U.S. ARMY

SUSTAINABILITY REPORT 2012

SUSTAIN THE MISSION • SECURE THE FUTURE

SUSTAINABILITY REPORT 2012

Preparation of this report/study cost the
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Main Cover Photo: Solar panels of the ZeroBase FORGE provide power to the 1ˢᵗ Armored Division Soldier aid station during a Network Integration Evaluation at Fort Bliss, TX (photo: SGT Richard Andrade).

Small Photos (Left to Right):

- Captain Michael Nau stands in front of solar panels on the roof of the Ameriyah Clinic in northwest Baghdad (photo: SGT Dustin Roberts).

- Fort Bliss, TX Specialist Dean Kalogris charges an electric car made from recycled plastics; these cars are driven by base leaders to show their commitment to reducing energy costs and protecting the environment (photo: MAJ Deanna Bague).

- A portion of the Joint Base Lewis-McChord (JBLM) training area known as Pacemaker, which includes approximately 15 native prairie species and is priority habitat for two Washington state endangered species (photo: Miriam Villacian).

- A DLA-sponsored hydrogen demonstration project involving a bus and 19 forklifts outfitted with hydrogen fuel cells was sited at JBLM (photo: Miriam Villacian).

- Petroglyph of two bighorn sheep located in a basalt canyon, Fort Irwin, CA (photo: Neal Snyder, USAEC).

DEPARTMENT OF THE ARMY
WASHINGTON DC 20310

Training, equipping, and supporting the Army's operations require land, resources, and people. Rising global demand for scarce resources, increasing regional unrest, and the effects of climate change are just some of the trends that will affect our future security environment. The Army recognizes that incorporating sustainability considerations into our operations, acquisitions, and installations will help reduce our resource demands while preserving current and future operational flexibility.

The *Army Sustainability Report 2012*, our fourth public report, highlights our efforts and progress in 2010 and 2011 to further integrate sustainability Army-wide. The *Report* outlines several significant achievements, including the Army's efforts to achieve the Department of Defense's annual *Strategic Sustainability Performance Plan* goals. It also describes the merger of the Army's energy and sustainability governance structures into a single Senior Energy and Sustainability Council, the formalization of the Army's operational energy program, and the launch of the Net Zero pilot initiative. The *Report* concludes with an explanation of the Energy Initiatives Task Force.

For the Army, the implementation of sustainability principles and practices produces benefits that reach into our operations, our people, and our institution. These sustainability principles and practices decrease future mission constraints while enhancing our mission capability and resilience. Conservation of energy, water, and waste contribute to the preservation of the natural environment while safeguarding human health. Meanwhile, these benefits are achieved at a cost the Army can afford now and in the future.

Army Green is Army Strong!

Lloyd J. Austin III
General, U.S. Army
Vice Chief of Staff

Joseph W. Westphal
Under Secretary of the Army

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Executive Summary

Training, equipping, and supporting the Army's operations require land, resources, and people. By implementing sustainability principles and practices, the Army will decrease future mission constraints, increase flexibility and resilience, safeguard human health, improve Army quality of life, and enhance the natural environment. The *Army Sustainability Report 2012* (ASR12) describes the Army's efforts and progress in 2010 and 2011 to further integrate sustainability Army-wide. This fourth report documents the status, achievements, and trends associated with relevant indicators of sustainability, continuing the practice of public disclosure that began with the first report in 2008. Unlike prior reports, it covers a two-year period to bring reporting up-to-date and to better align with annual *Department of Defense* (DoD) *Strategic Sustainability Performance Plan* (SSPP) reporting. Information about the following is provided:

- Importance of sustainable operations
- Army mission, vision, leadership, and organization
- Evolution of Army sustainability
- Sustainability performance data trends, FY04–11
- Activities, progress, and successes aligned with the Army's four core enterprises: materiel, readiness, human capital, and services and infrastructure
- Army progress toward meeting executive orders, energy goals, and the DoD SSPP
- Global Reporting Initiative (GRI) economic, environmental, and social indicators
- References and sources of additional information.

ASR12 enhancements to data reported previously include the following:

- Updates to GRI indicator and metrics data for years 2010 and 2011
- Increased reporting of GRI indicators: the Army fully reports 37 and partially reports 25 (of 87 GRI indicators), an improvement from 33 fully reported and 21 partially reported in the ASR 2010 (ASR10) report.

ASR12 is published in accordance with the GRI *RG: Sustainability Reporting Guidelines* (third generation, G3) in conjunction with GRI's *Public Agencies Sector Supplement*.[1] GRI reporting guidelines provide the Army a template to communicate its organizational performance and policies to its stakeholders in a form comparable to that of other organizations and public agencies. The Army reports data to GRI Application Level B. This report's annex contains a complete index to GRI sustainability performance metrics in tables that have links to the relevant publicly available Army reports and documents. Whenever possible, the data contained in this report were gathered from sources searchable and accessible to the public via the World Wide Web.

ASR12 Highlights

In ASR12, the Army presents updates to initiatives and data reported in prior years as well as new indicators and efforts that began in 2010 and 2011. Among the major developments in 2010 and 2011, the Army:

- Established the Senior Energy and Sustainability Council to provide strategic direction to integrate energy and sustainability into the Army's policies, plans, and programs;
- Issued the *Army Sustainability Campaign Plan* (ASCP),[2] which operationalizes sustainability Army-wide;
- Introduced its Net Zero initiative,[3] designed to improve installation sustainability;
- Initiated a pilot strategy with six Net Zero energy installations (and one Army National Guard site), six Net Zero water installations, six Net Zero waste installations, and two integrated Net Zero installations; and
- Established the Energy Initiatives Task Force (EITF),[4] which streamlines the process to develop large-scale renewable energy projects on Army installations.

Highlights of the data and information reported in ASR12 include the following:

GRI Indicators. Of 87 indicators, the Army fully reports on 37 and partially reports on 25, an increase of four in each catagory, from ASR10. This increase can be attributed to new reporting requirements and additional information now readily available on the web.

Executive Order (EO) 13514 and DoD SSPP. The Army annually reports progress toward the requirements of EO 13514 and the DoD SSPP, which is reflected in the public version of the DoD SSPP issued by DoD and the Office of Management and Budget (OMB). Much of that information is included in the ASR to highlight Army progress. The sections that follow note highlights from 2010 and 2011.

Materiel. In 2010 and 2011, the Army continued to integrate sustainable practices across the materiel life cycle. Efforts such as those of the Stryker Brigade Combat Team—which was formally recognized with the DoD Environmental Award for Environmental Excellence in Weapon System Acquisition (Large Program)—have helped develop, produce, field, and sustain materiel that is more energy-efficient, that minimizes

SSG Michael Bernquist is welcomed home from Iraq by his Family (photo: US Army).

the use of hazardous materials, and that minimizes waste and other negative impacts on the welfare of Soldiers, workers, and the environment. From CY07 to CY09, the Army reduced the use of trichloroethylene by 80 percent and methylene chloride by 10 percent. Overall, releases of chemicals reported under the Toxics Release Inventory (TRI) decreased by more that 35 percent from CY06 to CY10. Although the Army has made progress in reducing specific hazardous waste streams, hazardous waste disposal increased in CY10–11 from CY09. The Army also addressed the sustainability of materiel through its procurement programs by issuing the *Army Installation Green Procurement Program Development Guide* and initiating contract reviews to determine compliance with sustainable procurement requirements.

Readiness. To ensure its ability to perform its national security mission, the Army must have access to training and testing lands. The Army continued land management efforts—such as the Sustainable Range Program, integrated natural resource management planning, and Army Compatible Use Buffer (ACUB) program—to address constraints associated with endangered species, critical habitat, encroachment, and other factors. ACUBs have preserved access to nearly 167,000 acres of adjacent lands through FY11. In 2011, as reported in the *2011 Report to Congress on Sustainable Ranges*, the Army received a capability score of 8.97 out of 10 (green—fully mission capable), continuing a steady improvement in the reporting periods for the 2009 through 2011 reports to Congress. Encroachment scores also remained good at 9.18 of 10, indicating minimal/low risk. In addition, efforts to address operational energy concerns and sustainable contingency basing in 2010 and 2011 reflect new emphasis on reducing the consumption of fuels and water in operational environments, lowering operational costs, supply vulnerabilities, and risk to Soldiers.

Human Capital. People are the Army's most valuable resource. In FY10 and FY11, combined active Army, US Army Reserve (USAR), and Army National Guard (ARNG) components exceeded total end strength and retention goals. In addition, combined active Army, USAR, and ARNG components exceeded recruiting goals in FY10 and achieved 96 percent of their combined recruiting goals in FY11. Although the net cost of operations slightly declined in FY10, FY11 costs increased, reflecting an upward trend associated with operations in Iraq and Afghanistan. The Army continued its Army Community Covenant and Army Family Covenant programs, as well as outreach, volunteer, fitness, and warrior care and transition programs to benefit Soldiers, their Families, Civilians, and the public. In addition to its training and combat missions, the Army supported civil authorities in times of disaster or other needs in FY10-11.

Services and Infrastructure. Throughout 2010 and 2011, the Army continued to adopt practices that sustain both its military Families and the installations from which it mobilizes and deploys military power. Efforts to reduce energy, water, and other resource consumption; better protect the environment; and improve the quality of life included the NetZero Initiative, energy conservation, renewable energy development, and a host of other installation endeavors that support sustainable design and development.

FY11 Army facility energy intensity (the amount of energy used per gross square foot of facility space) decreased by nearly 12 percent compared with the FY03 baseline. Total facility energy use decreased by nearly 5 percent. Although its use of renewable energy (not including thermal renewable energy) decreased to 2 percent in FY10 and 0.5 percent in FY11 (primarily because of expiring renewable energy credit purchase agreements), the Army continued to purchase renewable energy (218,000 megawatt hours in FY10) as well as fund and implement on-site renewable energy generation. In FY10-11, the Army funded 10 new renewable energy projects for a total of 168 projects to date. Scope 1 and 2 greenhouse gas (GHG) emissions, as well as Scope 3 GHG emissions, increased in FY10-11 from FY08. The Army is working to reduce Scope 1 and 2 emissions through efforts supporting EO 13514 and the DoD SSPP subgoals (energy-efficiency efforts, increases in renewable energy use, etc). In addition, the Army continues to take steps to reduce Scope 3 GHG emissions. Compared with

FY07 baselines, Army water intensity decreased more than 10 percent in FY11. Ongoing water conservation, recycling, and reclamation efforts will help to ensure future reductions in consumption of potable, industrial, landscaping, and agricultural water. Efforts to divert solid waste have been stressed by deployment, redeployment, and restationing actions that generate large volumes of waste. The Army's FY11 municipal solid waste diversion rate decreased to 36 percent, falling below the DoD interim goal of 42 percent. In FY11, Army installations achieved a 71 percent construction and demolition debris diversion rate, exceeding the DoD 60 percent goal for FY15. The Army estimates the economic benefits of solid waste diversion at more than $78 million in FY10 and $33 million in FY11. Installations continue to use environmental management systems (EMSs) to minimize impacts and track performance. At the close of FY11, 97 percent of appropriate facilities had declared conformance and fully implemented EMSs.

The Army Commitment

This report demonstrates the Army's ongoing commitment to better assess and report its efforts and progress in sustainability. It details Army efforts to integrate sustainability into materiel, training, personnel, and services. Army undertakings and accomplishments in 2010-11 reflect the continued evolution of sustainability, from individual installation-level initiatives such as developing sustainability plans, to programmatic approaches such as those to address long-term operational energy needs of Soldiers. Each of these actions represent progress in ensuring reliable access to energy, water, and other natural resources to preserve strategic choice and operational flexibility into the future. The Army made significant advances in institutionalizing sustainability in 2010-11 and is realizing returns on its efforts in terms of sustaining its Soldiers and Families, preparing its forces to carry out its National Defense Mission, resetting its units and equipment, and transforming to remain ready for current operations and future contingencies.

Soldiers of the 436th Chemical Detachment help with cleaning up debris resulting from wildfires in Texas
(photo: US Army).

Introduction

By implementing sustainability principles and practices, the Army will decrease future constraints, increase flexibility and resilience, safeguard human health, and enhance the natural environment. The *Army Sustainability Report 2012* (ASR12), the fourth issued by the Army, describes the Army's continued integration of sustainability into operations at all organizational levels to meet current and future mission requirements worldwide, safeguard human health, improve the quality of life, and protect or preserve the natural environment.

Army efforts in 2010 and 2011 reflected the ongoing evolution of sustainability, from early initiatives to preserve installation mission readiness to broader, more strategic efforts to coordinate sustainability across all Army organizations. Each step represents progress in ensuring reliable access to energy, water, and other natural resources to preserve strategic choice and operational flexibility into the future. Among the major developments in 2010-11, the Army issued the *Army Sustainability Campaign Plan* (ASCP); introduced its Net Zero Installations initiative for energy, water, and waste; and established the Energy Initiatives Task Force (EITF). These and other efforts reflect the Army's ongoing commitment to integrate sustainability into its facilities and operations and enhance its mission capabilities.

In ASR12, the Army reports progress using relevant metrics, including those established by executive orders (EOs), the Department of Defense (DoD), the Army, and other standards development organizations. The chapters in this report—including the performance data, success stories, and other topics—are organized along the Army lines of operation: materiel, readiness, human capital, and services and infrastructure. The ASR12 is published in accordance with the Global Reporting Initiative (GRI) *RG: Sustainability Reporting Guidelines* (third generation, or G3) in conjunction with GRI's *Public Agencies Sector Supplement.* This supplement, available in the 2005 pilot version, is a tailored version of GRI guidelines designed to assist public agencies with making sustainability reports more relevant. GRI provides the Army a template to communicate its organizational performance and policies to its stakeholders in a form comparable to that of other organizations and public-sector agencies. The annex to this report provides comprehensive reporting of GRI indicators.

Importance of Sustainable Operations

In 2007, then Army Chief of Staff General George W. Casey Jr. introduced four imperatives to restore balance to the force: sustain, prepare, reset, and transform. In 2010-11, the Army continued to focus on these four imperatives to sustain the Army's Soldiers, Families, and Civilians; prepare forces to prevail in conflict; reset returning units; and transform the Army to meet the demands of the second decade of the 21st Century. As an organizing principle—synchronizing efforts across the enterprise through materiel, readiness, human capital, and services and infrastructure—sustainability supports the advancement of the Army's four imperatives to restore balance.

On May 12, 2010 the ASCP was published, formally recognizing the National Security nexus between sustainability and the conduct of the Army mission. The ASCP was established to guide the Army to:

- Institutionalize sustainability in doctrine, policy, training, operations, and acquisition
- Implement enterprise-wide approaches that maximize efficiencies and focus resources and efforts
- Increase cross-functional awareness, cooperation, and support for sustainable practices
- Enable up-front investments that will result in lower operating costs
- Instill a sustainability ethic and personal commitment from Soldiers and Civilians through the highest Army leadership.

In publishing the ASCP, the Army asserted that through integration of sustainable practices, it will achieve increased military readiness, lower life-cycle costs, and improved quality of life for Soldiers and their Families. This report documents Army efforts and progress in instilling sustainability into planning, training, equipping, and operations. Such efforts will ensure that US Soldiers are capable of achieving any task given them, now and in the future.

Army Mission, Leadership, and Organization

Mission

The Army's mission is "to fight and win our Nation's wars by providing prompt, sustained land dominance across the full range of military operations and spectrum of conflict in support of combatant commanders."[5] The Army does this by:

- Executing Title 10 and Title 32 *United States Code* (USC) directives, including organizing, equipping, and training forces for the conduct of prompt and sustained combat operations on land, and

- Accomplishing missions assigned by the President, Secretary of Defense (SECDEF), and combatant commanders and transforming for the future.

Leadership

On September 21, 2009, the Honorable (HON) John McHugh became the 21st Secretary of the US Army and Dr. Joseph Westphal became the 30th Under Secretary of the US Army—the Army's senior sustainability official. General Raymond T. Odierno became the 38th Chief of Staff of the US Army on September 7, 2011, following General Martin E. Dempsey and General George Casey Jr., who also served as Chief of Staff during the reporting period of this ASR. General Lloyd J. Austin became the 33rd Vice Chief of Staff, US Army, on January 31, 2012, assuming the position held by General Peter W. Chiarelli. To learn more about Army leadership, visit the Army website at www.army.mil/leaders/.

Organization

The Army is one of the three military departments (Army, Navy, and Air Force) reporting to the SECDEF. It comprises two distinct, equally important components: the active component and the reserve components. The active component includes Soldiers on full-time duty in the active military service of the United States (including members of the reserve component serving on active duty or full-time training duty). The reserve components are the US Army Reserve (USAR) and the Army National Guard (ARNG). The USAR provides specialized units and resources to support the deployment and sustainment of Army forces around the globe. In addition, the USAR is the main source of individual Soldiers to augment headquarters staff and fill vacancies in the active component. The ARNG has a federal mission to provide trained and ready forces for wartime, national emergencies, and other requirements. Its stated mission is to train for, and respond to, domestic emergencies and other missions as required by state law. Unless federally mobilized, ARNG units are commanded by their state executive, usually the governor. Army Civilians support all components of the Army and are critical to the Army's success in training, manning, power projection, equipping, medical support, support to Soldiers and Families, base support, acquisition, and management.

Regardless of component, the Army conducts both operational and institutional missions. The operational Army consists of numbered armies, corps, divisions, brigades, and battalions that conduct full-spectrum operations around the world. The institutional Army supports the operational Army. Institutional organizations furnish the infrastructure necessary to raise, train, equip, deploy, and ensure the readiness of all Army forces. The training base provides military skills and professional education to every Soldier—as well as members of sister services and allied forces. It also allows the Army to expand rapidly in time of war. The industrial base provides world–class equipment and logistics for the Army. Army installations are the power-projection platforms required to deploy land forces promptly to support combatant commanders. Once those forces are deployed, the institutional Army renders the logistics needed to support them. The Army has more than 566,000 Soldiers on active duty, 567,000 reserve component troops, and 284,000 Army Civilians who execute its mission.[6] Without the institutional Army, the operational Army cannot function. Without the operational Army, the institutional Army has no purpose.

Figure 1 illustrates how Headquarters, Department of the Army (HQDA), under the direction of the Civilian
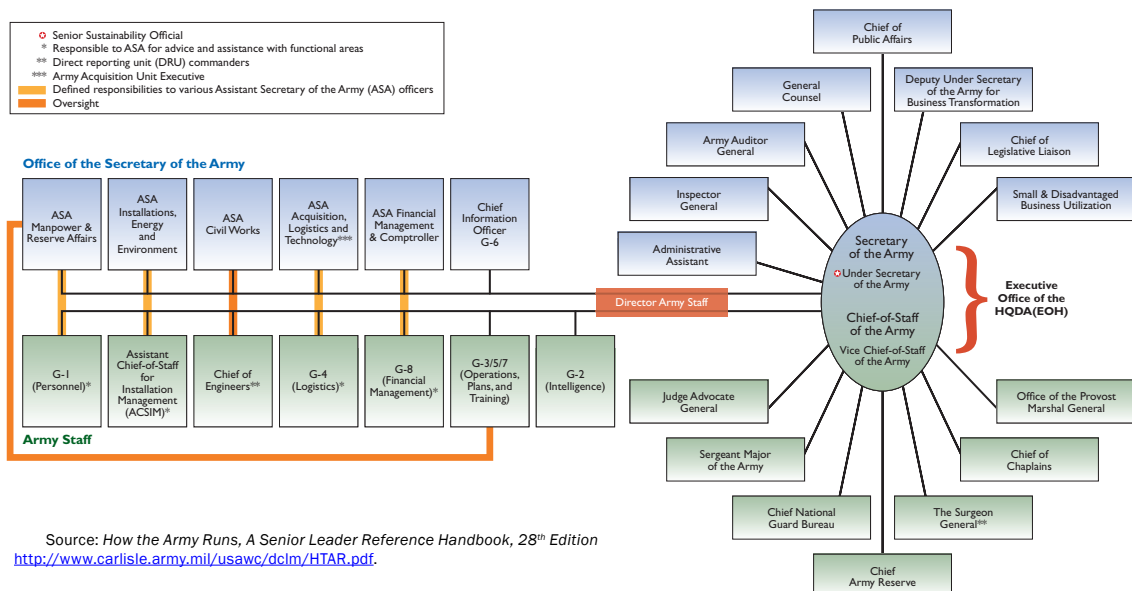

Source: *How the Army Runs, A Senior Leader Reference Handbook, 28th Edition*
http://www.carlisle.army.mil/usawc/dclm/HTAR.pdf.

