National Institutes of Health

2021 Sustainability Implementation Plan

April 2021

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Executive Summary

1. VISION

The mission of the NIH is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. Environmental factors affect health, lifespan, illness, and disabilities. Therefore, the NIH is committed to protect the environment as part of the NIH mission.

The NIH works to improve the environment by increasing building efficiency, reducing energy and water consumption, procuring sustainable goods and services, and by increasing the use of alternative fuels and vehicles in the NIH fleet. Addressing Climate Change has become a significant component of environmental and sustainability initiatives. In recognition of this, environmental and sustainability initiatives at the NIH will meet the requirements of the HHS Climate Action Plan as required by Executive Order 14008. These efforts are made possible by utilizing trans-NIH multidisciplinary teams, and the NIH Environmental Management System, and by empowering the NIH Sustainability Management Team and the sustainability goal leaders.

Multidisciplinary teams focused on increasing sustainability are comprised of members from across the Institutes and Centers at all levels. These teams are the Sustainability Management Team (SMT), Green Teams Leads Council (GTLC), the Sustainable Laboratory Practices Working Group (SLPWG), and Green Teams from each Institute or Center. Together, these teams work to integrate environmental stewardship and sustainability throughout the NIH.

The unique work environment at the NIH presents nontraditional challenges in environmental compliance and sustainability. The NIH Environmental Management System addresses this challenge through a continuous cycle of identifying challenges, developing solutions, sharing information, educating affected staff and programs, and evaluating results.

NIH sustainability goal leaders are assigned to each of the HHS sustainability goals. The goal leaders help manage, maintain, and improve sustainability in their respective areas. Combined, the goals cover all areas of sustainability within the NIH.

The NIH will continue to use multidisciplinary teams, the NIH Environmental Management System, and sustainability goal leaders to protect the environment and increase sustainability in order to meet the requirements of executive orders, statutes, and the HHS Climate Action Plan. All while carrying out the NIH Mission to enhance health, lengthen life, reduce illness and disability.

2. LEADERSHIP

Alfred C. Johnson, Ph.D., the NIH Deputy Director for Management (DDM), is the Chief Sustainability Officer for the NIH. Mr. Daniel Wheeland, P.E., MASCE, the NIH Director for the Office of Research Facilities (ORF), is the Deputy Chief Sustainability Officer, and the Senior Energy Official with total oversight of all facilities-related programs including energy and water conservation programs. Dr. Johnson and Mr. Wheeland are responsible for meeting the environmental and sustainability goals and mandates of HHS, Executive Orders, and regulations including the Energy Independence and Security Act of 2007, Energy Policy Act of 2005, and the Energy Act of 2020.

The NIH Director for the Office of Research Facilities holds energy meetings to discuss current, future, and proposed energy reduction initiatives to be implemented throughout the NIH. Meeting members include the Director for the ORF and representatives from all of the ORF Divisions: Division of Environmental Protection (DEP), Division of Facilities Operations and Maintenance (DFOM), Division of Facilities Stewardship (DFS) and the Division of Technical Resources (DTR).

The NIH Sustainability Management Team (SMT) provides oversight and direction for agency sustainability and the NIH Environmental Management System (NEMS). The SMT champions changes that can be implemented to reduce environmental impacts, increase operational efficiency, prioritize public safety, and result in cost savings. The SMT is comprised of senior management, sustainability goal leads, environmental program managers and representatives from the functional areas and Institutes and Centers across the NIH. The chairman of the SMT is Patrick Shirdon, Director of Management, NIA. Senior members of the SMT include:

- Dr. Alfred Johnson, Chief Sustainability Officer, DDM, OD
- Dan Wheeland, Deputy Chief Sustainability Officer, ORF Director
- Colleen McGowan, Office of Research Services (ORS) Director
- Dr. Richard Wyatt, Deputy Director, Office of Intramural Research
- William Floyd, DEP Director, ORF
- Brad Moss, Communication Director, ORS and ORF

The Green Team Leads Council (GTLC) serves as a forum for institutes to share best practices and communicate challenges and opportunities encountered when greening the NIH. Many institutes and centers at the NIH have a green team to help the increase sustainability within the organization. The GTLC is made up of the team leaders from each of the green teams. The GTLC meets bimonthly to provide updates on their progress and share ideas and lessons learned with one another.

