

**U.S. Nuclear Regulatory Commission**

**Sustainability Report and Implementation Plan**

**2023**

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### Vision

The U.S. Nuclear Regulatory Commission (NRC) remains committed to incorporating sustainability within its business operations and will continue to build on successful sustainability efforts as well as initiate new efforts to reduce its environmental impacts. The NRC is further committed to meeting and exceeding the goals set forth by Executive Order (EO) 14008, "Tackling the Climate Crisis at Home and Abroad."

### Leadership

The NRC's Chief Sustainability Officer (CSO) is the senior executive level manager responsible for promoting environmental and energy sustainability across the agency. The agency's CSO works with managers and employees to address the organization's approach to environmental responsibility and meeting the requirements in EO 14008.

### Revitalizing Sustainability within the Nuclear Regulatory Commission

Sustainability is inherently integrated into the mission of the NRC. The NRC licenses and regulates the Nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security and protect the environment. Protecting the environment is vital to the NRC's mission, as reflected in the agency's commitment to incorporating strategies that promote sustainability into its daily operations.

The commitment to sustainability is not only present in the agency's mission, but also in its operations. The NRC strives to conduct its operations and activities in an environmentally responsible and sustainable manner. The NRC recognizes that reducing and, where possible, eliminating the environmental impacts of business activities is an important part of its mission as stewards of public health and safety. The agency views sustainability as a long-term approach to business planning and decision-making that balances the NRC's economic, environmental, and social responsibilities.

The NRC occupies a total of 9 buildings in 6 geographical locations. The agency does not own or lease any real property, each the of the agency's locations are occupied through the General Services Administration (GSA). NRC has delegated authority from GSA to operate and maintain two of its three Headquarters buildings in Rockville, MD, which are the only properties referenced in this report (One White Flint North (OWFN) owned by GSA, and Two White Flint North (TWFN) leased by GSA). OWFN and TWFN (11555 Rockville Pike and 11545 Rockville Pike respectively) are high-rise buildings of similar size consisting of a total of 693,000 Rentable Square Feet (RSF). The NRC's remaining locations are managed and operated by GSA.

## Overview of Operations

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<b>Agency Size and Scope</b>	<b>FY 2022</b>	<b>FY 2023</b>
Total Number of Employees as Reported in the President's Budget	2,816	2,859
Total Acres of Land Managed	5.2	5.2
Total Number of Buildings Owned	0	0
Total Number of Buildings Leased (GSA and Non-GSA Lease)	2	2
Total Building RSF	693,000	693,000
Number of Facilities in the U.S.	9	9
Number of Facilities Outside of U.S.	0	0
Total Number of Fleet Vehicles Owned	0	0
Total Number of Fleet Vehicles Leased	27	25
Total Number of Exempted-Fleet Vehicles (Tactical, Law Enforcement, Emergency, Etc.)	1	1
Total Amount Contracts Awarded (\$Millions) (as reported in FPDS)	\$175.9	*\$172.5

\*Estimated dollar amount based upon current obligation rate and historical data.

## Sustainability Strategies and Planned Actions

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### 1. GREENHOUSE GAS (GHG) REDUCTIONS

#### **FY 2022 Scope 1 and 2 GHG Emissions**

81 percent reduction from FY 2008

4.8 percent reduction from FY 2021

#### **Implementation Status**

Accounting for Scope 1 and Scope 2 GHG emissions, in FY 2022 an 81.8 percent decrease from the FY 2008 baseline was indicated (13,800 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) in FY 2008 versus 2635 MTCO<sub>2e</sub> in FY 2022). The significant decrease in Scope 1 and Scope 2 GHG emissions is a direct result of the NRC's aggressive energy savings program as described in the sections below.

#### **Priority Strategies & Planned Actions**

The NRC will continue to monitor energy consumption and will remain proactive in reducing unnecessary energy consumption.

## **2. MANAGEMENT OF REAL PROPERTY**

### **- CLEAN ENERGY**

#### **FY 2022 Clean Electricity Use**

20 percent of total electricity in FY 2022

#### **FY 2022–FY 2023 Plan**

20 percent of total electricity in FY 2022

#### **Implementation Status**

Currently, the NRC purchases its electricity using a GSA areawide contract. Through this agreement, 20 percent of the electricity that the NRC uses comes from renewable energy sources. In FY 2022, this amounts to approximately 1,335,686 kilowatt hours of energy. Agera Energy provides this renewable energy from wind resources in Texas.

