

118TH CONGRESS
2D SESSION

H. R. 8958

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

IN THE HOUSE OF REPRESENTATIVES

JULY 9, 2024

Mr. LUCAS (for himself, Ms. LOFGREN, Mr. BABIN, and Mr. SORENSEN) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

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,*

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

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

6 (b) TABLE OF CONTENTS.—The table of contents for
7 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. International contributions to human exploration.
- Sec. 203. Artemis program.
- Sec. 204. Reaffirmation of the Space Launch System.
- Sec. 205. Human lunar landing capabilities.
- Sec. 206. Advanced spacesuit capabilities.

TITLE III—SPACE OPERATIONS

- Sec. 301. Report on continued United States presence in low earth orbit.
- Sec. 302. Microgravity research.
- Sec. 303. International Space Station.
- Sec. 304. Nongovernmental missions on the International Space Station.
- Sec. 305. Report on suborbital crew missions.
- Sec. 306. United States deorbit capabilities.
- Sec. 307. Commercial low-earth orbit development.

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.

TITLE V—AERONAUTICS

- Sec. 501. Definitions.
- 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.

TITLE VI—SCIENCE

- Sec. 601. Maintaining a balanced science portfolio.
- Sec. 602. Evaluation of science mission cost-caps.
- Sec. 603. Reexamination of decadal surveys.
- Sec. 604. Assessment of science mission extensions.
- Sec. 605. Landsat.
- Sec. 606. Private earth observation data.
- Sec. 607. Commercial satellite data.
- Sec. 608. Greenhouse gas emission measurements.
- Sec. 609. NASA data for agricultural applications.
- Sec. 610. Planetary science portfolio.
- Sec. 611. Planetary defense.
- Sec. 612. Lunar discovery and exploration.
- Sec. 613. Commercial lunar payload services.
- Sec. 614. Planetary and lunar operations.

- Sec. 615. Mars sample return.
- Sec. 616. Hubble space telescope servicing.
- Sec. 617. Great observatories mission and technology maturation.
- Sec. 618. Nancy Grace Roman telescope.
- Sec. 619. Chandra X-Ray observatory.
- Sec. 620. Heliophysics research.
- Sec. 621. Study on commercial space weather data.
- Sec. 622. Geospace dynamics constellation.

TITLE VII—STEM EDUCATION

- Sec. 701. National space grant college and fellowship program.

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 science and technology policy report.
- Sec. 806. National space advisory committee.
- Sec. 807. Authorization for the transfer to NASA of funds from other agencies for scientific or engineering research or education.
- Sec. 808. Procedure for launch services risk mitigation.
- Sec. 809. Report on merits and options for establishing an institute relating to space resources.
- Sec. 810. Reports to Congress.
- Sec. 811. Advancement of private sector human space activities.

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.

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

5 (4) COMMERCIAL PROVIDER.—The term “com-
6 mercial provider” means any person providing space
7 services, primary control of which is held by persons
8 other than the Federal Government, a State or local
9 government, or a foreign government.

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

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

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

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

21 (9) SPACE LAUNCH SYSTEM.—The term “Space
22 Launch System” means the Space Launch System
23 authorized under section 302 of the National Aero-
24 nautics and Space Administration Authorization Act
25 of 2010 (42 U.S.C. 18322).

1 (10) UNITED STATES GOVERNMENT ASTRO-
2 NAUT.—The term “United States Government astro-
3 naut” has the meaning given the term “government
4 astronaut” in section 50905 of title 51, United
5 States Code, except that it does not include an indi-
6 vidual who is an international partner astronaut.

7 **TITLE I—AUTHORIZATION OF**
8 **APPROPRIATIONS**

9 **SEC. 101. FISCAL YEAR 2025.**

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

- 12 (1) For Exploration, \$7,618,200,000.
13 (2) For Space Operations, \$4,473,500,000.
14 (3) For Space Technology, \$1,181,800,000.
15 (4) For Science, \$7,334,200,000.
16 (5) For Aeronautic, \$965,800,000.
17 (6) For Education, \$135,000,000.
18 (7) For Safety, Security, and Mission Services,
19 \$3,044,440,000.
20 (8) For Construction and Environmental Com-
21 pliance and Restoration, \$424,100,000.
22 (9) For Inspector General, \$47,600,000.

TITLE II—EXPLORATION

SEC. 201. CONTINUITY OF PURPOSE FOR SPACE EXPLORATION.

(a) FINDINGS.—Congress finds the following:

(1) NASA continues to make progress in developing and testing the Space Launch System, Orion, and associated ground systems, including through the successful completion of the Artemis I mission in November 2022 and through continued preparations for the Artemis II crewed flight demonstration mission.

(2) The number of spacefaring countries is increasing, and foreign countries have expanded activities for space exploration efforts, including efforts to explore and utilize the Moon through human and robotic missions.

(3) A strong and ambitious space exploration program conducted with international and commercial partners is important to maintaining United States leadership in space and enhancing United States international competitiveness.

(4) Clear mission objectives that tie to concrete, long-term programmatic goals provide a measure to ensure accountability, enhance public support for exploration missions, and provide a clear signal of

1 commitment to both international and domestic
2 partners.

3 (b) CONTINUITY OF EXISTING CAPABILITIES AND
4 PROGRAMS.—

5 (1) As part of the human exploration activities
6 of the Administration, including progress on Artemis
7 missions and activities, the Administrator shall con-
8 tinue development of space exploration elements pur-
9 suant to section 10811 of the National Aeronautics
10 and Space Administration Authorization Act of 2022
11 (Public Law 117–167; 51 U.S.C. 20302).

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

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

21 **SEC. 202. INTERNATIONAL CONTRIBUTIONS TO HUMAN EX-**
22 **PLORATION.**

23 Subsection (d) of section 70504 of title 51, United
24 States Code, is amended to read as follows:

25 “(d) INTERNATIONAL PARTICIPATION.—

1 “(1) IN GENERAL.—In order to achieve the goal
2 of successfully conducting a crewed mission to the
3 surface of Mars, the President may invite the United
4 States partners in the International Space Station
5 program and other countries, as appropriate, to par-
6 ticipate in an international initiative under the lead-
7 ership of the United States.

8 “(2) LIMITATION.—After January 1, 2025, the
9 Administrator shall not include an international con-
10 tribution on the critical path for any mission sup-
11 porting the human exploration roadmap developed
12 pursuant to section 20302(b) of this title, or section
13 432 of the National Aeronautics and Space Adminis-
14 tration Transition Authorization Act of 2017 (51
15 U.S.C. 20302 note; Public Law 115–10), unless the
16 Administrator—

17 “(A) determines that the risk of under- or
18 non-performance by the international partner
19 making the contribution is low;

20 “(B) prepares a detailed plan to ensure
21 that any under- or non-performance of the
22 international partner will not result in signifi-
23 cant cost increases, disruption, or delay of
24 United States space exploration goals and ob-
25 jectives; and

1 “(C) transmits a report describing the
2 basis for the determination in subparagraph (A)
3 and the plan in subparagraph (B) to the Com-
4 mittee on Science, Space, and Technology of
5 the House of Representatives and the Com-
6 mittee on Commerce, Science, and Transpor-
7 tation of the Senate at least 30 days prior to
8 entering into a commitment with the inter-
9 national partner for such contribution.

10 “(3) DEFINITION.—In this subsection, the term
11 ‘critical path’ means any program element that, if
12 delayed or cancelled, or if modified in a way that
13 significantly impacts performance, would prevent,
14 delay, or impede progress, or increase costs for the
15 overall program.”.

16 **SEC. 203. ARTEMIS PROGRAM.**

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

19 (1) Exploration of outer space, including explo-
20 ration of the lunar surface and cislunar space, pro-
21 vides benefits and economic opportunity, including
22 by inspiring future generations and expanding the
23 science, technology, engineering, and mathematics
24 workforce needed to sustain United States leader-
25 ship in science, space, and technology.

1 (2) The lunar south pole is home to shadowed
2 craters that may contain water ice and other
3 volatiles. Understanding the nature of lunar polar
4 volatiles, such as water ice, would advance science
5 related to the origin and evolution of volatiles in the
6 inner solar system and could facilitate the long-term
7 future of space exploration. Water ice lunar re-
8 sources have the potential to become an enabling
9 component of future space exploration missions
10 throughout the solar system, including crewed mis-
11 sions to Mars.

12 (3) Other countries have demonstrated techno-
13 logical advances and successful robotic missions for
14 lunar exploration and have announced credible plans
15 for long-term human exploration of the Moon that
16 include the intent to establish lunar bases.

17 (4) United States leadership of and measurable
18 progress on the exploration of deep space is essential
19 for guiding development of norms related to oper-
20 ations on and around the Moon and for other space
21 destinations.

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

1 (b) IN GENERAL.—In carrying out activities to en-
2 able a crewed lunar landing under the Moon to Mars Pro-
3 gram, the Administrator shall—

4 (1) use relevant elements set forth in section
5 10811(b)(2)(B) of the National Aeronautics and
6 Space Administration Authorization Act of 2022
7 (Public Law 117–167);

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

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

19 (4) leverage private sector capabilities as set
20 forth in subsection (c).

21 (c) PRIVATE SECTOR CAPABILITIES ON THE MOON
22 IN SUPPORT OF LUNAR EXPLORATION EFFORTS.—

23 (1) PRIVATE SECTOR CAPABILITIES.—The Ad-
24 ministrador shall, to the greatest extent practicable,
25 use services of United States private sector providers

1 or engage in public-private partnerships to procure
2 logistical, augmenting, and supporting capabilities
3 and services for the human exploration of the Moon
4 or cislunar space.

5 (2) ELIGIBILITY.—For purposes of this section,
6 to be considered a United States private sector com-
7 mercial service provider, the provider must—

8 (A) be headquartered in the United States;

9 (B) be organized under the laws of the
10 United States or of a State;

11 (C) have more than 50 percent ownership
12 by United States citizens;

13 (D) employ United States citizens for the
14 majority of its positions;

15 (E) meet the requirement for components
16 mined, produced, or manufactured in the
17 United States to total at least 50 percent of the
18 total cost;

19 (F) use United States launch vehicles;

20 (G) be majority-designed, majority-devel-
21 oped, and majority-manufactured in the United
22 States; and

23 (H) maintain substantial ties to the United
24 States.

1 (d) ARTEMIS FLIGHT RATE AND SAFETY.—To main-
2 tain the critical human spaceflight production and oper-
3 ation skills necessary to safely conduct human spaceflight
4 activities in deep space, after the first crewed lunar land-
5 ing, the Administrator shall, to the extent practicable, seek
6 to carry out a flight rate of two crewed lunar landing mis-
7 sions annually until lunar activities needed to enable a
8 human mission to Mars are completed.

9 **SEC. 204. REAFFIRMATION OF THE SPACE LAUNCH SYS-**
10 **TEM.**

11 (a) SPACE LAUNCH SYSTEM.—

12 (1) DEVELOPMENT AND CADENCE OBJEC-
13 TIVES.—Congress reaffirms—

14 (A) support for the full development of ca-
15 pabilities of the Space Launch System as set
16 forth in section 302(c) of the National Aero-
17 nautics and Space Administration Authorization
18 Act of 2010 (42 U.S.C. 18322(c)).

19 (B) its commitment to the flight rate spec-
20 ified in section 10812(b) of the National Aero-
21 nautics and Space Administration Authorization
22 Act of 2022 (Public Law 117–267; 51 U.S.C.
23 20301 note).