The Sustainable Laboratory Practices Working Group (SLPWG) includes personnel from the NIH research communities, the NIH ORF and ORS The working group meets on a bimonthly basis to develop guidance, tools, best management practices and identify opportunities to conserve energy and water, reduce waste and minimize toxic materials in laboratories, and many other sustainable laboratory practices.

3. REVITALIZING SUSTAINABILITY WITHIN THE NATIONAL INSTITUTES OF HEALTH

The NIH plans to revitalize sustainability by supporting goal leaders, expanding the scope of the SMT, increasing participation in the NIH Green Labs Program, and reducing energy from cold storage equipment.

NIH encourages sustainability goal leaders to continually update and refine their approaches in their program areas. Leadership is then responsible to ensure that the individual strategies of the goal leads are compatible with and supportive of the other strategies to achieve the sustainability goals outlined by statutes and executive orders.

The SMT provides a forum for information sharing, program expertise, and opportunities to expand sustainability across the NIH campuses. The team supports subject matter experts working within NIH facilities, laboratories, and sustainability at bi-monthly meetings where challenges can be discussed, and success stories are shared through presentations. Members discuss multidisciplinary strategies to ensure

success and adaptation of different sustainability efforts, made possible by the years of diverse experience of senior members. Top priorities of the team have included integration of sustainable practices into NIH daily operations and sustained communications to allow for minimal disturbances and ease of adjustment to new practices. The team has found participatory programs, like the NIH Green Labs Program and the NIH Freezer Challenge, encourage staff to adapt sustainable practices while also providing adequate information and research- resulting in time saved for staff. The team hopes to rebuild the NIH sustainability human capital by supporting those committed to sustainability and further strengthening the existing NIH network of sustainable groups managed by the Division of Environmental Protection.

The NIH Green Labs Program (GLP) was developed in 2018 to encourage participation of NIH labs in sustainable laboratory practices. The NIH GLP covers the full spectrum of environmental management at the NIH including energy conservation, water conservation, freezer management, general waste, chemical waste, medical pathological waste, radioactive waste, recycling, green chemistry, and inventory management. The program is modified each year to reflect changes in environmental regulations, NIH and HHS policies, and to address the needs of the laboratory staff. To participate in the program, laboratory staff complete a GLP self-assessment form indicating their lab's sustainability efforts. Based on their responses on the GLP self-assessment form, labs are recognized and rewarded with either a Gold, Silver, or Bronze-Level Green Labs Certificate. By completing the GLP, labs can determine their current sustainability level and learn ways to improve. Participation in the program has more than doubled from 2018 to 2020. The GLP has been modified and expanded at Research Triangle Park, and there are plans for developing a tailored GLP for other NIH locations in the future.

Laboratory grade freezers are used throughout the NIH to store clinical samples, research samples and reagents. Freezer failures may result in the loss of important research and freezers are energy intensive. Annual energy costs and CO2 emissions for an older unmaintained Ultra-Low Temperature (ULT) freezer can amount to $1,600/year and 12,000 lbs. of CO2/year. There are currently 3,400 ULT freezers in service at the NIH, so the total costs and emissions are significant. The NIH freezer policy, Manual Chapter 26101-16, sets the requirements to manage laboratory grade freezers efficiently to increase freezer reliability and reduce energy consumption. This policy requires purchasing Energy Star certified freezers, conducting preventative maintenance, and locating freezers in conditioned spaces. The NIH also hosts a Freezer Challenge to further increase reliability and decrease energy consumption from cold storage freezers and refrigerators. Some of the challenge initiatives include reducing the temperature setting on freezers, dispose of unnecessary samples and share freezers between multiple labs. The NIH will continue to increase compliance with the freezer policy and increase participation in the freezer challenge to increase reliability and reduce energy consumption, operating costs, and greenhouse gas emissions.

Through continued support of the NIH sustainability goal leaders, increasing the scope of the SMT, expanding the programs of the Environmental Management System such as the Green Labs Program and the freezer management program; the NIH will revitalize sustainability efforts and remain at the forefront of sustainability.

