

## A [SpacePolicyOnline.Com](http://SpacePolicyOnline.Com) Hearing Summary

### Overview of the FY2011 Budget Request for NASA Senate Committee on Appropriations Commerce, Justice, Science and Related Agencies Subcommittee April 22, 2010

Chair: [Barbara A. Mikulski](#) (D-MD)

Ranking Member: [Richard C. Shelby](#) (R-AL) ([opening statement](#))

#### Witnesses

- [Orrin Hatch](#), Senator (R-UT) ([prepared statement](#))
- Charles F. Bolden, Jr., Administrator, NASA ([prepared statement](#))
- John Frost, Council Member, NASA Aerospace Safety Advisory Panel

***(Note: Senator Mikulski's opening statement and Mr. Frost's prepared statement were distributed at the hearing, but do not appear to be posted online. Links will be added if and when they become available.)***

#### Background

As with other congressional hearings on NASA's FY2011 budget request, the focus of this hearing was on the changes to NASA's human spaceflight program proposed by President Obama: cancelling the Constellation Program – the development of the Ares I and Ares V launch vehicles and the Orion spacecraft to transport humans to low Earth orbit (LEO), the Moon, and beyond – and investing instead in technology development to enable future human space exploration while turning crew transportation to LEO over to the private sector. During a [speech](#) on April 15, 2010, President Obama elaborated on the plan in response to harsh criticism over the lack of dates and destinations. The President said that the ultimate goal was landing humans on Mars, but first they would go to an asteroid and later orbit Mars in the 2030s before a landing was attempted. He also reinstated part of the Constellation program, announcing that technology developed for Orion would be used to develop a crew escape module for the International Space Station. Finally he set 2015 as the date for choosing a design for a new heavy lift launch vehicle, providing a target for the technology development program. Despite these clarifications, the hearing demonstrated that members of Congress still harbor doubts about the risks of relying on the commercial sector for crew transportation to LEO, as well as dispensing with plans to travel to the Moon in the nearer term future. For more information, see the [webcast](#) of the hearing.

#### Nuggets

"I need to know more; Congress needs to know more...we have a lot of questions as we launch this hearing."

Chairwoman Mikulski

“You, Mr. Administrator, are creating an atmosphere where you and your leadership team have become a major impediment to moving forward.” Senator Shelby

“...the Ares system of rockets provides our nation and our astronauts with the most reliable, most affordable, and safest means of reaching low-Earth orbit and beyond – a fact which NASA itself has affirmed. Let me emphasize that point. Ares is the safest system. Nothing comes close. “

Senator Hatch

“My gut tells me that Ares [I] will be safer than any [other vehicle] but that’s not what the data says.”

Administrator Bolden

### Hearing Highlights

This hearing demonstrated that many members of Congress remain unconvinced about President Obama’s proposal for the future of NASA even after the President’s April 15 speech that was designed to answer questions and build support for the new program. Instead of revealing her position on the plan, as many expected, Chairwoman Barbara Mikulski (D-MD) said in her opening remarks, “I need to know more; Congress needs to know more, taxpayers need to know more and astronauts need to know more” about the proposed changes. Senator Richard Shelby (R-AL), ranking member of the Subcommittee, concluded that “while the Administration may have realized that its initial budget request was a failure, the new plan...still ends this country’s human space flight program.”

Senator Shelby described the proposed plan as a “welfare program for the commercial space industry” and criticized its crafters for failing “to disclose to the U.S. taxpayer...that NASA has no verifiable data” to support the claim that the commercial crew option is better than maintaining the Constellation Program – sometimes called the “Program of Record” since it is the existing program.

Two interrelated issues when comparing the Program of Record with the commercial crew option are safety and reliability. “My number 1 priority is astronaut safety,” said Chairwoman Mikulski, a comment echoed by Senator Shelby who said that “safety is the first priority of the space program.” According to Senator Orrin Hatch (R-UT), who appeared as a witness at the hearing, with respect to safety, the Constellation Program with the Ares I and Ares V rockets wins hands down: “...the Ares system of rockets provides our nation and our astronauts with the most reliable, most affordable, and safest means of reaching low-Earth orbit and beyond,” he said, “nothing else comes close.” (The prime contractor for Ares I, ATK, is located in Utah. NASA’s Marshall Space Flight Center, in Alabama, is the Project Office for Ares.)

NASA Administrator Charles Bolden countered this claim by saying that with respect to demonstrated reliability – a necessary element for considering a vehicle’s safety – the Ares I and the commercially developed Falcon 9 and Taurus 2 all have the same level of demonstrated reliability – zero – since none has flown.

Gen Bolden noted that the predicted reliability of the Space Shuttle - tied with the expectation that it would fly about 50 times a year – was 1 in a 1000, but that its demonstrated reliability, flying many times less than that, is 1 in 125. He added: “I would caution anyone to get carried away with predicted safety...predicted reliability” He said instead that he could guarantee that whatever vehicle is eventually selected for crew transportation will meet NASA’s safety standards.

