National Science Foundation

2016 Strategic Sustainability Performance Plan

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Point of Contact: **Julie Speers**
jspeers@nsf.gov
703-292-7563

Table of Contents

Policy Statement

The National Science Foundation is an independent Federal agency created by the National Science Foundation Act of 1950 to promote the progress of science, advance national health, prosperity, and welfare, and secure national defense. The Foundation is committed to sustainability, including complying with Executive Order 13693 and all other applicable sustainability statutes and regulations for Federal agencies. Improving sustainability supports our mission by making us more efficient, allowing more resources to be applied to science rather than operational costs. In concert with our mission of advancing science in the service of the nation, the Foundation commits to achieving a better understanding of climate change and developing the best approach to improve resiliency against it. Our 2016 Strategic Sustainable Performance Plan (SSPP) is a sign of our commitment to realize the many benefits sustainability offers.

Donna J. Butler
Chief Sustainability Officer
Deputy Head, Office of Information and Resource Management

Executive Summary

Vision

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950 to promote the progress of science, advance national health, prosperity, and welfare, and secure national defense. The Foundation fulfills its mission primarily by issuing limitedterm competitive grants and by sponsoring awardee organizations that conduct basic scientific research in the interest of the nation. Improving sustainability supports the NSF mission by making better use of Foundation resources, including energy, supplies, and personnel.

The most significant advancement in the Foundation's sustainability will come with the new Headquarters (HQ) lease through the General Services Administration (GSA), which will provide NSF with higher performing and more sustainable space. The building will meet or exceed the criteria for a Silver rating by the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) program. With the many facets of sustainability embodied in a higher performing building, the new lease will reduce the Foundation's environmental footprint and operating costs, while providing a healthier environment for employees by virtue of features such as building materials with low levels of volatile organic compounds. The Foundation will occupy the new facility in fiscal year (FY) 2017.

Meanwhile, NSF continues to make sustainability a part of its day-to-day operation. For the near future, the Foundation plans to accomplish this by focusing on sustainability measures that reduce expenses. Examples are acquiring only energy-efficient electronic products and continuing its teleworking program. In FY 2014, the Foundation issued new policy that increased the maximum number of days per week that an employee can telework. The policy increased the total number of hours teleworked in FY 2015 by 50% from FY 2013, which was partially responsible for the sizeable reduction in NSF's energy and water consumption from FY 2013.

Leadership

The Foundation's Chief Sustainability Officer is responsible for the oversight and ultimate success of NSF's sustainability performance. Other senior management officials, including the Director of the National Science Foundation, have voiced their commitments to environmental sustainability as promulgated under Executive Order (EO) 13693, and associated orders and regulations. NSF employee performance plans address sustainability under the category of organizational excellence.

Performance Review

Scope of Facilities Covered by the SSPP

The footprint of NSF covers property under the direct use of NSF and its Office of Inspector General. This consists of two adjacent office buildings (Stafford Place I and II) in Arlington, VA, and two warehouses in Alexandria, VA, all GSA leases. Only Stafford Place I, the main HQ building, is a lease that is not fully serviced, and therefore the water and energy performance reported here is only for this building.

The Foundation provides financial assistance awards to organizations that conduct scientific research on behalf of the nation. The properties occupied by these organizations are not used, managed, or operated by the agency. NSF has no direct control over the business operations of its recipient organizations, and limited ability to influence the organizations' consumption of facility energy or water, or vehicle fuel.

However, NSF is committed to working within the legal and logistical confines of its assistive funding instruments with the awardee organizations to improve their operational efficiency and sustainability.

Goal 1: Greenhouse Gas Reduction

NSF greenhouse gas (GHG) emissions are dominated by three sources, as shown in Figure ES-1: purchased electricity, employee commuting, and employee business air travel. Emissions from Scope 1 and 2 sources were nearly 25% lower in FY 2015 than the FY 2008 baseline. This was due to a consistent decline in the Foundation's purchase of electricity from FY 2008 through FY 2014. As shown in Figure ES-2, there was a small *increase* in Scope 1 and 2 emissions in FY 2015, by about 7%. The rise corresponds to an equivalent increase in electricity consumption, driven by an 18% increase in cooling degree days in FY 2015 compared to FY 2014. The number of cooling degree days in a given year is associated with how much air conditioning is required, indicating that the warm season in FY 2015 was appreciably warmer than that of FY 2014. The flattening of the energy intensity trend reflects the fact that any further improvements in NSF energy intensity will be small until HQ is relocated in FY 2017 to the new, high performance building in Alexandria, currently under construction.

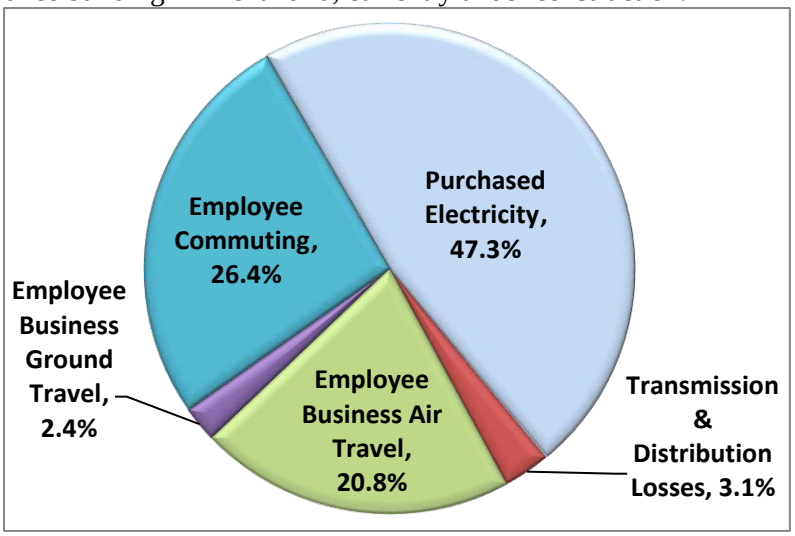


Figure ES-1. The Main Sources Contributing to the NSF FY 2015 GHG Inventory
(not including those categories accounting for less than 0.1% of the total)

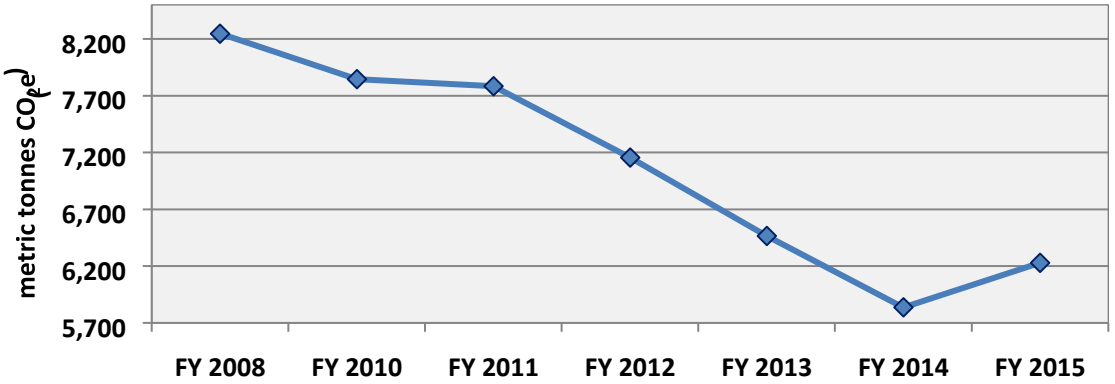


Figure ES-2. Change in Scopes 1 and 2 GHG Emissions over Time

NSF Scope 3 GHG emissions dropped 43% in just one year, from FY 2014 to FY 2015, with an overall decline of 64% from the FY 2008 base year. This significant change in a single year was driven by a

precipitous decline of more than 58% in emissions due to employee business air travel from FY 2014 to FY 2015, as shown in Figure ES-3. However, the decline was largely the result of the change in the methodology used by GSA to calculate air travel emissions.

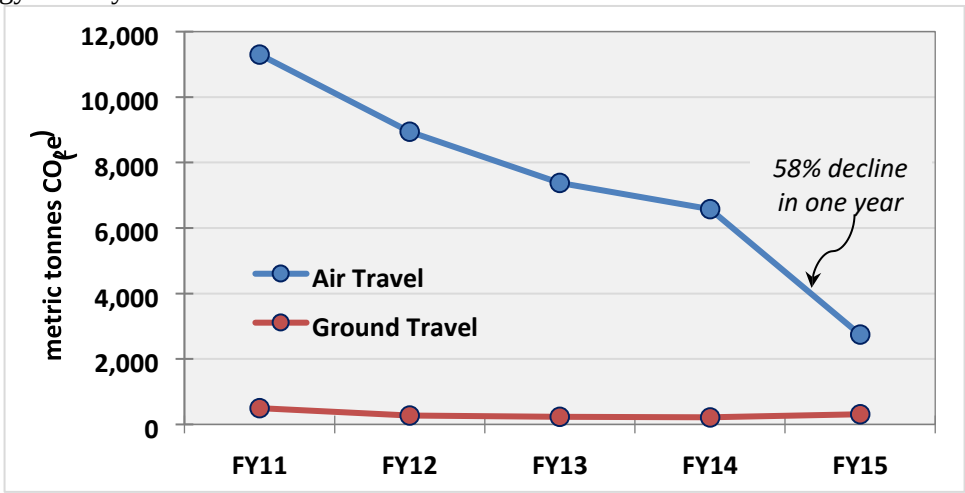


Figure ES-3. Change in GHG Emissions from Employee Business Travel over Time

Although emissions from employee commuting were 5.5% lower in FY 2015 than the FY 2008 base year, they rose by nearly 10% from FY 2014. The commuting trend is the result of two opposing factors. One is that solo driving increased from FY 2013 to FY 2015, as determined by the GSA Scope 3 Commuter Survey, probably due to a reduction in the subsidy for mass transit combined with difficulties caused by the aging Metro system. At the same time, NSF has been successfully promoting telework among its employees: the number of hours teleworked by regularly teleworking employees rose by more than onethird from FY 2013 to FY 2015. Although the increased participation in teleworking is impressive, when described in terms of an equivalent number of full-time teleworkers, the hours teleworked correspond to only 77 employees. NSF will continue its focus on telework.

Goal 2: Sustainable Buildings

The most important factor reflecting the sustainability of office space is usually its energy intensity. The energy intensity of the NSF Stafford Place I building was 20% lower in FY 2015 than the FY 2008 baseline, as measured by utility meters. (NSF data for FY 2003 is not available to make that year the Foundation's baseline). As discussed above, more electricity was required for cooling in FY 2015 compared to FY 2014, so NSF's continual decline in energy intensity was interrupted with an uptick in FY 2015. NSF anticipates that the lessor will not be conducive to implementing further improvements, so little change in energy intensity is expected until NSF relocates into its new high-performance facility in FY 2017.

