

STATEMENT OF FRANK C. WEAVER, ASSOCIATE ADMINISTRATOR FOR  
COMMERCIAL SPACE TRANSPORTATION, FEDERAL AVIATION ADMINISTRATION,  
BEFORE THE HOUSE COMMITTEE ON SCIENCE, SUBCOMMITTEE ON SPACE AND  
AERONAUTICS, CONCERNING U.S. SPACE LAUNCH STRATEGY. JUNE 12, 1996.

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear on behalf of FAA Administrator David Hinson today to discuss U.S. space launch strategy. Before I address what FAA and its space transportation line of business are doing to be ready for the future U.S. space launch industry, both in terms of maintaining the highest level of safety and in doing our part to ensure U.S. competitiveness in the field, I would like to provide a brief history of the industry to set the stage for discussion of current developments.

In 1984, the United States was the clear launch leader in the Western World, using the space shuttle to launch payloads for this Nation, as well as most of its allies. Expendable launch vehicle (ELV) production had been phased out for the most part, and NASA provided launch services for both government and commercial payloads. The Challenger tragedy brought U.S. commercial launch activity to a virtual standstill.

With no U.S. alternatives, the-then relatively new European Space Agency (ESA) built up a significant lead in launch contracts, utilizing its Ariane rocket. The decision of the United States in 1986 to eliminate the majority of commercial payloads from future shuttle flights encouraged the re-establishment of production lines for some ELVs, such as the Atlas and Delta rockets, and encouraged others to enter the reinvigorated field of commercial space launches.

With the first U.S. commercial space launches in 1989, the United States began to reassert itself as a leader in the launch business. Although there inevitably have been ups and downs, today the picture is encouraging, and the future for U.S. commercial space launches looks very bright.

The United States led the world with 12 ELV launches in 1995, more than the ELV launches of NASA and the Department of Defense combined. There have been 8 commercial, licensed launches so far in 1996 -- all successful -- with 10 more expected by year's end.

The commercial launch industry is driven by payload demand, and the number and variety of payloads is unquestionably up, and continuing to rise. According to a space market analysis in *Aviation Week and Space Technology* earlier this year, about 1,000 satellites will be launched worldwide between now and the year 2000.

From the launch activity that is taking place, it is clear that the industry is changing, from a market driven by institutional scientific and national security demands, to one powered by private sector initiatives. It was frequently said that commercial space activity would begin to grow when people figured out more ways to make money in space, and that's what corporate America is doing.

Communications payloads still dominate private sector activities. International and long-distance telephone and television transmission have long been the primary satellite users. However, the proliferation of new satellite technologies has resulted in the use of commercial space launches for putting a much broader spectrum of services in place.

Still an important and growing part of commercial space activity, communications developments have included independent international telephonic services, multimedia systems, and establishment or enhancement of communications in areas such as the Pacific Rim, where vast distances between island-based settlements and the lack of terrestrial facilities make communicating by satellite the most viable option. There have also been some newer, interesting satellite communications developments. 1995 saw the introduction of satellite-to-subscriber TV, involving the use of 18-inch home satellite dishes, capable of receiving hundreds of television channels.

Another growing segment of commercial space is the earth-imaging field. What had been a technology dominated by the military, or used primarily for weather observation, is taking on a different character with broader application, with new participants entering the field. The U.S., France and Russia are currently major participants in this area, with U.S. companies developing multi-purpose, high-resolution imaging systems. Europe, Japan, India, Canada and others either

already have satellites up, or are planning to launch. *Aviation Week* has estimated that there are about 50 earth-imaging satellites alone planned for launch through the year 2000.

Another evolving satellite technology is the use of low-earth-orbit (LEO) satellites to carry out a variety of communications and tracking services, such as remote monitoring of water quality in the Northwest, checking the condition of underground pipelines by reading electronic corrosion sensors, and tracking the location, condition and security of shipping containers in transit. The same system can be used for paging and messaging services, and to provide tracking of tractor trailers and the like.

Potentially one of the largest developments in commercial space is the development of LEO and medium-earth-orbit (MEO) communications systems promising to provide direct voice communications by hand-held wireless phones between any two points on the Earth's surface. These proposed systems would use constellations of varying numbers of small satellites. One wireless communications concept would require more than 800 satellites, while others include up to 66. Obviously, this would have significant implications for the launch segment of the commercial space industry.

