

**Remarks for 9th annual Commercial Space Transportation
Conference**

U.S. Department of Transportation

Shana Dale

Deputy Administrator

National Aeronautics and Space Administration

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Thank you Patti (Patricia Grace Smith, FAA Associate Administrator for Commercial Space Transportation) for that very gracious introduction. NASA has long enjoyed a very productive relationship with the Federal Aviation Administration and its Office of Commercial Space Transportation, and it will be one of my key jobs in representing our agency to external constituencies to keep that relationship going strong. Patti and I have known each other for many, many years and we continued our friendship even when I left the Hill and was working homeland and national security issues at the Office of Science and Technology Policy. Patti, it's good to be back and I very much look forward to working with you again in an official capacity.

I'm delighted to participate in your ninth annual conference. NASA, which has a proud history of blazing new trails in science, technology, aeronautics, and exploration, is now engaged in a multi-decadal, multi-generational effort to extend humanity's exploration reach throughout the solar system. And in so doing, we fully expect to

open up new avenues for commercial participation in this great adventure that is unfolding.

Before I get to the topic at hand, I would like to give you a brief overview of where we are as an agency as we implement the Vision for Space Exploration. Two years ago, President Bush came to NASA Headquarters to announce a new strategic direction for the space program. In announcing the Vision the President said, “We have undertaken space travel because the desire to explore and understand is part of our character. And that quest has brought tangible benefits that improve our lives in countless ways.” Today, we are well engaged in productive work to advance the goals of the Vision, including the resumption of Shuttle flights to the International Space Station, and the development of a new generation of spacecraft, space launch, and cargo vehicles.

On February 6, the White House released the proposed Fiscal Year 2007 budget request. We’re grateful that NASA’s budget contains a healthy 3.2 percent increase in funding over the Fiscal Year 2006 appropriated level (not counting emergency funding for Hurricane Katrina) especially within the context of the non-defense, non-homeland discretionary budget. The five-year run-out allows the agency to: (1) assemble and utilize the capabilities of the International Space Station; (2) transition the United States’ human spaceflight capability from the Shuttle to our new Crew Exploration Vehicle; and (3) lay the foundation

that will enable humans to extend our reach beyond Low Earth Orbit, beginning with the renewed exploration of the Moon, continuing on to Mars and the rest of the solar system.

It also has been a little over a week since the President in his State of the Union Address focused on the contributions of science and technology to American competitiveness. The President's emphasis on this important national priority is quite gratifying as I believe that leadership in space is an important driver for American competitiveness. Throughout NASA's history and now through the Vision for Space Exploration, NASA advances technological innovation and scientific progress. Through our exciting missions and specific education programs, we inspire the brightest among our youth to pursue careers in science and engineering.

In returning to the Moon, and in preparing for the incredibly demanding voyages to Mars, it is clear that NASA cannot do the job alone. We have initiated dialogue with some of our international partners to discuss how we might approach Moon and Mars exploration activities together. I visited heads of agencies in Europe a couple of weeks ago and I plan to visit other international partners soon so that the dialogue can be continued. We are planning for an exploration workshop at the end of April to include international participants, commercial industry, and the academic community. But that is a discussion for another day.

We also are interested in a strategy for lunar exploration that opens up the door for opportunities in commercial space. As Mike Griffin has stated, “if we are to make the expansion and development of the space frontier an integral part of what it is that human societies do, then these activities must assume an economic dimension as well. Sooner rather than later, government space activity must become a lesser rather than a greater part of what humans do in space. To this end, it is up to us at NASA to use the challenge of the Vision for Space Exploration to foster the commercial opportunities which are inherent to this exciting endeavor.”

Among commercial opportunities that come to mind are such activities as in-space fuel delivery, lunar resource prospecting, and the development and maintenance of lunar surface systems and infrastructure, including lunar habitats, power and science facilities, surface mobility units such as rovers, logistics and resupply, communications and navigation, and *in situ* resource utilization equipment. With these opportunities in mind, it is our goal, working with international partners along with the commercial sector and the academic community, to develop a decadal lunar exploration strategy by the end of the year.

Before these markets open up, however, NASA is doing something very exciting right now to encourage the development of new commercial markets in space. One of our most important needs is to

provide cargo and crew services to the International Space Station, which has had permanent crews for over five years, and which we intend to operate for another decade. It is a service that looks very promising for reliance on the commercial space sector and that is why we've devoted so much funding to this effort.

Last month, NASA issued a challenge to U.S. industry, both the established aerospace companies and the emerging entrepreneurial companies. Through our Commercial Orbital Transportations Services Demonstrations announcement or COTS, we are challenging all interested parties to demonstrate through competitive proposals that they can establish capabilities and services to safely and reliably support the Space Station's cargo and crew transportation needs.