24 (2) OTHER USES.—The Administrator shall as-
25 sess the utility of the Space Launch System, in ac-

1 cordance with section 421(g) of the National Aero-
2 nautics and Space Administration Transition Au-
3 thorization Act of 2017 (Public Law 115–10; 51
4 U.S.C. 20302 note), by entities other than NASA.
5 Such assessment shall—

6 (A) estimate overall cost and schedule sav-
7 ings from reduced transit times and the poten-
8 tial for increased returns enabled by the unique
9 capabilities of the Space Launch System;

10 (B) describe any barriers or challenges
11 that could prevent or impede use of the Space
12 Launch System by entities other than NASA;
13 and

14 (C) set forth recommendations, if any, for
15 enabling non-NASA uses of the Space Launch
16 System and mitigating any barriers and chal-
17 lenges described in subparagraph (B).

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

22 (1) NASA’s progress towards achieving the
23 flight rate referred to in subsection (a)(1)(B) and
24 the expected launch of the Space Launch System
25 after which such cadence shall be achieved.

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

3 **SEC. 205. HUMAN LUNAR LANDING CAPABILITIES.**

4 (a) REAFFIRMATION.—Congress reaffirms that the
5 Moon to Mars program, as set forth in subsection (b) of
6 section 10811 of the National Aeronautics and Space Ad-
7 ministration Authorization Act of 2022 (Public Law 117–
8 267; 51 U.S.C. 20302 note.; 136 Stat. 1732) shall include
9 human-rated lunar landing systems in accordance with
10 paragraph (2)(B)(v) of such subsection.

11 (b) HUMAN LANDING CAPABILITIES.—

12 (1) The Administrator shall support the devel-
13 opment and demonstration of, and shall obtain,
14 human-rated lunar landing capabilities to further
15 the goals of the human exploration roadmap under
16 section 432 of the National Aeronautics and Space
17 Administration Transition Authorization Act of
18 2017 (Public Law 115–10; 51 U.S.C. 20302 note).

19 (2) The Administrator shall ensure that such
20 human-rated lunar landing capabilities meet all rel-
21 evant requirements, including requirements of the
22 Moon to Mars program, and for human-rating and
23 certification.

24 (3) Any commercial provider from which the
25 Administrator obtains human-rated lunar landing

1 capabilities must be a United States private sector
2 commercial service provider, as described in section
3 203(c) of this Act.

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

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

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

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

21 (2) Not later than 90 days after the date of the
22 enactment of this Act, a report that sets forth, for
23 any agreement with a United States private sector
24 commercial provider for human lunar landing capa-
25 bilities, the following:

1 (A) The total value of the agreement when
2 awarded.

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

10 (C) The dollar amount invested and to be
11 invested by the Administration, and the dollar
12 amount invested and to be invested by the com-
13 mercial provider.

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

18 (E) If different from the amount specified
19 in subparagraph (C), the full requirements, in-
20 cluding human-rating and certification require-
21 ments, for the human lunar landing capabilities
22 under the agreement as of the date of the en-
23 actment of this Act and an explanation for any
24 changes in requirements.

1 (F) A description of milestones and associ-
2 ated payments provided for in the agreement,
3 including the following:

4 (i) An identification of all milestones
5 under the agreement.

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

9 (iii) An identification of completed
10 milestones and the date of completion.

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

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

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

23 (G) Any cost, schedule, and performance
24 challenges as of the date of the enactment of

1 this Act in provider performance of the agree-
2 ment.

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

6 (I) A detailed certification and of compli-
7 ance with section 50503 of title 51, United
8 States Code.

9 (3) Not later than 180 days after the date of
10 the enactment of this Act, in consultation with any
11 United States private sector commercial service pro-
12 vider of human lunar landing capabilities under this
13 section, a report on any steps the Administrator and
14 such providers are taking to carry out the following:

15 (A) Address cost, schedule, and perform-
16 ance challenges faced by each commercial pro-
17 vider in development and performance of
18 human lunar landing services described in para-
19 graph (2)(G).

20 (B) Facilitate the timely availability of
21 human lunar landing capabilities of each pro-
22 vider to support the schedule of Artemis mis-
23 sions in effect as of the date of the enactment
24 of this Act, as applicable to each provider.

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

10 **SEC. 206. ADVANCED SPACESUIT CAPABILITIES.**

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

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

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

21 (3) Maintaining a strong NASA core com-
22 petency in the design, development, manufacture,
23 and operation of space suits and related technologies
24 allows NASA to be an informed purchaser of com-

1 petitively awarded commercial space suits and sub-
2 components.

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

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

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

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

23 (b) IN GENERAL.—The Administrator shall obtain
24 advanced spacesuit capabilities necessary to achieve the
25 goals of NASA’s human exploration programs.

1 (c) ELIGIBILITY.—Any commercial provider from
2 which the Administrator obtains advanced spaceflight ca-
3 pabilities must be a U.S. private sector commercial service
4 provider, as set forth in section 203(c) of this Act.

5 (d) PRESERVING EXPERTISE.—

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

11 (2) The Johnson Space Center shall continue to
12 manage NASA's spacesuit and extravehicular activ-
13 ity programs.

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

17 (1) describing NASA's plans for—

18 (A) in-space testing of advanced spacesuit
19 capabilities, including—

20 (i) space suit tests which must be con-
21 ducted in microgravity in low-Earth orbit;
22 and

23 (ii) space suit tests that must be con-
24 ducted on the International Space Station

1 before decommissioning of the Inter-
2 national Space Station;

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

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

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

16 (2) including—

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

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

23 (f) ASSESSMENT OF EXTRAVEHICULAR MOBILITY
24 UNITES USED ON THE ISS.—

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

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

19 (3) The Administrator shall transmit the re-
20 sults of the assessment in paragraph (1) to the ap-
21 propriate committees of Congress as soon as prac-
22 ticable and no later than 270 days after the date of
23 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 the requirements referred to 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. MICROGRAVITY RESEARCH.**

23 Paragraph (2) of section 40904 of title 51, United
24 States Code, is amended—

1 (1) by inserting the phrase “use one or more
2 microgravity platforms, as determined appropriate
3 by the Administrator, to” before “carry out, to the
4 maximum extent”; and

5 (2) by striking “International Space Station”.

6 **SEC. 303. INTERNATIONAL SPACE STATION.**

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

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

13 (2) the ISS serves several functions, including
14 establishing the United States as a leader in space
15 activities, acting as a beacon of international co-
16 operation, and conducting cutting-edge microgravity
17 and observational research in low-Earth orbit;

18 (3) NASA must complete certain objectives on
19 the ISS to facilitate deep space exploration efforts,
20 including carrying out human research and dem-
21 onstrating exploration-related technologies; and

22 (4) reducing crew size or cargo deliveries, or re-
23 ducing sustaining engineering capabilities, would re-
24 duce the scientific output of the ISS and potentially
25 increase the risk to the ISS and its crew.

1 (b) FINDINGS.—Congress finds that section 70907 of
2 title 51, United States Code, does not prohibit the oper-
3 ation of the International Space Station after a specific
4 year.

5 (c) FULL UTILIZATION.—

6 (1) SENSE OF CONGRESS.—It is the sense of
7 Congress that, to ensure the greatest return on in-
8 vestments made by the United States and the Inter-
9 national Space Station partners in the development,
10 assembly, and operations of the International Space
11 Station, the Administrator should maximize the uti-
12 lization and productivity of the International Space
13 Station with respect to the priorities set forth in sec-
14 tion 10816 of the National Aeronautics and Space
15 Administration Authorization Act of 2022 (Public
16 Law 117–167; 51 U.S.C. 70901 note), which include
17 research of the human research program, risk reduc-
18 tion activities relevant to exploration technologies,
19 the advancement of United States leadership of
20 basic and applied space life and physical sciences,
21 and other research and development essential to
22 Moon to Mars program activities.

23 (2) AMENDMENT.—Section 502(a) of the Na-
24 tional Aeronautics and Space Administration Au-
25 thorization Act of 2010 (Public Law 111–267; 42

1 U.S.C. 18352(a)), is amended by striking “take
2 steps to”.

3 **SEC. 304. NONGOVERNMENTAL MISSIONS ON THE INTER-**
4 **NATIONAL SPACE STATION.**

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

7 (1) NASA seeks to enable a low-Earth orbit
8 economy by supporting commercial entities who seek
9 to provide both developing technologies, such as
10 commercial low-Earth orbit platforms, and tech-
11 nologies that already have been developed, such as
12 commercial spaceflight capabilities;

13 (2) nongovernmental missions involving crew or
14 crew and spaceflight participants on the Inter-
15 national Space Station carried out, as appropriate,
16 pursuant to NASA policies and procedures related to
17 International Space Station operations, and Federal
18 Government laws and regulations, can provide les-
19 sons and learning experiences for both government
20 and nongovernmental entities to inform the develop-
21 ment of future commercial low-Earth orbit platforms
22 and a low-Earth orbit economy; and

23 (3) the Administrator should, while safe-
24 guarding the proprietary information of nongovern-
25 mental entities, share lessons learned from private,

1 nongovernmental missions on the International
2 Space Station to advance the commercial human
3 spaceflight industry, to promote the safety of future
4 commercial low-Earth orbit platforms, and to inform
5 the evolution of policies guiding such activities in
6 low-Earth orbit.

7 (b) NONGOVERNMENTAL ISS MISSIONS.—The Ad-
8 ministrator may enter into agreements to allow United
9 States private sector commercial providers to conduct one
10 or more nongovernmental missions to the International
11 Space Station.

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

17 (1) The number of nongovernmental missions to
18 the ISS planned.

19 (2) The number of nongovernmental missions to
20 the ISS completed.

21 (3) The extent to which commercial entities car-
22 rying out nongovernmental missions on the ISS fully
23 reimburse Administration costs incurred by NASA
24 in association with any nongovernmental missions
25 carried out on the International Space Station.

1 (4) The extent to which private, nongovern-
2 mental missions on the International Space Station
3 impact the priorities specified in section 10816 of
4 the National Aeronautics and Space Administration
5 Authorization Act of 2022 (Public Law 117–167; 51
6 U.S.C. 70901 note).

7 (5) The impact, if any, to operations of or ac-
8 tivities on the International Space Station that are
9 not related to nongovernmental missions on the
10 International Space Station.

11 (6) A consideration of the extent to which any
12 nongovernmental missions on the ISS—

13 (A) conform with section 20102 of title 51,
14 United States Code;

15 (B) adhere to the requirements of section
16 50131 of title 51, United States Code; and

17 (C) are consistent with the national secu-
18 rity and foreign policy interests of the United
19 States.

20 (7) Any other issues or benefits related to non-
21 governmental missions on the International Space
22 Station that the Comptroller General determines ap-
23 propriate.

24 (d) DEFINITIONS.—In this section, the terms “crew”
25 and “spaceflight participant” have the meanings given

1 such terms in section 50902 of title 51, United States
2 Code.

3 **SEC. 305. REPORT ON SUBORBITAL CREW MISSIONS.**

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

11 **SEC. 306. UNITED STATES DEORBIT CAPABILITIES.**

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

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

17 (2) to protect the safety of the public, and to
18 avoid interfering with other space operators or ob-
19 jects, NASA plans to deorbit and disposition the
20 International Space Station through a controlled at-
21 mospheric reentry over an uninhabited region.

22 (b) AUTHORIZATION.—

23 (1) The Administrator shall acquire ISS deorbit
24 capabilities from a United States private sector com-
25 mercial service provider or providers.

1 (2) In carrying out paragraph (1), the Adminis-
2 trator shall, to the greatest extent practicable, not
3 reduce or deprioritize NASA activities conducted on
4 and in support of the ISS to support the develop-
5 ment of United States deorbit capabilities.

6 (c) COSTS.—

7 (1) INDEPENDENT COST ESTIMATE.—Before
8 entering into an agreement for the capabilities de-
9 scribed in subsection (b), the Administrator shall ob-
10 tain an independent life-cycle cost estimate for the
11 deorbit capability and shall report the results of
12 such estimate and five-year budget profile to the ap-
13 propriate committees of Congress.