Overview of Operations

An overview of the NIH operations is detailed in the table below. The total number of (Full-Time Equivalent) FTEs in FY2020 and FY2021 is the total number of employees, this does not include fellows and contractors. The current number of buildings, facilities, building gross square feet and acres of land managed is shown for FY2021. The FY2020 buildings, facilities, building gross square feet and acres of land managed is estimated to be the same as the current number in FY2021.

Overview of Operations	FY20	FY2021
Total Number of Employees (FTEs) as Reported in the President's Budget	18,556	19,095
Total Acres of Land Managed	1345.68	1345.68
Total Number of Buildings Owned	296	296
Total Number of Buildings Leased (GSA and Non-GSA Lease)	77	77
Total Building Gross Square Feet (GSF)	17,250,683 GSF (Owned) 7,311,407 RSF (Leased)	17,250,683 GSF (Owned) 7,311,407 RSF (Leased)
Number of Facilities in the U.S.	373	373
Number of Facilities Outside of the Continental U.S.		
Total Number of Fleet Vehicles Owned	408	413
Total Number of Fleet Vehicles Leased	3	1
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)	101	107
Total Amount Contracts Awarded* ($ Millions)	$7,235,821,847	

Sustainability Strategies and Planned Actions

1. GREENHOUSE GAS REDUCTION

The NIH is committed to reducing Scope 1, Scope 2, and Scope 3 Greenhouse Gas (GHG) emissions at all of the NIH campuses. Facility improvements account for the significant portion of Scope 1 and 2 GHG reductions. Scope 1 and 2 GHG are curbed in new facilities through energy conservation measures with the ultimate goal of Net Zero facilities when possible. The NIH constructed a Net Zero LEED Platinum warehouse at the RTP Campus that was dedicated in FY2018. Scope 1 GHG from fleet vehicles is reduced by optimizing trips and by replacing older vehicles with alternative fuel vehicles and low emission vehicles. Scope 2 GHG is further reduced through initiatives to reduce energy consumption from laboratory equipment. Scope 3 emissions are reduced through alternative commuting programs, including: mass transportation, carpools, and net zero commuting. The NIH also maintains a robust telework program that was significantly expanded in FY2020 to continue operations during the pandemic.

Recent Progress
FY2020 Results:

- 15.9% reduction in Scope 1 GHG from the 2008 baseline.
- 2.2% reduction in Scope 1 GHG from FY2019.
- 45.1% reduction in Scope 2 GHG from the 2008 baseline.
- 5.6% reduction in Scope 2 GHG from FY2019.
- 29.7% reduction in Scope 3 GHG from employee commuting from the 2008 baseline.
- 40.8% reduction in Scope 3 GHG from employee commuting from FY2019.

A large portion of the reduction in Scope 3 GHG from employee commuting in FY2020 is due to the increase of telework in FY2020 to continue operations during the pandemic.
FY2021 Results/In Progress:

- Chiller 20 and 21 Controls upgrades – New chiller controls enable efficient operation and return 3rd steam driven chiller (chiller 21 steam turbine) back to full operation. Each hour the chillers were operated by the condensing turbines reduced electricity by 3000 kWh and reduced the associated Scope 2GHG emissions.
- Completed an upgrade of boiler balance of plant controls and boilers 1 and 4 controls upgrade. These enable efficient operation on gas and oil operations.

Priorities

- Significant energy and emission reductions are being discussed by the Biden administration, which are likely to result in new requirements for Federal facilities. NIH will develop plans to meet new requirements as they are announced.
- The NIH will continue to use of Utility Energy service Contracts (UESC)s and Energy Savings Performance Contracts (ESPC)s to upgrade facilities to reduce energy consumption and corresponding Scope 1 and 2 GHG emissions.
- The NIH will continue to focus on Central Utility Plant (CUP) upgrades to reduce energy consumption and Scope 1 and 2 GHG emissions.
- The NIH will continue programs to reduce energy consumption from laboratory equipment and corresponding scope 2 GHG emissions.
- The NIH will continue alternative commuting programs to reduce Scope 3 GHG emissions.

FY2022 Greenhouse Gas Reduction Actions:

- The NIH is working on a $14M Multi-building and Site UESC by Potomac Edison at the Poolesville Campus. This project will produce clean energy, reduce energy consumption, and reduce water consumption. This project will contain solar energy and switch from fuel oil to natural gas among other items. This project is estimated to reduce emissions as shown the table below. This project is expected to be executed in FY2021 with construction to begin FY2022.

