays to future mission solicitations; and

15 (5) relying on early cost estimates made prior
16 to preliminary design review for science missions
17 which then experience such cost growth may
18 disincentivize program and cost discipline moving
19 forward.

20 (b) REPORT.—Not later than 12 months after the
21 date of the enactment of this Act, the Comptroller General
22 shall transmit to the appropriate committees of Congress
23 a review of NASA practices related to establishment of
24 and compliance with cost caps of competitively-selected,

1 principal investigator-led science missions. The review
2 shall—

3 (1) assess current cost cap values and deter-
4 mine whether existing cost-cap amounts are appro-
5 priate for different classes of missions;

6 (2) consider the effectiveness of cost caps in
7 maintaining a varied and balanced portfolio of mis-
8 sion types within the Science Mission Directorate;

9 (3) describe the information NASA requires as
10 part of a proposal submission related to project cost
11 estimates and proposal compliance with cost caps,
12 and assess whether such required information pro-
13 vides sufficient insight or confidence in the esti-
14 mates;

15 (4) consider NASA processes for assessing pro-
16 posed cost estimates and the accuracy of such as-
17 sessments for past competitively-selected, principal
18 investigator-led science missions; and

19 (5) for the period starting on January 1, 2000
20 and ending on the date of the enactment of this
21 Act—

22 (A) a list of—

23 (i) competitively-selected, principal in-
24 vestigator-led science missions for which

1 costs have exceeded the associated cost
2 cap; and

3 (ii) reason the mission costs exceeded
4 the cost-cap;

5 (B) an assessment of NASA's role in pre-
6 dicting, preventing, or managing competitively-
7 selected, principal investigator-led science mis-
8 sion cost increases; and

9 (C) a description of the impact of in-
10 creased competitively-selected, principal investi-
11 gator-led science mission costs beyond the cost
12 caps on—

13 (i) the missions for which the cost cap
14 has been breached; and

15 (ii) other missions within the applica-
16 ble division and within the Science Mission
17 Directorate.

18 **SEC. 603. REEXAMINATION OF DECADAL SURVEYS.**

19 Title 51, United States Code, is amended in section
20 20305(c) by inserting “, significant changes to the NASA
21 budget” after “growth”.

22 **SEC. 604. LANDSAT.**

23 Not later than 180 days after the date of enactment
24 of this Act, the Administrator shall transmit a report to
25 the appropriate committees of Congress describing—

1 (1) the Administrator’s efforts to comply with
2 section 60134 of title 51, United States Code;

3 (2) aspects of Landsat NEXT or any other
4 Landsat observations that—

5 (A) could be provided by private sector
6 data-buys or service procurements; and

7 (B) could—

8 (i) meet associated science require-
9 ments while maintaining or exceeding the
10 quality, integrity, and continuity of the
11 Landsat observational capabilities and per-
12 formance, including requirements nec-
13 essary to ensure high-quality calibrated
14 data continuity and traceability with the
15 50-year Landsat data record; and

16 (ii) comply with nondiscriminatory
17 availability of unenhanced data and public
18 archiving of data pursuant to section
19 60141 and 60142 of title 51, United
20 States Code, and all other relevant federal
21 laws, regulations, and policies related to
22 open science and data accessibility;

23 (3) any potential tradeoffs or other impacts of
24 subparagraphs (A) or (B) that could reduce the ben-
25 efit of Landsat data for scientific and applied uses

1 or reduce the Federal Government’s ability to make
2 such data available for the widest possible use; and
3 (4) recommendations and opportunities for the
4 Federal Government to mitigate potential tradeoffs
5 or impacts identified under paragraph (3) or to oth-
6 erwise facilitate private sector data-buys or service
7 procurements.

8 **SEC. 605. PRIVATE EARTH OBSERVATION DATA.**

9 (a) AMENDMENTS.—Section 702 of the National Aer-
10 onautics and Space Administration Authorization Act of
11 2010 (42 U.S.C. 18371) is amended—

12 (1) by striking “The Director of OSTP” and
13 inserting the following:

14 “(a) IN GENERAL.—The Director of OSTP”; and

15 (2) by adding at the end the following:

16 “(b) CONSIDERATIONS.—In updating the civil Earth
17 observation strategic implementation plan pursuant to
18 subsection (a), the Director of the Office of Science and
19 Technology Policy shall consider commercial Earth obser-
20 vation data, as appropriate, that can be purchased or
21 accessed by the Federal Government to meet Earth obser-
22 vation requirements.”.

23 (b) GOVERNMENT ACCOUNTABILITY OFFICE RE-
24 PORT.—Not later than 12 months after the release of the
25 next civil Earth observation strategic implementation plan

1 update under section 702(a) of the National Aeronautics
2 and Space Administration Authorization Act of 2010 (42
3 U.S.C. 18371(a)), the Comptroller General shall report to
4 the appropriate committees of Congress an assessment of
5 the Director of the Office of Science and Technology Pol-
6 icy's implementation of section 702(b) of the National
7 Aeronautics and Space Administration Authorization Act
8 of 2010 (42 U.S.C. 18371(b)), as amended.

9 **SEC. 606. COMMERCIAL SATELLITE DATA.**

10 (a) FINDINGS.—Congress makes the following find-
11 ings:

12 (1) Section 60501 of title 51, United States
13 Code, states that the goal for the Earth Science pro-
14 gram of NASA shall be to pursue a program of
15 Earth observations, research, and applications activi-
16 ties to better understand the Earth, how it supports
17 life, and how human activities affect its ability to do
18 so in the future.

19 (2) Section 50115 of title 51, United States
20 Code, states that the Administrator of NASA shall,
21 to the extent possible and while satisfying the sci-
22 entific or educational requirements of NASA, and
23 where appropriate, of other Federal agencies and
24 scientific researchers, acquire, where cost effective,
25 space-based and airborne commercial Earth remote

1 sensing data, services, distribution, and applications
2 from a commercial provider.

3 (3) The Administrator of NASA established the
4 Commercial SmallSat Data Acquisition Pilot Pro-
5 gram in 2019 to identify, validate, and acquire from
6 commercial sources data that support the Earth
7 science research and application goals.

8 (4) The Administrator of NASA has—

9 (A) determined that the pilot program de-
10 scribed in paragraph (3) has been a success, as
11 described in the final evaluation entitled “Com-
12 mercial SmallSat Data Acquisition Program
13 Pilot Evaluation Report” issued in 2020;

14 (B) established a formal process for evalu-
15 ating and onboarding new commercial vendors
16 in such pilot program;

17 (C) increased the number of commercial
18 vendors and commercial data products available
19 through such pilot program; and

20 (D) expanded procurement arrangements
21 with commercial vendors to broaden user access
22 to provide commercial Earth remote sensing
23 data and imagery to federally funded research-
24 ers.

1 (b) COMMERCIAL SATELLITE DATA ACQUISITION
2 PROGRAM.—

3 (1) IN GENERAL.—Chapter 603 of title 51,
4 United States Code, is amended by adding at the
5 end the following:

6 **“§ 60307. Commercial satellite data acquisition pro-**
7 **gram**

8 “(a) IN GENERAL.—The Administrator shall estab-
9 lish within the Earth Science Division of the Science Mis-
10 sion Directorate a program to acquire and disseminate
11 cost-effective and appropriate commercial Earth remote
12 sensing data and imagery in order to satisfy the scientific,
13 operational, and educational requirements of the Adminis-
14 tration, and where appropriate, of other Federal agencies
15 and scientific researchers to augment or complement the
16 suite of Earth observations acquired by the Administra-
17 tion, other United States Government agencies, and inter-
18 national partners.

19 “(b) DATA PUBLICATION AND TRANSPARENCY.—The
20 terms and conditions of commercial Earth remote sensing
21 data and imagery acquisitions under the program de-
22 scribed in subsection (a) shall not prevent—

23 “(1) the publication of commercial data or im-
24 agery for scientific purposes; or

1 “(2) the publication of information that is de-
2 rived from, incorporates, or enhances the original
3 commercial data or imagery of a vendor.

4 “(c) AUTHORIZATION.—In carrying out the program
5 under this section, the Administrator may—

6 “(1) procure the commercial Earth remote
7 sensing data and imagery from commercial vendors
8 to advance scientific research and applications in ac-
9 cordance with subsection (a); and

10 “(2) establish or modify end-use license terms
11 and conditions to allow for the widest-possible use of
12 procured commercial Earth remote sensing data and
13 imagery by individuals other than NASA-funded
14 users, consistent with the goals of the program.

15 “(d) UNITED STATES VENDORS.—Commercial Earth
16 remote sensing data and imagery referred to in sub-
17 sections (a) and (c) shall, to the maximum extent prac-
18 ticable, be procured from United States vendors.

19 “(e) REPORT.—Not later than 180 days after the
20 date of the enactment of this section and annually there-
21 after, the Administrator shall submit to the Committee on
22 Commerce, Science, and Transportation of the Senate and
23 the Committee on Science, Space, and Technology of the
24 House of Representatives a report that includes the fol-
25 lowing information regarding the agreements, vendors, li-

1 cense terms, and uses of commercial Earth remote sensing
2 data and imagery under this section:

3 “(1)(A) In the case of the initial report, a list
4 of all agreements that are providing commercial
5 Earth remote sensing data and imagery to NASA as
6 of the date of the report.

7 “(B) For each subsequent report, a list of all
8 agreements that have provided commercial Earth re-
9 mote sensing data and imagery to NASA during the
10 reporting period.

11 “(2) A description of the end-use license terms
12 and conditions for each such vendor.