14 (2) REPORT.—

15 (A) Not later than one year after the date
16 of the enactment of this Act, the Administrator
17 shall submit to the appropriate committees of
18 Congress a report detailing the Administra-
19 tion’s plan for the financial, logistical, and
20 operational responsibilities associated with the
21 deorbit capability.

22 (B) Annually, the Administrator shall sub-
23 mit to the appropriate committees of Congress
24 a report, to accompany the President’s budget
25 request, containing a description of annual and

1 lifecycle costs for activities related to the
2 deorbit of the International Space Station and
3 how such costs are shared among the ISS part-
4 ners.

5 **SEC. 307. COMMERCIAL LOW-EARTH ORBIT DEVELOPMENT.**

6 (a) STRATEGY.—Not later than 180 days after the
7 date of the enactment of this Act, the Administrator, in
8 consultation with the National Space Council, shall submit
9 to the appropriate committees of Congress a strategy for
10 a robust and resilient architecture to advance NASA and
11 other relevant Federal Government civil research, develop-
12 ment, and operational requirements in low-Earth orbit.
13 The architecture should—

14 (1) include a mix of crewed and uncrewed plat-
15 forms;

16 (2) consider an incremental approach to achiev-
17 ing the full suite of capabilities necessary to meet
18 Administration research, development, and oper-
19 ational requirements in low-Earth orbit;

20 (3) consider the requirements described in sub-
21 section (d); and

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

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

14 (c) AUTHORIZATION.—The Administrator is author-
15 ized to enter into agreements with one or more United
16 States commercial providers, as such term is defined in
17 section 203(c) of this Act, to enable the development and
18 certification of a United States private, low-Earth orbit
19 platform, and to use such platform and platform capabili-
20 ties to achieve the goals set forth in the strategy under
21 subsection (a), sustain the priorities described in section
22 10816 of the National Aeronautics and Space Administra-
23 tion Authorization Act of 2022 (Public Law 117–167; 51
24 U.S.C. 70901 note) and the activities under the Human
25 Exploration Roadmap pursuant to section 432(b)(2)(J) of

1 the National Aeronautics and Space Administration Tran-
2 sition Authorization Act of 2017 (Public Law 115–10)
3 and to meet the requirements described in subsection (b).

4 (d) ANCHOR TENANCY.—No later than November 15,
5 2025, the Administrator shall provide to the appropriate
6 committees of Congress the following:

7 (1) The results of a survey and assessment of
8 the market for capabilities and services that may be
9 provided through future United States commercial
10 low-Earth orbit platform that shall be prepared by
11 an independent entity with appropriate expertise.

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

14 (3) A detailed certification and justification of
15 compliance with section 50503 of title 51, United
16 States Code.

17 (e) USE OF UNITED STATES LAUNCH AND REENTRY
18 SERVICES.—As a term of an agreement entered into under
19 to subsection (d), the Administrator shall include a re-
20 quirement for the use of United States commercially pro-
21 vided launch and reentry services to support all Adminis-
22 tration activities under such agreement, in accordance
23 with section 50131 of title 51, United States Code, as ap-
24 plicable.

1 (f) SAFETY.—When an agreement under subsection
2 (d) involves government astronauts (as such term is de-
3 fined in section 50902(4) of title 51, United States Code),
4 the Administrator shall protect the safety of such govern-
5 ment astronauts by ensuring that each platform under the
6 agreement meets all applicable human rating processes,
7 certification, and safety requirements.

8 **TITLE IV—SPACE TECHNOLOGY**

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

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

15 **SEC. 402. LUNAR POWER PURCHASE AGREEMENT PRO-** 16 **GRAM.**

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

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

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

4 (2) A demand forecast for lunar surface power,
5 including the following:

6 (A) Forecasted demand of both govern-
7 mental and nongovernmental users.

8 (B) To support the following:

9 (i) Near-term exploration activities.

10 (ii) Long-duration activities.

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

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

18 (1) The Lunar Surface Innovation Consortium.

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

22 (3) International partners.

23 (4) Relevant private sector entities.

24 (d) REPORT.—Not later than 24 months after the
25 date of the enactment of this Act, the Administrator may

1 submit to the appropriate committees of Congress a report
2 that includes the results of the study conducted pursuant
3 to subsection (a).

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

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

10 (b) TECHNOLOGY AND RESEARCH REVIEW.—

11 (1) IN GENERAL.—Not later than 90 days after
12 the date of the enactment of this Act, subject to the
13 availability of appropriations, the Administrator
14 shall seek to enter into an agreement with an inde-
15 pendent research and development center or other
16 independent nonprofit organization, as determined
17 appropriate by the Administrator, to conduct a re-
18 view of cryogenic fluid valve technology in accord-
19 ance with this section.

20 (2) REVIEW AND ASSESSMENT.—In accordance
21 with any agreement entered into pursuant to para-
22 graph (1), the center or organization referred to in
23 such paragraph shall review recent advances in tech-
24 nologies related to cryogenic fluid valve use in space
25 applications and assess opportunities to improve

1 such cryogenic fluid valve technologies. The review
2 shall include an assessment of ongoing public and
3 private sector research and development efforts to
4 improve cryogenic fluid valve technologies, including
5 support for research and development activities to
6 advance materials engineering for cryogenic fluid
7 valves.

8 (c) REPORT.—Not later than 18 months after the
9 date of the enactment of this Act, in accordance with any
10 agreement entered into pursuant to subsection (b)(1), the
11 center or organization referred to in such subsection shall
12 submit to the Administrator and the appropriate commit-
13 tees of Congress a report detailing the results of the review
14 and assessment under subsection (b).

15 **SEC. 404. LUNAR COMMUNICATIONS.**

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

17 (1) Reliable communication and navigation ca-
18 pabilities are essential for sustainable human and
19 robotic exploration of the Moon.

20 (2) NASA’s LunaNet and LCRNS initiatives
21 will enable critical cislunar communications and
22 navigation infrastructure.

23 (3) Fostering the development of commercial
24 capabilities can accelerate the deployment of lunar
25 communication and navigation services.

1 (b) ARCHITECTURE.—

2 (1) IN GENERAL.—The Administrator shall de-
3 velop and maintain a robust and resilient architec-
4 ture for lunar communications and navigation to
5 support the Administration’s human and robotic
6 lunar exploration activities. As part of these efforts,
7 the Administrator shall continue development and
8 implementation of the LunaNet architecture and the
9 LCRNS project.

10 (2) OBJECTIVES.—In carrying out paragraph
11 (1), the Administrator shall—

12 (A) enable interoperable communications
13 and navigation services for cislunar missions;

14 (B) establish technical standards, con-
15 sistent with section 12(d) of the National Tech-
16 nology Transfer and Advancement Act of 1995
17 (Public Law 104–113), protocols, and interface
18 requirements, in cooperation with the private
19 sector and other United States Government
20 agencies and international partners, as nec-
21 essary, for cislunar communications and naviga-
22 tion services and systems;

23 (C) support NASA’s Artemis program;

24 (D) support NASA’s Science Mission Di-
25 rectorate missions;

1 (E) support NASA's Space Operations
2 Mission Directorate;

3 (F) leverage NASA's space technology re-
4 search, development, and demonstration activi-
5 ties;

6 (G) enable the development and sustain-
7 able operations of commercial cislunar commu-
8 nication and navigation services by the United
9 States private sector;

10 (H) identify existing or potential customers
11 for cislunar communications and navigation
12 services other than the United States Govern-
13 ment; and

14 (I) ensure that the long-term viability of
15 such systems are not dependent upon continued
16 Government market or other non-reimbursable
17 government support and that private sector
18 capital is at risk.

19 (c) PROCUREMENT OF COMMERCIAL SERVICES.—

20 (1) IN GENERAL.—In carrying out subsection
21 (b), the Administrator shall, to the greatest extent
22 practicable, procure cislunar communications and
23 navigation services from commercial providers.

24 (2) COMPETITION.—The Administrator shall
25 use competitive procedures to the maximum extent

1 practicable when procuring cislunar communications
2 and navigation services.

3 (3) REPORT.—Not later than 180 days after
4 the date of the enactment of this Act, the Adminis-
5 trator shall submit to Congress a report on NASA’s
6 plans for procuring commercial lunar communica-
7 tions and navigation services.

8 (d) DEFINITIONS.—In this subsection:

9 (1) LUNANET.—The term “LunaNet” means
10 NASA’s architecture for standardized lunar commu-
11 nications, navigation, and networking services.

12 (2) LCRNS.—The term “LCRNS” means
13 NASA’s Lunar Communications Relay and Naviga-
14 tion Systems project.

15 **TITLE V—AERONAUTICS**

16 **SEC. 501. DEFINITIONS.**

17 In this title:

18 (1) ADVANCED AIR MOBILITY; AAM.—The terms
19 “advanced air mobility” and “AAM” mean a trans-
20 portation system that is comprised of urban air mo-
21 bility and regional air mobility using manned or un-
22 manned aircraft.

23 (2) ELIGIBLE INSTITUTION.—The term “eligi-
24 ble institution” means—

25 (A) an institution of higher education;

1 (B) a nonprofit research institution;

2 (C) a high school; or

3 (D) a consortium of 2 or more entities de-
4 scribed in any of subparagraphs (A) through
5 (C).

6 (3) REGIONAL AIR MOBILITY.—The term “re-
7 gional air mobility” means the movement of pas-
8 sengers or property by air between 2 points using an
9 airworthy aircraft that—

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

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

16 (C) is not urban air mobility.

17 (4) UNMANNED AIRCRAFT SYSTEM.—The term
18 “unmanned aircraft system” has the meanings given
19 such term in section 44801 of title 49, United
20 States Code.

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

1 (A) has advanced technologies, such as dis-
2 tributed propulsion, vertical takeoff and land-
3 ing, powered lift, nontraditional power systems,
4 or autonomous technologies; and

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

7 (6) UTM.—The term “UTM” means an un-
8 manned aircraft system traffic management system
9 or service.

10 (7) X-PLANE.—The term “X-plane” means an
11 experimental aircraft that is—

12 (A) used to test and evaluate a new tech-
13 nology or aerodynamic concept; and

14 (B) operated by NASA or the Department
15 of Defense.

16 **SEC. 502. EXPERIMENTAL AIRCRAFT DEMONSTRATIONS.**

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

22 (b) FUTURE DEMONSTRATIONS.—The study under
23 subsection (a) shall identify systems, capabilities, and
24 technologies that could be viable candidates for matura-
25 tion and demonstration through the development of an ex-

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

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

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

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

23 (3) the extent to which the system, capability,
24 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 is 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 in the aviation auton-
6 omy as the National Airspace System evolves from trajec-
7 tory-based operations to collaborative and highly auto-
8 mated operations.

9 (b) COLLABORATION.—The Administrator shall, in
10 collaboration with the Administrator of Federal Aviation
11 Administration, the heads of other relevant Federal agen-
12 cies, and appropriate representatives of academia and in-
13 dustry, to continue its research activities in the following:

14 (1) Sky for All, which seeks to establish a re-
15 search and development framework supporting na-
16 tional strategic planning for a holistic airspace eco-
17 system to meet future needs of increasingly complex
18 airspace operations.

19 (2) Uncrewed Aerial Vehicle Traffic Manage-
20 ment (UTM), addressing prototype technologies and
21 developing a concept of operations for integrated
22 UAS traffic management. This research considers—

23 (A) Mixed Airspace environments with in-
24 creasingly automated technologies;

25 (B) dynamic geofencing;

26 (C) congestion management;

1 (D) terrain avoidance to enable safe, effi-
2 cient low-altitude operations; and

3 (E) accelerating capabilities used to re-
4 spond to public emergencies.

