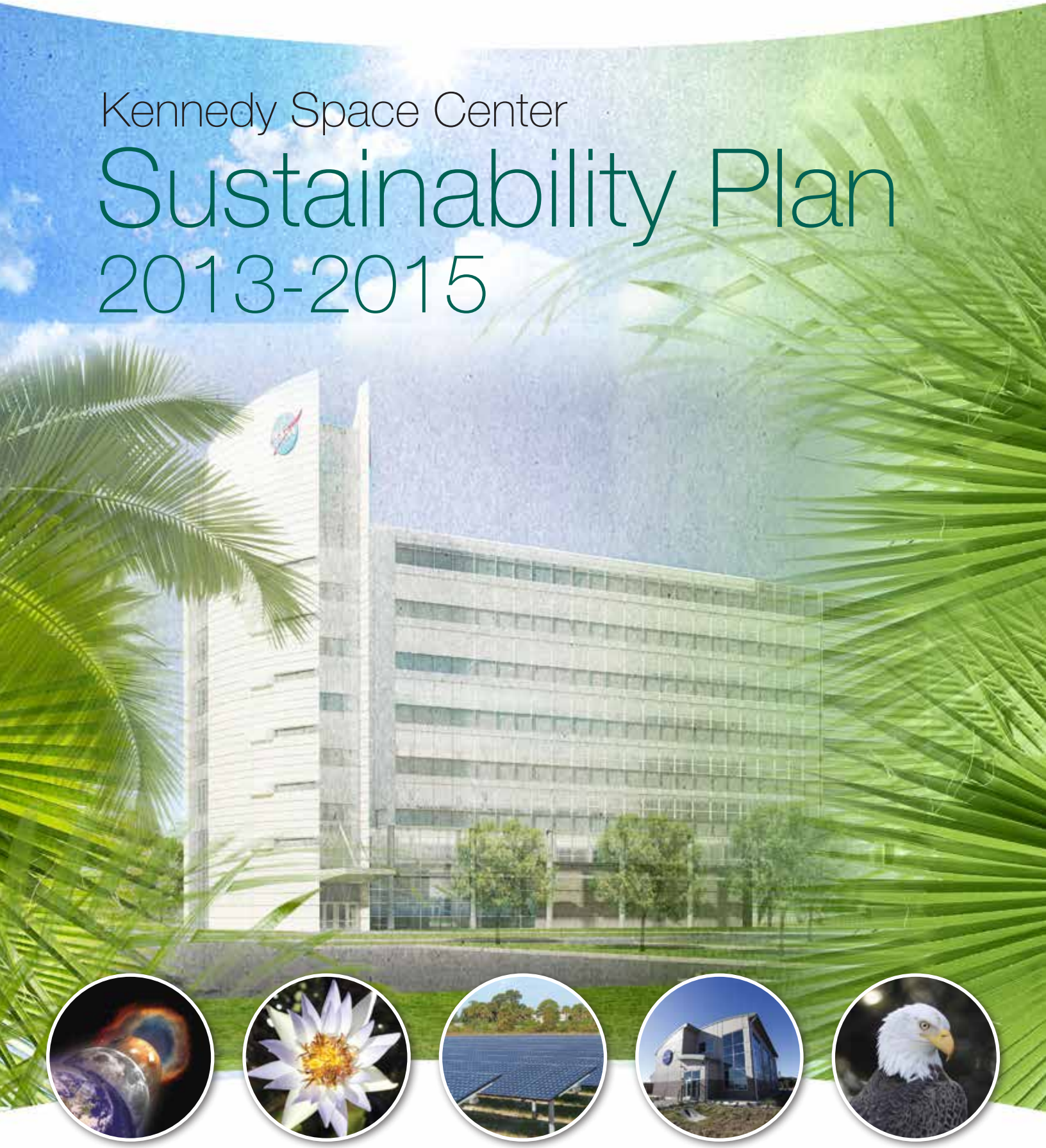
National Aeronautics and Space Administration

Kennedy Space Center
Sustainability Plan
2013-2015



Kennedy Space Center is GO for GREEN!

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Section 1: Executive Summary

The Federal Government has made a commitment to sustainability in response to increasing public concern and stakeholder expectations about the health of the planet. At its heart, sustainability integrates environmental, societal, and economic systems to meet present needs without compromising the ability of future generations to meet their needs. To address these concerns President Obama signed Executive Order (EO) 13514, which recognizes the importance of sustainability in the Federal Government by providing a focus on Federal leadership in environmental, energy, and economic performance.

In June 2010, the National Aeronautics and Space Administration (NASA) responded to the Presidential mandate by releasing its Strategic Sustainability Performance Plan (SSPP) which recognizes the importance of realigning environmental practices in a manner that preserves, enhances, and strengthens NASA's ability to perform its mission indefinitely. Kennedy Space Center's (KSC) commitment to sustainability will support NASA's SSPP and the goals of EO 13514. It also will promote, maintain, and pioneer green practices in all aspects of our mission, striving to be an Agency leader in everything we do.

The "Space Shuttle Atlantis" exhibit is nearing completion at the Kennedy Space Center Visitor Complex.

Kennedy's Sustainability Plan (SP) recognizes that the best sustainable solutions use an interdisciplinary approach that involves civil servant and contractor personnel from across the Center. Kennedy's collaborative approach to sustainability relies on the participation of all employees to develop and implement a plan that has broad support throughout the Center. Through this approach, the Center will pursue projects in support of the following 12 overarching functional goals:

- Reduce greenhouse gas (GHG) emission by focusing on energy and fossil fuel reductions
- Design and build sustainable buildings, facilities, and infrastructure
- Conserve and manage water resources
- Minimize waste and prevent pollution
- Purchase sustainable products and services
- Manage electronic equipment and data centers responsibly
- Integrate sustainability into local and regional planning
- Increase workforce satisfaction through recognizing and promoting individual and collective sustainability efforts
- Promote sustainable food services
- Conserve and improve the resiliency of our natural resources
- Conduct pilot sustainability projects
- Effectively communicate the Center's sustainability initiatives

International Space Station

The Kennedy SP details the integrated strategies necessary to achieve the following benefits:

- Reduce Center costs
- Increase process and energy efficiencies
- Promote smart buying practices
- Increase recycling and decrease waste
- Benefit the community
- Meet or exceed EO 13514 and NASA SSPP sustainability goals

Responsibility for meeting these goals lies with Kennedy's Center Sustainability Officer (CSO), the Director of Center Operations, with support from the Kennedy Space Center Sustainability Steering Committee. Center-wide cross-functional teams are responsible for the development and implementation of the strategies and projects that address these goals. The Sustainability Core Team is made up of the leaders of the cross-functional teams and is empowered to set internal goals and strategies to support the Center's sustainability effort. Employees at all levels are responsible and accountable for integrating sustainability into their day-to-day activities to reduce their environmental impact.

