The Committee recommends $25,366,451,000 for the activities of the National Aeronautics and Space Administration (NASA), which is $349,750,000 above fiscal year 2023 and $1,818,549,000 below the request.

Quarterly launch schedule.—The Committee directs NASA to continue providing the Committee with a quarterly launch schedule, by mission, which describes the risks associated with any launch delays, the impacts of launch delays to other missions in the launch queue, a budget estimate of the anticipated carrying costs for missed launch windows, as well as any adjustments to launch windows for delayed missions.

Oversight and accountability.—The Committee understands that NASA acquisition management remains on GAO’s “high risk” list. Therefore, the Committee directs NASA to continue to cooperate fully with GAO and provide timely program analysis, evaluation data, and other relevant information so GAO can report to Congress shortly after the annual budget submission, and semiannually thereafter, on the status of large-scale NASA programs, projects, and activities. The Committee further directs NASA to brief the Committee no later than 30 days after the submission of its annual budget submission on the reserves, along with confidence level, if appropriate, assumed in the proposed funding level for each directorate, theme, program, project, or activity.

### NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

#### (In thousands of dollars)

<table>
<thead>
<tr>
<th>Program</th>
<th>Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Science:</strong></td>
<td></td>
</tr>
<tr>
<td>Earth Science</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>Planetary Science</td>
<td>$3,100,000</td>
</tr>
<tr>
<td>Astrophysics</td>
<td>$1,485,000</td>
</tr>
<tr>
<td>Heliophysics</td>
<td>$710,000</td>
</tr>
<tr>
<td>Biological and Physical Science</td>
<td>$85,000</td>
</tr>
<tr>
<td><strong>Total, Science</strong></td>
<td>$7,380,000</td>
</tr>
<tr>
<td><strong>Aeronautics</strong></td>
<td>$945,800</td>
</tr>
<tr>
<td><strong>Space Technology</strong></td>
<td>$1,205,000</td>
</tr>
<tr>
<td><strong>Deep Space Exploration:</strong></td>
<td></td>
</tr>
<tr>
<td>Orion Multi-purpose Crew Vehicle</td>
<td>$1,255,000</td>
</tr>
<tr>
<td>Space Launch System (SLS) Vehicle Deployment</td>
<td>$2,506,100</td>
</tr>
<tr>
<td>Exploration Ground Systems</td>
<td>$794,200</td>
</tr>
<tr>
<td>Artemis Campaign Development</td>
<td>$3,234,900</td>
</tr>
<tr>
<td><strong>Total, Exploration</strong></td>
<td>$7,971,091</td>
</tr>
<tr>
<td><strong>Space Operations:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total, Space Operations</strong></td>
<td>$4,344,609</td>
</tr>
<tr>
<td><strong>Science, Technology, Engineering, and Mathematics (STEM)</strong></td>
<td>$89,000</td>
</tr>
<tr>
<td><strong>Safety, Security and Mission Services</strong></td>
<td>$3,135,451</td>
</tr>
<tr>
<td><strong>Construction and Environmental Compliance and Restoration</strong></td>
<td>$247,900</td>
</tr>
</tbody>
</table>
The recommendation includes $7,380,000,000 for Science which is $415,000,000 below fiscal year 2023 and $880,800,000 below the request. The Committee directs NASA to allocate funding as described in the table above and text below, and to continue its progress toward implementing the recommendations within the Earth Science, Heliophysics, Planetary Science, Astrophysics, and Biological and Physical Sciences decadal surveys.

University small satellite missions.—The Committee supports NASA’s collaborative efforts with U.S. colleges and universities to conduct research through small spacecraft missions. The Committee believes that these competitively selected projects help train the next generation of scientists and contribute to much-needed research. The Committee directs NASA to allocate not less than $30,000,000 for these missions.

Earth Science.—The recommendation includes $2,000,000,000 for Earth Science.

Planetary Science.—The recommendation includes $3,100,000,000 for Planetary Science. The Committee recognizes that continued investments in Planetary Science key technology areas enable future missions, including projects in Lunar Development and Exploration, Discovery and New Frontiers, Radioisotope Power Systems, Mars Exploration, Outer Planets and Ocean Worlds, and Planetary Science Research. These programs provide valuable research through missions to planets across the solar system.