5 (3) Airspace and operations research of autono-
6 mous vehicles in the national airspace system, in-
7 cluding autonomy flight research and demonstra-
8 tions by utilizing test ranges established under sec-
9 tion 44803, of title 49, United States Code, or exist-
10 ing Federal and nonfederal test ranges and testbeds
11 to advance autonomous aircraft technology architec-
12 ture, beyond visual line of sight airspace operations
13 in the mixed airspace environment with safety man-
14 agement system capabilities, balancing human-ma-
15 chine interactions for safer, more efficient flight for
16 advanced air mobility and emerging autonomous air-
17 craft for cargo and passenger market.

18 (4) Supply chain management, including devel-
19 opment of analysis and modeling capability and
20 identify strategic gaps in the aerospace supply chain,
21 including for Advanced Air Mobility.

22 (c) BRIEF.—Not later than 18 months after the date
23 of the enactment of this Act, the Administrator shall brief
24 the appropriate committees of Congress on the progress

1 of the research under subsection (b) and activities related
2 to technology demonstration and technology transfer.

3 **SEC. 506. ADVANCED CAPABILITIES FOR EMERGENCY RE-**
4 **SPONSE OPERATIONS.**

5 (a) IN GENERAL.—The Administrator shall leverage
6 NASA-developed tools and technologies to conduct re-
7 search and development activities under the Advanced Ca-
8 pabilities for Emergency Response Operations (ACERO)
9 program to improve aerial responses to wildfires.

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

12 (1) Advanced aircraft technologies and airspace
13 management efforts to assist in the management,
14 deconfliction, and coordination of aerial assets dur-
15 ing wildfire response efforts.

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

18 (3) Development of an interoperable platform to
19 provide situational awareness of aerial assets during
20 wildfire response.

21 (4) Establishment of a multi-agency concept of
22 operations, which may involve Federal, State, and
23 local government agencies, to enable coordination of
24 aerial activities for wildfire response.

1 (c) COLLABORATION.—In carrying out this section,
2 the Administrator—

3 (1) may coordinate and collaborate with other
4 Federal, State, and local government agencies, re-
5 gional organizations, and commercial partners and
6 academic institutions involved in wildfire manage-
7 ment; and

8 (2) shall, to the maximum extent practicable,
9 consult with the heads of other Federal departments
10 and agencies to avoid duplication of activities.

11 (d) PROHIBITION.—

12 (1) IN GENERAL.—Except as provided in this
13 subsection, the Administrator may not procure an
14 unmanned aircraft system to conduct activities de-
15 scribed in this section if such unmanned aircraft sys-
16 tem is manufactured or assembled by a covered for-
17 eign entity.

18 (2) EXEMPTION.—The Administrator may
19 waive the prohibition under paragraph (1) on a case-
20 by-case basis if the Administrator—

21 (A) determines that the procurement of an
22 unmanned aircraft system is—

23 (i) in the national interest of the
24 United States; and

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

3 (B) notifies the Committee on Science,
4 Space, and Technology of the House of Rep-
5 resentatives and the Committee on Commerce,
6 Science, and Transportation of the Senate not
7 later than 30 days after a determination in the
8 affirmative under subparagraph (A).

9 (e) ANNUAL REPORTS.—Not later than one year
10 after the date of the enactment of this Act and annually
11 thereafter until December 31, 2029, the Administrator
12 shall submit to the Committee on Science, Space and
13 Technology of the House of Representatives and the Com-
14 mittee on Commerce, Science, and Transportation of the
15 Senate a report describing the activities, including results,
16 carried out pursuant to this section 2. Each such report,
17 at minimum, shall contain the following:

18 (1) A description of any research and develop-
19 ment activities.

20 (2) A description of the Administrator's activi-
21 ties pursuant to subsection (c).

22 (3) An assessment of the effectiveness of such
23 activities in preventing injuries and loss of life, pro-
24 tecting property, and reducing economic damage.

1 (4) An identification of any topics related to
2 improvement of aerial responses to wildfires that
3 could benefit from further research.

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

6 (6) Any other information determined appro-
7 priate by the Administrator.

8 (f) DEFINITION.—In this section:

9 (1) COVERED FOREIGN ENTITY.—The term
10 “covered foreign entity” has the meaning given such
11 term in section 1832 of the National Defense Au-
12 thorization Act for Fiscal Year 2024 (Public Law
13 118–31).

14 (2) UNMANNED AIRCRAFT SYSTEM.—The term
15 “unmanned aircraft system” has the meaning given
16 such term in section 44801 of title 49, United
17 States Code.

18 **SEC. 507. HYDROGEN AVIATION.**

19 (a) IN GENERAL.—Subject to the availability of ap-
20 propriations for such purpose, and taking into consider-
21 ation the strategy developed under and research conducted
22 pursuant to section 1019 of the FAA Reauthorization Act
23 of 2024 (Public Law 118–63), the Administrator shall
24 carry out a research program on the emerging tech-
25 nologies related to hydrogen aviation.

1 (b) OBJECTIVES.—The research under subsection (a)
2 may include the following:

3 (1) Safety and feasibility of onboard aircraft
4 hydrogen cryocompression and storage.

5 (2) Cryogenic storage cycling materials and sys-
6 tem longevity.

7 (3) Liquid hydrogen pumps for long term use.

8 (4) Compact lightweight liquid hydrogen gas
9 compressors, and tank level sensors for liquid hydro-
10 gen.

11 (c) 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.

11 (3) To explore the use of 3D additive manufac-
12 tured parts.

13 (4) Acquisition or using through loan, sharing,
14 or other agreements, as appropriate, Department of
15 Defense aircraft to support NASA's research and
16 mission support activities, as required.

17 **SEC. 509. COLLABORATION WITH ACADEMIA.**

18 It is the sense of Congress that—

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

22 (2) collaborating with academia allows NASA to
23 access cutting-edge research and expertise that can
24 further enable advancement in aeronautics research

1 and technology and address complex aeronautical
2 challenges;

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

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

17 **SEC. 510. NATIONAL STUDENT UNMANNED AIRCRAFT SYS-**
18 **TEMS COMPETITION PROGRAM.**

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

1 (b) COMPETITION ADMINISTRATION.—The Adminis-
2 trator shall award, on a merit-reviewed, competitive basis,
3 a grant to a nonprofit organization, an institution of high-
4 er education, or a consortium thereof, to administer the
5 pilot program under subsection (a) (in this section re-
6 ferred to as the “competition administrator”).

7 (c) AWARD CRITERIA.—The Administrator shall en-
8 sure that the award decision made under subsection (b)
9 take into account the extent to which the nonprofit organi-
10 zation, institution of higher education, or consortium
11 thereof—

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

15 (2) identifies a plan for connecting science,
16 technology, engineering, and medicine (STEM) ac-
17 tivities to Administration missions and centers.

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

21 (1) Awarding grants to nonprofit organizations,
22 institutions of higher educations, or a consortium
23 thereof on a merit-reviewed, competitive basis to
24 host individual competitions.

1 (2) Developing STEM curriculum to be utilized
2 by the competition awardees to help students make
3 the connection between such curriculum and the de-
4 sign, construction, and demonstration of unmanned
5 aircraft systems.

6 (3) Developing such curriculum to assist stu-
7 dents in making real-world connections to STEM
8 content and educating students on the relevance and
9 significance of STEM careers.

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

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

14 (A) The number of students engaged.

15 (B) Geographic and institutional diversity
16 of participating schools and institutions of high-
17 er education.

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

20 (e) **ADDITIONAL CONSIDERATIONS.**—In awarding
21 grants in subsection (d), the competition administrator
22 shall consider applications that include a partnership with
23 the State’s space grant program under chapter 403 of title
24 51, United States Code.

1 (f) PERMITTED ACTIVITIES.—In carrying out the
2 pilot program under subsection (a), the competition ad-
3 ministrator shall ensure competitions occurring at both
4 the high school and undergraduate levels—

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

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

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

12 (4) connect relevant STEM curriculum to the
13 design, construction, and demonstration of un-
14 manned aircraft systems;

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

19 (6) are geographically dispersed in order to
20 serve a broad student population, including students
21 in rural and underserved communities; and

22 (7) encourage, to the greatest extent prac-
23 ticable, the participation of students from groups
24 historically underrepresented in STEM.

1 (g) REPORT TO CONGRESS.—Not later than six
2 months after the end of the pilot program under sub-
3 section (a), the Administrator shall submit to the appro-
4 priate committees of Congress a report describing the ac-
5 complishments, lessons learned, any challenges in the im-
6 plementation of the pilot program, and recommendations
7 for whether to continue the pilot program.

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 **TITLE VI—SCIENCE**

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

5 (a) SENSE OF CONGRESS.—Congress reaffirms the
6 sense of Congress that—

7 (1) a balanced and adequately funded set of ac-
8 tivities consisting of research and analysis grant pro-
9 grams, technology development, suborbital research
10 activities, and small, medium, and large space mis-
11 sions, contributes to a robust and productive science
12 program and serves as a catalyst for innovation and
13 discovery; and

14 (2) the Administrator should set NASA sci-
15 entific priorities by following the recommendations
16 and guidance provided by the scientific community
17 through the National Academies of Sciences, Engi-
18 neering, and Medicine decadal surveys.

19 (b) POLICY.—Congress reaffirms the policy of the
20 United States set forth in section 501(e) of the National
21 Aeronautics and Space Administration Transition Author-
22 ization Act of 2017 (Public Law 115–10; 51 U.S.C. 20302
23 note), which states, “It is the policy of the United States
24 to ensure, to the extent practicable, a steady cadence of
25 large, medium, and small science missions”.

1 **SEC. 602. EVALUATION OF SCIENCE MISSION COST-CAPS.**

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

4 (1) NASA science missions address compelling
5 scientific questions prioritized by the National Acad-
6 emies decadal surveys, and often such missions ex-
7 ceed expectations in terms of performance, longevity,
8 and scientific impact;

9 (2) the Administrator should continue to pursue
10 an ambitious science program while also seeking to
11 avoid excessive cost growth, and which has the po-
12 tential to affect the balance across the Science port-
13 folio and within the Science Divisions;

14 (3) audits by the NASA Inspector General and
15 the Government Accountability Office have reported
16 that early cost estimates for missions in the prelimi-
17 nary phases of conception and development are im-
18 mature and unreliable, and the cost of a mission
19 typically is not well-understood until the project is
20 further along in the development process;

21 (4) cost growth of a mission beyond its early
22 cost estimates is a challenge for budget planning
23 and has the potential to affect other missions in the
24 Science Mission Directorate portfolio, including
25 through delays to future mission solicitations; and

1 (5) relying on early cost estimates made prior
2 to preliminary design review for science missions
3 which then experience such cost growth may
4 disincentivize program and cost discipline moving
5 forward.

6 (b) REPORT.—Not later than 12 months after the
7 date of the enactment of this Act, the Comptroller General
8 shall transmit to the appropriate committees of Congress
9 a review of NASA practices related to assessment and
10 management of science missions subject to cost-caps. The
11 review shall—

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

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

18 (3) describe the information NASA requires as
19 part of a proposal submission related to project cost
20 estimates and proposal compliance with cost caps,
21 and assess whether such required information pro-
22 vides sufficient insight or confidence in the esti-
23 mates;

1 (4) consider NASA processes for assessing pro-
2 posed cost estimates and accuracy of such assess-
3 ments for past projects; and

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

7 (A) a list of—

8 (i) missions for which costs have ex-
9 ceeded the associated cost cap; and

10 (ii) reason the mission costs exceeded
11 the cost-cap;

12 (B) an assessment of NASA's role in pre-
13 dicting, preventing, or managing mission cost
14 increases; and

15 (C) a description of the impact of in-
16 creased mission costs beyond the cost-caps on—

17 (i) the missions for which the cost-cap
18 has been breached; and

19 (ii) other missions within the applica-
20 ble division and within the Science Mission
21 Directorate.

