Department of Defense

Sustainability Plan

2022

2022 Department of Defense Sustainability Plan

1. DoD Sustainability Plan Summary

The U.S. Department of Defense's (DoD) mission is to provide the military forces needed to deter war and ensure our Nation's security. To successfully execute this mission, the Military Departments must have access to the energy, land, air, water and other natural resources necessary to develop, train, and operate – today, and in the future. The Department recognizes the reality of an emerging climate crisis that is impacting our installations, equipment, and forces. Effectively responding to the challenges of climate change requires both adaptation actions to prepare for the inevitable impacts from climate change, as well as mitigation measures to reduce greenhouse gas (GHG) emissions and enhance military capability.

The Department's operations must be resilient, sustainable, and preserve strategic choice while building enduring advantages. To achieve this outcome, the Department will increasingly prioritize investments that offer long-term value, seeking ways to fully incorporate key attributes such as resilience, GHG reductions, and environmental preservation. Over time, the Department will leverage its substantial purchasing power to drive sustainable business practices across its supply chain and create markets for advanced technologies. The priority actions in the Sustainability Plan set the tone for our operations and align with DoD strategic objectives and mission requirements, all while meeting the expectations of the American people.

2. Priority Actions Towards Goals

A. 100% Carbon Pollution-Free Electricity (CFE)

The Department strongly supports the deployment of sustainable, clean energy technologies to support installation resilience and recognizes that in some cases DoD's scale can drive uptake of new and promising technologies. The Department has taken several actions to transition its CFE use to 100% on an annual basis by 2030, with at least 50% matched to a CFE regional supply on an hourly basis. Priority actions in fiscal year (FY) 2022 included the following:

- In the Fall of 2021, the Deputy Secretary of Defense approved the establishment of a CFE Tiger Team to pilot CFE efforts. This group made significant progress in developing data requirements for CFE procurement and DoD pilot efforts in key electricity markets. The pilot efforts will explore breakthrough approaches, which expand the scope, scale, and speed of CFE procurement options for DoD installations.
- DoD issued a Request for Information (RFI) in February 2022 to support development of market-based mechanisms to transition to a CFE supply. The Department issued the RFI in collaboration with the U.S. General Services Administration (GSA), signaling an intent to leverage the purchasing power of the U.S. Government.
- DoD issued additional RFIs for innovative clean energy generation technologies, to include advanced nuclear power (August 2020) and advanced geothermal power (April 2022). The Department expects these technologies to provide additional options for CFE and heat generation, while significantly contributing to installation energy resilience.
- DoD is in the process of selecting pilot sites for 100% CFE and clean energy technology demonstrations.

- DoD is increasing staff at the Defense Logistics Agency-Energy office (DLA-E) to expand energy contracting expertise and capacity to support CFE and other procurements of sustainable and resilient energy to meet mission requirements.

B. 100% Zero-Emission Vehicle (ZEV) Fleet Acquisitions

The Department is taking steps to meet the Administration's goal of 100% acquisition of zero-emission vehicles (ZEV). In close coordination with GSA, as of July 2022, the Department had ordered more than 1,400 ZEVs. This number is less than half of the more than 3,700 ZEVs initially requested by DoD, with the reduction due to supply chain limitations. The Department will acquire additional ZEVs as manufacturers make them available. In the interim, DoD is pursuing opportunities to accelerate installation of charging infrastructure while also ensuring new ZEV acquisitions fully utilize existing inventory of DoD-owned charging ports. Additional specific actions include:

- In January 2022, the Deputy Secretary of Defense established a ZEV/Electric Vehicle Supply Equipment (EVSE) Sub-Working Group thorough the DoD Climate Working Group (CWG) to improve deployment of ZEVs/EVSE. This sub-working group analyzed where barriers exist to implementation of ZEVs, especially where deployment may require changes in policy, strategy, design standards, or training.
- DoD is optimizing new ZEV allocation with the turnover of existing non-ZEV vehicles to assign ZEVs to locations with existing EV chargers.
- DoD is acquiring portable, solar-powered charging equipment at some locations to allow flexibility in siting of chargers as new ZEVs arrive. This equipment uses 100% CFE for all charging, does not impact distribution systems with charging loads, can be immediately implemented upon receipt, and can be relocated to optimize use as charging patterns change.
- DoD is coordinating with GSA and automakers to obtain special purpose pursuit-rated law enforcement ZEVs as appropriate to fill the Department's requirement for more than 3,500 law enforcement vehicles by 2026.
- DoD is organizing related facility design guidance into a single set of instructions to streamline installation access to EV charging planning and engineering information.
- DoD is proposing to establish subject matter experts in each Military Service to provide centralized support and expertise, share lessons-learned, and disseminate information about procurement pathways to support charging infrastructure planning and deployment.