13 “(3) A description of the manner in which each
14 such agreement is advancing scientific research and
15 applications, including priorities recommended by
16 the National Academies of Sciences, Engineering,
17 and Medicine decadal surveys.

18 “(4) Information specifying whether the Admin-
19 istrator has entered into an agreement with a com-
20 mercial vendor or a Federal agency that permits the
21 use of data and imagery by Federal Government em-
22 ployees, contractors, or non-Federal users.”.

23 (2) CLERICAL AMENDMENT.—The table of con-
24 tents for chapter 603 of title 51, United States

1 Code, is amended by adding at the end the following
2 new item:

“60307. Commercial Satellite Data Acquisition Program.”.

3 **SEC. 607. GREENHOUSE GAS EMISSION MEASUREMENTS.**

4 (a) SENSE OF CONGRESS.—It is the sense of Con-
5 gress that—

6 (1) observation and measurement of greenhouse
7 gases such as carbon dioxide and methane are of
8 critical importance to understand the sources of
9 these emissions;

10 (2) additional tools can improve the precise de-
11 tection of methane leaks from natural gas lines and
12 production facilities to reduce economic losses and to
13 reduce unintentional release of this potent green-
14 house gas;

15 (3) observation of such gases can be conducted
16 with a combination of space-based, airborne, and
17 ground-based instruments;

18 (4) in 2022, NASA cancelled the Geostationary
19 Carbon Cycle Observatory, a competitively-selected,
20 Principal Investigator-led instrument under develop-
21 ment that is designed to make space-based observa-
22 tions of greenhouse gases, including carbon dioxide,
23 carbon monoxide, and methane, as well as vegetation
24 health over the western hemisphere from geo-
25 synchronous orbit; and

1 (5) in 2023, the Geostationary Carbon Cycle
2 Observatory PI-led project team delivered an
3 unvalidated instrument assembly and flight spares to
4 NASA as part of the project closeout activities.

5 (b) **HARDWARE.**—

6 (1) The Administrator shall assess the hard-
7 ware and, to the maximum extent practicable, seek
8 to validate the instrument assembly delivered to the
9 Administration under the contract for the develop-
10 ment of GeoCarb, which shall include an assessment
11 of scientific capabilities of the delivered hardware,
12 including potential repurposed uses or science con-
13 tributions.

14 (2) The Administrator, within 6 months of the
15 date of the enactment of this Act, shall provide a re-
16 port to the appropriate committees of Congress re-
17 garding the results of the assessment conducted pur-
18 suant to paragraph (1) and if appropriate based on
19 the assessment, a list of potential launch opportuni-
20 ties, including cost and schedule associated with
21 such opportunities.

22 (c) **STRATEGY.**—

23 (1) **IN GENERAL.**—Not later than 90 days after
24 the date of the enactment of this Act, the Adminis-
25 trator, in consultation with the National Oceanic

1 and Atmospheric Administration, the National Insti-
2 tute of Standards and Technology, and other rel-
3 evant agencies, shall enter into an agreement with
4 the National Academies of Sciences, Engineering,
5 and Medicine to develop a science-based strategy to
6 assess and evaluate the use of present and future
7 greenhouse gas monitoring and detection capabili-
8 ties, including ground-based, airborne, and space-
9 based sensors and integration of data relating to
10 such monitoring and detection from other indicators,
11 to detect large methane emission events (commonly
12 referred to as “methane super-emitters”).

13 (2) REQUIREMENTS.—The strategy described in
14 subsection (a) shall include the following elements:

15 (A) Development of a proposed definition
16 for the term “methane super-emitter”.

17 (B) Examination of whether and how cur-
18 rent and planned Federal greenhouse gas moni-
19 toring and detection capabilities may be lever-
20 aged to monitor and detect methane super-
21 emitters, and identify key gaps in such capabili-
22 ties.

23 (C) Examination of the effectiveness of the
24 U.S. Greenhouse Gas Center and Greenhouse
25 Gas Monitoring and Measurement Interagency

1 Working Group in facilitating interagency col-
2 laboration for greenhouse gas monitoring and
3 detection, data standards, stewardship, and
4 data integration, including activities related to
5 monitoring and detecting methane super-
6 emitters.

7 (D) Examination of actions taken by Fed-
8 eral agencies and departments in response to
9 the National Strategy to Advance an Integrated
10 U.S. Greenhouse Gas Measurement, Moni-
11 toring, and Information System, including
12 progress towards pathways to enhance the sci-
13 entific and operational value of information re-
14 garding methane super-emitters.

15 (E) Consideration of options for the Fed-
16 eral Government to partner with nongovern-
17 mental entities, including State and local gov-
18 ernments, academia, nonprofit organizations,
19 commercial industry, and international organi-
20 zations, to effectively leverage greenhouse gas
21 monitoring and detection capabilities to monitor
22 and detect methane super-emitters.

23 (F) Consideration of options for the Fed-
24 eral Government to validate and verify tech-
25 nologies and data developed or collects by non-

1 governmental entities, academia, nonprofit or-
2 ganizations, commercial industry, and inter-
3 national organizations related to monitoring
4 and detecting methane super-emitters.

5 (G) Recommendations regarding the activi-
6 ties under subparagraphs (A) through (F), as
7 appropriate.

8 (d) USE OF STRATEGY.—The Administrator may use
9 the strategy described in subsection (a) to inform the plan-
10 ning of research and development activities regarding
11 greenhouse gas monitoring and detection, including meth-
12 ane super-emitters.

13 (e) REPORT.—Not later than 18 months after the
14 date of the execution of the agreement between the Admin-
15 istrator and the National Academies of Sciences, Engi-
16 neering, and Medicine under subsection (a), the National
17 Academies shall submit to the Administrator, the Com-
18 mittee on Science, Space, and Technology of the House
19 of Representatives, and the Committee on Commerce,
20 Science, and Transportation of the Senate a report on the
21 strategy described in subsection (a).

22 (f) DEFINITIONS.—In this section:

23 (1) GREENHOUSE GAS MONITORING AND DE-
24TECTION.—The term “greenhouse gas monitoring
25 and detection” means the direct observation, from

1 space or in-situ, or collection of measurement data
2 pertaining to, greenhouse gas emissions and levels.

3 (2) GEOCARB.—The term “GeoCarb” shall
4 mean the Geostationary Carbon Cycle Observatory.

5 **SEC. 608. NASA DATA FOR AGRICULTURAL APPLICATIONS.**

6 (a) FINDINGS.—Congress finds the following:

7 (1) NASA has decades of experience in space-
8 based scientific Earth observations and measure-
9 ments, including data, trends and modeling.

10 (2) NASA Earth science data, which includes
11 data on precipitation, temperature,
12 evapotranspiration, soil moisture, and vegetation
13 health, has been used to inform the decisionmaking
14 of agricultural producers.

15 (3) NASA applies its scientific data and models
16 to inform and support the agricultural community
17 and engages in innovative collaborations such as the
18 NASA Acres and NASA Harvest agricultural con-
19 sortia.

20 (4) NASA uses space-based Earth observations
21 and science and applications to support farmers in
22 efforts to conserve water and other resources, im-
23 prove farm management and crop yield, and facili-
24 tate the stability of the national food supply.

1 (5) NASA’s upcoming Earth System Observ-
2 atory will benefit the agricultural community by im-
3 proving observations critical for measuring and un-
4 derstanding cropland conditions, water availability,
5 early onset crop disease, soil moisture, and other
6 crop and rangeland management indicators.

7 (6) Increased engagement between NASA and
8 the agricultural community can support agricultural
9 producers, bolster the national food supply, and im-
10 prove agricultural research, science, and technology.

11 (b) DATA DISSEMINATION.—NASA shall continue to
12 partner with other relevant Federal agencies, as prac-
13 ticable, to disseminate water, soil, vegetation, land-use,
14 and other relevant NASA Earth observation and science
15 data, information and tools to support American agricul-
16 tural producers. Such partnerships may include activities
17 such as—

18 (1) continuing the leverage NASA Earth
19 science water data and information to enable effi-
20 cient use of resources, inform irrigation decisions,
21 and support local innovation and control of water
22 management;

23 (2) supporting agriculture decisionmaking by
24 increasing the accessibility and useability of NASA
25 Earth science data, information, and tools relevant

1 to the impact of disease, weather, precipitation, and
2 other environmental factors on agricultural produc-
3 tion; or

4 (3) making available, to the greatest extent
5 practicable, NASA earth science measurements and
6 data to advance precision agricultural capabilities
7 relevant to the needs and requirements of agricul-
8 tural producers.

9 (c) APPLICATION OF SPACE-BASED DATA.—The Ad-
10 ministrator shall, in furtherance of the goal for the
11 NASA’s Earth science and applications program of secur-
12 ing practical benefits for society, as set forth in section
13 60501 of title 51, United States Code, continue to collabo-
14 rate with relevant Federal agencies to develop mechanisms
15 to transition, as appropriate, relevant NASA Earth
16 science research findings, data, information, models, and
17 capabilities to operational governmental and private sector
18 entities focused on addressing the needs of the agricultural
19 user community.

20 (d) PARTNERING.—In carrying out subsections (b)
21 and (d), NASA shall, to the extent practicable and in col-
22 laboration with other relevant Federal agencies, where ap-
23 propriate, continue to engage State and local government
24 agencies, institutions of higher education, agriculture pro-
25 ducer organizations, and other relevant stakeholder and

1 user communities from the public and private sectors to
2 improve dissemination of NASA Earth science data, infor-
3 mation, and tools relevant to the needs of agricultural pro-
4 ducers and the agriculture industry, in accordance with
5 the goal for the Administration’s Earth science and appli-
6 cations program set forth in section 60501 of title 51,
7 United States Code, and relevant recommendations of the
8 most recent decadal survey on Earth science and applica-
9 tions from space.