Kennedy will strive to balance environmental, social, and economic concerns with the Center's obligations as the nation's gateway to space. The Center desires to not only be recognized as a leader for sustainability within the Federal Government, but also within the external community. Kennedy will collaborate and communicate with employees and the local communities to demonstrate the benefits of a more sustainable society and instill sustainability as a core value.

Kennedy has accomplished great feats in its storied history. The Mercury, Gemini, Apollo, and Space Shuttle programs used the Center as their launch pad into space and into history. Kennedy must draw on the innovative spirit that characterized past missions as it strives for sustainable solutions to the challenges of the future. Incorporating sustainability into the Center's work ethic is an important step in enhancing mission performance and becoming a recognized leader in sustainability. Truly, we are Kennedy Space Center, and we are GO FOR GREEN!

Nancy P. Bray
Center Sustainability Officer
Director of Center Operations

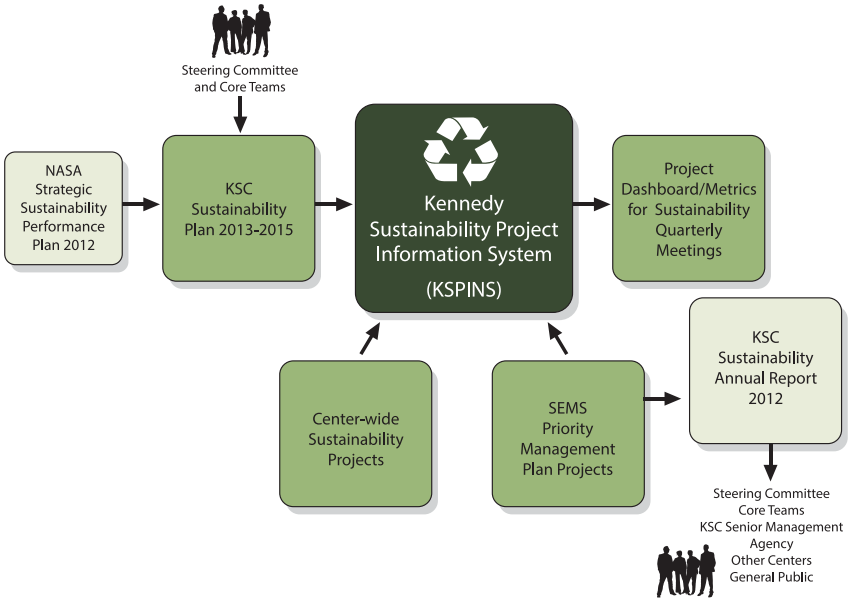
Shuttle Landing Facility Runway

Section 2: Introduction

2.0 OVERVIEW

KSC recognizes the importance of sustainability in preserving, enhancing, and strengthening NASA's ability to perform its mission indefinitely. The KSC SP was developed to reflect the Center's commitment to innovation and leadership in sustainability and support NASA's SSPP and other Federal mandates. Kennedy's sustainability vision exemplifies the importance the Center places on sustainability:

"Kennedy Space Center will promote, maintain, and pioneer green practices in all aspects of our mission, striving to be an Agency leader in everything we do."



The KSC SP lays the foundation for realizing this vision by incorporating sustainable practices into key Center activities. The SP is a tactical implementation plan that outlines a series of strategies that will help Kennedy to achieve long range goals, as well as NASA SSPP goals and other Federal mandates. As the Center's sustainability programs continue to evolve, status reports toward implementing the strategies and projects will be reviewed monthly using reports generated from the Kennedy Sustainability Project Information System (KSPINS), a web based portal being developed by KSC. Using this tool, the status, costs and lifecycle benefits and savings of each sustainability project will be monitored and tracked. An annual report showcasing the status of the goals and projects will be published. Additionally, this plan will be updated every three years to refine and validate the strategies. KSC's Sustainable Environment Management System (SEMS) has been adapted to include the Center's sustainability goals, ensuring the continual improvement of sustainability programs and projects.

2.1 Success Criteria

The Sustainability and Energy success criteria provides long-term measurements for the functional areas spanning GHG emissions, energy intensity, renewable energy, potable water intensity, ratio of alternative to overall fuel usage, green buildings, pollution prevention and waste management, and sustainable acquisition. Annual success criteria will also be created for continuously monitoring the performance in each of these categories to achieve a "Go for Green" status. The annual report will then include the Sustainability and Energy Scorecard to provide a snapshot of Kennedy's performance for that year.

Sustainability and Energy
Long Term Success Criteria

Scope 1 & 2 GHG Emission Reduction Target

Reduce Scope 1 & 2 GHG emissions by at least 18.3 percent by Fiscal Year (FY) 2020 as compared to the FY 2008 baseline.

Scope 3 GHG Emission Reduction Target

Reduce Scope 3 GHG emissions by at least 12.3 percent by FY 2020 as compared to the FY 2008 baseline.

Reduction in Energy Intensity

Reduce energy intensity (Btu/GSF) in Energy Independence and Security Act (EISA) goal-subject facilities by at least 30 percent by FY 2015 as compared to the FY 2003 baseline.

Use of Renewable Energy

Use at least 7.5% electricity from renewable sources as a percentage of facility electricity use. Of this 7.5%, at least half (3.75%) of facility electricity use comes from new sources (post-FY 1999).

Reduction in Potable Water Intensity

Reduce water intensity by at least 26 percent by FY 2020 as compared to the FY 2007 baseline.

Increase in Alternative Fuel Usage to Overall Usage

Increase the alternative fuel usage to overall fuel usage by at least 40 percent by FY 2020 as compared to FY 2005 baseline.

Green Buildings

At least 15 percent of EISA goal subject facilities, measured in terms of both gross area and number of facilities, meet Guiding Principles (GP) for Federal Leadership in High Performance and Sustainable Buildings by FY 2015.

Pollution Prevention and Waste Management

Divert 50 percent of both non-Construction and Demolition (C&D) and C&D non-hazardous solid waste by FY 2015.

Sustainable Acquisition

Ensure 95% of new applicable contract actions, including task and delivery orders under new contracts and existing contracts, require the supply or use of products and services that are energy efficient (Energy Star or Federal Energy Management Program designated), water efficient, biobased, environmentally preferable, non-ozone depleting, contain recycled content, or are non-toxic or less toxic alternatives.

The Center shares a boundary with the Merritt Island National Wildlife Refuge, consisting of 140,000 acres. The Refuge provides a wide variety of habitats: 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, including about 331 species of birds.