Figure 1. HQDA Organization Chart

Secretary of the Army (SECARMY) and the military Chief of Staff, Army (CSA), leads and manages the Army. The Assistant Secretary of the Army for Installations, Energy and Environment, ASA(IE&E), under the SECARMY, and the Assistant Chief of Staff for Installation Management (ACSIM), under the CSA, provide direction and oversight of sustainability efforts. In 2010, the Office of the Deputy Assistant Secretary of the Army (Energy and Sustainability), ODASA(E&S), was established under ASA(IE&E) to direct, establish policies, develop and refine strategies, and oversee implementation of all programs and initiatives related to energy security and sustainability within the Army. Although ASA(IE&E) and ACSIM lead and coordinate sustainability efforts, as with other elements of the Army's mission, success relies on a broad spectrum of organizations and functions across the Army. In 2011, the Army re-chartered its Senior Energy Council into a broader Senior Energy and Sustainability Council (SESC) to provide strategic direction to integrate energy and sustainability into the Army's policies, plans, and programs.

Figure 2 illustrates the current Army command (ACOM) structure. The SECARMY designates the ACOMs and sets their command responsibilities. They perform multiple Army Title 10 USC functions across various disciplines. The three ACOMs are the US Army Training and Doctrine Command (TRADOC), Army Materiel Command (AMC), and US Army Forces Command (FORSCOM):

- TRADOC recruits Soldiers, develops leadership among Soldiers and Civilians, designs the future combat force, and maximizes institutional learning.
- AMC supports Army acquisition and logistics, including managing industrial bases and processes.
- FORSCOM trains and mobilizes Soldiers and deploys them to the operational Army.

Direct reporting units (DRUs) are Army organizations, designated by the SECARMY, comprising one or more units with institutional or operational functions and usually broadly supporting the Army in a unique discipline not otherwise available elsewhere in the Army. Army DRUs report directly to a HQDA principal or ACOM and operate under the authorities established by the SECARMY. DRUs discussed in this report include the US Army Medical Command (MEDCOM), US Army Corps of Engineers (USACE), Installation Management Command (IMCOM), and US Army Reserve Command (USARC). An Army service component command is an Army force, designated by the SECARMY, primarily comprising operational organizations serving as the Army component for a combatant commander.

Visit the Army website, www.army.mil/info/organization/, to learn more about how the Army is organized.

Evolution of Army Sustainability

ASR10 details the path of Army sustainability, from early installation-level efforts to address training land constraints, through sustainable approaches, to the appointment of Dr. Westphal as the Army senior sustainability official. In 2010–11, sustainability continued to evolve, bringing with it new drivers and new initiatives. Figure 3 shows some of the key events in the evolution of Army sustainability.

In October 2009, President Obama signed EO 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," which expands the energy reduction and environmental performance requirements of EO 13423 and, for the first time, directs federal

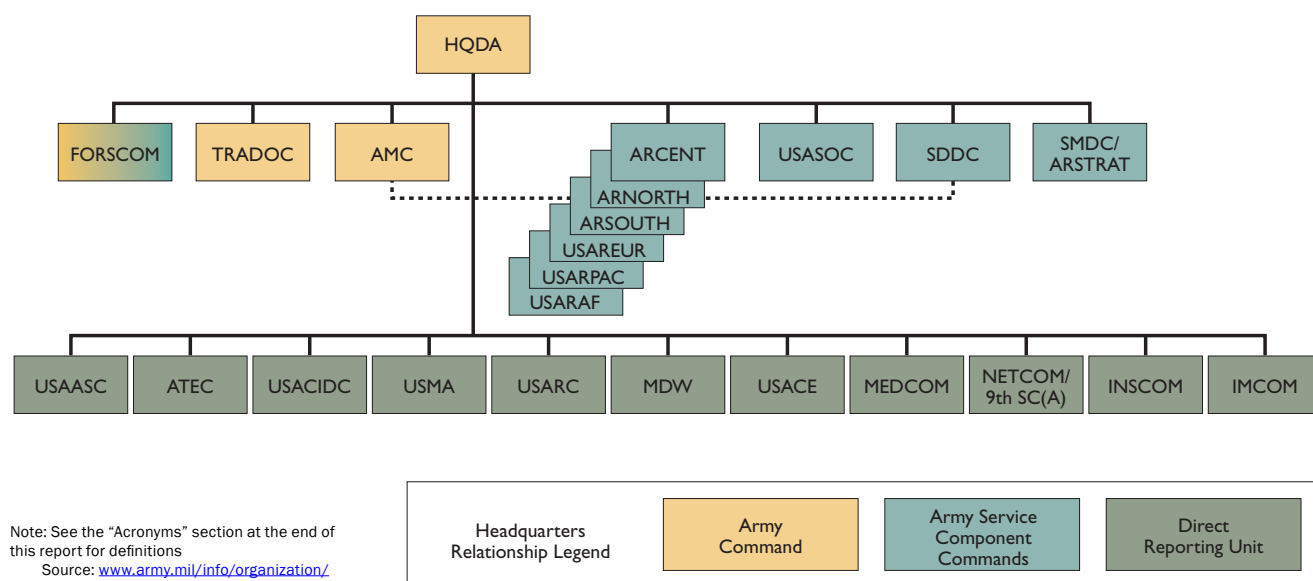Note: See the "Acronyms" section at the end of this report for definitions
Source: www.army.mil/info/organization/

Headquarters Relationship Legend

Army Command

Army Service Component Commands

Direct Reporting Unit

Figure 2. Army Command Structure (April 2012)

The Army Strategy for the Environment

Timeline — Figure 3. Key Sustainability Events

- **2001**
  - Sustainable Fort Bragg
- **2004**
  - Army Strategy for the Environment
- **2005**
  - Energy Policy Act of 2005 (EPAct 05)
- **2007**
  - EO 13423 "Strengthening Federal Environmental, Energy, and Transportation Management"
  - Energy Independence and Security Act (EISA) of 2007
- **2008**
  - First Army Sustainability Report (ASR)
- **2009**
  - Army Energy Security Implementation Strategy (AESIS)
  - EO 13514 "Federal Leadership in Environmental, Energy, and Economic Performance"
  - Under Secretary of the Army designated Army senior sustainability official
- **2010**
  - ASR09
  - First DoD Strategic Sustainability Performance Plan
  - Army Sustainability Campaign Plan
- **2011**
  - Net Zero installation pilot
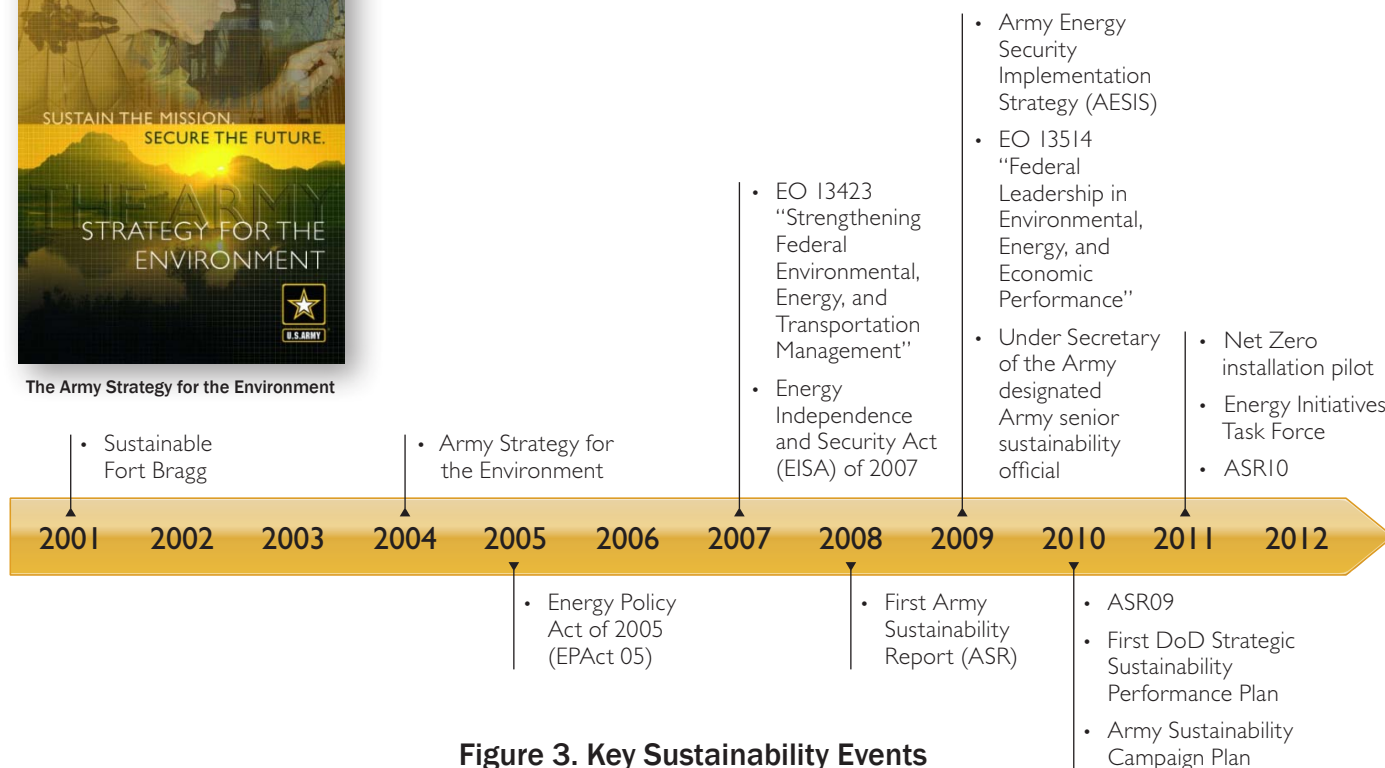 - Energy Initiatives Task Force
  - ASR10

Figure 3. Key Sustainability Events

agencies to prepare annual strategic sustainability performance plans (SSPPs) and to inventory and report their greenhouse gas (GHG) emissions.[7] EO 13514 also requires agencies to designate senior sustainability officers. EO 13514 strengthened many of the Army's ongoing sustainability initiatives and helped to guide the Army in others. In response to the new EO, DoD issued its *2010 Strategic Sustainability Performance Plan* on August 26, 2010,[8] and in October 2011, DoD issued its 2011 SSPP.[9] The requirements of the EO—which include numerical and non-numerical performance targets, as well as specific management strategies—and DoD's subsequent SSPP initiatives and targets shaped many of the Army's 2010–11 initiatives. Accordingly, the ASR12 reflects new data and sustainability efforts emanating from the EO and annual DoD SSPPs.

The ASCP was issued by the Army in May 2010 to operationalize sustainability Army-wide. It framed the tenets of sustainability and established the foundation to institutionalize sustainability as an organizing principle across the Army's missions and functions. The ASCP crossed four lines of operation (materiel, readiness, human capital, and services and infrastructure) to strengthen the Army's national security role and directly support its strategic imperatives: sustain, prepare, reset, and transform. It also served as a road map to align and integrate ongoing efforts with the new and necessary plans and programs to address DoD objectives in implementing EO 13514.

The Army's Net Zero initiative has the goal of installations becoming Net Zero in terms of energy, water, and waste, with the ultimate goal of sustainable installations. ASA(IE&E) introduced the Army's Net Zero Installations initiative for energy, water, and waste in 2010, although limited Net Zero energy initiatives were undertaken in prior years. In April 2011, the Net Zero initiative kicked off with six Net Zero energy pilot installations, six Net Zero water pilot installations, and six Net Zero waste pilot installations, with two additional integrated Net Zero pilot installations:[10]

- A Net Zero energy installation is one that produces as much energy on site from renewable sources as it uses over the course of a year. To achieve this goal, installations first implement aggressive conservation and efficiency efforts while benchmarking energy consumption to identify further opportunities. The next step is to utilize waste energy or to "repurpose" energy from exhausts or other thermal waste streams. The balance of energy needs can be met by other renewable energy sources.

- A Net Zero water installation limits the consumption of freshwater resources and returns water back to the same watershed to avoid

depleting regional groundwater and surface water resources over the course of a year. The quantity and quality of the Net Zero water strategy balances water availability and use to ensure a sustainable water supply for years to come.

- The approach to creating a Net Zero waste installation is similar to that for a Net Zero energy installation. A Net Zero waste installation is one that reduces, reuses, and recovers waste streams, converting them to valuable, useable resources with zero solid waste disposed in landfills over the course of a year. The components of Net Zero solid waste start with reducing the amount generated, repurposing waste, and maximizing recycling of the waste stream to reclaim recyclable and compostable materials. Finally, recovery to generate energy as a byproduct of waste reduction ultimately makes landfill disposal nonexistent.

The SECARMY established the Energy Initiatives Task Force (EITF) in September 2011 to streamline the process for developing large-scale renewable energy projects on Army installations. Consistent with many sustainability initiatives that employ strategic partnerships to leverage resources, the EITF's approach aims to cultivate productive and innovative relationships with private industry and business investors to speed the Army's transition to renewable energy use.

In 2010–11, the Army also released its second and third ASR reports. These reports continued the Army trend toward public reporting and served as an essential tool in communicating sustainability efforts to interested stakeholders by providing a single, comprehensive reference of sustainability initiatives and performance.

Monitoring Progress in Army Sustainability

Because of the nature of the Army's mission, and the size and complexity of its organization and operations, sustainability reporting poses a unique challenge. The Army prepared the first ASR to give Army stakeholders and the public a better view of Army sustainability. It aggregated information on relevant Army activities and achievements, as well as progress with GRI and other sustainability indicators, in a single, comprehensive report. ASR12, the fourth report, builds on that foundation, evolving to keep pace with changing organizations and programs, maturing doctrine, new sustainability requirements and drivers, and improved methods to access and report data.

Figure 4 illustrates the correlation of sustainability drivers and the flow of sustainability metrics and information to stakeholders. It also shows the role of the ASR in communicating sustainability progress to a broader audience. The indicators, metrics, and other data in the ASR have expanded over time to encompass new drivers such as EO 13514, the DoD SSPP, and other requirements, reporting Army-level progress toward achieving the
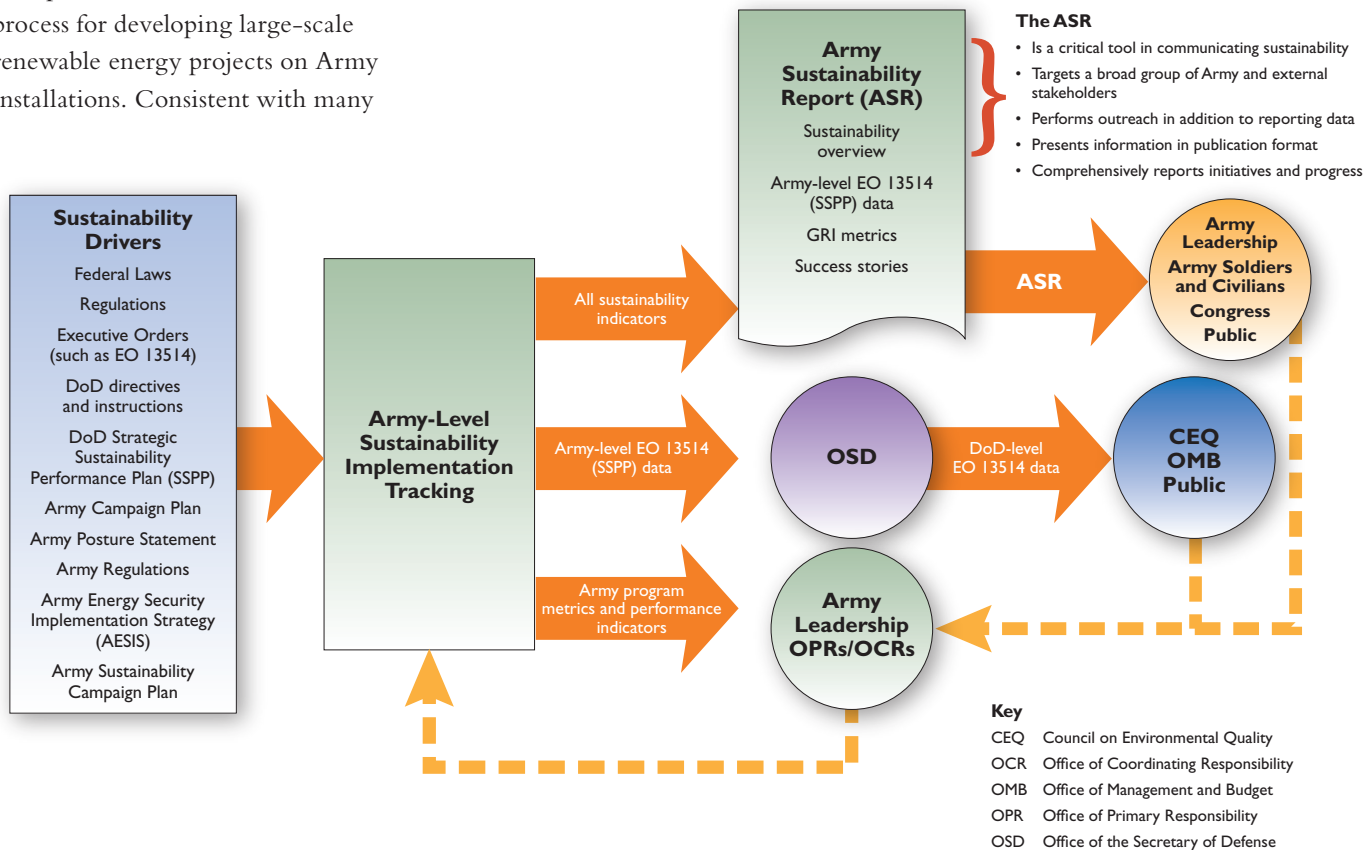

Figure 4. Communicating Army Sustainability

established goals and targets. It has also expanded to describe progress for a broader range of sustainability topics, such as those reported in the areas of human capital and readiness. With the ongoing evolution of sustainability, the ASR will continue to adapt as a key communication tool, informing Army and external stakeholders about Army sustainability initiatives and accomplishments. It will reflect the accomplishments and data resulting from actions that demonstrate the Army's commitment to sustainability, such as the establishment of an energy security and sustainability objective in the 2012 *Army Campaign Plan*.

The Army reports data to GRI Application Level B (Figure 5), meaning it reports all portfolio criteria describing the organization and its processes using performance indicators in economics, environment, human rights, labor, society, and product responsibility. Not all GRI indicators are material—significant and relevant for disclosure—for the

Army. Of 87 indicators, the Army fully reports on 37 and partially reports on 25, an increase from ASR10. The Army continues to review how GRI applies to its mission and activities. To the extent practical, ASR12 correlates indicators to other metrics and explains why the Army has not reported on some indicators.

ASR12 Overview

In 2009, the Army framed four tenets of sustainability that serve as the basis for the ASCP:

- Developing, producing, fielding, and sustaining materiel that is more energy efficient; is capable of using renewable energy resources; minimizes the use of hazardous materials; and generates less waste.

- Ensuring the Army has sufficient access to training and testing resources, and incorporating sustainability into operational planning and execution, so the Army can continue to effectively train today and in perpetuity.

- Expanding the Army commitment to sustainability by instilling sustainable practices into all levels of Soldier and Civilian education programs.

- Providing services and operating facilities in a manner that reduces consumption of energy, water, and other resources; promotes the use of renewable energy sources; enhances quality of life; and continues to protect the environment.

Like the previous report, ASR12 is oriented to these four tenets, and reports associated actions and progress in 2010-11. These tenets— for materiel, readiness, human capital, and services and infrastructure—will serve as a road map to relate ongoing efforts with new ones, including those directed

Report Application Level		C	C+	B	B+	A	A+
Standard Disclosures	G3 Profile Disclosures OUTPUT	Report on: 1.1 2.1–2.10 3.1–3.8, 3.10–3.12 4.1–4.4, 4.14–4.15	Report Externally Assured	Report on all criteria listed for Level C plus: 1.2 3.9, 3.13 4.5–4.13, 4.16–4.17	Report Externally Assured	Same requirement for Level B	Report Externally Assured
	G3 Management approach Disclosures OUTPUT	Not required		Management approach disclosures for each indicator category		Management approach disclosures for each indicator category	
	G3 performance indicators and sector supplement performance indicators OUTPUT	Report on a minimum of 10 performance indicators, including at least one from each of: economic, social and environmental		Report on a minimum of 20 performance indicators, including at least one from each of: economic, environmental, human rights, labor, society, and product responsibility		Report on each core G3 and sector supplement* indicator with due regard to the Materiality Principle by either: a) reporting on the indicator or b) explaining the reason for its omission	

*Sector supplement in final version

Figure 5. Army Report Standard Disclosure Summary for GRI Application Level

by the DoD SSPP, per EO 13514.

Each section of the report addresses topics of note, reports metrics, and highlights successes. The introduction briefly summarizes relevant requirements of EO 13514, per the DoD SSPP, and the ASCP which the Army must fulfill in coming years. Boxes throughout the report highlight feature stories, installation examples, and quotations. Dark green boxes highlight performance for specific DoD SSPP requirements.

Table 1 (Army Sustainability Trends, FY04-11) summarizes key sustainability trends from FY04 to FY11 and directs readers to appropriate sections of the report.

