NASAfacts

Kennedy Space Center Overview

Kennedy Space Center

After five decades, NASA's John F. Kennedy Space Center continues to set the stage for America's adventure to space. Kennedy Space Center shares a boundary with the Merritt Island National Wildlife Refuge on Florida's east coast, where nature and technology co-exist. The refuge includes about 140,000 acres on land and water and provides a wide variety of habitats, including coastal dunes, saltwater estuaries and marshes, freshwater impoundments, scrub, pine flatwoods, and hardwood hammocks that provide habitat for more than 1,500 species of plants and animals.

Kennedy Space Center offers 6,000 acres of land for facilities and roads, and has 7.8 million square feet of building area, and 564 miles of roads, including 184 miles of paved and 380 miles of unpaved roads. The combined spaceport (Kennedy and Cape Canaveral Air Force Station (CCAFS)) has served as the departure gate for every American human space mission and for hundreds of rocket launches carrying advanced research and interplanetary spacecraft. From the early days of Project Mercury to the space shuttle and International Space Station, from the Hubble Space Telescope to the Mars exploration rovers, Kennedy enjoys a rich heritage in its vital role as NASA's processing and launch center.

As NASA transitions from the Space Shuttle Program to future endeavors, Kennedy's work force remains focused on the agency's core values: safety, integrity, teamwork, and excellence. Kennedy will continue to support International Space Station operations as the orbiting laboratory enters its second decade of discoveries. And NASA's Launch Services Program managed at Kennedy Space Center will continue to launch satellites and robotic missions on journeys to learn more about our home planet and unlock the secrets of the universe.

During this time of transition NASA will work to develop its heavy lift rocket capabilities, the Space Launch System. Kennedy Space Center will provide 21st Century ground systems for processing and launch. The Orion Multi-Purpose Crew Vehicle will be assembled, tested and ultimately launched aboard the new heavy lift vehicle from Kennedy. NASA's new Commercial Crew Program, which is based at Kennedy, is working with commercial partners to create new spacecraft that will take NASA astronauts to the International Space Station and possibly other locations in low Earth orbit.

Launch Services Program: Earth's Bridge to Space

The Launch Services Program (LSP) exists to meet the needs of a diverse customer base which includes the space station, NASA space and earth science, exploration, technology and education requirements, as well as support to the national security community, the National Oceanic and Atmospheric Administration and international cooperative partners. LSP is responsible for enabling access to space for all NASA missions, as well as missions for the national security community, the National Oceanic and Atmospheric Administration (NOAA) and international partners. LSP was established at Kennedy Space Center for NASA's acquisition and program management of expendable launch vehicle (ELV) missions. LSP works in the commercial arena to provide cost-effective, safe and reliable services. The main responsibilities of LSP are oversight of launch operations, countdown management, and providing additional quality and mission assurance for each ELV launch.

Since 1990, NASA has purchased ELV launch services directly from commercial providers, whenever possible, for its scientific and applications missions. All ELVs use the same basic technology to get into space – two or more rocket-powered stages, which fall away when their engine burns are complete.

Commercial Crew Program

NASA's Kennedy Space Center is spearheading America's effort to launch men and women into space with the agency's Commercial Crew Program. For the first time since opening its doors more than 50 years ago, Kennedy is at the forefront of designing, developing, demonstrating and flying human-rated vehicles.

The 2010 NASA Authorization Act established commercial providers as the primary means for future crew transportation to the International Space Station following the retirement of the Space Shuttle Program.

The objective of CCP is to invest in and work closely with commercial providers to produce a certified end-to-end crew transportation system capable of flying to low Earth orbit.

Through multiple development phases, NASA is helping to lay the foundation for future commercial transportation capabilities, upon which commercial partners can market transportation services to the U.S. government and other customers. When a transportation capability is certified for NASA use and services are available, the agency could purchase transportation services to meet its space station crew rotation and emergency return obligations.

Through Commercial Crew Development Round 1 (CCDev1), NASA awarded $50 million to five companies in 2010 to move promising transportation concepts forward. Through the second phase of development, CCDev2, NASA initially awarded $269.3 million to four companies in 2011 to continue the development of commercial rockets and spacecraft. Later in 2011, the agency awarded $46.2 million in optional milestones pre-negotiated as part of some of the original CCDev2 agreements to help accelerate development and also entered into unfunded agreements with three companies in order to share technical information.

