

Statement by Charlie Bolden
NASA Administrator
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NASA Budget Press Conference

Good afternoon. I'm Charlie Bolden, and I am excited to be presenting to you the President's budget request for NASA in fiscal year 2011, my first budget as NASA Administrator.

President Obama today has given us a bold challenge -- to become an engine of innovation, and the catalyst for an ambitious new space program that includes and inspires people around the world. With this budget and the steps it lays out, the United States and its partners in other nations, in industry, and in academia will pursue a more sustainable and affordable approach to spaceflight through the development of transformative technologies and systems. We will blaze a new trail of discovery and development. We will facilitate the growth of new commercial industries. And we will expand our understanding of the Earth, our solar system, and the universe beyond. To accomplish these objectives, the president has increased NASA's budget over the next five years by 6 billion dollars, an extraordinary show of support in these tough budgetary times.

Americans and people worldwide have turned to NASA for inspiration throughout our history – our work gives people an opportunity to imagine what's barely possible, and we at NASA get to turn those dreams into real achievements for all humankind. I'm here today to tell you that this budget gives us a roadmap to even more historic achievements as it spurs innovation, employs Americans in exciting jobs, and engages people around the world.

When President Obama asked me to return to NASA, to lead the agency of which I had so proudly been a part as a shuttle astronaut, he assured me how much he valued space exploration, science and technology. The president is an innovator; it's germane to his thinking. It was one of the reasons I was honored to return.

We both agreed that as NASA moves forward into this still-young century, we need a renewed commitment to invention and development, to the creative and entrepreneurial spirit that is at the core of our country's character and that these things would be *good* for NASA, *great* for the American workforce, and *essential* for our nation's future prosperity.

So let me start by giving you a broad outline of the budget plan, and then I'll follow up with more details.

First, with this budget we are demonstrating our commitment to extend the life of the International Space Station, likely to 2020 or beyond. This will keep a commitment to our international partners and develop the full potential of this amazing orbiting laboratory where humans regularly do things we have never done before. NASA is on track to fly out the remaining Space Shuttle manifest of five flights, safely, and by the end of this calendar year. Within the week we'll be launching Endeavour to the International Space Station to deliver the Tranquility node, and a seven-windowed cupola that will be a control room for robotics and a new window on the world for the ISS astronauts.

Next, the president has laid out a dynamic plan for NASA to invest in critical and transformative technologies. These will enable our path beyond low Earth orbit through development of new launch and space transportation technologies,

nimble construction capabilities on orbit, and new operations capabilities. Imagine trips to Mars that take weeks instead of nearly a year; people fanning out across the inner solar system, exploring the Moon, asteroids and Mars nearly simultaneously in a steady stream of “firsts;” and imagine all of this being done collaboratively with nations around the world. That is what the President’s plan for NASA will enable, once we develop the new capabilities to make it a reality.

NASA will accelerate and enhance its support for the commercial spaceflight industry to make travel to low Earth orbit and beyond more accessible and more affordable. Imagine enabling hundreds, even thousands of people to visit or live in low Earth orbit, while NASA firmly focuses its gaze on the cosmic horizon beyond Earth.

The President is also deeply committed to NASA's vital programs to understand our home planet, and has given us the means to increase our efforts to learn more about our changing climate.

The budget has a specific focus on green aviation and safer air transportation through such initiatives as the Next Generation Air Transportation System or NextGen, and we're also expanding our commitment to science and technology education. More on all of these new or expanded initiatives in a minute.

Now let’s discuss the Constellation Program. The Program was planning to use an approach similar to Apollo to return astronauts to the Moon some 50 years after that program’s triumphs. The Augustine Committee observed that this path was not sustainable, and the President agrees. They found that Constellation key milestones were slipping, and that the program would not get

us back to the moon in any reasonable time or within any affordable cost. Far more funding was needed to make our current approach work. The Augustine Committee estimated that the heavy lift rocket for getting to the moon would not be available until 2028 or 2030, and even then they found "there are insufficient funds to develop the lunar lander and lunar surface systems until well into the 2030s, if ever." So as much as we would not like it to be the case, and taking nothing away from the hard work and dedication of our team, the truth is that we were not on a path to get back to the moon's surface. And as we focused so much of our effort and funding on just getting to the Moon, we were neglecting investments in the key technologies that would be required to go beyond.

