COMMERCIAL SPACE TRANSPORTATION

The Federal Aviation Administration (FAA) 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. The FAA works with its industry advisory committee, the Commercial Space Transportation Advisory Committee (COMSTAC) to project global commercial space launch demand.

OVERVIEW

Commercial space transportation generally consists of the launch of satellites into orbit for either commercial or government customers by private, non-government entities, called launch services providers. Commercial space transportation also covers suborbital launches, where a payload is launched on a trajectory that briefly goes into space but returns to Earth rather than going into orbit, as well as the reentry of objects from space to Earth.

The FAA licenses several expendable vehicles 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 United Launch Alliance (ULA), a joint venture between Boeing and Lockheed Martin, 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 the Atlas 5, a heavy-class vehicle built by ULA and marketed by Lockheed Martin Commercial Launch Services. Commercial vehicles under development include the Falcon family of boosters by SpaceX. The FAA has also previously licensed small suborbital expendable vehicles. From 1989 through the end of 2007, DOT/FAA has licensed 184 orbital and suborbital commercial launches.

Experimental Permits, for suborbital reusable vehicle development and test flights, were first granted by FAA in 2006 to Blue Origin and Armadillo Aerospace. Some permits have been granted for vehicles participating in the Lunar Lander Challenge, a competition to demonstrate technologies potentially applicable to both future lunar spacecraft and commercial suborbital vehicles, with $2 million in prizes offered by NASA's Centennial Challenges program. There were six permitted launches in 2006 and nine in 2007.

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. Several other commercial spaceports are under active development, including sites in New Mexico and Texas.

Review of 2007

There were four FAA-licensed launches, all orbital, in 2007, down from seven in 2006. BLS carried out three Delta 2 launches from Vandenberg Air Force Base, carrying one commercial and two Italian government remote sensing satellites. Sea Launch conducted one Zenit-3SL launch, which failed because of a problem with the vehicle's first-stage engine. The Zenit-3SL is expected to return to flight in early 2008. There were also nine suborbital permit flights during 2007.

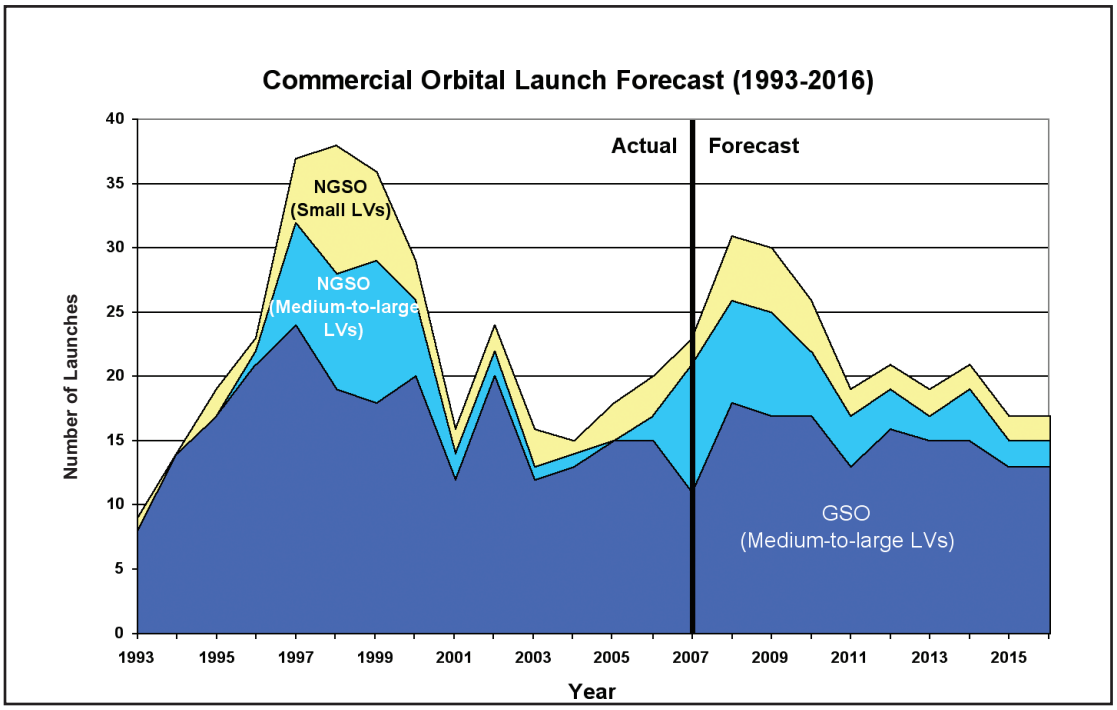
FAA Licensed Launches, 2006-2008

	2006	2007	2008 Forecast
Licensed Launches	7	4	8-12

Worldwide there were 23 orbital commercial launches in 2007, compared to 21 in 2006. In addition to the four FAA-licensed launches, Europe performed six commercial launches of its Ariane 5, Russia conducted 12 launches of various vehicles, and India performed one commercial launch, its first ever, using its PSLV. There were 68 total worldwide commercial, civil, and military launches in 2007, with commercial launches representing about 34 percent of the total. For more details, see the Year in Review report available from the FAA website at:
http://www.faa.gov/about/office_org/headquarters_offices/ast/reports_studies/year_review/.

Global Forecast

In May 2007, the FAA and COMSTAC published their annual global forecast for commercial launch demand, the 2007 Commercial Space Transportation Forecasts. The report forecasts an average of 23.4 commercial orbital launches per year of geosynchronous orbit (GSO) and non-geosynchronous orbit (NGSO) payloads through 2016. That annual average includes 15.3 launches of medium-to-heavy vehicles to deploy GSO satellites, 4.9 launches of medium-to-heavy vehicles to NGSO, and 3.2 launches to NGSO by small vehicles.



Commercial GSO launches are used for communications satellites with masses ranging from 2,000 to over 6,000 kilograms; satellite masses have tended to grow over time although there is still interest in satellites at the low end of the mass spectrum. Demand for commercial NGSO launches spans a number of markets, including commercial remote sensing, science and technology demonstration missions (often for nations without an indigenous launch capability), and the replenishment and replacement of low Earth orbit communications satellite systems first launched in the late 1990s.

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/