CO2	CH4	NO
9860MT reduction	238KG reduction	55KG reduction
70% reduction	75% reduction	88% reduction

- Chiller 16 replacement – Replacing legacy R-22 Chiller 16 with a more energy efficient R-134a chiller. Demolition will start fall of 2021 and installation will start in spring of 2022 with completion estimated for spring 2023.
- Chiller 17 replacement – Replacing legacy R-22 Chiller 17 with a more energy efficient R-134a chiller. Demolition will start fall of 2021 and installation will start in spring of 2022 with completion estimated for spring 2023.
- Conduct another freezer challenge in FY2022 to reduce energy consumption and corresponding Scope 2 GHG from laboratory freezers and refrigerators.
- The NIH is planning an expansion to the Scope 3 GHG tracking system to include the Research Triangle Park Campus.

2. MANAGEMENT OF REAL PROPERTY

A. Clean Energy

In accordance with the Energy Policy Act, the Energy Act of 2020 and EO 14008, the NIH utilizes clean energy throughout the NIH facilities. The primary method of clean energy generation at the NIH is through Photovoltaic (PV) arrays. The NIH will continue to focus on PV arrays in the near future. The NIH will conduct audits to determine where new arrays can be established. The NIH will include PV evaluations as part of master planning, with an emphasis on new building constructions and major renovations. Additionally, the NIH supports clean energy through the purchase of Renewable Energy Credits (RECs). This has covered in excess of the 7.5% goal annually, meeting statutory and legal requirements. A summary of the NIH current clean energy portfolio is detailed below. The NIH has established PV arrays at the Poolesville Campus (120kW) and RTP Campus (60 kW) that provide 180kW of site delivered renewable solar energy. Additionally, a nominal 300kW system has been online since FY2015 on the Porter Neuroscience Center (PNRCII, 35A). The NIH has also previously completed the installation of solar arrays on the Commercial Vehicle Inspection station (CVI), Building 12, and the Children's Inn on the Bethesda Campus, as well as an array in Research Triangle Park. These PV arrays combine for over 500kW of electrical demand reduction. The NIH built a Net Zero LEED Platinum warehouse at the RTP Campus that was dedicated in FY2018. In addition to PV arrays, the warehouse has South-facing office spaces for solar heating, smart lighting, and uses occupancy sensors to minimize air conditioning.

Recent Progress
FY2020 Results:

- In FY2020 14.8% of total electricity was renewable. This is an increase from FY2019, where 8% of total electricity was renewable.
- In FY2020 site mounted renewable energy projects across all NIH sites provided 692,361 kWh at a cost savings of approximately $69,230.

Priorities

- The NIH will continue to focus on installing PVs and other clean energy projects at all of the NIH campuses. Current strategies include further analysis and aggressive pursuit of rooftop and garage mounted systems in Bethesda, and installation of ground mounted arrays at Poolesville, MD. Priorities would include ROI and economies of scale where applicable.
- The NIH will continue to purchase Renewable Energy Credits to support clean energy development.

FY2022 Clean Energy Actions:

- Execute a $14M UESC at the Poolesville Campus. This project is expected to be executed in FY2021 with construction to begin FY2022.
- Complete Economic Screening and constructability analyses for Solar Arrays at the Bethesda Campus.
- Initiate Investment Grade Audit for Solar Arrays at the Bethesda Campus.
- Purchase RECs through the Defense Logistics Agency (DLA) to support clean energy development.

B. Energy Reduction

The NIH reduces energy in agency buildings by assessing building performance, identifying best value energy reduction initiatives, and implementing those initiatives when possible. Strategies employed include auditing facilities for energy and/or water conservation opportunities than implementing identified cost effective, technically feasible energy efficiency investments. In addition to building audits, the NIH tracks monthly energy data in Portfolio Manager and uses this data to identify areas of waste that can be addressed/improved to increase building performance.

Recent Progress
FY2020 Results:

- FY2020 Energy Intensity Progress (BTU/GSF): 30% reduction from FY03 after applying a weather correction to the Energy Use.

