

**SUBCOMMITTEE ON SPACE AND AERONAUTICS
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES**

**Office of Commercial Space Transportation
Fiscal Year 2013 Budget Request**

Tuesday, March 20, 2012
10:00 a.m. – 12:00 p.m.
2318 Rayburn House Office Building

Purpose

The purpose of the March 20 hearing is to review the Fiscal Year 2013 budget request submitted by the FAA Office of Commercial Space Transportation (in FAA shorthand the office is referred to as ‘AST’) and to examine the office’s roles and responsibilities as the commercial market is poised to expand. AST’s FY2013 budget request seeks \$16.700 million, a 2.6% increase over the FY2012 enacted level (\$16.271 million). Based on industry provided launch manifests, AST forecasts 40 commercial launch and reentry operations in 2012, compared with only one licensed launch in FY2011. More detail on the launch forecast will be discussed later.

Witnesses

Dr. George C. Nield, Associate Administrator for Commercial Space Transportation, Federal Aviation Administration

Capt. Wilbur C. Trafton (USN Ret.), Chair, Commercial Space Transportation Advisory Committee (COMSTAC)

FY2012 Budget Request

FAA Office of Commercial Space Transportation (AST)

| FY11 Actual | FY12 Enacted | FY13 Request | FY12 vs. FY13 Change | FY12 vs. FY13 Percent Increase |
|--------------|--------------|--------------|-------------------------|-----------------------------------|
| \$15,021,000 | \$16,271,000 | \$16,700,000 | +\$429,000 | +2.6% |

AST’s FY13 budget request seeks \$16.700 million, a 2.6% increase over the FY12 enacted budget.

The FY13 budget justification states: *“The increased activity levels in the commercial space industry creates a factor of six increase in the corresponding number of licenses evaluated and issued, environmental assessments, safety analyses, and safety inspections for AST staff. To meet*

these increased workload demands, AST will use the additional funds to augment our existing staff by employing up to ten safety experts through contract mechanisms. This will allow AST to double the number of our staff assigned to operational safety oversight function in our fields offices, and also to increase the number of simultaneous safety analyses we can perform.”

Background

The Office of Commercial Space Transportation (AST) licenses and regulates U.S. commercial space launches and reentries, as well as the operation of non-federal launch and reentry sites. Its mission statement is: “To ensure the protection of the public, property, and the national security and foreign policy interests of the United States during commercial launch and reentry activities, and to encourage, facilitate, and promote U.S. commercial space transportation.” All space launches and reentries by U.S. citizens except those conducted by the U.S. Government (or on its behalf) require a license from AST. AST issued its first launch license in 1989 and since then has licensed 205 launches with no fatalities, serious injuries, or significant damage to the uninvolved public.

In 1984 President Reagan signed an executive order designating the Department of Transportation as the lead federal agency for encouraging and facilitating commercial launch activities within the private sector. Eight months later Congress passed the Commercial Space Launch Act (P.L. 98- 575) which gave legislative authority to DOT’s role as the principal oversight agency for the regulation and licensing of commercial space transportation systems. Subsequently, DOT shifted the office to the FAA.

Congress last produced legislation dealing with commercial space transportation in the 108th Congress. Two bills were enacted: (1) “The Commercial Space Launch Amendments Act”, H.R. 5382 (PL 108-492) was introduced by Rep. Dana Rohrabacher and expanded AST’s authority to regulate commercial human space flight; (2) H.R. 2608 (PL 108-360) reauthorized the Office of Commercial Space Transportation through FY 2009.

More recently, on February 14, 2012 the President enacted the FAA Modernization and Reform Act of 2012 (PL 112-95) that included a provision extending a moratorium on AST issuing regulations for commercial human spaceflight. (More on this will be discussed below.)

Because commercial entities typically launch from military bases, AST works with both the Air Force and the commercial industry to develop common launch safety requirements at Air Force launch sites. AST also collaborates with the FAA to ensure that future commercial space transportation requirements are integrated into the Next Generation Air Transportation System (NextGen).

