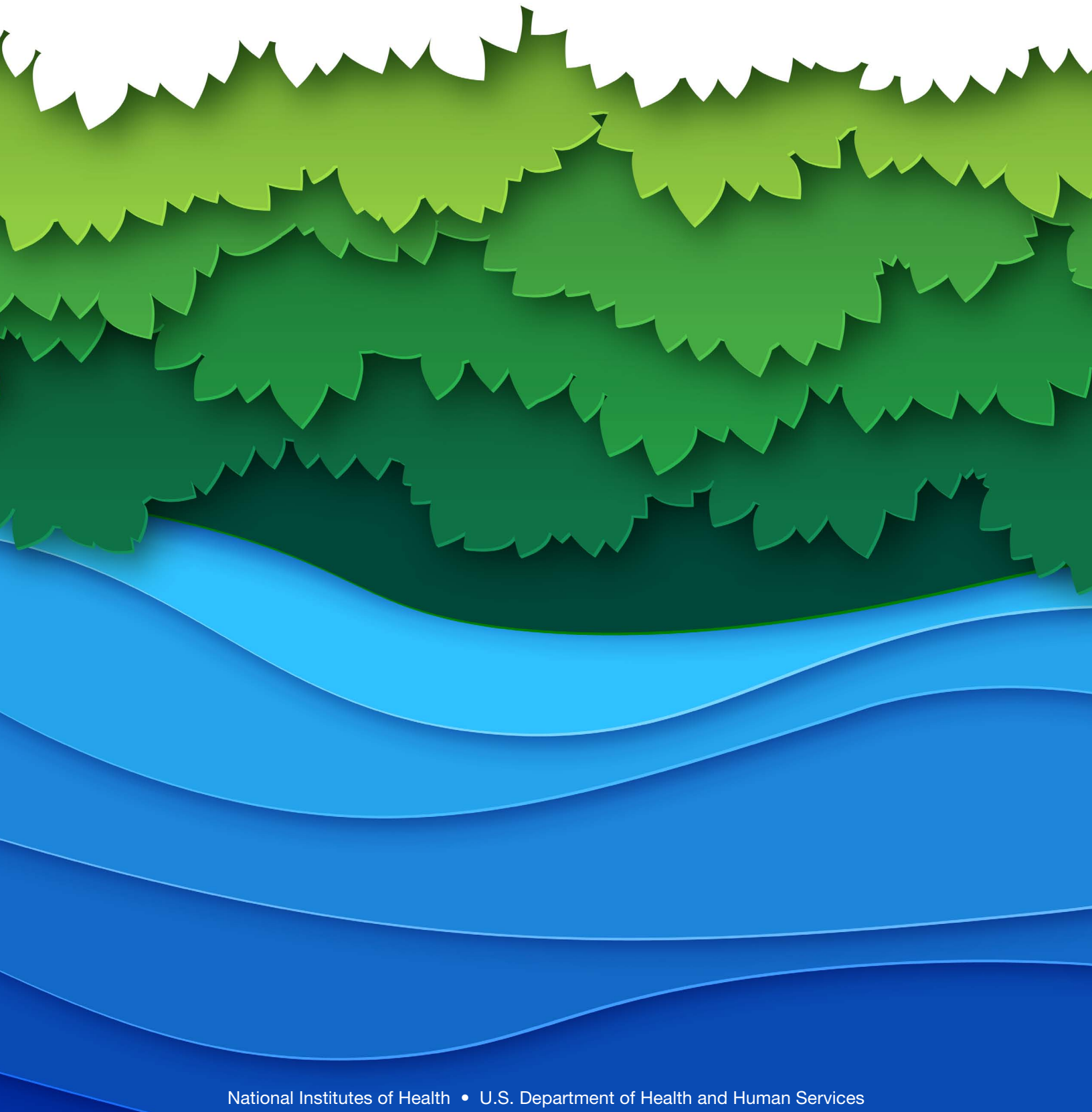
National Institute of Environmental Health Sciences

NIEHS Sustainability Report 2019



National Institutes of Health • U.S. Department of Health and Human Services

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Introduction: Sustainability in Action at the National Institute of Environmental Health Sciences

Mission and Vision

The Institute's mission 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. The mission of the National Institute of Environmental Health Sciences (NIEHS) is to discover how the environment affects people in order to promote healthier lives. The vision of NIEHS is to provide global leadership for innovative research that improves public health by preventing disease and disability.

Overview of Operations

NIEHS research uses state-of-the-art science and technology to investigate the interplay between environmental exposures, human biology, genetics, and common diseases to help prevent disease and improve human health. NIEHS has nearly 1,800 employees, guests, contractors, and volunteers, and is comprised of nearly 1.1 million gross square feet of research and support facilities, including the Clinical Research Unit and the newly added Net-Zero Energy (NZE) warehouse, Building 110. NIEHS also leases space at the nearby Keystone campus, which houses various NIEHS administration groups.

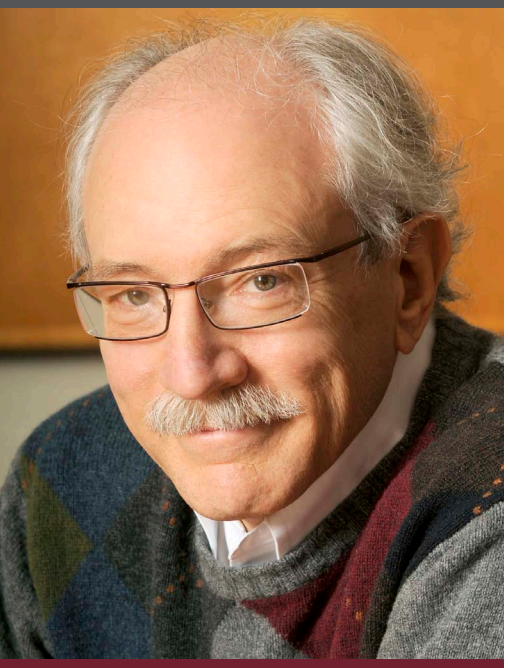
NIEHS is located at a joint campus that serves as host to both NIEHS' and the U.S. Environmental Protection Agency (EPA)'s Research Triangle Park offices and research facilities. NIEHS and EPA operate under various communal resources and supporting infrastructure on 511 acres that include the Central Utility Plant, recreational areas, the beautiful man-made Discovery Lake located at the center of the joint campus, and the First Environments Early Learning Center daycare. Though separate entities, both organizations work together to ensure that the property is safely and properly maintained for the enjoyment by the thousands of inhabitants that occupy the space every day.

Sustainability at NIEHS

At the NIEHS, we incorporate sustainability into our mission to ensure that we have, and will continue to have, the resources needed to protect human and environmental health indefinitely. The NIH and NIEHS recognize that sustainable operations align with our mission to enhance our current understanding of the relationship between human and environmental health.

The NIEHS strives to meet or exceed all applicable federal sustainability requirements for greenhouse gas reduction; sustainable buildings; clean and renewable energy; water use efficiency and management; fleet management; sustainable acquisition; pollution prevention and waste reduction; energy performance contracts; electronic stewardship and data centers; and climate resiliency. NIEHS sustainability efforts are also driven by the U.S. Department of Health and Human Services (HHS) and NIH sustainability initiatives.

The 2019 NIEHS sustainability report aligns with federal, local, and regional standards and exceeded federal reporting requirements by incorporating elements of the Global Reporting Initiative (GRI) Sustainability Reporting Standards 2016, the most widely used sustainability reporting standards in the world. The report addresses natural resources; energy; water; pollution prevention and waste reduction; transportation; green purchasing; and our community. Analyses focus on fiscal year activities and data in 2017 and 2018 unless otherwise noted and the standards in effect at the time. References to the NIEHS campus and NIEHS entail the property and/or operations specific to the Institute, whereas references to the joint campus entail the entire federal property. Air emissions and historical water usage data presented in this report represent the joint campus.



A Message From Our Director

Sustainability in Action

The NIEHS mission is to discover how the environment affects people in order to promote healthier lives. In turn, it is our duty to promote environmental stewardship here at the Institute.

The foundation of sustainability efforts at NIEHS go back nearly 30 years. The 2019 NIEHS Sustainability Report focuses on 2017 and 2018, while assessing the Institute's progress over the last 10 years. Continued stewardship of our natural resources, a nearly 12% reduction in our energy intensity over the last four years, increases in our solar energy generation, diversion of an average 80% of solid non-hazardous waste from landfill, a 32% decrease in the volume of wastewater discharge, and a recent nearly 30% decrease in carbon dioxide (CO_2) emissions from our vehicle fleet speak to sustainability in action at the Institute. I am especially proud of our Net-Zero Energy (NZE) warehouse and its LEED Platinum certification. During its inaugural operation in 2018, the NZE warehouse produced enough excess electricity to power two average homes for a year, and saved the equivalent of 20 metric tons of CO_2 emissions.

NIEHS will continue its commitment to sustainability in the coming years. Plans to further modernize the data center will lessen energy demands at the Institute. The addition of more electric fleet vehicles will reduce emissions and reliance on fossil fuels. A condensate capture and reuse water system will further decrease potable water demands for joint campus cooling operations.

Despite great progress in many areas, NIEHS still faces a major challenge in reducing greenhouse gas emissions. We must look for every opportunity to limit our energy consumption and shift to renewable power – while still advancing our scientific capabilities. This remains our greatest sustainability challenge.

I offer special thanks to my predecessor, Dr. Linda Birnbaum, whose leadership over the last 10 years helped foster many of the sustainability achievements we enjoy today. We will build on the legacy that Linda and so many others have built, and will continue our passionate pursuit of a healthy and environmentally secure future.

Rick Woychik, Ph.D.
Acting Director, NIEHS and the National Toxicology Program

Natural Resources

The NIEHS campus encompasses 375 acres, including 220 acres of forest land. NIEHS natural resource stewardship efforts emphasize habitat preservation and conservation, which in turn protect and strengthen biodiversity and the pollinator ecosystem.

