

## **National Aeronautics and Space Administration**

Under the President's leadership, we have turned our economy around and created 14 million jobs. Our unemployment rate is below five percent for the first time in almost eight years. Nearly 18 million people have gained health coverage as the Affordable Care Act has taken effect. And we have dramatically cut our deficits by almost three-quarters and set our Nation on a more sustainable fiscal path.

Yet while it is important to take stock of our progress, this Budget is not about looking back at the road we have traveled. It is about looking forward and making sure our economy works for everybody, not just those at the top. It is about choosing investments that not only make us stronger today, but also reflect the kind of country we aspire to be – the kind of country we want to pass on to our children and grandchildren.

The Budget makes critical investments in our domestic and national security priorities while adhering to the bipartisan budget agreement signed into law last fall, and it lifts sequestration in future years so that we continue to invest in our economic future and our national security. It also drives down deficits and maintains our fiscal progress through smart savings from health care, immigration, and tax reforms.

The Budget shows that the President and the Administration remain focused on meeting our greatest challenges – including accelerating the pace of innovation to tackle climate change and find new treatments for devastating diseases; giving everyone a fair shot at opportunity and economic security; and advancing our national security and global leadership – not only for the year ahead, but for decades to come.

The National Aeronautics and Space Administration's mission is to drive advances in science, technology, and exploration, and to enhance knowledge, education, innovation, economic vitality, and stewardship of Earth. To achieve this, NASA develops aeronautics and space technologies, studies Earth from space, and pushes out into the Solar System not just to visit, but to stay. The Budget provides \$19 billion for investments to ensure continued U.S. leadership in space and help create new industries and new capabilities. The Budget also supports research and development to strengthen NASA's ability to answer important scientific questions about Earth, the solar system, and the universe. The Budget prioritizes technology development and innovative commercial programs to reduce costs, enable new space commerce and increase U.S. capabilities.

### **Funding Highlights:**

The President's FY 2017 Budget provides \$19 billion for the National Aeronautics and Space Administration (NASA), prioritizing research and development, space technology, and other initiatives that will enable the increased use and exploration of space. The Budget also supports commercial partnerships that will reinforce the Nation's preeminence in Earth orbit and extend humanity's reach further into space – ultimately along the Journey to Mars that the President has set forth. This includes:

- Implementing the Administration’s commitment that NASA be a catalyst for the growth of a vibrant American commercial space industry and partnering with that industry both to regain the capability to send astronauts into space cost-effectively and safely from American soil, and to create long-term habitation capabilities that will play a key role in the journey to Mars.
- Investing in space technologies, including the demonstration of space-to-ground laser communications, satellite servicing and advanced in-space propulsion, which will increase America’s capabilities in space, reduce the cost of space exploration, and lower barriers to new commercial space activities.
- Continuing development of the Orion crew vehicle and Space Launch System that will send astronauts on deep space missions in the 2020s and beyond.
- Providing \$2 billion to support a range of Earth science missions to study climate, weather, and natural hazards.
- Supporting current operations and new missions to better understand the Sun, our solar system, and the Universe.
- Enabling a cleaner and more efficient air transportation system through investments in revolutionary aircraft technologies and designs.
- The FY 2017 Budget contains both discretionary and mandatory funding to ensure sufficient support for NASA’s science, technology, aeronautics, and exploration programs.

**Reforms:**

- Invests in expanding the use and capabilities of small satellites, unleashing their potential to conduct or enhance space missions at relatively low costs.
- Realigns Agency-wide Information Technology (IT) governance and investments under the Chief Information Officer to improve the management, use, and oversight of NASA IT.
- Leverages NASA technologies to strengthen the US innovation ecosystem by building partnerships with startups and regional innovation networks.

***Leads the World in Space Exploration***

**Partners with American Commercial Space Enterprises.** The Budget reaffirms NASA’s partnership with the U.S. commercial space industry to develop and operate safe, reliable, and affordable systems to transport crew to and from the International Space Station (ISS) and Earth orbit in coming years. The Budget also supports continued use of commercial cargo services that

are essential to ISS research. This critical partnership continues to produce a more globally competitive U.S. space launch industry, and enables the United States to take advantage of the Station's research capabilities, advancing our knowledge on a range of research areas with applications on Earth and in space. The Budget funds early-stage public-private partnerships leading to the development of habitation capabilities near the moon. By extending habitation capabilities into this "proving ground," humans will learn to better survive and operate in deep space, advancing critical capabilities needed for eventual exploration missions to Mars and providing benefits to the commercial space economy closer to Earth.