C. Net-Zero Emissions Buildings, Campuses, and Installations

i. Design and Construction for Net-Zero Emissions

DoD is assessing life cycle cost-effective strategies to achieve net-zero emissions design and construction. This includes updating internal policies and guidance to ensure use of available science and technology advancements to promote resiliency, mitigate GHG emissions during construction, and eliminate, sequester or reduce GHGs during facility operations. Priority actions include the following:

- DoD is partnering with industry to expand use of cross-laminated timber (CLT), thereby supporting carbon sequestration and waste diversion.

- DoD is working with the U.S. Department of Energy (DOE) to accelerate the development and deployment of new advanced building technologies, construction techniques, and materials that support net-zero emissions, such as cold-climate heat pumps that work in the extremes of winter while reducing GHG emissions.
- DoD is partnering with the National Renewable Energy Laboratory and Rocky Mountain Institute to hold a Building Decarbonization and Readiness Charrette in the fourth quarter of FY 2022. Priority areas to be addressed include establishing net-zero emissions design processes; analyzing trade-offs by system or Climate Zone; studying existing and new facilities highly specific to DoD; and conducting a gap analysis of the policies, procedures, and codes needed to meet net-zero emissions.
- DoD reviewed the FY 2022 National Defense Authorization Act (NDAA), Executive Order (EO) 14057, and other requirements to identify Unified Facilities Criteria (UFC) that may need to be updated to support net-zero objectives.

ii. Increasing Energy Efficiency

The Department is committed to the improvement of energy efficiency to support achieving net-zero emissions across its portfolio of buildings, campuses, and installations. When combined with efforts to transition to CFE and other renewable energy sources, DoD can reach the 2045 goal. The Department's priority actions in FY 2022 included the following:

- DoD deployed advanced meters to capture 41% of total electricity and 25% of total natural gas consumption, and is working towards a target of capturing 85% of total electricity and natural gas consumption by the end of FY 2024. In addition, in FY 2022, DoD's Chief Sustainability Officer initiated a number of data aggregation pilots to increase awareness and enable better management of installation electricity and natural gas usage.
- DoD has over 36 Energy Savings Performance Contract (ESPC)/Utility Energy Service Contract (UESC) projects currently under development through calendar year 2023, with a potential award value of over $1 billion. These will add to DoD's current $3.2 billion ESPC portfolio. In FY 2022, the Department also provided funding to the military services to increase contracting and other support for third-party financing of energy efficiency projects.
- In FY 2022, DoD plans to allocate $469 million of Military Construction (MILCON) funds through the Energy Resilience Conservation Investment Program (ERCIP) to fund a micro-grid initiative to protect mission critical assets and reduce GHG emissions where practicable through deployment of on-site energy storage and renewable energy generation assets.
- DoD is implementing the Council on Environmental Quality's (CEQ) Guiding Principles for Sustainable Federal Buildings in design, construction, and operation of all new and existing facilities.
- DoD will increase facility energy efficiency and establish a target for FY 2030 for agency-wide facility energy use intensity in accordance with EO 14057.

iii. Increasing Water Efficiency

The Department has reduced its potable water intensity by 27.9% since FY 2007 and has implemented management practices that allow for further improvements in water efficiency. Particular attention is given to tailoring water conservation and efficiency strategies to varied geographical locations. Priority actions in FY 2022 included the following:

- DoD developed and pilot tested a new, more comprehensive methodology to assess risks to water availability for mission purposes and build water resilience on 16 installations.
- DoD is continuing to assess water risk/resilience at an additional 42 installations over the course of 12 months, while expanding the methodology to include additional relevant information.
- Army Public Health Command, National Science Foundation (NSF) International, and DoD Joint Medical Services are collaborating to develop a protocol (NSF Protocol P248.03) to evaluate the performance of deployable and decentralized non-potable graywater reuse treatment systems not intended for permanent installations, supporting greater resilience and self-sufficiency in military operations.