So this budget cancels the Constellation Program, including the Ares I and V rockets and the Orion crew exploration vehicle. NASA intends to work with the Congress to make this transition smooth and effective, working responsibly on behalf of the Taxpayers.

With my deepest gratitude, I commend the hard work and dedication that thousands of NASA and contractor workers have given to Constellation over the last few years. Their commitment has brought great value to the agency, and they will have a pivotal role to play in our future path. Many of the things we've learned will be critical as we move forward. Norm Augustine and his blue ribbon panel of experts, whose advice the President wisely sought, gave us some options for a different path. From those, we have built the path that we are taking.

That is the broad outline. What you can see is that, while there will no doubt be challenges as a result of cancelling Constellation, the funding for NASA is *increasing*, so we expect to support as many if not more jobs with the FY 2011

funding the President has proposed. Those jobs may not, however, be concentrated on a few manufacturing and development contracts. Moreover, taking the long view, investments in science and technology innovation have proven to stimulate enhanced job growth, through the development of new opportunities for industry across our nation.

Now let me add some specifics to some of the individual points I've made.

We're going to start by using the International Space Station as the national lab that it was envisioned to be. We will make full use of its incredible potential, and enhance our use of its research and development capabilities on-board. All kinds of educators, colleges, science institutions, and other government agencies, will be using the ISS for research. There's so much we need to know before we can venture safely out of low Earth orbit for the long term. We're going to address practical medical questions about astronaut bone density and the effects of radiation; how we can reach destinations sooner to mitigate the effects on space travelers of long journeys. In addition, NASA will support a broad array of biological, materials, and combustion research aboard ISS, which will advance our spaceflight capabilities, as well as benefit those disciplines more broadly. We will also fly Earth observation instruments aboard ISS, to expand our understanding of our home planet, and use this platform as a test bed for future exploration technologies. These are just a few of the things that we will pursue on a fully utilized International Space Station.

In addition, NASA remains on track to fly out the remaining Space Shuttle manifest of five flights safely by the end of calendar year 2010. The FY 2011

Budget provides the additional resources required to do so, ensuring that the Shuttle workforce will be fully utilized during that time.

Now let's move on to focus on the exciting, new programs in this budget. NASA will partner with the aerospace industry in a fundamentally new way to provide astronaut transportation to the International Space Station. An enhanced U.S. commercial space industry will create new high-tech jobs and spin off other new businesses that will seek to take advantage of affordable access to space. With today's budget, we are taking immediate steps to help launch this bold vision and the pioneers who will help make the plan a reality.

Today we are using stimulus funds to help drive the beginnings of a commercial crew industry and the as many as 5,000 new jobs that industry suggests it can create.

I am pleased to announce that NASA will award approximately \$50M to further the commercial sector's capability to support transport of crew to and from low Earth orbit. Through an open competition, NASA has awarded Space Act Agreements to:

Blue Origin of Kent, Washington;

The Boeing Company of Houston, Texas;

Paragon Space Development Corporation of Tucson, Arizona;

Sierra Nevada Corporation of Louisville, Colorado; and

United Launch Alliance of Centennial, Colorado, for the development of crew concepts, technology demonstrations, and investigations for future

commercial support of human spaceflight. We will be discussing these awards in more detail, and introducing you to the space pioneers behind them tomorrow at our event at the National Press Club.

Commercial launch vehicles have for years carried all U.S. military and commercial – and most NASA – satellites to orbit. Now, as 50 years ago when we upgraded existing rockets for the Gemini program, NASA will set standards and processes to ensure that these commercially built and operated crew vehicles are safe. No one cares about safety more than I. I flew on the space shuttle four times. I lost friends in the two space shuttle tragedies. So I give you my word these vehicles will be safe. They will fulfill a critical NASA need, spur industrial innovation, and free up NASA to do the bold, forward-leaning work that we need to do to explore beyond Earth.

