

# Proposed budget grounds U.S. moon missions: A giant leap backward?

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In ancient days, mystics believed that the moon possessed special powers over people's passions -- from the lunar orb came "lunacy." Maybe they were right.

When the [space shuttle Endeavour](#) blasted off from the Kennedy Space Center last week, it did so amid a crazy cosmic storm of controversy. The controversy surrounds NASA's budget and the decision by the Obama administration to scrap what had been a six-year, \$9 billion effort to build new rockets that were to return astronauts to the [moon](#).

A moon base envisioned when George W. Bush was president also is

kaput. The [moon program](#), called Constellation, already was behind schedule, over budget and deemed too low-tech.

"I'm here today to tell you that this budget gives us a roadmap to even more historic achievements and it spurs innovation, employs Americans in exciting jobs, and engages people around the world," [NASA Administrator](#) Charlie Bolden said Monday in unveiling the proposed 2011 budget.

All it has spurred so far is fiery debate.

"I hope NASA will embrace this new direction as much as I do," Buzz Aldrin, the second man on the moon, wrote on his blog recently. "The truth is that we have already been to the moon -- some 40 years ago."

On the other side:

"The president's proposed NASA budget begins the death march for the future of U.S. human space flight," said Sen. Richard C. Shelby, a Republican from Alabama, where the moon rockets were being assembled. "If this budget is enacted, NASA will no longer be an agency of innovation and hard science. It will be the agency of pipe dreams and fairy tales."

To be sure, much of the proposed NASA budget is hardly controversial.

In it, the Obama administration suggests increasing NASA's overall budget by \$6 billion over the next five years, bringing the total in that time to \$100 billion. Money would flow into robotics, Earth science, modernizing the Kennedy Space Center and extending the life of the [International Space Station](#).

Near the end of this year, NASA will fly its final shuttle mission. One of

the new moon rockets was to be used as a replacement launch vehicle. Now NASA's plan is to hitch more rides into the cosmos with other nations. Another notion is for NASA over time to pay an expanding number of private commercial firms to "taxi" astronauts into low-Earth orbit.

But it is the death of the Constellation program that has critics wondering whether NASA has lost its way.

Republican U.S. Rep. Pete Olson of Texas, where much of the Constellation work is being done, called the proposed budget "a crippling blow to America's human space flight program."

Initiated by Bush in 2004, the Constellation program was to return astronauts to the moon by 2020, although delays already had pushed that date to 2028 or 2030.

Two new rockets, Ares I and Ares V, were being developed. The sleek Ares I was to launch astronauts into low-Earth orbit inside a reusable capsule, the Orion Crew Module.

Ares V was a more muscular rocket to be fitted with its own version of the Orion capsule to carry crew, heavy cargo and other loads into deep space. Together, the rockets were to be used to take astronauts back into low-Earth orbit, to the moon and perhaps from a moon base to Mars or beyond.

Critics of the White House decision worry about thousands of jobs in states such as Florida, Texas and Alabama. They worry about money that has already been spent and about moon rovers and other hardware that may never leave the ground.

They also note that while killing the moon mission, President Barack

Obama did not replace it with a definitive planetary goal.

"That goal (the moon) has been completely scrapped. And what has it been replaced by? Nothing," said Chris Orwoll, the president of the Kansas Cosmosphere & Space Center in Hutchinson. "If there was a vision of getting to X in a certain period of time, I would feel more comfortable.

"But I don't see vision here. Without vision, nothing is going to happen."

Steven Hawley, a professor of physics and astronomy at the University of Kansas who flew five shuttle missions from 1984 to 1999, has questions not only about the distant future, but also the near future.

Although Constellation was to take astronauts to the moon or beyond, its first goal was to replace the shuttle missions, of which only five remain.

"There was always going to be a gap (in time) because we were not going to have a replacement before the mid-decade," Hawley said. "But now the replacement is gone. At least until a commercial provider comes along, we will be paying the Russians to launch us.

"I don't know you could legitimately argue that we are the leaders in human spaceflight. That bothers me because we have always taken for granted that we were. It may be that it takes awhile to regain that, but it may be that we never do."