#### **Priority Strategies & Planned Actions**

The GSA's areawide utility contract is a long-term contract; however, NRC will explore options to increase the percentage of energy from renewable sources pending the availability of funding.

### **FACILITY ENERGY Reduction**

#### **FY 2022 Energy Intensity Progress (Btu/GSF)**

58 percent reduction from FY 2012

6.7 percent reduction from FY 2020

#### **FY 2022–FY 2023**

1 percent increase in FY 2022 from FY 2021

#### **Implementation Status**

The agency has implemented several energy savings strategies, allowing the agency to work towards its reduction targets for energy intensity. The NRC continues to evaluate trends and identify other potential energy reduction measures for future efforts. In FY 2022, the NRC's energy intensity increased by 1 percent as compared to FY 2021. This is due to the increase in occupancy as compared to FY 2021 as more employees returned to the office towards the end of the COVID-19 Pandemic, and a decrease in the frequency of telework. The FY 2022 energy intensity usage of approximately 8.9M kilowatt hours, represents a 58 percent reduction in energy intensity compared to the FY 2012 baseline. Examples of energy saving strategies that have been implemented and have contributed to the reductions stated above include:

- Incorporation of water-cooled heat pumps into the building heating, ventilation, and air conditioning (HVAC) system and elimination of electric resistance heating. This allows for use of rejection heat from data closets/telephone rooms to heat office areas.
- Upgrading of highly efficient ENERGY STAR certified heat pump units throughout OWFN and TWFN (the NRC has upgraded a total of 24 units).
- Strict compliance with GSA recommended building operation guidelines regarding space temperature and occupancy schedules.

Given the investments made over the last 20 years to increase the efficiency of the buildings the NRC operates and maintains, there are few opportunities for progress that will significantly reduce energy consumption much further beyond upgrades associated with floor-by-floor renovations in OWFN as shown below:

- Progressive replacements of old equipment with newer high efficiency designs to the maximum extent practicable.
- Upgraded two floors of OWFN with more efficient building systems including the improved LED lighting and controls, light harvesting, and other passive design features to optimize the use of natural lighting.

### **Priority Strategies & Planned Actions**

The NRC will incorporate energy efficient strategies when planning building renovations in the future. Multiple floors in OWFN are expected to be fully renovated by the end of FY 2023. Many of the design features such as, energy efficient HVAC systems, lighting fixtures, and other energy efficiency strategies that were implemented as part of the TWFN renovations (as reported in the FY 2022 submission) are also expected to be implemented in OWFN.

The NRC will continue benchmarking building performance on an annual basis. The NRC will continue to monitor building energy performance against historical performance data and peer buildings to identify operating inefficiencies and conservation opportunities.

### **- WATER REDUCTION**

#### **FY 2021 Water Intensity Progress (gal/GSF)**

There was approximately a 65 percent reduction as compared to FY 2012 (primarily due to inefficiencies in the operation and equipment associated with the cooling systems and inefficient wastewater usage). This represents a decrease of approximately 11M gallons (17.4M gallons were used in FY 2012 compared to approximately 6M gallons anticipated to be used through FY 2023).

#### **FY 2022 Through FY 2023**

An approximately 36 percent increase in water usage is anticipated from FY 2022 through FY 2023 (this is due to the re-occupancy of the buildings post Pandemic), however, for context, there has been a reduction of approximately 40 percent of water usage from FY 2018 through FY 2023 (a reduction of 4M gallons).

### **Implementation Status**

The NRC has implemented several water-saving strategies and continues to evaluate water usage trends to identify other ways to reduce water consumption. The NRC has continued to exceed the water reduction goal, reducing consumption by 65 percent from the FY 2012 baseline. Similar to the reductions in energy usage, there are few opportunities for progress that will significantly reduce water consumption much further beyond upgrades associated with floor-by-floor renovations in OWFN as shown below:

- Installation of a new filtered drinking water system with water fountains that have an integrated water-bottle filler.
- Upgrading high-flow restroom fixtures to more efficient low-flow fixtures to reduce the amount of water usage associated with wastewater.