Goal 3: Clean and Renewable Energy

Beginning in FY 2016, NSF will meet its requirements for the use of renewable sources of energy through the purchase of renewable energy certificates (RECs) every year. In FY 2017, NSF will purchase RECs beyond those needed for compliance with EO 13693, in order to achieve LEED certification.

Goal 4: Water Use Efficiency & Management

In FY 2015, NSF far exceeded the requirements for reducing the intensity of potable water consumption and the consumption of water used for industrial, landscaping, and agricultural purposes: both were 28%

below their respective baselines of FY 2007 and FY 2010. The Foundation's performance on water will continue to improve once it has relocated to the new facility, since the new building will be equipped with high-efficiency, low-flow fixtures throughout, with some ultra-low flow fixtures also planned. Consumption will be metered with advanced water meters.

Goal 5: Fleet Management

The NSF HQ vehicle fleet consists of only two leased vehicles. The average FY 2015 GHGs emitted from these vehicles, per mile travelled, dropped by 14.5% from the FY 2014 baseline. Petroleum use was 53% lower in FY 2015 than the FY 2005 baseline. NSF will continue checking on the availability of suitable hybrid options through GSA to replace one or both of the two vehicles.

Goal 6: Sustainable Acquisition

All relevant NSF purchasing conforms to sustainability requirements, including the purchase of copier/printer paper with a postconsumer content of 30%, through the use of policies that require it. NSF is not a Scorecard agency, and therefore does not conduct a review of 5% of its contract actions for compliance with sustainable acquisition requirements.

Goal 7: Pollution Prevention & Waste Reduction

It was not until February 2016 that NSF began receiving invoices for the removal of recycled materials in terms of weight rather than as dumpsters emptied. However, the invoices continue to cover all solid waste in the Stafford Place I and II buildings, including that generated by other tenants. Therefore, NSF will not have the ability to accurately calculate its diversion of non-hazardous solid waste from the waste stream (which is processed in a water-to-energy incineration facility) until it relocates to the new building in Alexandria. Figure ES-4 shows that the weight of solid waste picked up for incineration has steadily declined over the years—by nearly 42% since FY 2010—although this performance includes the other tenants as well. The agency will continue to have a single-stream recycling program in the new facility, and it will continue its outreach to employees in an effort to improve source reduction and recycling.

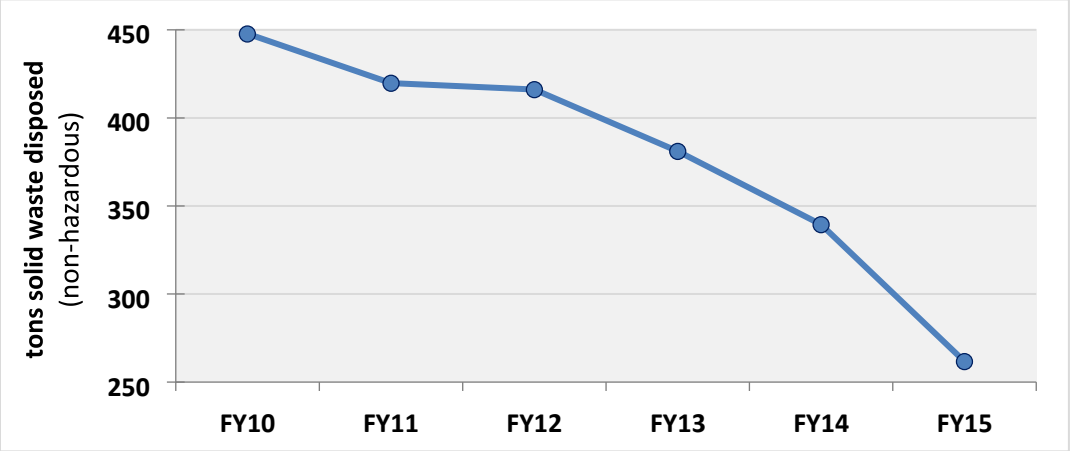


Figure ES-4. Solid waste disposal at NSF HQ has declined significantly since FY 2010

Goal 8: Energy Performance Contracts

Performance contracting is not relevant for NSF in the near term because the current GSA lease is coming to an end. The new GSA-leased building NSF will occupy starting in FY 2017 will be relatively high

performing—with a LEED rating of at least Silver—but NSF will investigate the feasibility of a performance contract once it has occupied the building and determined a baseline for its operations.

Goal 9: Electronic Stewardship

The Foundation uses Blanket Purchasing Agreements to ensure that 100% of its computers, laptops, and monitors comply with the requirements of the Electronic Product Environmental Assessment Tool (EPEAT) and EPA's ENERGY STAR rating. NSF ensures the environmentally sound disposition for 100% of its excess or surplus electronic products—either through donations for reuse, GSA Xcess, or certified recyclers.

Goal 10: Climate Change Resilience

The resilience of NSF HQ to climate change is built into existing procedures regarding extreme weather events and other circumstances that could affect employee health and safety and disrupt operations.

Progress on Administration Priorities

President's Performance Contracting Challenge

NSF is not subject to the Presidential Performance Contract Challenge, but it will evaluate the potential for performance contracting once it has occupied the new GSA-leased, LEED-certified building in FY 2017.

Electric and Zero Emission Vehicles

NSF has no plans to add more vehicles of any type to its fleet of two GSA-leased vehicles, although NSF will continue checking on the availability of suitable hybrid options through GSA to replace one or both of the two vehicles. For employee vehicles, the garage of the new NSF facility currently under construction will have four chargers for electric vehicles and plug-in hybrids. Employees will pay for the charging service with a credit card. It is too early to assess the demand for additional charging infrastructure for in the new facility, though NSF will likely do so once it has relocated.

Climate Change Adaptation Plan

For the new facility, NSF has already conducted an analysis of flooding risk and determined that it is not a concern for at least another decade, given the elevation and distance from areas prone to flooding and storm surge. After the next National Climate Assessment is issued in FY 2018 or FY 2019, NSF will update its climate change adaptation plan that covers both HQ and some of the facilities occupied by scientific awardee organizations. The plan will be based on assessments of vulnerabilities and risks to climate change for HQ and those awardee-organization buildings that are owned by NSF, located in the United States, and have areas greater than 10,000 gross square feet. Grantee organization facilities meeting these criteria are located in Arizona, Colorado, Hawaii, Louisiana, New Mexico, Puerto Rico, Washington State, and West Virginia.

The size and scope of NSF's operations are conveyed in the following table.

Size & Scope of Agency Operations

Agency Size and Scope	FY 2014	FY 2015
Total Number of Employees as Reported in the President's Budget	1,611	1,619

Total Acres of Land Managed	0	0
Total Number of Buildings Owned	0	0
Total Number of Buildings Leased (GSA and Non-GSA Lease)	4	4
Total Building Gross Square Feet (GSF)	608,146	608,146
Operates in Number of Locations Throughout U.S.	1	1
Operates in Number of Locations Outside of U.S.	0	0
Total Number of Fleet Vehicles Owned	0	0
Total Number of Fleet Vehicles Leased	2	2
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)	0	0
Total Amount Contracts Awarded as Reported in FPDS ($Millions)	$454	$422

Agency Progress and Strategies to Meet Federal Sustainability Goals

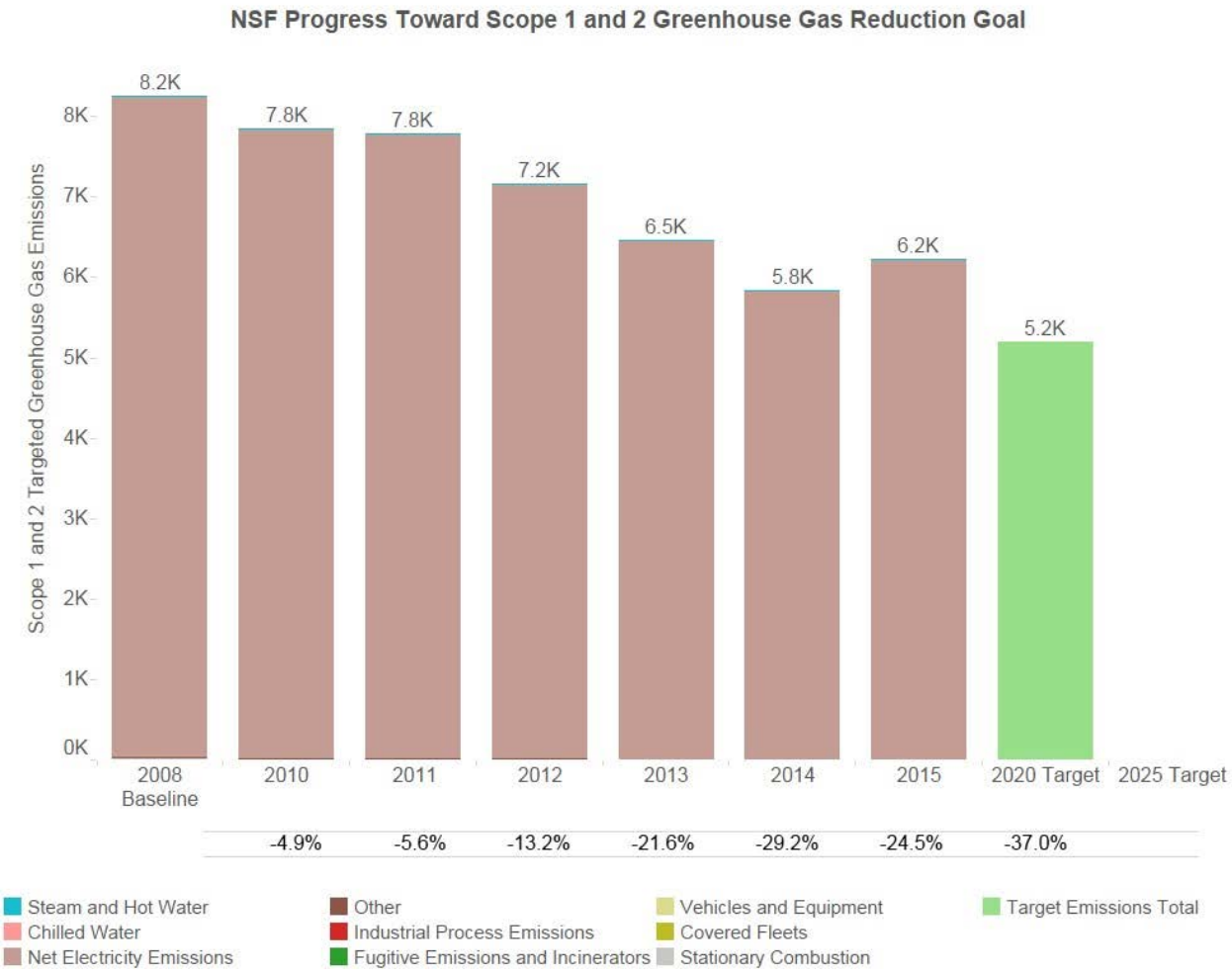
This section provides an overview of progress through FY 2015 on sustainability goals contained in Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, and agency strategies to meet the new and updated goals established by Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*.