Senators such as Democrat Bill Nelson of Florida -- where as many as 7,000 jobs could evaporate when the shuttle program ends -- have vowed to fight for Constellation.

"When the president says he's going to cancel Constellation, I can tell you that to muster the votes and overcome that is going to be very, very

difficult," he said after the announcement.

Meanwhile, China has achieved manned spaceflight and spacewalks and reportedly intends to send unmanned rovers to the moon in two or three years. After that, China reportedly wants to send crews to walk on the moon.

The Chinese, of course, are flush with cash. The United States is deep in debt. Not for the first time have questions been raised about the expense to put humans in deep space while there are many problems on Earth.

Orwoll of the Kansas Cosmosphere recalled how, in cash-strapped 1971, Caspar Weinberger, then the deputy director of the Office of Management and Budget, sent a memo to President Richard Nixon to argue why two moon missions, Apollo 16 and Apollo 17, should not be canceled.

"It would be confirming, in some respects, a belief that I fear is gaining credence at home and abroad, that our best years are behind us, that we are turning inward, reducing out defense commitments, and voluntarily starting to give up our superpower status, and our desire to maintain our world superiority," Weinberger wrote.

Orwoll said he sees the cancellation of Constellation in the same light. "I fear that is where we are again," he said.

Yet Louis Friedman, who in 1989 with physicists Carl Sagan and Bruce Murray founded the Planetary Society, is "very hopeful."

"The headline writers have given the impression that NASA's budget was cut and that NASA is giving up on human space exploration," he said. "The truth is the opposite."

Constellation had many critics in the space industry. Besides Aldrin, they include Sally Ride, the first American woman in space. Ride was a member of the 2009 Augustine Commission, which was established by the federal Office of Science and Technology Policy to recommend goals for the future of U.S. human spaceflight.

The commission judged that the Constellation program had no chance of ever meeting its schedule. It was costly. In the future, NASA might look at developing bolder technologies that could take astronauts not only to the moon or Mars, but to the moons of Jupiter or the surface of asteroids.

As it shelves Constellation, NASA wants to develop "transformative" technologies. To some, the Ares I and Ares V always seemed little more than old rocket technology in a new skin.

The thinking is that in moving beyond Constellation, NASA is returning to its roots as an innovative, risk-taking organization that creates new technologies.

"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," said Bolton, the NASA administrator. "That is what the president's plan for NASA will enable, once we develop the new capabilities to make it a reality."

While Shelby and others see the plan as "pipe dreams and fairy tales," Scott Miller, a professor of aerospace engineering at Wichita State University, said that the new NASA budget is exactly the step the agency needed to make.

Shelby said that although the Ares I probably would have done a fine job, he agreed with NASA's decision to contract with private industry to

create rockets to taxi astronauts into low-Earth orbits.

"The technology and skill, the abilities to make a rocket like that are known," Shelby said. "That is not a research project. If I want to go to the QuikTrip or drive from Wichita to Kansas City, I don't need to build my own car. I go to the dealer and buy one off the shelf."

Although some jobs will be lost with the cancellation of Constellation, NASA officials say jobs will be created as it invests in different technologies. Some companies working on Constellation probably will receive contracts to work on NASA's new projects.

"This is what I could call an obvious correction in NASA's mission," Miller said. "They are really where they ought to be."

John M. Logsdon, the founder of the Space Policy Institute at George Washington University, agreed.

"It's old technology," Logsdon said of Constellation. "It's an old solid rocket. It's fundamentally the kind of booster that has been launching the shuttle since 1981. That is not the way to build a 21st-century space program."

Logsdon acknowledged that using private rockets as taxis to go into low-Earth orbit was "a fundamental departure in the way NASA does human space flight.

"Giving up on the 2020 goal is a little sad for me."

But, Logsdon said, increasing the investment in NASA as it explores new technologies to explore space is a sign that the agency is setting itself on the right trajectory.

"We're making an investment in the future that will be measurably greater than any other nation."

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