The current phase is the Commercial Crew Integrated Capability (CCiCap) initiative, which is intended to produce fully integrated commercial crew transportation systems that would culminate in crewed orbital demonstration flights around the middle of the decade. During CCiCap, Sierra Nevada Corp. will receive up to $212.5 million to further advance its Dream Chaser spacecraft set to launch atop a United Launch Alliance Atlas V rocket, Space Exploration Technologies (SpaceX) will receive up to $440 million for its crewed Dragon capsule and Falcon 9 rocket combination, and Boeing will receive up to $460 million to continue the development of its CST-100 spacecraft, also launching atop an Atlas V. Between now and May 31, 2014, NASA's partners will complete their designs, conduct critical risk reduction testing on their spacecraft and launch vehicles, and showcase how they would operate and manage missions from launch through orbit and landing.

Dream Chaser/Atlas V

Dragon/Falcon 9

CST-100/Atlas V

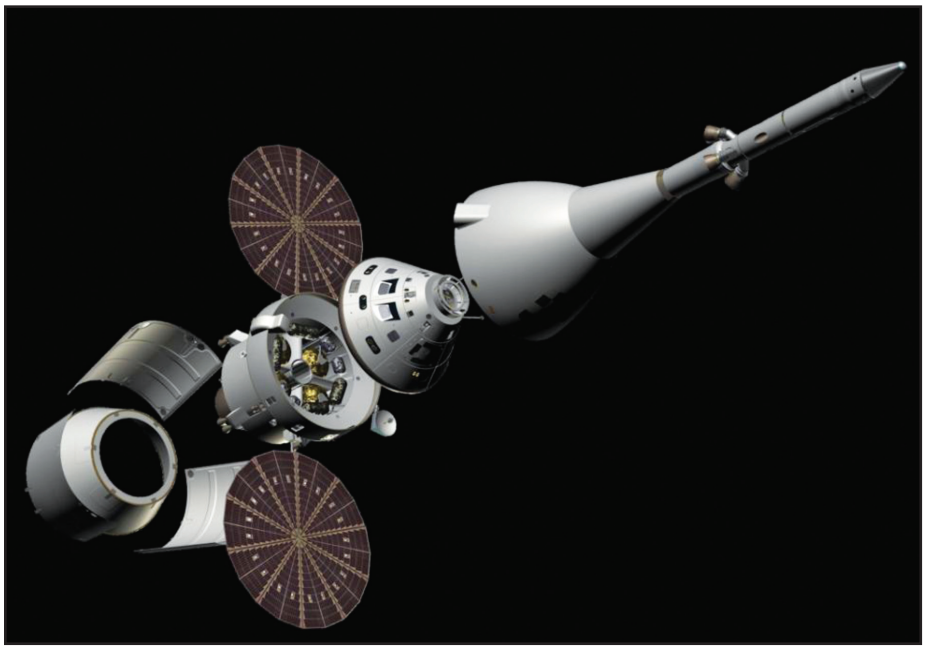
Ground Systems Development and Operations Program

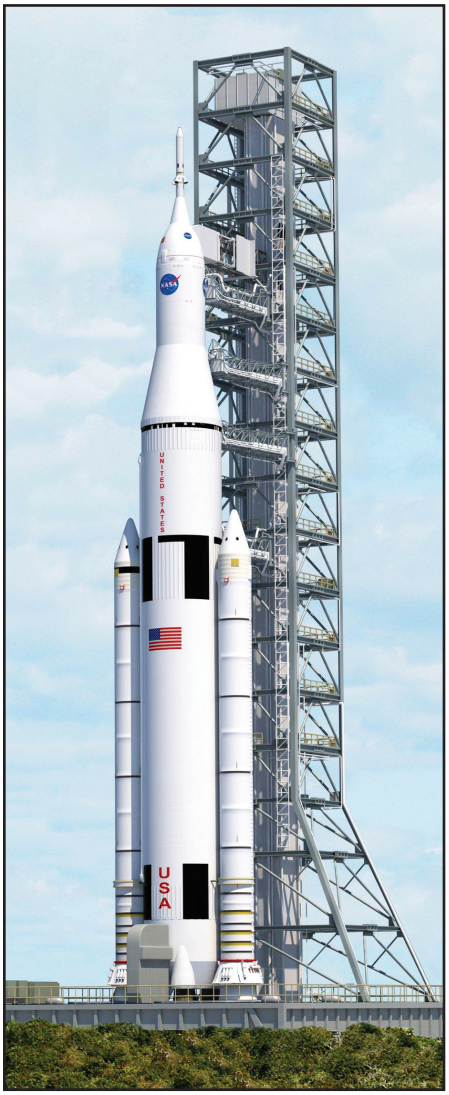
The Ground Systems Development and Operations Program was implemented at Kennedy to modernize its facilities for multiple commercial and government customers. The goal of the Ground Systems Development and Operations Program is to transform the Florida launch and range complex by implementing a focused set of investments to its infrastructure, creating a multi-use spaceport of choice for NASA and other users. The program aligns with the needs of civil, national security, and commercial enterprises, ultimately extending to the international space community. The Ground Systems Development and Operations Program Office will provide the necessary program management for the ground infrastructure development and ground operations integration to support multiple government and non-government users.