Section 3:
Sustainability Plan Structure

Development of Kennedy's Sustainability Plan was accomplished through a collaborative process involving eight core teams. Each core team coordinates one or more cross-functional teams comprised of Kennedy employees with expertise in areas relevant to the Center's sustainability effort. The teams were provided sustainability training and a strategic framework to guide in the development of individual plans for each of their focus areas. Work by the cross-functional teams was coordinated by a steering committee which helped align their recommendations with the Center's sustainability vision and common goals. A diagram of the organization and hierarchy of the sustainability teams is shown in Appendix 2.

The Sustainability Core Teams are responsible for monitoring the projects they recommend to ensure continued success. This approach draws on the knowledge and experience of cross-functional team members within their respective disciplines, while also uniting their efforts around the Center's sustainability vision in a strategic way. Responsibility for meeting the goals outlined in this Sustainability Plan ultimately lies with the KSC Sustainability Officer, who is supported by the Sustainability Steering Committee.

3.1 Team Descriptions

This section provides the team descriptions and highlights their expertise and focus areas. Each of the teams described below developed goals, strategies, and projects to meet or exceed the NASA SSPP goals and objectives. The teams provided valuable input and direction throughout the development of the KSC SP and are responsible for implementing sustainability projects. A unique identifying icon has been placed beside each team name. Throughout the document, these icons associate the teams with the goal functional areas for which they have provided input.

MASTER PLANNING

- The Master Planning team is led by Kennedy's Center Planning and Development Office (CPDO). CPDO is responsible for developing and maintaining the KSC Master Plan and coordinates with internal and external stakeholders in the development of land utilization and business policies to enable both Government and commercial use of the Center. Their expertise is important when addressing NASA's SSPP regional and local planning goals and incorporating them into the Kennedy Space Center Master Plan.

INFRASTRUCTURE

- The Infrastructure team is comprised of four sub-teams from the facility engineering community who have expertise in design and construction, energy systems, water systems, and operations and maintenance.
  - *New Design and Construction:* This sub-team reviews the design and construction processes

of facilities in order to provide environmentally friendly building practices for the future. The design group concentrates on design processes and practices while the construction group concentrates on how facility development influences construction activities. Both groups focus on impacts to the environment.

- *Operations and Maintenance (O&M):* This sub-team examines the current systems and practices already in place for operating and maintaining existing facilities and systems at Kennedy. Additionally, the O&M sub-team establishes goals to reduce the amount of resource consumption involved in day-to-day operations and maintenance activities.
- *Water Systems:* This sub-team analyzes the water distribution system and water use across the Center. The group focuses on methods to reduce consumption while maintaining overall water quality, capacity, and fire protection capabilities for the Center.
- *Energy Systems:* This sub-team explores methods to reduce energy consumption at the Center while maintaining adequate levels of employee comfort. The group develops projects associated with capital improvements, maintenance best practices, employee awareness, and innovative energy reduction techniques.

LOGISTICS

- The Logistics core team is comprised of five sub-teams who have expertise in transportation, food services, acquisition, property disposal, and operational logistics respectively.
  - *Transportation:* This sub-team is comprised of members from the transportation and facility engineering community. The team examines practices to reduce GHG emissions inherent to Kennedy. The group develops goals and strategies to address major aspects of transportation including fleet vehicles, KSC Visitor Complex tour buses, and employee transportation.
  - *Food Services:* This sub-team includes employees with knowledge in food services, facilities, sanitation, environmental, legal, procurement, and budgeting. The group examines strategies to improve food service logistics and waste disposal methods.
  - *Acquisition:* This sub-team is comprised of members from the procurement, finance, environmental, and accounting communities. This group reviews the Center's acquisition processes relative to Federal and Agency policies. The team identifies areas to implement sustainable purchasing practices where none currently exist and focus on increasing awareness of sustainability practices.
  - *Property Disposal:* This sub-team is made up of environmental, and property disposal personnel who screen, excess, exchange, and sell personal property. The group explores methods to increase solid waste diversion, reduce energy and paper consumption, and include process improvements in day-to-day disposal operations.
  - *Operational Logistics:* This sub-team is responsible for the management of shipping, receiving, storing, packaging, and transporting of institutional and programmatic products. The group investigates consolidation methods for service efficiencies and waste reduction through improved tracking techniques.

ENVIRONMENTAL

- The Environmental core team is comprised of two sub-teams with expertise in efficient resource management and natural resources.
  - *Reduce/Reuse/Recycle:* This sub-team includes personnel who are committed to actively promote waste diversion through recycling and championing sustainability efforts at Kennedy. The group develops strategies and projects in waste reduction, energy conservation, landfill use, recycling, and employee education.
  - *Natural Resources:* This sub-team includes environmental personnel, including NASA, contractor, and U.S. Fish and Wildlife Service employees. The group develops strategies and projects to address sustainability as it relates to the management of natural resources and threatened or endangered species at Kennedy. The team has identified three target areas: the scrub habitat, the coastal dune shoreline, and the climate change risks and vulnerabilities. The focus of the team is to ensure a continued viable habitat for the species at the Center while assuring continued access to the area.

INFORMATION TECHNOLOGY

- The Information Technology (IT) team's goal is to develop, acquire, and manage information technology and communications systems for both Kennedy's institutional and programmatic customers. Also, the group establishes policies that ensure the Center's information technology assets are acquired and managed consistently with Agency and Federal regulations. The core team is comprised of four sub-teams, each having knowledge in different aspects of electronic resource management and operations.
  - *Desktop Environment:* This sub-team is responsible for the computing seats used by Kennedy employees on a day-to-day basis to perform their job functions. The team develops projects in energy reduction and environmentally friendly computer purchasing, striving to acquire computers that are Electronic Product Environmental Assessment Tool (EPEAT) and Energy Star certified.
  - *Communication:* This sub-team is responsible for managing and maintaining the telephone and network infrastructure at Kennedy. The team will incorporate an energy efficient communications infrastructure into new designs and retrofits of existing buildings.
  - *Data Center:* This sub-team is responsible for right-sizing and consolidating the computing infrastructure native to Kennedy. By consolidating data center hardware and software systems, energy savings will be realized due to reductions in the power consumption needed to operate and cool the data center resources.
  - *Mobile IT:* This sub-team will further the Center's sustainability efforts by using the ever growing mobile device platform to save energy, reduce paper usage, and improve employee effectiveness.

WORKFORCE SATISFACTION

- The Workforce Satisfaction core team is comprised of human resources personnel with knowledge in performance management, training, and employee recognition. This team is responsible for the development of sustainability goals and strategies to advance employee satisfaction, productivity, and morale.