D. Reducing Waste and Pollution

Efficient use of resources, including product reuse, recycling, and waste management, is necessary for mission preparedness, readiness, and operational success. The Department is committed to optimizing its use of natural resources and aims to avoid generating unnecessary waste. In FY 2021, the DoD diverted 53% of its non-hazardous solid waste (excluding construction and demolition [C&D] debris) and 79% of its C&D debris from non-energy recovery incineration or from landfill. The Department's priority actions in FY 2022 included the following:

- DoD increased adoption of circular economy practices by expanding the selection of renewable, bio-based products available for procurement through the Sustainable Technology Evaluation and Demonstration (STED) Program, continued electronic stewardship activities that prioritize reuse or repair before recycling, and further research and investment into cutting edge material recovery programs through DLA's material disposition program. These best practices were shared as part of the interagency Circular Economy Working Group, hosted by the U.S. Department of State and the U.S. Environmental Protection Agency (EPA), as examples of how Federal agencies can leverage circular economy principles to increase resource efficiency and avoid use of materials that could hamper reuse or recycling due to environmental or human health risks.
- DoD continued its Integrated Solid Waste Management (ISWM) Program that reduces waste generation, increases solid waste diversion, and minimizes environmental impacts from solid waste disposal. FY 2022 results will meet or exceed the following DoD goals:
  - Diversion of 40% of non-hazardous solid waste (excluding C&D debris) from incineration and landfilling annually.
  - Diversion of 60% of C&D debris from incineration and landfilling annually.
  - Reduction of total annual waste generation by 2% of total waste each year through FY 2025.
- DoD reduced costs through integrated solid waste diversion, including implementation of a more refined environmental management hierarchy that ensures Integrated Solid Waste Managers have the information needed to make systematic waste diversion or disposal decisions. To drive reductions in waste and encourage DoD Components to prioritize reuse and recycling, DoD employed strategies in FY 2022 that will facilitate success of achieving the EO 14057 goals of 50% diversion of non-hazardous waste by 2025 and 75% by FY 2030, and 50% diversion of non-hazardous C&D debris by 2025 and 75% by 2030.

E. Sustainable Procurement

The Department is leveraging its purchasing power to increase the sustainability of its supply chain and achieve net-zero emissions from procurement by 2050. DoD's priority actions in FY 2022 included the following:

- DoD conducted two requests for information from industry to better understand how the private sector collects and discloses GHG emissions data. The data from these RFI responses will inform DoD's development of Scope 3 GHG emissions data and reporting processes.
- DoD increased awareness and use of sustainable alternatives in operational environments through the STED Program, to include onsite demonstrations of a variety of biobased or recycled content maintenance and cleaning products, biobased tires, and energy efficient doors and access controls (all completed or ongoing in FY 2022).
- DoD continued participation in multiple open Federal Acquisition Regulation (FAR) cases to align existing regulations with the climate and sustainable acquisition requirements from statutory and EO requirements, to include EO 14030, *Climate-Related Financial Risk*, and EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability*.
- In FY 2022, DoD's Strategic Environmental Research and Development Program (SERDP) funded the final year of an ongoing development effort related to environmentally safe alternatives to hydrofluorocarbons, which are potent GHGs. SERDP anticipates initiating additional basic research efforts under this topic, for a total investment of $587,874 through FY 2022. In addition, DoD plans to invest more than $2 million for research efforts under this topic between FY 2023-25. If successful, further demonstration/validation of these technologies will be provided through DoD's Environmental Security Technology Certification Program (ESTCP).

F. Climate and Sustainability Focused Federal Workforce

The Department is committed to investing in building human capital, broadening the expertise of its workforce, supporting climate literacy, and integrating sustainability and climate change considerations into all activities and personnel practices. Priority actions in FY 2022 included the following:

- In January 2022, the Deputy Secretary of Defense established a Climate Literacy Sub-Working Group under the CWG, led by the Deputy Assistant Secretary of Defense for Force Education and Training. This sub-working group is developing a plan to integrate climate considerations into the Department's education and training programs and to support a workforce that understands how climate change impacts DoD missions, how DoD operations impact the climate, and how to make climate-informed decisions.
- DoD will identify sustainability literacy metrics to be integrated into its management practices, e.g., to be included in consideration of promotions, evaluations, and awards. The Department will ensure its energy management workforce at installations understands how clean energy can be a force multiplier in support of military readiness.
- In June 2021, the Under Secretary of Defense for Personnel and Readiness sponsored a RAND study entitled "Estimating Impact of Climate Change on Force Readiness," led by the Deputy Assistant Secretary of Defense for Force Readiness. The study is developing a framework for analyzing pathways through which climate change presents risk to military readiness to inform readiness decision-making and future descriptive/predictive analytic models.