In short, it would appear that development and use of satellite-based technologies is far from tapped, and this means that commercial space launches will continue to grow in number, as well

as to evolve in character, over time. What the United States must be mindful of is the need to ensure that the commercial space transportation industry grows safely as it assumes even greater prominence in the international market. We must also plan for the future of commercial space transportation, which, in addition to growth, foresees development of private-sector and consortia spaceports, reusable launch vehicles and re-entry sites. Working cooperatively with the key government players involved in space transportation, FAA is involved in several efforts to efficiently oversee the industry and guide its growth in an intelligent manner.

One example of a significant change that lies ahead in the commercial space industry is the development of commercial launch sites, or spaceports. Currently, 5 states have such efforts underway, with others having expressed interest. The Florida Spaceport Authority, operating at Cape Canaveral Air Station, is in the process of converting an unused launch pad for the commercial use of several smaller launch vehicles. California's Spaceport Systems International is developing similar capability at Vandenberg Air Force Base.

New Mexico is working on a facility for commercial space activity adjacent to White Sands Missile Range, Virginia is promoting commercial activity at NASA's Wallop Flight Facility on the Atlantic Coast, and, as you will hear later this morning, Alaska is proposing to develop a site for polar launches from Kodiak Island's southern tip. FAA is currently reviewing Alaska's work

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in support of the Environmental Assessment (EA) submitted for this site, and is working closely with the state to complete that Assessment.

Our regulatory agenda for the near-term includes issuing updated spaceport/launch site regulations, but we have fairly comprehensive existing regulations and guidelines in place that would govern any current application. With the current guidance in place, we are ready to begin the licensing process to meet, as nearly as possible, the scheduling requirements of the applicants. We anxiously await the first application.

The Interagency Working Group on Spaceport Issues will provide feedback and analysis that will enable us to draft comprehensive spaceport rules, and to address as part of that effort the issues associated with the development of commercial space launch sites in the United States, such as safety, financial responsibility, environmental compliance, use of government property and services for launches, and launches of foreign vehicles from commercial sites located on Federal launch ranges within the U.S.

Another development that NASA Administrator Goldin has already addressed is the development of the reusable launch vehicle, which, while several years away, will profoundly change the commercial launch market. I am pleased to serve on the source evaluation committee to review reusable launch vehicle proposals, along with NASA and industry. This is an exciting

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process, and one which will help to refine FAA's role in regulating this aspect of the industry.

Planning for that eventuality, FAA's reauthorization proposal for FY 1997 and beyond contemplates providing the FAA with the basic authority to regulate reusable launch vehicles, as well as reentry sites.

Development is also ongoing in the area of Evolved Expendable Launch Vehicles, or EELVs, and I serve as a member of the source selection advisory council formed to review industry proposals and provide input to ensure that commercial needs are addressed in the eventual design.

As to our role in international launch trade agreements, in addition to supporting USTR in negotiation of those agreements, FAA chairs, as well as works within, the Interagency Working Group on Information with the Departments of Defense, State, and Commerce to analyze and monitor trade agreements for compliance, providing the results of that analysis to USTR. We also provide market analysis to USTR, such as reports on satellite payloads and LEO market assessments.

I would like to conclude my testimony this morning by updating you on some ongoing projects at FAA in which the Subcommittee has expressed interest.

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This week, we restructured the Office of Commercial Space Transportation in a manner we believe better supports safety and international competitiveness. We have completed a move to "flatline" the organization into two realigned divisions: Licensing and Safety, and Space Systems Development. Part of the FAA advantage is that we are benefiting from the agency's new personnel system by being able to move forward in filling several positions, including the positions of Chief of Regulations and Manager of Space Systems Development. We also hope to announce our permanent selection for the position of manager of the Licensing and Safety division within the next few weeks.

We are in the process of developing more detailed regulations on licensing commercial launch sites and launches from non-Federal sites, as well as regulations dealing with the financial responsibility aspects of launches. ~~We hope to issue Notices of Proposed Rulemaking later this year.~~ By the 1999 decision to proceed with an operational reusable launch vehicle, the FAA intends to have these final regulations in place.

That completes my prepared statement, Mr. Chairman. I would be pleased to respond to any questions you may have at this time.