The annex contains a complete index to GRI sustainability performance metrics in tables that link to the relevant publicly available supporting Army reports and documents. Although the Army maintains extensive organizational data, the ASR draws solely upon data searchable and accessible to the public via the World Wide Web or in this report. Recognizing the importance of quality, the Army has processes in place to review data used in the report and continues to improve its data quality, collection, and reporting efforts. Among other methods of providing quality assurance and continued improvement, the Army relies on the performance of external and internal audits to evaluate the effectiveness of programs and processes related to sustainability data management.

The Army invites readers of this report to submit comments directly to the Office of the Assistant Secretary of the Army for Installations, Energy and Environment, OASA(IE&E). See the back cover for contact information.

Army Sustainability Trends

Table 1 summarizes key sustainability trends from FY04 to FY11 and directs readers to appropriate sections of the report. It is partially based on a subset of the economic, environmental, and social responsibility performance metrics recommended by GRI's G3 and *Public Agency Sector Supplement.* The last column includes a page number to guide the reader to the location of the trend description in the ASR. The "FY10" and "FY11" annual performance columns include data from FY10 and FY11, noting the original reporting time frame in the source documentation. In addition, the "FY10" and "FY11" columns have a few metrics that include data reported from CY10 and CY11, such as hazardous waste and toxic release inventory (TRI) data from CY10 and CY11, when available.

New in ASR12

- Updates to indicator and metrics data for 2010–11
- Increased reporting of GRI Indicators: of 87 total GRI Indicators, the Army identifies that it fully reports on 37 GRI Indicators and partially reports on 25 GRI Indicators, an improvement from ASR10
- Additional information on new initiatives and developing topics, including contingency basing, Army EITF, Net Zero, and Sustainable Range Program
- New success stories

- Reporting of progress toward the EO 13514 and DoD SSPP numerical and non-numerical targets and management requirements
- Greater coverage of human capital advancements, including the Comprehensive Soldier Fitness Program, Warrior Care and Transition Program, and Army Safety Awards
- Additional reporting of services and infrastructure data and programs, including GHG emissions and the Public Health Command Water Supply Management Program

Table 1. Army Sustainability Trends, FY04-11

Metric Definition (units)	FY04	FY05	FY06	FY07	FY08	FY09	FY10[a]	FY11[a]	ASR Section	ASR Page
TRI reportable quantities, including ranges (million lbs by CY) [b,c,d]	18.87	18.76	23.87	21.96	25.07	23.30	21.60	Note e	Materiel	23
TRI quantities with DoD SSPP Sub-goal 5.1 exclusions (million lbs by CY) [b,f,g]	Note h	Note h	0.26	Note i	Note i	0.16	0.17			23
TRI percent reduction relative to CY06 [b,f,g]			Note h			-37.7%	-35.5%			23
Hazardous waste (HW) disposal (million lbs by CY) [b,c,j]	45.7	63.7	45.0	76.5	54.7	52.4	75.6	96.4		24
Ranges - Army Overall Capability Score [k]	Note e					6.53	6.49	7.61	8.97	Readiness	29
Ranges - Army Encroachment Score [k]						9.23	9.23	9.22	9.18		30
Installations with up-to-date INRMPs [c,l]	98%	99%	98%	98%	98%	62%	59%	63%		30
Total acres permanently protected through the FY by Army Compatible Use Buffer (ACUB) partnerships [m]	22,431	28,419	63,370	81,587	96,275	120,607	134,529	166,901		32
Total Army end strength (thousands) [n]	1,046.59	1,014.91	1,041.66	1,064.61	1,101.03	1,116.73	1,133.35 (Goal: 1,125.60)	1,133.51 (Goal: 1,132.60)	Human Capital	45
Active Army end strength (thousands) [n]	499.54	492.73	505.40	522.02	543.65	553.04	566.05 (Goal: 562.40)	566.50 (Goal: 569.40)		45
USAR and ARNG end strength (thousands) [n]	547.05	522.18	536.26	542.59	557.38	563.69	567.30 (Goal: 563.20)	567.01 (Goal: 563.20)		45
Retention--Active, Reserve, National Guard (thousands) [n]	123.35	119.80	126.61	127.26	120.05	116.22	111.16 (Goal: 100.80)	96.31 (Goal: 91.09)		45
Recruiting--Active, Reserve, National Guard (thousands) [n]	148.09	142.99	175.06	174.06	169.86	145.74	158.58 (Goal: 157.80)	131.22 (Goal: 136.32)		45
Net cost of Army operations ($ billion) [n,o]	$135.8	$146.4	$164.6	$168.9	$190.5	$205.6	$197.8	$216.0		45
Army Civilian workforce (thousands) [n]	227	236	239	250	290	273	284	284		46
Use of petroleum products by non-tactical vehicle fleets relative to FY05 [p,q,r]	Note s	Note s	-8.5%	-3.1%	4.6%	-2.2%	-2.2% (SSPP Planning Target: -10%)	-10.3% (SSPP Planning Target: -12%)	Services & Infrastructure	51
Army facility energy intensity (thousand British thermal unit (Btu)/ gross square foot (GSF) [q,t,u]	Note v	Note v		91.9	89.8	93.1	91.5	85.7		51
Army facility energy intensity relative to FY03 baseline [p,q,t,w]				-8.4%	-10.4%	-7.2%	-8.7% (SSPP Planning Target: -15%)	-11.8% (SSPP Planning Target: -18%)		51
Percent electricity use met by renewable energy (includes thermal energy projects) [p,q,x]	Note e	Note e		7.5%	5.4%	5.9%	5.6% (SSPP Planning Target: 10%)	4.3% (SSPP Planning Target: 11%)		53
Percent electricity use met by renewable energy (excludes thermal energy projects) [y,z]				2.1%	1.1%	2.1%	2.0% (EPAct 2005 Target: 5%)	0.5% (EPAct 2005 Goal: 5%)		53
Water intensity (gallons per GSF) [g,q]	Note aa	Note aa		57.6	54.0	58.2	48.8	51.7		58
Water intensity relative to FY07 baseline [p,q,ab]				Note aa	-6.2%	1.0%	-15.3% (SSPP Planning Target: -6%)	-10.3% (SSPP Planning Target: -8%)		58

Metric Definition (units)	FY04	FY05	FY06	FY07	FY08	FY09	FY10[a]	FY11[a]	ASR Section	ASR Page
Potable water consumption (billion gallons) [g,q,t,ac,ad]	66.15	45.93	43.44	45.25	45.94	48.97	41.85	42.01		59
Total solid waste generated (million tons) [c,ae]	Note e	1.40	1.05	0.98	1.00	1.00	0.78	0.96		61
Solid waste diverted (million tons) [c,ae]		0.48	0.45	0.39	0.42	0.42	0.29	0.35		61
Construction and demolition (C&D) debris diverted (million tons) [c,ae]		0.49	0.92	1.46	0.89	0.94	1.02	0.74		61
Total C&D debris generated (million tons) [c,ae]		0.74	1.28	1.85	1.25	1.28	1.38	1.05		61
C&D debris diversion rate [c,p,ae]		67%	72%	79%	71%	73%	73% (SSPP Planning Target: 50%)	71% (SSPP Planning Target: 52%)		61
Solid waste and C&D debris generated (million tons) [c,af]	2.76	2.14	2.33	2.83	2.25	2.28	2.16	2.01		61
Overall solid waste and C&D debris diversion rate [c,af]	57%	45%	59%	65%	58%	60%	61%	54%		61
Solid waste diversion rate [c,p,ae]	Note e	34%	43%	40%	42%	42%	38% (SSPP Planning Target: 40%)	36% (SSPP Planning Target: 42%)		62
% new building designs 30% more energy efficient than relevant code, where life-cycle cost effective [ag]	Note ah				100%	100%	100% (EPAct 2005 Target: 100%)	100% (EPAct 2005 Target: 100%)	Services & Infrastructure	63
% of complete integrated cultural resources management plans (ICRMPs) for installations requiring ICRMPs [c,l]	69%	84%	92%	92%	93%	95%	98%	65%		64
Visits to USACE recreational areas (millions) [ai,aj]	122	122	131	132	137	134	135 (Target: 132)	135 (Target: 132)		65
Army new environmental enforcement actions [c,l]	89	91	101	94	130	75	96	92		69
Fines and penalties assessed (thousands) [c,ak]	$903.0	$430.2	$947.0	$347.8	$453.2	$552.1	$422.7	$117.7		69
Percentage facilities with environmental management system (EMS) fully implemented [al,am]	Note am				14%	38%	93%	97%		69
Environmental funding ($ million) [an,ao,ap]	$1,559	$1,554	$1,530	$1,562	$1,600	$1,218	$1,483	$1,105		71
Environmental restoration funding ($ million) [an,ao,aq]	$742.8	$762.1	$803.7	$801.3	$838.8	$528.9	$720.9	$463.1		71
Compliance, pollution prevention, conservation finding ($ million) [an,aq]	$713.4	$704.5	$650.2	$691.3	$681.2	$613.0	$686.9	$589.1		71
Environmental technology funding ($ million) [an]	$102.9	$87.3	$76.2	$69.2	$79.6	$76.0	$75.0	$53.1		71

a) Established goals and targets are noted in parentheses. Not all metrics have established goals.
b) Figures reported by calendar year. For ASR12, calendar year values are shown in the current fiscal year (i.e., CY10 value is under the FY10 column).
c) Defense Environmental Programs Annual Reports to Congress (DEP ARCs), FY04–10.
d) CY10 value provided by Army G4. Value reported publicly ASR12.
e) Data not available for this year, or not available in this format.
f) DoD SSPP Sub-goal 5.1 exclusions include: releases from ammunition production, military munitions, operational range activities, mission critical weapon system support activities, and conventional and chemical military munitions demilitarization.
g) Some or all values provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and the *FY11 DoD Annual Energy Management Report* and also made public ASR12.
h) CY06 is the baseline for this measure.
i) Not applicable. DoD SSPP reporting did not begin until FY10.
j) CY10 and CY11 values provided by OACSIM(DAIM-ISE). Reported publicly ASR12.
k) Reports to Congress on Sustainable Ranges, 2008-2011, http://www.denix.osd.mil/sri/Policy/Reports.cfm. Note that the scores in the Reports to Congress on Sustainable Ranges run approximately from July of one year to July of the next and are approximately a year behind publication. Thus, the 2011 scores in the *2011 Report to Congress on Sustainable Ranges* reflect the period running approximately from July 2009 to July 2010.
l) FY11 value compiled using data provided by ODASA(ESOH). Reported publicly ASR12.
m) FY04–FY09 acreage from annual ACUB End-of-Year Summaries at http://aec.army.mil/usaec/acub/index.html. FY10–FY11 acreage from the 2011 and 2012 REPI Reports to Congress at http://www.repi.mil/Documents.html.
n) Army FY04–11 Annual Financial Reports.
o) Per change in *FY10 Army Annual Financial Report*, FY09 Net Cost of Army Operations adjusted from $206.4 billion to $205.6 billion.
p) FY10 and FY11 Goals represent overall DoD Annual Planning Targets as reported in the FY11 DoD SSPP. These goals are not specific to the Army.
q) DoD SSPP, FY11.

Notes Continued from Table 1

r) FY06–FY11 values calculated from data provided by the OACSIM Logistics Division. Values also reported publicly ASR12. The FY10 value is also published in the FY11 DoD SSPP and the FY11 value is published in the *FY11 DoD Annual Energy Management Report*.

s) FY05 is the baseline year against which petroleum products use by non-tactical vehicle fleets reductions are measured in the DoD SSPP.

t) DoD Annual Energy Management Reports, FY04–FY11.

u) The FY04–09 DoD Annual Energy Management Reports were clarified with facility energy intensity totals from personal communications with energy engineer Randy Smidt, Program Manager for Energy Sustainability, HQDA.

v) The metric is not included in FY04–06 DoD Annual Energy Management Reports.

w) In FY11, with permission from OSD and OMB, the Army revised its FY2003 baseline to 97.2 thousand Btu/GSF to exclude the process energy consumed at Army ammunition plants, consistent with the other Services under the Energy Policy Act of 2005 (EPAct 05) Section 102(c). Previous percentage reductions are based on the previous FY03 baseline of 100.3 thousand Btu/GSF, consistent with how they were reported in previous documentation.

x) FY10–FY11 values reported in the *FY11 DoD Annual Energy Management Report*.

y) FY07–FY09 values from the DoD FY07–FY09 Annual Energy Management Reports. FY10 value provided by OASA(IE&E) for compilation in the *FY10 DoD Annual Energy Management Report* and also made public ASR12. FY11 value reported in the FY11 DoD Annual Energy Management Report.

z) FY10 and FY11 Goals represent the EPAct 2005 renewable requirement of total electricity use derived from renewable resources.

aa) FY07 is the baseline year against which potable water intensity reductions are mandated by EO 13514 and measured in the DoD SSPP.

ab) DoD Annual Energy Management Reports, FY07–FY11.

ac) The FY05 and FY06 Army water consumption totals are from the FY05 and FY06 Army Annual Energy Reports: http://army-energy.hqda.pentagon.mil/archive/. Values also reported in previous ASRs.

ad) Per *FY09 DoD Annual Energy Management Report*, the FY09 Army water consumption value reported as 58.2 billion gallons in ASR10. Per reporting in FY11 DoD SSPP and *FY10 DoD Annual Energy Management Report*, the FY09 value was changed to 48.97 billion gallons in ASR12.

ae) FY11 value provided by ODASA(E&S). Reported publicly ASR12.

af) FY11 value compiled using data provided by ODASA(E&S). Reported publicly ASR12.

ag) *The FY11 DoD Annual Energy Management Report* states that all Army buildings in 2011 were designed to use 30 percent less energy than required by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASRAE) 90.1 standards. FY08–FY11 values provided by OASA(IE&E) for compilation in the FY08–FY11 DoD Annual Energy Management Reports and also made public ASR12.

ah) The FY07 report counted new construction attaining Leadership in Energy and Environmental Design (LEED) standards; in FY08–11, the Army required buildings to be designed 30 percent more energy efficient than ASHRAE Standard 90.1 2004.

ai) USACE Civil Works, FY09–FY11 US Army Annual Civil Works Financial Statements.

aj) Personal communications on changes to annual civil works financial statement data.

ak) FY11 value provided by OACSIM (DAIM-ISE). Reported publicly ASR12.

al) FY08–FY09 data from the DEP ARC, FY08–FY09; FY10 data from the DoD SSPP, FY11; FY11 value provided by OASA(IE&E) for compilation in the FY12 DoD SSPP and also made public ASR12.

am) In FY07, the Office of the Federal Environmental Executive established new standards for EMSs, including external audits. The previous metric measured those with EMSs in place, 100% in FY07.

an) DEP ARCs, FY04–11.

ao) ASR07 and ASR09 include Formerly Used Defense Sites (FUDS) funding in the total Environmental Restoration and total Environmental Funding values. Although the Army is the executive agent for FUDS, this program is funded through DoD. The FY09 DEP ARC removed FUDS from the Army-specific totals. FY04–FY08 Environmental Restoration and total Environmental Funding values include FUDS funding totals, while FY09–FY11 Environmental Restoration and total Environmental Funding values do not.

ap) Environmental Funding is a summation of the three rows in Table 1 that follow it, and includes funding for environmental activities, including conservation, compliance, pollution prevention, environmental technology, environmental restoration, Base Realignment and Closure (BRAC), and FY04–FY08 FUDS funding.

aq) In ASR07 and ASR09, FY04–FY08 BRAC data were compiled with compliance, conservation, and pollution prevention totals, but for FY04–FY09 totals in ASR10 and ASR12, BRAC funding amounts are reported under Environmental Restoration amounts (which includes Environmental Restoration and BRAC amounts as well as FUDS amounts for FY04–FY08) to maintain consistency with FY04–FY11 DEP ARC reporting. Overall Environmental Funding totals for FY04–FY08 did not change.

Materiel

Materiel consists of all items "necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes." It includes such items as tanks, self-propelled weapons, and aircraft, as well as support equipment, but it does not include real property, installations, and utilities.[11] To be sustainable, the Army must "develop, produce, field, and sustain materiel that is more energy-efficient, that minimizes the use of hazardous materials, and that minimizes waste and other negative impacts to the welfare of Soldiers, workers, and the environment."[12]

Sustainability requires planning for the long term—to maintain mission capability, decrease future constraints, and decrease total ownership costs. It includes reducing the logistics footprint while improving operational security and putting fewer Soldiers at risk. The Army is minimizing impacts and total ownership costs through integration of sustainable practices into the entire materiel life cycle, from production and fielding through operation and ultimate disposal. Table 2 identifies some of the sustainability requirements associated with materiel that applied in 2010–11 and which will continue to guide the Army.

The following subsections describe FY10 and FY11 Army activities and accomplishments related to integrating sustainability into the materiel life cycle through reduction of toxics, hazardous waste reduction, and green procurement (GP).

Table 2. Materiel-Related Sustainability Requirements

EO 13514	DoD SSPP	ASCP
• Reduce petroleum consumption. • Minimize acquisition, use, and disposal of toxic and hazardous chemicals. • Implement source reduction to reduce waste and pollutants. • Decrease use of chemicals directly associated with GHG emissions. • Report in conformance with sections 301–313 of EPCRA. • Procure ENERGY STAR and FEMP-designated electrical equipment. • Ensure new contracts require environmentally preferable products and services. • Ensure procurement preference for EPEAT-registered electronic products. • Procure recycled paper.	• Reduce vehicle petroleum use. • Reduce releases of toxic chemicals. • Reduce GHG emissions. • Procure sustainably.	• Implement the AESIS. • Implement the Toxic and Hazardous Chemicals Reduction Plan for materiel. • Review and evaluate additional chemicals for the Army's Toxic and Hazardous Chemicals Reduction Plan. Establish new baselines and targets. • Revise acquisition and procurement policy and practices to instill sustainability; establish a KPP. • Utilize the sustainability KPP and life-cycle costing in all acquisition and procurement decisions. • Develop and fully implement GP policies.

1. AESIS = Army Energy Security Implementation Strategy; EPCRA = Emergency Planning and Community Right-to-know Act; EPEAT = Electronic Product Environmental Assessment Tool; FEMP = Federal Energy Management Program; GP = green procurement; KPP = key performance parameter.

2. The requirements have been summarized; consult the three source documents for exact language.

Reduction of Toxics

The Army is reducing the toxic chemicals used in association with critical weapons systems. The Army *Toxic Chemical Reduction Plan* targets three chemicals for reduction: trichloroethylene (TCE), methylene chloride, and hexavalent chromium. The plan targets reductions in specific applications of these chemicals for significant industrial Army users.[13]

The Army established reduction targets of 15 percent for use of TCE and methylene chloride for 2010 to 2013.[14] Anniston Army Depot, which accounts for the majority of the Army's use of these chemicals, has taken strides to find greener alternatives to these products. To reduce methylene chloride use, in FY11, Anniston began using paint strippers without this chemical, which should nearly eliminate its use in FY12. Similarly, since CY07, Anniston has managed to reduce TCE requirements by 83 percent through the use of alternatives and process improvements. These reductions benefit the Army as a whole because Anniston is responsible for 94 percent and 86 percent, respectively, of the Army's total methylene chloride and TCE use.[15] In addition to reductions in TCE and methylene chloride use, the Army set a 9 percent target for usage of hexavalent chromium–containing epoxy primer and is working to achieve reductions.[16]

RDECOM Program wins Secretary of the Army Environmental Award

A team of research scientists from the US Army Research, Development, and Engineering Command (RDECOM) Environmental Acquisition and Logistics Sustainment Program Sustainable Painting Operations for the Total Army (SPOTA) program received the 2010 Secretary of the Army Environmental Award for Weapon System Acquisition, as well as the 2011 Secretary of Defense Environmental Small Program Award for Environmental Excellence in Weapons System Acquisition. The team's improved surface-coating method will not only reduce air pollutants, but also save the Army approximately $1 billion over the next 15 years. The SPOTA program focuses on paints, sealants and adhesives, solvents, depainting, and rubber-to-metal bonding, primarily to eliminate organic hazardous air pollutants (HAPs). SPOTA also addresses the reduction of volatile organic compounds (VOCs) and other hazardous materials. The improved method will likely reduce Army surface-coating organic HAP and other pollutant emissions by 4,000 tons.[17,18,19]

MG Nick Justice, RDECOM commanding general; GEN Ann E. Dunwoody, AMC commanding general; HON Katherine Hammack, the ASA (IE&E); and RDECOM Command SGM Hector Marin present Erik Hangeland, program director for the Environmental Acquisition and Logistics Sustainment Program with the Secretary of the Army Environmental Award for Weapon System Acquisition (photo: Conrad Johnson).

Stryker Brigade Combat Team Wins Environmental Excellence in Weapon System Acquisition

The Program Management Office, Stryker Brigade Combat Team (PMO SBCT), received the 2012 (FY11) SECDEF Environmental Award for Environmental Excellence in Weapon System Acquisition (Large Program). In FY10 and FY11, the PMO SBCT continued to integrate environmental analysis and stewardship into decision-making processes. For the Stryker Family of Vehicles (FoV) Program, various strategies involved pollution prevention, waste minimization, and environmental compliance strategies. In addition, the PMO SBCT designed, validated, and manufactured the Double V-Hull (DVH) Strykers while maintaining awareness of potential environmental impacts throughout the developmental process, including manufacture, testing, operations and support, and disposal. The PMO SBCT will field 450 of the DVH Strykers in Afghanistan, which significantly increase crew and vehicle protection against improvised explosive devices.