Goal 1: Greenhouse Gas (GHG) Reduction

Scope 1 & 2 GHG Reduction Goal

EO 13693 requires each agency to establish a Scope 1 & 2 GHG emissions reduction target to be achieved by FY 2025 compared to a 2008 baseline. NSF's 2025 Scope 1 & 2 GHG reduction target is 50%.

Chart: Progress Toward Scope 1 & 2 GHG Reduction Goal



Scope 1 & 2 GHG Reduction Strategies

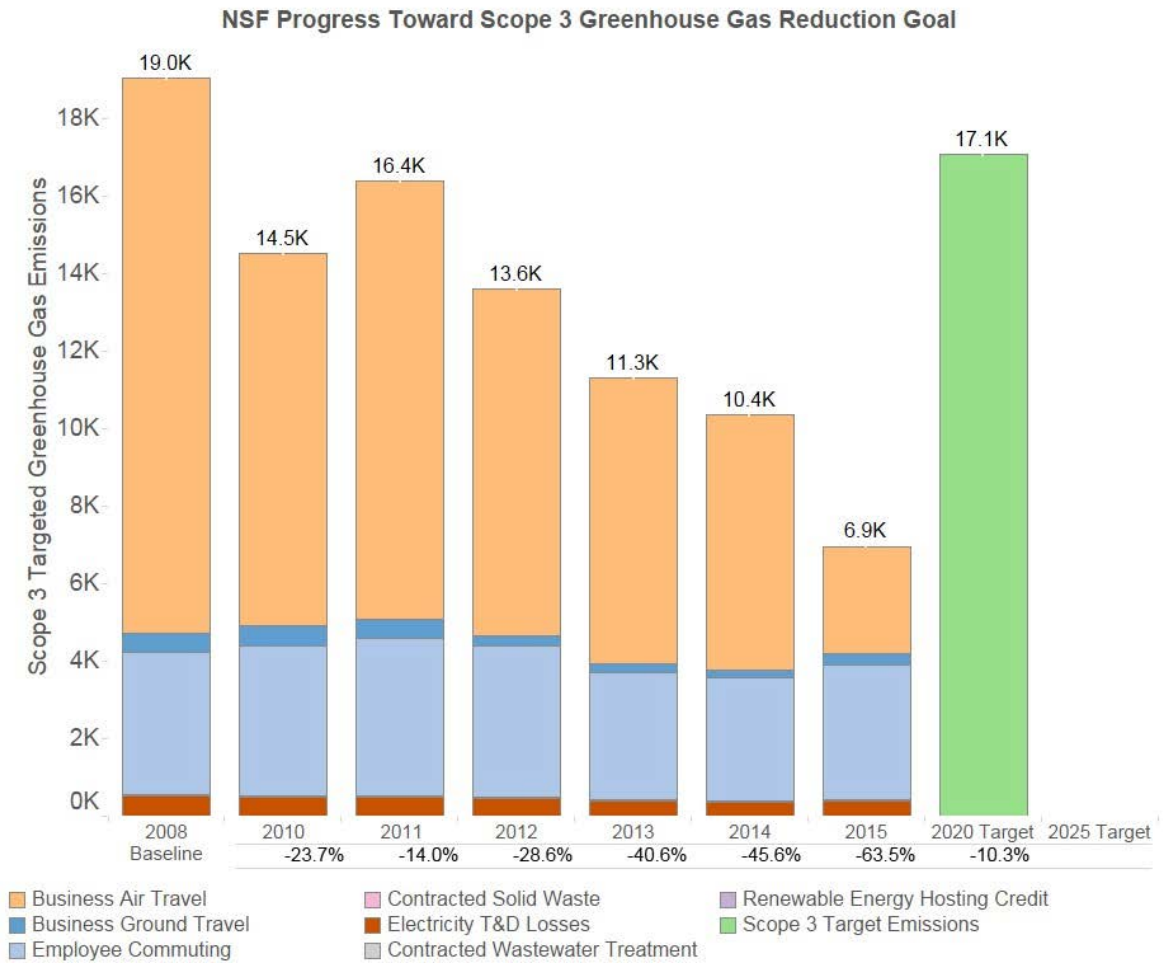
Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics

Use the Federal Energy Management Program (FEMP) GHG emission report to identify/target high emission categories and implement specific actions to address high emission areas identified.	Yes	The inventory shows that 99.9% of NSF's Scopes 1 and 2 GHG emissions are from purchased electricity, so electricity is the only logical target for reducing Scopes 1 and 2 GHGs emissions. However, NSF does not anticipate meaningful reductions in electricity consumption until it occupies the facility in FY 2017.	Scopes 1 and 2 GHG emissions reduced 31% in FY 2016 relative to the FY 2008 baseline.
Identify and support management practices or training programs that encourage employee engagement in addressing GHG reduction.	Yes	NSF has been ramping up its employee outreach program on sustainability, and will continue its efforts to educate employees on NSF's sustainability goals and the relevance of their actions to achieving those goals.	Outreach activities conducted throughout FY 2016 and FY 2017.
Determine unsuccessful programs or measures to be discontinued to better allocate agency resources.	No	NSF cannot identify unsuccessful measures or programs to be discontinued that will reduce the consumption of electricity, which constitutes 99.9% of NSF's GHG emissions from Scopes 1 and 2 sources.	
Given agency performance to date, determine whether current agency GHG target should be revised to a more aggressive/ambitious target.	Yes	NSF analyzed its targets and determined that NSF has already set ambitious, aggressive GHG reduction targets that should not be increased further, at least in the next five or so years.	Analysis was conducted in spring 2016.
Employ operations and management (O&M) best practices for emission generating and energy consuming equipment.	N/A	NSF only occupies two GSA-leased buildings, one of which is fully serviced.	
Identify additional sources of data or analysis with the potential to support GHG reduction goals.	N/A	Other data sources are not relevant, since 99.9% of NSF's GHG emissions from Scopes 1 and 2 sources are from purchased electricity.	

Scope 3 GHG Reduction Goal

EO 13693 requires each agency to establish a Scope 3 GHG emission reduction target to be achieved by FY 2025 compared to a 2008 baseline. NSF's 2025 Scope 3 GHG reduction target is 65%.

Chart: Progress Toward Scope 3 GHG Reduction Goal



Scope 3 GHG Reduction Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Reduce employee business ground travel.	No	Emissions from employee business ground travel are not a high priority because they account for only 2.4% of the agency's total GHG emissions (about 4.5% of Scope 3 emissions).	
Reduce employee business air travel.	Yes	The vast majority of NSF's air travel emissions are due to the business travel of its expert panelists for reviewing proposals. NSF provided all offices with video teleconferencing software and training, and will track the percentage of expert panelist meetings that are conducted entirely virtually, which for NSF strongly impacts employee business air travel emissions.	% of panel meetings in FY 2016 where all participants met virtually

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Develop and deploy an employee commuter emissions reduction plan.	Yes	NSF already has in place the mass transit subsidy program for the Metro system, which is widely used. Since the mass transit subsidy has long been in place, a strategy for reducing commuting emissions moving forward is to focus on teleworking.	Number of hours teleworked, not counting emergency (continuity of operations) teleworking
Use an employee commuting survey to identify opportunities and strategies for reducing commuter emissions.	No	As long as GSA Carbon Footprint Tool Scope 3 Commuter Survey remains available, NSF will conduct the survey every other year, as recommended (it first did so in FY 2011). However, from an analysis of commuter survey data from FY 2011, FY 2013 and FY 2015, NSF has determined that future reductions in commuting emissions could come mostly from increases in teleworking, and that monitoring the number of hours teleworked is a possible measure. (It is anticipated that NSF will not conduct a commuter survey the year NSF moves to its new building).	Number of hours teleworked, not counting emergency (continuity of operations) teleworking.
Increase & track number of employees eligible for telework and/or the total number of days teleworked.	Yes	In FY 2014, NSF issued new policy that increased the transparency of the process for approving the number of days per week that an employee can telework. The number of regular telework hours increased by more than one-third in the two years from FY 2013 to FY 2015. NSF expects to continue to focus on telework participation.	Number of hours teleworked, not counting emergency (continuity of operations) teleworking
Develop and implement a program to support alternative/zero emissions commuting methods and provide necessary infrastructure.	No	Regarding bicycling, NSF already encourages bicycle commuting; including providing a bicycle subsidy, secure bicycle parking, and showers. It is too early to assess the demand for additional charging infrastructure for electric vehicles (EVs) and plug-in hybrids (PHEVs) in the new facility, though NSF will likely do so once it has relocated.	
Establish policies and programs to facilitate workplace charging for employee electric vehicles.	Yes	The garage of the new NSF HQ facility currently under construction will have four chargers for EVs and PHEVs. Employees will pay for the charging service with a credit card.	Four charging stations provided in the new HQ facility.
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**

