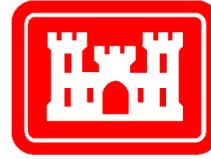




**Assistant Secretary of
the Army for
Civil Works**



**US Army Corps
of Engineers®**

2018 Sustainability Report and Implementation Plan

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Executive Summary

Vision

The mission of the U.S. Army Corps of Engineers (USACE) is to provide vital public engineering services in peace and war to strengthen the Nation's security, support the economy, and reduce risks from disasters. To achieve this mission, USACE contributes to the national welfare and serves the public by providing quality and responsive services to the Nation, the Army, and other stakeholders in a manner that is environmentally, economically, and socially sustainable.

Continued integration of sustainability into the USACE mission and organizational culture is essential to success in achieving federal sustainability goals. USACE will continue to employ a systems-based, continual improvement approach to integrate sustainability into its mission and organizational culture, with an ultimate goal of assignment and acceptance of personal responsibility for achieving a sustainable future by all members of the organization. USACE will continue to use, at all levels of command, a recurring cycle of planning, execution, measurement, performance review, and annual course-correction/redirection, that will integrate sustainability more deeply into its mission and the organizational culture with every passing year.

Sustainability plays a prominent role in the USACE Campaign Plan (UCP). UCP Objective 1c, "Support the Nation and the Army in achieving our energy security, sustainability, and environmental goals," is organized into three actions:

- Action 1: Achieve federal energy and sustainability goals and targets.
- Action 2: Integrate sustainability into all USACE missions, activities, and actions.
- Action 3: Grow Future Sustainability Leaders.

This USACE 2018 Sustainability Report and Implementation Plan (SRIP) is focused on Action 1 and describes USACE's past sustainability performance and the priority strategies the Command will employ through fiscal year (FY) 2020 to maintain or improve performance.

Leadership

The Assistant Secretary of the Army for Civil Works (ASA(CW)) is the Chief Sustainability Officer for USACE. The ASA(CW) works with USACE's Deputy Commanding General, Civil Works leadership and the Environmental Community of Practice to lead the Strategic Sustainability Committee (SSC) in driving improved sustainability performance. SSC meetings, conducted three times per year, provide collective review and strategic direction/redirection for the Sustainability Program. Sustainability performance is tracked through the UCP using the Army Strategic Management System and existing management review processes.

Priorities

Focus areas for Fiscal Years (FY) 2019 and 2020 are as follows:

- Conduct sustainable building assessments at MSC-identified priority buildings over 10,000 gross square feet (GSF)

- Reduce potable water consumption by completing water line replacement projects, and reduce future water losses by installing dedicated water meters at the largest water-consuming campgrounds
- Issue a sustainable acquisition tool and conduct training sessions at targeted Districts/Centers
- Plan for MSC-submitted utility metering requirements supporting the USACE 5-Year Metering Plan
- Incorporate petroleum efficient vehicles, hybrids and plug-in electric vehicles (EVs) into the fleet where mission allows
- Update USACE Sustainability Courses to reflect changes due to new Executive Order and execute 100 percent of scheduled sustainability courses in FY 2019.

To achieve our sustainability goals, USACE will employ a systems-based approach through the development of annual sustainability plans and investment strategies, execution of those plans and strategies, performance reviews at all levels of Command, and course adjustments as directed by the USACE Strategic Sustainability Committee. The key to success will be the assignment and acceptance of personal responsibility for achieving a sustainable future by all members of the organization.

Implementation Summary

1. Facility Management

FACILITY ENERGY EFFICIENCY

Status FY 2017: 34.7% reduction from 2003 baseline (Btu/GSF); 22.9% reduction from 2015