The SBCT Environmental Management Team (SBCT EMT), consisting of representatives of several government agencies and contractors, organized environmental efforts for the Stryker Program (including DVH Strykers). The SBCT EMT served many roles, aiding the PMO SBCT in identifying and resolving environmental issues as well as seeking opportunities for pollution prevention. In addition, the SBCT EMT reviewed hazardous materials requirements and conducted tradeoff studies to identify less or nonhazardous materials and manufacturing processes. To ensure continued military readiness, the PMO SBCT incorporated pollution prevention and environmental protection practices early in the Stryker FoV's life cycle. The SBCT EMT also ensured the Stryker FoV Program complied with laws and regulations.[20]

Toxic Release Inventory (TRI)

The TRI provides information on toxic chemicals that enter the environment at a facility or are transferred off site. The purpose of TRI reporting is to establish an inventory of chemical releases in a publicly accessible database. These data are reported in the TRI Explorer (www.epa.gov/triexplorer), which includes information on routine and accidental releases of chemicals into the environment. All reporters subject to the reporting criteria submit annual TRI information to the Environmental Protection Agency (EPA), which maintains TRI Explorer.

The Army released or transferred 23.30 million pounds and 21.60 million pounds of TRI chemicals, [21,22] in CY09 and CY10, respectively, including nitrate compounds, copper, lead, lead compounds, ethylene glycol, zinc, dichloromethane, hydrochloric acid, copper compounds, and aluminum. These quantities include releases or transfers from ranges and represent decreases of 2.4 and 9.5 percent, respectively, from CY06. DoD SSPP subgoal 5.1 excludes several items, such as releases from ammunition production, military munitions, operational range activities, mission–critical weapon system support activities, and conventional and chemical military munitions demilitarization. Excluding these releases, the Army reported releases of 162.6 thousand pounds in CY09 and 168.4 thousand pounds in CY10, reductions of 37.7 and 35.5 percent, respectively, from CY06.[23]

Reducing Toxic Chemical Releases		
EO 13514	Army Progress	
§2(e)(v): Promote pollution prevention and eliminate waste by ... reducing and minimizing the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of.	CY09	CY10
DoD SSPP Subgoal 5.1: On-site releases and off-site transfers of toxic chemicals reduced 15% from CY06 by FY20.	Reported a 37.7 percent decrease in CY09 from CY06	Reported a 35.5 percent decrease in CY10 from CY06
Note: CY09 and CY10 values exclude releases from ammunition production, military munitions, operational range activities, mission critical weapon system support activities, and conventional and chemical military munitions demilitarization.		
Related GRI Indicators: No directly applicable indicators		

US Army: Reducing Nitric Acids and Nitrates

The Radford Army Ammunition Plant is the only US manufacturer of nitrocellulose, a key component of military explosives. For this reason, it accounts for the bulk of nitrate emissions reported under TRI for both the Army and DoD. The National Defense Center for Energy and Environment has been working with the Radford Army Ammunition Plant as part of a pollution prevention effort to reduce the byproducts of nitrocellulose production. These efforts have resulted in reductions in the volume of acid sent to the Acidic Wastewater Treatment Plant and the amount of nitrates entering the New River. In addition, the process improvements have decreased the raw material and electricity required to produce nitrocellulose. Additional efforts are underway to reduce the quantity of nitric acid used in the production process.[24]

Hazardous Waste

Materiel production and operations and maintenance of combat, support, and service systems generate hazardous waste. Various materiel-related functions at depots, arsenals, and industrial plants produce large amounts of hazardous waste, which poses risks to health and safety as well as financial, regulatory, and logistical burdens. Through practices such as using materiel that requires and generates less toxic and hazardous material, the Army hopes to improve readiness, health, and safety and reduce operational costs.[25] In addition, MEDCOM is working to reduce regulated medical waste. This waste is unique to healthcare and a subset of hazardous waste.

The Army disposed of 52.4 million pounds of hazardous waste in CY09, 75.6 million pounds in CY10, and 96.4 million pounds in CY11.[26,27] This represents a 4.2 percent decrease from CY08 to CY09, a 44.3 percent increase from CY09 to CY10, and a 27.5 percent increase from CY10 to CY11 (Figure 6).
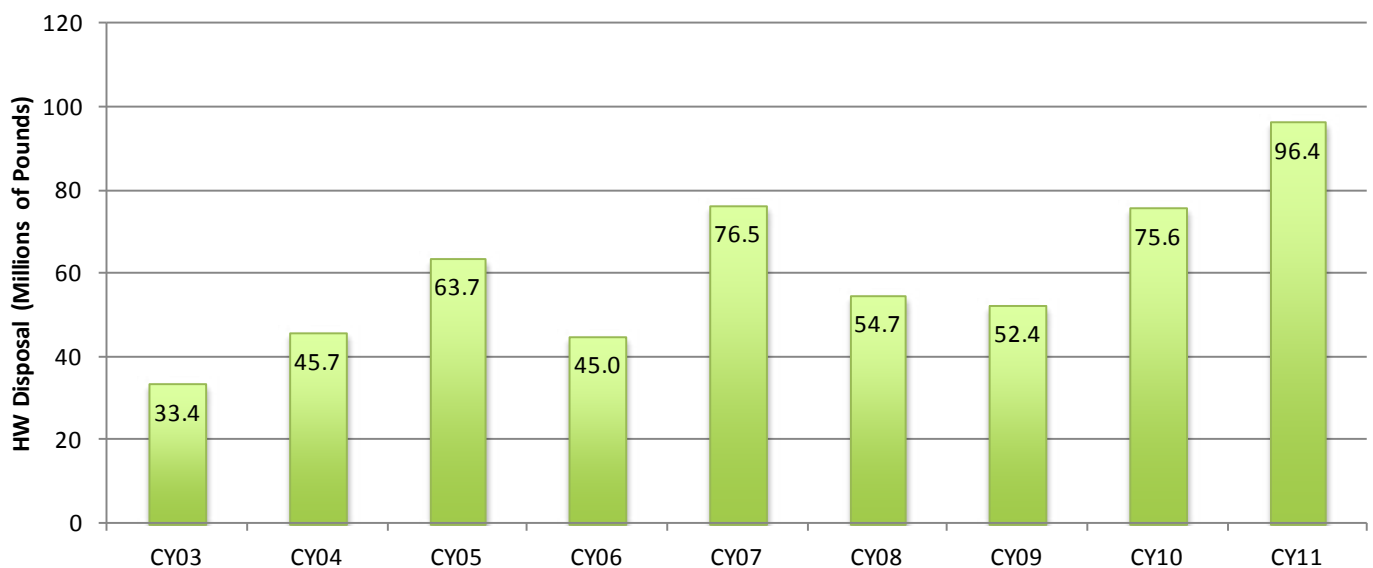
Sources: FY04-10 DEP ARCs. FY09–10 DEP ARC totals converted from tonnage to million pounds. CY10 and CY11 totals provided by the OACSIM and reported publicly in ASR12.

Figure 6. Hazardous Waste Disposal, CY03–11 (States, Territories, and Overseas)

Reducing Hazardous Waste Disposal		
EO 13514	**Army Progress**	
§2(e)(v): Promote pollution prevention and eliminate waste by ... reducing and minimizing the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of.	**2010**	**2011**
	75.6 million pounds of hazardous waste Disposed in CY10	96.4 million pounds of hazardous waste Disposed in CY11
Related GRI Indicators: EN22		

Army Project Reduces Waste and Recycles More Than 6.5 Million Pounds of Steel

In July 2011, the US Army Chemical Materials Agency (CMA) completed a multiyear project that led to the recycling of more than 6.5 million pounds of steel. In 2003, CMA began operating the Pine Bluff Ton Container Decontamination Facility in Pine Bluff, AR, to decontaminate containers that once held hazardous materials. At this facility, CMA developed a magnetic induction heating decontamination process that not only significantly reduced the amount of hazardous liquids generated from rinsing the containers but decontaminated the containers to the point where they were safe for recycling at a commercial recycling plant. This faster, cleaner, and more efficient decontamination process led to the recycling of enough steel to build 2,500 cars.[28,29]

A general equipment mechanic at Anniston Army Depot operates a paint stripping vat that has been modified to work with the replacement chemical to be less toxic than the original methylene chloride/formic acid paint stripper (photo: Jeremy W.Guthrie, AMC).

Green Procurement (GP) Program

DoD established a GP policy in 2004 (updated in 2008), providing guidance on the acquisition of environmentally preferable products and services. GRI economic public agency (PA) and environmental (EN) indicators PA11, PA13, PA14, EN7, and EN26 direct disclosure of GP activities (see Tables 12 and 14 in the annex). In November 2006, the Army followed with a memorandum establishing its GP program, directing all of its organizations to comply with GP requirements "in order for the US Army to meet the DoD goal of 100 percent compliance with federal purchasing preference programs and to support the Army Strategy for the Environment."[31] Working in tandem with Army affirmative procurement policy, GP requirements apply to all acquisitions,

including individual purchases, purchase and use of regulated products in the execution of federally funded contracts, and purchases made by procuring and contracting organizations for items that contain recovered materials. The Army GP program has multiple objectives:

- Educate employees on the requirements of federal GP programs, their roles and responsibilities relevant to these programs as well as the Army GP program, and the opportunities to purchase green products and services.

- Increase purchases of green products and services that are consistent with mission demands, efficient, and cost-effective and demonstrate progress toward established procurement goals.
- Reduce the generation of solid waste.
- Reduce energy and natural resource consumption.
- Expand markets for green products and services.

Green Procurement (Conducting Procurement Sustainably)		
EO 13514	**Army Progress**	
§2(e): Promote pollution prevention and eliminate waste by ... (iv) reducing printing paper use and acquiring uncoated printing and writing paper containing at least 30 percent postconsumer fiber; (viii) increasing agency use of acceptable alternative chemicals and processes in keeping with the agency's procurement policies; §2(h) Advance sustainable acquisition to ensure that 95 percent of new contract actions ... for products and services with the exception of acquisition of weapon systems, are energy-efficient ... water-efficient, biobased, environmentally preferable ... non-ozone depleting, contain recycled content, or are non-toxic or less-toxic alternatives. §2(i)(i) Ensuring Procurement preference for EPEAT-registered electronic products; §2(i)(iv): Ensuring the procurement of ENERGY STAR and FEMP designated electronic equipment.	**2010** Baseline Year: no SSPP reporting mechanism in place	**2011** Conducted 1st biannual review of approximately 100 contracts valued at $3,000 or more from second half of FY11; 70 were compliant with federal and DoD sustainable procurement requirements
DoD SSPP DoD SSPP Subgoal 6.1: 95% of procurement conducted sustainably.		
Related GRI Indicators: EN6, EN7, EN26, PA11		

Green Procurement (Reducing the Use of Printing Paper)		
EO 13514	**Army Progress**	
§ 2(e)(iv): Reducing printing paper use and acquiring uncoated printing and writing paper containing at least 30 percent postconsumer fiber; § 2(e)(i): Minimizing the generation of waste and pollutants through source reduction.	**2010** Baseline Year	**2011** Not reported yet
DoD SSPP DoD SSPP Subgoal 4.1: All DoD components implementing policies by FY17 to reduce the use of printing paper.		NOTE: Army Regulation (AR) 25-1 [Army Knowledge Management and Information Technology] will be updated in FY12 to address double-sided printing as the default setting on Army printers.[32]
Related GRI Indicators: EN2		

On December 1, 2010, the Office of the Deputy Assistant Secretary of the Army for Procurement, ODASA(P), issued the *Army Installation Green Procurement Program Development Guide* under the Principle Assistant Responsible for Contracting Policy Alert 11-16. This comprehensive guidance manual was developed to improve the Army's GP program.[33] It will promote sustainable purchasing and contracting that will result in the use of products that have lesser negative effects Army-wide on Soldier and employee health and the environment.

The Army currently does not publicly report its status regarding the GP program; however, it provides information on its GP program to OSD, where it becomes part of the annual SSPP report. The EO 13514 requirement for 95 percent of new contracts to be sustainable will likely lead to more public reporting. GP is an important GRI indicator, and the Army continues its efforts to track and report these purchases.

Oversight of the Army and DoD GP programs is complicated by the many different mechanisms used to procure goods and services and the lack of a consolidated DoD procurement database. Therefore, OSD's Defense Procurement and Acquisition Policy issued its November 2011 memorandum directing the services to review 100 contracts per quarter to evaluate and report compliance with federal GP requirements.

Out of 101 Army contracts reviewed in the fourth quarter of FY11, 70 were found to be compliant.[34] Although the compliance percentage for this sample was below the 95 percent target, the Army plans to disseminate best practices and lessons learned from these contract reviews as a method to improve GP compliance. Several additional actions are planned for FY12 to educate installations and contracting staff on GP requirements such as distributing "quick guides" directed at specific audiences.[35] Targeted procurement categories for these one-page guides include: housekeeping, grounds keeping, furnishings, office supplies, construction, and renovation.[36] Also in FY12, the Army plans to release an updated sustainable procurement policy,[37] and it plans to target procurement practices for selected activities (such as food services) to further reduce waste streams associated with that activity.[38]

Army's Net Zero Waste Pilot Initiative Spurs GP Activities

GP activities throughout the Army have been reenergized with the launch of the Net Zero Waste pilot initiative. GP teams have been reestablished, while Army Contracting Command and ODASA(P) representatives are actively taking part in monthly Net Zero Waste collaboration calls. Where feasible, the GP teams have been working to incorporate sustainable practices, such as reducing packaging wastes and purchasing environmentally preferred products, into procurement actions. Going further, Joint Base Lewis-McChord requires its military and tenant organizations to appoint GP officers. These officers will help the installation achieve Net Zero waste, EMS, and sustainability goals and objectives.[39]

Carl R. Darnall Army Medical Center Single Use Device Remanufacturing Program

The new clean laundry storage at Evans ACH eliminated the need for wrapping clean linens in plastic wrap (photo: MEDCOM Office of the Assistant Chief of Staff for Facilities (OACSFAC)).

Evans Army Community Hospital (ACH) and Goodwill Industries are working together to reduce laundry operations energy use, water use, and waste generation. To reduce the amount of plastic wrap required to keep the medical treatment facility's clean laundry in compliance with Joint Commission regulations, Evans ACH has renovated their linen storage area to eliminate the need for individual plastic wrapping. In only seven months, this initiative has eliminated over 354,000 linear feet of plastic wrap from being disposed of in the landfill and will save Evans ACH $12,000 per year. Goodwill plans to install a tunnel washer for laundry services, which could lead to an 8,000,000 gallon annual reduction in water usage for the laundry. Goodwill Industries commercial laundry service now provides employment and independence for more than 50 adults with special needs in the community, including Wounded Warriors and disabled Veterans.[30]

Readiness

Readiness is the state of being prepared. The Army's readiness reflects its ability to fight and meet the demands of the National Military Strategy.[40] It includes the capability of its personnel, weapons systems, equipment, and other assets to perform their intended purpose. The Army must ensure it has sufficient access to the training and testing resources on which readiness relies.

The Army is taking the necessary measures to ensure its personnel and equipment can continue to conduct the challenging unit training that properly prepares them for any type of 21st century conflict. Table 3 identifies some of the sustainability requirements associated with readiness that applied in 2010–11 and will continue to guide the Army. Reporting for these requirements has expanded since last reported for 2009.

The following subsections describe FY10–11 Army activities and accomplishments related to the use of sustainability to improve readiness, including the Sustainable Range Program (SRP), ACUB program, and operational energy and water.

Land Management

Army land management efforts are fundamental to achieving and sustaining desired readiness levels. Encroachment, or changing land use patterns that can reduce the Army's ability to use its ranges and training lands, can impede the Army's ability to train Soldiers. Regulatory, stewardship, and management training restrictions can affect the availability of training lands, thereby hindering training activities and impairing Army readiness.[41] Efforts to maintain sustainable ranges, conserve natural resources, and monitor and protect threatened and endangered species (TES) help ensure the

Army preserves its systems and training capabilities and mission effectiveness. GRI indicators EN11–EN15 direct users to disclose habitat protection efforts (see annex Table 14).

Sustainable Range Program (SRP)

Ranges are essential to maintaining US military readiness and mission effectiveness. A management framework that addresses the mission, environmental requirements, and local issues is necessary for the creation and sustainability of a network of ranges. To create such a framework, DoD established the Sustainable Ranges Initiative (SRI), which includes such elements as policy, programming, legislation, and outreach, among others. The SRI also generates an important component of this initiative, the OSD annual *Report to Congress on Sustainable Ranges.*[42]

The SRP is the Army's approach to supporting the SRI, by making improvements to ranges in design, management, use, and promoting sustainability.[43] This program maximizes the Army's ability to meet testing, training, and mission requirements by conserving ranges and training lands. AR 350–19, *The Army Sustainable Range Program*, addresses responsibilities and requirements for implementing the SRP. AR 350–19 is available at www.apd.army.mil/pdffiles/r350_19.pdf.

Table 3. Readiness-Related Sustainability Requirements

EO 13514	DoD SSPP	ASCP
• Reduce petroleum consumption. • Increase renewable energy and renewable energy generation on agency property. • Use low-GHG-emitting vehicles, including alternative fuel vehicles, and optimize the number of vehicles in agency fleets. • Reduce potable water consumption intensity. • Implement water reuse strategies.	• Reduce vehicle petroleum use. • Increase use of renewable energy. • Reduce potable water consumption.	• Implement the AESIS. • Establish the proponent and develop sustainable contingency operations. • Develop sustainable contingency operations through policy; doctrine, organization, training, materiel, leadership and education, personnel, and facilities; and resources. • Incorporate sustainability in policy and plans for support to combatant commands.

Note: The requirements have been summarized; consult the three source documents for exact language.

Range Modernization, Range Operations, and the Integrated Training Area Management (ITAM) program are the three core programs that make up the Army's SRP. The SRP Outreach program supports all three core programs by not only educating the public on the value of live-fire training, but by informing the Army of public concerns regarding training and range management.[44]

As noted in the *2011 Report to Congress on Sustainable Ranges*, training required for current operations are supported by existing Army range facilities. However, funding the operations of these facilities can be difficult due to the expanded training schedule required by the Army Force Generation (ARFORGEN) model. To meet the training needs, some installations, such as Camp Atterbury and Camp Shelby, have doubled their range staff.[45]

The Army also seeks to improve training capabilities through modernization of ranges and targeted training land acquisition. The SRP modernization planning process "integrates mission support, environmental stewardship, and economic feasibility at the installation, Army Command, Army Direct Reporting Unit, and the HQDA levels to effectively support current and future range and training land requirements."[46] Before being considered for Army training land acquisition, a parcel of land must meet several fiscal and community relations feasibility criteria. By limiting land acquisitions to areas of large, contiguous land holdings, low population densities, minimal environmental restrictions, and low land cost, the Army lessens risks associated with ranges, such as encroachment.[47]

OSD has approved Army training land expansion projects for several installations.[48] When the Army seeks to expand or acquire additional training lands, it follows the National Environmental Policy Act (NEPA) process.

The *Report to Congress on Sustainable Ranges* assigns a capability score and an encroachment score to the services. Attributes such as landscape, airspace, targets, threats, infrastructure, and suite of ranges are included in the capability assessment.[49] A capability score, on a scale of 0 (no capability or red) to 10 (full capability or green),[50] is assigned to each service. In 2011, the Army received a capability score of 8.97, an improvement from 2009 (6.49) and 2010 (7.61).[51] Figure 7 summarizes the Army's 2010 and 2011 capability assessments: green represents fully mission capable (FMC), yellow represents partially mission capable (PMC), and red represents not mission capable (NMC). The scores in the *Reports to Congress on Sustainable Ranges* cover a period from July of one year to July of the next and run about a year behind publication. Thus, the scores in the *2011 Report to Congress on Sustainable Ranges* reflect the July 2009 to July 2010 period.

Factors in the encroachment assessment include TES/critical habitat, munitions restrictions, maritime sustainability, air quality, cultural resources, water quality/supply, wetlands, and range transients.[52] In 2011, the Army received an encroachment score of 9.18, marginally less than 2010 (9.22) and 2009 (9.23).