10 **SEC. 609. PLANETARY SCIENCE PORTFOLIO.**

11 (a) SENSE OF CONGRESS.—It is the sense of Con-
12 gress that—

13 (1) planetary science missions advance the sci-
14 entific understanding of the solar system and the
15 place of humans in it while also advancing the de-
16 sign and operations of spacecraft and robotic engi-
17 neering; and

18 (2) Discovery, New Frontiers, and Flagship
19 programs allow NASA to fund a range of missions
20 that vary in size, cost, and complexity; maintaining
21 balance across these mission classes allows for a
22 broad scope of discoveries and scientific advances.

23 (b) MISSION PRIORITIES REAFFIRMATION.—Con-
24 gress reaffirms the direction in section 502(b)(1) of the
25 National Aeronautics and Space Administration Transi-

1 tion Authorization Act of 2017 (Public Law 115–10; 51
2 U.S.C. 20302 note) that—

3 (1) in accordance with the priorities established
4 in the most recent Planetary Science Decadal Sur-
5 vey, the Administrator shall ensure, to the greatest
6 extent practicable, the completion of a balanced set
7 of Discovery, New Frontiers, and Flagship missions
8 at the cadence recommended by the most recent
9 Planetary Science Decadal Survey; and

10 (2) consistent with the set of missions described
11 in paragraph (1), and while maintaining the con-
12 tinuity of scientific data and steady development of
13 capabilities and technologies, the Administrator may
14 seek, if necessary, adjustments to mission priorities,
15 schedule, and scope in light of changing budget pro-
16 jections.

17 **SEC. 610. PLANETARY DEFENSE.**

18 (a) Section 808 of the National Aeronautics and
19 Space Administration Authorization Act of 2010 (42
20 U.S.C. 18387), is amended in subsection (b) by striking
21 “implement, before September 30, 2012,” and inserting
22 “, in coordination with the NASA Administrator, maintain
23 and regularly update”.

24 (b) Title 51, United States Code, is amended—

25 (1) in section 71103—

1 (A) in the section heading, by striking
2 **“Developing policy and recom-**
3 **mending”** and inserting **“Policy on near-**
4 **Earth objects and”**

5 (B) by striking “Within 2 years after Oc-
6 tober 15, 2008, the” and inserting “The”;

7 (C) after “Policy shall”, by inserting “, in
8 coordination with the Administrator, maintain
9 and regularly update”;

10 (D) by striking “(1) develop”; and

11 (E) in paragraph (2), by striking “(2) rec-
12 ommend” and inserting “recommendations
13 for”; and

14 (2) in chapter 711—

15 (A) by adding at the end the following:

16 **“§ 71105. Planetary defense coordination office**

17 “(a) OFFICE.—As directed in section 10825 of the
18 National Aeronautics and Space Administration Author-
19 ization Act of 2022 (Public Law 117–167), the Adminis-
20 trator shall maintain an office within the Planetary
21 Science Division of the Science Mission Directorate to be
22 known as the ‘Planetary Defense Coordination Office’.

23 “(b) RESPONSIBILITIES.—Consistent with the direc-
24 tion in section 10825 of the National Aeronautics and
25 Space Administration Authorization Act of 2022 (Public

1 Law 117–167) the Planetary Defense Coordination Office
2 under subsection (a) shall—

3 “(1) plan, develop, and implement a program to
4 survey threats posed by near-Earth objects equal to
5 or greater than 140 meters in diameter, as required
6 by section 321(d)(1) of the National Aeronautics
7 and Space Administration Authorization Act of 2005
8 (Public Law 109–155; 119 Stat. 2922; 51 U.S.C.
9 71101 note prec.);

10 “(2) identify, track, and characterize potentially
11 hazardous near-Earth objects, issue warnings of the
12 effects of potential impacts of such objects, and in-
13 vestigate strategies and technologies for mitigating
14 the potential impacts of such objects; and

15 “(3) assist in coordinating government planning
16 for a response to a potential impact of a near-Earth
17 objects.”; and

18 (B) in the table of contents—

19 (i) by adding at the end the following
20 new item:

“71105. Planetary Defense Coordination Office.”; and

21 (ii) by amending the item relating to
22 section 71103 to read as follows:

“71103. Policy on near-Earth objects and responsible Federal agency.”.

1 **SEC. 611. LUNAR DISCOVERY AND EXPLORATION.**

2 (a) IN GENERAL.—The Administrator may carry out,
3 within the Science Mission Directorate, a program to ac-
4 complish science objectives for the Moon, with an organi-
5 zational structure that aligns responsibility, authority, and
6 accountability, as recommended by the most recent
7 decadal survey for planetary science and astrobiology.

8 (b) OBJECTIVES AND REQUIREMENTS.—In carrying
9 out the program in subsection (a), the Administrator shall
10 direct the Science Mission Directorate, in consultation
11 with the Exploration Systems Development Mission Direc-
12 torate and the Space Technology Mission Directorate, to
13 define high-priority lunar science objectives informed by
14 decadal and other scientific consensus recommendations,
15 and related requirements of an integrated Artemis science
16 strategy for human and robotic missions to the Moon.

17 (c) INSTRUMENTATION.—The program in subsection
18 (a) should assess the need for and facilitate the develop-
19 ment of instrumentation to support the scientific explo-
20 ration of the Moon.

21 **SEC. 612. COMMERCIAL LUNAR PAYLOAD SERVICES.**

22 (a) SENSE OF CONGRESS.—It is the sense of Con-
23 gress that—

24 (1) the Administrator’s encouragement and
25 support for commercial services for lunar surface de-

1 livery capabilities and other related services serves
2 the national interest; and

3 (2) commercial providers benefit from an ap-
4 proach that places low-cost, noncritical instruments
5 on initial deliveries using small- and medium-size
6 landers before proceeding to larger landers for more
7 complex payloads.

8 (b) COMMERCIAL LUNAR PAYLOAD SERVICES.—The
9 Administrator is authorized to establish a Commercial
10 Lunar Payload Services program for the purposes of pro-
11 curing, from one or more United States commercial pro-
12 viders, services for delivery of NASA science payloads, and
13 the payloads of other NASA mission directorates, as ap-
14 propriate and practicable, to the lunar surface.

15 (c) RELATIONSHIP TO OTHER MISSION DIREC-
16 TORATES.—A Mission Directorate that seeks to obtain
17 commercial lunar payload services under the program es-
18 tablished in subsection (b) shall provide funding for—

19 (1) any payload, instrument or other item spon-
20 sored by the Mission Directorate for delivery
21 through the program; and

22 (2) the cost of the commercial lunar payload
23 services obtained on behalf of the Mission Direc-
24 torate.

1 (d) IMPLEMENTATION.—In implementing any such
2 activities pursuant to subsection (b), the Administrator
3 shall—

4 (1) conduct updated market research on the
5 commercial lunar economy and identify any changes
6 since the last market analysis;

7 (2) assess NASA’s needs from and role in and
8 contribution to the commercial lunar delivery mar-
9 ket;

10 (3) based on such needs identified in paragraph
11 (2), assess the effectiveness of the task order ap-
12 proach in advancing commercial development of
13 lunar delivery services, including an assessment of
14 the appropriate number of providers necessary to
15 support NASA commercial lunar delivery needs, and
16 identify any challenges and recommendations for im-
17 provement; and

18 (4) strengthen procedures related to the selec-
19 tion, manifesting, interfaces, and requirements of
20 payloads and other relevant factors that could con-
21 tribute to minimizing future NASA-directed changes
22 to projects following commercial lunar payload serv-
23 ice contract awards.

24 (e) MANAGEMENT PLAN.—Not later than 90 days
25 from the date of the enactment of this Act, the Adminis-

1 trator shall, informed by the activities conducted under
2 subsection (c), prepare and implement a management plan
3 with clear leadership authority and responsibility for the
4 program authorized in subsection (b).

5 (f) BRIEFINGS.—Not later than 180 days from the
6 date of the enactment of this Act, the Administrator shall
7 brief the appropriate committees of Congress on the imple-
8 mentation of the management plan in subsection (d).

9 (g) COORDINATION.—The Administrator shall ensure
10 coordination between Mission Directorates and the Moon
11 to Mars Program on the administration of the program
12 in subsection (b) to ensure alignment of goals for lunar
13 delivery services.

14 **SEC. 613. PLANETARY AND LUNAR OPERATIONS.**

15 (a) SENSE OF CONGRESS.—It is the sense of Con-
16 gress that—

17 (1) existing NASA lunar and Martian orbital
18 missions are operating well beyond their planned
19 mission lifespans;

20 (2) NASA relies on this aging infrastructure for
21 observations, communications relay, and other oper-
22 ations to support critical NASA missions; and

23 (3) the United States plans to increase its ac-
24 tivities on and around both the Moon and Mars in
25 coming years.

1 (b) PLAN.—The Administrator shall develop a plan
2 to ensure continuity of operations and sufficient observa-
3 tional and operational capabilities on and around the
4 Moon and Mars necessary to continue to enable a robust
5 science program and human exploration program for the
6 Moon and Mars well into the future. Such plan shall con-
7 sider opportunities to engage both private and inter-
8 national partners in future operations.

9 **SEC. 614. MARS SAMPLE RETURN.**

10 (a) IN GENERAL.—The Administrator shall, subject
11 to the availability of appropriations, lead a Mars Sample
12 Return program to enable the return to Earth of scientif-
13 ically-selected samples from the surface of Mars for study
14 in terrestrial laboratories, consistent with the rec-
15 ommendations of the National Academies decadal surveys
16 for planetary science.