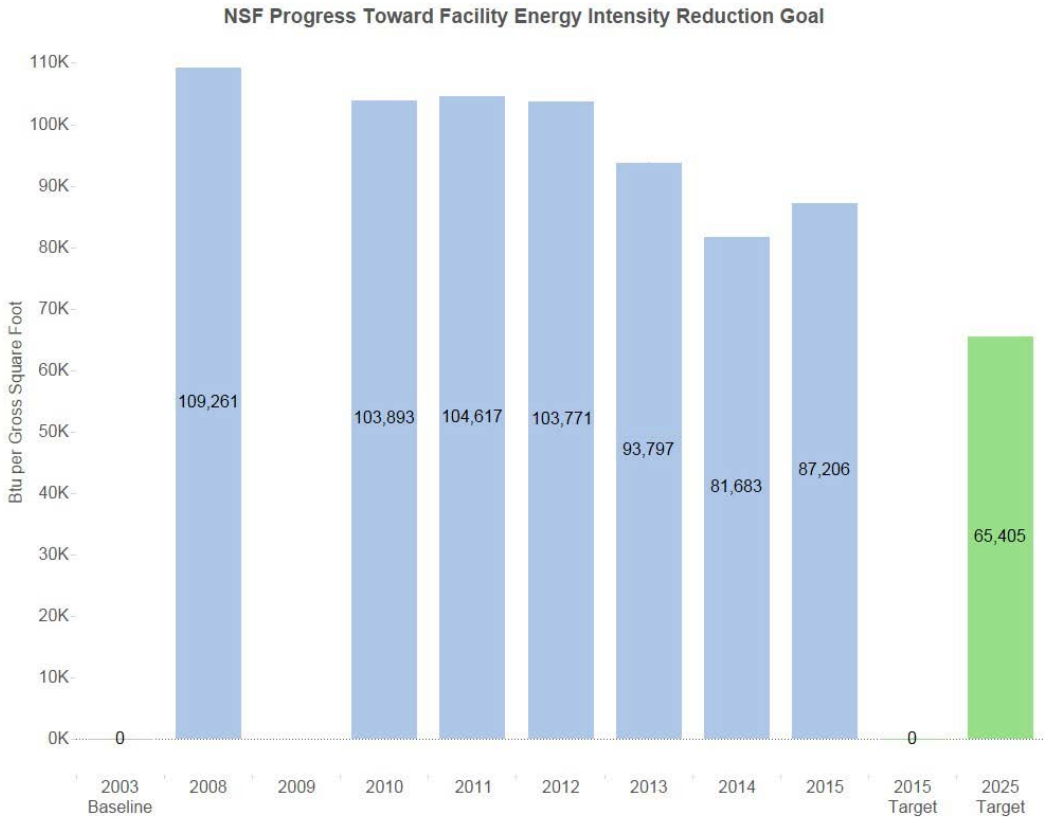
Include requirements for building lessor disclosure of carbon emission or energy consumption data and report Scope 3 GHG emissions for leases over 10,000 rentable SF.	Yes	The new lease for NSF HQ (2017 moving date) includes a requirement to provide all energy consumption data to NSF.	Lease for new NSF HQ includes requirement to disclose energy consumption data.

Goal 2: Sustainable Buildings

Building Energy Conservation Goal

The Energy Independence and Security Act of 2007 (EISA) requires each agency to reduce energy intensity 30% by FY 2015 as compared to FY 2003 baseline. Section 3(a) of EO 13693 requires agencies to promote building energy conservation, efficiency, and management and reduce building energy intensity by 2.5% annually through the end of FY 2025, relative to a FY 2015 baseline and taking into account agency progress to date, except where revised pursuant to Section 9(f) of EO 13693.

Chart: Progress Toward Facility Energy Intensity Reduction Goal



Building Energy Conservation Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Make energy efficiency investments in agency buildings.	No	NSF currently occupies two buildings with GSA leases that are expiring in the near future. A new, energy-efficient HQ facility is currently being constructed.	
Use remote building energy performance assessment auditing technology	No	NSF might consider remote auditing technology in the future, but it is not a near-term priority.	
Participate in demand management programs.	No	This is not among NSF's top five priorities.	
Incorporate Green Button data access system into reporting, data analytics, and automation processes.	No	NSF might use Green button in the future, since it is in a standard format that can be imported into energy management software or for recognition by ENERGY STAR, but it is not a near-term priority.	
Redesign interior space to reduce energy use through daylighting, space optimization, and sensors and control systems.	Yes	The new NSF HQ facility currently being constructed will use these approaches.	Energy intensity in FY 2018 (the first year of occupancy in the new facility) 7.5% lower than the FY 2015 baseline.
Identify opportunities to transition test-bed technologies to achieve energy reduction goals.	N/A	NSF does not test new technologies.	
Follow city energy performance benchmarking and reporting requirements.	No	Since NSF will be occupying newly constructed, high performance space as of 2017, its energy performance will presumably be superior to any City of Alexandria benchmark.	
Install and monitor energy meters and sub-meters.	Yes	The new GSA-leased facility that NSF will occupy starting in FY 2017 will have zoned smart meters.	Smart sub-meters included in the plans for the new NSF HQ building.
Collect and utilize building and facility energy use data to improve building energy management and performance.	Yes	The new HQ facility will have a building energy management system that will collect data and facilitate analysis by the facility manager to optimize performance.	As part of his or her duties, the facility manager of the new HQ facility will use the data from the building energy management system to optimize performance.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Ensure that monthly performance data is entered into the EPA ENERGY STAR Portfolio Manager.	Yes	Once NSF is in the new HQ facility, it will begin using Portfolio Manager. Meanwhile, NSF enters consumption data directly into the GSA Carbon Footprint Tool.	Energy and water data entered into Portfolio Manager once NSF has relocated to its new HQ.

Building Efficiency, Performance, and Management Goal

Section 3(h) of EO 13693 states that agencies will improve building efficiency, performance, and management and requires that agencies identify a percentage of the agency's existing buildings above 5,000 gross square feet intended to be energy, waste, or water net-zero buildings by FY 2025 and implementing actions that will allow those buildings to meet that target.

NSF's 2025 target is net zero solid waste for its one building.

Guiding Principles for Sustainable Federal Buildings

Section 3(h) of EO 13693 also states that agencies will identify a percentage, by number or total GSF, of existing buildings above 5,000 GSF that will comply with the *Guiding Principles for Sustainable Federal Buildings (Guiding Principles)* by FY 2025.

At the present time the revised Guiding Principles are not mandatory for leased property. However, NSF's FY 2025 target is 100% of its buildings (there will be only one building).

Sustainable Buildings Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Include climate resilient design and management into the operation, repair, and renovation of existing agency buildings and the design of new buildings.	Yes	The new NSF HQ facility has back-up generators to ensure access to electricity in the event of an extended power outage. Also, the building envelope is high efficiency, capable of maintaining habitable temperatures during power outages.	When facility construction is complete in 2017, it will have back-up power generation capability and a high-performance building envelope.
In planning new facilities or leases, include cost-effective strategies to optimize sustainable space utilization and consideration of existing community transportation planning and infrastructure, including access to public transit.	Yes	The new NSH HQ currently under construction is located within close walking distance of the Eisenhower Avenue Station metro stop in Alexandria.	New NSF HQ is close proximity to public transit.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Ensure all new construction of Federal buildings greater than 5,000 GSF that enters the planning process be designed to achieve energy net-zero and, where feasible, water or waste net-zero by FY 2030.	No	The new NSF HQ will be a high performance building, but has not been designed to be net zero.	
Include criteria for energy efficiency as a performance specification or source selection evaluation factor in all new agency lease solicitations over 10,000 rentable square feet.	Yes	The new lease for the new NSF HQ includes a requirement for at least LEED Silver, including energy efficiency features.	Energy intensity in FY 2018 (the first year of occupancy in the new facility) 7.5% lower than the FY 2015 baseline.
Incorporate green building specifications into all new construction, modernization, and major renovation projects.	Yes	The new lease for the new NSF HQ includes a requirement for at least LEED Silver.	The new NSF HQ certified at least to LEED Silver, and perhaps higher.
Implement space utilization and optimization practices and policies.	No	This is not a high priority.	

Goal 3: Clean & Renewable Energy

Clean Energy Goal

EO 13693 Section 3(b) requires that, at a minimum, the percentage of an agency's total electric and thermal energy accounted for by renewable and alternative energy shall be not less than: 10% in FY 2016-17; 13% in FY 2018-19; 16% in FY 2020-21; 20% in FY 2022-23; and 25% by FY 2025.

Renewable Electric Energy Goal

EO 13693 Section 3(c) requires that renewable energy account for not less than 10% of total electric energy consumed by an agency in FY 2016-17; 15% in FY 2018-19; 20% in FY 2020-21; 25% in FY 2022-23; and 30% by 2025.

Clean and Renewable Energy Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Install agency-funded renewable on-site and retain corresponding renewable energy certificates (RECs).	No	The new GSA-leased building NSF will occupy starting in FY 2017 does not include any on-site renewable energy. NSF will investigate the feasibility of installing building-integrated renewable energy later, but not within 18 months from now.	

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Contract for the purchase of energy that includes installation of renewable energy on or offsite and retain RECs or obtain replacement RECs.	N/A	NSF's energy usage is too small to justify contracting for energy.	
Purchase electricity and corresponding RECs or obtain equal value replacement RECs.	No	Virginia is a state with a non-competitive utility, and Dominion Power does not offer renewable power for purchase.	
Purchase RECs to supplement installations and purchases of renewable energy, when needed to achieve renewable goals.	Yes	NSF purchased RECs in FY 2016 to meet its renewable energy requirements, and will continue doing so in subsequent years. It will also purchase RECs in FY 2017 as part of the LEED certification of the new facility.	10% of total electricity use comes from renewables in FY 2016 and, via REC purchases, 100% in FY 2017.
Install on-site thermal renewable energy and retain corresponding renewable attributes or obtain equal value replacement RECs.	N/A	No thermal forms of renewable energy were found to be suitable for the new NSF HQ facility.	
Install on-site combined heat and power processes.	N/A	NSF does not have on-site power generation suitable for supporting combined heat and power.	
Identify opportunities to install on-site fuel cell energy systems.	N/A	The new HQ facility is not suitable for fuel cell energy systems.	
Identify opportunities to utilize energy that includes the active capture and storage of carbon dioxide emissions associated with energy generation.	N/A	NSF does not generate power, and therefore carbon dioxide capture and storage is not relevant.	
Identify and analyze opportunities to install or contract for energy installed on current or formerly contaminated lands, landfills, and mine sites.	N/A	NSF has no lands, landfills, or mine sites of any type.	
Identify opportunities to utilize energy from small modular nuclear reactor technologies.	N/A	A nuclear reactor is not appropriate for the Washington, DC metro area.	