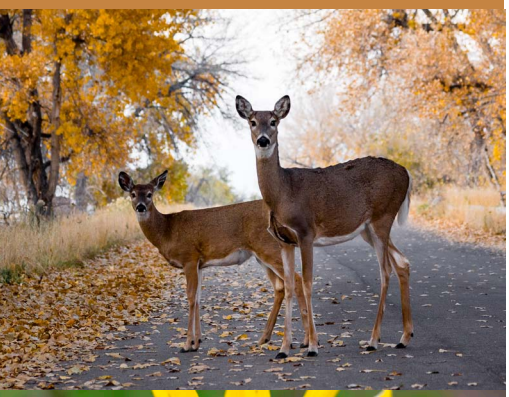
The following sections outline natural resource initiatives, which were guided by the following Executive Order (E.O.) and Global Reporting Initiative (GRI) Standards:

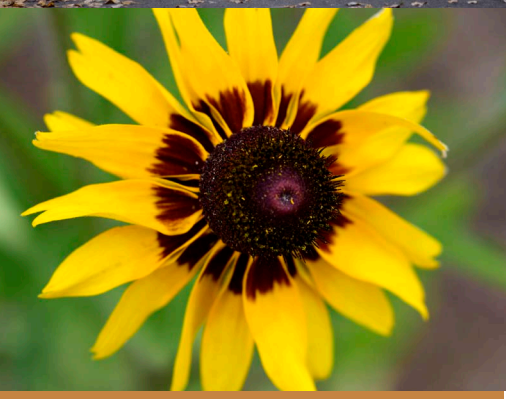
- E.O. 13693 – Planning for federal sustainability in the next decade (Note: E.O. 13693 was in effect during 2017 and the majority of 2018; future NIEHS Sustainability reports will be guided.)
- GRI 304-1 – Biodiversity: Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
- GRI 304-2 – Biodiversity: Significant impacts of activities, products, and services on biodiversity
- GRI 304-3 – Biodiversity: Habitats protected or restored

Preserving Discovery Lake and the Surrounding Community

In 2017 and 2018, NIEHS implemented sustainable initiatives to control the algal blooms that were occurring in Discovery Lake, and that had the potential to negatively impact the lake's water quality and ecosystem. These activities included conserving the 34 acres of infrequently mowed buffer between the tree line and the mowed areas surrounding the lake to slow storm water runoff to the lake, adding 25 carp each year to help control the unwanted aquatic vegetation, as well as substituting rock salt for urea nitrogen-based ice melt for de-icing operations.

In addition to preserving Discovery Lake, NIEHS maintains a 50-foot vegetated buffer around the lake in support of the Jordan Lake Nutrient Strategy. The goal of the strategy is to restore the water in Jordan Lake by reducing the amount of pollutants entering upstream. Maintaining the buffer helps to naturally filter nutrients (nitrogen and phosphorus) in stormwater runoff. In addition, landscapers must complete state of North Carolina training and become certified to apply fertilizer on the NIEHS campus. Training emphasizes minimal application of fertilizers and avoiding fertilizer contact with water bodies. At the NIEHS campus, fertilizer is used in minimal amounts mainly for turf maintenance, and compost is used as a soil amendment in planter beds.



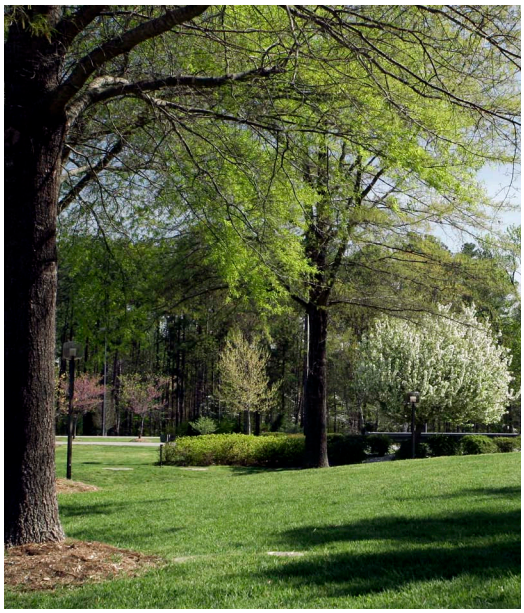


Conserving Habitat

NIEHS continues to maintain the Wildlife and Industry Together (WAIT) certification originally achieved in 2005 from the North Carolina Wildlife Federation. WAIT requires a certified entity to maintain a systematic program for its site that includes enhancing wildlife habitat and providing education of employees and community partners on wildlife. In 2017 and 2018, NIEHS focused on conserving native habitat through identifying invasive species and pests on its campus and applying sustainable methods of control.

NIEHS manages invasive pests through the Integrated Pest Management (IPM) program. The goal of the IPM program is to prevent pest problems without the use of non-selective pesticide applications. This is achieved through extensive monitoring, as well as the application of cultural, physical, and mechanical controls. Performing inspections, selective planting of grasses and plants in order to prevent attracting undesirable pests, and proper sanitation and storage are only a few of the steps taken by the IPM program to naturally deter undesirable pests.

NIEHS has performed an invasive species inventory to identify plants of concern around its campus. Species such as Johnson grass, an invasive species that has been classified as one of the 10 most noxious weeds in the world, were identified and targeted for control efforts. Steps were taken in 2017 and 2018 to control Johnson grass through increased mowing and tilling to expose rhizomes of the weed to freezing conditions during winter. NIEHS promotes the planting of native species for all landscaping associated with new infrastructure, such as the NZE warehouse.



Biodiversity

Biodiversity plays a large role in the long-term stability of ecosystem health. It provides for human needs, such as food, shelter, and medicines through supporting vital ecosystem services, such as soil formation, climate resiliency, and nutrient cycles. Biodiversity has remained a key element of NIEHS sustainability efforts, and NIEHS takes pride in the abundance of animals that inhabit its campus. The Bald Eagle is a federally listed species known to be found on-site, and no federally protected areas are on or near the NIEHS campus.

NIEHS Pollinator Program

Bees, birds, butterflies, and other insects are an important part of the world's food supply. These pollinators are put at risk when anthropogenic activities, such as climate change, land loss, and the misuse of pesticides, threaten their natural habitat. The NIEHS Pollinator Program plays an important role in working to expand the natural habitat of pollinators on its campus.

NIEHS maintains approximately two acres of wildflower meadows that provide pollen and nectar for bees, butterflies, and other insects in support of the North Carolina Wildlife Federation Butterfly Highway Program. The program is a statewide conservation restoration initiative that aims to restore native pollinator habitats that have been impacted as a result of urbanization activities. NIEHS also cultivates milkweed to serve as a host plant for Monarch nesting within the Monarch Butterfly Garden.

The population of bluebirds have decreased dramatically in North Carolina in recent years as a result of loss of habitat and an increase in competition with House Sparrows for nest cavities. In 2017 and 2018, NIEHS expanded nesting areas for Eastern Bluebirds. During 2017 and 2018, six additional bluebird nesting boxes were strategically placed around the NIEHS campus to support habitat growth for the species.

In 2017, NIEHS Earth Day activities included hosting various researchers, beekeepers, and scientists to speak about the importance of bee health and proper habitats for pollinators. Between 2017 and 2018, NIEHS added two additional honey bee hives to continue promoting the insect's natural habitat for a total of four hives on the NIEHS campus.

Energy

NIEHS is progressing to a more sustainable energy system through a combination of conservation and efficiency measures to reduce energy use and an increase in renewable energy generation. NIEHS utilizes a variety of renewable and non-renewable energy sources including solar power, natural gas, fuel oil, propane, and electricity.

Natural gas powers boilers at the Central Utility Plant (CUP) that provide high-temperature hot water for comfort heating, as well as hot water generation for research applications, cafeteria use and sanitation needs. Natural gas also supports operation of the pathological waste incinerator. Natural gas combustion produces relatively low emissions and is cost-effective, making it the preferred fuel for joint campus industrial use.

Fuel oil is used to power emergency generators that support critical operations in NIEHS facilities, and as a secondary fuel to power the boilers at the CUP if natural gas use is curtailed. During natural gas curtailment industrial customers agree with the utility to lower their usage in exchange for a lower billing rate. This typically occurs during periods of natural gas supply interruption or during periods of heavy demand to ensure availability to critical infrastructure and residential customers.

Propane is used in laboratory applications and provides comfort heating to the Clinical Research Unit.

Electricity provides lighting at NIEHS, powers the chillers and cooling towers at the CUP that provide joint campus cooling needs, and powers the ultralow temperature freezers that preserve research samples and biospecimens.