17 (b) APPROACH.—The Administrator shall pursue the
18 program in subsection (a) on a timeline and in a manner
19 necessary to—

20 (1) Sustain United States leadership in the sci-
21 entific exploration of Mars;

22 (2) maintain NASA capabilities to land and op-
23 erate robotic spacecraft on the surface of Mars;

24 (3) preserve the relevant unique and long-term
25 institutional expertise; and

1 (4) maintain a balanced and robust planetary
2 science division portfolio without requiring signifi-
3 cant increases to the NASA budget.

4 (c) IMPLEMENTATION PLAN.—The Administrator
5 shall, as soon as practicable and no later than 180 days
6 after the date of enactment of this Act, transmit to the
7 appropriate committees of Congress a plan and timeline
8 for the implementation of a Mars Sample Return program
9 pursuant to this section with the goal of enabling the high-
10 est scientific return for the resources invested. Such plan
11 shall include a design and mission architecture and estab-
12 lish realistic cost and schedule estimates to enable such
13 goal.

14 **SEC. 615. HUBBLE SPACE TELESCOPE SERVICING.**

15 Not later than 90 days from the date of the enact-
16 ment of this Act, the Administrator shall submit a report
17 to the appropriate committees of Congress that includes
18 the results of any study or studies conducted in the last
19 five years regarding the technical feasibility of safely re-
20 boosting the Hubble Space Telescope, including any such
21 studies regarding the technical feasibility of using private
22 sector capabilities.

1 **SEC. 616. GREAT OBSERVATORIES MISSION AND TECH-**
2 **NOLOGY MATURATION.**

3 (a) ESTABLISHMENT.—The Administrator may es-
4 tablish a Great Observatories Mission and Technology
5 Maturation project (referred to in this section as a
6 “Project”) to mature the large-scale space-based mission
7 concepts and technologies needed for a future astrophysics
8 mission, as informed by the recommendations of the most
9 recent decadal survey in astronomy and astrophysics.

10 (b) ACTIVITIES.—A project established under sub-
11 section (b) shall inform the design and development of fu-
12 ture large-scale space-based Astrophysics missions by con-
13 ducting activities which may include—

14 (1) assessing the appropriate scope for any fu-
15 ture mission;

16 (2) determining the range of capabilities and
17 technology readiness of such capabilities needed for
18 a mission; and

19 (3) informing the development and maturation
20 of science and technologies needed for such mission.

21 (c) COSTS.—The independent life-cycle cost estimate
22 conducted under section 30307 of title 51, United States
23 Code, as amended by this Act, for a large-scale space-
24 based mission resulting from successful completion of a
25 Project established under subsection (b) shall include an

1 accounting of all costs spent on maturation of the mission
2 through such Project.

3 (d) REPORT.—Starting on February 1, 2025, and
4 continuing annually thereafter, the Administrator shall
5 submit to the appropriate committees of Congress a report
6 on the progress and impacts of any Projects established
7 under subsection (b) within Astrophysics programs.

8 **SEC. 617. NANCY GRACE ROMAN TELESCOPE.**

9 The Administrator shall continue development of the
10 Nancy Grace Roman Space Telescope as directed in sub-
11 section 10823(b) of the National Aeronautics and Space
12 Administration Authorization Act of 2022 (Public Law
13 117–167).

14 **SEC. 618. CHANDRA X-RAY OBSERVATORY.**

15 The Administrator shall, to the greatest extent prac-
16 ticable, take no action to reduce or otherwise preclude con-
17 tinuation of the science operations of the Chandra X-Ray
18 Telescope prior to the completion and consideration of the
19 next triennial review of mission extensions for the Astro-
20 physics division conducted pursuant to section 30504 of
21 title 51, United States Code and NASA’s ongoing oper-
22 ations paradigm change review.

23 **SEC. 619. HELIOPHYSICS RESEARCH.**

24 (a) SENSE OF CONGRESS.—It is the sense of Con-
25 gress that—

1 (1) NASA heliophysics research advances the
2 scientific understanding of the Sun, its impact on
3 the Earth and near-Earth environment, and the
4 Sun’s interactions with other bodies in the solar sys-
5 tem, the interplanetary medium, and the interstellar
6 medium;

7 (2) fundamental science supported by the
8 Heliophysics division is critical to improving space
9 weather observations forecasting capabilities, which
10 contribute to—

11 (A) fortifying national security and other
12 critically important space-based and ground-
13 based assets;

14 (B) improving the resilience of the Na-
15 tion’s energy infrastructure; and

16 (C) protecting human health in space; and

17 (3) the Heliophysics Division should continue to
18 maximize the scientific return on investment of its
19 portfolio through maintaining a balanced portfolio
20 that includes research and analysis, including multi-
21 disciplinary research initiatives, technology develop-
22 ment, space-based missions and suborbital flight
23 projects that include both directed and strategic mis-
24 sions and principal investigator-led, competitively so-
25 licited missions, informed by the science priorities

1 and guidance of the most recent decadal survey in
2 solar and space physics.

3 (b) PROGRAM MANAGEMENT.—The Administrator
4 shall seek to—

5 (1) maintain a regular Explorer Announcement
6 of Opportunity cadence and alternate between small
7 and mid-sized missions; and

8 (2) enable a regular selection of Missions of Op-
9 portunity.

10 **SEC. 620. STUDY ON COMMERCIAL SPACE WEATHER DATA.**

11 (a) STUDY.—The Administrator, in consultation with
12 the Administrator of the National Oceanic and Atmos-
13 pheric Administration, shall conduct a study of the extent
14 to which commercially-available data could advance space
15 weather research, including the relevant space weather re-
16 search priorities of the most recent decadal survey on solar
17 and space physics.

18 (b) CONTENTS.—The study shall include—

19 (1) an assessment of commercial capabilities
20 and commercial data that meets or exceeds the
21 science and technical standards and requirements of
22 the Administration, which may include—

23 (A) data that is generated or able to be
24 generated by commercial providers;

1 (B) commercially-available small space-
2 craft;

3 (C) opportunities for hosted NASA pay-
4 loads on commercial spacecraft; and

5 (D) commercial solutions for data proc-
6 essing applicable to space weather science;

7 (2) recommendations and opportunities for the
8 Federal Government to facilitate the use of commer-
9 cially available options for space weather data rel-
10 evant to advancing the Administration's space
11 weather research and development activities con-
12 sistent with the most recent National Academies
13 decadal survey, without reducing quality of data;
14 and

15 (3) options, where appropriate, for potential
16 partnerships or use of NASA prize authority and
17 competitions, as appropriate and practicable, to ob-
18 tain access to such data identified in paragraph (1)
19 that—

20 (A) meets or exceeds the science and tech-
21 nical standards and requirements of the Admin-
22 istration; and

23 (B) are not duplicative of activities con-
24 ducted pursuant to chapter 606 of title 51,
25 United States Code.

1 (c) REPORT.—Not later than 270 days after the date
2 of enactment of this Act, the Administrator shall transmit
3 a report to the appropriate committees of Congress con-
4 taining the results of the study provided under subsection
5 (a).

6 **SEC. 621. GEOSPACE DYNAMICS CONSTELLATION.**

7 (a) SENSE OF CONGRESS.—It is the sense of Con-
8 gress that the Geospace Dynamics Constellation mission
9 could enable scientific discoveries that will transform un-
10 derstanding of the processes that govern the dynamics of
11 the Earth’s upper atmospheric envelope that surrounds
12 and protects the planet.

13 (b) ASSESSMENT.—Not later than September 5,
14 2024, the Administrator shall transmit to the appropriate
15 committees of Congress a report regarding the schedule
16 and budget profile to launch the Geospace Dynamics Con-
17 stellation mission by the end of the decade to fulfill the
18 recommendations of the heliophysics decadal survey.

19 **SEC. 622. TECHNOLOGY DEVELOPMENT FOR WILDLAND**
20 **FIRE SCIENCE, MANAGEMENT, AND MITIGA-**
21 **TION.**

22 (a) IN GENERAL.—The Administrator, acting
23 through the Associate Director of the Earth Science Divi-
24 sion for Earth Action, shall establish a project for science
25 and technology development for wildland fire management

1 and mitigation (referred to in this section as
2 “FireSense”).

3 (b) PURPOSE.—The purpose of FireSense is to co-
4 develop, deploy, and support NASA’s application of ad-
5 vanced science, data, and technology capabilities to enable
6 measurable improvement in United States wildland fire
7 management and mitigation across the fire cycle, includ-
8 ing pre-fire, active fire, and post-fire phases.

9 (c) OBJECTIVES.—In establishing FireSense, the Ad-
10 ministrator shall seek input from relevant stakeholders
11 and shall align FireSense with the goal for NASA’s Earth
12 science and applications program set forth in section
13 60501 of title 51, United States Code, consider relevant
14 recommendations of the most recent decadal survey on
15 Earth science and applications from space, and shall, to
16 the extent practicable, focus on the following objectives:

17 (1) Enhanced predictive modeling and early
18 warning systems for wildland fire detection and pre-
19 vention.

20 (2) Developing remote sensing technologies and
21 data analysis tools to monitor fire-prone areas.

22 (3) Transitioning wildland fire management
23 technologies to operational users, including agencies,
24 private sector entities, and academic institutions.

1 (4) Conducting research to understand the im-
2 pacts of climate change on wildland fire frequency
3 and intensity.

4 (5) Supporting post-fire recovery and ecosystem
5 restoration through advanced technologies and data.

6 (6) Providing necessary technical assistance to
7 operational users to receive, process, and make use
8 of wildland fire science, data, and technology re-
9 sources.