Goal 4: Water Use Efficiency & Management

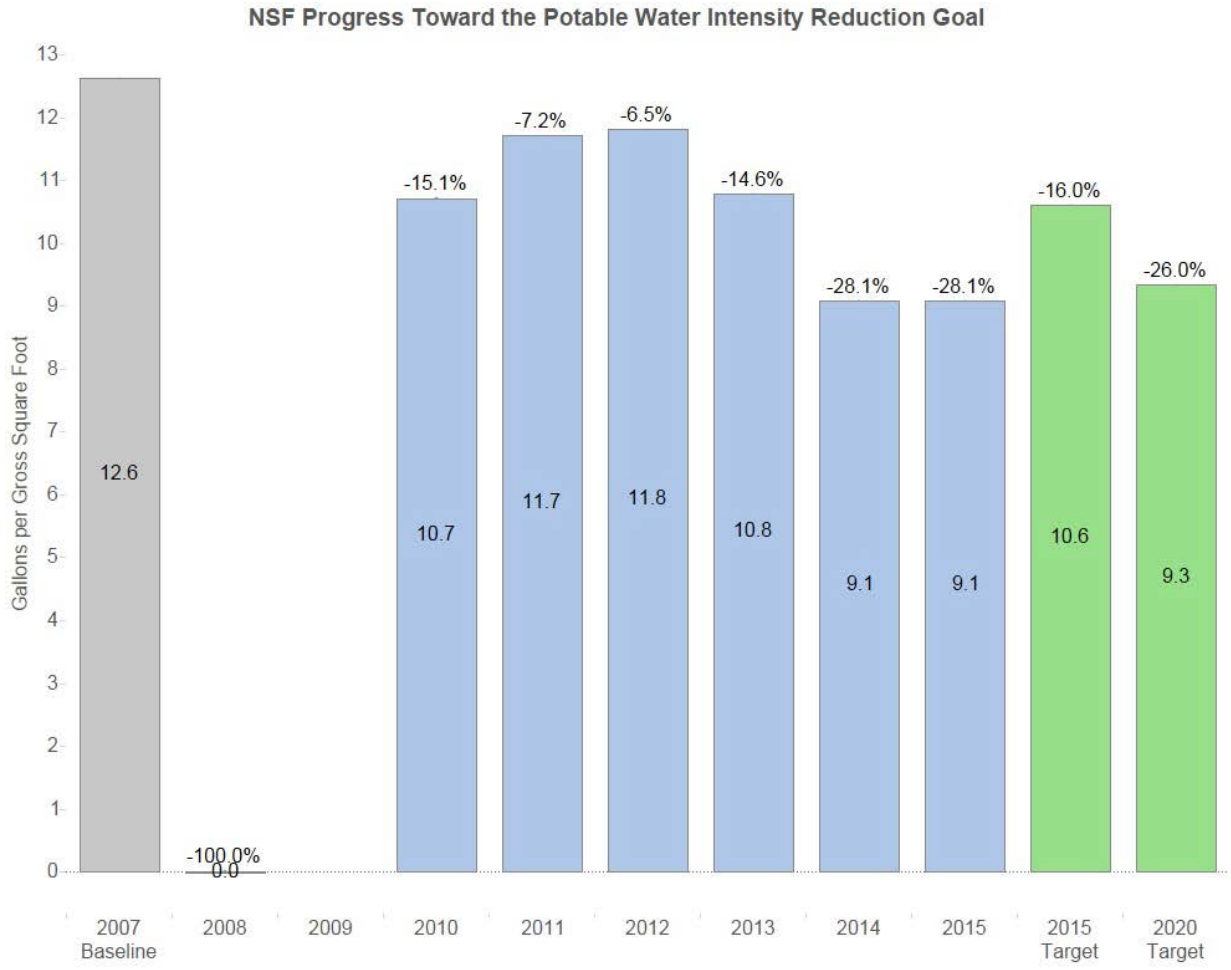
Potable Water Consumption Intensity Goal

EO 13693 Section 3(f) states that agencies must improve water use efficiency and management, including stormwater management, and requires agencies to reduce potable water consumption intensity, measured in gallons per square foot, by 2% annually through FY 2025 relative to an FY 2007 baseline. A 36% reduction is required by FY 2025.

Industrial, Landscaping and Agricultural (ILA) Water Goal

EO 13693 section 3(f) also requires that agencies reduce ILA water consumption, measured in gallons, by 2% annually through FY 2025 relative to a FY 2010 baseline.

Chart: Progress Toward the Potable Water Intensity Reduction Goal



Water Use Efficiency & Management Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics

Install green infrastructure features to assist with storm and wastewater management.	Yes	The plans for the new building under construction comply with all GSA and federal requirements to maintain the predevelopment hydrology of the site with regard to stormwater runoff.	New facility compliant with EISA §438.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Install and monitor water meters and utilize data to advance water conservation and management.	Yes	The new building will have up-todate water meters that will advance water efficiency and management.	100% of water meters installed in new building are advanced.
Install high efficiency technologies, e.g. WaterSense fixtures.	Yes	The new building will have highefficiency, low-flow fixtures throughout the building, with some ultra-low flow fixtures also planned.	All fixtures in new building are high efficiency.
Prepare and implement a water asset management plan to maintain desired level of service at lowest life cycle cost.	No	Not a priority at this time.	
Minimize outdoor water use and use alternative water sources as much as possible.	N/A	NSF currently has negligible irrigation, which is expected to continue in the new facility, given the limited number of plantings planned.	
Design and deploy water closed-loop, capture, recharge, and/or reclamation systems.	N/A	No technologies of this type were deemed suitable for the new facility.	
Install advanced meters to measure and monitor potable and ILA water use.	N/A	The amount of water used for outdoor irrigation will be minimal.	
Develop and implement programs to educate employees about methods to minimize water use.	No	This is not a top priority at this time since NSF has been exceeding water reduction goals.	
Assess the interconnections and dependencies of energy and water on agency operations, particularly climate change's effects on water, which may impact energy use.	N/A	NSF's mission is not closely tied to energy or water consumption threatened by climate change. NSF is currently far exceeding water intensity reduction targets, and in the new facility all fixtures will be high-efficiency models.	

Consistent with State law, maximize use of grey-water and water reuse systems that reduce potable and ILA water consumption.	N/A	NSF has negligible need for grey water or reclaimed water.	
Consistent with State law, identify opportunities for aquifer storage and recovery to ensure consistent water supply availability.	N/A	This is not relevant for NSF relatively low water usage in an urban office building.	
Ensure that planned energy efficiency improvements consider associated opportunities for water conservation.	Yes	NSF plans to investigate the feasibility of a performance contract in the future, after NSF has occupied the new facility and determined a baseline for its operations.	Water efficiency included in any performancebased contract into which NSF enters.
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**
Where appropriate, identify and implement regional and local drought management and preparedness strategies that reduce agency water consumption.	N/A	Regional and local drought management and preparedness strategies are not relevant for a newly constructed facility with very high water-efficiency performance.	

Goal 5: Fleet Management

NSF operates only two leased vehicles, and therefore is not required to report fleet management data in its SSPP, either fuel use or GHG emissions per mile travelled. The other data entered into FAST for NSF corresponds to vehicles operated by NSF awardee organizations, which are separate scientific facilities that operate independently from NSF.

Fleet Management Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Collect and utilize agency fleet operational data through deployment of vehicle telematics.	N/A	Not practical given that NSF has only two vehicles.	
Ensure that agency annual asset-level fleet data is properly and accurately accounted for in a formal Fleet Management Information System, as well as submitted to the Federal Automotive Statistical Tool reporting database, the Federal Motor Vehicle Registration System, and the Fleet	Yes	NSF annually reports its vehicle data into the Federal Automotive Statistical Tool reporting database. The other systems are not relevant given that NSF has only two vehicles.	NSF vehicle data reported annually into the Federal Automotive Statistical Tool.

Sustainability Dashboard (FLEETDASH) system.			
Increase acquisitions of zero emission and plug-in hybrid vehicles.	N/A	NSF HQ has no plans to acquire more vehicles of any type.	
Issue agency policy and a plan to install appropriate charging, or refueling infrastructure for zero emission, or plugin hybrid vehicles and opportunities for ancillary services to support vehicle-togrid technology.	N/A	NSF HQ has no plans to acquire more vehicles of any type.	
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**
Optimize and right-size fleet composition, by reducing vehicle size, eliminating underutilized vehicles, and acquiring and locating vehicles to match local fuel infrastructure.	Yes	NSF tried to find a suitable hybrid vehicle to replace the GSA-leased Lincoln Continental Town Car used for the Office of the Director. The attempt has been unsuccessful so far, due to the lack of suitable options available through GSA, but NSF will keep checking.	
Increase utilization of alternative fuel in dual-fuel vehicles.	No	One of NSF HQ's two vehicles is an E85 dual-fuel vehicle, but it uses no E85 because there is no fueling station located sufficiently close to either HQ or its normal routes. NSF does not plan to drive the vehicle the appreciable added distance and time needed to acquire E85, since that will negate the environmental benefits of E85.	
Use a FMIS to track real-time fuel consumption throughout the year for agency-owned, GSA-leased, and commercially leased vehicles.	N/A	NSF does not have a fleet, just two vehicles.	
Implement vehicle idle mitigation technologies.	N/A	The role for NSF's two vehicles involves minimal idling.	

Minimize use of law enforcement exemptions by implementing GSA Bulletin FMR B-33, *Motor Vehicle Management, Alternative Fuel Vehicle Guidance for Law Enforcement and Emergency Vehicle Fleets.*	N/A	NSF has no such vehicles.	
Where State vehicle or fleet technology or fueling infrastructure policies are in place, meet minimum requirements.	N/A	NSF has only two vehicles.	
Establish policy/plan to reduce miles traveled, e.g. through vehicle sharing, improving routing with telematics, eliminating trips, improving scheduling, and using shuttles, etc.	N/A	Having only two vehicles, which are devoted to specific, mission-related uses, a strategy to reduce miles travelled would yield negligible benefit. In terms of vehicle occupancy, most trips are made with groups of people.	

Goal 6: Sustainable Acquisition

Sustainable Acquisition Goal

EO 13693 section 3(i) requires agencies to promote sustainable acquisition by ensuring that environmental performance and sustainability factors are considered to the maximum extent practicable for all applicable procurements in the planning, award and execution phases of acquisition.

Biobased Purchasing Targets

The Agricultural Act of 2014 requires that agencies establish a targeted biobased-only procurement requirement. EO 13693 section 3(iv) requires agencies to establish an annual target for increasing the number of contracts to be awarded with BioPreferred and biobased criteria and the dollar value of BioPreferred and biobased products to be delivered and reported under those contracts in the following fiscal year.

Broad biobased purchasing goals are not appropriate for NSF given the type of acquisitions we make.

Note: to meet the requirement of the Agricultural Act of 2014 (2014 Farm Bill), all agencies should include targets, even if they achieved 95% biobased purchasing compliance in FY 2015.