G. Incorporating Environmental Justice

The Department considers environmental justice an enabler to achieving its sustainability goals. Details on how environmental justice is integrated into Department activities will be contained in an updated DoD Environmental Justice Strategy, in accordance with EO 14008, *Tackling the Climate Crisis at Home and Abroad*. Priority actions in FY 2022 included the following:

- DoD is developing an Environmental Justice Strategy scheduled to be published in the Fall of 2022. This strategy will address environmental hazards and economic opportunities and minimize adverse effects on disadvantaged communities from DoD activities. The Strategy will also update environmental justice considerations in National Environmental Policy Act (NEPA) programs and policies to ensure integration into all decisions regarding major actions proposed for DoD's missions, strategy, planning, and systems.
- DoD is evaluating CEQ's Climate and Economic Justice Screening Tool (CEJST) for use in decision making.
- DoD is assessing and incorporating the data from CEJST and the EPA's Environmental Justice Screening and Mapping Tool (EJScreen) for inclusion in the Defense Installations Spatial Data Infrastructure portal to perform installation climate exposure assessments through the DoD Climate Assessment Tool (DCAT).

H. Accelerating Progress through Partnerships

DoD planning and actions around sustainability and climate change are interconnected with the interests of neighboring communities, fellow agencies, partners, and allies. To this end, in FY 2022 the Department invested more than $168M in sustainability and climate change partnership activities at the local, state, national and international levels. The Department is expanding its public and private partnerships to foster innovative solutions and accelerate progress on sustainability and climate change goals. Priority actions in FY 2022 included the following:

- DoD continued to expand Federal agency partnerships, such as with the DOE, EPA, and CEQ. Interagency connections facilitate jointly-funded research and coordinated implementation of key programs and initiatives. Interagency working groups, such as the Sustainable Acquisition and Materials Management Practices Working Group, allow DoD to share best practices with other agencies.
- DoD is committed to maintaining and expanding its public and private partnerships to foster innovative solutions. DoD is leveraging its expertise and working with key suppliers in the Defense Industrial Base on solutions to shared sustainability challenges such as DoD Scope 3 GHG emissions accounting, managing hydrofluorocarbon restrictions, and increasing material and chemical disclosure of purchased weapons platforms.
- DoD is investing approximately $1M to expanding the DCAT internationally by delivering versions of the tool to six partner nations: Australia, Germany, Italy, Japan, South Korea, and the United Kingdom, by 2023. The screening-level climate exposure information in DCAT related to eight hazards (coastal flooding, riverine flooding, heat, drought, energy demand, land degradation, wildfire, and historical extreme weather events) supports climate-informed planning and decision making to increase resilience and sustainability.
- DoD's Readiness and Environmental Protection Integration (REPI) program and Sentinel Landscapes Partnership (a partnership with the Departments of Agriculture and Interior) accelerated resilience project implementation by coordinating with other Federal agencies

and grant programs, such as the Federal Emergency Management Agency's (FEMA) Building Resilient Infrastructure and Communities (BRIC) Program and the National Fish and Wildlife Foundation's (NFWF) National Coastal Resilience Fund (NCRF). REPI supports the development and implementation of off-base natural infrastructure solutions that protect natural resources and habitats under pressure from climate change hazards. In FY 2022, REPI committed $100M to climate change resilience projects that protect installation resources and operations.

- Within the Office of Local Defense Community Collaboration (OLDCC), funding for the Defense Community Infrastructure Program (DCIP) has significantly risen since its inception, from $50M in FY 2021, to $60M in FY 2022 to $90M in FY 2023. The funding enables OLDCC to competitively award grants that enhance community infrastructure, including by making those surrounding communities more resilience to climate-related challenges.
- DoD's Defense Environmental International Cooperation (DEIC) program is being revitalized to support partner country engagement on environmental security.