Senator Robert Bennett (R-UT) challenged the Administrator’s statement on several counts and said that, as a businessman, he could tell Gen. Bolden: “you haven’t made the sale.” He referred to Time Magazine’s choice of Ares I as the “best invention of the year” six months ago, and the successful test of the Ares I-X on October 2009 as evidence of the vehicle’s demonstrated reliability. “None of the others can match that,” he said, and added: “I think your conclusion...runs afoul with the experience we’ve had with testing on Ares.”

“We are very proud of having been recognized for the number 1 invention of the year” replied Gen. Bolden, but pointed out that Ares I and Ares I-X, whose successful test was applauded by the magazine, were not the same thing. He repeated that the “Ares 1 vehicle has never flown,” and that the Ares 1-X was an experimental rocket used to test features such as the shape and form of the final vehicle. “My gut tells me that Ares will be safer than anything else but that’s not what the data says,” he added.

As was true in other congressional hearings, Gen. Bolden was once more called upon to comment on claims that NASA has either cancelled contracts under the Constellation program or has instructed contractors to set aside funds for cancellation costs, actions that would contravene the FY2010 Consolidated Appropriations Act. Such behavior, said Senator Shelby, undermined Congress’ confidence in the Administrator. “You, Mr. Administrator, are creating an atmosphere where you and your leadership team have become a major impediment to moving forward,” he said.

Gen. Bolden reiterated that NASA is “not changing contract requirements.” He said that the agency is merely “reminding them” of the fact that some termination liability lies with them and urging them to “determine what level of risk [they are] able to sustain.” Upon being challenged by Senator Bennett, who characterized NASA’s actions as a “clear violation of the law,” Gen. Bolden stood by his comments and said that as evidence of the agency’s adherence to Constellation Program contracts, the launch abort system test scheduled for the beginning of May is still on track.

Senator Shelby, pointing to the Administration’s decision to develop a crew escape module for the International Space Station (ISS) from the technology developed for the Orion capsule, said he failed to see how “an escape pod will lessen our reliance” on foreign access to the ISS. “The restructuring of the Orion Program,” responded Gen.

Bolden, “will be an incremental approach to develop a vehicle to take us beyond LEO.” He said that this approach would reduce the time needed to develop a domestic crew transport capability since it would not need to be rated for human ascent to orbit (since it will be launched without a crew) and predicted it could be ready in three years. Gen. Bolden added that “because we can get it there in three years,” it “relieves some of the pressure from commercial vendors to deliver a human rated vehicle.”

Senator Kay Bailey Hutchison (R-TX), who said that she always envisioned that U.S. shuttles would be the way to get to the ISS, asked Gen. Bolden what would happen if an accident grounded the Soyuz during that period. Russia’s Soyuz spacecraft will be the only way to get people to and from the ISS once the Space Shuttle is retired in a few months. In the event that an accident might ground the Soyuz, Gen. Bolden replied “after [the] Shuttle is retired, we have no [other] way of getting people to the ISS,” a situation that would force the ISS to be terminated if the Soyuz could not quickly resume flights. He noted that this was not a feature unique to President Obama’s plan, since it would also be true under the Constellation program. (The earliest Ares I and Orion could fly would be 2015 and the Augustine committee said it would be 2017.) Senator Hutchison suggested that one possibility would be to keep a Shuttle on hand or “delaying the time frame” of the flight manifest so that “we can work on something that does not say that we would be closed down on September [2010].” (The Shuttle program is managed by, and the astronaut office is located at, NASA’s Johnson Space Center in Texas.)

Mr. John Frost, a member of NASA’s Aerospace Safety Advisory Panel (ASAP), was the next witness. He agreed that the picture painted by Senator Hutchison was a “nightmare scenario,” but repeated ASAP’s conclusion that the Shuttle program should not be extended. He explained that the risk of losing the crew increased the longer the Shuttle keeps flying and said that it would entail a “high level of risk.” “It’s like playing Russian roulette,” he added. Keeping a Shuttle on hand for use only in an emergency also is risky. “...I would have concerns about the reliability of that launch as it comes out of cold storage,” said Mr. Frost, who explained that safety also degrades if a vehicle is flown too rarely because the launch team loses its readiness.

The Ares I and Orion system, instead, offers “the basis of a high degree of safety” in his opinion. Mr. Frost said the ASAP looks forward to the innovations expected from the commercial sector, but, from a safety standpoint, he counseled against relying on the commercial crew option. “Safety must be an inherent part of the vehicles we use...[and] cannot be added on after the fact,” he cautioned, saying that is what is happening as a result of the commercial crew companies already moving forward with vehicle design, despite the fact that NASA has not published human rating requirements. The high degree of risk on relying on commercial providers, he said, lies on “the unknown nature of their ability.”

Chairwoman Mikulski reiterated her commitment to astronaut safety, saying that “we’re not sending cases of Tang into space, but our astronauts and the astronauts of other countries.” She asked how much confidence could be placed on estimates that the first

commercial crew vehicle could be ready within three years. Mr. Frost replied that these “sound highly optimistic.”

As the hearing drew to a close, Chairwoman Mikulski expressed hope that if Congress focuses “on where we want America to be in space...we’ll be able to find the solutions” to the issues discussed during the hearing. Whether Congress will eventually support what Gen. Bolden said was the ultimate goal of the Administration’s proposal – creating a commercial space industry – remains to be seen.