Mars Sample Return.—The Committee supports consistent funding for the Mars Sample Return mission. The Committee directs NASA to allocate no less than $949,300,000 for this mission. In accordance with the pending Independent Review Board’s results, and considering the existing architecture committed to successfully returning samples to Earth, the Committee directs NASA to ensure that its fiscal year 2025 budget request includes the funding necessary to complete the mission launch no later than 2030.

Mars Sample Receiving Facility.—The Committee directs NASA to prioritize proximity to the current curator for all NASA-held extraterrestrial samples when selecting the location for the Mars Sample Receiving Facility, including by ensuring the Mars Sample Receiving Facility is located within 30 miles of the current facility. The Committee directs NASA to select a facility that employs a highly skilled workforce and has specialized cleanrooms appropriate to the particular contamination control and material restrictions for each sample collection type, as well as the necessary infrastructure to maintain processing and storage cleanroom facilities, long-term sample data storage and access, characterization analysis instrumentation, processing tool cleanliness, and sample transportation for approved allocations. The Committee directs NASA to
report to the Committee, no later than 180 days after the enactment of this Act, with a plan outlining the facility requirements, expected construction schedule, and estimated cost, as well as any other criteria that will be used to determine the facility location. Such plan must consider the location of existing infrastructure and personnel and avoid duplicating existing resources.

**Small Innovative Missions for Planetary Exploration.**—The Committee continues to support Small Innovative Missions for Planetary Exploration (SIMPLEx) missions. The Committee urges NASA to consider a second SIMPLEx mission and to develop a five-year plan to increase the volume of solicitations in support of the program. The Committee directs NASA to brief Congress, no later than September 1, 2025, on a plan for increasing the volume of solicitations.

**Harmful algal blooms.**—The Committee acknowledges the importance of agency coordination, as mandated by the Harmful Algal Bloom Research and Hypoxia Control Act (Public Law 115–423), to enhance our understanding of the underlying impacts of HABs and to safeguard our ecosystems. The Committee recognizes that NASA’s science mission offers essential imaging technologies, such as satellite multispectral imagery, airborne hyperspectral imagers, and automated surface spectral radiometry, which can be used for the detection and modeling of HABs. The Committee acknowledges that NASA has unique capabilities and experience in using aerial vehicles to conduct surveillance activities for remote sensing of harmful algal blooms to measure toxicity in algal blooms. The Committee supports NASA’s role in freshwater HAB monitoring and detection and urges NASA to continue using manned and unmanned aircraft to monitor HABs.

**Venus Emissivity, Radio Science, InSAR, Topography, and Spectrometry mission.**—The Committee supports the Discovery Program, including competitively selected missions such as the Venus Emissivity, Radio Science, InSAR, Topography, and Spectrometry (VERITAS) mission. The Committee recommends that NASA request sufficient funding to ensure a launch by the end of the decade. The Committee directs NASA to provide a budget profile to ensure the mission can remain on track.

**Voyages Investigating Polar Exploration Rover mission.**—The Committee recognizes the scientific importance of the Volatiles Investigating Polar Exploration Rover (VIPER) mission to the South Pole of the Moon to search for and sample lunar water ice. A successful mission could provide key scientific insights, data needed to support and enable commercial activity for a sustainable American presence in cislunar space, and preparation for future missions beyond the Moon.

**Small satellite platforms.**—The Committee directs NASA to assess the feasibility of utilizing small satellites for missions of greater complexity and importance, up to and including flagship class objectives in furtherance of decadal science priorities. If feasible, the Committee directs NASA to identify a mission that could be accomplished through this type of architecture, and report on such findings to the Committees on Appropriations and Science, Space, and Technology no later than 180 days after the enactment of this Act.
Geostationary Carbon Cycle Observatory.—The Committee encourages NASA to work with the Geostationary Carbon Cycle mission’s science team to complete final pre-flight testing and characterization of the instrument upon its delivery to NASA, store it appropriately, and develop and execute a plan to obtain a cost-effective launch.

Wildfire early detection.—The Committee recognizes NASA’s efforts to develop concept studies toward development, demonstration, and operation of an infrared space-based wildfire early detection and alert system for the United States and encourages NASA to transition rapidly from concept studies to the development and demonstration of technologies and techniques needed to prove this capability.