2010 Capability Assessments: FMC 70%, PMC 12%, NMC 18%

2011 Capability Assessments: FMC 80%, PMC 19%, NMC 1%

- FMC Assessments
- PMC Assessments
- NMC Assessments
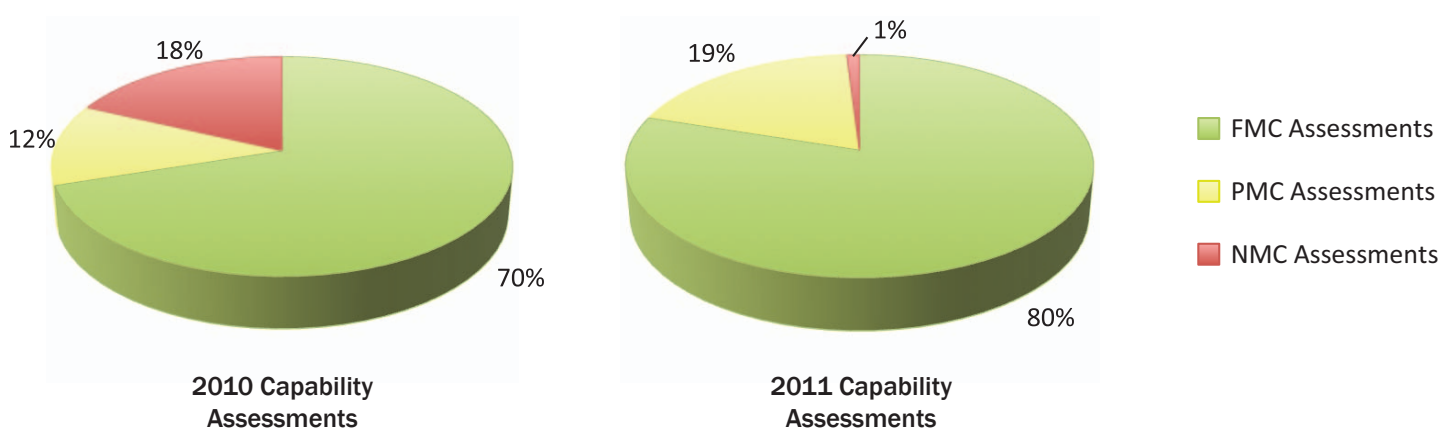
Sources: 2010 and 2011 Reports to Congress on Sustainable Ranges at http://www.denix.osd.mil/sri/Policy/Reports.cfm.

Figure 7. 2010–11 Capability Assessments

Minimal Risk Assessment	(green)
Moderate Risk Assessment	(yellow)
Severe Risk Assessment	(red)

2010 Encroachment Assessments — 15%, 0.2%, 85%

2011 Encroachment Assessments — 16%, 0.3%, 84%

Figure 8. 2010–11 Encroachment Assessments

Figure 8 highlights the percentages of encroachment assessments identified as having minimal risk (green), moderate risk (yellow), and severe risk (red). Capability and encroachment scores are based on the 21 Tier I ranges, which "represent 88 percent of the training load on Army active duty ranges."[53] Additional information on sustainable ranges can be found in the *Reports to Congress on Sustainable Ranges* (www. denix.osd.mil/sri/Policy/Reports.cfm).

Installations with Up-to-Date Integrated Natural Resources Management Plans (INRMPs)

The Army recognizes that natural resources conservation is essential to maintain equipment/system testing and military training lands to enable it to meet its national defense mission. An integrated natural resources management plan (INRMP) is the installation's primary plan that guides this land management. The Sikes Act, as amended, requires DoD to prepare and implement an INRMP for each installation with significant natural resources.[54] Each plan represents an agreement by the installation and internal and external stakeholders, including the state fish and wildlife

agency and the US Fish and Wildlife Service. This comprehensive plan describes how natural resources will be managed to protect resources and ensure the sustained use of a natural landscape.

To meet Sikes Act Improvement Amendments, DoD established reporting metrics to more closely evaluate INRMPs, such as performance in implementation, partnership effectiveness, impact on mission, status of species, ecosystem integrity, and fish and wildlife management. Reviews of INRMPs are required by the Sikes Act every five years to ensure effectiveness. These reviews are tracked through DoD metrics. INRMP reporting to DoD and the Army Secretariat is required annually. Currently, an installation complies with the Sikes Act if its INRMP has been both (1) approved in writing and (2) reviewed, within the past five years. For the Army, the Garrison Commanders approve the INRMPs.[55] Proper planning, implementation, and reporting ensure that Army installations conserve the land for sustaining the mission while providing for the stewardship and continued access to Army lands held in trust.

Threatened and Endangered Species (TES) Management

As a federal entity, the Army is required by the Endangered Species Act (ESA) to conserve federally listed TES that exist on the lands where it trains Soldiers, tests weapons, and performs other essential functions. The Army actively monitors and manages these species and their habitats to avoid potential conflicts between ESA compliance and the military mission. The Army implements proactive conservation measures that benefit candidate species and species at risk to prevent the need to list them as threatened or endangered.

For 2010, the Army reported 213 distinct TES on 101 installations. An additional 57 species were found on lands adjoining Army installations. The majority (58 percent) of on-site TES are plants; other categories include birds, amphibians, mollusks, crustaceans, fish, insects, mammals, and reptiles. While the number of installations with TES has not changed significantly in recent years, the average number of distinct species on site at those installations has increased more than 25 percent from 177 in 2000–07 to 222 in 2008–10.[56]

Some listed species have more actual and potential impact on land use than others on the basis of mission-specific incompatibility. Greater incompatibility increases costs of Army programs and may reduce the capability of land to support the mission. The Army is actively working to address these instances. For example, in 2010, Fort Benning was able to balance red-cockaded woodpecker and gopher tortoise conservation with significant restationing actions, allowing the merging of Fort Benning's Infantry Center with the Armor Center and School from Fort Knox. Effective management of listed species and critical habitats enables the Army to preserve access to vital training lands and to support biodiversity.

Conservation Reimbursable Programs

DoD's conservation reimbursable programs for forestry, agricultural/grazing outlease, and fish and wildlife conservation were established by law many years ago. Since their creation, they have evolved to better serve DoD by incorporating management practices that sustain the mission and secure that future availability of training lands. Programs initially focused on soil stabilization, erosion control, and coordinating the production of commercial forestry products. Modern Army foresters see Army lands as an integral part of training that also furnish biological diversity, wildlife habitat, air and water quality, soil conservation, watershed protection, and recreational opportunities.[57]

The conservation reimbursable programs are self-supporting. Each year, the Army forestry program generates $18 to $20 million through the sale of forest products from more than 3.4 million acres of forestland. These funds are used to manage forests and fund conservation projects as well as supplement staff

salaries. State entitlements, required by the enabling law, fund schools and roads in bordering communities. Agricultural/grazing outleases on 460,000 acres of Army land generate about $2.5 million annually. Proceeds are used to administer leases and manage natural resources. The sale of fishing and hunting licenses generates $1.5 to $2 million, and the proceeds are used to offset administrative costs and manage fish and wildlife habitat.[58] Conservation reimbursable programs support the Army's training mission, protect the environment, and enhance the quality of life of Soldiers and their Families.

Army Compatible Use Buffer (ACUB) Program

Encroachment is the changing pattern of land use and habitat growth that restrict the Army's ability to operate its installations and training areas. It impedes the Army's ability to train Soldiers. Encroachment is also a concern for the communities outside the fence line, whose health, safety, and quality of life could be affected by noise and other impacts associated with training activities.

Through its Readiness and Environmental Protection Initiative (REPI), DoD partners with conservation

organizations, state governments, and local governments to purchase land surrounding installations and ranges to act as a buffer to reduce the risk of encroachment. These buffer lands not only help preserve the environment, but they improve local community relations.[59] Title 10 USC § 2684a gives the services the authority to enter into partnerships with state and local governments and conservation organizations to create land buffers, and REPI is the vehicle through which DoD exercises this authority.[60] DoD's REPI reports to Congress and additional information on REPI can be found at the REPI website, www.repi.mil/Index.html.

The Army carries out REPI through its ACUB program.[61] In 2010–11, the Army continued the ACUB program to ensure range availability under increased encroachment from incompatible land uses. Through the ACUB program, the Army meets test, training, and mission requirements by creating permanent buffer lands for its installations and managing its training lands to protect cultural resources and endangered species, air, and water. In FY09-11, the number of ACUB-protected acres went from 120,607 to 166,901 through 333 transactions (Figure 9).[62]

The Lower Ogeechee River Conservation Corridor includes 13,500 acres running adjacent to Fort Stewart, offering biodiversity and a buffer for the installation
(photo: US Army).
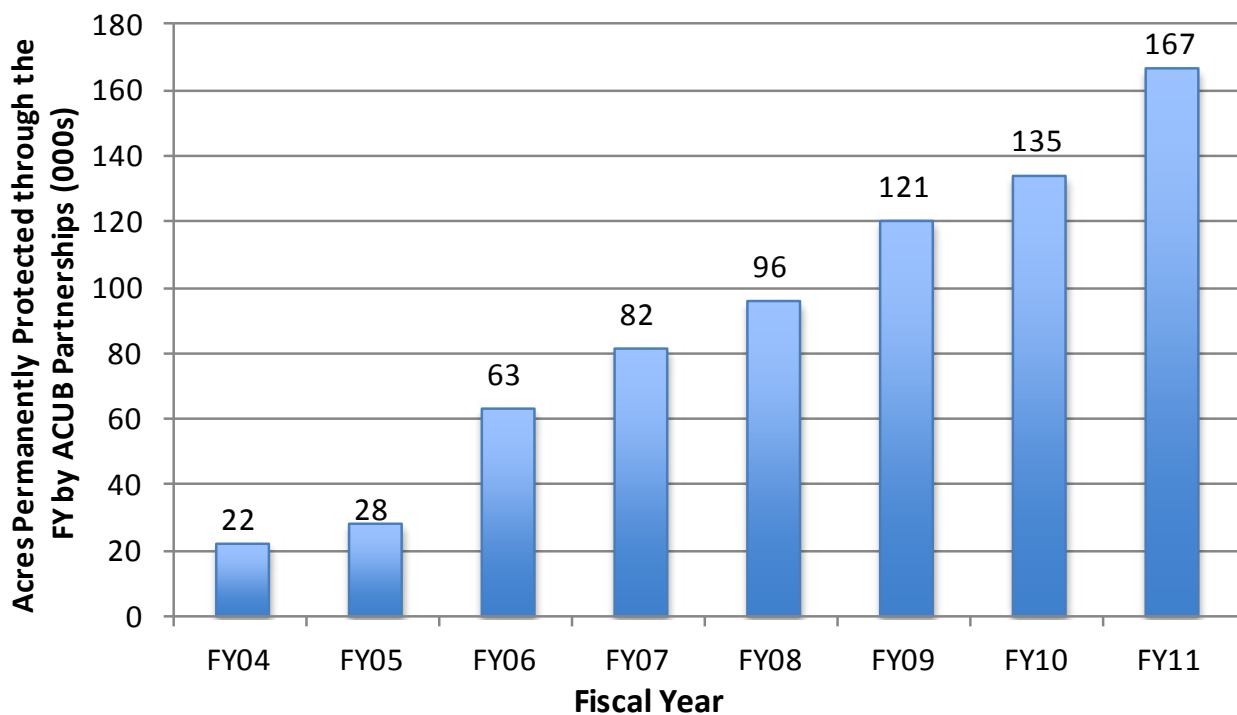
Figure 9. Cumulative Acres Permanently Protected through ACUB Partnerships

The ACUB program facilitates partnerships between the Army, conservation organizations, state, and local governments and landowners to limit incompatible land use around Army installations and thus reduce restrictions on daily training activities. ACUB partnerships are formalized through cooperative agreements with eligible partners, who acquire easements or fee-simple conveyances from willing adjacent landowners and promote land management practices that protect, in perpetuity, the adjacent land use and conservation values compatible with protecting the Army's mission. The ACUB program supports local and regional planning and sustainability efforts by working toward common goals and objectives. Additional information on the ACUB program can be found at the ACUB website, http://aec.army.mil/usaec/acub/index.html.

Some installations have also pursued joint land use studies through the Compatible Use Program run by the DoD Office of Economic Adjustment (OEA). This program encourages cooperative, and joint, land use planning between military installations and local governments—beyond conserving or preserving buffers. This includes amending land use planning documents, modifying local building codes, and undertaking zoning and land exchanges. Additional information can be found at the DoD OEA website, http://www.oea.gov/.

Operational Efforts

Energy and water enable the Army's continued operational capabilities, including maneuvers, mission command, sustaining troops and equipment, and humanitarian services. Improving efficiency through new technologies can improve readiness by reducing the

manpower required to deliver fuel and water and reducing the vulnerability to supply shortages; it can also reduce related operational costs. The Army's innovative solutions in 2010-11 lessened the logistical challenge of providing water and fuel, reducing the number of convoys needed and thus reducing the risk to Soldiers during combat operations. In 2011, the Army also continued its efforts to institutionalize operational energy considerations by incorporating them into the *Army Campaign Plan*.

Operational Energy

Operational energy refers to "the energy and associated systems, information, and processes required to train, move, and sustain forces and systems for military operations."[63] Operational factors drive the need for energy efficiency and the use of alternative sources of energy. Energy security for the Army means preventing the loss of

access to power and fuel sources (surety); ensuring resilience in energy systems (survivability); accessing alternative and renewable energy sources available on installations (supply); providing adequate power for critical missions (sufficiency); and promoting support of the Army's mission, its community, and the environment (sustainability).

In January 2009, the Army published the *Army Energy Security Implementation Strategy* (AESIS), which "presents the Army's energy security vision, mission, and goals." Goals in the AESIS include the following:[64]

- Reduced energy consumption
- Increased energy efficiency across platforms and facilities
- Increased use of renewable and alternative energy
- Assured access to sufficient energy supplies
- Reduced adverse environmental effects.

The AESIS establishes energy security as an enterprise-wide priority and provides appropriate leadership and management guidance. The Army has ongoing plans and activities that support the implementation of the AESIS. Examples range from procuring electric and hybrid-electric vehicles for (peacetime) use at installations to developing hybrid-electric vehicles for tactical (wartime) use in theater. These are just two ways the Army is minimizing impacts and demonstrating its commitment to a sustainable environment. Future energy activities will build on these efforts to address the Army's evolving energy security needs.

To increase the strength of energy security for US military operations, OSD established the Office of the Assistant Secretary of Defense for Operational Energy and appointed Ms. Sharon E. Burke as its first Assistant Secretary on June 25, 2010.[65] The Army began

to formalize its operational energy structure to oversee efforts that include development of new technologies and the deployment of new systems to improve performance across the range of operational capabilities, from increased speed and mobility to fuel accounting, tracking, and management. For example, to increase range and reduce sustainment challenges, the Army is developing more energy-efficient engines and enhanced helicopter rotors.[66] In terms of tracking fuel consumption, it uses the Tactical Fuels Manager Defense, an automated system that tracks fuel requirements, inventory, and consumption at the retail level. This system improves visibility of fuel use and requirements in theater and enhances accountability.[67] Other initiatives, such as electrical power metering, on-board vehicle sensors, and an Integrated Logistics System provide opportunities to further integrate energy management capabilities to enable Soldiers, leaders, staff officers, and engineers to contribute through their respective roles to increased force effectiveness and sustainability.

Sustainable Contingency Basing

The Army must meet the needs of Soldiers and maintain operations by ensuring adequate water storage, quality, distribution, and treatment during contingency and humanitarian operations. Among the approaches considered by the Army are purifying and bottling water on site, employing graywater reuse systems, and treating water. At forward operating bases (FOBs), the Army is investigating the use of graywater systems to reduce the amount of water used. These systems recirculate graywater from sinks or showers for a second, non-potable purpose.

For humanitarian operations, stability operations, and when assisting foreign militaries, the Army and USACE activities support clean water projects, including solar-powered and standalone water filtration systems.

Energy to the Edge (E2E)

The US Army G3/5/7 Rapid Equipping Force (REF) initiated its Energy to the Edge (E2E) effort in May 2011 in response to requests for support

Kansas ARNG Soldiers adjust the batteries for the solar shade provided by US Army Africa for working assessment. The solar shade generates green energy for pennies a day. Four Hawker High Mobility Multipurpose Wheeled Vehicle batteries are the heart of the solar shade's electrical storage system (photo: US Army).

Pictured is a 5 kW AMMPS
(photo: US Army).

from units operating in remote, austere locations. The focus of the E2E initiative is on the austere Combat Outposts, Village Stability Platforms, and other missions that require extraordinary means to resupply, diverting resources from its counter-insurgency and stability operations. The objective is to improve operational effectiveness by reducing reliance on resupply operations through non-materiel and materiel solutions, as well as reduce the dismounted Soldier's battery load. In partnership with multiple Army and DoD organizations, including Army G-4 Logistics Innovation Agency, the Assistant Secretary of the Army for Acquisition, Logistics and Technology, TRADOC, and AMC, REF has executed multiple theater operational energy assessments, provided invaluable assessments and analysis to the operational energy community of interest, and obligated approximately $20 million for the procurement of Soldier Power and Hybrid Power Base Solutions. REF will

begin equipping deployed and deploying Brigade Combat Teams (BCTs) in early FY12. BCT operational energy advisors will also deploy with the equipment.[68]

Mini-Grids

As of October 2011, the Army has installed 22 mini-grids for United States Forces-Afghanistan (USFOR-A). The mini-grids with central power generation and distribution have been installed to replace individual generators, resulting in estimated savings of 13 percent, or approximately 33 million gallons of fuel per year. In 2011, six new grids were installed and existing grids extended, which resulted in an additional savings of 17 million gallons of fuel per year.[69]

Advanced Medium-sized Mobile Power Sources (AMMPS)

In July 2011, the Army began full-rate production of Advanced Medium-sized Mobile Power Sources (AMMPS).[70] As a result of recognized fuel savings, the

Army accelerated the AMMPS roll-out one year ahead of schedule. The lighter, more-fuel-efficient AMMPS will replace the Tactical Quiet Generators (TQGs) for USFOR-A. They save about 20 percent on fuel compared with current generators, ranging in size from 5 to 60 kilowatts (kW).[71] With this change, the Army anticipates fuel savings of approximately 300,000 gallons per month.[72]

In testing, the AMMPS fleet of generator sets has proven to be at least 90 percent more reliable than the current fleet of TQGs. This improvement will result in fewer disruptions to operations and will require significantly less operating and maintenance effort. These factors, along with reduced fuel consumption, will effectively increase the number of Soldiers available to perform other duties.[73] Ultimately, decreasing fuel logistics requirements on the battlefield will result in fewer fuel convoys traveling through dangerous territory to isolated locations—saving lives.[74]

Rucksack Enhanced Portable Power Systems (REPPS)

The Rucksack Enhanced Portable Power System (REPPS) is a small, lightweight (about 10-pound) solar-powered kit that gives Soldiers the ability to charge most types of military batteries in five or six hours or serves as a continuous power source.[75,76] By combining solar panels, connectors, and adapters, REPPS gives Soldiers more options for charging devices. Multiple REPPSs can be "daisy-chained" together to power a device requiring more energy than a single REPPS can provide. The first REPPSs were shipped to Afghanistan in July 2010.[77]

These devices may ultimately save lives in addition to aiding the mission. According to the CERDEC Army Power Division, REPPS will prevent Soldiers from having to go back to vehicles or tactical operation centers to recharge batteries, thus keeping their tactical locations hidden.[78]

Shower Water Reuse Systems

Sixty-two Shower Water Reuse Systems were installed for Operation Enduring Freedom in FY11.[79] These systems recycle graywater from shower use by running it through a series of filtration devices, membranes, and chemicals to elevate it to potable quality (though it is only approved for reuse in showers). The process can save 9,000 of the 12,000 gallons used per day (75 percent), which is a potential water savings of 3.2 million gallons per shower facility each year.[80]

These systems are a "force multiplier," as they do more than just save water at a FOB. The systems also reduce the number of convoys needed to transport water to the FOB. This enables Soldiers—who would otherwise need to be pulled away to protect the convoys—to remain engaged in the mission.[81]

REPPSs combine solar panels, connectors, and adaptors for increased charging options (photo: US Army).

The Shower Water Reuse System is now being used at FOBs to conserve water and reduce the need for resupply (photo: US Army).