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Benchmarked and obtained Energy Star certification for one of USACE's largest covered facilities. • Completed energy audits at covered facilities and reported audits and energy conservation measure (ECM) implementation in the Energy Independence and Security Act of 2007 (EISA) 432 Compliance Tracking System (CTS). • Prioritized cost-saving energy conservation. 	<ul style="list-style-type: none"> • Annual variations in operational tempo resulting from natural events such as floods and droughts cause significant variations in USACE energy consumption and mission requirements. 	<ul style="list-style-type: none"> • Update and implement 5-Year Metering Plan. • Continue to make cost-effective investments in infrastructure; execute at least 95% of all Civil Works O&M plans for energy efficiency investments by FY 2019. • Continue to adopt General Services Administration (GSA) area-wide contracts where feasible or utilize commercial utilities programs to renegotiate utility rates. • Continue to train and designate energy managers for all USACE covered facilities, and ensure that all energy managers have access to complete and accurate energy data to inform energy management decisions. • Develop dashboards using the energy data visualization capability provided by the Corps of Engineers Reduced and Abridged FEMP Tool (CRAFT)/Tableau energy information management system to inform decisions regarding energy efficiency investments. CRAFT is

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
		<p>the system of record for USACE energy, water, and waste metric data.</p> <ul style="list-style-type: none"> • Agency Target FY 2018: 34.8% reduction from 2003 baseline • Agency Target FY 2019: 34.9% reduction from 2003 baseline

EFFICIENCY MEASURES, INVESTMENT, AND PERFORMANCE CONTRACTING

ESPC and UESC investment/number of projects FY 2017: \$2.3M/2 projects

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Engaged senior leaders Corps-wide in a multi-year effort to identify and implement economically viable energy savings performance contracts (ESPC). • Awarded a total of five ESPCs, all of which are currently in measurement and verification (i.e., performance) phase. Documented the ESPC savings, using third party consultants, and verified that the actual cost savings met or exceeded the projected cost savings. • USACE ESPC data and experience to date indicate that no additional economically viable ESPC opportunities exist for USACE Civil Works facilities. 	<ul style="list-style-type: none"> • USACE has encountered difficulties in developing economically viable ESPCs for USACE Civil Works facilities. In particular, in FY 2016-2018, multiple potential ESPCs were determined by the energy service companies (ESCO) to be economically non-viable due to the additional costs and complexities of implementing ECMs at small, geographically dispersed facilities. 	<ul style="list-style-type: none"> • Continue supporting Utility Energy Services Contracts (UESC) and Power Purchase Agreements (PPA) at facilities where these tools are determined to be economically viable. Monitor and assess cost and energy savings resulting from previously awarded contracts, such as the PPA at Cape Cod. • Planned investment/number of projects FY 2018: \$0/0 projects • Planned investment/number of projects FY 2019: \$0/0 projects

RENEWABLE ENERGY

Status FY 2017: 16.8 % (% renewable energy)

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Exceeded the 7.5% renewable energy target primarily due to the generation of incremental hydropower. • Continued work on a Civil Works PPA for a solar array at a Covered Facility in the USACE North Atlantic Division (NAD). 	<ul style="list-style-type: none"> • The success with clean and renewable energy primarily resulted from USACE’s long-term, systematic investments in the modernization of USACE hydropower generation capabilities to increase capacities and efficiencies and, therefore, the generation of incremental hydropower. • The small size and relatively low energy consumption of the majority of USACE Covered Facilities limit opportunities for economically viable PPAs. 	<ul style="list-style-type: none"> • Track execution of the Hydropower Modernization Initiative (HMI); and record increases in incremental hydropower generation from rehabilitated units. • Finalize approval for a solar array PPA at a Civil Works facility; and continue to pursue other PPAs based on economic viability. • Complete construction of four renewable energy projects at USACE facilities. • Execute at least 95% of Civil Works O&M funds provided for renewable energy ECMs in FY 2019 and FY 2020. • Agency Target FY 2018: 15% • Agency Target FY 2019: 15%

WATER EFFICIENCY

Status FY 2017: 12.5% reduction in potable water intensity from 2007 baseline (Gal/GSF); 4% increase from prior year