COMMUNICATIONS

- The Communication core team is comprised of public affairs, external relations, education, environmental, and human resources personnel. The group's goal is to increase awareness, understanding and valuation of sustainability, by advocating it as a Kennedy core value.

TEST BED AND DEMONSTRATION

- The Test Bed and Demonstration core team is comprised of members of the scientific and engineering community with expertise in research, facility operations, and lab operations. This team investigates innovative ways to operate Kennedy's labs in a more sustainable manner, reviews scientific experimentation methods to identify areas for process efficiency improvements, and is pursuing strategic partnerships with other Kennedy sustainability teams and commercial vendors to perform unbiased third-party product testing of sustainable and/or bio-based products for potential use in Center facilities.

Delta II Heavy Rocket Launch

Section 4: Sustainability Goals at KSC

4.1 GOAL 1 - Greenhouse Gas Management

NASA SSPP Goal Description

Scope 1 and 2 GHG emissions reductions:

Scope 1 and 2 GHG emissions are categorized as: Scope 1) GHG emissions from sources owned or controlled by a Federal agency and Scope 2) GHG emissions resulting from the generation of electricity, heat, or steam purchased by a Federal agency. NASA established a combined Scope 1 and 2 GHG emissions reduction target of 18.3 percent based on an FY 2008 baseline estimate. The initial estimate followed the early guidance of EO 13514 and was based on energy intensity reductions for goal subject buildings. Scope 1 and 2 GHG emissions can be divided into the following categories:

- Energy and Buildings: Buildings are the largest consumer of energy for NASA; therefore, facility energy intensity directly correlates to Scope 2 GHG emissions. More specific energy and building goals include:
  - Reduce Facility Energy Intensity – Reduce energy consumption per gross square foot (GSF) of building area by 3 percent annually from the FY 2003 baseline for FY 2006 through FY 2015 (30 percent total).
  - Increase Renewable Electricity Use – Increase percentage of total electricity derived from renewable sources by 3 percent annually for FY 2007 – FY 2009; by 5 percent for FY 2010 – FY 2012; by 7.5 percent for FY 2013 onward.
- Fleet: Vehicles operated by NASA contribute to the Scope 1 GHG emissions. Therefore, NASA has proposed the following general fleet goals: right size the number of fleet vehicles through optimization, increase the use of low emission and high fuel economy vehicles, analyze sustainable transportation options through development of alternative fuel infrastructure, direct spending on transportation training, and procure or lease environmentally preferable motor vehicles.
- More specific fleet goals include:
  - Reduce petroleum use in Fleet Vehicles by 2 percent annually from the FY 2005 baseline for FY 2005 – FY 2020 (30 percent total).
  - Increase alternative fuel use by 10 percent annually from the FY 2005 baseline for FY 2005 – FY 2015 (100 percent total).

Scope 3 GHG emissions reductions:

Scope 3 Emission includes GHG emissions from sources not owned or directly controlled by a Federal agency but related to Agency activities, such as vendor supply chains, delivery services, and employee travel and commuting.

NASA established a Scope 3 GHG emission reduction target of 12.3 percent by FY 2020.

KSC SP Goal Description

Kennedy is committed to meeting or exceeding Scope 1, 2, and 3 GHG emissions reduction targets established in the NASA SSPP by proactively addressing areas of infrastructure energy consumption, renewable energy production and transportation logistics, striving to one day be a net-zero energy center. Kennedy also desires to increase energy awareness across the Center. Kennedy will achieve these goals by pursuing the following:

- Meet or exceed annual NASA SSPP energy, building and fleet goals that contribute to Scope 1 and 2 GHG emissions reductions.
- Annually transform Center fleet vehicles to alternative fuel vehicles (AFV). All light duty vehicles to be AFV by 2018.
- Incrementally increase alternate fuel (AF) special use fleet vehicles.
- Increase the percentage of Alternative Fuel Usage to Overall Fuel Usage by 1 percent per year.
- Continue to provide education and awareness of AFV tour bus options to the KSC Visitor Complex and the KSC Education and External Relations Directorate.
- Promote the reduction in single passenger commuting per year by educating the workforce on the availability of alternative transportation methods. This will be accomplished via increased vanpool ridership, carpooling and telework.

4.1.1 Strategies

Scope 1 and 2 GHG

Strategy: Right-size the Kennedy Space Center General Services Administration vehicle fleet.
Strategy: Promote the alternative fuel vehicle fleet, obtain electric vehicles when possible and promote electric infrastructure.
Strategy: Promote and implement energy conservation projects.
Strategy: Increase understanding and use of renewable energy.
Strategy: Increase employee awareness of unnecessary energy consumption in order to reduce costs.

Scope 3 GHG

Strategy: Cooperate with the KSC Visitor Complex to promote alternative fuel buses.
Strategy: Optimize the ordering and delivery processes at Kennedy to eliminate redundant deliveries.
Strategy: Seek IT solutions to enable an expanded telework program to reduce employee commuting.
Strategy: Increase employee participation in vanpools and carpools to reduce Scope 3 GHG emissions.
Strategy: Increase availability of metered electric vehicle charging locations on KSC for employee use.

On display at NASA's Kennedy Space Center in Florida is one of the varieties of alternative fuel vehicles driven around the Center in an effort to reduce gasoline consumption and conserve energy. This car is a LiV Dash, a lithium vehicle Smart Car that uses lithium batteries.

4.2 GOAL 2 – High Performance Sustainable Design/Green Buildings

NASA SSPP Goal Description

NASA will comply with the, "Guiding Principles (GP) for Federal Leadership in High Performance and Sustainable Buildings," in all new construction, major renovation, or repair and alteration of Federal buildings. It will also assess and demonstrate that at least 15 percent of the Agency's existing Government-owned buildings, Agency direct leased buildings, delegated authority leased buildings, and Federal Real Property Profile (FRPP)-reported leased buildings meet Guiding Principles by FY 2015 (5,000 gross square footage (GSF) threshold for existing buildings and building leases). NASA will demonstrate annual progress toward 100 percent conformance with GP for its entire building inventory by 2015 and thereafter. Additionally, NASA will incorporate sustainable practices into Agency policy and planning for new Federal facilities and leases, and into lease renewal strategies. NASA will demonstrate the use of cost-effective, innovative sustainable building landscape strategies to minimize energy and materials consumption and decrease fertilizer, herbicide, and pesticide application. NASA will operate and maintain its buildings in a manner that reduces energy, water, and material consumption, while achieving a net reduction in Agency deferred maintenance costs. NASA will optimize the performance of the Agency's real property portfolio by disposing and consolidating excess and underutilized property, co-locating field offices, consolidating activities across metropolitan and regional locations, increasing telework opportunities, and expanding internet or electronically delivered services. Lastly, NASA will conserve, rehabilitate, and reuse historic Federal properties, using current technology and best practices

The second-floor conference room of the Propellants North Administrative and Maintenance Facility re-used windows from the Launch Control Center.