Near-Earth Object Surveyor Mission.—The recommendation includes no less than $209,700,000 for the Near-Earth Object (NEO) Surveyor Mission. The Committee urges NASA to identify a launch date as soon as feasible, consistent with the recommendation of the Decadal Survey.

Astrophysics.—The recommendation includes $1,485,000,000 for Astrophysics.

Heliophysics.—The recommendation includes $710,000,000 for Heliophysics.

Biological and Physical Science.—The recommendation includes up to $85,000,000 for Biological and Physical Science.

Digital modernization.—The Committee supports the ongoing efforts of NASA’s Science Mission Directorate (SMD) to efficiently manage its large and diverse collection of digital assets, aiming to deliver modernized internal and external digital services. Therefore, the Committee directs NASA to allocate up to $5,000,000 to continue building a cloud-enabled, interoperable, and expandable solution to manage NASA’s digital assets, complying with 21st Century Integrated Digital Experience Act (Public Law 115–336), minimizing redundancy, improving digital asset sharing, and enhancing NASA’s digital service delivery.

Contributions to the Rosalind Franklin ExoMars rover.—The recommendation does not support the requested funding for the Rosalind Franklin ExoMars rover.

Reporting requirements.—The Committee directs NASA to specify allocations for any climate change-related initiatives in the spending plan submitted to the Committee pursuant to section 527 of this Act to ensure NASA budget requests are properly focused on its mission of aeronautics and space exploration.

AERONAUTICS

The Committee recommends $945,800,000 for Aeronautics, which is $10,800,000 above fiscal year 2023 and $50,000,000 below the request.

Advanced air mobility systems.—The recommendation includes $295,200,000 for the Advanced Air Vehicles Program and the Advanced Air Mobility (AAM) National Campaign. The Committee directs NASA to allocate no less than $5,000,000 for safe autonomous flight enabling infrastructure. The Committee understands this infrastructure is required to support flight testing and advancement of autonomous flight technologies. The Committee is concerned
that, without the underlying infrastructure, NASA and industry partners participating in the AAM National Campaign are limited to flight testing in the visual vicinity of airports or directly supervised by chase aircraft. The Committee understands a limited area for testing makes establishing a process, and proving that this concept is viable, difficult; therefore, the Committee believes additional national infrastructure is required for scaling autonomous aircraft operations. The Committee further believes the establishment of a larger and more realistic testing environment for the AAM National Campaign will support NASA’s vision for autonomous operations and continued U.S. leadership in advanced air mobility.

Vertical lift research.—The Committee supports NASA’s Vertical Lift Research Centers of Excellence (VLRCOE) cooperative agreements to advance fundamental research at universities across the country that support high-speed rotorcraft, electric vertical take-off and landing (VTOL) capability, and unmanned aircraft systems. To continue advancing these efforts in coordination with NASA’s broader advanced air mobility goals, the Committee directs NASA to continue its work with other government agencies, academia, and industry to build and maintain a modeling and simulation environment to analyze various aviation demand scenarios and associated supply chain ecosystem needs. The Committee additionally directs NASA to provide a report on these actions no later than 180 days after the enactment of this Act. In developing this report, the Committee encourages NASA to consult with stakeholders in government, academia, and industry to identify security and technology policy recommendations, as well as any additional policy recommendations.

Trusted autonomy-enabled technologies flight demonstrator.—The Committee recommends $264,900,000 for the Integrated Aviation Systems Program. The Committee directs NASA to allocate no less than $10,000,000 for the continued development and flight testing of technologies necessary to support a trusted, semi-autonomous aircraft architecture with aviation safety management system capabilities. The Committee strongly supports NASA’s continued partnerships with U.S. industry through development and flight demonstrations to develop capabilities that balance human-machine interactions for safer, more efficient flight.

Electric air flight.—The Committee encourages NASA to strengthen its collaborations with the Department of Energy, national laboratories, and universities to overcome energy storage challenges for mobility technologies such as electric air flight. The Committee is encouraged by NASA’s efforts within its Electrified Powertrain Flight Demonstration project, an example of such collaboration, which focuses on flight demonstrations that advance the state-of-the-art in megawatt-class electric aircraft to enable enduring leadership of the U.S. aviation industry.