Licensing Activities

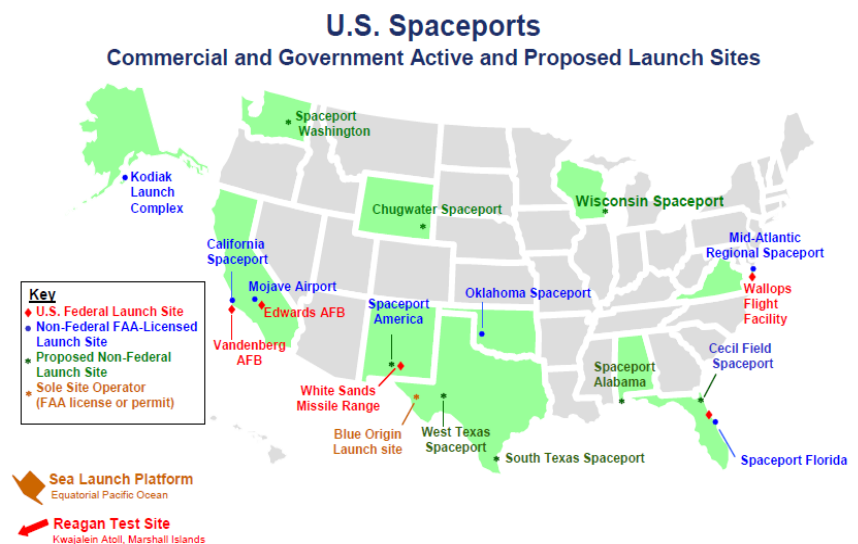
There are three types of launches – national security, civil, and commercial. The Office of Commercial Space Transportation regulates commercial launches; launches of NASA and DOD payloads do not require licenses. In 2010, AST licensed four commercial orbital launches compared to five licensed launches in 2009. For 2011 AST licensed just one commercial launch. No suborbital flights were conducted under FAA experimental permits in 2010 or 2011.

In 2010 one reentry was conducted under an FAA reentry license. The Space Exploration Technologies Corp (SpaceX) Dragon Capsule successfully reentered the atmosphere and landed in the Pacific Ocean following its first NASA Commercial Orbital Transportation System (COTS) demonstration flight. It was the first reentry license ever granted by FAA. SpaceX anticipates flying its second COTS demonstration flight later this spring and Orbital Science Corporation (Orbital) also plans to fly its first COTS demonstration before the end of summer. Pending successful completion of the demonstration flights, both companies could begin regular ISS cargo resupply flights by year's end.

Spaceports

In addition to licensing launches, AST also licenses the operation of commercial launch sites (or “spaceports”). Currently, there are eight non-federal FAA-licensed launch sites, listed below and highlighted on the following chart.

- Spaceport Florida, Cape Canaveral Air Force Station, FL
- Mid-Atlantic Regional Spaceport, Wallops Island, VA
- California Spaceport, Vandenberg Air Force Base, CA
- Kodiak Launch Complex, Kodiak Island, AK
- Mojave Air & Space Port, CA
- Cecil Field Spaceport, Jacksonville, FL
- Oklahoma Spaceport, Burns Flat, OK
- Spaceport America, Las Cruces, NM



Commercial Space Launch Amendments Act of 2004

In 2004, SpaceShipOne successfully launched two suborbital flights from the Mojave, CA, airport within a two week time-span, winning the \$10 million Ansari X-Prize. Space industry optimists believed then that suborbital flights carrying space tourists would quickly develop with several commercial companies entering the marketplace to offer routine suborbital flights. Later that year Congress passed H.R. 5382 (P.L. 108-492), the Commercial Space Launch Amendments Act of 2004, authorizing the Secretary of Transportation to license and regulate commercial human space flight.

Even though the Act extended regulatory new authorities to DOT (specifically to the Office of Commercial Space Transportation), it prohibited federal regulation of commercial human space flight companies – operating either suborbital or orbital commercial launch systems – for eight years following enactment.