Priorities

- The NIH will continue to conduct building audits as part of the facility assessment program to assess performance and identify opportunities to reduce energy consumption and improve building performance.
- The NIH will continue to track monthly energy data in Portfolio Manager to identify and mitigate waste.

FY2022 Energy Reduction Actions:

- Execute a $14M UESC at the Poolesville Campus. This project is expected to be executed in FY2021 with construction to begin FY2022.

- Complete Economic Screening and constructability analyses for Solar Arrays at the Bethesda Campus.
- Initiate Investment Grade Audit for Solar Arrays at the Bethesda Campus.

C. Water Reduction

The NIH reduces water consumption by improving performance in cooling towers and chillers, identifying water loss, installing alternative water use systems, and installing water reuse systems. The NIH tracks water use on an overall campus by campus basis and also on a building by building basis through utility metering. This data is used to help identify opportunities to improve water performance. Specifically actions the NIH takes to reduce water consumption include: Commissioning cooling tower water savings and chiller efficiency measures at RTP; Repair, replacement, and testing of steam traps at Bethesda; Repair and replacement of condensate units at Bethesda and Poolesville; Repair of leaking heat exchangers at Bethesda and Poolesville; Continuing Task Force measures for chilled water losses; Completing water conserving fixture upgrades for multiple buildings at Bethesda. During the pandemic, the NIH converted manual water faucets to automatic faucets, these faucets are safer and reduce water consumption. The NIH has systems for both alternative use and reuse of water. An alternative use system at the RTP Campus reduces potable water consumption by using municipal wastewater for cooling tower make up instead of potable water. A reuse system at the Poolesville Campus uses reject building water in the cooling tower make up system.

Recent Progress
FY2020 Results:

- FY2020 Water Intensity Progress (Gal/GSF): 7.2% reduction from FY07.

Priorities

- The NIH will continue to reduce water consumption by implementing improvement projects, installing alternative water use systems, and installing water reuse systems.
- The NIH will continue to identify and mitigate water loss through the chilled water task force, by repairing leaking heat exchangers and repairing and replacing steam traps.

FY2022 Water Reduction Actions:

- Execute a $14M UESC at the Poolesville Campus. This project is expected to be executed in FY2021 with construction to begin FY2022.
- Continue the repair, replacement and testing of steam traps at the Bethesda Campus.
- Continue the repair, replacement of condensate units at the Bethesda and Poolesville Campuses.
- Continue to repair leaking heat exchangers at the Bethesda and Poolesville Campuses.
- Continue the task force to investigate/mitigate chilled water loss.

D. Performance Contracting

In accordance with the Energy Act of 2020, the NIH will conduct an annual comprehensive energy and water evaluation on approximately 25% of the NIH facilities to identify opportunities to reduce energy consumption, reduce water consumption, generate clean energy, and reduce GHG emissions. The NIH will utilize UESC and ESPC to complete at least 50% of the energy conservation measures implemented from these evaluations. The NIH performance contracting process involves conducting a system, project, or facility-based audit to determine the energy and water savings, technical feasibility, and ROI. Contracts are prioritized based on these results.

Recent Progress
FY2020 Results:

- FY2020 investment value and number of new projects awarded: $0 in FY20.

Priorities

- The NIH will continue to utilize UESC to the maximum extent practicable to reduce energy consumption, generate clean energy, reduce water consumption, and reduce greenhouse gas emissions.
- The NIH will continue to utilize ESPC to the maximum extent practicable to reduce energy consumption, generate clean energy, reduce water consumption, and reduce greenhouse gas emissions.

FY2022 Performance Contracting Actions:
Execute a $14M UESC at the Poolesville Campus. This project is expected to be executed in FY2021 with construction to begin FY2022. The actions that will be completed to carry out this contract are detailed below.

- Contractor to complete Design Build Proposal Draft.
- Solicit and incorporate comments from Office of Research Facilities Divisions.
- Provide Presentation for approval to management.
- Deliver updated proposal based upon comments to Office of Acquisition.