Advanced technologies for sustainable aviation.—The Committee encourages NASA to prioritize funding for Advanced Engine and Vehicle Technologies for Sustainable Aviation initiatives, including Electrified Aircraft Propulsion activities, NASA’s Electrified Powertrain Flight Demonstrations (EPFD) project, Hybrid Thermally Efficient Core (HyTEC) project, the Sustainable Flight Demonstrator (SFD) project, and the Advanced Aircraft Concepts for
Environmental Sustainability (AACES) studies. The Committee understands that developments in small core gas turbine and high-rate composite technologies may offer fuel savings for future single aisle aircraft.

_Hypersonic technology._—The Committee recognizes that NASA maintains unique, specialized facilities and experts who focus on key fundamental research areas that explore opportunities in hypersonic flight. The Hypersonic Technology Program (HTP) focuses on hypersonic propulsion systems, high-temperature materials, and systems analysis. The Committee understands that NASA coordinates closely with partners in the Department of Defense on the HTP, which allows NASA to leverage investments in ground and flight activities to develop and validate advanced physics-based computational models. The recommendation includes $50,000,000, an amount equal to the fiscal year 2023 enacted level, for the HTP to ensure continued advances in hypersonic technology.

_Making advancements in commercial hypersonic technology._—The Committee encourages NASA to advance hypersonic research while also strengthening commercial hypersonic capabilities by encouraging NASA to establish a program focused on commercially reusable hypersonic flight. Of the $50,000,000 included for the Hypersonics Technology Program, the Committee directs NASA to allocate no less than $15,000,000 to establish the Making Advancements in Commercial Hypersonics (MACH) Program, which shall fund reusable aircraft capabilities to advance scientific research and technology development of hypersonic vehicles. The Committee directs NASA to submit to the Committees on Appropriations and Science, Space, and Technology a report, no later than 60 days after the enactment of this Act, that details efforts to consult and collaborate with the Department of Defense and includes a strategy to continue consulting and collaborating on hypersonic technology.

_High-performance chase aircraft._—The Committee understands the value of high-performance chase aircraft, such as the F/A–18 and F–15, that enhance NASA’s unique research capabilities, and recognizes the ongoing concern that some current chase aircraft are nearing end-of-life and resulting in increasing maintenance costs. The Committee directs NASA to provide quarterly updates to the Committee on its chase aircraft fleet, engage in regular consultations with the Department of Defense on strategies to improve the fleet (including through aircraft transfers), and evaluate administrative and legislative steps, as appropriate, to facilitate such actions, including through the interagency and budget processes.

_Flight research._—The Committee strongly supports the important flight research and related work of various NASA centers. To ensure the Aeronautics Research Mission Directorate can fulfill its unique mission, the Committee directs NASA to provide a report, no later than 60 days after the enactment of this Act, outlining NASA’s short-term and long-term plans to improve the centers’ physical infrastructure, such as hangars, research facilities, and other structures and equipment needed for supporting these centers. The Committee specifically notes its concern with runway and taxiway infrastructure and directs NASA to provide a report to the
Committee on flight center physical infrastructure no later than 180 days after the enactment of this Act.

**SPACE TECHNOLOGY**

The Committee recommends $1,205,000,000 for Space Technology, which is $5,000,000 above fiscal year 2023 and $186,600,000 below the request.

*Regional economic development.*—The Committee recommends up to $10,000,000, which is equal to the fiscal year 2023 enacted level, to focus on partnerships with State and regional economic development organizations as they expand space-related commercial opportunities designed to address NASA mission needs. The Committee directs NASA to use this funding to enable it to partner with the NIST Manufacturing Extension Partnership and its 51 MEP Centers across the Nation and Puerto Rico, in the critical areas of supply chain, technology innovation, and workforce. The NASA MEP partnership will ensure NASA’s unique capabilities are used as part of a larger economic development strategy.

*Nuclear power office.*—The Committee directs NASA to establish an Office of Nuclear Propulsion and Nuclear Power within the Space Technology Directorate, to coordinate development and demonstration of Nuclear Thermal Propulsion (NTP) and Nuclear Electric Propulsion (NEP).

*Nuclear thermal propulsion.*—The Committee is encouraged by the collaborative approach between NASA and Department of Defense to meet the demands of a 2027 demonstration for nuclear thermal propulsion (NTP). The Committee expects subsequent budget submissions and future year projections will reflect the urgency that this program’s objectives and goals demand over the next 48 months. The Committee further directs NASA to provide a detailed spending plan for NTP with any relevant changes.