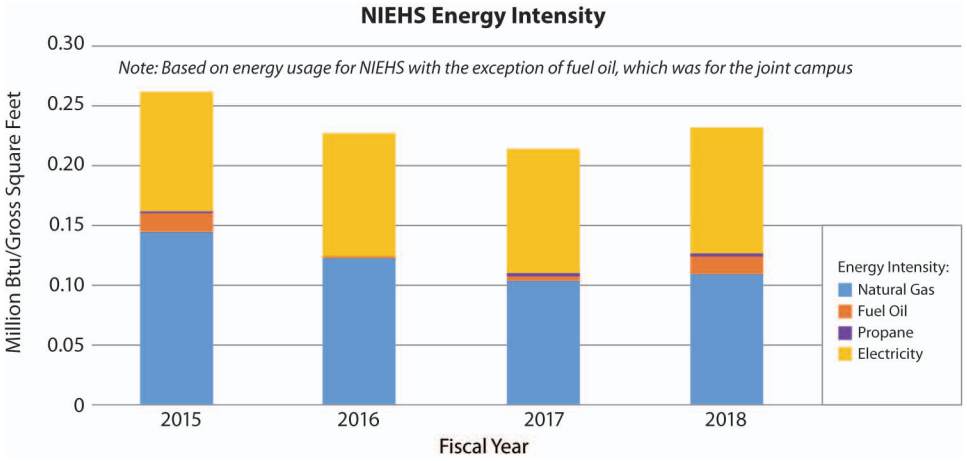
The following E.O. and GRI Standards guided energy initiatives at NIEHS:

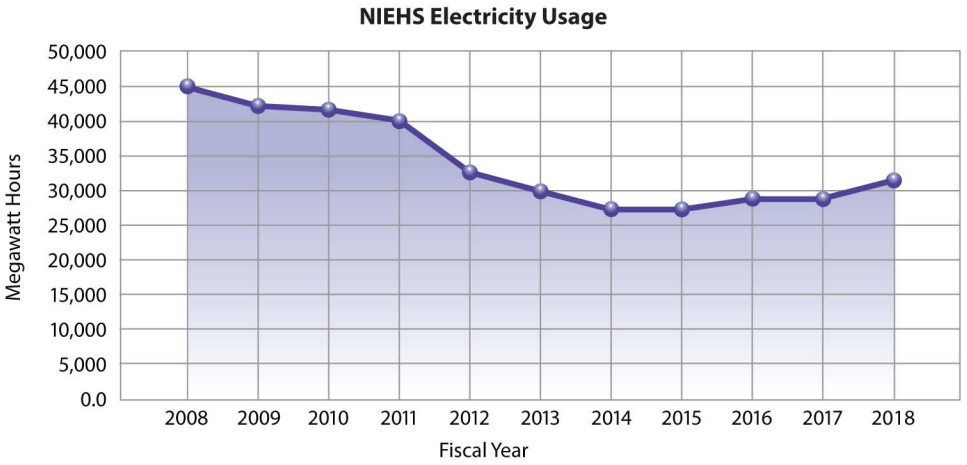
- E.O. 13693, Office of Management and Budget (OMB) Scorecard
- GRI 302-1 – Energy: Energy consumption within the organization
- GRI 302-3 – Energy: Energy intensity

Energy Use

Energy consumption at NIEHS can vary due to seasonal changes, weather events, and increased fuel oil usage during periods of natural gas curtailment. Overall, energy intensity on a gross square footage basis has decreased at NIEHS nearly 12% since the 2015 baseline year stipulated in E.O. 13693. There was a 23% decrease in total natural gas usage, a 4% decrease in fuel oil usage, and a 12% increase in electricity usage between the 2015 baseline year and 2018. While propane usage increased 64% between the 2015 baseline year and 2018, it accounted for less than 1% of total energy usage at the Institute.

Electricity usage increased 4% between 2017 and 2018, despite the installation of more efficient chillers in 2013 and 2018 at the Central Utility Plan (CUP). The increase in electricity usage between 2017 and 2018 was due to higher cooling demands caused by extended periods of higher-than-average daytime and nighttime temperatures during the summer months.

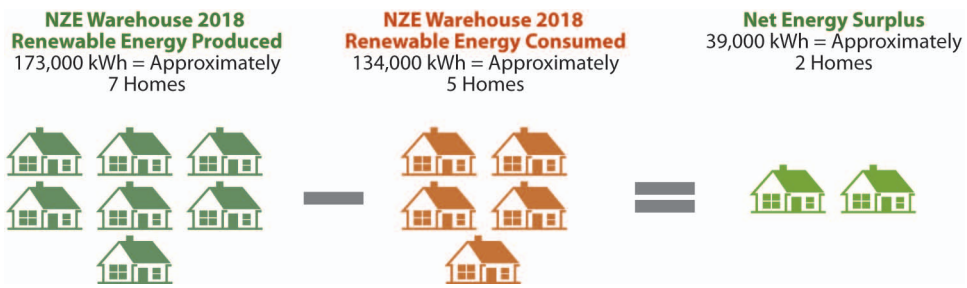




Renewable Energy Use

The first solar array was installed on the NIEHS campus in 2008 with a capacity of 30 kW and was followed by a 60 kW capacity solar array in 2015. The renewable electricity produced by these solar arrays is distributed to NIEHS campus buildings to reduce the need for purchased electricity.

The NZE warehouse completed its first full year of operation in 2018 and is a certified LEED (Leadership in Energy and Environment Design) Platinum building, which exemplifies NIEHS' commitment to renewable energy and sustainability. The NZE warehouse includes a 120 kW solar array, and generated more energy than the building consumed during its first year of operation. The net energy surplus was large enough to power two average homes for one year based on domestic residential energy consumption data published in the U.S. Environmental Protection Agency Greenhouse Gases Equivalencies Calculator.



Data Center Efficiency

Data centers include information technology (IT) equipment, power management units, and facility support systems, such as HVAC, uninterruptable power supply, diesel generator, switchgear, and lighting. IT equipment refers to all servers, storage devices, network gear, and auxiliary data processing equipment located within a data center. Data centers require a large amount of energy to run and maintain, as well as energy for cooling to prevent overheating.

NIEHS continues to increase data center efficiency, therefore conserving energy. Efficiency is often determined by an industry-derived energy efficiency ratio called power use effectiveness (PUE); a decrease in PUE indicates an increase in energy efficiency. The PUE in 2018 decreased to 2.10 from a 2016 baseline of 2.24. This decrease was due to server equipment upgrades and consolidation, as well as power diversification to balance power loads. A monitoring software system was installed in 2018 to track power usage, streamline updates, and assist in identifying opportunities to increase efficiency to the targeted ≤1.5 PUE established in E.O. 13693. Server cooling upgrades are planned for 2020, which will further increase data center efficiency.

Water

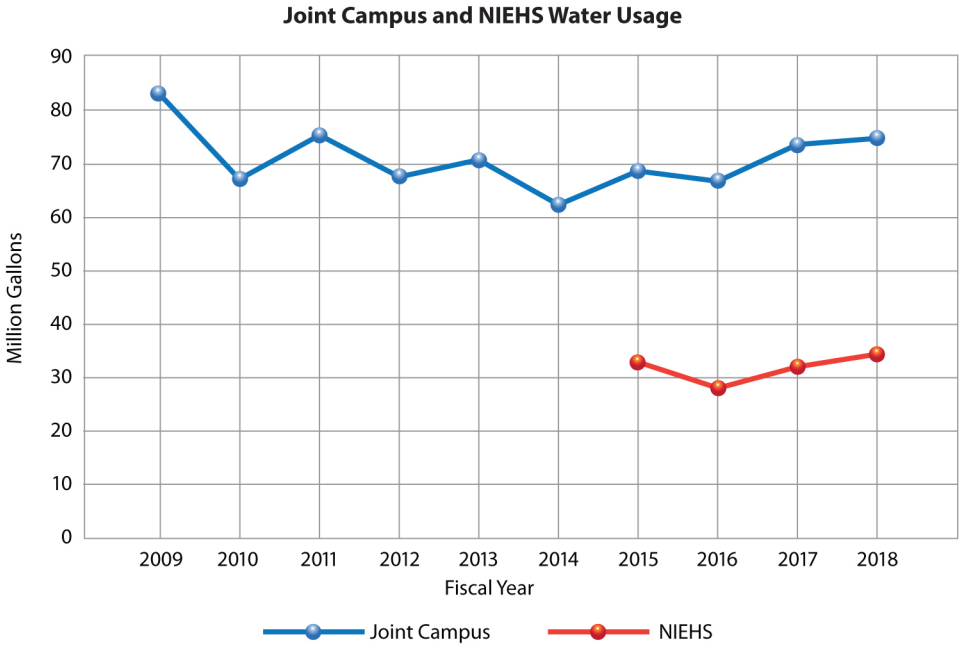
The City of Durham supplies water to NIEHS; Durham, North Carolina, in turn, obtains water from Lake Michie and the Little River Reservoir. These sources provide City of Durham customers with a combined yield of 37 million of gallons of safe drinking water per day. Most of the water used at NIEHS is for the joint campus cooling system at the CUP, which includes five chillers and two cooling towers; other industrial uses include research and related activities, such as washing research animal cages, cleaning laboratory glassware, and emissions controls for the pathological waste incinerator. Overall, industrial activities are responsible for approximately 75% of all water consumed by the Institute. Other water uses at NIEHS include drinking, cafeteria operations, restrooms, and occasional irrigation of the Memorial Gardens.

Water use conservation initiatives at NIEHS were guided by the following standards:

- E.O. 13693 and the OMB scorecard
- GRI 303-1 – Water: Water withdrawal by source
- GRI 303-2 – Water: Water sources significantly affected by withdrawal of water
- City of Durham water shortage response plan

Water Use Efficiency and Management

Water meter installation and enhanced record-keeping enabled NIEHS to track its water usage separately from joint campus totals starting in 2015. Campus water usage was slightly greater than 74 million gallons in 2018, with NIEHS accounting for approximately 34 million gallons, or 46%, of joint campus water usage. Compared to the 2010 baseline year stipulated in E.O. 13693, joint campus water consumption increased by approximately 10% in 2018. The increase in water usage in 2018 was due to higher cooling demands caused by extended periods of high daytime and evening temperatures during the summer months.



Water Conservation Efforts

NIEHS water conservation efforts in 2017 and 2018 focused on projects that will ultimately reduce potable water usage in the cooling towers, the largest single use of potable water at the NIEHS. When complete in 2020, these projects aim to reduce potable water usage by 70%:

- Condensate capture and reuse: Air conditioning systems remove humidity from the air they handle, producing condensate water. NIEHS connected the CUP to EPA's condensate capture system, which will deliver condensate water from the EPA building's air handling systems that would otherwise be discharged as wastewater. Readily available during months with high humidity, this condensate will be blended with reclaimed water for use in the cooling towers.
- Reclaimed water use: The CUP was connected and is undergoing final preparations to receive reclaimed water from the Durham County Triangle Wastewater Treatment Plant (TWWTP). When fully operational, the reclaimed water will be conditioned for use in the cooling towers and combined with condensate water to reduce the use of potable water. Potable water will only be used in the cooling towers during reclaim water system maintenance and when condensate is not available (usually during cooler months with less humidity).

