NASAfacts

Kennedy Space Center Sustainability

Kennedy Is Go for Green!

Kennedy Space Center strives to be recognized as a leader for sustainability within the federal government and the external community. Key sustainability objectives focus on reducing costs through efficiencies, decreasing waste, and protecting our natural and cultural resources.

Many center programs contribute to Kennedy's sustainability effort. The Environmental Management Branch has the professional capability for environmental policy development, engineering, and research. Responsibilities include recycling, sustainable acquisition, hazardous materials, pollution prevention, energy and water management, renewable energy, natural resources, historic properties, and NEPA, or National Environmental Policy Act, programs. Other programs support efforts in construction, administration, outreach, and more.

Sustainable Buildings

There are nine NASA buildings at Kennedy certified by Leadership in Energy and Environmental Design (LEED) totaling about 550,000 square feet. Two of them – the Central Campus Headquarters and the Propellants North buildings – are Platinum certified. There are three Gold: Electrical Maintenance Facility, Ordnance Operations, and Fuel Storage Area 1. The four Silver certified buildings are Life Support, Operations and Checkout North Wing, Space Station Processing Facility's Science Annex, and the Kennedy Data Center.

The Platinum-certified Central Campus Headquarters Building Phase 1 is a seven-story, 200,000-square-foot facility that houses about 500 employees. The building features reflective roofing materials with a high solar reflective index to aid in the reduction of cooling and energy loads. Offices are equipped

Kennedy Space Center shares a border with the Merritt Island National Wildlife Refuge. Including these sandhill cranes, more than 330 native and migratory bird species, along with 25 mammal, 117 fish, and 65 amphibian and reptile species call Kennedy and the wildlife refuge home. Credit: NASA/Ben Smegelsky

Kennedy's Central Campus, the new headquarters building, is certified Platinum by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED). Credit: NASA/Cory Huston

with energy-saving, light-emitting, diode illumination fixtures instead of fluorescent lights. A new 800-kilowatt emergency generator with enhanced environmental ratings provides emergency power, and the parking lot features seven dual electric vehicle battery charging stations.

In the Launch Complex 39 area, the Propellants North Administrative and Maintenance Facility also is rated LEED Platinum. It was designed as NASA's first carbon neutral facility, meaning it can produce enough energy onsite from renewable sources to offset what it requires to operate.

Clean & Renewable Energy

Kennedy continues to be a leader in renewable solar energy generation with four completed projects and one planned for fiscal years 2022-2023. In the Central Campus area, there is a 1-megawatt ground-mount solar farm completed in 2009 and a 1.87-megawatt ground-mount finished in 2019. This latest addition produces more than the energy required to offset the energy consumption of the first phase of Kennedy's new Central Campus, giving it a "net zero" qualification and providing points for LEED certification. A solar installation on the roof of the Electrical Maintenance Facility (EMF), completed in 2020, was designed to produce 135 kilowatts of power. The EMF now is deemed a "net positive" facility, meaning it produces more energy than it consumes. Future efforts, including a 2-megawatt ground-mount solar farm planned for 2022-2023, will further increase Kennedy's solar energy generation in the years to come.

Kennedy also hosts two commercial solar farms. Built in 2010, Florida Power and Light's Space Coast Next Generation Solar Energy Center is a 10 mega-watt solar plant located south of Kennedy's Gate 2. It is capable of generating enough energy to power 1,000 homes. The second, Florida Power and Light's Discovery Solar Energy Center, was completed in 2021 and is one of the largest commercial solar farms on federal property. Visible from Kennedy's main gate, this farm features more than 250,000 photovoltaic solar panels capable of generating 74.5 megawatts of clean, reliable energy. That's enough to power 15,000 homes a year and reduce carbon dioxide emissions equal to taking 14,000 cars off the road annually.

Energy & Water Management

Kennedy is committed to increasing efficiency and conserving energy and water resources through various efficiency upgrades. From 2003 to 2020, Kennedy reduced its energy intensity by a remarkable 60%. And from 2007 to 2020, Kennedy reduced its water intensity by 23%. Additionally, future efforts have been identified to further decrease our energy and water intensity at Kennedy as part of our commitment to sustainability.

There are about 250,000 panels at Florida Power and Light's new 74.5-megawatt Discovery Solar Energy Center at NASA's Kennedy Space Center. Credit:NASA/Frank Michaux

Pollution Prevention & Waste Management

Kennedy has a self-supporting recycling program. Recycling and diverting waste keep items from going into the landfill and serves as a revenue source for Kennedy's recycling program. Containers around center accept common items such as glass, aluminum, plastic, and paper, and several buildings have alkaline battery recycle bins in or near their lobbies. Over 40 different types of materials were recycled in fiscal year 2020, ranging from aluminum cans to cement, concrete, and brass bullet casings. Concrete and cement can be reused in construction projects around center including as road base. Carpeting from the old headquarters building also was recycled during demolition.