*Nuclear electric propulsion.*—The recommendation includes up to $50,000,000 for nuclear electric propulsion (NEP) to continue efforts toward the development of a high-power nuclear electric propulsion demonstration, of which not less than $10,000,000 is for the design of test articles to enable a flight demonstration. The Committee supports the commencement of accelerated development of this technology, consistent with the recommendations of the National Academies of Sciences.

*Lunar surface power.*—The Committee recognizes the need for steady, reliable, and uninterrupted power for future extended science and exploration missions on the lunar surface, particularly at the lunar poles, and is supportive of ongoing investments in a mix of technologies, including both vertical solar array technology (VSAT) and fission surface power (FSP) programs. The Committee notes the strategic benefits of a portfolio approach to lunar surface power, including affordability, mobility, and readiness. The Committee directs NASA to sponsor the development and deployment of a mix of lunar surface power solutions in support of the Artemis program and to enable the commercialization of lunar power as a service. Further, the Committee directs the Space Technology Mission Directorate to utilize existing technology maturation efforts with commercial partners to execute one surface power demonstration by 2026. The Committee directs NASA to use funds allocated
for this demonstration for both payload development and associated delivery services to the lunar surface via the Commercial Lunar Payload Services program. The recommendation includes no less than $40,000,000 for lunar surface power, of which no less than $20,000,000 is for the Fission Surface Power program.

On-Orbit Servicing, Assembly, and Manufacturing-1 Satellite Servicing and Space Infrastructure Dexterous Robot.—The Committee recommends $227,000,000 for On-Orbit Servicing, Assembly, and Manufacturing-1 Satellite Servicing (OSAM–1) and Space Infrastructure Dexterous Robot (SPIDER), currently planned for launch in 2026, to conduct and demonstrate the capabilities to refuel satellites in low Earth orbit.

Alternative propellants and multimode propulsion.—The Committee recognizes the importance of turnkey, multimode, in-space propulsion solutions that use domestically produced fuel and cathode-less electric propulsion technology. The Committee believes the U.S. is overly reliant on xenon and krypton for in-space propulsion which are in limited supply, extremely expensive, and produced in China and Russia. The Committee recommends investments in innovative small spacecraft propulsion to achieve in-flight demonstrations of alternative propellants and turn-key multimode in-space propulsion as soon as feasible.

Autonomous system modeling and simulation.—The Committee notes the important role that NASA plays in the development, testing, and evaluation of autonomous systems through modeling and simulation. The Committee commends NASA's partnerships with educational institutions, which not only increase the number of STEM graduates, but also encourage collaboration with other government organizations and industry. The Committee recommends that NASA continue to fund these programs for the purpose of developing more reliable autonomous capabilities at NASA facilities through partnerships with educational institutions.

Technology Demonstration Tipping Point Program.—The Committee continues to support NASA’s Space Technology Demonstration Tipping Point Program and urges NASA to continue funding for capability development that grows in-Earth orbit platform ecosystems.

Research.—The Committee directs NASA to continue to fulfill its statutory obligations for the amount of Small Business Innovation Research (SBIR) and place an increased focus on awarding SBIR awards to firms with fewer than 50 employees.

Industrialized ceramic matrix composites for reusable commercial hypersonics.—The Committee recommends NASA develop and mature automation of high temperature ceramic matrix composites for reusable hypersonics capabilities. The Committee further recommends that NASA develop partnerships with organizations with experience in high-rate, large-scale aerostructure design and manufacturing to provide unique process development for large hypersonic aerostructures.

Flight Opportunities Program.—The recommendation includes $35,000,000 for the Flight Opportunities Program. The Committee recognizes the work the NASA Flight Opportunities Program does to support the microgravity research community by providing a cost-effective way for scientific researchers to conduct experiments
in suborbital space, which contributes to the advancement of space technology and advances NASA’s core missions. The Committee believes this program increases the United States’ ability to launch scientific payloads into suborbital space, thereby advancing research.

Carbon nanotube technology.—The Committee is encouraged by the promise of aligned carbon nanotube technology as an enabler of space exploration and research capabilities and systems. The Committee directs NASA to submit a report to the Committee, no later than 180 days after the enactment of this Act, detailing a plan to ensure mission critical systems utilize and leverage carbon nanotube technology.