Pollution Prevention and Waste Reduction

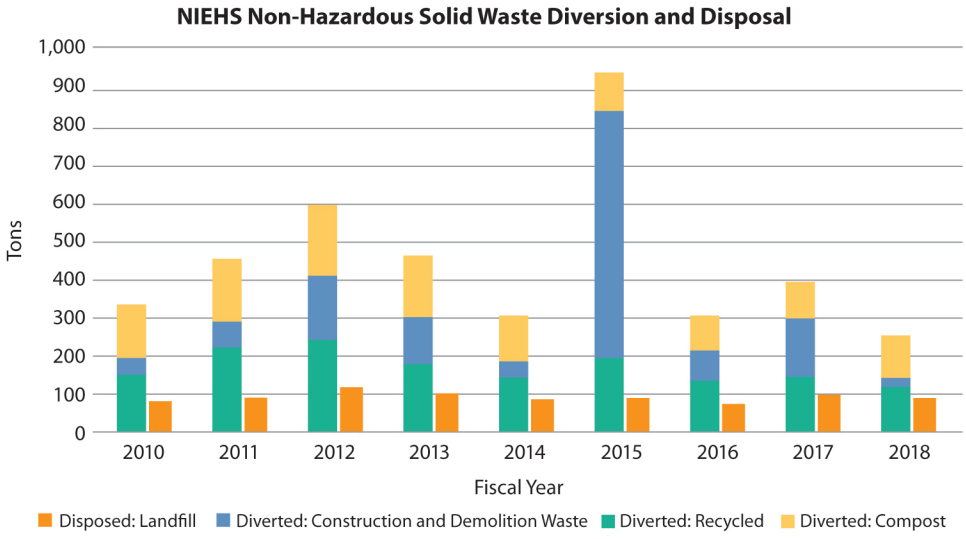
Pollution prevention is defined as any practice that reduces, eliminates, or prevents pollution at its source. Reducing the amount of pollution produced means less waste to control, treat, or discard. Less pollution means less hazards to public health and the environment. NIEHS monitors pollutants in wastewater, stormwater, and air emissions, and by tracking waste generation and disposal. The following E.O. and GRI standards guide NIEHS pollution prevention and waste reduction practices and reporting:

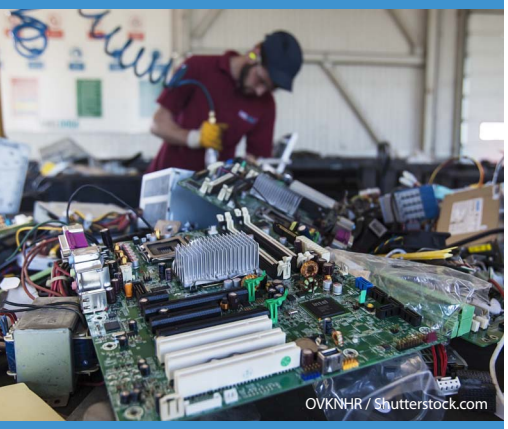
- E.O. 13693
- GRI 306-1 – Effluents and Waste: Water discharge by quality and destination
- GRI 306-2 – Effluents and Waste: Waste by type and disposal method
- GRI 306-3 – Effluents and Waste: Significant spills
- GRI 306-4 – Effluents and Waste: Transport of hazardous waste
- GRI 306-5 – Effluents and Waste: Water bodies affected by water discharges and/or runoff

Non-Hazardous Solid Waste

NIEHS generates a variety of non-hazardous solid waste including food, office supplies, and lab materials. NIEHS aims to exceed the goal set in E.O. 13693 to divert at least 50% of non-hazardous solid waste (including food and compostable materials, and excluding construction and demolition materials) from landfills.

NIEHS celebrated 25 years of recycling in 2018. In the 25 years since the program began, the Institute has reused or recycled nearly 20 million pounds of materials. NIEHS has a comprehensive Recycling Guide available to all employees on the Institute's intranet site, The Junction. NIEHS waste streams recycled include paper, glass, mixed metals, electronic waste, and printer toner cartridges, cooking oil, ice packs, laboratory materials, and polystyrene foam. Composting includes all breeding colony animal bedding, and suitable pre- and post-consumer waste from the cafeteria. On average, between 2010 and 2018, NIEHS diverted 81% of the non-hazardous solid waste that it generated.

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During American Recycles Day in 2017 and 2018, NIEHS collected and donated coats, eyeglasses, cellphones, and pet supplies (leashes, bowls, crates, toys) for reuse. NIEHS also participated in the Environment@RTP Committee, which holds an annual electronic recycling event for all employees in Research Triangle Park. NIEHS employees contributed 556 pounds in 2017, and 1,033 pounds in 2018, of personal recyclable electronic waste.

Hazardous Waste and Radioactive Waste

Hazardous waste, regulated under the Resource Conservation and Recovery Act (RCRA), is a waste with properties that make it dangerous or capable of having a harmful effect on human health and/or on the environment. The Institute generated 17,808 pounds in 2017, and 27,042 pounds of RCRA-regulated waste in 2018. RCRA-regulated hazardous waste generation reflects the tempo of research and is impacted by changes in the direction of research at the Institute, the closure of specific laboratories, or expiration of chemicals in storage. NIEHS does not transport, import, export, or treat hazardous waste.

NIEHS groups the hazardous solid waste generated on its campus into three categories: universal waste, energy recovery waste, and incinerated waste.

- Universal waste includes batteries, pesticides, mercury-containing equipment, and certain types of lamps/bulbs. Batteries and lamps/bulbs are shipped off-site to be recycled. NIEHS recycled 630 pounds in 2017, and 2,820 pounds in 2018, of batteries and lamps/bulbs.
- Energy recovery waste refers to waste solvent from NIEHS research operations that is sent off-site for use as a fuel. NIEHS recycled 4,042 pounds in 2017, and 8,876 pounds in 2018, of energy recovery waste.
- The remainder of NIEHS generated RCRA-regulated waste is sent off-site for destruction in a highly regulated, air emissions-controlled incinerator. Incineration is the primary and preferred treatment method because it destroys toxins, achieves the greatest possible reduction in the volume of the waste, and avoids landfill disposal.

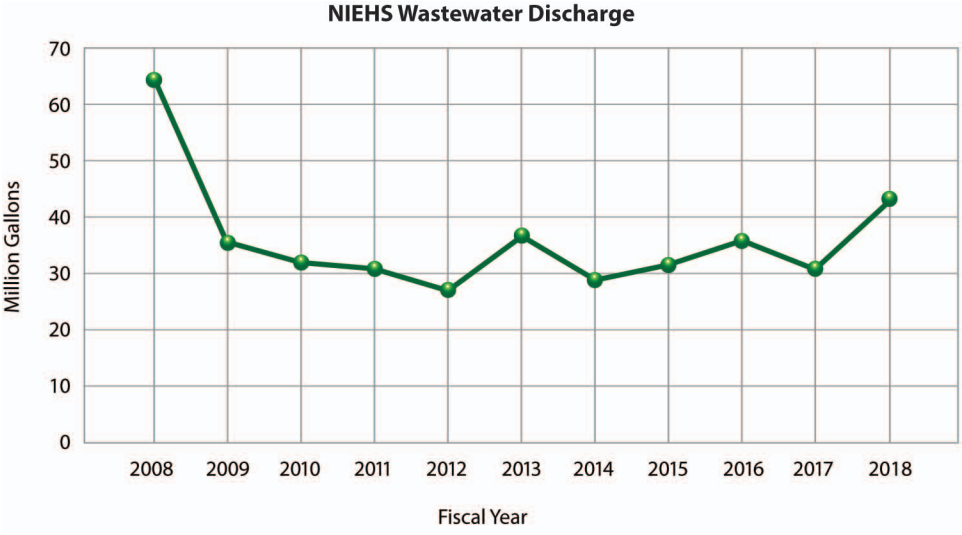
Radioactive isotope use at the Institute has declined over time reflecting the direction of the research. During 2017, there were no shipments of radioactive waste for off-site disposal. During 2018, there were two shipments of radioactive waste off-site for disposal. There were no radioactive material spills reported in either 2017 or 2018.

In addition to wider biotechnology industry advances that lead to smaller amounts of and/or less toxic chemicals in biomedical assays, NIEHS encourages lab employees and managers to reduce hazardous chemical use in labs. NIEHS continued training employees on methods to reduce hazardous waste emphasizing the following practices:

- Buy only the amount of hazardous chemicals needed (despite vendor discounts offered when buying larger quantities).
- Share chemicals to avoid unnecessary purchasing and disposal of hazardous chemicals.
- Avoid mixing hazardous and non-hazardous chemicals unless necessary.
- Minimize use of radioactive assays.

Wastewater Effluent

Industrial and sanitary wastewater from NIEHS is gravity discharged to the TWWTP. The TWWTP services the Research Triangle Park and surrounding areas and is designed to treat 12 million gallons per day. In 2017, NIEHS wastewater discharge was nearly 31 million gallons, and in 2018 NIEHS wastewater discharge was nearly 43 million gallons, a 51% and 32% decrease, respectively, when compared to the 2008 baseline of 62 million gallons. The increase in wastewater discharge volume that occurred in 2018 is under review, and prompted an upcoming project to determine whether stormwater inflow or groundwater infiltration from record annual rainfall in 2018 may have entered the NIEHS sanitary sewer system.



NIEHS holds an industrial wastewater discharge permit with Durham County that requires monitoring for flow, temperature, pH and 13 pollutants, semi-annually, unless otherwise noted: zinc (quarterly); ammonia; cadmium; chloride; cyanide; fluoride; mercury; oil and grease; silver; total nitrogen; volatile organic compounds; and molybdenum (annually). All pollutants complied with permit limits in 2017 and 2018, and there were no spills.

Stormwater

NIEHS monitors its stormwater discharges in order to avoid flooding, erosion, and water pollution on it's campus and in the surrounding community. Stormwater that enters Discovery Lake travels through the dam and downstream to Burdens Creek, into Northeast Creek, and eventually reaches Jordan Lake. Jordan Lake is part of the Cape Fear River Basin, which encompasses about 9,164 square miles.