3. Progress Examples

A. 100% CFE

California's Fort Hunter Liggett (FHL), an Army net-zero energy pilot site, broke ground on a multimillion-dollar microgrid system in 2022 to generate CFE from an onsite solar power plant for critical electricity uses. Over several years, FHL has added solar power generation to increase its ability to generate more electricity on the installation than it uses on an annual basis, to achieve a net-zero energy status. In the past decade, FHL reduced energy use intensity by 63%, significantly reduced propane consumption, and incorporated a variety of heat pump solutions including ground source, air-to-air and air-to-water systems for heating, ventilation, and air conditioning (HVAC) and domestic hot water heating applications. The new microgrid system is expected to be completed in the fourth quarter of FY 2023 and will enable the base to maintain critical operations for at least 14-days in the event of a grid power disruption. That capability is the result of the addition of a 3.75 megawatt (MW) photovoltaic generation plant, 5 megawatt hour (MWh) batteries, and a Microgrid Control System. The contractor will upgrade the existing distribution system so FHL facility managers can easily and efficiently control energy intake at various critical buildings at the installation. Once up and running, the new system will generate more CFE than FHL critical systems consume over a 12-month period.

DLA-E continues to support the Department's CFE efforts through multiple lines of effort. DLA-E issued a joint CFE RFI with GSA to gather market information on supplying CFE to the Federal Government in deregulated markets. This RFI followed the issuance of EO 14057, which directed the Federal Government to use 100% CFE on a net annual basis by 2030, including 50% on a 24/7 (hourly matching) basis. The RFI was prepared in coordination with GSA, DOE's Federal Energy Management Program (FEMP), and CEQ. The RFI demonstrates the Department's intent to achieve 100% CFE for Federal operations using a whole-of-government approach, and to understand industry's ability to supply the scale of CFE needed, gather pricing information, and inform potential approaches to meeting the EO 14057 targets.

B. 100% ZEV Fleet Acquisitions

The Army Reserve implemented a multi-phase infrastructure acquisition plan to pilot an EV program and transition non-tactical vehicles (NTVs) to an all ZEV fleet. The Army Reserve partnered with DoD's Defense Innovation Unit to complete the EV Charger Project in support of ZEV deployment. The initiative will enable the Army Reserve to achieve 100% ZEV acquisitions by FY 2027. The pilot program's FY 2023 efforts will add nearly 60 ZEVs and install four Level 3 EV charging stations and 27 Level 2 EV charging stations at three facilities in Washington and California. Phase 2 will add 96 vehicles to nine facilities; Phase 3 will more widely rollout 934 vehicles to 101 facilities; and Phase 4 will add 962 vehicles to the remaining 650 facilities. The future all-electric Army Reserve NTV fleet will include more than 2,000 vehicles at 763 facilities.

In May 2022, Hill Air Force Base (AFB) introduced an E-Scooter/E-Bike Ride Share Program to increase zero emission transportation alternatives on base. The program kick-started with 20 e-scooters and 10 e-bikes, which provided more than 700 rides within the program's first weekend. The Air Force is also creating two ERCIP project proposals to increase ZEV access at Joint Base Andrews and Joint Base McGuire-Dix-Lakehurst. The $27 million ERCIP EV charging infrastructure proposals are slated for FY 2024 to support the transition to ZEVs for non-tactical fleets.

C. Net-Zero Emission Buildings, Campuses, and Installations

i. Design and Construction for Net-Zero Emissions

Through strong local partnerships, Marine Corps Logistics Base (MCLB) Albany became the Marine Corps' first net-zero energy installation. MCLB Albany teamed up with Dougherty County to provide landfill gas to operate two dual fuel landfill-methane/natural gas generators with a total capacity of 4.1 MW; with a neighboring Proctor and Gamble industrial site to provide steam for an 8.5 MW biomass steam-to-electric generator; and with Georgia Power to install and operate a 31.0 MW solar farm to support the regional power grid. This multipronged strategy of innovative, distributed energy solutions enabled MCLB Albany to accomplish its mission of providing efficient facilities, infrastructure, and a range of tailored support services to tenants to accomplish their assigned missions in support of the warfighter. The installation can now produce enough electricity to power its operations and even sell excess electricity to Georgia Power Co. during most months.