Sustainable Acquisition Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Establish and implement policies to meet statutory mandates requiring purchasing preference for recycled content products, ENERGY STAR qualified and FEMP-designated products, and Biopreferred and	Yes	NSF's acquisition and purchase card guidance already has policies promoting the use of recycled content products, Energy Star, and similar standards. All approved laptops and computers meet these standards.	100% of relevant purchasing conforms to sustainability requirements.

biobased products designated by USDA.			
Establish and implement policies to purchase sustainable products and services identified by EPA programs, including SNAP, WaterSense, Safer Choice, and Smart Way.	Yes	These purchases are made by the Office of Information and Resource Management (the branch in charge of facilities and operations) and these are the standards that are followed.	100% of relevant purchasing conforms to sustainability requirements.
Establish and implement policies to purchase environmentally preferable products and services that meet or exceed specifications, standards, or labels recommended by EPA.	Yes	NSF has Blanket Purchase Agreements that include sustainable acquisition requirements for computers (both desktops and laptops) and monitors.	100% of relevant purchasing conforms to sustainability requirements.
Use Category Management Initiatives and government-wide acquisition vehicles that already include sustainable acquisition criteria.	No	This is not a priority at this time.	
Ensure contractors submit timely annual reports of their BioPreferred and biobased purchases.	N/A	NSF does not buy any significant quantities of biobased or biopreferred products through contracts.	
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**
Reduce copier and printing paper use and acquiring uncoated printing and writing paper containing at least 30 percent postconsumer recycled content or higher.	Yes	NSF is already purchasing copier/printer paper with a postconsumer content of 30%.	100% of relevant purchasing conforms to the requirement for □30 percent postconsumer recycled content.
Identify and implement corrective actions to address barriers to increasing sustainable acquisitions.	No	This is not a priority at this time.	
Improve quality of data and tracking of sustainable acquisition through the Federal Procurement Data System (FPDS).	N/A	This is not relevant for NSF since it does so little purchasing beyond computers and associated computing equipment.	

Incorporate compliance with contract sustainability requirements into procedures for monitoring contractor past performance and report on contractor compliance in performance reviews.	N/A	This is not relevant for NSF since the vast majority of NSF contracting is in the form of grants for basic scientific research, and contracts beyond that involve scant purchasing of relevant products.	
Review and update agency specifications to include and encourage products that meet sustainable acquisition criteria.	N/A	NSF does not develop product specifications.	
Identify opportunities to reduce supply chain emissions and incorporate criteria or contractor requirements into procurements.	N/A	This is not relevant for NSF since the vast majority of NSF contracting is in the form of grants for basic scientific research, and contracts beyond that involve scant purchasing of relevant products.	

Goal 7: Pollution Prevention & Waste Reduction

Pollution Prevention & Waste Reduction Goal

EO 13693 section 3(j) requires that Federal agencies advance waste prevention and pollution prevention and to annually divert at least 50% of non-hazardous construction and demolition debris. Section 3(j)(ii) further requires agencies to divert at least 50% of non-hazardous solid waste, including food and compostable material, and to pursue opportunities for net-zero waste or additional diversion.

Reporting on progress toward the waste diversion goal will begin with annual data for FY 2016.

Pollution Prevention & Waste Reduction Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Report in accordance with the requirements of sections 301 through 313 of the Emergency Planning and Community Right-toKnow Act of 1986 (42 U.S.C 11001-11023).	N/A	The Emergency Planning and Community Right-to-Know Act is~~are~~ not relevant to NSF for this strategy.	
Reduce or minimize the quantity of toxic and hazardous chemicals acquired, used, or disposed of, particularly where such reduction will assist the agency in pursuing agency greenhouse gas reduction targets.	N/A	The only potentially harmful chemicals used as a part of NSF's operations are cleaning supplies, and these have no bearing on GHG emissions.	

Eliminate, reduce, or recover refrigerants and other fugitive emissions.	N/A	Apart from potential negligible HFC releases from NSF fire extinguishers and pantry refrigerators (none of which were serviced in FY 2015), the only fugitive emissions would be from the HQ heating, ventilation and cooling (HVAC) equipment, which is operated and maintained by the building owner.	
Reduce waste generation through elimination, source reduction, and recycling.	Yes	(1) All facilities occupied by NSF HQ staff have active recycling programs. No solid waste from HQ is disposed in landfills because all of it is incinerated by a waste-to-energy facility. NSF will continue to use employee outreach to improve source reduction and recycling.	(1) At least 50% diversion for FY 2015.
Implement integrated pest management and improved landscape management practices to reduce and eliminate the use of toxic and hazardous chemicals and materials.	N/A	NSF HQ does not manage landscaping. Any pest control activities for the GSAleased HQ buildings are handled by the landlord per the lease in accordance with the integrated pest management standards established by GSA.	
Develop or revise Agency Chemicals Inventory Plans and identify and deploy chemical elimination, substitution, and/or management opportunities.	N/A	NSF HQ does not have a Chemicals Inventory Plan because it does not routinely use significant quantities of toxic or hazardous chemicals.	
Inventory current HFC use and purchases.	Yes	NSF will work with its HQ lessor to identify and quantify the sources of fugitive refrigerants.	Inclusion of HFCs (if any used) in the FY 2016 GHG inventory.
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**
Require high-level waiver or contract approval for any agency use of HFCs.	N/A	The only use of HFCs by NSF HQ is in the HVAC equipment for the leased buildings occupied by HQ. The equipment is operated and maintained by the building owner.	
Ensure HFC management training and recycling equipment are available	N/A	All HFCs are handled by the lessor's HVAC service provider.	

Goal 8: Energy Performance Contracts

Performance Contracting Goal

EO 13693 section 3(k) requires that agencies implement performance contracts for Federal buildings. EO 13693 section 3(k) (iii) also requires that agencies provide annual agency targets for performance contracting.

NSF is not required to make commitments under the President's Performance Contracting Challenge.

Performance Contracting Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Utilize performance contracting to meet identified energy efficiency and management goals while deploying life-cycle cost effective energy and clean energy technology and water conservation measures.	Yes	Performance contracting is not relevant to NSF in the near term because the GSA lease for its HQ is coming to an end. The new GSA-leased building NSF will occupy starting in FY 2017 will have a LEED rating of at least Silver but, after NSF has occupied the new facility and determined a baseline for its operations, NSF will investigate the feasibility of a performance contract.	NSF will evaluate feasibility once NSF has occupied the new facility and determined a baseline for its operations.
Fulfill existing agency target/ commitments towards the PPCC by the end of CY16.	N/A	NSF has no existing performance contracting commitments.	
Evaluate 25% of agency's most energy intensive buildings for opportunities to use ESPCs/UESCs to achieve goals.	N/A	NSF has only one HQ location.	
Prioritize top ten portfolio wide projects, which will provide greatest energy savings potential.	N/A	This is not relevant in the near term because the GSA lease for its HQ is ending, and the new facility is new, high performance construction.	
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**
Identify and commit to include onsite renewable energy projects in a percentage of energy performance contracts.	Yes	If NSF decides to pursue a performance contract in the future for its new, LEEDcertified facility, it will include an evaluation of renewable energy projects.	Not relevant for the next 18 months.
Submit proposals for technical or financial assistance to FEMP and/or use FEMP resources to improve performancecontracting program.	N/A	Not relevant since NSF does not have a performance contracting program	

Work with FEMP/USACE to cut cycle time of performance contracting process, targeting a minimum 25% reduction.	N/A	Not relevant since NSF does not have a performance contracting program	
Ensure agency legal and procurement staff is trained by the FEMP ESPC/UESC course curriculum.	N/A	Not relevant since NSF does not have a performance contracting program	

Goal 9: Electronics Stewardship & Data Centers

Electronics Stewardship Goals

EO 13693 Section 3(l) requires that agencies promote electronics stewardship, including procurement preference for environmentally sustainable electronic products; establishing and implementing policies to enable power management, duplex printing, and other energy efficient or environmentally sustainable features on all eligible agency electronic products; and employing environmentally sound practices with respect to the agency's disposition of all agency excess or surplus electronic products.

Agency Progress in Meeting Electronics Stewardship Goals

If your agency cannot track performance agency-wide, do not fill in a percentage. Instead, under status, note "(Agency) does not have agency-wide systems in place to track performance for this goal."

Procurement Goal:
At least 95% of monitors, PCs, and laptops acquired meet environmentally sustainable electronics criteria (EPEAT registered).

FY 2015 Progress: 100%

Power Management Goal:
100% of computers, laptops, and monitors have power management features enabled.

FY 2015 Progress: NSF does not have agency-wide systems in place to track performance for this goal. Central printers are set with power management enabled, but this feature is not tracked for the separate NSF divisions.

End-of-Life Goal:
100% of electronics disposed using environmentally sound methods, including GSA Xcess, Computers for Learning, Unicor, U.S. Postal Service Blue Earth Recycling Program, or Certified Recycler (R2 or E-Stewards).

FY 2015 Progress: 100%

Data Center Efficiency Goal

EO 13693 Section 3(a) states that agencies must improve data center efficiency at agency facilities, and requires that agencies establish a power usage effectiveness target in the range of 1.2-1.4 for new data centers and less than 1.5 for existing data centers.

Electronics Stewardship Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Use government-wide strategic sourcing vehicles to ensure procurement of equipment that meets sustainable electronics criteria.	Yes	NSF uses Blanket Purchase Agreements that require the sustainable acquisition of computers (desktops and laptops) and monitors.	100% of computer and monitor acquisitions meet the criteria for sustainable electronics.
Enable and maintain power management on all eligible electronics; measure and report compliance.	No	Currently all power management settings for NSF's central computing devices are set with power management enabled, without the ability for users to change these settings. However, at this time, this information is not tracked regarding the printers used by the individual divisions.	
Implement automatic duplexing and other print management features on all eligible agency computers and imaging equipment; measure and report compliance.	Yes	NSF's networked imaging devices are all set to default duplex printing.	NSF's networked imaging devices remain set to default duplex printing.
Ensure environmentally sound disposition of all agency excess and surplus electronics, consistent with Federal policies on disposal of electronic assets, and measure and report compliance.	Yes	NSF ensures the environmentally sound disposition for 100% of its excess or surplus electronic products—either through donations for reuse, GSA Xcess, or certified recyclers—and it will continue to do so.	No end-of-life electronics disposed through nonCertified Recyclers.
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**

Improve tracking and reporting systems for electronics stewardship requirements through the lifecycle: acquisition and procurement, operations and maintenance, and end-of-life management.	Yes	NSF will be participating in the USPS Blue Earth recycling program. This program is a free web-based supplement to existing recycling programs for IT equipment (after the agency has cleared all property through the proper channels including GSA, etc.,) and printer/toner cartridges. The MOU has been signed, and the program expected to be launched during the fourth quarter FY 2016. HQ pilot only initially for three months. Participation in the pilot will be tracked by activity and pounds of materials recycled.	Full implementation of the program is expected by FY 2017

Data Center Efficiency Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Develop, issue and implement policies, procedures and guidance for data center energy optimization, efficiency, and performance.	Yes	The data center at the new NSF HQ will have a PUE of <1.1.	PUE < 1.1
Install and monitor advanced energy meters in all data centers (by fiscal year 2018) and actively manage energy and power usage effectiveness.	Yes	The future HQ data center will be metered with advanced meters and will be operated in a "lights out" manner to achieve optimal efficiency and carbon footprint. The data center cooling system will be separated from "convenience cooling" according to ASHRAE guidelines.	Energy usage of the old Arlington facility compared to that of the new facility.
Minimize total cost of ownership in data center and cloud computing operations.	Yes	The footprint of the rack space in the new HQ data center will be lower than the current rack space at the Arlington HQ. Also, NSF will continue to migrate existing services to cloud solutions.	(1) Comparison of current footprint of rack space to that in the new Alexandria data center; (2) progress migrating services to cloud solutions.