### **Priority Strategies & Planned Actions**

Historically, (after upgrades to the cooling system) one of the most significant sources of water consumption at the NRC has been wastewater associated with restroom use. To mitigate this source of consumption, the NRC will incorporate updated water saving-features in OWFN bathrooms, in correlation to water-saving features used in the upgraded TWFN building.

The NRC will continue to assess its current metering infrastructure and evaluate the feasibility of installing additional advanced meters or advanced metering devices, to the extent practical, for the purpose of efficient use of water and reduction in associated costs in its facilities. However, the COVID-19 building restrictions have been lifted, so the NRC expects higher occupancy rates moving forward; therefore, we expect an increase in water demand when compared to the FY 2022 levels.

## **- PERFORMANCE CONTRACTING**

### **FY 2022 – FY 2023 Performance Contracting, Investment Value and New Projects awarded:**

- Chiller Repair/Motor \$182,000
- OWFN lobby Rooftop Air Handling Unit (AHU) replacement \$100,000 (in progress)
- OWFN 12<sup>th</sup> floor AHU \$130,000

### **Implementation Status**

In FY 2022, the NRC was not involved in any energy savings performance contracts or utility energy service contracts. However, significant investments have been made through the NRC operations and maintenance contractor and strategic partnerships with GSA and the TWFN landlord in order to modernize building systems and replace them with highly efficient systems for energy and water conservation.

### **Priority Strategies & Planned Actions**

The NRC will continue to explore the feasibility and benefits of applicable performance contract vehicles that would contribute to the implementation of additional energy and water conservation measures, increase facility efficiency, improve operations, and enhance resilience in its facilities.

## - WASTE REDUCTION

### **FY 2022 Nonhazardous Waste Management and Diversion**

Estimated 24 metric tons of nonhazardous solid waste generated\*

*\*not including construction and demolition waste, represents a significant reduction from previous years due to the lack of occupancy during the COVID-19 Pandemic.*

FY 2021-FY 2022 Waste Management:

In FY 2021, 45 percent of nonhazardous solid waste was diverted and 55 percent sent to treatment and disposal facilities. In FY 2022, the agency realized a 5 percent reduction in non-hazardous solid waste generated in FY 2022 as compared to FY 2021 (50 percent diverted and 50 percent sent to treatment and disposal facilities in FY 2022).

### **Implementation Status**

The NRC continues to benefit from the robust recycling and waste diversion program implemented at its facilities. The agency educates its staff on the recycling program throughout the year using posters and bulletins. It also strives to make the recycling process as simple as possible for employees in order to encourage participation.

### **Priority Strategies & Planned Actions**

The NRC plans to continue educating its staff on its recycling and waste diversion program and to continue simplifying the recycling process to keep the program successful.

## - SUSTAINABLE BUILDINGS

### **Implementation Status**

OWFN is owned by GSA, and the building is part of GSA's building inventory for the high-performance sustainable buildings goal; therefore, these goals are not applicable to the NRC. The same applies to TWFN since it is a GSA leased facility.

### **Priority Strategies & Planned Actions**

The NRC will continue to assess any statutory requirements and references related to sustainable building design, construction, and operation to reduce energy and water use, increase facility efficiency, improve operations, and enhance resilience in its facilities.

## **3. FLEET AND MOBILITY**

There will likely be a significant increase in petroleum usage, as compared year over year, due to the COVID-19 Pandemic which resulted in a significant reduction in usage as compared to Pre-Pandemic years. The information regarding alternative fuel consumption was not available at the time of this report, however, NRC is committed to an increase in alternative fuel usage year over year, including exchanging current vehicles with fully electrical vehicles pending available funding (the first of which was funded and allotted in FY 2023).

FY 2022 Petroleum Reduction Progress (Gal)

- 42 percent reduction in petroleum fuel since 2019 (the last pre-pandemic year).
- 38 percent increase in petroleum fuel since FY 2021 (due to increased usage post COVID- 19 Pandemic, as compared to during the Pandemic).