NIEHS holds a stormwater permit and maintains a Stormwater Pollution Prevention Plan with the North Carolina Division of Energy, Mineral, and Land Resources. Stormwater samples are collected on a semiannual basis and tested for various pollutants. Of concern is excess nitrogen, which can cause over-stimulation of growth of aquatic plants and algae. This excess growth causes depletion of dissolved oxygen, clogs waterways, and prohibits light from reaching deeper waters. NIEHS has been below the 30 mg/L nitrogen permit limit since 2011. In FY 2017 and FY 2018, no unplanned discharges to the stormwater management system occurred.

Air Emissions

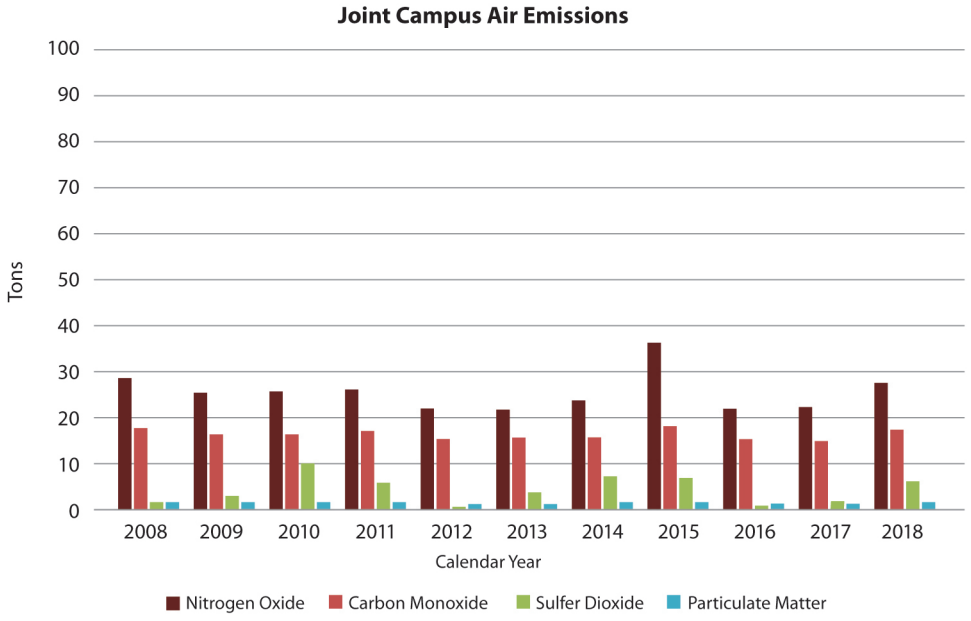
NIEHS holds a synthetic minor (medium-sized) air permit for the joint campus issued by the North Carolina Department of Environmental Quality (NCDEQ). NIEHS strives to reduce joint campus air emissions whenever possible. Air emissions result from the combustion of fuels at the CUP and in emergency generators, and the combustion of waste and fuel and in the pathological waste incinerator. The permit limits emissions of nitrogen oxides, carbon monoxide, sulfur dioxide, and particulate matter.

Natural gas is considered a cleaner burning fossil fuel than fuel oil and is, therefore, the primary fuel for the boilers at the CUP. The major contributor to air emissions is the use of fuel oil. To reduce this impact, NIEHS uses Ultra Low Sulfur Diesel (ULSD) in the emergency generators, and in the boilers during natural gas curtailment. ULSD contains only 15 ppm sulfur. Emergency generator operations for maintenance and testing purposes are limited to approximately one hour per month to conserve fuel and minimize air emissions. All four boilers use oxygen trim systems to optimize combustion efficiency, and the three newest boilers are outfitted with low nitrogen oxide burners to minimize nitrogen oxide emissions.

The pathological waste incinerator combusts pathological waste and uses a wet scrubber for highly effective control of metals, acid aerosols, and other byproducts. The number of incinerator operating days has decreased by about 15% per month to reduce natural gas usage during the two-hour preheat and two-hour burndown periods when the incinerator is operating.

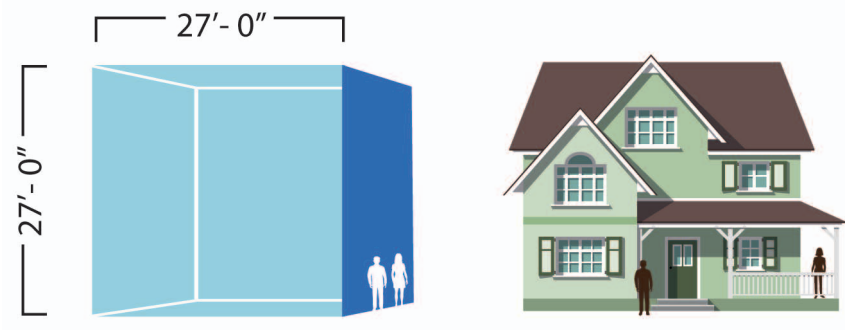
The joint campus air permit provides guidelines and limits for air emissions. Per the permit, NIEHS submits an emissions inventory to NCDEQ every five years on a calendar year basis; additionally, NIEHS estimates permitted air emissions on an annual calendar year basis.

Emissions in 2017 and 2018 remained well below the 100 tons per year major source threshold for criteria pollutants included in the joint campus air permit. Air emissions increased between calendar year 2017 and 2018 due to increased natural gas and fuel oil usage during extended below-average temperatures in winter 2018.



Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions are commonly expressed in metric tons.



One metric ton of carbon dioxide would fill about the size of a two-story home, totaling more than 1,400 square feet. GHG emissions can be described as direct or indirect, depending upon where the emissions generation takes place, and is accounted for under one of three "scopes" of emissions.

	SCOPE 1 – What we combust (e.g., heating oil, transport fuel)
	SCOPE 2 – Purchased emissions from energy we consume (e.g., grid supplied electricity)
	SCOPE 3 – Other indirect emissions (e.g., waste disposal at third party landfills, electricity losses from energy transmission)

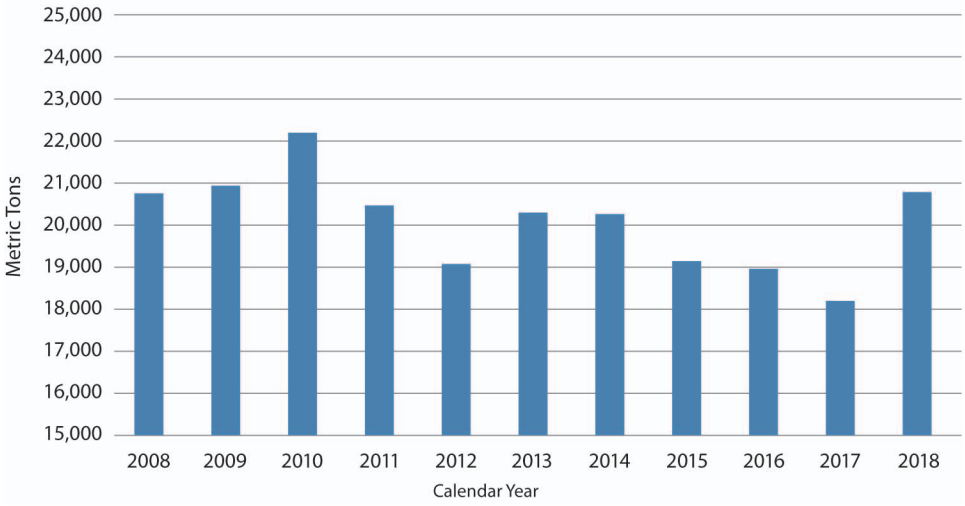
- **Scope 1:** Direct emissions are those where the source directly generates the emissions, such as combusting natural gas in the boilers at the CUP, or gasoline combustion by NIEHS's fleet vehicles. The source is owned or leased and operated by the NIEHS and the resulting emissions are a direct result of that consumption.
- **Scope 2:** Indirect emissions are those where the activity takes place under NIEHS' jurisdiction (e.g., NIEHS personnel turning lights on or off, or setting the cooling temperature of an air conditioner), but the actual emissions generation occurs elsewhere (i.e., where the electricity to power the lights and the cooling systems are generated). Scope 2 is limited to purchased electricity and steam. NIEHS purchases electricity from Duke Energy and does not import steam.
- **Scope 3:** These emissions are a consequence of the activities of NIEHS, but are emitted from sources not owned or controlled by NIEHS. Examples of Scope 3 emissions include employee commuting and disposal of non-hazardous solid waste in a third-party landfill. Scope 3 emissions were not calculated for NIEHS. Other indirect GHG emissions is an optional reporting category that allows for quantification of all other indirect emissions.