E. Waste Reduction

The NIH minimizes waste by maximizing recycling and reuse of chemicals, materials, and equipment. The NIH has specialized recycling programs including soft plastic film recycling, saline and water irrigation plastic bottles, and rigid packaging of medical devices in DPM operating rooms. In addition to these onsite recycling programs, used batteries are collected and sent for recycling offsite. The NIH solvent recovery program collects used solvents, distills them, and redistributes to the labs. This program reduces waste, reduces materials for new solvents and reduces the cost of purchasing new solvents. Solvents that cannot be recycled onsite are sent for fuel blending and reuse. The NIH maintains an online excess product catalog to efficiently redistribute used equipment. Users can search equipment by type of equipment, age, manufacturer, and cost. Excess equipment is redistributed to the NIH, other government agencies, schools, and non-profit organizations. This program reduces waste, reduces materials for new equipment and reduces the cost for purchasing new equipment.

Recent Progress
FY2020 Results:

- FY 2020 Non-hazardous Waste Management and Diversion:
- 7,918.9 metric tons of non-hazardous solid waste generated*
- 88% diverted and 12% sent to treatment and disposal facilities

*not including construction and demolition waste

- In 2020, NIH achieved an agency-wide non-hazardous solid waste diversion Waste Goal Rate of 59.57% The Waste Goal Rate includes a partial credit for Waste Converted to Energy Recovery (CWC). The agency-wide construction and demolition recycling diversion rate for FY2020 decreased to 66.02% due to COVID-19 pandemic (from 85%).
- Implemented a Personal Sharps Disposal pilot program with OMS for campus employees to facilitate safe disposal of used personal medical sharps at work, avoid injuries and comply with federal, state and state regulations.

- DEP/WRRB received the approval from DOHS for safe and compliant collection and transportation of significant amount of Medical Waste generated at DVR. DEP procured 35 MPW totes (delivered on April 17th, 2020) and installed RAD Detector (on April 15th, 2020) recommended by Division of Radiation Safety (DRS) to support DVR's pilot study that was initiated spearheaded on November 5th, 2019 to use of MPW totes in lieu of MPW boxes. Contract modification has been done on April 17th, 2020 to for the collection, transportation, sanitation, and disposal of medical pathological totes/carts.
- To help minimize the risks and in order to promote physical distancing WRRB developed a comprehensive guidance document to changes related to waste management services and FAQs for the NIH community at main campus and offsites. DEP purchased and placed white step cans throughout campus and offsites for the collection of disposable gloves, facial coverings, N95 and non-serviceable cloth masks.

FY2021 Results/In Progress:

- Work with Montgomery County to implement pre-consumer cafeteria waste composting (estimated 12-24 tons/year).
- Update the NIH Waste Disposal Guide. Planning to print the new 2021 version in CY2021.

Priorities

- The NIH will continue to maximize recycling and reuse of chemicals, materials and equipment through specialized recycling programs, the solvent recovery program and online excess product catalog.
- The NIH is focused on reducing waste by composting cafeteria food waste and animal bedding.

FY2022 Waste Reduction Actions:

- Continue solvent recovery and chemical recycling program and investigate acquiring a second solvent recycling unit.
- Convert plastic film pilot into regular recycling program in building receiving areas. Continue recycling of saline and water irrigation plastic bottles and rigid packaging of medical devices in DPM operating rooms.
- Work with MDE to implement pre-consumer cafeteria waste composting (estimated 12-24 tons/year).
- Continue the search for a compost facility capable of handling 100 tons/month for composting animal bedding.
- Conduct non-regulatory 10-point checkup at select laboratories and offices to ensure best management practices of their wastes and prepare for the annual Maryland Resource Conservation and Recovery Act inspection.
- Update Construction and Demolition Debris outreach program for construction Project Managers.
- Participate in NEMS outreach events, Institute/Center Green Teams, and the Sustainable Lab Practices Working Group to promote waste management and minimization to further reduce and eliminate waste.

F. Sustainable Buildings

The NIH reduces the energy intensity of OPDIV buildings through energy reduction initiatives and clean energy generation projects. In accordance with the Energy Act of 2020, the NIH will conduct annual energy and water evaluations of the NIH facilities that will identify energy and water conservation measures. The NIH will install the energy and water conservation measures that are determined to be life cycle cost-effective to the maximum extent practicable. The NIH will use performance contracting to complete at least 50% of the energy and water conservation measures that are implemented. To ensure

that new construction projects are sustainable, the NIH requires new construction and renovations to meet LEED silver certification requirements. Additionally, the NIH strives to have new buildings and renovations meet LEED gold certification requirements whenever possible.