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

23 Title 51, United States Code, is amended—

1 (1) in section 20305(c) by inserting “, signifi-
2 cant changes to the NASA budget” after “growth”;
3 and

4 (2) in section 30503(a), by adding at the end
5 the following: “Such review shall include an assess-
6 ment of whether the prioritization of research and
7 programmatic areas in the decadal survey should be
8 reconsidered to account for significant changes to
9 the NASA budget, if any.”.

10 **SEC. 604. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.**

11 Section 30504(a)(2) of title 51, United States Code,
12 is amended after “the start of future missions” by adding
13 “or impacts ongoing operations of other missions within
14 the division of the Science Mission Directorate.”.

15 **SEC. 605. LANDSAT.**

16 Not later than 180 days after the date of enactment
17 of this Act, the Administrator shall transmit a report to
18 the appropriate committees of Congress—

19 (1) describing the Administrator’s efforts to
20 comply with the requirements outlined in section
21 60134 of title 51, United States Code;

22 (2) assessing what aspects of Landsat NEXT
23 or any other Landsat observations—

24 (A) can be provided by private sector data-
25 buys or service procurements; and

1 (B) could—

2 (i) meet associated science require-
3 ments while maintaining or exceeding the
4 quality, integrity, and continuity of the
5 Landsat observational capabilities and per-
6 formance, including requirements nec-
7 essary to ensure high-quality calibrated
8 data continuity and traceability with the
9 50-year Landsat data record; and

10 (ii) comply with nondiscriminatory
11 availability of unenhanced data and public
12 archiving of data pursuant to section
13 60141 and 60142 of title 51, United
14 States Code, and all other relevant federal
15 laws, regulations, and policies related to
16 open science and data accessibility;

17 (3) any potential tradeoffs or other impacts of
18 subparagraph (A) or (B) that could reduce the ben-
19 efit of Landsat data for scientific and applied uses
20 or reduce the Federal Government’s ability to make
21 such data available for the widest possible use; and

22 (4) recommendations and opportunities for the
23 Federal Government to—

24 (A) adjust science requirements to better
25 reflect commercially available solutions without

1 reducing quality, integrity, and continuity of
2 data;

3 (B) comply with section 60141 and 60142
4 of title 51, United States Code while also pro-
5 tecting the proprietary data and competitive-
6 ness of the commercial providers;

7 (C) mitigate any potential tradeoffs or im-
8 pacts identified under paragraph (3); and

9 (D) otherwise accommodate private sector
10 data-buys or service procurements to further
11 compliance with section 60134 of title 51,
12 United States Code.

13 **SEC. 606. PRIVATE EARTH OBSERVATION DATA.**

14 (a) AMENDMENTS.—Section 18371 of title 42,
15 United States Code, is amended—

16 (1) by redesignating the contents of section
17 18371 as subsection (a);

18 (2) by inserting after subsection (a), as redesign-
19 nated, the following:

20 “(b) In updating the civil Earth observation strategic
21 implementation plan pursuant to subsection (a), the Di-
22 rector of the Office of Science and Technology Policy shall
23 consider commercial Earth observation data, as appro-
24 priate, that can be purchased or accessed by the Federal
25 Government to meet Earth observation requirements.”.

1 (b) GOVERNMENT ACCOUNTABILITY OFFICE RE-
2 PORT.—Not later than 12 months after the release of the
3 next civil Earth observation strategic implementation plan
4 update under section 18371(a) of title 42, United States
5 Code, the Comptroller General shall report to the appro-
6 priate committees of Congress an assessment of the Direc-
7 tor of the Office of Science and Technology Policy’s imple-
8 mentation of 18371(b) of title 42, United States Code,
9 as amended.

10 **SEC. 607. COMMERCIAL SATELLITE DATA.**

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

13 (1) Section 60501 of title 51, United States
14 Code, states that the goal for the Earth Science pro-
15 gram of the National Aeronautics and Space Admin-
16 istration (referred to in this section as “NASA”)
17 shall be to pursue a program of Earth observations,
18 research, and applications activities to better under-
19 stand the Earth, how it supports life, and how
20 human activities affect its ability to do so in the fu-
21 ture.

22 (2) Section 50115 of title 51, United States
23 Code, states that the Administrator of NASA shall,
24 to the extent possible and while satisfying the sci-
25 entific or educational requirements of NASA, and

1 where appropriate, of other Federal agencies and
2 scientific researchers, acquire, where cost effective,
3 space-based and airborne commercial Earth remote
4 sensing data, services, distribution, and applications
5 from a commercial provider.

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

11 (4) The Administrator of NASA has—

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

17 (B) established a formal process for evalu-
18 ating and onboarding new commercial vendors
19 in such pilot program;

20 (C) increased the number of commercial
21 vendors and commercial data products available
22 through such pilot program; and

23 (D) expanded procurement arrangements
24 with commercial vendors to broaden user access
25 to provide commercial Earth remote sensing

1 data and imagery to federally funded research-
2 ers.

3 (b) COMMERCIAL SATELLITE DATA ACQUISITION
4 PROGRAM.—

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

8 **“§ 60307. Commercial satellite data acquisition pro-**
9 **gram**

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

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

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

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

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

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

12 “(2) establish or modify end-use license terms
13 and conditions to allow for the use of procured com-
14 mercial Earth remote sensing data and imagery by
15 individuals other than NASA-funded users, con-
16 sistent with the goals of the program; and

17 “(3) as practicable, procure commercial Earth
18 remote sensing data and imagery from commercial
19 vendors to support—

20 “(A) nonscientific applications; and

21 “(B) nonmilitary activities of Federal
22 agencies.

23 “(d) UNITED STATES VENDORS.—Commercial Earth
24 remote sensing data and imagery referred to in sub-

1 sections (a) and (c) shall, to the maximum extent prac-
2 ticable, be procured from United States vendors.

3 “(e) REPORT.—Not later than 180 days after the
4 date of the enactment of this section and annually there-
5 after, the Administrator shall submit to the Committee on
6 Commerce, Science, and Transportation of the Senate and
7 the Committee on Science, Space, and Technology of the
8 House of Representatives a report that includes the fol-
9 lowing information regarding the agreements, vendors, li-
10 cense terms, and uses of commercial Earth remote sensing
11 data and imagery under this section:

12 “(1)(A) In the case of the initial report, a list
13 of all agreements that are providing commercial
14 Earth remote sensing data and imagery to NASA as
15 of the date of the report.

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

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

22 “(3) A description of the manner in which each
23 such agreement is advancing scientific research and
24 applications, including priorities recommended by

1 the National Academies of Sciences, Engineering,
2 and Medicine decadal surveys.

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

8 (2) CLERICAL AMENDMENT.—The table of con-
9 tents for chapter 603 of title 51, United States
10 Code, is amended by adding at the end the following
11 new item:

“60307. Commercial Satellite Data Acquisition Program.”.

12 **SEC. 608. GREENHOUSE GAS EMISSION MEASUREMENTS.**

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

15 (1) observation and measurement of greenhouse
16 gases such as carbon dioxide and methane are of
17 critical importance to understand the sources of
18 these emissions;

19 (2) additional tools can improve the precise de-
20 tection of methane leaks from natural gas lines and
21 production facilities to reduce economic losses and to
22 reduce unintentional release of this potent green-
23 house gas;

1 (3) observation of such gases is best accom-
2 plished with a combination of space-based and
3 ground-based instruments;

4 (4) in 2022, NASA cancelled the Geostationary
5 Carbon Cycle Observatory, a competitively selected,
6 Principal Investigator-led instrument under develop-
7 ment that is designed to make space-based observa-
8 tions of greenhouse gases, including carbon dioxide,
9 carbon monoxide, and methane, as well as vegetation
10 health over the western hemisphere from geo-
11 synchronous orbit; and

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

16 (b) **HARDWARE.**—

17 (1) The Administrator shall assess the hard-
18 ware and, to the maximum extent practicable, seek
19 to validate the instrument delivered to the Adminis-
20 tration under the contract for the development of
21 GeoCarb, which shall include an assessment of capa-
22 bilities of the delivered hardware, including potential
23 repurposed uses or science contributions.

24 (2) The Administrator, within 6 months of the
25 date of the enactment of this Act, shall provide a re-

1 port to the appropriate committees of Congress re-
2 garding the results of the assessment conducted pur-
3 suant to paragraph (1) and if appropriate based on
4 the assessment, a list of potential launch opportuni-
5 ties, including cost and schedule associated with
6 such opportunities.

7 (c) STRATEGY.—

8 (1) IN GENERAL.—Not later than 90 days after
9 the date of the enactment of this Act, the Adminis-
10 trator, in consultation with the National Oceanic
11 and Atmospheric Administration, the National Insti-
12 tute of Standards and Technology, and other rel-
13 evant agencies, shall enter into an agreement with
14 the National Academies of Sciences, Engineering,
15 and Medicine to develop a science-based strategy to
16 assess and evaluate the use of present and future
17 greenhouse gas monitoring and detection capabili-
18 ties, including ground-based, airborne, and space-
19 based sensors and integration of data relating to
20 such monitoring and detection from other indicators,
21 to detect large methane emission events (commonly
22 referred to as “methane super-emitters”).

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

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

3 (B) Examination of whether and how cur-
4 rent and planned Federal greenhouse gas moni-
5 toring and detection capabilities may be lever-
6 aged to monitor and detect methane super-
7 emitters, and identify key gaps in such capabili-
8 ties.

9 (C) Examination of the effectiveness of the
10 U.S. Greenhouse Gas Center and Greenhouse
11 Gas Monitoring and Measurement Interagency
12 Working Group in facilitating interagency col-
13 laboration for greenhouse gas monitoring and
14 detection, data standards, stewardship, and
15 data integration, including activities related to
16 monitoring and detecting methane super-
17 emitters.

18 (D) Examination of actions taken by Fed-
19 eral agencies and departments in response to
20 the National Strategy to Advance an Integrated
21 U.S. Greenhouse Gas Measurement, Moni-
22 toring, and Information System, including
23 progress towards pathways to enhance the sci-
24 entific and operational value of information re-
25 garding methane super-emitters.

1 (E) Consideration of options for the Fed-
2 eral Government to partner with nongovern-
3 mental entities, including State and local gov-
4 ernments, academia, nonprofit organizations,
5 commercial industry, and international organi-
6 zations, to effectively leverage greenhouse gas
7 monitoring and detection capabilities to monitor
8 and detect methane super-emitters.

9 (F) Consideration of options for the Fed-
10 eral Government to validate and verify tech-
11 nologies and data developed or collects by non-
12 governmental entities, academia, nonprofit or-
13 ganizations, commercial industry, and inter-
14 national organizations related to monitoring
15 and detecting methane super-emitters.

16 (G) Recommendations regarding the activi-
17 ties under subparagraphs (A) through (F), as
18 appropriate.

19 (d) USE OF STRATEGY.—The Administrator may use
20 the strategy described in subsection (a) to inform the plan-
21 ning of research and development activities regarding
22 greenhouse gas monitoring and detection, including meth-
23 ane super-emitters.

24 (e) REPORT.—Not later than 18 months after the
25 date of the execution of the agreement between the Admin-

1 istrator and the National Academies of Sciences, Engi-
2 neering, and Medicine under subsection (a), the National
3 Academies shall submit to the Administrator, the Com-
4 mittee on Science, Space, and Technology of the House
5 of Representatives, and the Committee on Commerce,
6 Science, and Transportation of the Senate a report on the
7 strategy described in subsection (a).

8 (f) DEFINITIONS.—In this section:

9 (1) GREENHOUSE GAS MONITORING AND DE-
10TECTION.—The term “greenhouse gas monitoring
11 and detection” means the direct observation, from
12 space or in-situ, or collection of measurement data
13 pertaining to, greenhouse gas emissions and levels.