10 (7) Any additional objectives as determined nec-
11 essary by the Administrator to satisfy the purpose
12 described in subsection (b).

13 (d) INTERAGENCY COORDINATION.—In implementing
14 FireSense, the Administrator shall, as practicable and ap-
15 propriate, coordinate with relevant Federal, State, and
16 local agencies to support wildland fire science, data, and
17 technology development activities across all phases of the
18 fire cycle, including prevention, detection, response, and
19 recovery.

20 (e) OPERATIONAL SUPPORT.—The Administrator
21 shall, to the extent practicable and in collaboration with
22 other relevant Federal agencies, continue to provide nec-
23 essary scientific and technical support to enhance wildland
24 fire mitigation efforts to operational users, including the
25 following:

1 (1) Relevant Federal agencies, as determined
2 appropriate by the Administrator.

3 (2) State, local, and Tribal governments and or-
4 ganizations.

5 (3) Private sector entities.

6 (4) Academic institutions, including colleges,
7 universities, and wildland fire research institutions.

8 (f) DATA SHARING AND COLLABORATION.—The Ad-
9 ministrators shall facilitate the sharing of data, tools, and
10 research findings with operational users and other rel-
11 evant stakeholders to ensure effective use of NASA’s capa-
12 bilities in wildland fire management.

13 (g) FIRESENSE PROJECT EVALUATION.—The Ad-
14 ministrators shall periodically evaluate the effectiveness of
15 FireSense and make necessary adjustments to improve its
16 impact on wildland fire management.

17 (h) REPORT.—Not later than one year after the date
18 of the enactment of this Act and annually thereafter for
19 five years, the Administrator shall submit to the appro-
20 priate committees of Congress a report on the activities
21 and accomplishments of FireSense, including the fol-
22 lowing:

23 (1) An assessment of interagency coordination
24 efforts.

1 (2) FireSense’s impact on wildland fire man-
2 agement efforts.

3 (3) A list of emerging wildland fire manage-
4 ment technologies and opportunities that may be
5 considered for further research, development, dem-
6 onstration, and deployment.

7 (4) An assessment of existing challenges to ef-
8 fective coordination with operational users, including
9 State, local, and Tribal governments.

10 **SEC. 623. IMPLEMENTATION OF RECOMMENDATIONS BY**
11 **THE NATIONAL WILDLAND FIRE MANAGE-**
12 **MENT AND MITIGATION COMMISSION.**

13 (a) FINDINGS.—Congress finds the following:

14 (1) Wildland fires pose a significant threat to
15 public safety, property, and natural resources.

16 (2) The National Wildland Fire Management
17 and Mitigation Commission (in this section referred
18 to as the “Commission”) has provided critical rec-
19 ommendations for enhancing wildland fire science,
20 data, and technology resources.

21 (3) The Administration, through the Science
22 Mission Directorate, has the capability to support
23 and enhance wildland fire management through its
24 advanced research and technological expertise.

1 (b) INCORPORATION OF RECOMMENDATIONS.—The
2 Administrator, in accordance with the goal for NASA’s
3 Earth science and applications program set forth in sec-
4 tion 60501 of title 51, United States Code, and relevant
5 recommendations of the most recent decadal survey on
6 Earth science and applications from space, shall incor-
7 porate the recommendations of the Commission, to the ex-
8 tent practicable, which may include continuing to carry
9 out the following:

10 (1) Enhancing the collection, analysis, and dis-
11 semination of data related to wildland fires, includ-
12 ing satellite and remote sensing data.

13 (2) Supporting research and development
14 projects aimed at improving wildland fire prediction,
15 prevention, response, and recovery.

16 (3) Developing and deploying technologies that
17 can assist in monitoring, detecting, and mitigating
18 wildland fires.

19 (4) Conducting studies on the impact of climate
20 change on wildland fire behavior, frequency, and in-
21 tensity.

22 (c) INTERAGENCY COORDINATION.—The Adminis-
23 trator shall continue to coordinate, as practicable, with
24 other Federal, State, local, and Tribal entities to integrate
25 the Commission’s recommendations into broader wildland

1 fire management efforts. Such coordination may include
2 the following:

3 (1) Facilitating the sharing of wildland fire-re-
4 lated data and research findings with relevant agen-
5 cies and stakeholders.

6 (2) Participating in joint initiatives and projects
7 aimed at enhancing wildland fire management capa-
8 bilities.

9 (d) EVALUATION.—The Administrator shall conduct
10 periodic evaluations of NASA’s efforts to incorporate the
11 Commission’s recommendations and make adjustments as
12 necessary to maximize the effectiveness of such rec-
13 ommendations to support wildland fire mitigation and
14 management efforts.

15 (e) REPORTING.—Not later than one year after the
16 date of the enactment of this Act, the Administrator shall
17 submit to the appropriate committees of Congress a report
18 detailing the activities undertaken by NASA to implement
19 the Commission’s recommendations, including the fol-
20 lowing:

21 (1) A summary of research and development
22 projects initiated or supported.

23 (2) An assessment of the impact of such activi-
24 ties on wildland fire management and mitigation ef-
25 forts.

1 (3) Any challenges or obstacles encountered in
2 implementing such recommendations.

3 **TITLE VII—STEM EDUCATION**

4 **SEC. 701. NATIONAL SPACE GRANT COLLEGE AND FELLOW-** 5 **SHIP PROGRAM.**

6 (a) AMENDMENTS.—Title 51, United States Code, is
7 amended—

8 (1) in section 40303, by striking subsections (d)
9 and (e);

10 (2) in section 40304—

11 (A) by striking subsection (c) and inserting
12 the following:

13 “(c) SOLICITATIONS.—

14 “(1) IN GENERAL.—The Administrator shall
15 issue a solicitation from space grant consortia for
16 the award of grants or contracts under this section
17 at the conclusion of the award cycle for fiscal Year
18 2020 to 2024. The Administrator shall implement
19 the allocation guidance from section 40304(e) during
20 each fiscal year covered by the award cycle.

21 “(2) PROPOSALS.—A lead institution of a space
22 grant consortium that seeks a grant or contract
23 under this section shall submit, on behalf of such
24 space grant consortium, an application to the Ad-
25 ministrator at such time and in such manner and

1 accompanied by such information as the Adminis-
2 trator may require.

3 “(3) AWARDS.—The Administrator shall award
4 1 or more multi-year grants or contracts, disbursed
5 in annual installments, to the lead institution of an
6 eligible space grant consortium of—

7 “(A) each of the 50 States of the United
8 States;

9 “(B) the District of Columbia; and

10 “(C) the Commonwealth of Puerto Rico.”;

11 and

12 (B) by inserting after subsection (d) the
13 following:

14 “(e) ALLOCATION OF FUNDING.—

15 “(1) PROGRAM IMPLEMENTATION.—To carry
16 out the purposes set forth in section 40301 of this
17 title, each fiscal year, of the funds appropriated for
18 this program of that fiscal year, the Administrator
19 shall allocate not less than 85 percent among eligible
20 space grant consortia as follows:

21 “(A) The space grant consortia identified
22 in paragraph 40304(c)(3) shall each receive an
23 equal share.

24 “(B) The territories of Guam and the U.S.
25 Virgin Islands shall each receive funds equal to

1 one-fifth of the share for each space grant con-
2 sortium.

3 “(2) PROGRAM ADMINISTRATION.—

4 “(A) IN GENERAL.—Each fiscal year, of
5 the funds made available for the National Space
6 Grant College and Fellowship Program, the Ad-
7 ministrator shall allocate not more than 10 per-
8 cent for the administration of the program.

9 “(B) COSTS COVERED.—The funds allo-
10 cated under paragraph (1)(A) of this section
11 shall cover all costs of the Administration asso-
12 ciated with the administration of the National
13 Space Grant College and Fellowship Program,
14 including—

15 “(i) direct costs to the program, in-
16 cluding costs relating to support services
17 and civil service salaries and benefits;

18 “(ii) indirect general and administra-
19 tive costs of centers and facilities of the
20 Administration; and

21 “(iii) indirect general and administra-
22 tive costs of the Administration head-
23 quarters.

24 “(3) SPECIAL OPPORTUNITIES.—Each fiscal
25 year, of the funds made available for the National

1 Space Grant College and Fellowship program, the
2 Administrator shall allocate not more than 5 percent
3 to lead institutions of Space Grant Consortia for
4 grants to carry out innovative approaches and pro-
5 grams to further science and education relating to
6 the missions of the Administration pursuant to sub-
7 section (b).”.

8 (b) REVIEW.—The Administrator shall make ar-
9 rangements for an independent external review of the Na-
10 tional Space Grant College and Fellowship Program to—

11 (1) evaluate its management, accomplishments,
12 approach to funding allocation as described in sec-
13 tion 40303(e) of title 51, United States Code, and
14 responsiveness to the purposes and goals defined in
15 chapter 403 of title 51, United States Code;

16 (2) consider the benefits partnerships with local
17 education agencies, including those in underserved
18 and rural areas, may provide; and

19 (3) propose any statutory updates that may be
20 needed to implement recommendations of the review.

21 (c) REPORT.—Not later than nine months after the
22 date of enactment of this Act, the Administrator shall
23 transmit a report on the independent external review of
24 the National Space Grant College and Fellowship Pro-
25 gram described in subsection (a) to the Committee on

1 Science, Space, and Technology of the House of Rep-
2 resentatives and the Committee on Commerce, Science,
3 and Transportation of the Senate.

4 **SEC. 702. SKILLED TECHNICAL WORKFORCE EDUCATION**
5 **OUTREACH.**

6 (a) IN GENERAL.—The Administrator may conduct
7 or support STEM engagement activities that focus on ex-
8 panding opportunities for students to pursue skilled tech-
9 nical workforce occupations in space and aeronautics.