**Invests in Developing Space Technologies.** New technologies will increase the affordability, capability, and safety of NASA, other federal government, and industry space activities. The Budget funds the testing and development of new technologies in laboratories on the ISS, and on other space missions. One of the key technologies this Budget supports is a high-powered solar electric propulsion (SEP) capability that will give future NASA, other government, and commercial missions new capabilities. SEP will power a robotic mission that will visit an asteroid, test approaches for changing its course, and bring a boulder back to the vicinity of the Moon for further study.

**Develops the Building Blocks for an Ambitious Deep Space Exploration Program That will Send American Astronauts Out into the Solar System.** The Budget keeps development of the Space Launch System rocket and Orion spacecraft on track to send astronauts on deep space missions in the 2020s and beyond. The Budget also furthers development of critical technologies for exploration in areas including life support and deep space habitation. Finally, the Budget supports research on living and operating in space on the ISS – work that will continue on commercial space stations after the end of the ISS program in the 2020s

**Invests in Science, Technology, Engineering, and Mathematics (STEM).**

Through NASA Education programs, the Budget strengthens the research capabilities of the Nation's colleges and universities and provides opportunities that attract and prepare an increasing number of students for STEM and NASA-related careers.

*Improves Our Understanding of the Earth and the Universe*

**Advances Science Needed to Understand our Home Planet.** The Budget provides \$2 billion for multiple Earth science missions to study Earth as a complex, dynamic system of diverse components. This includes the oceans, atmosphere, continents, ice sheets, and life. The Budget supports increased funding for research to analyze data from Earth-observing satellites and accelerates the launch of the next land-imaging satellite in the Landsat series from 2023 to 2021.

**Continues Exploration of the Solar System and Unlocks Mysteries of the Universe.** The Budget includes \$3.6 billion for space science, including funding for the James Webb Space Telescope, the next Mars rover mission, and a mission to Jupiter's moon Europa. The Budget continues formulation activities for WFIRST, a space telescope with a field of view that will be 100 times larger than the images provided by the Hubble Telescope.

### *Invests in Revolutionary Low-Carbon Air Transportation*

**Promotes Innovation in Aviation.** The Budget provides \$790 million in FY 2017 for aeronautics research aimed at transforming the safety, capacity, and efficiency of the air transportation system while minimizing negative impacts on the environment. The Budget initiates a series of large-scale demonstration projects to test cutting-edge technologies in realistic environments and enable their widespread adoption. The Budget includes \$3.7 billion over the next ten years to accelerate the realization of low-carbon air transportation, as part of the Administration's 21<sup>st</sup> Century Clean Transportation Plan.

### *Advances Innovation and Efficiency*

**Supports Innovation in Small Satellites.** The Budget triples funding for CubeSat (a type of small satellite) proposals in NASA Science and supports a new initiative to investigate the use of small satellite constellations to observe the Earth. Small satellites are a potentially disruptive technology that may offer additional opportunities to meet science and technology development objectives at substantially lower costs and with more rapid development cycles than traditional missions. The United States is an early leader in this game-changing technology, and additional investments by NASA programs will help maintain that position. Additionally, the Budget increases funding for the Small Spacecraft Technologies program by nearly 50 percent. Additional funding allows the program to expand its opportunities to small and large businesses and partner with NASA experts and academia to develop new technologies to improve the capabilities of small satellites.

**Realigns Agency-wide IT Governance and Investments Under the Chief Information Officer.** The Budget supports steps to improve the management, use, and oversight of NASA IT investments with the development of a new governance structure and the transfer of existing resources to the NASA Chief Information Officer. These steps will enable NASA to consolidate existing IT investments resulting in a more cost-effective IT program across the agency.

**Leveraging NASA Technologies to Strengthen the U.S. Innovation Ecosystem.** The Budget continues to make new investments in technology transfer, Small Business Innovative Research (SBIR) commercialization, and regional economic development activities that support the commercialization of NASA funded research and development. In support of the Administration's Lab-to-Market Cross Agency Priority goal, NASA is putting tools in the hands of every NASA Center to build partnerships with startups and regional innovation networks across the nation.