Defense Supply Center Columbus (DSCC), working with the U.S. Army Corps of Engineers (USACE), has on-going projects to improve the performance of HVAC systems in three buildings located in Columbus, Ohio. These projects are the first in what is hoped will be a series of efforts to increase energy efficiency and advance the DSCC Campus toward a goal of net-zero emissions. These projects are programmed for completion in late 2022.

ii. Increasing Energy Efficiency

The Department of the Army successfully awarded phase 2 of an ESPC at Fort Benning in FY 2021, providing a third-party investment of $25 million. The ESPC includes a Utility Monitoring and Control System (UMCS), lighting, building envelope, and replacement of a solar photovoltaic (PV) inverter. With Phase 2, Fort Benning is expected to achieve $1.5 million in annual savings, with an electricity use reduction of more than 20 million kWh per year.

With the completion of a 350kW solar array in 2021, Hill AFB—the third largest energy consumer in the Air Force—expanded its clean energy generation while simultaneously decreasing overall energy use. In 2020, Hill partnered with Rocky Mountain Power in a $42 million ESPC and upgraded its solar array, install light-emitting diode (LED) lighting, and improve various air logistic processes. By May 2021, the base saw a 9% reduction in energy consumption. Hill AFB serves as a prime example of accelerating progress and plans to continue to collaborate with Rocky Mountain Power over the next 25 years to increase the base's energy efficiency across its 1,700 buildings.

iii. Increasing Water Efficiency

Devens Reserve Forces Training Area (DRFTA) launched a new initiative to routinely review water consumption data through advanced meter systems. This enabled the Army Reserve installation to quickly identify significant water leaks and execute repairs. Through their streamlined efforts, DRFTA cut more than two million gallons of water use by the end of the first quarter of FY 2022, resulting in a 44% reduction in annual water consumption and a cost avoidance of $16,500. DRFTA plans to enhance the way they leverage data to identify leaks by integrating its advanced meters into the Army Reserve's Enterprise Building Control Systems (EBCS) program. This provides real-time alarming and remote notification, helping personnel to respond rapidly to issues such as water leaks during off-business hours.

In FY 2022, Washington Headquarters Services (WHS) began implementing two major projects at the Pentagon to reduce water consumption and associated operating costs. WHS is retrofitting water closets, urinals, faucets, and showers within the Pentagon's restrooms with WaterSense-labeled and other high-efficiency models to improve water use efficiency, eliminate unnecessary water waste, and reduce energy usage associated with heating water. WHS is also upgrading the Pentagon's irrigation control system associated with its 33 acres of formal landscaping by replacing the existing time-based controller with a smart irrigation controller that accounts for moisture levels, local climate, soil conditions, and plant material type to optimize water use. Together, these projects are anticipated to save nearly 170 million gallons of water and $1.45 million annually.

D. Reducing Waste and Pollution

Since 2020, staff at the Defense Supply Center Richmond (DSCR) have planted more than 150 trees that will provide shade, shelter, and improved air quality for years to come. The trees planted are all native to Virginia and were selected for their specific environmental attributes. Studies show that the installation's tree population is estimated to store 2,246 tons of carbon and remove 1,763 pounds of air pollution—including ozone, carbon monoxide, and nitrogen dioxide. These trees also enrich the soil and serve as a form of soil stabilization.

Supply chain issues during the COVID pandemic helped initiate and institutionalize a waste reduction best practice at Defense Health Agency (DHA) Medical Treatment Facilities (MTFs). MTFs frequently treat lower extremity injuries that require the use of crutches. Aluminum shortages made crutches hard to procure, which led several MTFs to initiate crutch collection and reuse efforts. To successfully reuse crutches, staff reviewed the condition of each crutch, conducted cleaning and disinfection, and performed replacements where needed (e.g., bottom grip, hand grip, shoulder grip, and screws). Crutch reuse reduced waste generation and reduced

costs. One MTF alone estimates that anywhere from 500 to 1,000 pairs of crutches have been reused, resulting in cost savings of $15,000–$30,000. Such efforts are helping DHA meet its enterprise-wide sustainability goals while generating community support and ensuring continuation of quality patient care.