10 (b) LEVERAGING EXISTING PROGRAMS.—The Ad-
11 ministrator, in conducting activities pursuant to sub-
12 section (a), shall consider leveraging, as appropriate, exist-
13 ing programs of NASA or other Federal programs and
14 interagency initiatives, such as the Manufacturing USA
15 program under section 34 of the National Institute of
16 Standards and Technology Act (15 U.S.C. 278s).

17 (c) INCLUSION.—Activities under subsection (a) may
18 include outreach activities that engage secondary and
19 post-secondary students, including students at institutions
20 of higher education, two-year colleges, and high schools,
21 and students in vocational or career and technical edu-
22 cation programs, and that—

23 (1) expose students to careers that require ca-
24 reer and technical education;

1 (2) encourage students to pursue careers that
2 require career and technical education; and

3 (3) provide students hands-on learning opportu-
4 nities to view the manufacturing, assembly, and test-
5 ing of NASA-funded space and aeronautical systems,
6 as the Administrator considers appropriate and with
7 consideration of relevant factors such as workplace
8 safety, mission needs, and the protection of sensitive
9 and proprietary technologies.

10 (d) REPORT.—Not later than one year after the date
11 of the enactment of this Act, the Administrator shall sub-
12 mit to the appropriate committees of Congress a report
13 on the NASA’s activities, and any planned activities, con-
14 ducted pursuant to this section.

15 (e) DEFINITIONS.—In this section:

16 (1) INSTITUTION OF HIGHER EDUCATION.—The
17 term “institution of higher education” has the
18 meaning given the term in section 101(a) of the
19 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

20 (2) SKILLED TECHNICAL WORKFORCE.—The
21 term “skilled technical workforce” has the meaning
22 given the term in section 4(b)(3) of the Innovations
23 in Mentoring, Training, and Apprenticeships Act (42
24 U.S.C. 1862p note; Public Law 115–402).

1 **TITLE VIII—POLICY/NASA**

2 **SEC. 801. MAJOR PROGRAMS.**

3 Section 30104 of title 51, United States Code, is
4 amended in subsection (a)(1) by striking “7120.5E, dated
5 August 14, 2012” and inserting “7120.5F, dated August
6 3, 2021”.

7 **SEC. 802. NASA ADVISORY COUNCIL.**

8 (a) CONSULTATION AND ADVICE.—Section 20113(g)
9 of title 51, United States Code, is amended by adding
10 “and Congress” after “advice to the Administration”.

11 (b) SUNSET.—Effective September 30, 2028, section
12 20113(g) of title 51, United States Code, is amended by
13 striking “and Congress”.

14 **SEC. 803. NASA ASSESSMENT OF EARLY COST ESTIMATES.**

15 Not later than 12 months after the date of the enact-
16 ment of this Act, the Comptroller General shall transmit
17 to the appropriate committees of Congress a review of the
18 development, application, and assessment of early cost es-
19 timates made prior to preliminary design review for NASA
20 missions. The review may include—

21 (1) an assessment of NASA processes related to
22 the formation and evaluation of proposed and early-
23 stage cost estimates;

24 (2) an evaluation of NASA’s monitoring and
25 management of cost estimates throughout mission

1 development, in accordance with section 10861(b)(4)
2 of the National Aeronautics and Space Administra-
3 tion Authorization Act of 2022 (Public Law 117–
4 167); and

5 (3) any such recommendations as the Comp-
6 troller General determines appropriate.

7 **SEC. 804. INDEPENDENT COST ESTIMATE.**

8 Section 30307 of title 51, United States Code, is
9 amended—

10 (1) in the section heading, by striking “**anal-**
11 **ysis**” and inserting “**estimate**”; and

12 (2) in subsection (b)—

13 (A) by striking “Before any funds may be
14 obligated for implementation” and inserting
15 “After the Administrator completes the prelimi-
16 nary design review”;

17 (B) by striking “analysis” and inserting
18 “estimate”; and

19 (C) by inserting after the first sentence,
20 “No funds may be obligated for implementation
21 of the project before the Administrator reports
22 the results of the life-cycle cost estimate to
23 Congress.”.

1 **SEC. 805. OFFICE OF TECHNOLOGY, POLICY, AND STRAT-**
2 **EGY REPORT.**

3 Not later than January 1, 2025, and annually there-
4 after, the Office of Technology, Policy, and Strategy shall
5 prepare and submit to the appropriate committees of Con-
6 gress a report describing the efforts of the Office during
7 the previous calendar year and priorities of the Office for
8 the upcoming calendar year, as practicable.

9 **SEC. 806. AUTHORIZATION FOR THE TRANSFER TO NASA OF**
10 **FUNDS FROM OTHER AGENCIES FOR SCI-**
11 **ENTIFIC OR ENGINEERING RESEARCH OR**
12 **EDUCATION.**

13 (a) IN GENERAL.—Subsection (f) of section 20113
14 of title 51, United States Code, is amended—

15 (1) by striking “In the performance of its func-
16 tions” and inserting the following:

17 “(1) IN GENERAL.—In the performance of its
18 functions”; and

19 (2) by adding at the end the following new
20 paragraph:

21 “(2) TREATMENT.—Funds available to any de-
22 partment or agency of the Federal Government for
23 scientific or engineering research or education, or
24 the provision of facilities therefor, shall, subject to
25 the approval of the head of such department or
26 agency or as delegated pursuant to such depart-

1 ment's or agency's regulation, be available for trans-
2 fer, in whole or in part, to the Administration for
3 such use as is consistent with the purposes for which
4 such funds were appropriated. Funds so transferred
5 shall be merged with the appropriation to which
6 transferred, except that such transferred funds shall
7 be limited to the awarding of grants or cooperative
8 agreements for scientific or engineering research or
9 education.”.

10 (b) ANNUAL INFORMATION ON FUNDS TRANS-
11 FERRED.—

12 (1) IN GENERAL.—Not later than two years
13 after the date of the enactment of this section, the
14 Administrator shall include in the annual budget
15 justification materials of the Administration, as sub-
16 mitted to Congress with the President's budget re-
17 quest under section 1105 of title 31, United States
18 Code, information describing the activities conducted
19 under subsection (f) of section 20113 of title 51,
20 United States Code (as amended by subsection (a)),
21 during the immediately preceding fiscal year.

22 (2) CONTENTS.—The information referred to in
23 paragraph (1) shall contain a description of each
24 transfer of funds under the authority provided for in
25 paragraph (2) of subsection (f) of section 20113 of

1 title 51, United States Code (as added and amend-
2 ed, respectively, by this section), during the imme-
3 diately preceding fiscal year, including the following:

4 (A) An identification of the department or
5 agency of the Federal Government from which
6 such funds were transferred.

7 (B) The total amount of funds so trans-
8 ferred, disaggregated by each such department
9 or agency.

10 (C) The purposes for which such funds
11 were appropriated to each agency or depart-
12 ment.

13 (D) The program or activity of the Admin-
14 istration to which such funds were made avail-
15 able by each such transfer.

16 (E) The purposes of each such administra-
17 tion program or activity, and the amount of
18 funding appropriated to the Administration for
19 such purposes.

20 (c) REPORT.—Not later than three years after the
21 date of enactment of the section, the Administrator of the
22 Administration shall submit to the Committee on Science,
23 Space, and Technology of the House of Representatives
24 and the Committee on Commerce, Science, and Transpor-
25 tation of the Senate a report that includes the following:

1 (1) A summary of the value of the authority
2 provided for in paragraph (2) of subsection (f) of
3 section 209113 of title 51, United States Code (as
4 added and amended, respectively, by this section),
5 including the extent to which such authority has
6 benefited the Administration and its ability to meet
7 its needs, achieve its mission, or more effectively
8 conduct interagency collaborations.

9 (2) An identification of any barriers or chal-
10 lenges to implementing such authority, or otherwise
11 to managing funding required to conduct joint pro-
12 grams and award jointly funded grants and coopera-
13 tive agreements by the administration with other
14 Federal departments and agencies to advance the
15 missions of each such department and agency.

16 **SEC. 807. PROCEDURE FOR LAUNCH SERVICES RISK MITI-**
17 **GATION.**

18 (a) **ASSESSMENT.**—The Administrator shall enter
19 into an arrangement for an independent external assess-
20 ment of the effectiveness and efficiency of NASA’s ap-
21 proach towards launch services risk mitigation in the Ad-
22 ministration’s Procedural Requirements 8610.7D.

23 (b) **REPORT.**—Not later than 180 days from the date
24 of enactment of this Act, the Administrator shall submit
25 to the appropriate committees of Congress the following:

1 (1) The report of the assessment conducted
2 under subsection (a).

3 (2) NASA response to the findings of the re-
4 port, if any.

5 **SEC. 808. REPORT ON MERITS AND OPTIONS FOR ESTAB-**
6 **LISHING AN INSTITUTE RELATING TO SPACE**
7 **RESOURCES.**

8 (a) REPORT.—Not later than 180 days after the date
9 of the enactment of this Act, the Administrator and Sec-
10 retary shall jointly submit to the appropriate committees
11 of Congress a report on the merits of, and options for,
12 establishing an institute relating to space resources to ad-
13 vance the objectives of NASA and the Department in
14 maintaining United States preeminence in space. Such ob-
15 jectives shall include the following:

16 (1) Identifying, developing, and distributing
17 space resources, including by encouraging the devel-
18 opment of foundational science, industrial capability,
19 and technology.

20 (2) Reducing the technological and business
21 risks associated with identifying, developing, and dis-
22 tributing space resources.

