REMARKS BY

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PANEL ON

FUTURE SPACE LAUNCH NEEDS IN A

CHANGING BUSINESS ENVIRONMENT

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Thank you for inviting me to be on this panel.

I'm very pleased to be part of a discussion that includes Neil Woodward and Vincent Sabathier, with Randy Parsley as the moderator.

I certainly want to applaud Raytheon for their support of this event.

And let me also congratulate AIAA, not only for holding this conference, but also for its pioneering role in helping to move ideas from the drawing board and the test bench to the flight line and the launch pad.

AIAA can trace its family roots back 75 years directly to the science fiction writers of 1930 who, in April of that year, formed the American Interplanetary Society.

Even in those days, enthusiasm ran high. They scraped together $49.40 and started building a rocket. And they certainly had imagination. They took the handle off a saucepan and used the pan to hold the rocket's parachute.

And, to keep the motor cool, they used a water-filled aluminum jacket … made out of a cocktail shaker … a choice that may have said more than they realized about how **they** got ready for a launch, never mind the rocket.

But all that was many yesterdays ago. Today, we are here talking about three issues central to the commercial use of space, all included in the title of this panel: Change; the Future; and Business.

So to begin, let's talk a little about Change.

Fourteen years ago, the Office of Commercial Space Transportation commissioned a study. Released in 1991, it was called "The Future of the Commercial Space Launch Market: 1993-2005." The groups that conducted the study for the Office, surveyed 46 leading experts, including people from the launch industry, payload operators, finance, government and the academic world.

Looking back from today's vantage point, it was an interesting study … especially for a notable omission.

There was not a single mention – not one among the 46 experts – not a thing about human space flight as a commercial enterprise. There wasn't even a question about it in the survey. Commercially in 1991, it was exclusively an ELV world.

Just 14 years ago, but my how quickly things do change.

In the years that followed, the Commercial Space Act of 1998 gave the Secretary of Transportation, the authority to regulate the operation of reentry and reusable launch vehicles along with reentry sites. And that authority is delegated to the FAA/AST.

More recently, the president has issued a new U.S. Space Transportation Policy. It underscores the importance of using commercial

launch capabilities to meet national needs. It encourages the U.S. government to make use of the innovative genius the industry has to offer. And for the first time, it explicitly addresses commercial human space flight.

Then last December with enactment of the Commercial Space Launch Amendments Act of 2004, the Secretary of Transportation was assigned responsibility for commercial human space flight. The Secretary also was charged with creating a new experimental permit for research and development testing of new suborbital reusable launch vehicles like SpaceShip One. More about that in a minute.

So the evidence strongly supports the idea that the velocity of change in commercial space activities is increasing. Let me give you a few more examples.

Just a couple of weeks ago, *Parade Magazine*, featured a story on private space flight. And, of course, it mentioned Burt Rutan's SpaceShip One success that grabbed everyone's attention. It also mentioned Richard Branson's Virgin Galactic that already has gathered 7,000 requests for reservations on a fleet of five vehicles slated for operation in 2007. At $200,000 per person, there's no chance you can fly coach. But, in time, prices will come down and more passengers will go up.

Space Adventures has received more than $2 million in deposits for suborbital flights.

Rocketplane and Aera Corp have announced ticket sales.

Space X has won a contract, worth up to $100 million, from the Air Force for a series of Falcon launches. Their expected first launch, a military launch, is scheduled for August.

XCOR Aerospace won a NASA contract worth up to $7 million to develop a composite cryogenic tank to hold liquid oxygen.

Lockheed Martin and Boeing have announced that they will create a joint venture to consolidate their EELV manufacturing and operation for the Air Force.

And, of course, the X Prize Foundation and the State of New Mexico will hold the X Prize Cup events during World Space Week, October 4-9.

What we're seeing here is the development of a diverse, new generation of launch tools, leading to more breakthroughs, with the promise of lower costs, all within a framework of cooperation and a constant and exacting emphasis on safety.

So, with a whole range of technical advances, and a lengthening list of new entrepreneurs, the industry is changing fast.

And so is something else.

In the early days of space flight, the most coveted title of all was, to be … "**first**."

Today, for a growing number of people who can now see their dreams actually taking physical shape, the most sought-after space title is, to be … "**next.**"

In my view, we are beginning to take the next, careful steps toward democratizing space opportunity, both for the general public and also for the industry.

It's an exciting time, and one in which we all have a responsibility to bring the public along with us every step of the way, keep them involved, not just as potential consumers, but as pillars of support from which to extend the adventure of space to more people all the time.

And that idea, about opening space flight to more passengers, to more entrepreneurs, is an area where the FAA is actively and passionately involved in meeting current and future space launch needs.

Let me talk about that future for a few minutes.