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

16 **SEC. 609. NASA DATA FOR AGRICULTURAL APPLICATIONS.**

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

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

21 (2) NASA Earth science data, which includes
22 data on precipitation, temperature,
23 evapotranspiration, soil moisture, and vegetation
24 health, has been used to inform the decisionmaking
25 of agricultural producers and aid.

1 (3) NASA applies its scientific data and models
2 to inform and support the agricultural community
3 and engages in innovative collaborations such as the
4 NASA Acres and NASA Harvest agricultural con-
5 sortia.

6 (4) NASA uses space-based Earth observations
7 and science and applications to support farmers in
8 efforts to conserve water and other resources, im-
9 prove farm management and crop yield, and facili-
10 tate the stability of the national food supply.

11 (5) NASA's upcoming Earth System Observ-
12 atory will benefit the agricultural community by im-
13 proving observations critical for measuring and un-
14 derstanding cropland conditions, water availability,
15 early onset crop disease, soil moisture, and other
16 crop and rangeland management indicators.

17 (6) Increased engagement between NASA and
18 the agricultural community can support agricultural
19 producers, bolster the national food supply, and im-
20 prove agricultural research, science, and technology.

21 (b) DATA DISSEMINATION.—NASA shall continue to
22 partner with other relevant Federal agencies, as prac-
23 ticable, to disseminate water, soil, vegetation, land-use,
24 and other relevant NASA Earth observation and science
25 data, information and tools to support American agricul-

1 tural producers. Such partnerships may include activities
2 such as—

3 (1) continuing the leverage NASA Earth
4 science water data and information to enable effi-
5 cient use of resources, inform irrigation decisions,
6 and support local innovation and control of water
7 management;

8 (2) supporting agriculture decisionmaking by
9 increasing the accessibility and useability of NASA
10 Earth science data, information, and tools relevant
11 to the impact of disease, weather, precipitation, and
12 other environmental factors on agricultural produc-
13 tion; or

14 (3) making available NASA earth science meas-
15 urements and data to advance precision agricultural
16 capabilities relevant to the needs and requirements
17 of agriculture producers.

18 (c) COMMERCIAL.—In conducting the activities in
19 subsection (b), the Administrator shall ensure that
20 NASA’s provision of such Earth science data, information
21 and tools does not compete with United States private sec-
22 tor commercial providers.

23 (d) APPLICATION OF SPACE-BASED DATA.—The Ad-
24 ministrator shall further the goal for the NASA’s Earth
25 science and applications program of securing practical

1 benefits for society, as set forth in section 60501 of title
2 51, United States Code, by continuing to collaborate with
3 relevant federal agencies to develop mechanisms to transi-
4 tion, as appropriate, relevant NASA Earth science re-
5 search findings, data, information, models, and capabili-
6 ties to operational governmental and private sector entities
7 focused on addressing the needs of the agricultural user
8 community.

9 (e) PARTNERING.—In carrying out subsections (b)
10 and (d), NASA shall, to the extent practicable and in col-
11 laboration with other relevant Federal agencies, where ap-
12 propriate, continue to engage State and local government
13 agencies, institutions of higher education, agriculture pro-
14 ducer organizations, and other relevant stakeholder and
15 user communities from the public and private sectors to
16 improve dissemination of NASA Earth science data, infor-
17 mation, and tools relevant to the needs of agricultural pro-
18 ducers and the agriculture industry, in accordance with
19 the goal for the Administration’s Earth science and appli-
20 cations program set forth in section 60501 of title 51,
21 United States Code, and relevant recommendations of the
22 most recent decadal survey on Earth science and applica-
23 tions from space.

1 **SEC. 610. PLANETARY SCIENCE PORTFOLIO.**

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

4 (1) planetary science missions advance the sci-
5 entific understanding of the solar system and the
6 place of humans in it while also advancing the de-
7 sign and operations of spacecraft and robotic engi-
8 neering; and

9 (2) Discovery, New Frontiers, and Flagship
10 programs allow NASA to fund a range of missions
11 that vary in size, cost, and complexity; maintaining
12 balance across these mission classes allows for a
13 broad scope of discoveries and scientific advances.

14 (b)(1) MISSION PRIORITIES REAFFIRMATION.—Con-
15 gress reaffirms the direction in section 502(b)(1) of the
16 National Aeronautics and Space Administration Transi-
17 tion Authorization Act of 2017 (Public Law 115–10; 51
18 U.S.C. 20302 note) that, in accordance with the priorities
19 established in the most recent Planetary Science Decadal
20 Survey, The Administrator shall ensure, to the greatest
21 extent possible, the completion of a balanced set of Dis-
22 covery, New Frontiers, and Flagship missions at the ca-
23 dence recommended by the most recent Planetary Science
24 Decadal Survey.

25 (2) ADJUSTMENTS.—Consistent with the set of mis-
26 sions described in paragraph (1), and while maintaining

1 the continuity of scientific data and steady development
2 of capabilities and technologies, the Administrator may
3 seek, if necessary, adjustments to mission priorities,
4 schedule, and scope in light of changing budget projec-
5 tions.

6 (c) PLANETARY MISSION CADENCE.—Beginning in
7 fiscal year 2026, the Administrator should seek, to the
8 maximum extent practicable, to maintain a launch cadence
9 of 36 months for missions in the Discovery Program and
10 60 months for the New Frontiers Program.

11 **SEC. 611. PLANETARY DEFENSE.**

12 (a) Section 18387 of title 41, United States Code,
13 is amended in subsection (b) by striking “implement be-
14 fore September 30, 2012,” and inserting “, in coordina-
15 tion with the NASA Administrator, maintain and regu-
16 larly update”.

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

18 (1) in section 71103—

19 (A) in the section heading, by striking
20 “**Developing policy and recom-**
21 **mending**” and inserting “**Policy on near-**
22 **Earth objects and**”

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

1 (C) after “Policy shall”, by inserting “, in
2 coordination with the Administrator, maintain
3 and regularly update”;

4 (D) by striking “(1) develop”; and

5 (E) in paragraph (2), by striking “rec-
6 ommend” and inserting “recommendations
7 for”; and

8 (2) in chapter 711—

9 (A) by adding the following:

10 **“SEC. 71105. PLANETARY DEFENSE COORDINATION OFFICE.**

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

17 “(b) RESPONSIBILITIES.—Consistent with the direc-
18 tion in section 10825 of the National Aeronautics and
19 Space Administration Authorization Act of 2022 (Public
20 Law 117–167) the Planetary Defense Coordination Office
21 under subsection (a) shall—

22 “(1) plan, develop, and implement a program to
23 survey threats posed by near-Earth objects equal to
24 or greater than 140 meters in diameter, as required
25 by section 321(d)(1) of the National Aeronautics

1 and Space Administration Authorization Act of 2005
2 (Public Law 109–155; 119 Stat. 2922; 51 U.S.C.
3 71101 note prec.);

4 “(2) identify, track, and characterize potentially
5 hazardous near-Earth objects, issue warnings of the
6 effects of potential impacts of such objects, and in-
7 vestigate strategies and technologies for mitigating
8 the potential impacts of such objects; and

9 “(3) assist in coordinating government planning
10 for a response to a potential impact of a near-Earth
11 objects.”.

12 (B) CLERICAL AMENDMENT.—The table of
13 contents for chapter 711 of title 51, United
14 States Code, is amended by adding at the end
15 the following new item:

“71105. Planetary Defense Coordination Office.”.

16 **SEC. 612. LUNAR DISCOVERY AND EXPLORATION.**

17 (a) IN GENERAL.—The Administrator shall carry
18 out, within the Science Mission Directorate, a program to
19 accomplish science objectives for the Moon, with an orga-
20 nizational structure that aligns responsibility, authority,
21 and accountability, as recommended by the most recent
22 decadal survey for planetary science and astrobiology.

23 (b) OBJECTIVES AND REQUIREMENTS.—In carrying
24 out the program in subsection (a), the Administrator shall
25 direct the Science Mission Directorate, in consultation

1 with the Exploration Systems Development Mission Direc-
2 torate and the Space Technology Mission Directorate, to
3 define high-priority lunar science objectives informed by
4 decadal and other scientific consensus recommendations,
5 and related requirements of an integrated Artemis science
6 strategy for human and robotic missions to the Moon.

7 (c) INSTRUMENTATION.—The program in subsection
8 (a) should assess the need for and facilitate the develop-
9 ment of instrumentation to support the scientific explo-
10 ration of the Moon.

11 **SEC. 613. COMMERCIAL LUNAR PAYLOAD SERVICES.**

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

14 (1) the Administrator’s encouragement and
15 support for commercial services for lunar surface de-
16 livery capabilities and other related services serves
17 the national interest; and

18 (2) commercial providers benefit from an ap-
19 proach that places low-cost, noncritical instruments
20 on initial deliveries using small- and medium-size
21 landers before proceeding to larger landers for more
22 complex payloads.

23 (b) COMMERCIAL LUNAR PAYLOAD SERVICES.—The
24 Administrator is authorized to establish a Commercial
25 Lunar Payload Services program within the Science Mis-

1 sion Directorate for the purposes of procuring, from one
2 or more United States private sector commercial service
3 providers, as defined in section 203(c) of this Act, services
4 for delivery of NASA science payloads, and the payloads
5 of other NASA mission directorates, as appropriate and
6 practicable, to the lunar surface.

7 (c) RELATIONSHIP TO OTHER MISSION DIREC-
8 TORATES.—A Mission Directorate outside of the Science
9 Mission Directorate that seeks to obtain commercial lunar
10 payload services under the program established in sub-
11 section (b) shall provide funding for—

12 (1) any payload, instrument or other item spon-
13 sored by the Mission Directorate for delivery
14 through the program; and

15 (2) the cost of the commercial lunar payload
16 services obtained by the Science Mission Directorate
17 on behalf of the outside Mission Directorate.

18 (d) IMPLEMENTATION.—In implementing any such
19 activities pursuant to subsection (b), the Administrator
20 shall—

21 (1) conduct updated market research on the
22 commercial lunar economy and identify any changes
23 since the last market analysis;

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

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

12 (4) strengthen procedures related to the selec-
13 tion, manifesting, interfaces, and requirements of
14 payloads and other relevant factors that could con-
15 tribute to minimizing future NASA-directed changes
16 to projects following commercial lunar payload serv-
17 ice contract awards.

18 (e) MANAGEMENT PLAN.—Not later than 90 days
19 from the date of the enactment of this Act, the Adminis-
20 trator shall, informed by the activities conducted under
21 subsection (c), prepare and implement a management plan
22 with clear leadership authority and responsibility for the
23 program authorized in subsection (b).

24 (f) BRIEFINGS.—Not later than 180 days from the
25 date of the enactment of this Act, the Administrator shall

1 brief the appropriate committees of Congress on the imple-
2 mentation of the management plan in subsection (d).

3 (g) COORDINATION.—The Administrator shall ensure
4 coordination between Science Mission Directorate, other
5 Mission Directorates, and the Moon to Mars Program on
6 the administration of the program in subsection (b) to en-
7 sure alignment of goals for lunar delivery services.

8 **SEC. 614. PLANETARY AND LUNAR OPERATIONS.**

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

11 (1) existing NASA lunar and Martian orbital
12 missions are operating well beyond their planned
13 mission lifespans;

14 (2) the United States relies on these aging mis-
15 sions for observations, communications relay, and
16 other operations to support critical NASA missions;
17 and

18 (3) the United States plans to increase its ac-
19 tivities on and around both the Moon and Mars in
20 coming years.

21 (b) PLAN.—The Administrator shall develop a plan
22 to ensure continuity of operations and sufficient observa-
23 tional and operational capabilities on and around the
24 Moon and Mars necessary to continue to enable a robust
25 science program and human exploration program for the

1 Moon and Mars well into the future. Such plan shall con-
2 sider opportunities to engage both private and inter-
3 national partners in future operations.