Human Capital

People—human capital—are the Army's most valuable resource. People at every level operate as a team—catalyzed by leadership—to accomplish the Army mission and make a decisive difference. The Army commitment to sustainability is reflected in its culture, through incorporation of sustainability in Army values and Soldier and Civilian education programs at all levels. Army leaders ensure that the principles of sustainability inform their words and actions, and recognize their subordinates' activities and efforts that increase Army sustainability. "Civilian training and advancement are also essential elements to integrating sustainability into the daily decisions of the Army workforce."[82]

The second objective of the 2010 *Army Campaign Plan* is "Provide Facilities & Services to Support the Army and Army Families." Facilities and services for Soldiers and Families should be of high quality, encouraging retention and relieving stress from multiple deployments, and be appropriate for the quality of their service.[83] The Army recognizes the extraordinary service provided by its Soldiers, Families, and Civilians. Accordingly, the health of the force is an important consideration. Thus, the Army has established a holistic, Army-wide strategy to synchronize, integrate, and govern myriad programs and processes—focused on improving access to and predictability of services—to render the best possible care, support, and services to Soldiers and Civilians, as well as their Families. It has taken a comprehensive approach to ensuring that Soldiers' mental and physical health receive equal attention by implementing the campaign for health promotion and risk reduction, establishing a comprehensive fitness program, and enhancing support for the wounded, Families of the fallen, victims of sexual assault, and individuals with mental health concerns. The Army is expanding the program to cover the spectrum of wellness, including physical, emotional, social, Family, and spiritual issues. These initiatives will help achieve the Army strategic outcomes of readiness, recruitment, and retention.[84]

Table 4 shows some of the sustainability requirements associated with human capital that applied in 2010–11 and will continue to guide the Army. The following subsections

Table 4. Human Capital-Related Sustainability Requirements

EO 13514	DoD SSPP	ASCP
• Designate a senior sustainability officer. • Develop policies and practices to decrease Scope 3 GHG emissions. • Inform and involve employees in achievement of the EO goals. • Incorporate SSPPs into the agency's strategic planning and budget process.	• Certify DoD personnel and contractors who apply pesticides. • Reduce GHG emissions associated with employee air travel and commuting.	• Incorporate sustainability considerations into organizational plans. • Establish a sustainability coordinator on the Enterprise Task Force. • Incorporate sustainability into all appropriate professional military and Civilian training. • Promulgate enterprise planning processes that integrate sustainability across organizational lines and functional plans. • Establish and leverage partnerships with academia and communities to support a sustainable workforce. • Implement the sustainability strategic communication plan. • Develop fiscal policy that incentivizes sustainable investments. • Incorporate sustainability language into doctrine. • Achieve GHG reduction goals.

Note: The requirements have been summarized; consult the three source documents for exact language.

describe FY10–11 Army activities and accomplishments related to human capital, including progress in addressing the quality of life of Army Families and communities while reducing risk and injuries to Soldiers and Civilians. Examples of Army partnerships are also discussed.

Army Community Covenant

To further enhance the well–being of Soldiers, their Families, Civilians, and the public, the Army continually seeks partnerships and closer relationships with the communities around its installations.

The Community Covenant fosters and sustains state and community partnerships to support Soldiers, Veterans, and their Families in the local Civilian community by helping fill gaps in services by finding local solutions to the challenges faced by military Families. The Community Covenant website (www.army.mil/community) offers resources for Soldiers, their Families, and community organizations. Since program inception in 2008, towns have hosted more than 650 Community Covenant signing ceremonies—where local leaders have pledged their support to military Families—in all 50 states, three territories, and the District of Columbia.[85]

Army Family Action Plan (AFAP)

Since 1983, the Army Family Action Plan (AFAP) has been tackling critical quality-of-life issues noted by Soldiers, Families, survivors, retirees, and Civilians

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We can do this. In every community, every day, we can find concrete ways to show our military Families the respect and gratitude that each of us holds for them in our hearts. They deserve our support long after the welcome home ceremonies are over. You don't have to come from a military Family, have a base in your community, or be an expert in military issues to make a difference.

—First Lady Michelle Obama
and Dr. Jill Biden, September 3, 2010 [86]

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across the Army. Delegates from the active and reserve components meet to review these issues and present them to Army leadership to resolve. The Army is the only military service that has instituted such a program. As of 2011, the AFAP successes included 124 legislative changes, 176 Army and DoD policy changes, and 195 program and service changes; more than half of these issues apply across DoD, not just in Army communities.[88]

Army Family Covenant

The Army Family Covenant, launched in 2007, institutionalizes the Army's commitment to provide Soldiers and their Families a quality of life commensurate with their service to the nation. Through the Army Family Covenant, the Army is committed to improving readiness by continuing to build resiliency through strengthened Soldier and Family programs that are simple and easier to access, maintaining accessibility to quality health care, and sustaining high–quality housing for Soldiers and Families. Additionally, the Army seeks to maintain excellence in school support, youth services, and child care, promote education and employment

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Fort Gordon Fourth Annual Army Family and Community Covenant Signing

On June 14, 2011, Fort Gordon celebrated the Army's 236th birthday and signed the fourth annual Army Family and Community Covenants. Distinguished Army and community leaders, military members from all services on post, and their Families attended the ceremonies. The Army Family Covenant pledged Fort Gordon's commitment to support Soldiers and their Families and to resource programs to give them a quality of life commensurate with their service. The results of that covenant include enhancements to Family programs; healthcare; Soldier and Family housing; child, youth, and school services; education; careers and libraries; recreation; travel; and the Better Opportunities for Single Service Members programs, as well as stronger more supportive communities.

Major General Alan R. Lynn noted that although the Army Family Covenant is an Army program, it extends to other military services on Fort Gordon. "These renewed covenants reconfirm our promise to provide the best 'Quality of Life' at a level that matches the service our military and their Families who selflessly serve our nation. …It is of great comfort for us to know that we face the challenges of the future with the unwavering support of the community we serve and of our fellow citizens in the Central Savannah River Area."[87]

At Logan School Age Services in December 2011, military Families watch as Elmo, a Muppet from Sesame Street, learns that his father will be leaving for some time. Sesame Street was on Fort Bliss to inform Families of its "Talk, Listen, Connect" program

(photo: SSG Casey J. McGeorge).

opportunities for Family members, sustain recreation, travel, and quality–of–life opportunities for single Soldiers, and join forces with communities to inspire support for Soldiers and Families.[89]

These goals have resulted in additional support of Family Readiness Groups and Assistants, licensed Military Family Life Consultants, chaplain–led "Strong Bonds" marriage and Family enhancement retreats, and Survivor Outreach Support. Since FY08, 129 child development centers and 29 youth centers were approved and funded, and operating hours were increased. Families of deployed Soldiers also receive discounts and 16 hours of free respite child care per month. Educational benefits include a post–9/11 GI bill with transferability to a spouse or a Family member.[90] The DoD program, "Military Spouse Career Advancement Accounts Program," also provides financial support for post–secondary education and training for spouses.[91]

Community Outreach

As mentioned previously, the Army recognizes the extraordinary service of its Soldiers, Families, and Civilians. The Army participates in various forms of community outreach to decrease Family stress from Soldier deployments and enhance the quality of life for Soldiers, Families, and Civilians.

Multiple deployments have become a reality for many military Families. Although adults may understand that duty calls them away to serve their country, explaining this to children is difficult. Since 2005, DoD, Military OneSource, and Sesame Workshop, the nonprofit organization behind Sesame Street, have collaborated on a bilingual program called "Talk, Listen, Connect." This program is aimed at military Families and their young children, and uses the Sesame Street characters to help explain the issues surrounding deployment. For more information, go to http://www.sesameworkshop.org/what–we–do/our–initiatives/military–families.html.

Army Volunteer Corps (AVC)

The Army Volunteer Corps (AVC) is managed by Army Community Services. The AVC, established in 2002, connects volunteer Soldiers, Family members, Civilians, retirees, and community members to legitimate service organizations. The AVC mission is to "promote and strengthen volunteerism by uniting community volunteer efforts, supporting professional management, enhancing volunteer career mobility, and establishing volunteer partnerships to support individual personal growth and life–long volunteer commitment."[92] For more information regarding AVC and its efforts, go to www.myarmyonesource.com.

Army Campaign Plan for Health Promotion and Risk Reduction (HP&RR)

In FY09, the Vice Chief of Staff of the Army created the *Army Campaign Plan for Health Promotion, Risk Reduction and Suicide Prevention*. The Army enhanced the plan in FY10, publishing the *Army Campaign Plan for Heath Promotion and Risk Reduction* (HP&RR).[94] This new plan incorporates health promotion and risk reduction policies, programs, and processes prepared after the tragedy at Fort Hood. The HP&RR establishes

Army Volunteers Add Value to Community at US Army Garrison Baden-Wuerttemberg

Thanks to hundreds of dedicated community volunteers from AVC, US Army Garrison Baden-Wuerttemberg avoided approximately $3 million in operating costs. AVC volunteers help with activities related to local schools, chapels, and day care centers. They participate in many events, including the cleaning and removal of debris from grave sites in the Frankfurt Hauptfriedhof, site of the American Children's Cemetery, on October 22, 2011, in honor of "Make a Difference Day." [93]

Completion of the New Fort Belvoir Community Medical Facility

On August 31, 2011, the Fort Belvoir Community Hospital—one of the largest and most involved medical BRAC projects— opened and began serving patients. This complex interagency and interservice collaboration leveraged cutting-edge technology with evidence-based design to enhance clinical operations for military service members, retirees, and their Families. "This is America's newest, most extraordinary, most technically advanced facility, and we are proud to have it in the military health system," said Vice Adm. John M. Mateczun, commander of Joint Task Force National Capital Region Medical.

During the construction of this facility, 92 percent of the waste materials were recycled, and two trees were transplanted for every tree that was removed from the site to accommodate the project.[96]

Officials at the ribbon cutting ceremony of the new $1 billion Fort Belvoir Community Hospital at Fort Belvoir, VA October 28, 2011 (photo: Marc Barnes).

high-level processes that allow for rapid change in the organization as needed. The Vice Chief of Staff of the Army was designated to focus on the increasing rate of suicide in the Army and established the Army Suicide Prevention Task Force. In 2010, the Army developed the *Army Health Promotion, Risk Reduction and Suicide Prevention Report* (Red Book), which documents specific recommendations for future implementation. The Red Book, designed to educate Army leaders by candidly addressing challenges confronting the Army in promoting health and reducing risk, serves as the basis for the HP&RR campaign plan.

The *2011 Army Posture Statement* identifies the following accomplishments in mitigating high risk behavior in 2010:

- Published Annex D to the HP&RR FY11, titled "Installation, Garrison,

Medical Treatment Facility and Unit Commander Critical Actions/ Tasks," to improve compliance with existing regulatory requirements. Annex D also provides direct guidance to commanders to ensure Soldier accountability, reestablishes good order and discipline in the garrison environment, and closes gaps in the Army's surveillance, detection, and intervention processes and systems.

- Produced the interactive "Home Front" training video.
- Produced the "Shoulder to Shoulder: No Soldier Stands Alone" training video.
- Initiated face-to-face post-deployment behavioral health screening (in person or virtual) for all Brigade Combat Teams to identify appropriate treatment for at-risk Soldiers. This initiative has resulted in increased referrals to and utilization of behavioral health services.

- Revised policy to improve situational awareness and reporting of criminal behavior (Department of the Army Form 4833, Commanders Report of Disciplinary and/ or Administrative Action).
- Increased behavioral health provider authorizations and the availability of services across the Army and expanded the use of military Family life consultants.
- Implemented confidential alcohol treatment and education pilot programs at six installations.
- Implemented policies to improve medication management for Soldiers prescribed four or more medications.[95]

Comprehensive Soldier Fitness (CSF) Program

The Army has seen an overall decrease in fitness of Soldiers over the past decade.

Soldiers Prepare for New Army Physical Test

The Army Physical Fitness Test (APFT) was overhauled to improve Army combat readiness. Soldiers from the 6th Battalion, 52nd Artillery, were among the first to participate in the new Army Physical Readiness Training (APRT) and the APFT (August 2010), which better evaluate a Soldier's health while reducing the risk of injuries. Thus far, Soldiers and instructors have welcomed the new program and have already noted improvements in the Soldier's aerobic and anaerobic endurance.[101]

The Comprehensive Soldier Fitness (CSF) program focuses on investment in the psychological, emotional, and mental strength and readiness of the force and the quality of life of Soldiers, Family members, and Civilians. This program is based on 30 years of scientific studies that teach thinking and coping strategies to the entire Army force rather than just those in the middle of a crisis. It uses a multifaceted approach and lifelong model comprising individual assessments, tailored virtual training, and classroom training at all education levels. As part of the CSF program, the Army completed its first Army Master Resilience Training course in November 2009, which teaches elements of resilience and life skills. In 2011, nearly 4,200 Soldiers graduated from the course. The Army plans to develop a team of Master Resilience Trainers over the next five years to achieve their goals.[97] Training Circular 3-22.20, *Army Physical Readiness Training*, which replaced Field Manual 21-20, *Physical Fitness Training*, in 2010, provides exercises, drills, and activities appropriate for various levels of physical fitness.[98]

Other Army tools and resources for improving Soldier fitness include the following:

- The Global Assessment Tool (GAT), a web–based tool for Soldiers and adult Family members that provides a baseline of fitness information for respondents linked to tailored self–development training that furnishes immediate results

- Comprehensive Resilience Modules linked to GAT

- Sustainment Resilience Training
- Institutional Military Resilience[99]
- The APRT and Army Combat Readiness Test, which together prepare Soldiers for the strenuous training and challenges of full–spectrum operations; the APRT replaced the APFT.[100]

Warrior Care and Transition Program (WCTP)

The Warrior Care and Transition Program (WCTP), led by the Warrior Transition Command (WTC), "enables the Army to evaluate and treat Soldiers through a comprehensive, Soldier-centric process of medical care, rehabilitation, professional development, and achievement of personal goals."[102] Established in 2009, the WTC addresses support services for approximately 18,000 Soldiers annually. Approximately 8,100 severely wounded Soldiers and Veterans receive care through the WTC's wounded warriors program.[103]

Major elements of the WCTP include Warrior Transition Units, the Army Wounded Warrior Program, the Comprehensive Transition Plan, education and employment, Soldier and Family Assistance Centers, and adaptive sports.[104]

Situational Awareness of Potential Health Impacts during Deployment

Army commanders must execute the full spectrum of military operations while minimizing the total risk to deployed Soldiers and Civilian employees.

This often requires a careful balance of mission, associated mission risks, and other occupational and environmental health (OEH) risks that may be prevalent in the area of operations.

Disease and non–battle injuries can be a greater threat to Soldiers than combat casualties. To counter the health threat, commanders oversee and implement, in accordance with policy and guidance, comprehensive medical and OEH surveillance activities, preventive medicine measures (such as immunizations, pretreatments, and chemoprophylaxis), and field hygiene and sanitation. These activities are combined with personal protective measures (such as wearing the correct uniform and using insect repellent, sunscreen, and insect netting) and continuous command emphasis.

The US Army Public Health Command (USAPHC) provides information and materials, such as Medical Threat Briefings (MTBs), Deployment Health Guides (DHGs), and Deployment Health Cards (DHCs), to help decrease the risk of environmental, occupational, and disease threats during deployment. MTBs provide information on potential health threats and countermeasures for a specific location, while DHGs and DHCs are pamphlets that contain health information to help lessen the risk of disease and non–battle injury during deployment. DHGs and DHCs are used in conjunction with the *Deployment Health Guide: Army Guide to Staying Healthy*.[105] The USAPHC offers additional field

preventive medicine materials at http://phc.amedd.army.mil/topics/envirohealth/fpm/Pages/ResourceMaterials.aspx.

The Army Deployment Health Assessment Program (DHAP) serves as a program through which the Army addresses deployment-related health needs and maximizes unit readiness. The DHAP actively promotes the health and well-being of both Soldiers and Army Civilians before, during, and after deployments through three Deployment Health Assessments (DHAs) that identify and treat a range of emerging health issues related to deployment. To increase participation and to decrease rates of non-deployability, Army G-1 program management expanded to comprise all three DHAs in October 2011. The Army DHAP makes sure that those being deployed are qualified to do so and that, when necessary, they are provided the care to treat deployment-related health concerns. This program is a proactive approach to safeguard the long-term health and well-being of the force.[106]

More information on disease prevention policies is available under GRI labor (LA) indicators LA8–LA9 (programs regarding serious diseases and health and safety in formal agreements with unions).

Soldier Accidental Fatalities and Army Civilian Lost Time Due to Injuries

Occupational safety statistics are reported in GRI indicator LA7 (rates of injury, diseases, lost days, absenteeism, and fatalities). The Army's *Safety and Occupational Health Strategic Plan* focuses on increasing operational and workplace safety and health. This applies to Soldiers and Civilians performing non-combat industrial and garrison activities.

Thanks to engaged leaders and Soldiers, the Army reached its lowest rate of on-duty ground losses in FY11, decreasing from 39 in FY09 to 31 in FY10 to 30 in FY11. In addition, the

on-duty ground fatalities rates decreased from 0.052 per thousand Soldiers in FY09 to 0.042 in FY10 and 0.040 in FY11.[107] Aside from the Personnel Injury-Other (PIO) category, all on-duty ground accident categories saw double-digit reductions from FY10 to FY11, an impressive turnaround from FY10, when most on-duty ground categories experienced increases in fatalities. On-duty ground vehicle safety improved, with reductions in both Army combat vehicle and Army motor vehicle deaths in FY11 from FY10. Fatal aviation accidents decreased by 31 percent from FY10 to FY11[108] after increasing by approximately 33 percent from FY09 to FY10.[109]

Although the Army has succeeded in reducing accidental fatalities, off-duty fatalities remain a challenge. They rose by approximately 6 percent from FY10 to FY11, due largely to increases in PIO accidents and fatal motorcycle accidents.[110] Despite increases in overall off-duty fatalities, the Army showed reductions in fatalities in some accident categories, including other privately owned vehicles (POVs) and sedans. Overall, off-duty POV fatalities decreased by 5 percent from FY10 to FY11. In

addition, pedestrian fatalities displayed a dramatic 67 percent decrease.[111]

Although some off-duty POV categories displayed decreases in fatalities in FY11, off-duty ground fatalities are persistently one of the Army's biggest safety challenges. Both on- and off-duty vehicle operation continues to be the most dangerous activity performed by Soldiers.[112] For instance, of 160 ground accident fatalities, 110 (68.8 percent) were POV fatalities. In FY10 and FY11, 115 of 159 ground fatalities (72.3 percent) and 109 of 166 ground fatalities (65.7 percent), respectively, were POV fatalities.[113] Army safety and occupational health objectives for FY11 and FY12 directed toward vehicle safety included seat belt usage, motorcycle operator training, helmet wearing,[114] progressive motorcycle training,[115] as well as sustainment of on-duty loss reduction, Civilian and contractor accident reporting,[116] weapons handling, and accident reporting.[117]

To promote increased vehicle safety, the Army has implemented motorcycle and other POV programs. As of October 1, 2011, all Soldiers riding motorcycles on- or off-post are required to participate in the Progressive Training Model.

LTC Lillian Landrigan, dental surgeon, 18th Medical Command (Deployment Support), treats a Vietnamese child during a Bilateral Military Medical Outreach mission in which 18th Medical Command (Deployment Support) and Pacific Regional Medical Command personnel assisted the Vietnamese Army (photo: 18th Medical Command).

Within 12 months of completing the Basic Rider Course, Soldiers must complete the Military Sportbike Rider Course or Experienced Rider Course. In addition, sustainment training is required every three years, and Soldiers deployed for 180 days or more must take a refresher course.[118] To promote the use of risk management principles in off-duty POV use and reduce off-duty POV accidents, the US Army Combat Readiness/Safety Center has developed the Sedans, Trucks, Off-road vehicles, Motorcycles, and Pedestrians (STOMP) program. This multimedia-based campaign focuses on monthly Training, Indiscipline, Planning, and Safety messages designed to help Soldiers transition the risk management training they have used on duty to the challenges they face on the road.[119]

Total ground accidents increased from 2,559 in FY09 (a rate of 3.426 per thousand Soldiers) to 2,935 in FY10 (a rate of 3.959 per thousand Soldiers). However, total ground accidents decreased to 2,462 in FY11 (a rate of 3.300 per thousand Soldiers). Aviation accidents decreased from 194 in FY09 to 142 in FY10, but increased to 186 in FY11.[120] Accidental injuries and damage to equipment decrease readiness, and prevention of such accidents must be a priority. Reporting and quickly addressing these lesser accidents that negatively impact readiness will be a focus in FY12, and to help with this, the Army has developed an automated accident reporting tool called "ReportIt."[121] Table 5 contains additional accident and fatalities data. These data are now reported as rates rather than whole numbers in the table, as rates normalize the accident and fatalities data, accounting for the number of Soldiers for ground accidents and fatalities (per 1,000 Soldiers) and the number of flight hours for aviation accidents and fatalities (per 100,000 flight hours).

The Army also tracks Civilian lost time and fatal claims information. The *US Army Accident Information Civilian Lost Time and Fatal Claims—Year to Date (Total Army)* report provides year-to-date comparisons of lost time and fatal claims information for the current FY, as well as the three prior FYs. This report is located at https://safety.army.mil/portals/statisticsdata/public_reports/Civilian_Statistics/CivilianLostTimeandFatalClaimsArmyYTD.pdf.

Army Safety Awards

The Army recognizes exceptional safety performance through the SECARMY and CSA Safety Awards. Table 6 shows the recipients recognized for their safety efforts and contributions to the preservation of combat readiness in FY10–11.