EXPLORATION

The Committee recommends $7,971,091,000 for Exploration, which is $502,241,000 above fiscal year 2023 and equal to the request.

Orion Multi-Purpose Crew Vehicle.—The recommendation includes $1,225,000,000 for the Orion Multi-Purpose Crew Vehicle.

Space Launch System.—The recommendation includes $2,506,100,000 for the Space Launch System (SLS), of which $600,000,000 is for concurrent SLS Block 1B Development, including Exploration Upper Stage development and associated stage adapter work. The Committee reaffirms support for SLS and Block 1B Development, is supportive of fully developing the capabilities of SLS, and directs NASA to continue the simultaneous development of activities as authorized under sections 302(c)(l)(a) and (b) of Public Law 111–267.

Artemis Campaign Development.—The recommendation includes $3,234,900,000 for Artemis Campaign Development.

Human Landing System.—The recommendation includes $1,880,500,000 for the Human Landing System (HLS). The Committee recognizes that the Human Landing System is critical to America’s return to the Moon. Accordingly, the recommendation includes full funding to achieve the Option A and Option B missions on the current timeframe, while also supporting additional opportunities for competitive landings in 2028 and beyond. The Committee expects NASA to make investments in development that promote competition for the sustainable lander phase. The Committee urges NASA to enable a routine cadence of human transportation services to and from the Moon with multiple providers, as practicable. The Committee directs NASA to deliver a plan to the Committee explaining how it will ensure safety, redundancy, sustainability, and competition in the HLS program within the resources provided by this Act no later than 60 days after the enactment of this Act. The Committee further directs NASA to continue providing to the Committee a description of all resources needed in fiscal years 2025 and 2026 to accomplish these goals.

Sustaining Lunar Development initiative.—The Committee directs NASA to fund the development and crewed demonstration of a second commercial human landing system through the Sustaining Lunar Development (SLD) program initiative in the HLS program initiative.
**Exploration Ground Systems.**—The recommendation includes $794,200,000 for Exploration Ground Systems (EGS), an amount equal to the request level, for the development of ground systems and surface launch capabilities.

**Next generation extravehicular activity spacesuits.**—The Committee supports NASA’s efforts to award two task orders to multiple industry providers to advance the development, testing, certification, and mission readiness of next generation extravehicular activity (EVA) spacesuits for the International Space Station (ISS) and future low Earth orbit platforms as well as the Artemis III mission and beyond. The Committee believes having two providers funded and providing capability for these missions will ensure continued competition on cost, schedule, and capability while providing NASA with redundancy for Artemis and Mars missions. The recommendation includes no less than $379,900,000 for the Exploration Extravehicular Activity Service (XEVAS) and Human Surface Mobility program in fiscal year 2024 to ensure that all task orders necessary to maintain schedule for the ISS demonstration and missions and Artemis missions to the Moon and later Mars are fulfilled.

The Committee directs NASA to support competition and redundancy for future Artemis missions starting with Artemis IV by providing the Committee with a plan, including a task order and funding roadmap, to have both EVA spacesuits developed and certified for lunar surface missions in time for the selection of the EVA spacesuit for the Artemis IV mission.

**Fabrication laboratory in-space manufacturing demonstration.**—Within funding for exploration capabilities of the Mars Campaign Development program, the Committee directs NASA to allocate $10,000,000 for a fabrication laboratory (FabLab) demonstration of metal and electronic manufacturing in space.

**Advanced environmental control and life support systems development for Moon to Mars missions.**—To support increasingly longer duration crewed missions in the cislunar and deep space environments, the Committee believes NASA and its industry partners must develop advanced environmental control and life support systems (ECLSS), designed for missions lasting a year or more, and the unique challenges of crewed Moon and Mars-class missions. The recommendation includes no less than $25,000,000 for partnerships to develop the critical Moon to Mars ECLSS open mission systems capabilities that will be necessary for successful and safe missions in the deep space environment, including open mission system ECLSS architectures, highly resilient and redundant systems, small and lightweight form factors, regenerative capabilities, and in space repair capabilities assuming a deep space mission in which no cargo or spares are available. The Committee directs NASA to report to the Committee on the key technologies necessary for development, test and certification for long duration Moon and Mars crewed missions, how this program can help accelerate development and testing of these critical capabilities, and which NASA facilities can help support industry testing of these advanced capabilities no later than 90 days after the enactment of this Act.
Autonomous system modeling and simulation.—The Committee notes the important role that NASA plays in the development, testing, and evaluation of autonomous systems through modeling and simulation, particularly through its Artemis and Gateway programs. The Committee commends NASA’s historic partnerships with educational institutions, which not only increase the number of STEM graduates, but also encourage collaboration with other government organizations and industry. Therefore, the recommendation includes $10,000,000 for the purpose of developing more reliable autonomous capabilities at a NASA facility through partnerships with educational institutions.