23 (3) Research to maximize the responsible use of
24 space resources.

1 (4) Developing options for using space re-
2 resources to carry out the following.

3 (A) Support current and future space ar-
4 chitectures, programs, business, and missions.

5 (B) Enable such architectures, programs,
6 business, and missions that would not otherwise
7 be possible.

8 (C) Supplement the supply of such re-
9 sources available on Earth.

10 (b) **ADDITIONAL MATTERS.**—The report required
11 under subsection (a) shall also include the following as-
12 sessments of the Administrator and the Secretary:

13 (1) Whether a virtual or physical institute relat-
14 ing to space resources is most cost effective and ap-
15 propriate.

16 (2) Whether partnering with institutions of
17 higher education and the aerospace industry, and
18 the extractive industry as appropriate, would be ef-
19 fective in increasing information available to the in-
20 stitute with respect to advancing the objectives de-
21 scribed in such subsection.

22 (c) **DEFINITIONS.**—In this section:

23 (1) **DEPARTMENT.**—The term “Department”
24 means the Department of Commerce.

1 (2) **EXTRACTIVE INDUSTRY.**—The term “ex-
2 tractive industry” means companies and individuals
3 involved in the processes of extracting, including
4 mining, quarrying, drilling, and dredging, raw, nat-
5 ural materials or energy sources.

6 (3) **INSTITUTE OF HIGHER EDUCATION.**—The
7 term “institution of higher education” has the
8 meaning given such term in section 101(a) of the
9 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

10 (4) **SECRETARY.**—The term “Secretary” means
11 the Secretary of Commerce.

12 (5) **SPACE RESOURCE.**—

13 (A) **IN GENERAL.**—The term “space re-
14 source” means an abiotic resource in situ in
15 outer space.

16 (B) **INCLUSIONS.**—The term “space re-
17 source” includes a raw, natural material or en-
18 ergy source.

19 **SEC. 809. REPORTS TO CONGRESS.**

20 (a) **CONGRESSIONAL REPORTS AND NOTICES.**—Any
21 report or notice provided to Congress by NASA shall be
22 provided to the Committee on Science, Space, and Tech-
23 nology of the House of Representatives and the Committee
24 on Commerce, Science, and Transportation of the Senate,

1 concurrently with its delivery to any other Committee or
2 office.

3 (b) **REPORTS ON INTERNATIONAL AGREEMENTS.**—If
4 the United States becomes a signatory to an international
5 agreement concerning outer space activities, the Adminis-
6 trator shall provide to the Committee on Science, Space,
7 and Technology of the House of Representatives and the
8 Committee on Commerce, Science, and Transportation of
9 the Senate a report containing a copy of such agreement.

10 **SEC. 810. CONTRACT FLEXIBILITY.**

11 Congress finds that NASA FAR Supplement (NFS)
12 1852.242-72, Denied Access to NASA Facilities instructs
13 that for the period that NASA facilities were not acces-
14 sible to contractor employees, the contracting officer may
15 adjust the contract performance or delivery schedule, fore-
16 go the work, reschedule the work, or consider requests for
17 equitable adjustment to the contract.

18 **SEC. 811. GAO REPORT.**

19 Not later than one year after the date of the enact-
20 ment of this Act, the Comptroller General of the United
21 States shall transmit to the appropriate committees of
22 Congress a review of fire and emergency services at NASA
23 launch and reentry facilities that assesses the following:

24 (1) Current capabilities and projected demands
25 for NASA-provided fire and emergency services.

1 (2) How demand for NASA-provided fire and
2 emergency services have been impacted by the fol-
3 lowing:

4 (A) An increased rate of launch and re-
5 entry operations.

6 (B) An increased number of leases with
7 commercial launch and reentry service providers
8 for use of NASA property.

9 (3) Current fire and emergency services pro-
10 vided by commercial providers to support launch and
11 reentry operations that are conducted—

12 (A) to fulfill a contractual obligation with
13 NASA; or

14 (B) for non-NASA purposes using NASA-
15 leased property.

16 (4) Whether NASA-provided and commercially-
17 provided fire and emergency services are able to
18 meet current and projected demands and support all
19 fire response areas on NASA property.

20 **SEC. 812. NASA PUBLIC-PRIVATE TALENT PROGRAM.**

21 Section 20113 of title 51, United States Code, is
22 amended by adding at the end the following new sub-
23 section:

24 “(o) PUBLIC-PRIVATE TALENT PROGRAM.—

1 “(1) ASSIGNMENT AUTHORITY.—Under policies
2 and procedures prescribed by the Administration,
3 the Administrator may, with the agreement of a pri-
4 vate sector entity and the consent of an employee of
5 the Administration or of such entity, arrange for the
6 temporary assignment of such employee of the Ad-
7 ministration to such private sector entity, or of such
8 employee of such entity to the Administration, as
9 the case may be.

10 “(2) AGREEMENTS.—

11 “(A) IN GENERAL.—The Administrator
12 shall provide for a written agreement among
13 the Administration, the private sector entity,
14 and the employee concerned regarding the
15 terms and conditions of the employee’s assign-
16 ment under this subsection. The agreement
17 shall—

18 “(i) require that the employee of the
19 Administration, upon completion of the as-
20 signment, will serve in the Administration,
21 or elsewhere in the civil service if approved
22 by the Administrator, for a period equal to
23 twice the length of the assignment;

24 “(ii) provide that if the employee of
25 the Administration or of the private sector

1 entity (as the case may be) fails to carry
2 out the agreement, such employee shall be
3 liable to the United States for payment of
4 all expenses of the assignment, unless such
5 failure was for good and sufficient reason,
6 as determined by the Administrator; and

7 “(iii) contain language ensuring that
8 such employee of the Administration or of
9 the private sector entity (as the case may
10 be) does not improperly use predecisional
11 or draft deliberative information that such
12 employee may be privy to or aware of re-
13 lated to Administration programing, budg-
14 eting, resourcing, acquisition, or procure-
15 ment for the benefit or advantage of the
16 private sector entity.

17 “(B) TREATMENT.—An amount for which
18 an employee is liable under subparagraph (A)
19 shall be treated as a debt due the United
20 States.

21 “(C) WAIVER.—The Administrator may
22 waive, in whole or in part, collection of a debt
23 described in subparagraph (B) based on a de-
24 termination that the collection would be against
25 equity and good conscience and not in the best

1 interests of the United States, after taking into
2 account any indication of fraud, misrepresenta-
3 tion, fault, or lack of good faith on the part of
4 the employee concerned.

5 “(3) TERMINATION.—An assignment under this
6 section may, at any time and for any reason, be ter-
7 minated by the Administration or the private-sector
8 entity concerned, as the case may be.

9 “(4) DURATION.—

10 “(A) IN GENERAL.—An assignment under
11 this subsection shall be for a period of not less
12 than three months and not more than two
13 years, renewable up to a total of three years.
14 An employee of the Administration may not be
15 assigned under this subsection for more than a
16 total of three years inclusive of all such assign-
17 ments.

18 “(B) EXTENSION.—An assignment under
19 this subsection may be for a period in excess of
20 two years, but not more than three years, if the
21 Administrator determines that such assignment
22 is necessary to meet critical mission or program
23 requirements.

24 “(5) POLICIES AND PROCEDURES.—

1 “(A) IN GENERAL.—The Administrator
2 shall establish policies and procedures relating
3 to assignments under this subsection.

4 “(B) ELEMENTS.—Policies and procedures
5 established pursuant to subparagraph (A) shall
6 address the following:

7 “(i) The nature and elements of writ-
8 ten agreements with participants in assign-
9 ments under this subsection.

10 “(ii) Criteria for making such assign-
11 ments, including the needs of the Adminis-
12 tration relating thereto.

13 “(iii) How the Administration will
14 oversee such assignments, in particular
15 with respect to paragraphs (2)(A)(iii),
16 (7)(C), and (7)(D).

17 “(iv) Criteria for issuing waivers.

18 “(v) How expenses under paragraph
19 (2)(A)(ii) would be determined.

20 “(vi) Guidance for participants in
21 such assignments.

22 “(vii) Mission Directorate, Office, and
23 organizational structure to implement and
24 manage such assignments.

1 “(viii) Any other necessary policies,
2 procedures, or guidelines to ensure such
3 assignments comply with all relevant statu-
4 tory authorities and ethics rules, and effec-
5 tively contribute to one or more of the Ad-
6 ministration’s missions.

7 “(C) INHERENTLY GOVERNMENTAL AC-
8 TIVITIES.—Assignments made under this sub-
9 section shall not have responsibilities or per-
10 form duties or decision making regarding Ad-
11 ministration activities that are inherently gov-
12 ernmental, pursuant to subpart 7.500 of title
13 48, Code of Federal Regulations, and Office of
14 Management and Budget review.

15 “(6) STATUS OF FEDERAL EMPLOYEES AS-
16 SIGNED TO PRIVATE SECTOR ENTITIES.—

17 “(A) IN GENERAL.—An employee of the
18 Administration who is assigned to a private sec-
19 tor entity under this subsection shall be consid-
20 ered, during the period of such assignment, to
21 be on detail to a regular work assignment in
22 the Administration for all purposes. The written
23 agreement established under paragraph (2)(A)
24 shall address the specific terms and conditions

1 related to such employee’s continued status as
2 a Federal employee.

3 “(B) CERTIFICATION.—In establishing a
4 temporary assignment of an employee of the
5 Administration to a private sector entity, the
6 Administrator shall certify that such temporary
7 assignment shall not have an adverse or nega-
8 tive impact on the mission of the Administra-
9 tion or organizational capabilities associated
10 with such assignment.