In 2010-11, several MEDCOM MTFs were awarded environmental excellence awards by Practice Greenhealth, the nation's leading membership and networking organization for

Table 5. Army Accident and Fatalities Statistics

Metric (Units)	FY09	FY10	FY11
Army Total Ground Accidents Rate (per 1,000 Soldiers)	3.426	3.959	3.300
Army Total Ground Fatalities Rate (per 1,000 Soldiers)	0.214	0.214	0.223
Army Total On Duty Ground Accidents Rate (per 1,000 Soldiers)	2.407	2.827	2.236
Army Total Off Duty Ground Accidents Rate (per 1,000 Soldiers)	1.019	1.132	1.064
Army Total On Duty Ground Fatalities Rate (per 1,000 Soldiers)	0.052	0.042	0.040
Army Total Off Duty Ground Fatalities Rate (per 1,000 Soldiers)	0.162	0.173	0.182
Army Total Privately Owned Vehicle (POV) Accidents Rate (per 1,000 Soldiers)	0.653	0.722	0.590
Army Total POV Fatalities Rate (per 1,000 Soldiers)	0.147	0.155	0.146
Army On Duty POV Accidents Rate (per 1,000 Soldiers)	0.058	0.100	0.075
Army Off Duty POV Accidents Rate (per 1,000 Soldiers)	0.596	0.622	0.515
Army On Duty POV Fatalities Rate (per 1,000 Soldiers)	0.001	0.003	0.001
Army Off Duty POV Fatalities Rate (per 1,000 Soldiers)	0.146	0.152	0.145
Army Flight Accident Rate (per 100,000 flight hours)	10.793	7.709	10.067
Army Flight Fatalities Rate (per 100,000 flight hours)	1.088	1.360	0.998

Sources: US Army Accident Information, Total Accident Statistics Year End Data Report (as of July 1, 2012): https://safety.army.mil/portals/statisticsdata/public_reports/total_army/ArmyAccidentStatisticsYearEndData.pdf; US Army Accident Information, POV Accident Statistics Year End Data Report (as of July 1, 2012): https://safety.army.mil/portals/statisticsdata/public_reports/POV_Statistics/POVAccidentStatisticsYearEndData.pdf.

Note: ASR12 now reports rates versus whole numbers, as rates normalize the accident and fatalities data.

healthcare institutions committed to sustainability and eco-friendly practices:

- Madigan Army Medical Center, Joint Base Lewis–McChord: Partner for Change with Distinction Award (2010 and 2011)

- Moncrief Army Community Hospital, Fort Jackson: Partner Recognition Award (2010 and 2011)

- Brooke Army Medical Center, Fort Sam Houston: Partner Recognition Award (2010)

- Ireland Army Community Hospital, Fort Knox: Partner Recognition Award (2010)

- Kenner Army Health Clinic, Fort Lee: Clinic Partner for Change Award (2010).[123]

Army Civil Authorities and Disaster Relief Support

In addition to its combat and training missions, the Army supports civil authorities in disasters as governed by Title 10 USC Chapter 18, defined in the *National Response Framework*,[124] and directed by SECDEF. Defense support

Table 6. FY10–11 SECARMY and CSA Safety Awards

Category	FY10 Recipients	FY11 Recipients
Army Headquarters Safety Award	USACE	FORSCOM
Exceptional Organization Safety Award	Division: Communications-Electronics Command, Life Cycle Management Command (CECOM-LCMC)	Division: CECOM-LCMC
	Brigade: Tooele Army Depot	
	Battalion: 1st Battalion, 19th Field Artillery, 434th Field Artillery Brigade	Battalion: 78th Signal Battalion
	Garrison: Fort Bragg, Directorate of Plans, Training, and Mobilization	Garrison: Red River Army Depot
Individual Award of Excellence in Safety	Officer: MAJ John R. Braun, Directorate of Emergency Services, Fort Campbell	Officer: MAJ John S. Kerns, Course Manager, Special Operations Combat Medical Skills Sustainment Course, US Army Special Operations Command
	Non-Comissioned Officer (NCO)/Enlisted: SFC Andrew Castro, Headquarters and Headquarters Detachment, 58th Signal Battalion, US Army Network Enterprise Technology Command	NCO/Enlisted: SSG Jorge A. Lopez, 3rd Battalion, 60th Infantry Regiment, Fort Jackson
	Civilian: Ms. Bonnie Lewis, Safety Chief, Red River Army Depot	Civilian: Mr. Kevin R. Martin, Safety Engineer, Corpus Christi Army Depot
	Contractor: Mr. James P. Verney, a Bering Kaya Support Services Contractor, Fort Greely	Contractor: Mr. Takayuki Kitamura, US Army Garrison (USAG) Japan
Industrial Operations Safety Award	Division US Army Tank-automotive & Armaments Command (TACOM), Life Cycle Management Command	Corpus Christi Army Depot
	Garrison: Watervliet Arsenal, TACOM, Life Cycle Management Command	
	Depot: Tobyhanna Army Depot	
	Anniston Defense Munitions Center	
Excellence in Explosives Safety Award	Division: Joint Munitions Command	Letterkenny Munitions Center
	Brigade: McAlester Army Ammunition Plant	
	Garrison: Fort Campbell	
	Battalion: Radford Army Ammunition Plant	

Sources: The Director of Army Safety Sends, "Announcement of FY10 Secretary of the Army and Chief of Staff, Army , Army Safety Awards," September 2011, https://safety.army.mil/LinkClick.aspx?fileticket=RFSAY9bzJRk%3d&tabid=515; "Announcement of FY11 Secretary of the Army and Chief of Staff, Army, Safety Awards," ALARACT: 099/2012, https://safety.army.mil/LinkClick.aspx?fileticket=x51IwGlSnX0%3d&tabid=515.

Fort Campbell Military Police Tops in Tennessee

Fort Campbell military police took first place at the 2011 Tennessee Law Enforcement Challenge award in traffic safety in the Military Police category and for the overall Best Motorcycle Safety Program in the state. The awards recognize the best traffic safety programs throughout the state as determined by the International Association of Chiefs of Police. Fort Campbell attributes the win to the extensive, specialized training that many of the military police Soldiers receive. The win was remarkable in that they will usually only work for a few years on this job before returning to combat, unlike the other law enforcement professionals against whom they compete, who work full time for many years.[122]

of civil authorities (DSCA) is defined in Field Manual 3-28, *Civil Support Operations.* Civil support activities include presidential addresses to Congress; sporting events such as the Winter Olympics; the annual DoD Joint Services Open House at Joint Base Andrews–Naval Air Facility, Washington, DC; and all space shuttle launches.[125] In 2011, the United States experienced an increase in natural disasters such as tornados, floods, and wildfires. The ARNG supported first responders across the country.[126] The 2010–11 Army civil authority and disaster relief activity highlights are included below.

2010 Activities	2011 Activities
• Support of the 64th United Nations General Assembly • Support of DoD H1N1 mitigation efforts and response preparations • Response to the tsunami in America Samoa • Response to the Haiti earthquake in support of United States Southern Command • Response to flooding in the Midwest and New England • Coordination of DoD efforts and response to the Deepwater Horizon oil spill • Support of DoD Public Service Recognition Week in Washington, DC[127]	• Support of the Department of Homeland Security on the Southwest border • Support of counter drug/narcotics agencies • Protection of assets in California and New York • Response to the flooding of the Missouri and Mississippi Rivers and tributaries • Provision of technical personnel to Japan in the earthquake, tsunami, and nuclear crises • Response to tornadoes in Arkansas, Massachusetts, Missouri, and Oklahoma • Response to wildfires in Arizona, New Mexico, and Florida • Coordination and support of DoD presidential and Secret Service missions • Execution of rehearsal of concepts drill exercise for chemical, biological, and nuclear response forces that participated in the 2011 national-level exercise[128]

MG Michael T. Harrison, commanding officer of US Army Japan I-Corps (Forward), high fives a toddler displaced by the Great East Earthquake in Matsushima, Japan (photo: US Army).

"The Army continues to sustain the quality and viability of the all-volunteer force."

—FY 2011 US Army Annual Financial Report [130]

Net Cost of Operations and End Strength

The Army is dedicated to supporting Soldiers, Families, and Civilians; preparing Soldiers for the mission; resetting units to restore readiness; and transforming the Army for the future—while being as cost-effective as possible. In 2010-11, the Army continued to increase efficiency through business transformation. In FY09, it launched the General Fund Enterprise Business System, which integrates budget, real property, cost, and nonfinancial data for a better portrayal of costs and impacts.[129]

Total Army end strength (active Army, ARNG, and USAR combined) increased by 1.5 percent from FY09 to FY11 (Figure 10). Active Army end strength increased by 2.4 percent from FY09 to FY11, while the combined ARNG and USAR end strength increased by 0.6 percent over the same time period. See Table 1 for additional information on end strengths, end strength goals, retention, and recruiting.

In FY09, the Army began SECDEF's temporary end-strength increase authorization of up to an additional 22,000 active component Soldiers.[131] Growth allowed the Army to relieve stress on the force and increase time between deployments. Costs associated with this temporary augmentation resulted in an estimated annual increase of $1.01 billion in FY10[132] and $1.59 billion in FY11.[133] To create more sustainable and predictable deployment schedules—while maintaining mission and combat power surge capabilities—the Army has implemented the ARFORGEN process. The active Army exceeded air operational tempo (OPTEMPO) goals in FY11 and, partially due to limited dwell times between rotations, achieved 92 percent of its ground OPTEMPO goals. The USAR and ARNG both exceeded air and ground OPTEMPO goals in FY11.[134]

As shown in Table 1 and Figure 10, the net cost of operations decreased 3.8 percent to $197.8 billion between

Figure 10. Army Military End-Strength, Authorizations, Goals (Active, USAR and ARNG) and Net Operating Costs, FY04–11
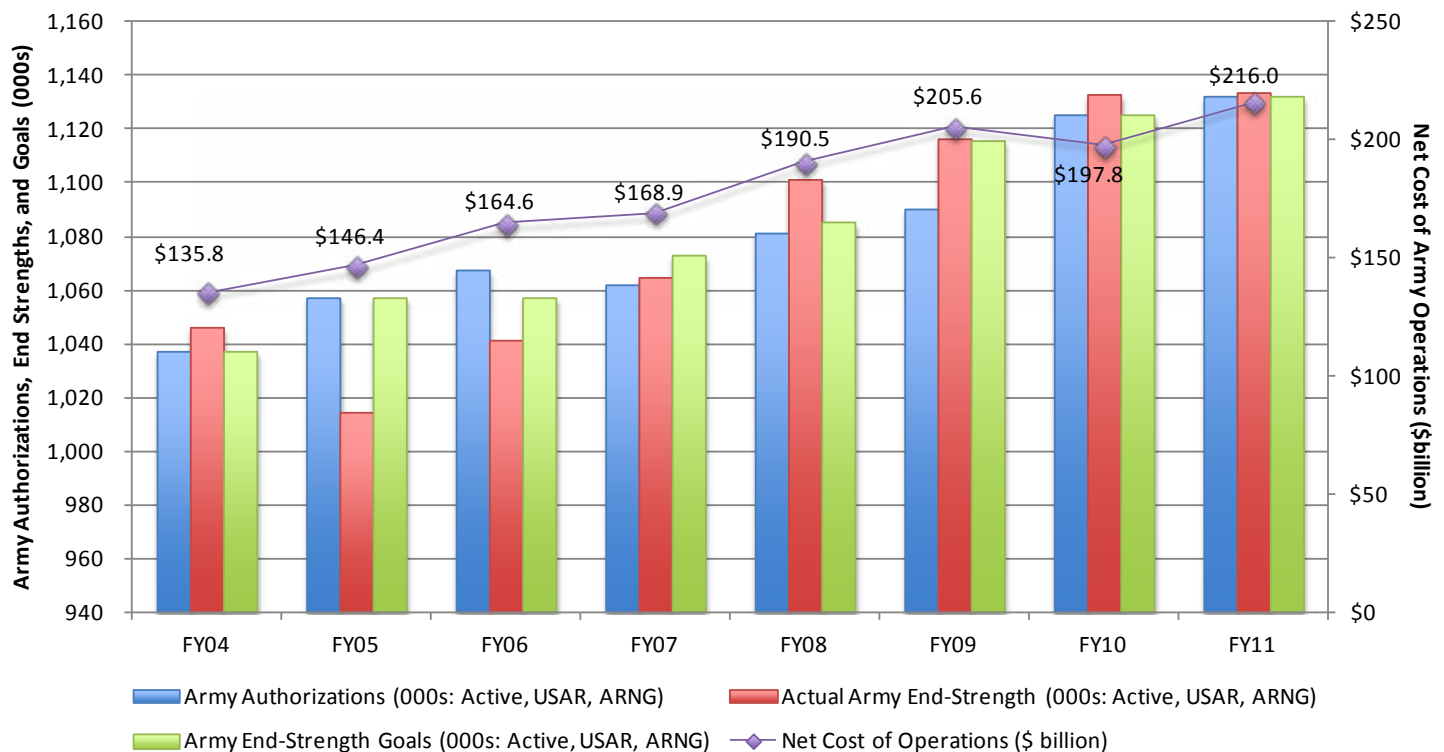
Sources: FY04–11 National Defense Authorization Acts (NDAAs); FY04–11 Army Annual Financial Reports.

FY09 and FY10,[135] but increased 9.2 percent to $216.0 billion from FY10 to FY11.[136] Aside from FY10, the net cost of operations has trended upward since FY04, partially due to the counterinsurgency operations in Iraq and Afghanistan and the continual repair and replacement of old equipment and systems degraded by deployment in harsh desert and mountain environments. The Army began drawdown in Iraq in 2010 and continued to execute responsible drawdown in 2011.[137] At the same time, US forces in Afghanistan expanded.[138]

Civilians contribute unique and valuable sets of skills supporting our service members in the field, at war, and around the world. The number of Army Civilians increased by about 4 percent from FY09 to FY10 to more than 284,000 and remained consistent at this number in FY11 (Figure 11). The increase in Army Civilians from approximately 222,000 in 2001 is tied to overseas contingency operations, military-to-Civilian conversions, military technician increases, defense health program increases, and in-sourcing.[139]

The Army understands the importance of providing its Civilians with training, education, and operational experiences to create adaptable leaders who can better support the Army, its Soldiers, and the Nation as a whole. To accomplish necessary Civilian training, the Army has altered the Civilian Leadership Development Program to be more like the Military Leadership Development Program. Additional information on Army Civilian professional development can be found in the *FY10 Army Annual Financial Report* (AFR) (available at http://comptroller. defense.gov/cfs/fy2010/02_Department_ of_the_Army/Fiscal_Year_2010_ Department_of_Army_Financial_ Statements_and_Notes.pdf) and the *FY11 Army AFR* (available at http:// comptroller.defense.gov/cfs/fy2011/02_ Department_of_the_Army/Fiscal_ Year_2011_Department_of_the_Army_ Financial_Statement_and_Notes.pdf).

Sources: FY04–11 Army Annual Financial Reports.
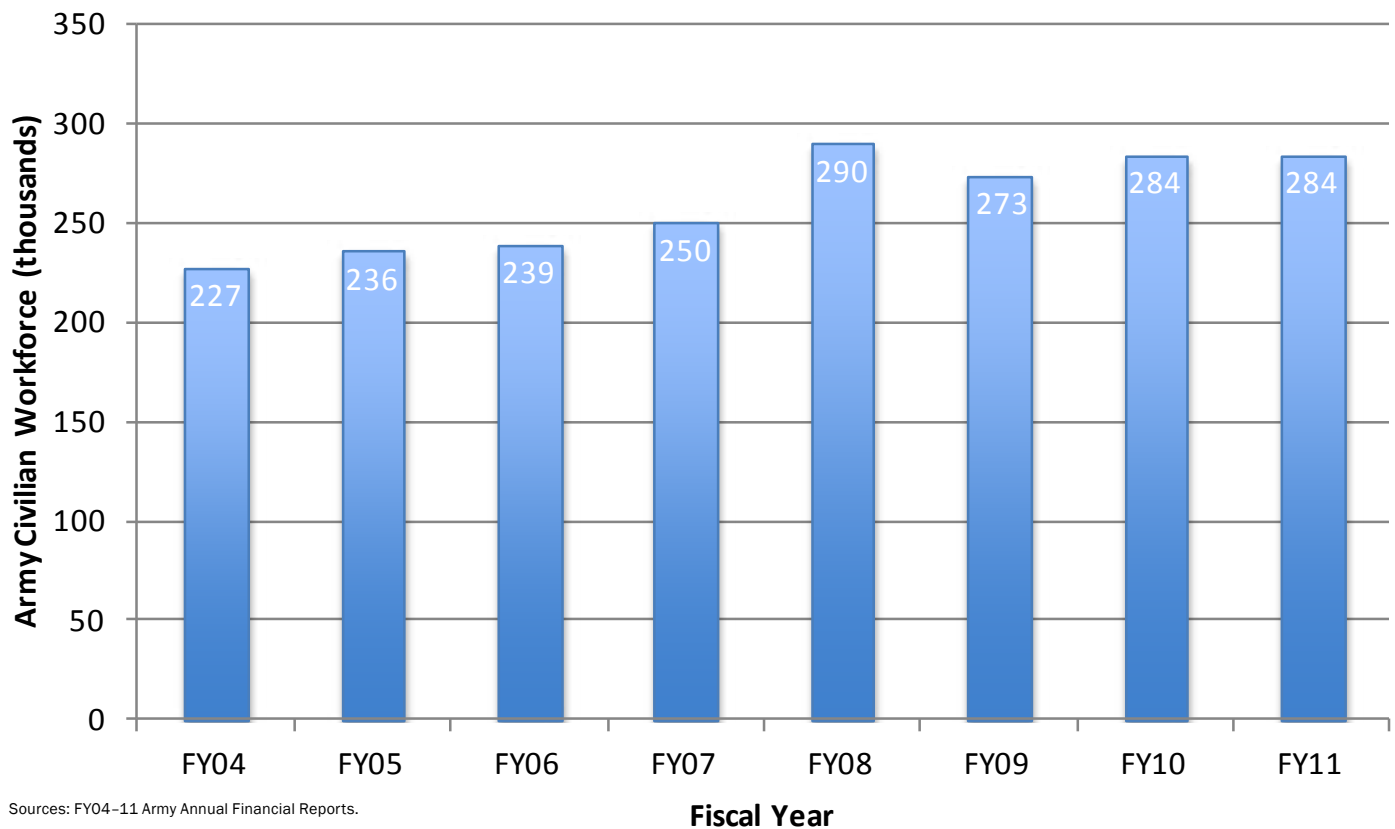
Figure 11. Army Civilian Workforce, FY04–11

Services and Infrastructure

Services and infrastructure are the buildings, roads, utilities, and related support services essential to the operation of the Army. The Army's installations are the platforms from which it mobilizes and deploys military power, while sustaining military Families. Installations also play a key role in both training the force and reconstituting it upon coming back from deployment. Tens of thousands of people work and live on installations, exacting huge demands on energy and water resources and greatly impacting the environment—land, water, and air. Although the Army has made great progress in adopting sustainable practices at many of its installations, it must continue to improve resourcing and incentivizing approaches that reduce energy, water, and other resource consumption; better protect the environment; and improve the quality of life.[140]

As of September 30, 2011, the Army's physical environment consisted of 155 installations and 14.2 million acres of land[141] and more than 960 million square feet of buildings.[142] Like many other federal, state, and local entities and private businesses, the Army's activities affect air and water quality and require environmental management of natural and human–made resources and sensitive species. By complying with federal, state, and local environmental laws, the Army manages its activities in a way that prevents constraints on accomplishing its mission. To be sustainable, the Army must reduce its demand on limited natural resources, such as energy and water, and the financial resources that support its operations. Table 7 shows some sustainability requirements associated with services and infrastructure that applied in 2010-11 and will continue to guide the Army. The following subsections describe FY10-11 Army progress related to services and infrastructure. Other topics represent the broad spectrum of activities ranging from sustainable building to environmental management systems. Overviews of performance related to funding, enforcement actions (ENFs), solid waste disposal, recycling, and other indicators also are included.

This carport at Fort Hood, TX not only helps keep cars cool from the scorching Texas sun, it also generates solar power to keep the buildings cool on the inside and reduce the energy bills throughout the military facility.
(photo: USACE).

Table 7. Services and Infrastructure-Related Sustainability Requirements

EO 13514	DoD SSPP	ASCP
• Establish GHG emission reduction targets. • Report GHG emission inventories. • Reduce petroleum consumption. • Increase renewable energy and renewable energy generation on agency property. • Ensure existing buildings and leases meet the guiding principles with continued progress. • Reduce building energy intensity. • Ensure new buildings are designed to achieve zero net energy standards. • Manage buildings to reduce energy, water, and materials consumption. • Reduce potable water consumption intensity and industrial, landscaping, and agricultural water consumption. • Implement and achieve objectives in EPA's stormwater management guidance. • Implement water reuse strategies. • Divert non-hazardous solid waste, C&D materials, and debris. • Implement source reduction strategies to reduce waste and pollutants. • Employ environmentally sound practices for the disposition of all agency excess or surplus electronic products. • Reduce paper use. • Participate in transportation planning and recognize existing infrastructure in regions and communities. • Continue implementation of EMS programs.	• Reduce GHG emissions. • Produce or procure energy from renewable sources. • Reduce energy intensity of facilities. • Conform to the guiding principles on high performance and sustainable buildings. • Reduce consumption of potable, industrial, and irrigation water. • Maintain pre-development hydrology of projects. • Divert non-hazardous solid waste and construction debris from waste stream. • Recover landfill gas. • Properly dispose of excess or surplus electronic products. • Reduce use of printing paper. • Coordinate with regional and local planning for transportation and energy optimization. • Prepare and update integrated pest management plans. • Effectively implement and maintain EMSs.	• Complete GHG assessments and achieve reduction goals. • Implement the AESIS. • Develop guidance and conduct installation and facility-level vulnerability and risk assessments to analyze global climate change effects. • Provide guidance on sustainability for new construction and major renovations. • Achieve the water conservation and stormwater management goals of EOs 13423 and 13514. • Implement the Army cleanup strategy, including green remediation when cost-effective. • Incorporate sustainability into installation strategic plans and other plans. • Incorporate sustainability into services and infrastructure contracts. • Develop programming for adaptation and mitigation. • Develop goals, objectives, and metrics.