KSC SP Goal Description

Kennedy will meet or exceed the Agency's High-Performance Sustainable Design/Green Building goals by working towards achieving 100 percent fully sustainable (net-zero resource use) facilities, reducing or consolidating unnecessary infrastructure and implementing construction standards for sustainable building design across the Center. Kennedy will achieve these goals by developing recurring plans to reduce and recover energy. In addition, Kennedy will decrease water consumption across the Center. Kennedy's immediate goals to achieve net-zero resource use include:

- Develop a list of goal subject KSC facilities that have potential to be aligned with the GP for Sustainable Existing Buildings and document which facilities on that list are currently 100 percent compliant and determine the steps necessary to obtain compliance by end of FY 2013.
- Continue to increase the amount of goal subject facilities that are documented as compliant with the Guiding Principles for Sustainable Existing Buildings.
- Design all new facilities to meet Leadership Energy in Energy and Enironmental Design (LEED) Gold or better, with a goal to maximize energy efficiencies points in the LEED standard by FY 2016.

4.2.1 Strategies

Strategy: Enhance Kennedy's energy data capture efforts to recognize efficiencies and increase understanding of energy usage.
Strategy: Audit the energy impacts of facility operations and systems throughout the Center to increase employees' understanding of energy impacts across various systems.
Strategy: Meet the goals within the guiding principles in an effort to promote cost savings and increase efficiencies across the Center.
Strategy: Optimize O&M processes to position the Center to make more efficient use of its resources.
Strategy: Develop a multi-phased plan for the construction of new facilities to eliminate or reduce the negative environmental impacts of buildings, improve building performance, reduce long-term O&M costs, and increase worker productivity.

4.3 GOAL 3 – Water Use Efficiency and Management

NASA SSPP Goal Description

NASA will reduce potable water consumption intensity by at least 26 percent prior to FY 2020 by identifying and implementing water reduction and reuse management strategies. The Agency will also reduce industrial, landscaping, and agricultural water consumption use by at least 20 percent in the same timeframe. NASA also aims to achieve the objectives established by the Environmental Protection Agency in the Stormwater Management Guidance for Federal Facilities. Additionally, NASA will strive to incorporate appropriate reduction strategies for non-potable water use into Agency level policy and planning.

Kennedy SP Goal Description

Kennedy will reduce overall on Center water use by 26 percent by FY 2020. The Center will continue to comply with, and strive to exceed, the Agency's water use efficiency and management goals by implementing strategies incrementally. Further, the Center will continue to act in accordance with the stormwater management guidance provided. Kennedy will achieve these goals by pursuing the following:

- 16 percent reduction in overall potable water consumption (to include landscaping water and water that is not metered separately) by FY 2015.

4.3.1 Strategies

Strategy: Gather information and educate employees on water use at Kennedy.
Strategy: Reduce the demand on the water system by focusing on the primary water users and develop specific projects to reduce their water utilization at the point of consumption.
Strategy: Reduce flushing through water distribution system alterations.

KSC is replacing faucets with Low Flow faucets which will reduce the water usage at Kennedy.

Workers install a new 12-inch water main as part of a water/wastewater revitalizing plan.

4.4 GOAL 4 – Pollution Prevention and Waste Management

NASA SSPP Goal Description

NASA is committed to decreasing the volume of materials placed in the waste stream through source reduction of pollutants and waste. NASA's goal is to divert 50 percent of C&D debris along with 50 percent of non-hazardous solid waste by FY 2015. To achieve these goals, NASA is increasing compostable and organic material diversion and reducing printing paper usage. A reduction in acquisition, use, and disposal of hazardous chemicals and materials will be coupled with an increased use of acceptable alternative chemicals and processes to promote waste stream diversion and assist in FY 2020 GHG reduction targets.

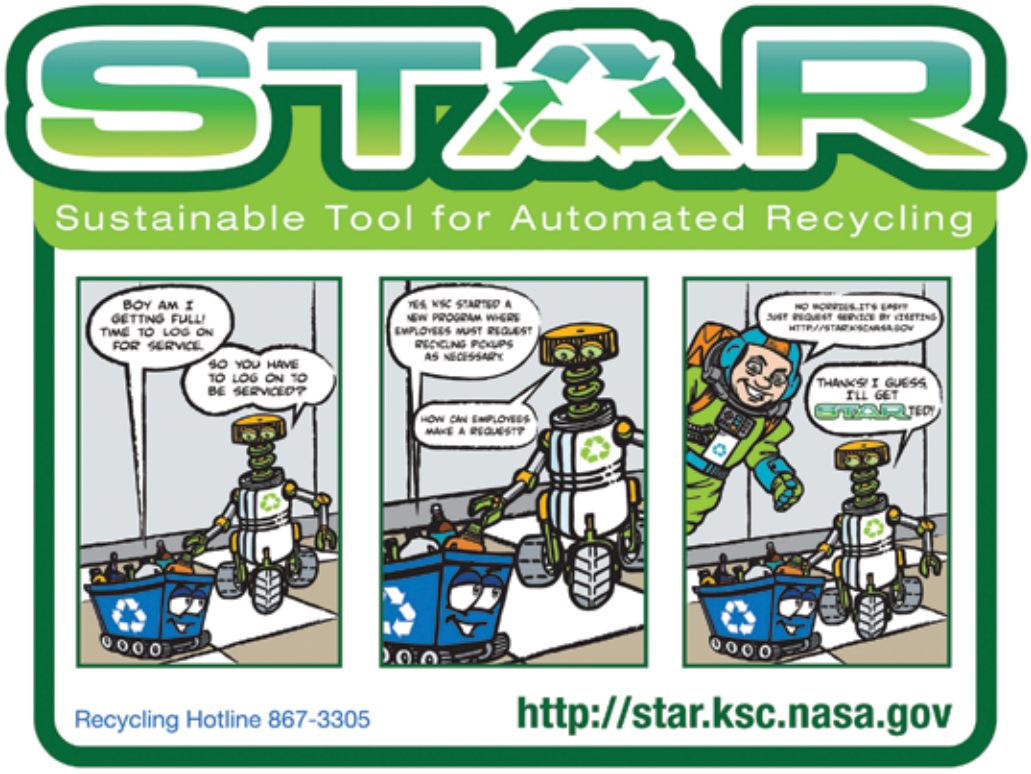
Kennedy SP Goal Description

Kennedy will continue to work diligently to meet the Agency's Pollution Prevention and Waste Management goals. Additionally, the Center has a long-term vision of achieving zero solid waste disposal by FY 2021, excluding hazardous waste. Kennedy will achieve these goals by:

- Diverting 50 percent of non-hazardous solid waste (excluding C&D materials and debris) by the end of FY 2013 and increasing the diversion target by 7 percent annually toward the zero waste goal by FY 2021.
- Diverting 50 percent of C&D materials and debris by the end of FY 2013 and increasing the diversion target by 7 percent annually toward the zero waste goal by FY 2021.