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Identify, consolidate and migrate obsolete, underutilized and inefficient data centers to more efficient data centers or cloud providers; close unneeded data centers.	Yes	Replace the data center in the Arlington HQ with one in the new HQ facility.	All data center services fully operational at the new HQ.
Improve data center temperature and airflow management to capture energy savings.	Yes	Reducing the rack space of the current data center has yielded improved PUE and avoided costs, because of reduced cooling requirements and lower energy consumption.	PUE < 1.1
Assign certified Data Center Energy Practitioner(s) to manage core data center(s).	No	Not currently planned	

Goal 10: Climate Change Resilience

EO 13653, *Preparing the United States for the Impacts of Climate Change*, outlines Federal agency responsibilities in the areas of supporting climate resilient investment; managing lands and waters for climate preparedness and resilience; providing information, data and tools for climate change preparedness and resilience; and planning.

EO 13693 Section 3(h)(viii) states that as part of building efficiency, performance, and management, agencies should incorporate climate-resilient design and management elements into the operation, repair, and renovation of existing agency buildings and the design of new agency buildings. In addition, Section 13(a) requires agencies to identify and address projected impacts of climate change on **mission critical** water, energy, communication, and transportation demands and consider those climate impacts in operational preparedness planning for major agency facilities and operations. Section 13(b) requires agencies to calculate the potential cost and risk to mission associated with agency operations that do not take into account such information and consider that cost in agency decision-making.

Climate Change Resilience Strategies

Strategy	Priority for FY 2017	Strategy Narrative	Targets and Metrics
Strengthen agency *external* mission, programs, policies and operations (including	N/A	NSF's external programs and policies consist of grants for basic scientific research conducted by independent research institutions. It is not an appropriate role for NSF to incentivize these institutions to improve resilience to climate change.	

grants, loans, technical assistance, etc.) to incentivize planning for, and addressing the impacts of, climate change.			
Strategy	**Priority for FY 2017**	**Strategy Narrative**	**Targets and Metrics**
Update and strengthen agency *internal* mission, programs, policies, and operations to align with the Guiding Principles, including facility acquisition, planning, design, training, and asset management processes, to incentivize planning for and addressing the impacts of climate change.	Yes	The new NSF HQ facility in Alexandria will be prepared for power outages and flooding. The facility will equipped with a backup power generation supply and has an efficient envelope that will maintain a comfortable working environment during a power outage. Also, NSF conducted a flooding risk analysis on the Alexandria site, and found the closest potential 500-year flood zone to be sufficiently removed from the site in terms of distance and elevation.	When construction is completed in 2017, the facility will have back-up power generation capability and a high performance building envelope.

Update emergency response, health, and safety procedures and protocols to account for projected climate change, including extreme weather events.	Yes	NSF HQ occupies only one facility (two buildings, to be consolidated into one during 2017). HQ maintains a Continuity of Operations Plan (COOP) and keeps it up to date. Since the COOP covers all threats and hazards, it is considered sufficient to address extreme weather events. NSF will follow any climate change guidelines contained in the next update to the Northern Virginia Hazard Mitigation Plan, expected in December 2016.	NSF will follow any climate change guidelines contained in the next update to the Northern Virginia Hazard Mitigation Plan.
Ensure climate change adaptation is integrated into both agency-wide and regional planning efforts, in coordination with other Federal agencies as well as state and local partners, Tribal governments, and private stakeholders.	N/A	NSF conducts no such planning efforts, as it occupies only one GSA-leased HQ and will not be expanding the extent of its space.	
Ensure that vulnerable populations potentially impacted by climate change are engaged in agency processes to	N/A	Vulnerable populations are not relevant to NSF's mission, which is to serve the nation through basic scientific research, which is conducted by independent research institutions under NSF sponsorship.	

identify measures addressing relevant climate change impacts.			
Identify interagency climate tools and platforms used in updating agency programs and policies to encourage or require planning for, and addressing the impacts of, climate change.	Yes	NSF will use the adaptation planning portion of the GSA Sustainable Facilities Tool (SFTool, https://sftool.gov/plan/409/federalhttps://sftool.gov/plan/409/federal-agency-adaptation-plans-address-vulnerabilitiesagency-adaptation-plans-addresshttps://sftool.gov/plan/409/federal-agency-adaptation-plans-address-vulnerabilitiesvulnerabilities).	This tool used in developing NSF's Climate Change Adaptation Plan, due in 2018.

Appendix: National Science Foundation Multimodal Access Plan

I. Agency Workplace Charging Plan

A. Summary of Strategy

The garage of the new NSF HQ facility currently under construction will have four chargers for electric vehicles (EVs) and plug-in hybrids (PHEVs). Employees will pay for the charging service with a credit card. NSF will assume occupancy of the new facility sometime in FY 2017. Although it is too early to assess the demand for additional charging infrastructure in the new facility, NSF will do so using the FY 2018 GSA Scope 3 Commuter Survey, if the survey is still supported by GSA. If at any point demand exceeds existing capacity, NSF will discuss with the building owner options for meeting that demand.

B. Details of Strategy

1. Actions and Projected Timeframes
   The garage of the new NSF HQ facility currently under construction will have four chargers for EVs and PHEVs. The chargers will be under the control of the building owner, and employees will pay for the charging service with a credit card. NSF will assume occupancy of the new facility sometime in FY 2017.

2. Roles and Responsibilities of Key Agency Personnel
   The Office of Information Resource Management (OIRM) will oversee employee feedback on and demand for the charging infrastructure.

3. Outreach to Agency Employees and Visitors
   Agency outreach to employees with information on the new facility will include details on the charging stations, such as their location and the building owner's guidance for using them. Employees will be directed to submit any feedback on the stations to OIRM. As time goes on, OIRM will keep employees informed as any new charging stations become available. For the near future, the use of NSF charging infrastructure will be for employees only, not visitors.

4. Incentivizing EV Usage
   If supported by employee demand, the best way to incentivize employees to use EVs is to provide charging infrastructure at the workplace.

5. Assessing Demand for Workplace Charging
   NSF will survey the demand of employees for infrastructure to charge their existing or future EVs and PHEVs using the FY 2018 GSA Scope 3 Commuter Survey, if the survey is still supported by GSA.

6. Ensuring Continued Success

NSF will periodically assess demand for additional charging infrastructure, and if demand exceeds the existing capacity, NSF will discuss options with the building owner for meeting that demand.

II. Agency Bicycling and Active Commuter Program

A. Summary of Strategy

NSF already encourages bicycle commuting, including providing a bicycle subsidy, secure bicycle parking sheltered from the elements, and showers, and it will continue to provide these amenities in the new facility, to be occupied in FY 2017. Agency outreach to employees with information on the new facility will include details on infrastructure to support bicycle commuters, including information on bicycle paths in the area. NSF has been tracking the commuting miles travelled by bicycling since FY 2011, via the GSA Scope 3 Commuter Survey, and it will continue to use the Commuter Survey to track the extent of bicycle commuting, if the survey is still supported by GSA.

B. Details of Strategy

1. Actions and Projected Timeframes
   NSF already encourages bicycle commuting, including providing a subsidy for employees who commute by bicycle, secure bicycle parking sheltered from the elements, and showers. NSF will continue to provide these amenities in the new facility, to be occupied in FY 2017. Prior to moving into the new facility, agency outreach to employees with information on the new facility will include details on infrastructure to support bicycle commuters, including information on bicycle paths in the area. NSF has been tracking the commuting miles travelled by bicycling since FY 2011, via the GSA Scope 3 Commuter Survey, and it will continue to use the Commuter Survey to track the extent of bicycle commuting.

2. Roles and Responsibilities of Key Agency Personnel
   OIRM is responsible for overseeing the bicycle commuting program.

3. Outreach to Agency Employees and Visitors
   Agency outreach to employees with information on the new facility will include details on infrastructure to support bicycle commuters, including information on bicycle paths in the area.

4. Incentivizing Bicycle Usage and other Forms of Active Commuting
   NSF already encourages bicycle commuting, including providing a bicycle subsidy, secure bicycle parking sheltered from the elements, and showers, and it will continue to provide these amenities in the new facility.

5. Assessing Demand for Bicycle and other Active Commuter Needs
   According to the GSA Scope 3 Commuter Survey, commuter miles travelled by bicycle increased 78% from FY 2011 to FY 2015 (normalizing the data for the number of survey respondents). NSF will continue to use the Commuter Survey to track the extent of bicycle commuting.

6. Ensuring Continued Success
   NSF will continue to provide a subsidy for employees who commute by bicycle, as well as secure bicycle parking sheltered from the elements and showers.

III. Agency Telecommuting and Teleconferencing Expansion Plan

A. Summary of Strategy

NSF sees teleworking as a strategy for providing employees with commuting alternatives and reducing GHG emissions due to commuting. This is the case because: (1) mass transit is already widely used and appears to have reached its maximum utilization; (2) miles commuted by bicycle have increased 78% from FY 2011 to FY 2015, but this mode of transportation will remain fairly limited across the workplace; and (3) the restricted flexibility and convenience inherent in ride sharing has kept this mode of commute stagnant at around 8% of employees. NSF decided in FY 2013 to focus on teleworking. Largely due to new telework policy, those employees with agreements for regular teleworking increased the number of hours they teleworked by more than one-third in just two years, from FY 2013 to FY 2015. While it is difficult to predict how much more telework participation will grow in the future, NSF will continue to focus on teleworking.

Details of Strategy

1. Actions and Projected Timeframes
   NSF will continue to provide training to facilitate telework, both in terms of helping managers manage remotely, and helping employees to communicate using remote technologies.

2. Roles and Responsibilities of Key Agency Personnel
   ORIM is responsible for overseeing the telework program.

3. Outreach to Agency Employees
   NSF will continue to provide training to facilitate telework, both in terms of helping managers manage remotely, and helping employees to communicate using remote technologies.

4. Incentivizing Increased Telecommuting and Teleconferencing
   No incentivizing is needed for teleworking, per se, due to the flexibility and time saving it imparts. As appropriate, NSF will focus on lowering instituional barriers to participation in teleworking.

5. Assessing Demand for Telecommuting and Teleconferencing
   NSF finalized the implementation of its new teleworking policy in FY 2014 based on employee demand. The focus now is on appropriate employee use of the program, and institutionalizing the practice within management.