Kennedy holds several sustainability events for employees throughout the year, including Earth Day activities in April, Energy Awareness in October, America Recycles Day in November, and Kennedy beach cleanups. Employees can hear speakers at periodic "lunch and learn" events, on topics including native landscaping, Indian River Lagoon preservation efforts, and more.

Fleet Management

Kennedy continues to expand use of alternative fuel vehicles on center. As of 2021, 75% of the fleet uses alternative fuels (electricity, E-85, and biodiesel) to power them. There are 20 hybrids (gas/electric), 15 plug-in hybrids, and 14 dedicated electric vehicles. Kennedy is working with commercial partner Florida Power and Light to build 56 additional vehicle chargers for government-owned vehicles by the end of 2021. A bicycle program hosts 50 bikes across 18 locations on center for employees to use for short trips near their offices.

Natural Planning

Kennedy's Environmental Planning office is responsible for ensuring NEPA compliance, studying and assessing ecosystem health and extreme weather event influences on infrastructure, and developing mitigation strategies to protect critical launch infrastructure.

A top objective of the Environmental Planning program is to assure NASA's mission in space while preserving and protecting the environment and surrounding natural resources. Kennedy sits within the Merritt Island National Wildlife Refuge, home to over 1,000 species of plants, 117 species of fish, 68 species of amphibians and reptiles, 330 bird species, and 31 different types of mammals. NASA acquired Kennedy's 140,000 acres of land in 1962 for the development of the space center. In 1963, the U.S. Fish and Wildlife Service signed an agreement to establish the refuge to manage the lands surrounding the launch complex. In 1975, a second agreement established the Canaveral National Seashore. Today, these partners continue working together with NASA to protect the wildlife and these ecosystems – a partnership that serves as a shining example of how technology and nature can co-exist.

Employees turn in used household material for recycling as part of America Recycles Day led by the Kennedy Space Center's Sustainability organization. Credit: NASA/Kim Shiflett

Recent environmental restoration efforts include a multi-phased dune restoration project that replenished more than four miles of coastline with additional sand to rebuild its natural structure. Workers trucked in nearly 38,000 loads of sand to strengthen the dune and roads around the space center, which have frequent brushes with severe weather, especially during the June to November hurricane season. Completed in May 2021, the project also added miles of native plants to help prevent erosion while providing habitats for some of the vulnerable, threatened, and endangered species that have settled at the Florida spaceport.

Prescribed Burn Program

This program helps organize prescribed burns, or planned fires, for land management. The burns promote new plant growth, reduce the potential for wildfires, and reduce the encroachment of non-native plant species onto Kennedy property. These fires also help maintain a viable habitat for wildlife like the endangered Florida scrub jay, gopher tortoise, and indigo snake.

Prescribed, mosaic burns protect the environmental habitat of endangered species like the Florida scrub jay. Credit: NASA

Archeological ruins of Elliot Plantation dating from the 1760s are revealed through the oak hammock on NASA's Kennedy Space Center. Credit: National Park Service

Cultural Resources

Kennedy's cultural resources management program helps balance historic preservation considerations with the agency's mission and mandates to ensure reliable access to space for government and commercial payloads. Historic preservation is an integral part of Kennedy's environmental mission. Historic center properties include buildings, structures, objects, sites, districts, and landscapes. Cultural resource personnel identify and evaluate Kennedy's activities for potential effects on cultural resources. Kennedy has 89 historic buildings that are listed or determined eligible for listing on the National Register of Historic Places, including 49 sites associated with the Apollo program. Historic buildings include the Vehicle Assembly Building, Launch Control Center, and Neil Armstrong Operations and Checkout Building. Historic structures and objects include Space Shuttle Atlantis and the historic countdown clock. The clock was used from 1969 to 2011, and both the clock and Atlantis are on display at the Kennedy Space Center Visitor Complex.

A National Park Service staff member prepares to release a Kemp's ridley sea turtle into the Atlantic Ocean at the Canaveral National Seashore near Kennedy Space Center on Feb. 26, 2021. Credit: NASA/Chris Swanson

Environmental Remediation

Kennedy's environmental remediation program incorporates the core elements of sustainable green remediation into projects when feasible, primarily through the use of alternative power and bioremediation. As the primary launch site for the U.S. space program, Kennedy Space Center has long been engaged in a wide variety of operations that are an integral part of NASA missions. These operations involve the use of toxic and hazardous materials. Federal, state, and local governments have developed strict regulations that require disposers of hazardous waste to identify the locations and contents of past disposal sites and to take actions to eliminate any hazards in an environmentally responsible manner. Kennedy's program helps evaluate sites where contamination is present under the Resource Conservation and Recovery Act and its Hazardous and Solid Waste Amendment.

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www.nasa.gov

FS-2021-09-753-KSC