### **Implementation Status**

The NRC continues to exceed the petroleum reduction goal, decreasing consumption by 42 percent from FY 2019. The NRC continuously measures and evaluates various approaches to increase the sustainability and efficiency of its fleet (GSA leased). The NRC's FY 2022 fleet incorporated 16 gasoline/diesel and 9 flex-fuel vehicles. Specific types of vehicles are required for mail services, warehouse storage and distribution services, and emergency operations. Most of the vehicles support the NRC's mission and are utilized by staff for official business, including travel to and from the following: (1) nuclear power plants for site visits, (2) vendor inspections, (3) training, and (4) public meetings. An E85 fueling station is available within a 5-mile radius of the NRC Headquarters buildings, and when possible, flex-fuel vehicles are refueled with E85 at this station. NRC anticipates exchanging a flex vehicle from the fleet in favor of a fully electric vehicle by the end of calendar year 2023 (funded in FY 2023). In addition, over the last 5 years six (6) charging stations have been installed in OWFN in anticipation of the conversion to electric vehicles. To encourage the use of electric vehicles, these charging stations are available to staff who reimburse the agency the applicable fee for usage.

### **Priority Strategies & Planned Actions**

Since 2015, the NRC has increased the number of alternative fuel vehicles and reduced the number of conventionally fueled vehicles. It is difficult to achieve significant reductions in a small fleet like the NRC's. The NRC will continue its focus of advancing energy efficiency and sustainability by reducing its fleet size and control costs.

## **4. SUSTAINABLE PROCUREMENT**

FY 2022 Sustainable Acquisition Progress:

- 2% of eligible contract actions (in dollars)
- \$908K in contract actions with statutory environmental requirements

### **Implementation Status**

The NRC has in place a Green Purchasing Plan (GPP) that contains Federal requirements and guidance for purchasing products and services that are safe and healthy for the public and the environment. According to the GPP, contracting officers are required to consider sustainable acquisition, including source selection factors, in acquisitions that may include energy and water efficient services and products, that use renewable energy technologies, products containing recovered materials, bio-based products, environmentally preferable products and services, and non-ozone-depleting substances. According to data reported in the Federal Procurement Data System-Next Generation, 4.4 percent of all contract actions include statutory environmental requirements.

Also, regarding the OWFN renovations, NRC & GSA are currently renovating several floors, and we are meeting the sustainability and environmental requirements when purchasing construction material to be used for the major renovations. For example, all carpets installed in all the renovated floors are made with 46 percent post-consumer recycled content and are designed to meet volatile organic content requirements for air quality. Furthermore, all newly installed ceiling tiles are made with 76 percent recycled content. Similar language has also been included into design and construction contracts associated with the OWFN renovations to ensure sustainability and environmental requirements are met.

### **Priority Strategies & Planned Actions**

The NRC plans to continue using the GPP for sustainable acquisition and to comply with statutory environmental requirements.

## **5. ELECTRONICS STEWARDSHIP AND DATA CENTER**

*(excluding exempted equipment)*

### **FY 2022 Electronics Stewardship Progress**

100 percent of newly purchased or leased equipment met energy efficiency requirements  
100 percent of electronic equipment disposed using environmentally sound methods

### **Implementation Status**

In addition to requiring products and services that are safe and healthy for the public and the environment, the GPP recommends using the Electronic Product Environmental Assessment Tool (EPEAT). EPEAT is a comprehensive environmental rating that helps identify greener computers and other electronic equipment that meet Federal requirements for purchase of energy efficient products.

### **Priority Strategies & Planned Actions**

The NRC completed the replacement of all workstations in FY 2019. The new standard workstations consist of a laptop instead of a standard desktop configuration. The new laptops have solid-state drives and latest generation processors, resulting in much faster performance and more energy savings. Also, all the new laptops are power management enabled. Starting in FY 2022, the NRC began implementing its plan to refresh 25 percent of workstations per year. All devices meet EPEAT requirements.

The NRC plans to follow standard Federal practices for disposal of excess equipment as described in the GSA's Personal Property Disposal Guide.

### **Summary**

The NRC remains committed to continue to reduce its energy and water usage by incorporating efficient sustainability practices within its building operations and other applicable areas to build on the successful implementation of the measures already incorporated. The agency will also initiate new efforts where possible to reduce its environmental impacts. The NRC is committed to meeting and exceeding the goals set forth by both EO 14008, "Tackling the Climate Crisis at Home and Abroad." The NRC will continue to improve upon its efficient use of energy, water, and electric vehicles. However, given the investments already made to increase the efficiency of the buildings the NRC operates and maintains, as documented in the FY 2022 submission, there are few opportunities for progress that will significantly reduce energy and water consumption much further beyond upgrades associated with floor-by-floor renovations in OWFN.

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