SPACE OPERATIONS

The recommendation includes $4,344,609,000 for Space Operations, which is $94,609,000 above fiscal year 2023 and $190,000,000 below the request.

Space launch infrastructure.—The Committee is concerned that launch demand now exceeds spaceport infrastructure capacity. The Committee understands that launch activity and demand for expanded launch services, including payload processing and integration, and range support, are projected to grow for the foreseeable future, and that these increased demands will soon exceed existing capacity at Federal launch sites and could adversely affect support for civil and national security space programs. The Committee notes that in this challenging environment, regional facilities with launch capabilities and capacity play an increasingly important role in strengthening assured access to space and supporting NASA programs, including resupply missions to the International Space Station. The Committee believes such facilities should provide end-to-end launch value chain services that support a wide range of civil and national security launches as well as an expanding commercial market that benefits national and economic security. To preserve existing capabilities and keep pace with evolving demand into the 2030s, the Committee further believes the existing launch pads and supporting infrastructure must be modified and maintained. To expedite these modifications and strengthen the resilience of the U.S. space launch infrastructure, the Committee strongly encourages NASA to (1) coordinate with existing facilities for planned use and modification to ensure the availability of capability infrastructure and (2) consider the potential for public private partnerships with industry that may add new processing capacity at critical space launch bases. To expedite these modifications, the Committee provides no less than $5,000,000 to ensure these launch pads are available to accommodate the increased demand.

Suborbital Crew.—The Committee directs NASA to qualify commercial U.S. suborbital vehicles and procure flights for NASA suborbital crew through the Space Operations Mission Directorate.

Small satellite cross-link systems.—The recommendation includes $25,000,000 to align NASA’s relay networks to transmit large volumes of science and Earth remote sensing data to users via high-speed (V-band), low latency links. The Committee anticipates that this initiative will provide an expanded educational opportunity for individuals studying SmallSat Cross-Link Systems.
International Space Station deorbit capability.—The recommendation supports the requested funding for a U.S. deorbit vehicle that will enable the deorbit of the International Space Station at the end of this decade.

SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS ENGAGEMENT

The recommendation includes $89,000,000 for Science, Technology, Engineering, and Mathematics Engagement (STEM), which is $54,500,000 below fiscal year 2023 and $68,800,000 below the request.

Space Grant program.—The recommendation includes $60,000,000 for the Space Grant program. The Committee directs NASA to allocate these funds to State consortia for competitively awarded grants in support of local, regional, and national STEM needs and support all 52 participating jurisdictions at no less than $860,000 each.

Established Program to Stimulate Competitive Research.—The recommendation provides no less than $29,000,000 for the EPSCoR program. Within the amount provided, the Committee directs NASA to allocate no more than five percent of EPSCoR funding for administration and other overhead costs. The Committee acknowledges the important role the EPSCoR program plays in spurring innovation, bolstering research capabilities at institutions that are historically underserved by Federal research and development funding, and strengthening the STEM workforce.

SAFETY, SECURITY AND MISSION SERVICES

The recommendation includes $3,135,451,000 for Safety, Security and Mission Services, which is $6,000,000 above the fiscal year 2023 enacted level and $233,949,000 below the request.

NASA Safety, Security and Mission Services Community Projects.—The recommendation includes $36,261,000 for NASA community projects. The Committee directs NASA to perform the same level of oversight and due diligence as with any other external partners.

CONSTRUCTION AND ENVIRONMENTAL COMPLIANCE AND RESTORATION

The recommendation includes $247,900,000 for Construction and Environmental Compliance and Restoration (CECR), which is $200,600,000 above fiscal year 2023 and $205,800,000 below the request.

Center commodity infrastructure.—Within the funds available, the Committee encourages NASA to upgrade pipelines and supporting commodities infrastructure in fiscal year 2024.