4 **SEC. 615. MARS SAMPLE RETURN.**

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

12 (b) APPROACH.—The Administrator shall pursue the
13 program in subsection (a) on a timeline and in a manner
14 necessary to—

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

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

19 (3) preserve the unique and long-term institu-
20 tional expertise related to operations on the Martian
21 surface; and

22 (4) maintain a balanced and robust planetary
23 science division portfolio within current budget levels
24 without significant increases.

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

11 **SEC. 616. HUBBLE SPACE TELESCOPE SERVICING.**

12 Not later than 90 days from the date of the enact-
13 ment of this Act, the Administrator shall submit a report
14 to the appropriate committees of Congress that includes
15 the results of any study or studies conducted in the last
16 five years regarding the technical feasibility of using pri-
17 vate sector capabilities to extend science operations of or
18 safely reboot the Hubble Space Telescope.

19 **SEC. 617. GREAT OBSERVATORIES MISSION AND TECH-**
20 **NOLOGY MATURATION.**

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

23 (1) Space-based telescopes known as NASA’s
24 Great Observatories have enabled major scientific
25 advances across a broad range of astrophysics dis-

1 ciplines and have significantly furthered our under-
2 standing of the universe and the stars and galaxies
3 within;

4 (2) NASA has previously faced challenges in
5 meeting cost and schedule requirements for major
6 Astrophysics missions, including the James Webb
7 Space Telescope; and

8 (3) the Astrophysics division would benefit from
9 a focused effort to mature large-scale space-based
10 mission concepts and technologies prior to ultimate
11 implementation.

12 (b) ESTABLISHMENT.—The Administrator may es-
13 tablish, within an Astrophysics program, a Great Observ-
14 atories Mission and Technology Maturation project (re-
15 ferred to in this section as a “Project”) to mature the
16 large-scale space-based mission concepts and technologies
17 needed for a future mission within the program, as in-
18 formed by the recommendations of the most recent
19 decadal survey in astronomy and astrophysics.

20 (c) ACTIVITIES.—A project established under sub-
21 section (b) shall inform the design and development of fu-
22 ture large-scale space-based missions within an Astro-
23 physics program by conducting activities which may in-
24 clude—

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

3 (2) determining the range of capabilities and
4 technology readiness of such capabilities needed for
5 a mission;

6 (3) informing the development and maturation
7 of science and technologies needed for such mission;
8 and

9 (4) assessing technology readiness to inform
10 mission planning.

11 (d) COSTS.—The independent life-cycle cost estimate
12 conducted under section 30307 of title 51, United States
13 Code, as amended by this Act, for a large-scale space-
14 based mission resulting from successful completion of a
15 Project established under subsection (b) shall include an
16 accounting of all costs spent on maturation of the mission
17 through such Project.

18 (e) REPORT.—Starting on February 1, 2025, and
19 continuing annually thereafter, the Administrator shall
20 submit to the appropriate committees of Congress a report
21 on the progress and impacts of any Projects established
22 under subsection (b) within Astrophysics programs.

23 **SEC. 618. NANCY GRACE ROMAN TELESCOPE.**

24 (a) IN GENERAL.—The Administrator shall continue
25 development of the Nancy Grace Roman Space Telescope

1 as directed in subsection 10823(b) of the National Aero-
2 nautics and Space Administration Authorization Act of
3 2022 (Public Law 117–167).

4 (b) NOTIFICATION.—The Administrator shall notify
5 the appropriate committees of Congress if the amount of
6 life-cycle funding for the Nancy Grace Roman Space Tele-
7 scope program exceeds \$4,000,000,000.

8 (c) INTERNATIONAL PARTNERSHIPS.—NASA shall
9 solicit international participation on the Nancy Grace
10 Roman Space Telescope program to increase scientific re-
11 turn and maximize investment.

12 **SEC. 619. CHANDRA X-RAY OBSERVATORY.**

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

21 **SEC. 620. HELIOPHYSICS RESEARCH.**

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

24 (1) NASA heliophysics research advances the
25 scientific understanding of the Sun, its impact on

1 the Earth and near-Earth environment, and the
2 Sun’s interactions with other bodies in the solar sys-
3 tem, the interplanetary medium, and the interstellar
4 medium;

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

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

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

14 (C) protecting human health in space; and

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

1 (b) PROGRAM MANAGEMENT.—The Administrator
2 shall—

3 (1) maintain an Explorer Announcement of Op-
4 portunity cadence of two year and shall alternate be-
5 tween small and mid-sized missions;

6 (2) enable a regular selection of Missions of Op-
7 portunity;

8 (3) restructure the Solar Terrestrial Probes
9 program as a cost-capped competitively selected line
10 of moderate-scale principal investigator led missions;
11 and

12 (4) request information regarding commercial
13 services potentially able to continue or improve
14 heliophysics research efforts.

15 **SEC. 621. STUDY ON COMMERCIAL SPACE WEATHER DATA.**

16 (a) STUDY.—The Administrator, in consultation with
17 the Administrator of the National Oceanic and Atmos-
18 pheric Administration, shall conduct a study of whether
19 commercially-available data could advance space weather
20 research.

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

22 (1) an assessment of commercial capabilities
23 useable and commercial data suitable to obtain space
24 weather data that meets or exceeds the science and

1 technical standards and requirements of the Admin-
2 istration, including—

3 (A) data that is generated or able to be
4 generated by commercial providers;

5 (B) commercially available small space-
6 craft;

7 (C) opportunities for hosted NASA pay-
8 loads on commercial spacecraft; and

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

11 (2) recommendations and opportunities for the
12 Federal Government to adjust science requirements
13 to better reflect commercially available solutions for
14 space weather data without reducing quality of data
15 or to otherwise accommodate private sector data-
16 buys or service procurements; and

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

22 (A) meet or exceed the science and tech-
23 nical standards and requirements of the Admin-
24 istration;

1 (B) may fill gaps or supplement NASA
2 space-based heliophysics observations and meas-
3 urement for advancing space weather research;
4 and

5 (C) are not duplicative of activities con-
6 ducted pursuant to chapter 606 of title 51,
7 United States Code.

8 (c) REPORT.—Not later than 270 days after the date
9 of enactment of this Act, the Administrator shall transmit
10 a report to the appropriate committees of Congress con-
11 taining the results of the study provided under subsection
12 (a).

13 **SEC. 622. GEOSPACE DYNAMICS CONSTELLATION.**

14 (a) SENSE OF CONGRESS.—It is the sense of Con-
15 gress that the Geospace Dynamics Constellation mission
16 could enable scientific discoveries that will transform un-
17 derstanding of the processes that govern the dynamics of
18 the Earth’s upper atmospheric envelope that surrounds
19 and protects the planet.

20 (b) ASSESSMENT.—Not later than September 5,
21 2024, The Administrator shall transmit to the appropriate
22 committees of Congress a report including—

23 (1) the schedule and budget profile to launch
24 the Geospace Dynamics Constellation mission by the

1 end of the decade to fulfill the recommendations of
2 the heliophysics decadal survey;

3 (2) challenges in execution of the Geospace Dy-
4 namics Constellation mission; and

5 (3) consideration of whether there is a techno-
6 logically feasible commercially-available alternative
7 to obtain similar data, and the associated costs.

8 **TITLE VII—STEM EDUCATION**

9 **SEC. 701. NATIONAL SPACE GRANT COLLEGE AND FELLOW- 10 SHIP PROGRAM.**

11 (a) AMENDMENTS.—Title 51, United States Code, is
12 amended—

13 (1) in section 40303, by striking subsections (d)
14 and (e);

15 (2) in section 40304—

16 (A) by striking subsection (c) and inserting
17 the following:

18 “(c) SOLICITATIONS.—

19 “(1) IN GENERAL.—The Administrator shall
20 issue a solicitation from space grant consortia for
21 the award of grants or contracts under this section
22 at the conclusion of the award cycle for fiscal Year
23 2020 to 2024. The Administrator shall implement
24 the allocation guidance from section 40304(e) during
25 each fiscal year covered by the award cycle.

1 “(2) PROPOSALS.—A lead institution of a space
2 grant consortium that seeks a grant or contract
3 under this section shall submit, on behalf of such
4 space grant consortium, an application to the Ad-
5 ministrator at such time and in such manner and
6 accompanied by such information as the Adminis-
7 trator may require.

8 “(3) AWARDS.—The Administrator shall award
9 1 or more multi-year grants or contracts, disbursed
10 in annual installments, to the lead institution of an
11 eligible space grant consortium of—

12 “(A) each of the 50 States of the United
13 States;

14 “(B) the District of Columbia; and

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

16 and

17 (B) by inserting after subsection (d) the
18 following:

19 “(e) ALLOCATION OF FUNDING.—

20 “(1) PROGRAM IMPLEMENTATION.—

21 “(A) IN GENERAL.—To carry out the pur-
22 poses set forth in section 40301 of this title,
23 each fiscal year, of the funds appropriated for
24 this program of that fiscal year, the Adminis-

1 trator shall allocate not less than 85 percent
2 among eligible space grant consortia as follows:

3 “(i) The space grant consortia identi-
4 fied in paragraph 40304(c)(3) shall each
5 receive an equal share.

6 “(ii) The territories of Guam and the
7 U.S. Virgin Islands shall each receive
8 funds equal to one-fifth of the share for
9 each space grant consortium.

10 “(2) PROGRAM ADMINISTRATION.—

11 “(A) IN GENERAL.—Each fiscal year, of
12 the funds made available for the National Space
13 Grant College and Fellowship Program, the Ad-
14 ministrators shall allocate not more than 10 per-
15 cent for the administration of the program.

16 “(B) COSTS COVERED.—The funds allo-
17 cated under paragraph (1)(A) of this section
18 shall cover all costs of the Administration asso-
19 ciated with the administration of the National
20 Space Grant College and Fellowship Program,
21 including—

22 “(i) direct costs to the program, in-
23 cluding costs relating to support services
24 and civil service salaries and benefits;

1 “(ii) indirect general and administra-
2 tive costs of centers and facilities of the
3 Administration; and

4 “(iii) indirect general and administra-
5 tive costs of the Administration head-
6 quarters.

7 “(3) SPECIAL OPPORTUNITIES.—Each fiscal
8 year, of the funds made available for the National
9 Space Grant College and Fellowship program, the
10 Administrator shall allocate not more than 5 percent
11 to lead institutions of Space Grant Consortia for
12 grants to carry out innovative approaches and pro-
13 grams to further science and education relating to
14 the missions of the Administration pursuant to sub-
15 section (b).”.

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

19 (1) evaluate its management, accomplishments,
20 approach to funding allocation as described in sec-
21 tion 40303(e) of title 51, United States Code, and
22 responsiveness to the purposes and goals defined in
23 chapter 403 of title 51, United States Code; and

24 (2) propose any statutory updates that may be
25 needed to implement recommendations of the review.

1 (c) REPORT.—Not later than nine months after the
2 date of enactment of this Act, the Administrator shall
3 transmit a report on the independent external review of
4 the National Space Grant College and Fellowship Pro-
5 gram described in subsection (a) to the Committee on
6 Science, Space, and Technology of the House of Rep-
7 resentatives and the Committee on Commerce, Science,
8 and Transportation of the Senate.

9 **TITLE VIII—POLICY/NASA**

10 **SEC. 801. MAJOR PROGRAMS.**

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

15 **SEC. 802. NASA ADVISORY COUNCIL.**

16 Section 20113(g) of title 51, United States Code, is
17 amended by adding “and Congress” after “advice to the
18 Administration”.