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Successfully executed four water conservation projects in FY 2017 and five projects in FY 2018. • Continued prioritization of cost-effective water conservation projects focused on replacing aging water infrastructure. • Continued to meter all facilities, especially campgrounds, with high water consumption. • FY 2017 waterline replacement projects resulted in \$321K cost savings/avoidance and 20.7 MGal water savings. • Emphasized FY 2018 waterline replacement projects at Civil Works O&M facilities, which resulted in \$647K cost savings/avoidance and 11.3 MGal water savings. 	<ul style="list-style-type: none"> • Aging potable water infrastructure, particularly water line infrastructure at campgrounds, is the priority for water line replacements and meter installation. • As a top federal provider of outdoor recreation – with 250 million visitors annually – visitors to USACE facilities have a significant impact on USACE’s water consumption. After several years of evaluating facility-level water consumption data, USACE has learned that Civil Works facilities with large campgrounds comprise the majority of the top 50 water-consuming facilities Corps-wide, which comprise 75% of USACE potable water consumption. • USACE Civil Works Hydraulic Flow Model testing drives periodic spikes in potable water consumption at Waterways Experiment Station. 	<ul style="list-style-type: none"> • Complete construction on 22 water line replacement projects in FY 2019; continue to prioritize water line replacements, especially at the largest USACE water consuming facilities. • Plan for installation of water meters at the largest water-consuming USACE-owned and operated campgrounds in FY 2019. • In FY 2019, execute 100% of planned meter installations. • Implement 100% of planned water conservation measures. • Track a set of leading metrics focused on the execution of audits and implementation of water conservation measures at Covered Facilities. • Agency Target FY 2018: 13% reduction in potable water from 2007 baseline • Agency Target FY 2019: 13.5% reduction in potable water from 2007 baseline

HIGH PERFORMANCE SUSTAINABLE BUILDINGS

Status FY 2017: 0% (% by GSF)

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Developed a building prioritization and identified target buildings for first-round of sustainable building assessments in FY 2017 and FY 2018. • Continued use of Unified Facilities Criteria for High Performance and Sustainable Building Requirements (UFC 1-200-02) for USACE-owned and Civil Works facilities. • Developed a self-paced training class for local assessors and a reporting template; continued with sustainable federal building assessments. • Identified MSCs and Districts that are currently "red" on the 	<ul style="list-style-type: none"> • USACE is currently conducting Sustainable Federal Buildings (SFB) assessments and is in the process of updating sustainability data in the real property system of record as the assessments are completed. • Progress on SFB compliance is tracked through the Federal Real Property Protocol (FRPP) reporting process. 	<ul style="list-style-type: none"> • Continue to prioritize SFB assessments at Revolving Fund buildings. • Continue to assist with SFB assessments at O&M Funded buildings. • Focus on SFB compliance for the largest Corps-owned buildings to work towards the 15% SFB compliance goal by 2025 (by GSF). • Continue to incorporate sustainability best practices in USACE facility portfolio management based on SFB assessments. • Continue to update the sustainable building data in the Real Estate

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<p>Administrative Space Utilization Report (ASUR) (as defined by exceeding the USACE administrative space rate of 178 net square foot per person (NSF/PN)) and targeted the building layouts to be "green" (< 162 NSF/PN).</p>		<p>Management Information System (REMIS).</p> <ul style="list-style-type: none"> • Partner with GSA to consolidate, co-locate, and re-configure existing USACE leased space. Optimize office and warehouse space for new leases. • Projected Progress FY 2018: 4.6% • Agency Target FY 2019: 6.1%

WASTE MANAGEMENT

Status FY 2017: Diversion data not available (% waste diverted)

