

# COMMERCIAL SPACE TRANSPORTATION

The Federal Aviation Administration’s (FAA) Office of Commercial Space Transportation (AST) licenses and regulates U.S. commercial space launch activity including launch vehicles and non-federal launch sites authorized by Executive Order 12465 and 49 US Code, Subtitle IX, Chapter 701 (formerly the *Commercial Space Launch Act*). Title 49 and the Executive Order also direct the Department of Transportation (carried out by the FAA) to encourage, facilitate, and promote commercial launches.

AST’s mission is to license and regulate commercial launch and reentry operations and non-federal launch sites to protect public health and safety, the safety of property, and the national security and foreign policy interests of the United States.

## OVERVIEW

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The term “commercial space transportation” refers to the launch of an object into space or the reentry of an object from space by a private, non-government entity. Typically, commercial space transportation concerns the activities of launch service providers, which place satellites into orbit under contract from corporations, governments, or other organizations. Launch service providers also conduct suborbital flights: launches of objects high into the atmosphere or into space that return to Earth instead of entering orbit. The world’s major commercial orbital launch service providers are located in the United States, Europe, Russia, and China. Potential entrants include Brazil, Japan, and India.

The FAA licenses several expendable vehicles currently used for commercial orbital launches. These include the Pegasus and Taurus, two small vehicles built and operated by Orbital Sciences Corporation; the Delta IV, a heavy-class vehicle and the Delta II, a medium-class vehicle both built by Boeing and marketed by Boeing Launch Services (BLS); the Zenit 3SL, a heavy-class vehicle built by the Ukrainian company KB Yuzhnoye for the multinational Sea Launch venture and marketed by BLS; and the Atlas 5, a heavy-class vehicle built by Lockheed Martin. Commercial vehicles under development include the Falcon family of boosters by SpaceX. The FAA has also previously licensed small suborbital expendable vehicles.

In 2004 the FAA issued its first license for a suborbital reusable launch vehicle, Scaled Composites’ SpaceShipOne; that vehicle was retired after winning the \$10-million Ansari X Prize in October 2004. A number of suborbital vehicles are currently under development for space tourism and other commercial applications. Experimental Permits, for suborbital reusable development and test flights, were first granted by FAA in 2006 to Blue Origin and Armadillo Aerospace.

From 1989 through the end of 2006, DOT/FAA has licensed 180 orbital and suborbital commercial launches.

Six commercial spaceports, located in Alaska, California (Vandenberg Air Force Base and Mojave Airport), Florida, Oklahoma, and Virginia currently have FAA launch site operator licenses. Oklahoma received its launch site operator license in 2006. Several other commercial spaceports are under active development, including sites in New Mexico and Texas.

## **REVIEW OF 2006**

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There were seven FAA-licensed launches, all orbital, in 2006, up from five in 2005. ILS carried out one Atlas 5 launch from Cape Canaveral, Sea Launch conducted five successful launches from their Pacific Ocean platform, and Boeing conducted one licensed Delta 4 launch of a government payload from Cape Canaveral. There were also six suborbital permit flights during 2006.

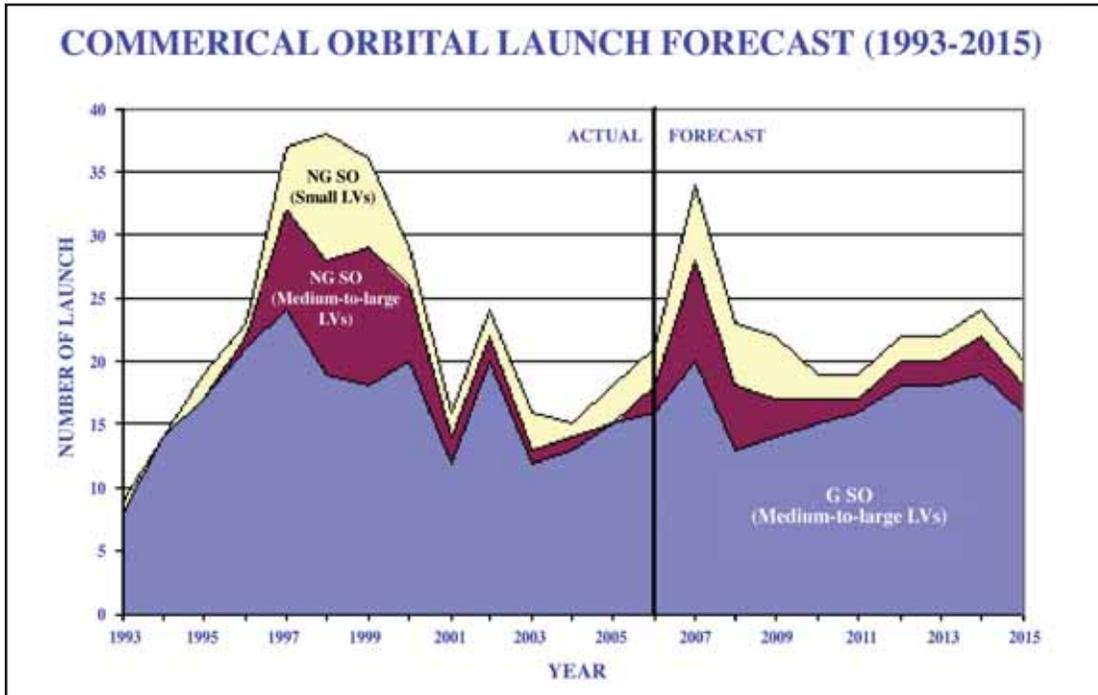
Worldwide there were a total of 21 orbital commercial launches during 2006, compared to 18 in 2005. In addition to the seven FAA-licensed launches, Europe performed five commercial launches of its Ariane 5 and Russia conducted nine launches of various vehicles. There were 66 total worldwide commercial, civil, and military launches in 2006, with commercial launches representing about 32 percent of the total. For more details, see the Year in Review report available from the FAA/AST website at [http://www.faa.gov/about/office\\_org/headquarters\\_offices/ast/reports\\_studies/year\\_review/](http://www.faa.gov/about/office_org/headquarters_offices/ast/reports_studies/year_review/).

## **FORECAST**

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In May 2006, the FAA and the Commercial Space Transportation Advisory Committee (COMSTAC) published their annual forecast for commercial launch demand, the *2006 Commercial Space Transportation Forecasts*. The report forecasts an average of approximately 23.6 commercial orbital launches per year of geosynchronous orbit (GSO) and non-geosynchronous orbit (NGSO) payloads through 2015, with the following annual averages:

- 16.7 launches of medium-to-heavy vehicles to deploy GSO satellites;
- 3.6 launches of medium-to-heavy vehicles to NGSO; and
- 3.3 launches to NGSO by small vehicles



The GSO and NGSO forecasts are not a prediction of what will actually be launched but instead represent the expected demand for launch services, based on a variety of inputs. The complete forecast report is available at:

[http://www.faa.gov/about/office\\_org/headquarters\\_offices/ast/reports\\_studies/forecasts/](http://www.faa.gov/about/office_org/headquarters_offices/ast/reports_studies/forecasts/)