E.O. 13693 set a federal-wide goal for a 40% reduction of Scope 1 and 2 GHG emissions by 2025, and HHS established its agency level GHG reduction goal at 38.7% by 2025 per its 2016 Strategic Sustainability Performance Plan, compared to a 2008 baseline. GHG emissions at NIEHS included carbon dioxide (CO_2), methane, and nitrous oxide. Emissions estimates focused on CO_2, the largest amount of GHG emitted from the joint campus. Overall, Scope 1 emissions of CO_2 from the joint campus have stayed nearly the same on a calendar year basis when compared to 2008, and remained below the EPA reporting threshold of 25,000

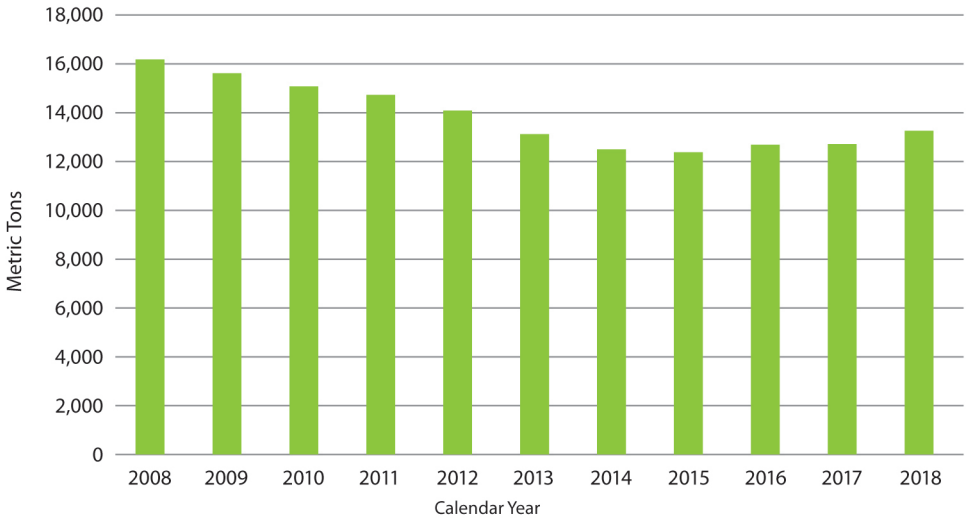
metric tons per year. Scope 2 emissions of CO_2 from the NIEHS campus have decreased by 18% on a fiscal year basis. However, there was an increase in Scope 1 and Scope 2 CO_2 emissions between 2017 and 2018. Emissions increases in CO_2 were due to an increase in fuel oil usage in the boilers at the CUP during winter months and an increase in electricity utilization by the chiller system at the CUP in summer months, both caused by colder-than-average and warmer-than-average temperatures, respectively, in 2018 compared to 2017.

Mobile fleet emissions of CO_2 from combusting biodiesel, diesel, and gasoline are also included in Scope 1 emissions; however, fleet emissions of CO_2 at NIEHS are relatively small compared to stationary source combustion emissions, contributing less than 1% of total emissions, and are therefore discussed separately under Transportation.

SCOPE 1 – Joint Campus CO_2 Emissions From Stationary Combustion Sources



SCOPE 2 – NIEHS CO_2 Emissions From Electricity Utilization



The NZE warehouse building is fitted with solar panels that, during its first year of operation, generated more energy than building operations required. Another benefit of this net energy gain is that the excess energy generated has no associated greenhouse gas emissions. In 2018, the net energy gain from the NZE warehouse equated to 20 metric tons of CO_2.

Transportation

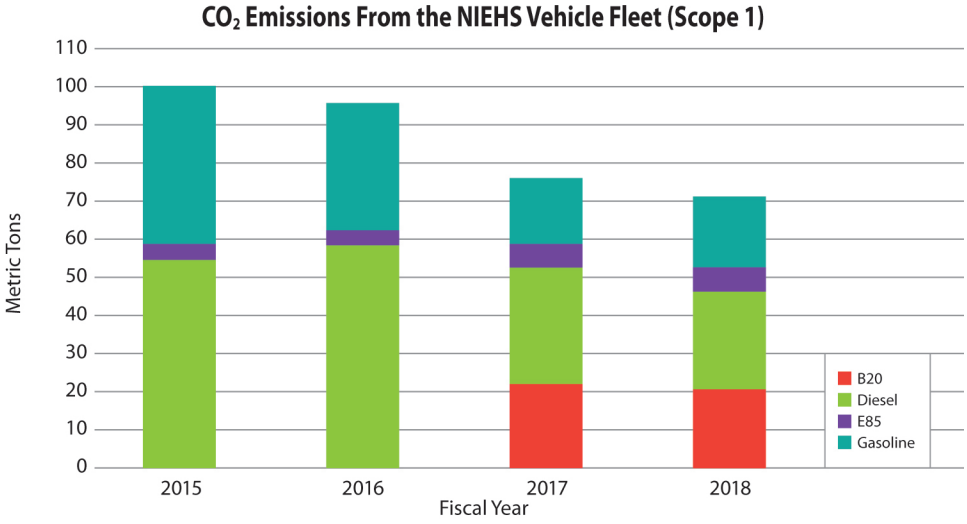
Transportation is an essential part of NIEHS operations, and the Institute supported sustainable approaches to fleet management and employee commuting in 2017 and 2018. The following standards guided sustainable transportation management at NIEHS:

- E.O. 13693 and the OMB Scorecard
- Energy Independence and Security Act, Section 142

Fleet Management

NIEHS monitors the fuel usage and vehicle makeup of its fleet on an annual basis. The fleet was comprised of 37 vehicles in 2017, and 36 vehicles in 2018, and was primarily comprised of passenger vehicles, vans, and trucks. Two electric passenger cars were added to the fleet between 2017 and 2018, joining two hybrid vehicles already included in fleet operations. Fleet fuel consumption (total gallons) decreased by 8%, and fleet CO_2 emissions decreased 29%, between 2015 and 2018.

NIEHS started tracking B20 biodiesel use separately from diesel use in 2017, it is estimated that NIEHS began the use of biodiesel as early as 2004. B20 is a blend of 20% biobased fuel and 80% traditional petroleum-based diesel fuel. Both B20 and E85, a blend of 85% ethanol and 15% gasoline, can provide important reductions in GHG emissions compared to the combustion of traditional gasoline and diesel due to their biobased content.



Alternative Transportation

NIEHS encourages and supports employee telecommuting and using alternative transportation methods through initiatives that include subsidizing the cost of bus fares and ridership in GoTriangle's vanpool program: https://gotriangle.org/rideshare. These alternative methods help reduce GHG emissions associated with commuting. Approximately 5% of NIEHS employees use methods other than single occupancy vehicles to travel to and from the Institute, including bicycle, bus, vanpool, and carpool, and a further 43% of employees also telecommute.

NIEHS is also a registered employer with GoTriangle's Emergency Ride Home (ERH) program. Under the ERH program, if an employee using alternative transportation needs to leave unexpectedly, they are eligible for a voucher for a free rental car or taxi. Employees may use this up to six times a year in the event of an emergency, overtime, or if their carpool leaves early or late. This program allows employees to use alternative transportation with the reassurance of knowing they can still have access to a car ride home in an emergency.

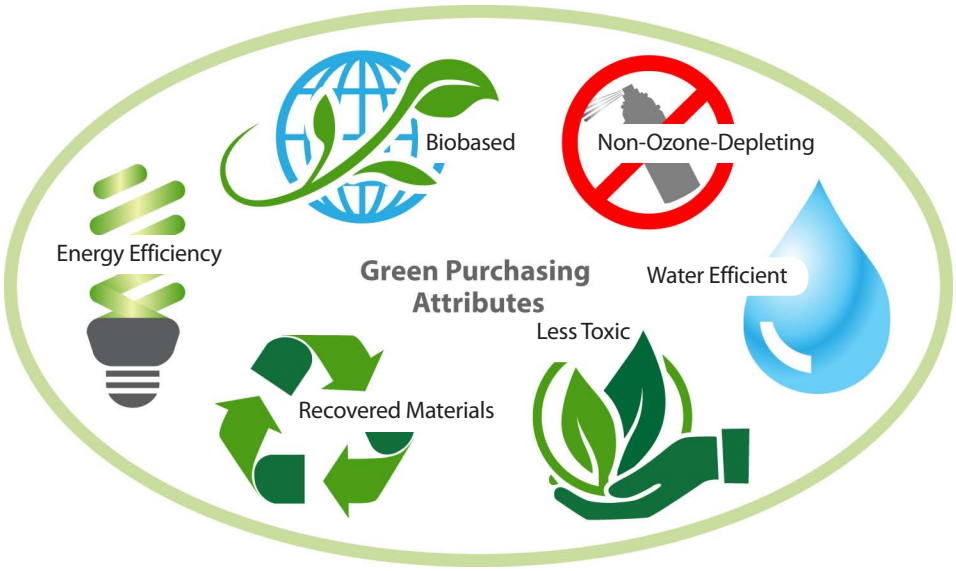
Green Purchasing

In 2017 and 2018, NIEHS continued to implement procurement practices that promote sustainability efforts, also known as green purchasing. The Institute provides green purchasing training for all purchase cardholders and card-approving officials, as well as employee training that refreshes green purchasing goals.

The NIEHS Office of Acquisitions follows the Federal Acquisition Regulation and E.O. requirements, as mandated by NIH and HHS. The following standards guide green purchasing practices:

- E.O. 13693
- Energy Policy Act (EPAct) of 2005, Section 104 – Energy Star and Federal Energy Management (FEMP) designated energy efficient products
- Energy Independence and Security Act (EISA)
- Montreal Protocol and ozone depleting substances
- Solid Waste Disposal Act, RCRA Section 6002 and 40 CFR Part 247, Comprehensive Procurement Guidelines
- The Farm Bill and United States Department of Agriculture's (USDA) designated biobased products
- HHS Affirmative Procurement Plan

The Office of Acquisitions conducted pre-solicitation and pre-award contract reviews for all new solicitations and contract actions in 2017 and 2018 to ensure that at least 95% of new contract actions for the supply of products and acquisition of services, including construction, included one or more green purchasing attribute.



For purposes of meeting the 95% sustainable acquisition requirement, contract actions include new and existing contracts, as well as task and delivery orders placed against them.

NIEHS continued to stipulate that products required by contract agreements meet agency performance standards for green purchasing. The Institute considers products required by contract agreements to include those that are one or more of the following:

- Delivered to the government during performance.
- Acquired by a contractor for use in performing services at a federally controlled facility.
- Furnished by a contractor for use by the government.