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Published the Non-Hazardous Solid Waste Diversion and Materials Management Policy and implemented the policy at the field level. Held multiple webinars to educate field about the policy. • Aligned incentives by having funds from sales of recycled material be returned to individual Districts diverting the material. • Developed solid waste reporting capability in CRAFT in FY 2017 and deployed in FY 2018. It collects non-hazardous and construction & demolition (C&D) solid waste generated at either project or District-level, and includes tools to assist users in estimating tonnage based on waste type and container type. There are 32 Centers and Districts reporting waste in CRAFT. Held three quarterly "CRAFT 101" training sessions in FY 2018 that have included the new waste reporting. • Held two ERGO (environmental compliance assessment) classes in FY 2018 that covered pollution prevention topics including solid waste diversion. 	<ul style="list-style-type: none"> • USACE initiated tracking and reporting of facility-level solid waste generation and diversion data in FY 2017-2018. • Modern, market-based recycling services are not readily available at many Civil Works locations. • The Agency estimates that more than 90% of non-hazardous solid waste is annually generated by visitors at USACE facilities. 	<ul style="list-style-type: none"> • Continue to educate the sustainability team in the field on the Non-Hazardous Solid Waste Diversion and Materials Management Policy. Provide training on how to use the new CRAFT module and also use the training to address geographic-specific issues (e.g., differences in waste stream composition). • Execute two ERGO courses for facility-level ERGO Coordinators in FY 2019. • Execute 100% of annually scheduled internal and external ERGOs related to pollution prevention, Emergency Planning and Community Right-to-Know Act (EPCRA) requirements, and/or toxic/hazardous material management requirements in FY 2019. • Continue to encourage and identify innovative options to reduce waste and increase diversion. • Continue to develop contract language to help ensure that C&D diversion rates are tracked and reported. • Agency Target FY 2018: 50% • Agency Target FY 2019: 50%

2. Fleet Management

TRANSPORTATION/FLEET MANAGEMENT

Status FY 2017: 26% reduction in petroleum use & 0.06% increase in alternative fuel from 2005 baseline; 4.3% reduction in petroleum use from prior year

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Increased alternative fuel consumption to 6.06% of total fuel consumption in FY 2017, and achieved 6.16% alternative fuel use through May FY 2018. • Submitted asset level data in FY 2017 and will do the same in FY 2018 once FAST opens for data entry. • Tracked and reviewed all fleet fuel consumption using FMIS and FleetDash in FY 2018. 	<ul style="list-style-type: none"> • Civil Works vehicles account for 80% of the USACE’s fleet and uniquely depends heavily on the operational capabilities (e.g. four-wheel drive pickups). USACE must always weigh vehicle utilization versus mission capabilities. • USACE uses alternative fuels when possible; however, most CW sites are in locations where alternative fuels are less prevalent. • USACE is developing an EV strategy at large campuses to demonstrate opportunities for efficient and effective deployment of EVs. 	<ul style="list-style-type: none"> • Fleet management and vehicle user communities will collaboratively develop a strategy to acquire zero emission vehicles (ZEV) or plug-in hybrid electric vehicles (PHEV) and associated charging infrastructure. • Continue use of FleetDash to track Corps-wide alternative fuel. • Identify locations where plug-in EVs will meet mission needs and plan for EV charging stations, accordingly. • Encourage alternative fuel consumption to achieve petroleum reduction. • Agency Target FY 2018: 26.01% • Agency Target FY 2019: 26.02%

3. Cross-Cutting

SUSTAINABLE ACQUISITION/PROCUREMENT

Status FY 2017: 94% (% Contracts with Environmental Clauses) 98.9% (% Contract \$ with Environmental Clauses)

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • USACE developed an automated method to track and report on Sustainable Acquisition compliance that evaluates 100% of relevant contracts. As a result, accuracy and availability of data improved at 95% confidence level. • Conducted pilot study on a new Sustainable Acquisition Clause Selection Tool and evaluated results using new data mining techniques. 	<ul style="list-style-type: none"> • USACE increased focus on Sustainable Acquisition requirements in recent years. Initial emphasis has been on training of requirements generators and contracting staff, as well as development of policy, guidance and tools to simplify and automate the process of selecting appropriate clauses, incorporating them into contracts, and tracking compliance. 	<ul style="list-style-type: none"> • Release Sustainable Acquisition Clause Selection Tool across the Agency, and train personnel involved in contracting actions on use of tool and the automated compliance evaluation process. • Agency Target FY 2018: 94.1% (% Contracts with Environmental Clauses) 99% (% Contract \$ with Environmental Clauses) • Agency Target FY 2019: 94.2% (% Contracts with Environmental Clauses) 99.1% (% Contract \$ with Environmental Clauses)

ELECTRONICS STEWARDSHIP

Status FY 2017: 100% (% Meeting EPEAT Requirements), 100% (% Power Management), and 100% (% Compliance with Disposal Guidelines)