6. Ensuring Continued Success
   NSF will continue to provide training to facilitate telework.

IV. Agency Carpooling and Transit Plan

A. Summary of Strategy

NSF has long had in place a mass transit subsidy program for the Washington Metro system, which is widely used because the NSF facility is in an urban area one block from a Metro station. The GSA Scope 3 Commuter Survey shows that the portion of employees using mass transit as their primary method of commuting has been essentially constant since FY 2011. The Commuter Survey shows that ride sharing has also been steady in recent years, with only about 8% of employees using this as their primary means of commuting. Given the restricted flexibility and convenience inherent in ride sharing, we do not see a potential for meaningfully increasing participation in ride sharing.

Therefore, the best strategy for NSF to significantly reduce commuting emissions is to promote teleworking, rather than attempting to further increase the use of mass transit and/or ride sharing.

Survey on Agency Climate Adaptation Plans

AGENCY: National Science Foundation

POINT OF CONTACT (Name, Phone, Email)**: Julie K. Speers**, NSF Sustainability Officer, 703-292-7563, jspeers@nsf.gov.

INSTRUCTIONS: To supplement your agency's 2016 Strategic Sustainability Performance Plan (SSPP) response for Goal 10: Climate Change Resilience, please complete the following survey. Please indicate how your agency has addressed each question in its current Agency Climate Adaptation Plan. If a question is fully addressed, please provide a page reference. If a question is not or is only partially addressed in your plan, please provide a succinct narrative response to the question using the following *Agency Narrative Response Template*.

Element	#	Questions: Has your agency…	Yes/No/ Partial	Plan Page Reference
Risks and Vulnerabilities	Q1	Comprehensively assessed and reexamined, as appropriate, the climate change-related impacts on and risks to the agency's ability to accomplish its missions, operations, and programs?	partial	2, 3
Mission and External Programs	Q1	Identified opportunities to support or encourage smarter, more climate-resilient investment through grants, loans or other financial incentives?	No	N/A
	Q2	Identified opportunities to support or encourage smarter, more climate-resilient investment through program planning requirements?	No	N/A
	Q3	Identified barriers, prioritized and established timelines for implementing those opportunities?	No	N/A
Agency Internal Policies	Q1	Identified the internal agency policies that require updating to manage climate risks and build resilience in the short and long term?	Yes	2, 3
	Q2	Identified the component/office responsible for updating those policies, the level of maturity of the effort (e.g., "initiated" or "ongoing"), and key milestones or timelines for implementation?	Yes	2, 3
	Q3	Successfully revised policies?	partial	3
Agency Facilities and Infrastructure	Q1	Identified which facilities and infrastructure may be impacted by climate change?	partial	2, 3
	Q2	Identified the components/offices responsible for addressing those risks, developed a strategy for addressing facilities and infrastructure that are at-risk, and identified barriers and timelines for implementation?	Yes	2, 3
Data, Information and Tools	Q1	[For Agencies that Develop Climate-Related Data] Established clear goals and timelines to develop and share the latest data, information and tools across Federal agencies at the national, regional, and local levels?	N/A	N/A
	Q2	Establish clear goals and timelines to integrate the latest data, information and tools into Federal programs, policies, and operations?	N/A	N/A
Climate Literacy, Training and Technical Assistance	Q1	Conducted an assessment of climate literacy, training and technical assistance needs of agency staff and key mission-critical external partners?	No	3
	Q2	Established clear goals and timelines for implementing climate literacy, training and technical assistance programs for key partners (internal and external)?	Yes	3
Supply Chain	Q1	Identified climate change-related risks to critical supply chains?	No	N/A
	Q2	Identified and implemented actions to manage supply chain risks?	No	N/A

Agency Narrative Response Template

INSTRUCTIONS: Please complete one template for each Element that is not or is only partially addressed in your current Agency Climate Adaptation Plan. Agencies may provide one template for multiple questions for each element. This template is intended to facilitate progress review discussions; they are not intended to be a comprehensive response. Please be succinct, and limit responses to one page per element.

Element:	Risks and Vulnerabilities
Question(s) under this Element that are not or only partially addressed:	☒ Q1 ☐ Q2 ☐ Q3
Action or Target Outcome:	
The FY 2015 NSF climate change adaptation plan (CCAP) has two actions to address this: • Action 1: Vulnerability and Risk Assessments on the New NSF Headquarters; • Action 4: Vulnerability and Risk Assessments on Grantee Organizations Action #1 is to conduct climate change vulnerability and risk assessments on NSF operations and the new HQ facility, and repeat the assessments every four years after each quadrennial National Climate Assessment (NCA) is issued. This action is currently being implemented. Due to the overlap between this Element and the one on Agency Facilities and Infrastructure, progress to date is summarized under that Element. Action #4 is to conduct vulnerability and risk assessments on buildings occupied by scientific awardee organizations that are owned by NSF, located in the United States, and have areas greater than 10,000 gross square feet. As per the planned timeline, this activity is not yet underway.	
Level of Maturity/Status:	**Ongoing/In Progress**
Major Milestones and Timeline:	
The timeframe for Action #1 is by the third quarter of FY 2016, and during the FY following each issuance of the NCA. The timeframe for Action #4 is by the end of FY 2018.	
Responsible Component/Office/Individual:	
Office of Information & Resource Management	
Challenges or Barriers to Implementation:	
None identified	

Element:	Mission and External Programs
Question(s) under this Element that are not or only partially addressed:	☒ Q1 ☒ Q2 ☒ Q3
Action or Target Outcome:	
NSF's external programs and policies consist of grants for basic scientific research conducted by independent research institutions. This Element is not relevant to NSF because it is not an appropriate role for NSF to incentivize these institutions to improve resilience to climate change, nor are NSF grants relevant to climate-resilient investments.	
Level of Maturity/Status:	Choose an item.
Major Milestones and Timeline:	
N/A	
Responsible Component/Office/Individual:	
N/A	
Challenges or Barriers to Implementation:	
N/A	

Element:	Agency Internal Policies
Question(s) under this Element that are not or only partially addressed:	☐ Q1 ☐ Q2 ☒ Q3

Action or Target Outcome:

The FY 2015 CCAP has two actions that address this Element:

- Action 2: Continuity of Employee Productivity
- Action 3: Evaluate Provisions for HQ Operational Resilience

Action #2 consists of technology improvements to ensure that employees are able to productively perform work outside of the HQ building. Action #3 has two parts—to evaluate whether: (a) the continuity of operations plan (COOP) and Occupant Emergency Plan (OEP) need revision to remain effective if changes occur in the operating environment due to anticipated climate change impacts; and (b) the systems planned for the new facility are adequate to ensure reliable power supply in the face of outages or voltage drops in the electricity grid.

For Action #2, we are actively pursuing telework to ensure that employees can be productive to the extent feasible during severe weather and pandemics. This is being done through an active training program for managers and staff on both the soft skills and technology that enable successful telework.

For Action #3, staff from the lead office (Office of Information & Resource Management) is working with emergency response planning and security staff on planning activities relating to HQ. That includes updating the existing COOP and emergency response plans relating to occurrences such as epidemics, severe weather, prolonged heat, and power outages.

Level of Maturity/Status:	**Ongoing/In Progress**

Major Milestones and Timeline:

Action #2: by the end of FY 2016
Action #3: (a) by the end of FY 2016 and again by the end of the FY in which the next NCA is issued; (b) by the end of FY 2017.

Responsible Component/Office/Individual:

Office of Information & Resource Management

Challenges or Barriers to Implementation:

None identified

Element:	Agency Facilities and Infrastructure
Question(s) under this Element that are not or only partially addressed:	☒ Q1 ☐ Q2 ☐ Q3

Action or Target Outcome:

The FY 2015 NSF CCAP has two actions to address this:

- Action 1: Vulnerability and Risk Assessments on the New NSF Headquarters
- Action 4: Vulnerability and Risk Assessments on Grantee Organizations,

which are described above under the Risks and Vulnerabilities Element.

NSF has been actively implementing Action #1:

- a flooding risk analysis was conducted on the new HQ Alexandria site
- the emergency response/security office in the new HQ facility, currently being constructed, is being located on an upper level (third or higher), rather than on the ground floor as originally planned, to ensure that any potential water damage would not negatively impact occupant security.
- The backup generator and the fuel for it are in a flood-proof shell.
- The new Alexandria building was designed with potential storm damage in mind with an expanded drain/sewer system in the basement garage levels.
- The National Radio Astronomy Observatory in New Mexico, one of the NSF awardee organizations, was provided with a list of drought and fire resistant plants specific to the region, because of ongoing wildfire problems there.

NSF does not plan to initiate implementation of Action #4 until later.

Level of Maturity/Status:	**Ongoing/In Progress**

Major Milestones and Timeline:

The timeframe for Action #1 is by the third quarter of FY 2016, and during the FY following each issuance of the NCA. The timeframe for Action #4 is by the end of FY 2018.

Responsible Component/Office/Individual:

Office of Information & Resource Management

Challenges or Barriers to Implementation:

none identified

Element:	Climate Literacy, Training and Technical Assistance
Question(s) under this Element that are not or only partially addressed:	☒ Q1 ☐ Q2 ☐ Q3
Action or Target Outcome:	
This element is relevant to Action #4 of the FY 2015 NSF CCAP: Vulnerability and Risk Assessments on Grantee Organizations. To generally improve the climate change resilience of the research conducted in NSF-owned facilities occupied by NSF scientific awardee organizations, NSF will work with the NSF facility program managers and the awardee organizations to gain site-specific knowledge, and conduct vulnerability and risk assessments on all awardee organization buildings owned by NSF that are in the United States and have areas greater than 10,000 GSF. This work will entail technical assistance on climate change literacy for both NSF staff and the awardee organizations.	
Level of Maturity/Status:	**Planning**
Major Milestones and Timeline:	
Vulnerability and risk assessments completed for all buildings meeting the criteria in the action description by the end of FY 2018.	
Responsible Component/Office/Individual:	
Office of Information & Resource Management	
Challenges or Barriers to Implementation:	
None identified	

Element:	Supply Chain
Question(s) under this Element that are not or only partially addressed:	☒ Q1 ☒ Q2 ☐ Q3
Action or Target Outcome:	
The Supply Chain Element is not relevant for NSF because the vast majority of NSF contracting is in the form of grants for basic scientific research, and beyond that it does a negligible quantity of procurement except for purchasing computers and associated computing equipment for the use of staff.	
Level of Maturity/Status:	Choose an item.
Major Milestones and Timeline:	
N/A	
Responsible Component/Office/Individual:	
N/A	
Challenges or Barriers to Implementation:	
N/A	