4.4.1 Strategies

Strategy: Reduce paper usage Center-wide.
Strategy: Explore diversion methods for excess property disposal process to reduce Kennedy's waste stream volume.
Strategy: Reduce the chemical volume introduced into the Kennedy waste stream though chemical consolidation, right-size ordering, and use efficiencies.
Strategy: Consolidate redundant institutional logistics services with the intent of expansion to other programs across the Center.
Strategy: Increase Kennedy's solid waste diversion rate by developing a compostable and organic material recovery program.
Strategy: Develop new practices and infrastructure to increase Kennedy's solid waste diversion rate, for C&D and non-C&D waste streams.



To conserve energy and resources Kennedy has transitioned to a recycling on-call service. Customers may submit a request for recycling service at http://STAR.ksc.nasa.gov.

4.5 GOAL 5 – Sustainable Acquisition

NASA SSPP Goal Description

NASA is committed to increasing the use of environmentally preferred products, chemicals, and processes. Accordingly, NASA will strive for 95 percent of new contract actions to utilize products and services that are energy efficient, water efficient, bio-based, non-toxic or less toxic, environmentally preferable, non-ozone depleting, or made with recycled content. NASA will also update its purchasing plans, policies, and programs to include additional environmentally preferable practices ensuring Federally mandated sustainable products and services are included in all relevant acquisitions.

Kennedy SP Goal Description

Kennedy will work diligently to meet the outlined Agency acquisition goals by modernizing and streamlining its current acquisition process to assure environmentally preferable products and services are procured. Kennedy will achieve these goals by pursuing the following:

- Perform a feasibility study for the creation of a centralized requisition office by FY 2015.
- Educate and train 100 percent of credit card holders and 30 percent of contract specialists by FY 2015.
- Monitor acquisitions to measure performance against 95 percent sustainability goal in FY 2013.
- 75 percent of uncoated printing and writing paper purchased at Kennedy will contain 30 percent postconsumer fiber.

4.5.1 Strategies

Strategy: Increase sustainable purchasing awareness and provide practical resources for environmentally preferred products and services.
Strategy: Develop a method to monitor acquisitions in order to measure environmentally preferred procurement progress.
Strategy: Modify the Kennedy acquisition process to assist purchasers in identifying sustainable goods and services.
Strategy: Increase use of uncoated printing and writing paper containing postconsumer fiber.

4.6 GOAL 6 – Electronic Stewardship and Data Centers

NASA SSPP Goal Description

The NASA SSPP outlines many objectives regarding electronic stewardship and data centers. The Agency has set a goal to ensure the acquisition of Electronic Product Environmental Assessment Tool (EPEAT) registered, Energy Star qualified, and Federal Energy Management Program (FEMP) designated electronic office products when procuring electronics in eligible product categories. The Agency also has set goals to reduce energy consumption of data centers and increase the quantity of electronic assets disposed of through sound practices, among other environmentally advantageous practices concerning technology.

Kennedy SP Goal Description

Kennedy holds a vision to become an Agency leader in electronic stewardship. To achieve this vision, the Center will consolidate its data center resources. The Center also will realize energy savings by employing a communication system in which all telephones use Voice over the Internet Protocol (VoIP) technology and include settings to reduce power consumption during off hours. By accomplishing this goal, the Center would save approximately 163,520 KWH in FY 2013. Kennedy's vision is to have all electronic products used on Center meet Federal requirements for electronic stewardship. The Center will achieve these goals by accomplishing the following:

- 60 percent of telephones will be VoIP by FY 2015.
- Consolidate data centers into one "purpose-built" data center facility.

4.6.1 Strategies

Strategy: Inventory and categorize all of the IT hardware on Center.
Strategy: Decrease energy and resource usage in the computing environment.
Strategy: Install VoIP telephones in all new and refurbished facilities.
Strategy: Build a consolidated data center.

4.7 GOAL 7 – Regional and Local Planning

NASA SSPP Goal Description

NASA will incorporate regional transportation planning into existing policy and guidance. The Agency will increase effectiveness of local energy planning and incorporate sustainable building location into policy and planning for new Federal facilities and leases. NASA will update policy and guidance to ensure that all Environmental Impact Statements (EIS) and Environmental Assessments (EA) required under the National Environmental Policy Act (NEPA) for proposed new or expanded Federal facilities identify and analyze impacts associated with energy usage and alternative energy sources. In addition, the Agency will update policy and guidance to ensure coordination and consultation with Federal, state, tribal and local management authorities regarding impacts to local ecosystems, watersheds, and environmental management associated with proposed new or expanded Federal facilities and support innovation in NASA programs and institutions to protect and enhance human health and the environment.

Kennedy SP Goal Description

Kennedy is committed to supporting initiatives outlined in the NASA SSPP. In addition, the Center will strive to ensure all Government and commercial users will meet Kennedy's annual sustainability initiatives by 2022. The Center will achieve these goals by updating the KSC Master Plan by 2014.

4.7.1 Strategies

Strategy: Identify underutilized land and facilities at Kennedy in order to create additional use opportunities.
Strategy: Utilize on-site generation of renewable energy.
Strategy: Expand Kennedy's renewable portfolio.
Strategy: Divest ownership of select horizontal infrastructure.

4.8 GOAL 8 – Workforce Satisfaction

NASA SSPP Goal Description

The NASA SSPP currently does not have a workforce satisfaction goal. Kennedy has added this element to create a sustainable workforce by improving employee satisfaction.

Kennedy SP Goal Description

The Workforce Satisfaction Team's long-term goal is to achieve 100 percent employee satisfaction with the Center's investment in sustainable initiatives by 2022. Kennedy will achieve these goals by pursuing the following:

- Survey the Kennedy workforce to identify current satisfaction levels with sustainability efforts by the end of FY 2013.
- Provide employee feedback to appropriate stakeholders about current or potential sustainability activities.

4.8.1 Strategies

Strategy: Identify current satisfaction levels at Kennedy through the use of multiple feedback tools.
Strategy: Implement or promote sustainability programs that address feedback provided by the workforce.