According to the NASA Authorization Act of 2010, the program will focus primarily on launching the Space Launch System (SLS) and its human spacecraft, the Orion Multi-Purpose Crew Vehicle (MPCV). But the conversion also will include provisions to allow commercial users to take advantage of unique Kennedy capabilities, including the Shuttle Landing Facility, Orbiter Processing Facilities, the Vehicle Assembly Building, and Launch Complex 39. The program promotes the repurposing of Kennedy capabilities for future users who will process and launch from the center and CCAFS.

The SLS Program will develop the heavy lift rocket that will launch the Orion spacecraft, other modules, and cargo. The SLS will have an initial lift capability of 70 to100 metric tons, evolvable to 130 metric tons to lift Orion, and be a backup system for space station cargo and crew delivery. The Orion test article already is here at Kennedy in the Operations & Checkout Building high bay where manufacturing processes and efficiencies are being developed for the spacecraft.

Orion features dozens of technology advancements and innovations that have been incorporated into the spacecraft's subsystem and component design. It includes both crew and service modules, a spacecraft adapter and a launch abort system. Orion will serve as the primary crew vehicle for missions beyond low Earth orbit, and will be capable of conducting regular in-space operations including, rendezvous, docking and extravehicular activities.





Center Planning and Development Office

The Center Planning and Development Office (CPDO) provides strategic leadership and management integration of center planning activities and partnership development initiatives to enable Kennedy as a multi-user spaceport supporting both government and commercial launch providers and their customers.

Serving as Kennedy's "front door" to industry and other government organizations, the CPDO develops strategic and business partnerships that advance NASA's and Kennedy's goals.

CPDO also is responsible for center land use planning and execution, development of spaceport infrastructure and business strategies, and the preparation and coordination of a Kennedy Space Center Master Plan with NASA organizations and external stakeholders.

Economic Impact

NASA's Kennedy Space Center remains a very significant economic driver in Brevard County and a major contributor to the economic health of the state of Florida. Analysis of the Fiscal Year 2011 expenditures concludes that overall NASA activities and ones specifically related to Kennedy across Florida contribute more than $1.7 billion in wages and purchases to the state economy. Economic models have estimated that both this direct spending, as well as the subsequent indirect income and job creation, results in a $3.7 billion total economic impact to Florida. This impact is created through employment of an estimated state-wide, NASA-related work force of 26,000, with wages of $1.9 billion in income, resulting in nearly $400 million in federal, state and local taxes. For each Kennedy job, an additional 1.25 jobs are supported in the secondary market throughout the state. NASA, Kennedy and Florida have a long standing, demonstrated economic interdependence. In this post-shuttle era, Kennedy will continue to stimulate the economy with the additions of NASA's Exploration Ground Systems, Ground Systems Development and Operations Program and Commercial Crew Program, as well as with new space research, technology projects and the agency's Launch Services Program.

The Propellants North Administrative and Maintenance Facility in the Launch Complex 39 area of Kennedy Space Center in Florida is NASA's second to be Platinum-rated by the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) certification system.

In June 2008, Kennedy leased land to Florida Power & Light (FPL) to build a 10-megawatt photovoltaic (PV) system for FPL's electricity generation purposes. As in-kind consideration for use of the land, FPL provided Kennedy a separate one-megawatt PV system valued at $6.4 million. Kennedy's one-megawatt facility produces almost 1,800 megawatt-hours annually, saving NASA $162,221 in Fiscal Year 2010 while avoiding 1,055 tons of carbon dioxide emissions annually. FPL's 10-megawatt facility produces almost 19,000 megawatt-hours and avoids 10,306 tons of carbon dioxide emissions annually.

Workers receive training atop a mast climber that is attached to launch simulation towers outside the Launch Equipment Test Facility at NASA's Kennedy Space Center in Florida. Since 1977, the facility has supported NASA's Launch Services, shuttle, International Space Station, and Constellation programs, as well as commercial providers.

Cold storage team members pack an International Space Station experiment cryogenic freezer called a Glacier unit inside the Space Station Processing Facility at NASA's Kennedy Space Center in Florida. The unit is for an experiment late-load demonstration test with the Space Exploration Technologies Corp. SpaceX Falcon 9 rocket and Dragon capsule.

National Aeronautics and Space Administration

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