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Achieved all electronics stewardship goals. • Promoted electronics stewardship, including procurement preference for environmentally sustainable electronic products via contract agreements through the Defense Logistics Agency (DLA); 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. 	<ul style="list-style-type: none"> • USACE disposes of electronics via DLA and GSA using compliant recyclers. • USACE purchases electronics through GSA and the Department of Army contracts that include electronics stewardship requirements. 	<ul style="list-style-type: none"> • Maintain current management practices. • Agency Target FY 2018: 100% (% Meeting EPEAT Requirements), 100% (% Power Management), and 100% (% Compliance with Disposal Guidelines) • Agency Target FY 2019: 100% (% Meeting EPEAT Requirements), 100% (% Power Management), and 100% (% Compliance with Disposal Guidelines)

GREENHOUSE GAS EMISSIONS

Status FY 2017: 14.6% Reduction in Scope 1&2 Emissions

IMPLEMENTATION STATUS	OPERATIONAL CONTEXT	PRIORITY STRATEGIES & PLANNED ACTIONS
<ul style="list-style-type: none"> • Achieved Scope 1 & 2 GHG emissions reduction target in FY 2017, reporting a 14.6% reduction relative to the FY 2008 baseline. • Relied on cost-effective facility energy efficiency and petroleum efficiency efforts to achieve further GHG reductions. • Reduced the number of facilities, thereby reducing the total GHG emissions from facility operations and maintenance. 	<ul style="list-style-type: none"> • Annual variations in operational tempo, resulting from natural events such as floods and droughts, cause significant variations in USACE energy consumption and associated GHG emissions. For example, USACE has determined that emissions from emergency pumping plants during flood intensive years may cause a 5% variation in GHG emissions annually. 	<ul style="list-style-type: none"> • Drive GHG reductions through facility energy conservation; increased alternative fuel use; plug-in EVs; and continued maintenance and fuel efficiency upgrades for vessels and equipment. • Implement the "Reduce the Footprint" policy based on OMB Memorandum M-12-12 Section 3 for the entire USACE real property portfolio. For USACE office space, calculate the annual Administrative Space Utilization rates for each district. When the rate exceeds 178 NSF/PN, implement a "Get Well Plan" at the individual location to reduce the footprint to below 162 NSF/PN.

4. Agency-Specific Priorities

USACE has sixteen separate metrics to drive sustainability progress across the enterprise. The nine leading metrics are tracked quarterly and the seven lagging metrics are tracked annually. These metrics address the regular conduct of energy and water evaluations at USACE facilities; implementation of energy and water conservation measures at our facilities; timely execution of sustainability funding; use of UESCs and PPAs; increased use of alternative fuels; accurate and complete data tracking in CRAFT; compliant sustainable procurement; and installation and operation of energy and water meters.

Notable Projects and Highlights

USACE awarded the following sustainability awards in FY 2018:

GOOD NEIGHBOR Award: The Dry Creek Continuing Authorities Program 1135 team, San Francisco District, worked strategically using non-standard estates and demonstration projects to cause species recovery on vineyard property to be a welcome activity by local land owners, which was a big turn-around in working with the community who now support the team's efforts and strongly endorsed this award.

GREEN DREAM TEAM Award: The Federal Center South (FCS) Interagency Green Team, led by Seattle District, in coordination with the GSA and Department of Veterans Affairs at FCS, made significant contributions to its ongoing greening efforts by reducing waste by 44% through recycling (+63%) and composting (+46%) at an already model facility.

GREEN INNOVATION Award: Huntsville Engineering Center developed the Sustainability Clause Tool that is an easy-to-deploy, innovative solution that is already generating results to a long-term challenge of tracking compliance with federal and USACE requirements; the design brings together many diverse elements into a simple, elegant tool that provides insight and critical feedback on the compliance with requirements.

LEAN, CLEAN, & GREEN Award: In collaboration between the Department of Public Works, Engineer Research and Development Center-Construction Engineering Research Laboratory's (ERDC-CERL) Energy Branch, and University of Illinois, CERL completed an energy-efficient overhaul of its central hot water plant that resulted in natural gas costs reduction by half from \$130K to \$65K per year; over 10 years, the \$700K implementation cost will be paid back and over 265 metric tons in carbon dioxide emissions will be avoided.