To that end, the President's budget provides new investments in three new, vigorous technology development programs to expand the capabilities of future explorers far beyond what we have today. We'll embark on this transformative technology initiative with our workforce partnering with the best in industry and academia and with our international partners. The first program, funded at \$7.8 billion over five years, will invent and demonstrate large-scale, new and novel approaches to spaceflight such as in-orbit fuel depots and rendezvous and docking technologies, and closed-loop life support systems so that our future robotic and human exploration missions are both highly capable and more affordable.

At \$3.1 billion over five years, an aggressive, new heavy lift research and development program will focus on development of new engines, propellants,

materials and combustion processes, ultimately leading to innovative ways of accessing space to go beyond low Earth orbit. This will increase our capabilities and significantly lower operations costs – with the clear goal of taking us farther and faster into space. And the budget also provides \$4.9 billion over 5 years for a broad space technology program, including investments in very early stage and game-changing approaches, cross-cutting technologies such as communications, sensors and robotics, and a flight demonstration program for these game changing technologies. These programs will use prizes and other innovative research funding mechanisms to support the most worthwhile ideas.

In addition to the trailblazing technology programs, the President's budget provides \$3 billion over five years for robotic exploration precursor missions that will pave the way for later human exploration of the moon, Mars and nearby asteroids. Like the highly successful Lunar Reconnaissance Orbiter and LCROSS missions that captured our attention last fall, future exploration precursor missions will expand on these successes, visiting more places in the inner solar system, with greater capabilities. These missions will inform us of the most interesting places to explore with humans, and validate our approaches to get them there safely and sustainably.

In the science world, the president's plan supports space science research grants and dozens of operating and planned missions to study the planets and stars. We'll be sending a mission on the closest ever approach to the sun and enhancing our capability to detect and catalog near Earth objects that might pose a threat but can also help us understand the history of our solar system.

This budget provides expanded opportunities in two other very important areas, aligned with critical national needs: climate change and aeronautics. NASA's Earth science program has contributed greatly to our ability to understand climate change and its wide-ranging impacts. Over \$2 billion in additional funds in this budget will accelerate the development of new missions to observe, from our highest vantage point, the Earth and its processes. We'll accelerate the development of crucial satellites to improve our forecasting of climate change, focusing on the key unknowns in our ability to predict future climate impacts. We'll pursue new carbon monitoring capabilities, and observe our changing ice sheets. And we will continue to make our new datasets available to all, as we contribute critical knowledge to leaders across the world who must help us adapt to our changing world.

In aeronautics, NASA will focus on technologies and applications to reduce aircraft fuel needs, noise, and emissions. These improvements to future air transportation will promote both the economic and environmental health of this country.

Finally, and in many ways, this is one of the most important aspects of this budget; we are absolutely committed to inspiring young people. We want to ignite their passion for science and math, technology and engineering, professions that are critical now and will only grow more important in the future. The President shares my dedication to this work and has provided additional resources to help young minds connect with the world of space exploration. Our *Summer of Innovation* initiative this year will begin a massive collaboration with thousands of middle school teachers and students to engage in stimulating,

hands-on math and science programs that draw on the best and most exciting NASA resources. Kids absolutely go crazy for space and the things we are doing, and I know we have huge potential to capitalize on that, for the benefit of this and future generations.

Let me close by saying that what we need, and what the President has provided, is a fundamental reinvigoration of our nation's exploration effort. If we are going to have the technology and capabilities needed for tomorrow, we have to invest in them today. We must harness the nation's entrepreneurial energies to fulfill our needs for access to low Earth orbit and reap the benefits of enabling those new businesses.

This new path is a big change. I realize that. But it is not a change from the guiding principles of NASA. It makes America stronger. It enables us to draw more strongly on the ingenuity of the commercial sector and create deeper ties with our international partners. We can't underestimate the rich promise of space exploration to draw nations together, and this budget gives us the means and the guidance to build even stronger alliances in the future. And it will inspire the young people of our Nation and the world to engage with us on an incredible journey of discovery. This change will be difficult and it will require that we all work together – Congress and the Administration, industry and academia, existing international partners and new, non-traditional international partners. Together we can fulfill the vision supported by this budget.

So that is the overview of the President's and my vision for NASA as we move forward. I am honored to lead this storied agency as we create a 21st Century Space Program. Thank you.