The premise of the prohibition was rooted in the concern that the industry did not yet exist, thus DOT (and AST) had no relevant experience upon which to regulate industry practices. During this period, it was anticipated that space launch companies would experiment with various designs and processes as they endeavored to develop vehicles and demonstrate their safety and performance capabilities prior to offering licensed suborbital (or orbital) flights. The Act provided two exceptions to the regulatory prohibition; AST could restrict or prohibit design features or operating practices that (1) resulted in a serious or fatal injury to crew or space flight participants, or (2) contributed to an unplanned event during a commercial human space flight that posed a high risk of causing a serious or fatal injury to crew or space flight participants. The eight year ban was due to expire on December 23, 2012 but was extended to October 1, 2015, as the companies that are developing these systems have experienced test flight delays.

To date only one company, Virgin Galactic, is known to be actively testing a prototype sub-orbital commercial human spaceflight vehicle. SpaceShipTwo, a larger version of the Ansari X-Prize winner, continues to undergo unpowered atmospheric testing in California. According to the company, hundreds of interested purchasers have already placed down-payments with Virgin Galactic for the privilege of flying on their spacecraft once commercial flights get underway.

NASA's Commercial Cargo and Crew Programs

With the retirement of the Space Shuttle in 2011, NASA plans to rely on two companies – Orbital and SpaceX – to provide cargo resupply services to the International Space Station. Each company has a contract through the middle part of this decade, and agency officials anticipate acquiring additional cargo services to service ISS to 2020. Under the current contracts, each company is obligated to launch two supply flights a year, and with regard to SpaceX, it would also bring materials back from ISS using their Dragon capsule to reenter the atmosphere and land

at a permitted site. For these resupply flights NASA is buying a service as though it were a traditional commercial customer, thus triggering coverage under AST's licensing regime. Once both companies are operating resupply flights on a routine basis, AST's regulatory workload will increase by four flights a year, plus two reentries.

NASA is also pursuing a longer term strategy to use a similar approach of buying launch services to ferry astronauts to and from the International Space Station. NASA released an Announcement for Proposals on Feb. 7 inviting aerospace companies to submit bids by March 23 to compete for funding under the Commercial Crew Integrated Capability (CCiCap) initiative. While the programmatic timeline for CCiCap and actual follow-on contracts to deliver crew to ISS remain notional, this latest approach to stimulate potential "commercial crew" providers anticipates flights to the ISS as early as 2017.

Non-NASA crewed flights would also require a new set of regulations be established and enforced by AST to ensure that the risk to non-governmental crew and passengers are minimized. NASA has vast experience in human spaceflight while AST has none.

The AST FY13 budget justification states: *"Operational safety oversight of human spaceflight will require developing technical expertise in several new areas including environmental control, life support, and crew survivability. To date, AST's launch safety oversight experience and authority has been primarily focused on unmanned launches of satellites into orbit using expendable launch vehicles."*

FAA (AST) and NASA are in discussions now to establish how the two agencies will exercise oversight and insight into the design and operation of any commercial orbital and suborbital crew launch systems, their respective certification and regulation roles, as well as understanding the reentry performance, landing sites, and recovery operations proposed by the companies. The goal is to minimize any overlap between the agencies.

Center of Excellence for Commercial Space Transportation

In 1990, Congress granted authority to the FAA Administrator to make grants to one or more colleges or universities to establish and operate several regional centers of air transportation excellence (PL 101-508, Sec. 9209). Each center of excellence would be responsible for 50 percent of the costs of establishing and operating the center of excellence, with the federal government responsible for the other 50 percent.

The purpose of each Center of Excellence (COE) is to advance the state of transportation knowledge within a particular area of concentration. This is accomplished by providing both an educational and research component to enable the next generation in the field of transportation and by conducting high quality research to generate significant advances in transportation science and technology. Furthermore, each COE is responsible for disseminating research results to enable technology transfer into the commercial sector where appropriate.

In August 2010, the FAA established the COE for Commercial Space Transportation (COE-CST) led by New Mexico State University in Las Cruces to tackle research in areas such as space launch operations and traffic management; launch vehicle systems, payloads, technologies, and operations; commercial human space flight; and space commerce. Partner colleges and universities include: Stanford University in California, the Florida Institute of Technology in Melbourne, the New Mexico Institute of Mining and Technology in Socorro, the Florida Center for Advanced Aero-Propulsion at Florida State University in Tallahassee, the University of Colorado at Boulder, and the University of Texas Medical Branch at Galveston.

The budget request for the COE-CST is \$1.0 million.