The following are examples of NIEHS green purchasing efforts during 2017 and 2018:

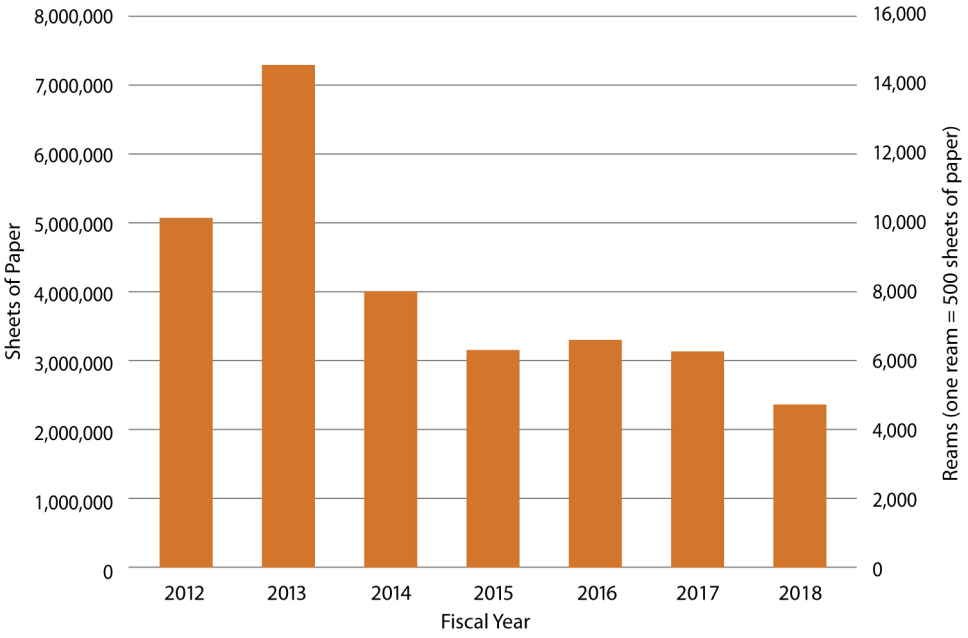
- NIEHS continues to use biobased transformer fluid in two transformers on its campus to avoid contaminating soil and groundwater in the event of a dielectric fluid leak or spill. Most custodial products used were biobased, including floor strippers and waxes, and NIEHS continues to explore ways to use biobased alternatives in other applications.
- All cafeteria plates, cups, bowls, straws, and disposable food containers were compostable.
- All computers and electronic equipment purchased met Energy Star or Electronic Product Environmental Assessment Tool (EPEAT) requirements.
- EPA published Energy Star specifications for laboratory grade ultra-low temperature (ULT) freezers in mid-2017, and NIEHS purchased a total of 25 Energy Star certified ULT freezers between 2017 and 2018.

- All letter-sized printer and copier paper purchased contained 100% post-consumer fiber content.
- Construction of the NZE warehouse building embodied green purchasing:
  - The building design incorporated recycled material, rapidly renewable and local materials, and energy and water optimization and conservation.
  - All wood used in the construction was responsibly sourced and certified from the Forest Stewardship Council (FSC).
  - To improve indoor air quality, adhesives, sealants, paints, and coatings used inside the building were certified as containing no- or low- volatile organic compounds content.
  - Throughout the project, the team limited construction waste, successfully diverting 101 tons – 76% of all waste – from landfill to local recycling.

NIEHS decreased the amount of printer and copier paper purchased by 54% from the 2012 baseline of 5,170,000 sheets/10,340 reams to 2,400,000 sheets/4,800 reams in 2018. NIEHS took the following actions in 2017 and 2018 to decrease the amount of paper used:

- Continued education efforts on the Printer Policy implemented in 2015 to reduce the amount of energy, paper, and ink consumed by all printers.
- In 2017, a subgroup of the Paperless Process workgroup sought input from industry leaders and software application developers about the feasibility of using Microsoft SharePoint as a document workflow system to replace the paper process. In 2018, a pilot system that would automate the Title 42 Committees on Promotion (COP) process began and is expected to be complete in 2019 or 2020. This process was selected as a pilot for automation because the business process had already been extensively defined and documented.
- Reduced the number of printers at the Institute from 1,066 to 981 printers, which reduced printer fleet maintenance cost and reduced paper usage.

NIEHS Printer and Copier Paper Usage



Progress Through People

Fostering an open dialogue and open communication with our internal and external stakeholders, such as our employees, the local community and academia, is an important part of NIEHS' mission to create healthy sustainable environments. Hosting activities on the NIEHS campus and participation in community events and conferences both locally and globally provide opportunities to help share information and knowledge regarding sustainability.

Workplace Sustainability

In addition to our environmental health science programs, it's also a point of pride for the Institute to serve as a model for sustainable operations. A variety of initiatives in place at NIEHS incorporate sustainability into the workplace and decrease the environmental footprint of our activities, including:

- Reuse and recycling programs
- Energy saving modes on computers, copiers and other electronics
- Sustainable commuting initiatives
- On-site fitness facilities for employees, including classes and joint campus walking trails
- Composting
- Alternative and renewable energy use
- Expansion of outdoor LED lighting
- Electric and hybrid fleet vehicles

Interested employees can also join one of several committees and groups that promote sustainability at the workplace.

Environmental Awards and Recognition

In response to E.O. 13514 - Planning for Federal Sustainability in the Next Decade, the Green Champion Awards were established in 2009 by HHS to recognize federal agencies' efforts to reduce GHG emissions, water consumption, and pollution. NIEHS has received several Green Champion Awards since the program's inception, including seven awards between 2017 and 2018. In 2017 NIEHS received four awards under the Change Agents, Environmental Stewardship, Green Hero Video, and Sustainable Design and Facilities categories. In 2018, NIEHS received two awards under the Water Use Efficiency and Green Hero Video categories.

2017 Change Agents: NIH Changing the Way We Think About Environmentally Sustainable Campus Design

In 2017, NIEHS and the NIH Office of Research Facilities collaborated on several projects that support NIEHS' environmentally responsible sustainability and energy efficiency goals, which exemplify the new Campus approach. Significant projects planned or accomplished in 2017 included a Net-Zero Energy Warehouse, Central Plant Re-claimed Water and planning of the Computational Science Building.

2017 Environmental Stewardship: NIH Sustainable Warehouse Cleanout Project

In summer 2017, the NIEHS staff and contractors from two warehouses were consolidated and relocated to a single new warehouse. The move and cleanout included the recycling of 20,400 pounds of old periodicals, 185,000 pounds of furniture and plastic items, two batteries from an old forklift at 600 pounds, 5,520 pounds of confidential paper, and a 2,500-pound tiger lift. In total, approximately 214,020 pounds were diverted from landfill.

2017 Green Hero Video: NIH NIEHS Campus Pollinator Program Team

The NIEHS campus in Research Triangle Park, N.C., encompasses 375 acres, including woodlands, wetlands, grasslands, and a 27-acre lake. The Pollinator Program is comprised of numerous activities and efforts working together to expand pollinator habitat on its campus. The NIEHS campus was recognized as a Sustainability Hero for these efforts to promote pollinator habitat.

2017 Sustainable Design and Facilities: NIH NIEHS Net-Zero Energy Warehouse

NIEHS completed the design and construction of the first Net-Zero Energy facility on the NIEHS Campus in Research Triangle Park. The project was designed to produce more renewable energy annually than it uses.

2018 Water Use Efficiency: NIEHS Vivarium Water Reduction Project

The NIEHS Comparative Medicine Branch (CMB) undertook measures to reduce water use associated with their vivarium cage wash operations. This included new high-efficiency cage and rack washer for processing and optimizing cage management practices. The result of these effort is projected to reduce water use by over 80% or 167,000 gallons of water annually.

2018 Green Hero Video: The NIEHS Environmental Management System (EMS) Awareness Training Project

NIEHS developed web-based interactive training to reduce environmental impacts, highlight sustainable practices, and promote the EMS.

The U.S. Department of Energy awarded a team from NIEHS with the 2018 Federal Energy and Water Management Award. The Federal Energy and Water Management Awards recognize individuals, groups, and agencies for their outstanding contributions in the areas of energy efficiency, water conservation, and the use of advanced and renewable energy technologies at federal facilities. The team from NIEHS was recognized for their efforts to promote energy conservation during 2017 through the new Net-Zero Energy warehouse.

Climate Resilience Planning

E.O. 13693 directed institutions to calculate the potential cost of not considering agency vulnerabilities to climate change and consider that cost in agency decision-making. NIEHS published a Climate Resilience Report in May of 2018 that identifies and evaluates the probability, impact, and cost of climate-related vulnerabilities to NIEHS. NIEHS finalized the Institute's Climate Resilience Plan to enable NIEHS to adapt with agility to extreme weather and changes in climate, the first at NIH. The plan will evaluate the status of vulnerabilities since the report was published and provide guidance and action items for reducing the impacts of the vulnerabilities.

Community Engagement

During 2017 and 2018, NIEHS engaged communities at all levels on environmental health and sustainable environments. This community engagement has allowed NIEHS to forge new connections and exchange ideas and practices to promote sustainability both internally and externally. The activities are described further below and organized around the following themes:

- Forging connections among communities and researchers.
- Employee wellness and enrichment.
- Engaging regional communities.
- Engaging communities nationwide.
- Global environmental collaboration.

The activities and themes described below only offer a small snapshot into the wide array of community engagement at NIEHS during 2017 and 2018. Please visit the Environmental Factor, the NIEHS monthly online newsletter, to read more about our community engagement activities, research, and more.

Forging Connections

NIEHS collaborates widely to further research and encourage careers in environmental health sciences and, in turn, create a healthy, sustainable future.

2017

NIEHS Science Days
The 14th Annual NIEHS Science Days celebrated scientific research across the Institute, with a mini symposium on nuclear hormone receptors. This event allowed researchers, trainees, and grantees to network and share information. The event had a spotlight on trainees and gave them opportunities to present their research through talks and posters.

National Toxicology Program Research Collaboration
Collaborations with National Toxicology Program partner agencies were highlighted at a Board of Scientific Counselors meeting. Specific work with the U.S. Food and Drug Administration (FDA) National Center for Toxicological Research (NCTR) assessing the impact of toxic substances on the microbiome was highlighted.

Friends of NIEHS Meeting
The annual Friends of NIEHS (FNIEHS) meeting was held in Washington, D.C. More than 30 research, environmental health, and patient organizations are part of NIEHS.