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

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

1 (1) an assessment of the processes that NASA
2 uses to—

3 (A) form early-stage cost estimates;

4 (B) evaluate costs associated with pro-
5 posals for missions; and

6 (C) monitor and manage estimates
7 throughout execution of program;

8 (2) an assessment of any other relevant proc-
9 esses that NASA uses to estimate the costs of mis-
10 sions, including directed and competitively selected,
11 principal-investigator-led Science Mission Direc-
12 torate missions, during the early phases of mission
13 development, prior to setting an Agency Baseline
14 Commitment, and NASA’s application of such cost
15 estimates in the management of its programs;

16 (3) for the period starting on January 1, 2000,
17 and ending on the date of the enactment of this Act,
18 a list of—

19 (A) missions costing over \$250,000,000
20 and the associated cost estimate at proposal;

21 (B) changes to the cost estimates from for-
22 mulation to implementation to final cost;

23 (C) patterns in factors contributing to
24 changes in cost estimates; and

1 (D) lessons learned from missions with ac-
2 curate cost estimates; and

3 (4) any such recommendations that the Comp-
4 troller General determines are appropriate.

5 **SEC. 804. INDEPENDENT COST ESTIMATE.**

6 Section 30307 of title 51, United States Code, is
7 amended—

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

10 (2) in subsection (b)—

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

15 (B) by striking “analysis” and inserting
16 “estimate”; and

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

22 **SEC. 805. OFFICE OF SCIENCE AND TECHNOLOGY POLICY**
23 **REPORT.**

24 Not later than January 1, 2025, and annually there-
25 after, the Office of Technology, Policy, and Strategy shall

1 prepare and submit to the appropriate committees of Con-
2 gress a report describing the efforts of the Office during
3 the previous calendar year and priorities of the Office for
4 the upcoming calendar year, as practicable.

5 **SEC. 806. NATIONAL SPACE ADVISORY COMMITTEE.**

6 Section 121 of the National Aeronautics and Space
7 Administration Authorization Act, Fiscal Year 1991 (Pub-
8 lic Law 101-611; 51 U.S.C. 20111 note) is amended—

9 (1) in the section heading, by striking “**USERS’**
10 **ADVISORY GROUP**” and inserting “**NATIONAL**
11 **SPACE ADVISORY COMMITTEE**”;

12 (2) by striking “Users’ Advisory Group” in
13 each place that it appears and inserting “National
14 Space Advisory Committee”: and

15 (3) by adding the following after subsection (b):

16 “(c) ANNUAL REPORT.—The Committee shall submit
17 an annual report to the Administrator and to Congress
18 describing the activities and recommendations of the Com-
19 mittee.”.

20 **SEC. 807. AUTHORIZATION FOR THE TRANSFER TO NASA OF**
21 **FUNDS FROM OTHER AGENCIES FOR SCI-**
22 **ENTIFIC OR ENGINEERING RESEARCH OR**
23 **EDUCATION.**

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

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

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

5 (2) by adding at the end the following new
6 paragraph:

7 “(2) TREATMENT.—Funds available to any de-
8 partment or agency of the Federal Government for
9 scientific or engineering research or education, or
10 the provision of facilities therefor, shall, subject to
11 the approval of the head of such department or
12 agency or as delegated pursuant to such depart-
13 ment’s or agency’s regulation, be available for trans-
14 fer, in whole or in part, to the Administration for
15 such use as is consistent with the purposes for which
16 such funds were appropriated. Funds so transferred
17 shall be merged with the appropriation to which
18 transferred, except that such transferred funds shall
19 be limited to the awarding of grants or cooperative
20 agreements for scientific or engineering research or
21 education.”.

22 (b) ANNUAL INFORMATION ON FUNDS TRANS-
23 FERRED.—

24 (1) IN GENERAL.—Not later than two years
25 after the date of the enactment of this section, the

1 Administrator shall include in the annual budget
2 justification materials of the Administration, as sub-
3 mitted to Congress with the President's budget re-
4 quest under section 1105 of title 31, United States
5 Code, information describing the activities conducted
6 under subsection (f) of section 20113 of title 51,
7 United States Code (as amended by subsection (a)),
8 during the immediately preceding fiscal year.

9 (2) CONTENTS.—The information referred to in
10 paragraph (1) shall contain a description of each
11 transfer of funds under the authority provided for in
12 paragraph (2) of subsection (f) of section 20113 of
13 title 51, United States Code (as added and amend-
14 ed, respectively, by this section), during the imme-
15 diately preceding fiscal year, including the following:

16 (A) An identification of the department or
17 agency of the Federal Government from which
18 such funds were transferred.

19 (B) The total amount of funds so trans-
20 ferred, disaggregated by each such department
21 or agency.

22 (C) The purposes for which such funds
23 were appropriated to each agency or depart-
24 ment.

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

4 (E) The purposes of each such administra-
5 tion program or activity, and the amount of
6 funding appropriated to the Administration for
7 such purposes.

8 (c) REPORT.—Not later than three years after the
9 date of enactment of the section, the Administrator of the
10 Administration shall submit to the Committee on Science,
11 Space, and Technology of the House of Representatives
12 and the Committee on Commerce, Science, and Transpor-
13 tation of the Senate a report that includes the following:

14 (1) A summary of the value of the authority
15 provided for in paragraph (2) of subsection (f) of
16 section 209113 of title 51, United States Code (as
17 added and amended, respectively, by this section),
18 including the extent to which such authority has
19 benefited the Administration and its ability to meet
20 its needs, achieve its mission, or more effectively
21 conduct interagency collaborations.

22 (2) An identification of any barriers or chal-
23 lenges to implementing such authority, or otherwise
24 to managing funding required to conduct joint pro-
25 grams and award jointly funded grants and coopera-

1 tive agreements by the administration with other
2 Federal departments and agencies to advance the
3 missions of each such department and agency.

4 **SEC. 808. PROCEDURE FOR LAUNCH SERVICES RISK MITI-**
5 **GATION.**

6 (a) ASSESSMENT.—The Administrator shall enter
7 into an arrangement for an independent external assess-
8 ment of the effectiveness and efficiency of NASA’s ap-
9 proach towards launch services risk mitigation in the Ad-
10 ministration’s Procedural Requirements 8610.7D.

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

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

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

18 **SEC. 809. REPORT ON MERITS AND OPTIONS FOR ESTAB-**
19 **LISHING AN INSTITUTE RELATING TO SPACE**
20 **RESOURCES.**

21 (a) REPORT.—Not later than 180 days after the date
22 of the enactment of this Act, the Administrator and Sec-
23 retary shall jointly submit to the appropriate congressional
24 committees a report on the merits of, and options for, es-
25 tablishing an institute relating to space resources to ad-

1 vance the objectives of NASA and the Department in
2 maintaining United States preeminence in space. Such ob-
3 jectives shall include the following:

4 (1) Identifying, developing, and distributing
5 space resources, including by encouraging the devel-
6 opment of foundational science and technology.

7 (2) Reducing the technological risks associated
8 with identifying, developing, and distributing space
9 resources.

10 (3) Research to maximize the responsible use of
11 space resources.

12 (4) Developing options for using space re-
13 sources to—

14 (A) support current and future space ar-
15 chitectures, programs, and missions; and

16 (B) enable such architectures, programs,
17 and missions that would not otherwise be pos-
18 sible.

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

22 (1) Whether a virtual or physical institute relat-
23 ing to space resources is most cost effective and ap-
24 propriate.

1 (2) Whether partnering with institutions of
2 higher education and the aerospace industry, and
3 the extractive industry as appropriate, would be ef-
4 fective in increasing information available to the in-
5 stitute with respect to advancing the objectives de-
6 scribed in subsection (a).

7 (c) DEFINITIONS.—In this section:

8 (1) DEPARTMENT.—The term “Department”
9 means the Department of Commerce.

10 (2) EXTRACTIVE INDUSTRY.—The term “ex-
11 tractive industry” means companies and individuals
12 involved in the processes of extracting, including
13 mining, quarrying, drilling, and dredging, raw, nat-
14 ural materials or energy sources.

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

19 (4) SECRETARY.—The term “Secretary” means
20 the Secretary of Commerce.

21 (5) SPACE RESOURCE.—

22 (A) IN GENERAL.—The term “space re-
23 source” means an abiotic resource in situ in
24 outer space.

1 (B) INCLUSIONS.—The term “space re-
2 source” includes a raw, natural material or en-
3 ergy source.

4 **SEC. 810. REPORTS TO CONGRESS.**

5 Section 20116 of title 51, United States Code, is
6 amended—

7 (1) in subsection (a)—

8 (A) by inserting “(1) IN GENERAL.—”
9 after “PRESIDENTIAL REPORT.—”; and

10 (B) by redesignating paragraphs (1) and
11 (2) as subparagraphs (A) and (B);

12 (2) in subsection (b)—

13 (A) by redesignating subsection (b) as
14 paragraph (2); and

15 (B) in paragraph (2), as so redesignated,
16 by striking “section” and inserting “sub-
17 section”;

18 (3) in subsection (c)—

19 (A) by redesignating subsection (c) as
20 paragraph (3); and

21 (B) in paragraph (3), as so redesignated,
22 by striking “section” and inserting “sub-
23 section”; and

24 (4) by inserting at the end the following:

1 “(b) CONGRESSIONAL REPORTS AND NOTICES.—Any
2 report or notice provided to Congress by NASA shall be
3 provided to the Committee on Science, Space, and Tech-
4 nology of the House of Representatives and the Committee
5 on Commerce, Science, and Transportation of the Senate,
6 concurrently with its delivery to any other Committee or
7 office.

8 “(c) REPORTS ON INTERNATIONAL AGREEMENTS.—
9 If the United States becomes a signatory to an inter-
10 national agreement concerning outer space activities, the
11 Administrator shall provide to the Committee on Science,
12 Space, and Technology of the House of Representatives
13 and the Committee on Commerce, Science, and Transpor-
14 tation of the Senate a report containing a copy of such
15 agreement.”.

16 **SEC. 811. ADVANCEMENT OF PRIVATE SECTOR HUMAN**
17 **SPACE ACTIVITIES.**

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

19 (1) Private space activities are increasing and
20 expanding, and contribute to United States sci-
21 entific, economic, and strategic leadership in space.

22 (2) According to section 217(a) of the National
23 Aeronautics and Space Administration Authorization
24 Act, Fiscal Year 1989, “the extension of human life
25 beyond Earth’s atmosphere, leading ultimately to

1 the establishment of space settlements, will fulfill the
2 purposes of advancing science, exploration, and de-
3 velopment and will enhance the general welfare”.

4 (3) Other countries are investing in and ex-
5 panding national space activities.

6 (4) Continued advancement of commercial
7 space activities can reduce the cost of space access.

8 (5) NASA partnerships with United States
9 commercial entities, including in NASA’s robotic and
10 human exploration of the Moon under the Artemis
11 program, in accordance with the Moon to Mars Pro-
12 gram under section 10811 of the National Aero-
13 nautics and Space Administration Authorization Act
14 (Public Law 117–167), and provide opportunities to
15 gain important lessons learned on nongovernmental
16 activities in cislunar space and on the surface of the
17 Moon that can inform future evolution of commer-
18 cial activities in cislunar space and on the lunar sur-
19 face, as appropriation, and the development of pol-
20 icy, legal, regulatory matters necessary to support
21 such commercial endeavors.

22 (6) As a leading organization for space explo-
23 ration and activities, and a significant partner in
24 cutting edge space technologies, NASA should pur-
25 sue missions using private human spaceflight capa-

1 bilities to foster the competitive and innovative de-
2 velopment of such activities.

3 (b) AMENDMENT.—Section 20102(c) of title 51,
4 United States code is amended by striking subsection (c)
5 and inserting the following:

6 “(c) UNITED STATES PRIVATE SECTOR USE OF AND
7 HUMAN PRESENCE IN SPACE.—Congress declares that
8 the general welfare of the United States requires that the
9 Administration seek and encourage, to the maximum ex-
10 tent possible, the fullest commercial use of space, includ-
11 ing by facilitating the expansion of the United States pri-
12 vate sector use of and human presence in Earth orbit,
13 cislunar space, and beyond.”.

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