The Missile Defense Agency (MDA) partnered with the National Geospatial-Intelligence Agency (NGA) to securely recycle office paper (including classified material) using NGA's "Intelligent Disintegrator," which produces a reusable product in the form of compressed discs of pulverized paper used to produce pizza boxes and other products. It is estimated that this partnership will divert more than 90,000 pounds of paper from destruction at the Pentagon's Classified Waste Incinerator Facility. It will also reduce MDA's transportation requirements by 5,300 miles, save 400 gallons of diesel fuel, reduce GHG emissions (from transportation) by approximately by 613 metric tons (MT) of carbon dioxide equivalent (CO_2e) per year, all of which will save MDA $11,600 per year.

The DoD is also committed to expanding the application of sustainable chemistry principles to improve the design of chemical products and processes in order to reduce or eliminate the use or generation of hazardous substances across product life cycles. The Department is taking several actions to meet FY 2021 NDAA requirements to carry out activities in support of sustainable chemistry. The DoD will be supporting the White House Office of Science and Technology Policy as it develops a Federal Sustainable Chemistry Strategic Plan. In FY 2022, the Office of the Assistant Secretary of Defense for Energy, Installations, and Environment partnered with the National Defense Center for Energy and the Environment to sponsor development of the DoD Sustainable Materials Alternatives Recommendations Tool. The tool will improve data accessibility to enable effective resource allocation for research and development, design, manufacture, and use of hazardous material-free technologies. DoD is developing and adopting DoD-relevant sustainable chemistry metrics that could be used to track the outputs and outcomes of the programs.

E. Sustainable Procurement

Naval Supply Systems Command Weapon Systems Support (NAVSUP WSS) continued to build upon the Navy's enterprise-wide effort to standardize and minimize procurement of general use hazardous material consumables. To support the effort, NAVSUP WSS formed a multifunctional team to develop and conduct pilot demonstrations using new tools and procedures. This resulted in a standardized process that guides and streamlines the procurement of environmentally preferred products at shore-based facilities. During the pilot phase, purchase of sustainable cleaners increased 1,500% from the previous FY, while authorizations of new hazardous cleaners fell 25% and safer product alternatives increased by 347%. The effort also included an outreach program to inform personnel of the benefits of purchasing EPA Safer Choice cleaners and a green leaf icon to highlight Safer Choice products in the Navy's web-based ordering application.

MDA's electronics are Electronic Product Environmental Assessment Tool (EPEAT) Silver rated, which the Global Electronics Council (GEC) estimates has saved MDA approximately $56,000 per year via annual reductions in electricity use (1,313,149 kWh), water use (779,883 gallons), and solid waste disposal (68,566 pounds). GEC also calculated that MDA conserves more than 33,575 pounds of primary materials and reduces GHG emissions by 281,712 kilograms of CO2e per year.

F. Climate- and Sustainability-Focused Federal Workforce

U.S Air Force Airmen and U.S. Space Force Guardians are making increased use of climate models and predictions to better prepare for and execute the mission in future climate conditions. In FY 2020, the Air Force Wildland Fire Branch taught 57 training courses following the national wildland fire management standards set by the National Wildfire Coordinating Group to 796 students across the Department of the Air Force and partner organizations. Building on this foundation, the Air Force, in partnership with the Army Wildland Fire Program, delivered 12 additional higher-level courses in FY 2022 and is developing more than 40 Air Force natural resources and fire and emergency services personnel. These wildfire trainings allow the Air Force to better manage its 9.8 million acres of land in Integrated Natural Resources Management Plans amidst a changing climate.

DSCR has successfully maintained an Environmental Management System (EMS) that has proven effective in ensuring that the installation's workforce is continually educated on key and current climate and environmental sustainability issues. This education is conducted through face-to-face training sessions, by widely distributed e-mails, and by composing and distributing online educational stories. DSCR will continue to use the EMS to educate its workforce about the goals and initiatives of EO 14057 and the installation's progress in meeting them.

G. Incorporating Environmental Justice

The Navy is partnering with EPA Region 3 to conduct a pilot project at Norfolk Naval Base in Virginia to ensure that environmental justice considerations are incorporated throughout the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The pilot project team will identify "overlapping areas" where there may be known or potential direct or indirect site impacts and vulnerabilities related to environmental justice. The project was initiated in June 2022 and the team intends to develop a white paper to present how existing practices address or respond to environmental justice components of a project or site, best practices, and recommendations for future improvement.