NIEHS Biomedical Career Symposium
Nearly 400 students attended the 20th Annual NIEHS Biomedical Career Symposium. Participants were able to hear from experts in the fields of academia, entrepreneurship, consulting, and scientific outreach.

2018

NC Women of Color Research Network Symposium
NIEHS hosted its first annual symposium of the North Carolina Women of Color Research Network. The group involved researchers from North Carolina universities, government agencies, and the private sector.

Friends of NIEHS Meeting
Meeting attendees received updates on NIEHS, community forums, and other work of the institute.

NIEHS Biomedical Career Symposium
The annual NIEHS Biomedical Career Symposium provided students and fellows with encouragement and practical tools for their career search.

NIEHS Scholars Connect Program
The NIEHS Scholars Connect Program (NSCP) brought undergraduates from universities in the NIEHS area to the Institute for a yearlong research experience. Participants presented their research at the program's Spring Symposium and took part in a laboratory technique bootcamp.

Employee Enrichment

NIEHS promotes workforce wellness and quality of work life by integrating the natural environment into the development of NIEHS campus buildings and grounds, providing workplace wellness facilities and hosting events focused on environmental stewardship and sustainability.

2017

First Environments Early Learning Center
Research Triangle Park, North Carolina
The First Environments Early Learning Center (FEELC) is a nonprofit child care center, located on the NIEHS/EPA joint campus. The center, which has been operating for 30 years, is jointly managed by NIEHS and EPA and is available to the public. FEELC instills a sense of environmental stewardship into about 180 infants, toddlers, and preschoolers who are enrolled at the center. From the first day, the center's program has emphasized nature as a third teacher. Environmental stewardship begins early, and sustainability permeates both the program and operations. For example, the FEELC grounds have many gardens, including an edible garden that is harvested for meals and a sensory wall of herbs for touching, sniffing, and tasting, connecting children with nature from a very young age.

2018

Earth Week
Research Triangle Park, North Carolina
The NIEHS celebration of Earth Day encompassed a full week of activities, including a 5K run, a free market event where employees were able to "shop" unused office and scientific supplies in the warehouse, and multiple presentations and interactive talks on environmental topics, as well as a talk and tour of the new NZE warehouse.

Engaging Regional Communities

NIEHS regularly participates in events with the local community to encourage health and environmental sustainably. Some examples are shown below:

2017

Environmental Health Science FEST
Durham, North Carolina
The first Environmental Health Science FEST drew 1,200 people. Throughout the week, speakers and participants were enthusiastic about the energy and scientific exchange fostered by the gathering.

Women's Health Awareness Day
Durham, North Carolina
The third Women's Health Awareness Day 2017, co-sponsored by NIEHS, drew hundreds of participants from the local area. The event engaged the community and built awareness of the importance of environmental health and helping women take greater responsibility for their health.

RDU Airport Infectious Disease Training
Durham, North Carolina
Through a training provided by NIEHS' Ebola Biosafety and Infection Disease Response Working Training Programs, workers at Raleigh-Durham International Airport are now better prepared for infectious disease pathogens. The training focused on infectious disease outbreaks, such as influenzas, Ebola, and new biological threats.

2018

Medical Science and Global Health Magnet Program
Wake County, North Carolina
The Wake County Public School System contacted NIEHS to support their transition of Athens Drive High School into a magnet school with a theme in medical sciences and global health initiatives. NIEHS has hosted workshops for teachers and students as a part of this transition.

NIEHS and Local School Partnerships
Wake and Durham counties, North Carolina
NIEHS worked with nearly 130 local educators, through partnerships, collaborations, and in response to direct requests. Partnerships focused on Summer STEM immersion and professional development programs.

Girl Scouts Education
Chapel Hill, North Carolina
At Scouting for the Cure, more than 100 Girl Scouts discovered the impressive capacities of their lungs, thanks to NIEHS volunteer Christie Drew. They also were provided other educational materials on environmental health.

Music and Your Health Community Forum
Durham, North Carolina
The Music and Your Health community forum in 2018 featured talks by scientists and leaders of local organizations devoted to the healing power of music, with performances by professional and amateur musicians alike.

Engaging Communities Nationwide

NIEHS engages with stakeholders nationwide to promote environmental stewardship and sustainability and address national environmental health challenges. Examples of some of the events NIEHS was involved in during 2017 and 2018 are discussed below:

2017

Tribal Oil Well Emergency Training
Ft. Berthold, North Dakota
With NIEHS support, Cliff Whitman Sr., trained Ft. Berthold Reservation's tribal members to respond to potential oil well emergencies. The area lies in the heart of the Bakken oil fields, which presents several risks to the tribal members that reside there.

2018

Breast Cancer Community Forum
Duarte, California
A focus on breast cancer drew upwards of 100 people to the latest NIEHS community forum. Sponsored locally by the City of Hope Medical Center, participants in the event in Duarte, California, came from across the Los Angeles basin. The forum discussed NIEHS findings on the environmental impacts on breast cancer, as well as offered an avenue for a two-way exchange between NIEHS and the community.

Tribal Environmental Health Summit
Corvallis, Oregon
The third Tribal Environmental Health Summit drew more than 130 people from tribes, universities, and government agencies to discuss issues of environmental health among Native Americans.

Breast Cancer Community Forum
Washington, D.C.
Linda Birnbaum, Ph.D., former director of NIEHS and the National Toxicology Program, visited southeast Washington, D.C., for the Anacostia Community Forum. The Anacostia neighborhood is changing rapidly and have some of the highest breast cancer rates in the city.

Community Forum in San Joaquin Valley
San Joaquin Valley, California
In California's San Joaquin Valley, Linda Birnbaum, Ph.D., and others saw how local organizations are responding to the region's environmental health challenges. The valley, also known as the Central Valley, was the setting of one of Dr. Birnbaum's community workshops. The workshop worked with the UCD Community Stakeholder Advisory Committee to plan a road trip from Stockton to Fresno to discuss environmental health concerns and community organization response.

Clinical Study Accessibility
Durham, North Carolina, and Bethesda, Maryland
The new "Join an NIEHS Study" website helps recruit volunteers for NIEHS clinical studies in North Carolina and Maryland. This offers a more simplified approach to understanding studies and signing up for more information.

Global Collaboration

NIEHS provides global leadership by hosting and participating in global forums and conferences related to environmental health science.

2017

Environmental Health Outreach in Puerto Rico
San Juan, Puerto Rico
NIEHS held educational and outreach activities in San Juan, Puerto Rico. These included a tour of neighborhoods affected by increased flooding, a large town hall meeting on environmental health challenges on the island, and a workshop for training workers who handle hazardous materials.

Clinic Openings in the Bering Sea
St. Lawrence Island Communities, Alaska
Two new full-time health clinics were built on the remote Lawrence Island in the Bering Sea. Residents no longer must travel 200+ miles by air to Nome, Alaska for important health services.

Global Environmental Health Day
Durham, North Carolina
NIEHS Global Environmental Health Day focused on using community-engaged research and citizen science in global health settings. This event fosters connections among global health organizations, initiatives, and other participants in the area.

2018

Pacific Basin Consortium
Delhi, India
NIEHS staff and grantees attended the Pacific Basin Consortium. Organizers invited scientists, engineers, policy-makers, industry representatives, and government officials to present research and discuss effective, affordable solutions to problems of environmental contamination. NIEHS staff also participated in companion meetings on both e-waste and children's health.

Global Environmental Health Day
Durham, North Carolina
The third annual NIEHS Global Environmental Health Day highlighted research around the world and translation of findings into public health impacts. Panel discussions focused on global environmental health fieldwork and efforts to convert research findings into improvements in public health.

Looking Ahead

NIEHS continues to actively incorporate sustainable practices into our everyday operations. In 2017 and 2018, NIEHS began planning multiple projects that will help to conserve our resources for years to come.

- In 2019, skylights and windows in key areas of the Rall Building will be replaced with electrochromic glass. The glass is expected to reduce overall energy loads in the affected areas by 20%, decrease cooling requirements, and save the equivalent energy use of seven average N.C. homes per year.
- To encourage use of public transportation, starting in 2019, NIEHS will collaborate with GoTriangle to allow staff and visitors to take a free Uber or Lyft between NIEHS and the Regional Transit Center on nearby Slater Road.
- Starting in 2019, staff who live more than 10 miles from NIEHS will be able to receive a monthly voucher toward vanpool. This voucher can be used towards renting a vehicle to share with other staff members. This encourages ride-share and reduces commuting emissions.
- To increase data center energy efficiency and reduce PUE, the 2020 Data Center Modernization project will include relocating servers to more appropriate cabinet locations, installing significant amounts of lifecycle hardware, co-locating storage, making space to move larger appliances, and installing partitions that improve hot and cold aisle separation.
- The ReUse It! Program encourages staff to share excess government property with other NIEHS staff for reuse. Starting in 2019, items can be posted on the ReUse It! Program website and others can claim the items or recommend them to colleagues.
- In 2019, NIEHS will be developing a chemical inventory management system that will encourage ordering chemicals in small amounts and sharing unanticipated excess chemicals between researchers. Chemical shelf life can also be more effectively managed using the data system, highlighting reagents as they approach their expiration dates.
- NIEHS will promote Green Lab Certifications through My Green Lab to promote sustainability at the laboratory level. As part of this initiative, NIEHS will participate in the My Green Lab and International Institute for Sustainable Laboratories (I2SL) International Laboratory Freezer Challenge. This challenge is a friendly competition to optimize sustainable freezer management in laboratories. Additionally, NIEHS will continue to expand it's energy efficiency efforts for ULT freezers, with plans to purchase additional Energy Star certified units in 2019.
- NIEHS will continue seeking opportunities to use biobased products in new construction and incorporate the use of additional biobased products in operations. NIEHS plans to meet with the United Soybean Board in 2019 to discuss soy-based products that could be used for operations, maintenance, and construction at NIEHS.
- NIEHS will compost waste feed from research animal breeding colonies in 2019, diverting 46 tons and 3,000 plastic waste bags per year from landfill.