In May, FAA released guidelines for the experimental RLV permit I mentioned earlier. Experimental permits will be available for operators of reusable suborbital rockets to, (1) conduct research and development and

testing; (2) show compliance with requirements for a launch license, and; (3) for crew training prior to obtaining a license.

Permits will be granted in a 120-day period, making them easier to obtain than a license. The permits will be modeled to some degree after the Experimental Airworthiness Certificate commonly used in aviation research and development.

Another key element of the permit guidelines is that AST has streamlined each prong of our safety strategy for licensing in recognition of the unique needs of experimental flight-testing.

Always, our top consideration is for safety, and these permits as well as launch licenses will be issued when it is clear that the proposed activities will not compromise public health and safety. But these guidelines represent the FAA's commitment to recognize the launch industry's changing needs, and to regulate accordingly.

Let me also point out that in May, we released guidelines for operators of RLVs with flight crew and space flight participants. In fact, a member of our AST staff presented these guidelines yesterday at this conference.

AST has licensed 172 commercial launches to date and maintained a perfect safety record. Some of the more recent launches that we've licensed

and monitored involved the heaviest payloads to date, and some of the most accurate orbital insertions.

We are also setting up a regulatory regime to issue commercial space transportation safety approvals for critical launch vehicle safety systems and processes.

And we have instituted a one-stop shop for RLV licensing in AST, that draws on the resources of other FAA lines of business.

We also have formed a strong partnership with the Air Force to ensure that we create a set of national launch safety standards for federal launch ranges and non-federal launch sites or spaceports that do not burden the launch operators. The draft final rule was placed in the Federal Register in March. The comment period closed June 1, and we are in the process of reviewing the responses.

We have made every attempt to reflect current practice for expendable launch vehicles at federal launch ranges. In the past, range users expressed concerns that the FAA would duplicate Air Force requirements; that meeting FAA requirements would add cost to operating at federal ranges; and there was confusion about requirements that applied to federal ranges or non-federal launch sites.

So, just to be clear on this, for federal ranges, the FAA does not and will not duplicate the work done by the federal range.

Licensing will continue to rely on FAA launch site safety assessments of the ranges, and we have found the ranges' safety requirements and implementation acceptable. Tailoring of safety requirements will continue.

FAA will participate in tailoring launch safety requirements. In fact, we have been participating in tailoring for some time.

At non-federal sites, the FAA will evaluate all aspects of a proposed launch that could affect public safety, through licensing. That means requiring data and demonstration of compliance with safety requirements based on current federal range requirements, but adapted to licensing. It also means using a process similar to federal range tailoring of launch safety requirements. And it means no greater overall effort to obtain a license to launch from a non-federal launch site than to operate at a federal range.

I can assure you that the Air Force has been our full partner in developing these rules. They reflect current practice. They will be implemented in a way that is seamless to the range users.

Our partnership with the Air Force creates a system of checks and balances that help us reach our mutual goal of maintaining public safety during launch. Both we and the Air Force have heeded NASA's attention to

safety culture in preparing for the return to flight, and on this, the eve of that event, let me offer our best wishes to NASA and the crew of Discovery.

All the work FAA is doing in concert with industry and DOD is always aimed at safety, access and a high level of readiness.

But readiness for what exactly?

Clearly, in this age of evolving commercial space interest, market forces and consumer preference will play leading roles in what challenges we prepare for.

A snapshot of the recent past tells us that during 2004, U.S.-built vehicles accounted for 40 percent of orbital commercial launches worldwide with estimated revenues of $375 million.

Beyond those figures, I would point out to you an FAA report issued this past February. It's called "Suborbital Reusable Launch Vehicles and Emerging Markets." It is the first comprehensive assessment by the FAA's Office of Commercial Space Transportation of the commercial suborbital reusable launch industry in the United States.

Unlike it's very distant cousin, the 14-year old study I mentioned at the beginning, this report we did in-house. And it literally has private human space flight written all over it.

Just to quote from it briefly: "Reusable suborbital vehicles … are expected to lead a renaissance in the suborbital market, beginning with human suborbital adventure travel."

Certainly the interest and anticipation is very high among the groups working so hard to get there and the public that wants to go with them. There's really no question that it's still very much an ELV world. It's just that the world is expanding as it stretches to accommodate both the interest in human space flight and new work in microgravity, high-speed research and other ELV opportunities.

All that, and much more, appears in our February report.

Of course, I know the same as you do, that reports come and go, and some are said to over-dramatize the future and make forecasts that tomorrow can't match.

Well, just the other day I read that it wasn't until 1995 that the first planet outside our own solar system was discovered. But since that time … just ten years ago … another 145 planets have been found. That became possible because of better tools, more data, better information, all leading to surprising progress.

It's the same story in the field in which all of us work. And I promise you, that as the space launch needs of business change, the FAA will be there with you to help.

Thank you very much.