11 “(7) TERMS AND CONDITIONS FOR PRIVATE
12 SECTOR EMPLOYEES.—An employee of a private sec-
13 tor entity who is assigned to the Administration
14 under this subsection—

15 “(A) shall continue to receive pay and ben-
16 efits from the private sector entity from which
17 such employee is assigned and shall not receive
18 pay or benefits from the Administration, except
19 as provided in subparagraph (B);

20 “(B) is deemed to be an employee of the
21 Administration for the purposes of—

22 “(i) chapters 73 and 81 of title 5;

23 “(ii) sections 201, 203, 205, 207,
24 208, 209, 603, 606, 607, 643, 654, 1905,
25 and 1913 of title 18, except that such sec-

1 tion 209 does not apply to any salary, or
2 contribution or supplementation of salary
3 made pursuant to subparagraph (A) of this
4 paragraph;

5 “(iii) sections 1343, 1344, and
6 1349(b) of title 31;

7 “(iv) the Federal Tort Claims Act and
8 any other Federal tort liability statute;

9 “(v) the Ethics in Government Act of
10 1978; and

11 “(vi) chapter 21 of title 41;

12 “(C) shall not have access to any trade se-
13 crets or any other nonpublic information which
14 is of commercial value to the private sector en-
15 tity from which such employee is assigned;

16 “(D) may not perform work that is consid-
17 ered inherently governmental in nature, in ac-
18 cordance with paragraph (5)(C); and

19 “(E) may not be used to circumvent—

20 “(i) section 1710 of title 41, United
21 States Code; or

22 “(ii) any limitation or restriction on
23 the size of the Administration’s civil serv-
24 ant workforce.

1 “(8) ADDITIONAL REQUIREMENTS.—The Ad-
2 ministrators shall ensure that—

3 “(A) the normal duties and functions of an
4 employee of the Administration who is assigned
5 to a private sector entity under this subsection
6 can be reasonably performed by other employ-
7 ees of the Administration without the perma-
8 nent transfer or reassignment of other per-
9 sonnel of the Administration;

10 “(B) normal duties and functions of such
11 other employees of the Administration are not,
12 as a result of and during the course of such
13 temporary assignment, performed or augmented
14 by contractor personnel in violation of section
15 1710 of title 41; and

16 “(C) not more than two percent of the Ad-
17 ministration’s civil servant workforce may par-
18 ticipate in an assignment under this subsection
19 at the same time.

20 “(9) CONFLICTS OF INTEREST.—The Adminis-
21 trator shall implement a system to identify, mitigate,
22 and manage any conflicts of interests that may arise
23 as a result of an employee’s assignment under this
24 subsection.

1 “(10) PROHIBITION AGAINST CHARGING CER-
2 TAIN COSTS TO THE FEDERAL GOVERNMENT.—A
3 private-sector entity may not charge the Administra-
4 tion or any other agency of the Federal Government,
5 as direct or indirect costs under a Federal contract,
6 the costs of pay or benefits paid by the entity to an
7 employee assigned to the Administration under this
8 subsection for the period of the assignment con-
9 cerned.

10 “(11) CONSIDERATIONS.—In carrying out this
11 subsection, the Administrator shall take into consid-
12 eration—

13 “(A) the question of how assignments
14 under this subsection might best be used to
15 help meet the needs of the Administration with
16 respect to the training of employees; and

17 “(B) where applicable, areas of particular
18 private sector expertise, such as cybersecurity.

19 “(12) NASA REPORTING.—

20 “(A) IN GENERAL.—Not later than April
21 30 of each year, the Administrator shall submit
22 to the Committee on Science, Space, and Tech-
23 nology of the House of Representatives and the
24 Committee on Commerce, Science, and Trans-

1 portation of the Senate a report summarizing
2 the implementation of this subsection.

3 “(B) CONTENTS.—Each report under sub-
4 paragraph (A) shall include, with respect to the
5 annual period to which such report relates, the
6 following:

7 “(i) Information relating to the total
8 number of employees of private sector enti-
9 ties assigned to the Administration, and
10 the total number of employees of the Ad-
11 ministration assigned to private sector en-
12 tities.

13 “(ii) A brief description and assess-
14 ment of the talent management benefits
15 evidenced from such assignments, as well
16 as any identified strategic human capital
17 and operational challenges, including the
18 following:

19 “(I) An identification of the
20 names of the private sector entities to
21 and from which employees were as-
22 signed.

23 “(II) A complete listing of posi-
24 tions such employees were assigned to
25 and from.

1 “(III) An identification of as-
2 signed roles and objectives of such as-
3 signments.

4 “(IV) Information relating to the
5 durations of such assignments.

6 “(V) Information relating to as-
7 sociated pay grades and levels.

8 “(iii) An assessment of impacts of
9 such assignments on the Administration
10 workforce and workforce culture.

11 “(iv) An identification of the number
12 of Administration staff and budgetary re-
13 sources required to implement this sub-
14 section.

15 “(13) FEDERAL ETHICS.—Nothing in this sub-
16 section shall affect existing Federal ethics rules ap-
17 plicable to Federal personnel.

18 “(14) GAO REPORTING.—

19 “(A) IN GENERAL.—Not later than three
20 years after the date of the enactment of this
21 subsection, the Comptroller General of the
22 United States shall submit to the Committee on
23 Science, Space, and Technology of the House of
24 Representatives and the Committee on Com-
25 merce, Science, and Transportation of the Sen-

1 ate a report summarizing the implementation of
2 this subsection.

3 “(B) CONTENTS.—The report under sub-
4 paragraph (A) shall include the following:

5 “(i) A review of the implementation of
6 this subsection, according to law and the
7 Administration policies and procedures es-
8 tablished for assignments under this sub-
9 section.

10 “(ii) Information relating to the ex-
11 tent to which such assignments adhere to
12 best practices relating to public-private tal-
13 ent exchange programs.

14 “(iii) A determination as to whether
15 there should be limitations on the number
16 of individuals participating in such assign-
17 ments.

18 “(iv) Information relating to the ex-
19 tent to which the Administration complies
20 with statutory requirements and ethics
21 rules, and appropriately handles potential
22 conflicts of interest and access to non-
23 public information with respect to such as-
24 signments.

1 “(v) Information relating to the extent
2 to which such assignments effectively con-
3 tribute to one or more of the Administra-
4 tion’s missions.

5 “(vi) Information relating to Adminis-
6 tration resources, including employee time,
7 dedicated to administering such assign-
8 ments, and whether such resources are suf-
9 ficient for such administration.”.

10 **SEC. 813. REPORT ON SPACE ACT AGREEMENTS.**

11 (a) IN GENERAL.—Not later than 180 days after the
12 date of the enactment of this Act, the Administrator shall
13 submit to the appropriate committees of Congress a report
14 describing the following:

15 (1) Intellectual property considerations in Space
16 Act agreements.

17 (2) Feedback shared by industry groups regard-
18 ing intellectual property considerations in Space Act
19 agreements.

20 (3) Differences between NASA policies regard-
21 ing intellectual property in Space Act agreements
22 and policies utilized in similar situations by other
23 Federal agencies.

24 (b) DEFINITION.—In this section, the term “Space
25 Act agreements” means agreements entered into by NASA

1 pursuant to its authorities under the National Aeronautics
2 and Space Act of 1958 (Public Law 85–568).

3 **SEC. 814. MENTORING.**

4 (a) IN GENERAL.—The Administrator shall establish
5 a comprehensive NASA-wide mentoring program for early-
6 career, mid-level, and senior-level employees at all NASA
7 Centers and NASA Headquarters to ensure a robust pipe-
8 line for NASA’s civil servant workforce and support the
9 preparation of employees, including those from popu-
10 lations that are historically underrepresented in STEM,
11 for promotion and leadership roles.

12 (b) BRIEFING.—Not later than 180 days after the
13 date of the enactment of this Act, the Administrator shall
14 brief the appropriate committees of Congress on the imple-
15 mentation of the subsection (a).

16 **SEC. 815. DRINKING WATER WELL REPLACEMENT FOR**
17 **CHINCOTEAGUE, VIRGINIA.**

18 (a) IN GENERAL.—Notwithstanding any other provi-
19 sion of law, the Administrator may enter into an agree-
20 ment, as appropriate, with the Town of Chincoteague, Vir-
21 ginia, for a period of up to five years, for reimbursement
22 of the Town of Chincoteague’s costs directly associated
23 with the development of a plan for removal of drinking
24 water wells currently situated on NASA-administered
25 property and the establishment of alternative drinking

1 water wells which are located on property under the ad-
2 ministrative control, either through lease, ownership, or
3 easement, of the Town of Chincoteague. Such agreement
4 shall, to the extent practicable, include the three remain-
5 ing wells to be removed and relocated, the location of the
6 site to which such wells would be relocated or are planned
7 to be relocated, and a current estimated cost of the reloca-
8 tion, including for the purchase, lease, or use of additional
9 property, engineering, design, permitting, and construc-
10 tion.

11 (b) SUBMISSION TO CONGRESS.—Not later than 18
12 months after the date of the enactment of this Act, the
13 Administrator, in coordination with the heads or other ap-
14 propriate representatives of relevant entities, shall submit
15 to the appropriate committees of Congress the agreement
16 under subsection (a).

17 **SEC. 816. RULE OF CONSTRUCTION.**

18 Nothing in this Act may be construed to limit the
19 ability of a NASA employee to discuss scientific research

1 performed by such employee in accordance with NASA's
2 scientific integrity policies.

Passed the House of Representatives September 23,
2024.

Attest: KEVIN F. MCCUMBER,
Clerk.