KSC Director Cabana at the KSC 1 Megawatt Photovoltaic Generation Farm.

4.9 GOAL 9 – Food Services

NASA SSPP Goal Description

The NASA SSPP currently does not have a food services goal. Kennedy has added this element to our plan to maintain acceptable sustainability practices for solid waste diversion and green purchasing.

Kennedy SP Goal Description

The goal of the Food Services team is to establish a sustainable food service architecture that will:

- Conserve energy, conserve water, prevent pollution, and minimize waste generation whenever feasable.
- Give preference to purchase of recycled content, biobased content, and environmentally preferable products when feasible.

4.9.1 Strategies

Strategy: Utilize and encourage recycling practices including the existing cardboard, glass, aluminum, and plastic program.
Strategy: Establish a steel can recycling program.
Strategy: Integrate sustainable principles in baseline food services contract mechanisms.

4.10 GOAL 10 – Natural Resources

NASA SSPP Goal Description

NASA will evaluate Agency climate change risks and vulnerabilities and develop mitigation and adaptation measures to manage both the short and long-term effects of climate change on the Agency's mission and operations.

Kennedy SP Goal Description

Kennedy Space Center is committed to maintaining a thriving environment for the hundreds of species that inhabit the Center. The long-term goal of the team is to ensure a continued viable habitat for threatened and endangered species while assuring continued access to the area. Kennedy will achieve these goals by pursuing the following:

- Initiate a shoreline renourishment project in the Launch Complex-39 area, completing the Biological Assessment (BA) and NEPA required EA in FY 2015.
- Formalize the process of planning and implementing improved habitat management at Kennedy for endangered species in FY 2015.

4.10.1 Strategies

Strategy: Define an initial fire plan for a specific habitat and wildlife species. Identify target species and areas to monitor.
Strategy: Initiate shoreline restoration to ensure viable habitat for threatened and endangered species and reduce launch infrastructure impacts.
Strategy: Assess climate change risks and vulnerabilities and develop adaptation measures to manage short and long term effects of climate change on the Center's mission and operations.

Dune restoration.

4.11 GOAL 11 – Test Bed and Demonstration

NASA SSPP Goal Description

The NASA SSPP currently does not have a Test Bed and Demonstration goal. Kennedy has added this element to our plan to address the economic aspect of sustainability.

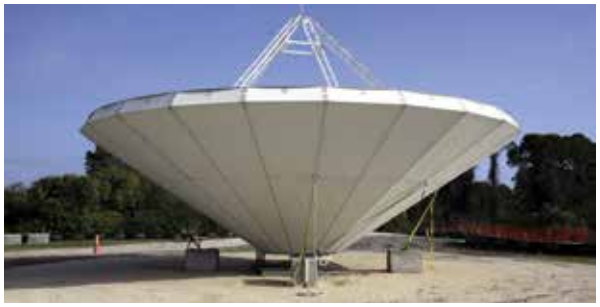
Kennedy SP Goal Description

The goal of the Test Bed and Demonstration Team (TBDT) is to promote energy conservation, water conservation, and pollution prevention initiatives at Center facilities. The TBDT will support Kennedy's sustainability teams by:

- Working with the other teams to conduct and coordinate pilot projects to test the effectiveness and feasibility of sustainable products considered for large scale implementation in new construction and major renovation projects.
- Documenting and sharing the results of pilot test product evaluations with other NASA centers and other Governmental organizations.
- Reviewing pollution prevention opportunities and evaluating the effectiveness and feasibility of implementation at Kennedy.
- Identifying sustainable products for utilization at Center facilities.

4.11.1 Strategies

Strategy: Develop a comprehensive team charter that defines the role of the TBDT in Kennedy's sustainability hierarchy.
Strategy: Identify pilot projects that promote Kennedy's sustainable directive.



Antenna array as part of the Antenna Test Bed Array for the Ka-Band Objects Observation and Monitoring.

4.12 GOAL 12 – Communications

NASA SSPP Goal Description

NASA is committed to raising employee awareness and encouraging each individual in the NASA community to apply the concepts of sustainability to every aspect of their daily work.

Kennedy SP Goal Description

Kennedy recognizes the importance of sustainability and desires to be a leader within the Federal Government and the outside community. Kennedy will use its extensive communication resources to promote within and outside the Center. The core team will create awareness of sustainability and the efforts at the Center.

4.12.1 Strategies

Strategy: Embed sustainability into the Kennedy culture.
Strategy: Expand awareness of Kennedy's sustainability efforts to external audiences.


SUSTAINABILITY times

KENNEDY SPACE CENTER – NOVEMBER 2012

Communication Vital to Kennedy's Sustainability

IN THIS ISSUE

- STAR website makes recycling easier
- Volunteers clean up Kennedy's shoreline
- Innovation Expo features KSC's natural environment
- Nominations sought for green awards

COMING UP

April 22, 2013 -- Earth Day

"We do not inherit the Earth from our ancestors; we borrow it from our children."

Native American Proverb

KSC Sustainability Times publication.

Section 5: Conclusion

KSC recognizes that a balance is needed between the use of environmental, social, and economic resources to ensure we preserve today's resources in order to perform our mission tomorrow. With this in mind, strategic sustainability decision-making is needed to ensure we do not diminish or waste these resources.

The Sustainability Plan lays the foundation for realizing Kennedy's vision to promote, maintain, and pioneer green practices in all aspects of our mission, striving to be an Agency leader in everything we do. This plan incorporates core team functional area goals in support of achieving Kennedy's sustainability vision, NASA's SSPP goals, and other Federal mandates. In summary, this plan will help the Center:

The Cape Canaveral Lighthouse.

- Reduce GHG emissions
- Design and build sustainable buildings, facilities, and infrastructure
- Conserve and manage water resources
- Minimize waste and prevent pollution
- Purchase sustainable products and services
- Manage electronic equipment and data centers responsibly
- Integrate sustainability into local and regional planning
- Ensure workforce satisfaction
- Promote sustainable food services
- Conserve and improve the resiliency of our natural resources
- Conduct pilot sustainability projects
- Effectively communicate Kennedy's sustainability initiative

As Kennedy embarks on our mission of sustainability, employees at all levels must be responsible and accountable for integrating sustainability into their day-to-day activities to reduce the environmental impact and protect natural resources. With your help, the Center will become a recognized leader in sustainability and an inspiration to other agencies and organizations.