H. Accelerating Progress through Partnerships

Edwards AFB is partnering with Terra-Gen Development Company to add 520 MW of CFE to the grid by constructing one of the largest solar PV array projects in the country. The project also includes three gigawatt-hours (GWh) of battery energy storage—the largest PV-battery storage project in North America. The project will power up to 238,000 nearby homes, prevent approximately 800,000 MT GHG emissions annually, and yield up to $80 million for future DoD resilient energy projects. The build out of the solar array is expected to be completed by the end of 2022 with the final build out of the Battery Energy Storage System in 2023.

Naval Construction Battalion Center Gulfport leveraged an enhanced use lease (EUL) to partner with a local developer and construct a microgrid that increases resiliency for the installation. The microgrid boasts advanced controls, incorporates a 1.0 MW solar PV array, and provides power for up to 83% of the critical load for more than two days without refueling. Four additional microgrids are currently in development across Navy installations to utilize EULs and partner with local developers. These partnerships allow Navy to defray investment costs associated with new capital infrastructure, accelerate progress toward EO goals, and increase energy security.

Most recently, project development efforts led by the Commander, Navy Installations Command (CNIC) in FY 2022 approved nine third-party financing projects across the enterprise with a combined value of $526 million.

Appendix. List of Abbreviations and Acronyms

AFB	Air Force Base
BASI	Business Analytics and Strategic Insights
BRIC	Building Resilient Infrastructure and Communities
C&D	construction and demolition
CDAO	Chief Digital and Artificial Intelligence
CEJST	Climate and Economic Justice Screening Tool
CEQ	Council for Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFE	Carbon Pollution-Free Electricity
CLT	cross-laminated timber
CNIC	Commander, Navy Installations Command
CO2e	carbon dioxide equivalent
CSO	Chief Sustainability Officer
CWG	Climate Working Group
DCAT	DoD Climate Assessment Tool
DCIP	Defense Community Infrastructure Program
DEIC	Defense Environmental International Cooperation
DHA	Defense Health Agency
DLA	Defense Logistics Agency
DLA-E	Defense Logistics Agency Energy office
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
DRFTA	Devens Reserve Forces Training Area
DSCC	Defense Supply Center Columbus
DSCR	Defense Supply Center Richmond
DSD	Deputy Secretary of Defense
EBCS	Enterprise Building Control Systems
ECBO	Enterprise Capabilities and Business Operation
EI&E	Energy, Installations, and Environmental
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPEAT	Electronic Product Environmental Assessment Tool
ERCIP	Energy Resilience Conservation Investment Program
ESPC	Energy Savings Performance Contract
ESTCP	Environmental Security Technology Certification Program
EUL	enhanced use lease
EVSE	Electric Vehicle Supply Equipment
FAR	Federal Acquisition Regulation
FEMA	Federal Emergency Management Agency
FEMP	Federal Energy Management Program
FHL	Fort Hunter Liggett

FY	fiscal year
GEC	Global Electronics Council
GHG	greenhouse gas
GSA	General Services Administration
GWh	gigawatt-hour(s)
HVAC	heating, ventilation, and air conditioning
ISWM	Integrated Solid Waste Management
kWh	kilowatt hour(s)
LED	light-emitting diode
MCLB	Marine Corps Logistics Base
MDA	Missile Defense Agency
MILCON	Military Construction
MTF	Medical Treatment Facility
MW	megawatt
MWh	megawatt hour
NAVSUP WSS	Naval Supply Systems Command Weapon Systems Support
NCRF	National Coastal Resilience Fund
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NGA	National Geospatial-Intelligence Agency
NSF	National Science Foundation
NTV	non-tactical vehicle
OLDCC	Office of Local Defense Community Collaboration
OSD	Office of the Secretary of Defense
PV	photovoltaic
REPI	Readiness and Environmental Protection Integration
RFI	Request for Information
SERDP	Strategic Environmental Research and Development Program
SSC	Senior Sustainability Council
STED	Sustainable Technology Evaluation and Demonstration
UESC	Utility Energy Service Contract
UMCS	Utility Monitoring and Control System
USACE	U.S. Army Corps of Engineers
WHS	Washington Headquarters Services
ZEV	zero-emission vehicle