This initiative establishes a precedent. For the first time ever, NASA is seeking non-government vehicles and commercial services to provide these capabilities for human space flight. When this happens, hopefully by the end of the decade, our colleagues at the Federal Aviation Administration's OCST will have a role in determining safety requirements for the commercial providers' launch vehicle.

For what we hope will result in a Space Act agreement or agreements, we are putting up about a half-billion dollars over the five years of our current budget runout for those companies that have the best proposal for Earth-to-orbit space flight demonstrations of any one or combination of four capabilities: first, external un-pressurized cargo

delivery and disposal; second, internal pressurized cargo delivery and disposal; third, internal cargo delivery and return, and fourth, crew transportation. Given the probable need for (1) logistics support during International Space Station assembly, (2) the need for cargo and crew transport during the time between Shuttle retirement in 2010 and the Crew Exploration Vehicle coming online, and (3) the ongoing need for this capability even after the CEV comes online, this is a substantial opportunity for the commercial sector.

Phase One proposals for the COTS demonstrations are due in March, and we expect to announce and award one or more Space Act agreements this summer. We hope that successful flight demonstrations of the selected capability will occur in the 2008-2010 timeframe.

During the first phase of this technology demonstration initiative, NASA intends to provide capital and assistance similar to an investor to help provide the necessary stimulation to ensure the success of this venture. The second phase of the technology demonstration initiative is the possible purchase by NASA of commercial transportation services to and from the Space Station on a purely commercial basis relationship with the transportation suppliers.

There are several features of this COTS initiative that are much different than a typical NASA procurement and which will provide maximum flexibility for commercialization. Under this initiative, the space transportation systems that result from this project shall be owned

by the companies that develop them, not by NASA. With COTS we will have a limited negotiated right to purchase back the property at a reduced cost. We also will have limited rights to terminate the contract once it is underway. NASA also typically requires specific cost accounting standards from our contractors and has certain audit rights. In this case, our only interest is in whether the milestone is met. If they hit a milestone, they will get a check.

There are other features of the initiative worth mentioning. We also will have our NASA Centers offer to provide reimbursable support to participants, such as wind tunnel testing. The bidders for this announcement are allowed to have the participation of foreign suppliers of parts and services, subject to current U.S. laws and policies such as the Iran Syria Nonproliferation Act and ITAR.

All of these policies are designed to minimize NASA requirements and oversight. It will truly be up to the participant to get the job done to our satisfaction. Once a demonstration of a service is proven, we plan to buy the service in a commercial transaction, subject to the normal rules of congressional authorization and appropriation. The provider will be free, of course, to also provide these new services to non-NASA customers. And this should (1) help spread development costs, thereby reducing the price paid by the government customer; and (2) further enhance this portion of the commercial space industry.

We believe NASA has structured a business arrangement that will promote genuine competition and one that is good for the private sector as well as the public interest. I'm confident that this kind of financial incentive for purely commercial industry will encourage serious providers to emerge.

Obviously, this represents a significant and welcome departure in the way that NASA conducts business. We should remember, however, that NASA has been purchasing commercial launch services for our space and Earth science missions for a long time. We are committed to expanding the agency's base of launch service providers to include emerging U.S. companies. One way we've approached this goal is to change the entry requirements to no longer require the provider to demonstrate a proven flight history. Our colleagues in the Defense Department deserve credit for paving the way for this policy, through their decision to allow an unproven launch vehicle to send up a satellite built by Air Force Academy Cadets. Now, by encouraging a more competitive market, NASA seeks to help lower launch costs and provide a better return on investment to the taxpayer.

There's another NASA initiative to spur commercial enterprise that I'd like to mention. NASA's Centennial Challenges Program, for example, will use the tool of prize competitions, so successfully demonstrated by the X PRIZE, to plant the seeds of these future commercial activities. Although the dollars involved are currently

smaller than the Commercial Crew/Cargo Project, over the next couple years, you should expect to see NASA roll out multi-hundred thousand dollar to multi-million dollar prize competitions for demonstrations of projects such as subscale orbital fuel depots, human lunar rovers, oxygen production from lunar regolith, advanced power storage and transmission, non-toxic rocket engines, platforms for communications relays, low-cost space pressure suits, lunar lander analogs and telerobotic construction.

These initiatives are the first steps along the path of creating a robust and enduring commercial space economy. For those of you who know Mike Griffin and me, you know that we both very much want the commercial space industry to be successful. When one tries something novel like this, there may be a few bumps in the road. But at the end of this path, we hope that by opening NASA's space flight needs to a broader community of commercial providers NASA will encourage the growth and diversification of the commercial space sector while also enabling solutions that allow NASA to focus its resources on extending the frontier of space exploration.

I thank you for your hospitality today, and for your commitment to expanding commercial enterprise in the space frontier. Thank you very much.