Recent Progress
FY2020 Results:

- 5 Sustainable Federal buildings.
- 5.62% of buildings and 6.02% of GSF for buildings 10,000 GSF or larger.
- Renovation of the E Wing of Building 10 has been started and significant energy saving features have been incorporated. Chilled beam technology for HVAC systems in the laboratories and offices has been proven successful in the Porter Neuroscience Research Center Phase II and Building 10 F Wing renovation. The same system is being used in E Wing in order to save on air change rates and losses due to conditioning outside air and moving air through filters and ductwork. This is a major advance over traditional lab and office systems.
- Hot water systems to hospital patient rooms are being modified to create a flow system with minimal dead legs. Recent problems with bacterial growth in the hot water system have required major flushing of hot water to reduce bacterial load in order to reduce the risk for a population of immunocompromised patients. Although an expensive program NIH has demonstrated major improvement in level of problem bacteria in patient area water, and NIH has been able to reduce reliance on dumping of large amounts of hot water while flushing systems.

Priorities

- The NIH Energy Management Branch targets projects and Energy Conservation Measures (ECM's) to increase building sustainability. Projects and ECM's are forwarded to preliminary and investment grade audits when feasible.
- The NIH will continue to require new construction and renovations to meet LEED silver certification requirements and strive to meet LEED gold certification requirements when possible.

FY2022 Sustainable Building Actions:

- Execute a $14M UESC at the Poolesville Campus. This project is expected to be executed in FY2021 with construction to begin FY2022.
- Chiller 16 replacement – Replacing legacy R-22 Chiller 16 with a more energy efficient R-134a chiller. Demolition will start fall of 2021 and installation will start in spring of 2022 with completion estimated for spring 2023.
- Chiller 17 replacement – Replacing legacy R-22 Chiller 17 with a more energy efficient R-134a chiller. Demolition will start fall of 2021 and installation will start in spring of 2022 with completion estimated for spring 2023.

3. FLEET AND MOBILITY

In accordance with E.O. 14008, the NIH aims to achieve a clean and zero-emission energy fleet. The NIH's annual fuel count has been predominantly alternative fuel since FY 2008. Since then, the NIH has aimed to increase alternative fuel usage annually. However, increasing alternative fuel annually becomes challenging while rightsizing the fleet. To overcome this challenge, the NIH aims to increase alternative fuel usage as a percent of total fuel rather than as a cumulative increase from the previous year. The COVID-19 pandemic introduces another challenge. As NIH personnel return to the workplace, total fuel usage will likely increase. This will cause an increase to both alternative fuel and petroleum fuel. To navigate this challenge, the NIH aims to purchase more alternative fuel instead of petroleum fuel when available for alternative fuel vehicles.

Recent Progress
FY2020 Results:

- 79% alternative fuel of the total annual fuel count
- 9% reduction in petroleum fuel usage compared to FY 2019
- 100% of the diesel fuel acquired is a biobased B20 diesel fuel.
- Purchased alternative fuel 58% of the time when it was available, surpassing the HHS and Federal averages
- Met and exceeded the FY 2020 petroleum reduction goal by achieving an 86% reduction in petroleum fuel since FY 2005 (compared to the E.O. 135514 target of 30%)
- Purchased 1 plug-in hybrid vehicle
- Purchased 7 bio-diesel trucks that are classified as greenhouse-reduction vehicles
- Surplussed 14 older, higher-emission vehicles

Priorities

- Maximize the use of alternative fuel vehicles by placing hybrids and electric vehicles in locations that do not have access to the on-site alternative fuel capabilities
- Use a FMIS to track real-time fuel consumption and vehicle idle mitigation technologies to reduce vehicle idling.
- Continue a one-for-one replacement policy and remove larger, less emission-friendly vehicles

FY2022 Fleet and Mobility Actions:

- Achieve 80% alternative fuel of the total annual fuel count
- Purchase alternative fuel 60% of the time when available for hybrid vehicles
- Purchase 10 new low-emission vehicles
- Purchase 2 new plug-in hybrid vehicles
- Purchase 2 bio-diesel trucks that are classified as greenhouse-reduction vehicles
- Surplus 15 older, higher-emission vehicles