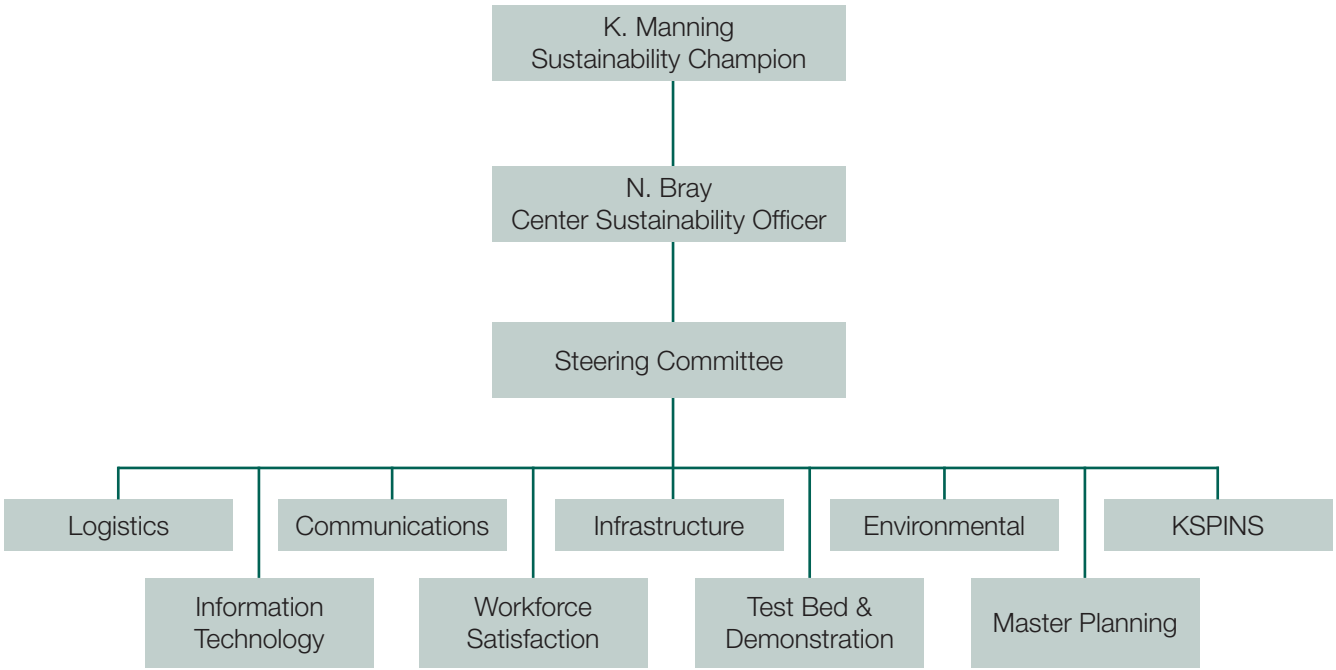
Appendix 1: Reference Documents

Referenced Documents and Links
NASA Strategic Sustainability Plan Energy Independence and Security Act 2007 Energy Policy Act 2005
Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance
NPR 8570.1 Energy Efficiency and Water Conservation NPR 8820.2F Facility Project Requirements High Performance Sustainable Building Guiding Principles
NPD 8831.2E Maintenance and Operations of Institutional and Program Facilities and Related Equipment
NPD 6000.1C Transportation Management KDP-KSC-F2616 KSC Sustainability Steering Committee Federal Acquisition Regulations (FAR) NASA FAR Supplement NPR 8831.2E Facilities Maintenance and Operations Management NPD 8820.2C Design and Construction of Facilities NPR 8553.1B NASA Environmental Management System NPR 8810.2A Master Planning for Real Property NPR 8810.1 Master Planning Procedural Requirements NPD 8500.1B NASA Environmental Management NPR 8530.1A Affirmative Procurement Program and Plan for Environmentaly Preferable Products NPR 8590.1A Environmental Compliance and Restoration Program NPD 6000.1C Transportation Management NPR 6200.1C NASA Transportation and General Traffic Management NPR 3600.2 NASA Telework Program NPR 8580.1 Implementing the National Environmental Policy Act and Executive Order 12114 NPD 1000.5A Policy for NASA Acquisition NPR 8530.1A Affirmative Procurement Process and Plan for Environmentally Preferable Products

Appendix 2: Sustainability Team Hierarchy

ROLES AND RESPONSIBILITIES

- Kennedy Space Center Sustainability Champion: Advocate for sustainable practices throughout Center management and the inclusion of sustainability responsibilities into employee performance plans.
- Kennedy Space Center Sustainability Officer: The Center's representative to the Agency regarding all sustainability initiatives at Kennedy.
- Kennedy Space Center Sustainability Steering Committee: Team created to direct the overall strategy and implementation of the sustainability plan, reporting to the champion and officer. The committee also manages the efforts of the sustainability core team working groups.
- Kennedy Space Center Sustainability Core Teams: Teams consist of leaders from each sustainability plan functional goal area and were established to create sustainability goals, strategies, and projects for their respective areas. The core teams will provide periodic reviews of their progress to the steering committee.



Steering Committee

Dennis Bayon–TA	Leslie Fletcher–EX	William Roy–TA
Ben Bryant–IT	Tim Griffin–NE	Eli Schoen–TA
Mario Busacca–AD-A	Frank Kline–TA	Glenn Semmel–TA
Manny Cabrera–TA	Mike Miller–GG	Denise Thaller–TA
Annette Dittmer–BA	Laura Rochester–OP	Harold Williams–TA
		Tracy Young–PA

Appendix 3: Acronym Listing

AF:	Alternative-Fuel (other than petroleum)
AFV:	Alternative-Fuel Vehicles
Btu:	British Thermal Unit
C&D:	Construction and Demolition
CDPO:	Center Planning and Development Office
CSO:	Center Sustainability Officer
EA:	Environmental Assessments
EIS:	Environmental Impact Statements
EISA:	Energy Independence and Security Act
EO:	Executive Order
EPEAT:	Electronic Product Environmental Assessment Tool
FAR:	Federal Acquisition Regulation
FEMP:	Federal Energy Management Program
FRPP:	Federal Real Property Profile
FY:	Fiscal Year
GHG:	Greenhouse Gas
GP:	Guiding Principles
GSF:	Gross Square Footage
IT:	Information Technology
KSC:	Kennedy Space Center
KSPINS:	Kennedy Sustainability Project Information System
LC-39:	Launch Complex 39
LEED:	Leadership in Energy and Environmental Design
NASA:	National Aeronautics and Space Administration
NEPA:	National Environmental Policy Act
O&M:	Operations and Maintenance
SO:	Sustainability Officer
SSPP:	Strategic Sustainability Performance Plan
SP:	Sustainability Plan
SEMS:	Sustainable Environment Management System
TBDT:	Kennedy Test Bed & Demonstration Team

National Aeronautics and Space Administration

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