



## **NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

The President's 2016 Budget is designed to bring middle class economics into the 21st Century. This Budget shows what we can do if we invest in America's future and commit to an economy that rewards hard work, generates rising incomes, and allows everyone to share in the prosperity of a growing America. It lays out a strategy to strengthen our middle class and help America's hard-working families get ahead in a time of relentless economic and technological change. And it makes the critical investments needed to accelerate and sustain economic growth in the long run, including in research, education, training, and infrastructure.

These proposals will help working families feel more secure with paychecks that go further, help American workers upgrade their skills so they can compete for higher-paying jobs, and help create the conditions for our businesses to keep generating good new jobs for our workers to fill, while also fulfilling our most basic responsibility to keep Americans safe. We will make these investments, and end the harmful spending cuts known as sequestration, by cutting inefficient spending and reforming our broken tax code to make sure everyone pays their fair share. We can do all this while also putting our Nation on a more sustainable fiscal path. The Budget achieves about \$1.8 trillion in deficit reduction, primarily from reforms to health programs, our tax code, and immigration.

The National Aeronautics and Space Administration's mission is to drive advances in science, technology, and exploration 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 \$18.5 billion for investments to ensure continued U.S. leadership in space and help create new industries and capabilities. The budget supports research and development to advance space capabilities and strengthens NASA's ability to answer important scientific questions about Earth. The budget also 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 2016 Budget provides \$18.5 billion in discretionary funding for the National Aeronautics and Space Administration (NASA) to extend humanity's reach in space and strengthen America's leadership here on Earth. This includes:
  - Supporting the Administration's commitment that NASA be a catalyst for the growth of a vibrant American commercial space industry and partner with industry to regain the capability to send astronauts into space cost-effectively and safely from American soil.
  - Investing in space technologies, such as demonstration of space-to-ground laser communications and advanced in-space propulsion, which are necessary to increase America's capabilities in space, bring the cost of space exploration down, and lower barriers for commercial space activities.
  - Continuing development of the Orion Multi-Purpose Crew Vehicle, Space Launch System (SLS), and Exploration Ground Systems (EGS) that will send astronauts on deep space missions. A crewed mission to rendezvous with an asteroid that has been relocated near the Moon will allow NASA to expand crewed operations beyond low Earth orbit as a proving ground for future missions to destinations including Mars.
  - Building on our nation's record of scientific discoveries and achievements in space, with science missions that will reach far into our solar system, reveal unknown aspects of our universe and provide critical knowledge about our home planet.
  - Keeping the development of the James Webb Space Telescope, the more powerful successor to the Hubble Space Telescope, on track for a 2018 launch.

**Reforms:**

- Continuing to improve NASA education programs as part of the government-wide effort to restructure and improve the delivery and effectiveness of science, technology, engineering, and mathematics education programs in alignment with the Federal STEM Education Five-Year Strategic Plan.

Improving acquisition and program management to achieve substantial improvements in programmatic performance on top of the millions NASA is already saving on many of programs due to more rigorous assessments of cost and schedule.

**Partners with American Commercial Space Enterprises.** The Budget continues NASA's partnership with 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 low Earth orbit in coming years. This will enable additional research on the International Space Station (ISS) by providing an additional crewmember, and will provide crew rescue capability for the ISS. This strategy bolsters American leadership, helps produce a more globally-competitive U.S. space industry, enables the United States to take advantage of the Station's research capabilities and reduces reliance on foreign providers for access to the ISS. NASA will continue to seek out partnerships with innovative private space ventures to advance the agency's mission and build a new space economy.

**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 technologies in laboratories, on the ISS, and in future in-space missions. One of the key technologies supported in this Budget is a high-powered solar electric propulsion capability that will give future NASA, other government, and commercial missions new capabilities and will power the robotic segment of the Asteroid Redirect Mission.

**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, including to Mars. The budget furthers development of foundational technologies for areas including life support, deep space habitation, and advanced space suits, that will be needed for a human mission to a redirected asteroid. The ISS provides a unique environment for research on human health and space operations necessary for future long-term human missions.

**Improves Understanding of our Home Planet.** The Budget provides \$1.9 billion for multiple Earth science missions to enable the study of climate, weather, and natural hazards. The Budget

includes funding for a multi-decadal space-borne Sustained Land Imaging system, including the immediate initiation of Landsat 9; a new Thermal Infrared satellite to ensure that a key at-risk measurement is continued; and annual, focused, technology investments in support of Landsat 10 and subsequent missions.

**Continues Exploration of the Solar System and Unlocks Mysteries of the Universe.** The Budget includes \$5.3 billion for a robust space science journey of discovery, including funding for the James Webb Space Telescope and exploration of our solar system. The request includes funding for the next Mars rover mission, as well as a mission to Jupiter's moon Europa, allowing NASA to proceed with project formulation.

**Promotes Innovation in Aviation.** The Budget will fund aeronautics research aimed at transforming the safety, capacity, and efficiency of the air transportation system while minimizing negative impacts on the environment. Aeronautics research focuses on the Nation's future societal and economic vitality, including an Advanced Air Vehicles Program to develop tools, technologies, and concepts for new generations of safer, more energy efficient civil aircraft, with a smaller environmental footprint.

**Maximizes resources**

**Supports High Quality Science, Technology, Engineering, and Mathematics (STEM) Education Programs.** This budget continues NASA's effort to consolidate its education efforts into a more focused portfolio funded through the Office of Education. Additionally, the Budget provides \$20 million to NASA's Science Mission Directorate to fund the best application of NASA's science assets to meet the Nation's STEM education goals through a competitive process.

**Boosts Sustainability and Energy Efficiency of NASA Facilities.** The Budget supports a number of initiatives to help NASA facilities operate more efficiently and sustainably. NASA seeks to achieve a sustainable and energy-efficient infrastructure and reduce its footprint by replacing old, inefficient, deteriorated buildings with new, efficient, high-performance buildings. The Budget supports construction of the Langley Research Center Measurement Sciences Laboratory, which will consolidate the function of several older buildings and provide state-of-the-art lab facilities supporting research and development initiatives unique to the Agency.

**Improves Acquisition and Program Management.** The Budget continues to support several process improvements designed to achieve greater insight into project performance to minimize or prevent cost overruns. For example, NASA has expanded the use of Earned Value Management (EVM) to cover all contracts greater than or equal to \$20 million and has developed an in-house EVM capability that is being rolled out to all of the centers. NASA has also implemented several efforts that have yielded more credible cost and schedule baselines, including the institution of formulation agreements early in a project's lifecycle and use of joint confidence levels to establish a project's cost and schedule at the time the project is given the go-ahead to proceed.