4. SUSTAINABLE PROCUREMENT

The NIH prioritizes environmentally friendly and sustainable solutions in all procurements. The NIH acquisition community maintains a Document Generating System (DGS) that includes relevant FAR sustainability requirements. These sustainability requirements are included in the following sourcing initiatives: Blanket Purchasing Agreement Program, NIH Government-wide Acquisition Contracts, NIH Information Technology Acquisition and Assessment Center. Each of these vehicles includes sustainability clauses and/or language to cover specific sustainability requirements. A challenge to sustainable procurement at the NIH is a significant portion of spending is either for research and development services and/or specialized scientific equipment for which there are no environmental or sustainability standards. The NIH will continue to ensure sustainability requirements are included in procurements and continue to purchase environmentally friendly and sustainable solutions to the maximum extent practicable.

Recent Progress
FY2020 Results:

- 9.49% of contract actions, 2,748 out of 28,962 included statutory environmental requirements.
- 21.83% of obligations, $1,579,429,825 out of $7,235,821,847 included statutory environmental requirements.

The numbers above are pulled from the Federal Procurement Data System (FPDS).

Priorities

- Ensure that acquisitions are being tracked accurately to the most current environmental and sustainability procurement requirements. Accurate tracking highlights the areas where the NIH is being successful and where there are opportunities for improvement.
- Increase outreach and awareness on sustainability requirements. Increasing awareness of sustainability requirements at all levels enables project managers, contracting staff and purchasing staff to include sustainability requirements in acquisitions.

FY2022 Sustainable Procurement Actions:

- The NIH is currently planning an update to the acquisition DGS. The update is planned to be completed in FY2022. Executive Orders and environmental statutes will be reviewed to ensure that the most recent requirements are included in the new DGS.
- The NIH will review FY2021 acquisitions to ensure that sustainability requirements were met.
- The NIH will collaborate with HHS sustainable procurement leads in FY2022 to review acquisition tracking to ensure that acquisitions are in conformance with environmental statues and executive orders.

5. ELECTRONICS STEWARDSHIP AND DATA CENTER

The NIH reduces the impact of electronics and data centers by efficiently manage data centers, purchasing energy efficient electronics and disposing of electronics using environmentally sound methods. To ensure the NIH data centers are operating efficiently, the NIH will have data centers audited every four years in accordance with the Energy Act of 2020. The NIH Green Labs Program promotes purchasing Energy Star Certified equipment and FEMP designated products. The NIH Freezer Management Policy and the NIH Freezer Challenge promote purchasing Energy Star Certified cold storage laboratory equipment, including lab grade freezers and Ultra-Low Temperature Freezers.

Recent Progress

FY2020 Results:

- 98.66% of newly purchased or leased equipment met energy efficiency requirements*
- 15,093 of newly purchased or leased equipment met energy efficiency requirements out of a total 15,298 equipment purchased.

*The total number of equipment includes all electronics at NIH. Only the following Official Names are marked for the energy efficiency program: Computer Display Monitor, Computer Portable, and Computer Workstation.

- 90.64% of electronic equipment disposed using environmentally sound methods*
- 9,182 equipment disposed using environmentally sound methods out of 10,130 equipment disposed.

*Reuse, donation, recycling, transfer, sale, or de-manufacturing

Priorities

- The NIH will continue to purchase and lease energy efficient equipment to the maximum extent practicable.
- The NIH will continue to dispose of electronic equipment using environmentally sound methods to the maximum extent practicable.

FY2022 Electronic Stewardship Actions:

- The NIH plans to increase awareness of Electronic Product Environmental Assessment Tool (EPEAT) purchasing and maintain acquisition and end-of-life compliance.
- The NIH will continue to promote the use of Energy Star Certified equipment and FEMP designated products through the NIH Green Labs Program.
- The NIH will continue to promote the use of Energy Star Certified cold storage laboratory equipment through the NIH Freezer Management Policy and the NIH Freezer Challenge.
- Improve tracking and reporting systems for electronics stewardship through the entire lifecycle.
- NIH plans to move more compute resources to the cloud which will reduce the data center footprint and energy usage due the NIH sharing the cloud resources with other government agencies.