Aeronautics and engineering research and operations infrastructure upgrades.—The recommendation includes $109,000,000 for modernization of aeronautics and engineering research and operations infrastructure.

Hypersonic flight capability ground infrastructure.—The Committee recognizes the planned NASA testing of the low boom flight demonstrator hypersonic vehicle in fiscal year 2024. The recommendation includes $9,000,000 for upgrades and improvements.
associated with planned hypersonic test flight and development ground infrastructure.

OFFICE OF INSPECTOR GENERAL

The recommendation includes $47,600,000 for the Office of Inspector General, which is equal to fiscal year 2023 and $2,600,000 below the request.

ADMINISTRATIVE PROVISIONS
(INCLUDING TRANSFERS OF FUNDS)

The Committee has included the following administrative provisions for NASA:

- The bill includes a provision that makes funds for any announced prize available without fiscal year limitation until the prize is claimed or the offer is withdrawn.
- The bill includes a provision that establishes terms and conditions for the transfer of funds.
- The bill includes provisions that require NASA to submit its agency spending plan at the activity level and subjects both the spending plan and specified changes to that plan to reprogramming procedures under section 505 of this Act.
- The bill allows for the transfer of funds to or within Deep Space Exploration.
# COMPARATIVE STATEMENT OF NEW BUDGET (OBLIGATIONAL) AUTHORITY FOR 2023
AND BUDGET REQUESTS AND AMOUNTS RECOMMENDED IN THE BILL FOR 2024
(Amounts in thousands)

<table>
<thead>
<tr>
<th></th>
<th>FY 2023 Enacted</th>
<th>FY 2024 Request</th>
<th>Bill</th>
<th>Bill vs. Enacted</th>
<th>Bill vs. Request</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TITLE III - SCIENCE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office of Science and Technology Policy</td>
<td>7,965</td>
<td>8,195</td>
<td>5,544</td>
<td>-2,421</td>
<td>-2,651</td>
</tr>
<tr>
<td>National Space Council</td>
<td>1,965</td>
<td>2,018</td>
<td>1,865</td>
<td>-100</td>
<td>-153</td>
</tr>
<tr>
<td>National Aeronautics and Space Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>7,795,000</td>
<td>8,260,800</td>
<td>7,380,000</td>
<td>-415,000</td>
<td>-880,800</td>
</tr>
<tr>
<td>Aeronautics</td>
<td>935,000</td>
<td>995,800</td>
<td>945,800</td>
<td>+10,800</td>
<td>-50,000</td>
</tr>
<tr>
<td>Space Technology</td>
<td>1,200,000</td>
<td>1,391,600</td>
<td>1,205,000</td>
<td>+5,000</td>
<td>-186,600</td>
</tr>
<tr>
<td>Deep Space Exploration Systems</td>
<td>7,468,850</td>
<td>7,971,091</td>
<td>7,971,091</td>
<td>+502,241</td>
<td>-153</td>
</tr>
<tr>
<td>Space Operations</td>
<td>4,250,000</td>
<td>4,534,609</td>
<td>4,344,609</td>
<td>+94,609</td>
<td>-190,000</td>
</tr>
<tr>
<td>Science, Technology, Engineering, and Mathematics</td>
<td>143,500</td>
<td>157,800</td>
<td>89,000</td>
<td>-54,500</td>
<td>-68,800</td>
</tr>
<tr>
<td>Safety, Security and Mission Services</td>
<td>3,129,451</td>
<td>3,369,400</td>
<td>3,135,451</td>
<td>+6,000</td>
<td>-233,949</td>
</tr>
<tr>
<td>Construction and environmental compliance and restoration</td>
<td>47,300</td>
<td>453,700</td>
<td>247,900</td>
<td>+200,600</td>
<td>-205,800</td>
</tr>
<tr>
<td>Office of Inspector General</td>
<td>47,600</td>
<td>50,200</td>
<td>47,600</td>
<td>---</td>
<td>-2,600</td>
</tr>
<tr>
<td><strong>Total, National Aeronautics and Space Administration</strong></td>
<td>25,016,701</td>
<td>27,185,000</td>
<td>25,366,451</td>
<td>+349,750</td>
<td>-1,818,549</td>
</tr>
</tbody>
</table>

---