Note: The requirements have been summarized; consult the three source documents for exact language.

Net Zero

The Army's Net Zero initiative encompasses energy use, water use, and non–hazardous solid waste reduction. The goal is for installations to reduce consumption of resources to an effective rate of zero,[143] by decreasing consumption and producing renewable energy, using graywater instead of freshwater, and implementing source reduction and expanded recycling strategies. Figure 12 shows the Net Zero hierarchy, with the most preferred approach (reduction) at the top and the least preferred approach (disposal) at the bottom.[144] Seventeen Army installations and one ARNG state have been identified as striving to achieve the initiative.[145] Two installations, Forts Carson and Bliss, are aiming to become integrated Net Zero installations by achieving Net Zero status for energy, water, and waste.[146] Figure 13 shows Army Net Zero pilot installations.

Source: DoD, *Department of Defense Strategic Sustainability Performance Plan FY 2012.*

Figure 12. Army Net Zero Hierarchy

The primary goal is a focus toward Net Zero and when we talk about Net Zero, it's not only Net Zero energy, but it's Net Zero energy, water, and waste. When you look at the term "Net Zero" or a hierarchy of Net Zero you must start with reduction, then progress through repurposing, recycling, energy recovery, disposal being the last. — HON Katherine Hammack, DoD Bloggers Roundtable, October 10, 2010, http://army-energy.hqda.pentagon.mil/netzero/.

Source: DoD, *Department of Defense Strategic Sustainability Performance Plan FY 2012.*

Figure 13. Army Net Zero Pilot Installations

The Army is collaborating with the Department of Energy (DOE), General Services Administration, and EPA on its Net Zero initiative. To formalize its work with EPA, the Honorable Katherine Hammack, ASA(IE&E), and Dr. Paul Anastas, Assistant Administrator for the Office of Research and Development and science advisor to EPA, signed a memorandum of understanding (MOU) to that effect. Together, the Army and EPA will work to develop technologies that installations can use to achieve sustainability and Net Zero goals. During the brief signing ceremony, HON Hammack stressed that the Army must recognize the non-financial benefits of sustainability, including improvement in the quality of life and continued mission capability.[147]

Sustainability and energy security are at the core of a Net Zero energy installation. Over the course of a year, a Net Zero energy installation produces as much (or more) energy on-site from renewable sources as it uses. Starting at the top of the Army Net Zero hierarchy,

reduction of energy use through conservation and increases in energy efficiency are the first actions, followed by repurposing energy. For instance, boiler stack exhaust, building exhaust, and thermal energy streams can be repurposed

for secondary uses. In terms of recycling, cogeneration can be used to generate both heat and electricity from one source. Moving down the Net Zero hierarchy, energy recovery consists of renewable energy, waste-to-energy, and geothermal water projects, used after conservation efforts, efficiency improvements, repurposing efforts, and recyclng.[148,149]

Issues such as aquifer drawdown and potable water scarcity make water conservation increasingly critical. A Net Zero water installation limits freshwater consumption and undertakes various practices to create a balance between water use and the amount of water it can recharge or repurpose. Such practices aim to ensure continued availability of adequate freshwater supplies for the future. Strategies to preserve freshwater resources include recycling graywater, harvesting rain water for on-site use, and desalinating salt water to produce freshwater.[150]

Much like Net Zero energy installations, Net Zero water implementation starts at the top of

Dr. Paul Anastas of EPA and HON Katherine Hammack, ASA(IE&E), sign the MOU at EPA headquarters, November 28, 2011 (photo: US Army).

Through a whole-of-government approach to sustainability, the Army's Net Zero initiative increases the Army's ability to be successful today and into the future. Our collaboration with EPA's Office of Research and Development brings leading-edge research assistance together to advance both our institutions' goals for increased resource efficiency and balanced resource use.

—HON Katherine Hammack, ASA(IE&E), November 28, 2011

US Army: Improvements with Rapid Paybacks

Tobyhanna Army Depot Wastewater Treatment Plant (photo: US Army).

As one of the Army's Net Zero water pilot installations, Tobyhanna Army Depot, PA recently completed two significant water-saving projects. By replacing potable water with process wastewater for foam reduction at its wastewater treatment plant, the installation is saving 300,000 gallons of potable water per month. The total project cost only $1,200, and with the potable water savings, it paid for itself in a little more than a month. The second project was the replacement of a single-pass cooling system with a water chiller at an industrial operations facility. The project saves an additional two million gallons of potable water each month, paying back its cost of approximately $125,000 in just eight months.[152]

the Army Net Zero hierarchy, with conservation efforts and improvements in efficiency. Some conservation practices touched on previously include the recycling of graywater and the capture of rain water or stormwater runoff to use for various purposes on the installation. Similarly, treatment can bring wastewater up to a quality that allows it to be used for on–site purposes or to be returned to groundwater aquifers in the watershed.[151]

A Net Zero waste installation maximizes reduces, reuses, and recovers waste streams, converting them to resource values, and ultimately eliminating the need for landfill disposal over one year. Achieving Net Zero waste status begins by reducing solid waste generated on post through sustainable procurement practices; followed by repurposing, recycling, and composting solid waste to avoid landfill disposal; and finally utilizing energy recovery technologies. The intent is for disposal, the last category in the hierarchy, to be unnecessary after the preferred practices are established.[153]

> "A Net Zero waste strategy eliminates the need for landfills, protects human health, optimizes the use of limited resources, and keeps the environment clean."[154]
>
> – Army Energy Program website

Energy

Obtaining clean, reliable, and affordable energy is critical for the Army to achieve its mission, and meet applicable energy targets and regulations. Although Army facilities have reduced their energy intensity since FY03, room for improvement remains. The Army intends to expand its development and use of renewable energy through the efforts of the newly established Energy Initiatives Task Force (EITF), and it has taken steps to advance energy security through such efforts as awarding additional energy savings performance contracts (ESPCs) and utility energy service contracts (UESCs) in FY11. Improving energy efficiency will help reduce GHG emissions, as well.

Energy Efficiencies

The Army's facilities achieved an energy intensity of 91.5 thousand British thermal units per gross square foot (Btu/GSF) in FY10,[156,157] lowering it to 85.7 thousand Btu/GSF in FY11,[158] both years representing a decrease from the Army's FY09 energy intensity (Figure 14). FY10 Army energy intensity represents an 8.7 percent decrease from the FY03 baseline year,[159] while the FY11 energy intensity decreased by 11.8 percent from FY03.[160] In FY11, with the permission of OSD and OMB, the Army adjusted its FY03 baseline energy intensity from 100.3 thousand Btu/GSF to 97.2 thousand Btu/GSF to exclude process energy consumed at Army ammunition plants, consistent with exemptions provided in EO 13514. The FY11 percentage reduction is based on the updated baseline. Reductions for previous years are based on the prior baseline and are reported consistent with previous documentation, such as the FY11 DoD SSPP and *FY10 DoD Annual Energy Management Report* (EMR).

In FY11, increased demand for energy and water hampered Army

Fort Hood Selected for Net Zero Waste Pilot Program

As a Net Zero Waste pilot installation, Fort Hood, TX is implementing practices and technologies that will further recycle, reclaim, re-purpose, and compost the waste generated at the installation so that nothing is sent to a landfill. Fort Hood has already made significant progress in waste diversion, touted as one of the Army's best recycling programs. The Fort Hood Recycling Center diverted 41 percent of the installation's solid waste generated in 2010, a cost savings of nearly $350,000. With a focus on education and installation-wide participation, the recycling center continues to leverage new technologies and practices to achieve its Net Zero waste goal by 2020.[155]

The Fort Hood Recycle Center recycles a variety of materials, such as cardboard, white paper, office pack, newspaper, plastics, cooking oil, and toner cartridges, and individuals also get paid for their aluminum cans (photo: Christine Luciano, Fort Hood Department of Public Works Environmental Outreach).
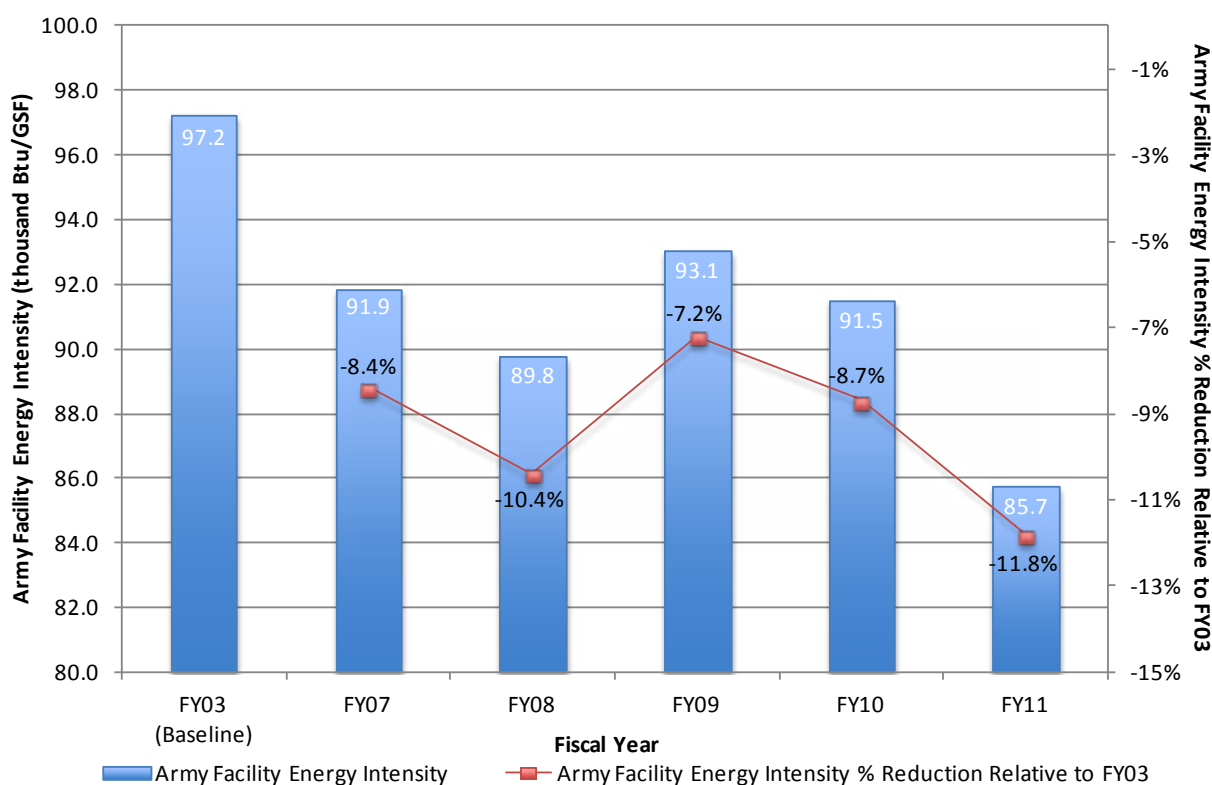
Note: In FY11, the Army adjusted its FY03 baseline energy intensity from 100.3 thousand Btu/GSF to 97.2 thousand Btu/GSF. Percentage reductions for FY07–10 are reported as they have been in previous documentation (based in the 100.3 thousand Btu/GSF baseline). Only the FY11 percent reduction is based on the adjusted baseline of 97.2 thousand Btu/GSF. See page 50 for additional discussion of the baseline adjustment.

Sources: FY07–11 DoD Annual EMRs and FY11 DoD SSPP.

Figure 14. Army Facility Energy Intensity and Percentage Reduction Relative to FY03 for FY07–11

performance against the DoD SSPP annual planning target of an 18 percent reduction in facilities energy intensity (from FY03). Energy demand rose due to increased troop deployment and redeployment, repositioning of combat units to support BRAC actions, and the continuation of the massive equipment reset program at the Army's industrial base. Despite these increased demands, the Army still reduced total facility energy use from 72.9 to 69.5 trillion Btus, or 4.7 percent.[161] In addition to decreasing facility energy intensity and total facility energy use, the Army reduced its petroleum consumption in non–tactical vehicle fleets from FY05 by 2.2 percent in FY10[162] and 10.3 percent in FY11.[163]

Reducing Energy Intensity

EO 13514	Army Progress	
§2(a): In establishing the target, the agency head shall consider reductions associated with: (i) reducing energy intensity in agency buildings.	**2010** 8.7 percent decrease	**2011** 11.8 percent decrease
DoD SSPP DoD SSPP Subgoal 1.1: Energy intensity of facilities reduced by 30% from FY03 by FY15 and 37.5% by FY20.		
Related GRI Indicators: EN3, EN4, EN5		

Increasing Renewable Energy Use

EPAct 05	Army Progress	
§ 203(a): Of the total amount of electric energy the Federal Government consumes during any fiscal year, the following amounts shall be renewable energy: (1) Not less than 3 percent in FY07–09. (2) Not less than 5 percent in FY10–12. (3) Not less than 7.5 percent in FY13 and each fiscal year thereafter.	**2010** Excluding thermal renewable energy (EPAct 05 goal), 2.0 percent of electricity use was met by renewable energy. Including thermal renewable energy (DoD SSPP), 5.6 percent of electricity use was met by renewable energy.	**2011** Excluding thermal renewable energy (EPAct 05 goal), 0.5 percent of electricity use was met by renewable. Including thermal renewable energy (DoD SSPP), 4.3 percent of electricity use was met by renewable energy.
DoD SSPP DoD SSPP Subgoal 1.2: By FY20, produce or procure energy from renewable sources in an amount that represents at least 20% of electricity consumed by facilities.		
Related GRI Indicators: EN6		

Alternative Energy Source at Aberdeen Proving Ground

On November 16, 2011, a ribbon-cutting ceremony was held at the Building Operations Control Center (BOCC) at Aberdeen Proving Ground, MD to mark the completion of the first of several hydrogen fuel cell projects, a joint effort of the Army and DOE. Once all projects are completed, hydrogen fuel cell generators will provide backup power to 24 buildings at nine federal facilities across the United States. Hydrogen fuel cells are attractive as an alternative energy source because they produce no GHG emissions and are twice as efficient as and quieter than conventional combustion generators. At Aberdeen, two other buildings will receive fuel cell generators as part of this program: the Edgewood Area snow removal center and the Aberdeen Test Center range control. Using alternative energy technologies such as hydrogen fuel cells increases mission and environmental performance and improves energy security by decreasing reliance on conventional fossil-based fuels.[166]

Officials cut the ribbon November 16 to unveil Aberdeen Proving Ground's hydrogen fuel cells at the BOCC. From left, Rick Farmer, deputy program manager with DOE's Office of Energy Efficiency and Renewable Energy; MG Nick Justice, senior installation commander; Sam Logan, chief executive officer of Logan Energy; and Adele Ratcliff, director of the Office of the Secretary of Defense Manufacturing Technology (photo: Conrad Johnson).

The Army's Energy Conservation Investment Program (ECIP), along with its energy management program, uses life-cycle cost analysis to minimize impacts while reducing total ownership costs. The ECIP is Military Construction (MILCON)-funded, and ECIP projects are undertaken to save energy and water, employ renewable energy, and shift to the use of cleaner energy sources.[164] In FY10 and FY11, the Army implemented 15 and 22 ECIP projects, respectively.[165] These energy savings will be reflected in future years. GRI indicators EN3 to EN7 direct users to disclose energy consumption and improvements (see Table 14).

Army Renewable Energy

The Army is pursuing renewable energy on two fronts. One is small-scale renewable energy efforts, such as solar street lights, implemented by installations. The other involves large-scale renewable energy efforts managed by the EITF.

Excluding thermal renewable energy projects—which do not count toward compliance with the EPAct 05—the percentage of the Army's electricity use met by renewable energy decreased slightly, from 2.1 percent in FY09 to 2.0 percent in FY10.[167,168] It fell further, to 0.5 percent, in FY11,[169] primarily due to expiring renewable energy credit (REC) purchase agreements and the Army's decision to limit the purchase of RECs purely for goal compliance. The Army did produce 212.6 billion Btu of thermal renewable energy in FY11.[170] Including thermal renewable energy, facility electricity consumption met by renewable energy decreased from 5.9 percent in FY09 to 5.6 percent in FY10,[171] and 4.3 percent in FY11.[172] In FY11, the Army added 71 active thermal and electric

renewable energy projects. By the end of FY11, the Army had a total of 168 renewable energy projects, 93 of which qualified for credit toward the FY11 EPAct 05 renewable energy goal. The majority of the electricity produced from these projects directly supplied federal Army facilities.[173] Table 8 shows FY10 and FY11 on-site renewable energy generation projects.

The Army purchased 218,000 megawatt hours (MWh) of renewable energy in FY10. This energy came from a variety of sources, including direct energy purchases, power purchase agreements (e.g., the PV array at Fort Carson), and REC purchases.[174] As mentioned previously, the Army decided to limit the purchase of RECs for goal compliance in FY11. Looking forward, the Army issued a memorandum titled "Department of the Army Policy for Renewable Energy Credits" in May 2012,

Table 8. FY10–11 On-Site Renewable Energy Generation Projects

FY	Location	Project Description	Capacity (MW)
2010	Delaware ARNG, Bethany Beach, DE	PV system	0.38
2010	Presidio of Monterey, CA	PV system	0.38
2010	USAG Vicenza, Italy	PV system	0.75
2010	Fort Hunter Liggett, CA	PV system (cantonment)	1.0
2011	Fort Riley, KS: 7613 Brigade HQ	PV and wind	Small scale
2011	Fort Knox, KY	7 UESC projects, including ground-coupled heat pumps	Small scale
2011	Fort Carson, CO	Combined heat and power solar dish	Small scale
2011	Fort Carson, CO	Biomass	Small scale
2011	Presidio of Monterey, CA	PV	Small scale
2011	Redstone Arsenal, AL	Solar walls and controls	TBD

Sources: Department of Defense, *Department of Defense Strategic Sustainability Performance Plan*, FY 2011, p. II-21, www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf; FY11 information was provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and also made public in ASR12.

Reducing Fossil Fuels		
EO 13514 §2(a)(iii): Reducing the use of fossil fuels by: (A) using low GHG emitting vehicles including alternative fuel vehicles; (B) optimizing the number of vehicles in the agency fleet; and (C) reducing, if the agency operates a fleet of at least 20 motor vehicles, the agency fleet's total consumption of petroleum products by a minimum of 2 percent annually through the end of FY20, relative to a baseline of FY05.	**Army Progress**	
	2010 2.2 percent decrease	**2011** 10.3 percent decrease
DoD SSPP DoD SSPP Subgoal 1.3: Use of petroleum products by vehicle fleets reduced 30% from FY05 by FY20.		
Related GRI Indicators: EN1, EN3		

Solar Array Benefits New Jersey National Guard and Local Community

The carport solar power structure at Sea Girt, NJ (photo: National Guard).

In October 2009, the Army finished construction of an open panel PV power carport project at the New Jersey National Guard's National Training Facility Headquarters in Sea Girt, NJ. The entire solar array structure, which is about the size of a football field, will generate approximately 250,000 kW hours of renewable energy annually, enough to supply as much as 80 percent of the training facility's energy demands, a cost savings of about $200,000 per year. This solar power system is also tied into the public's power grid, which sends excess electricity to the adjacent community. In 2011, Mr. John Hastings and Mr. Thomas Comyack from the National Guard Training Center were awarded the SECARMY Energy and Water Management Small Group Award for Renewable/Alternatives for their involvement in this project. This project also promotes the use of solar power through educational research tools that allow the public to understand how the project works and how it benefits from this renewable energy source.[177,178]

Sustainable Communities Partnership between Hohenfels and Host Nation

In October 2010, USAG Hohenfels signed the first Sustainable Communities Partnership between the US Army and a foreign host nation (Germany). This agreement supports the commitment between military communities and host nations to collaborate on large- and small-scale sustainable projects that have significant benefits for military installations and their community neighbors. Several ongoing projects have been initiated as a result of this agreement, such as retrofitting streetlamps with light-emitting diode technology and constructing roof-mounted solar PVs, and many additional projects are in the planning stages.[179]

in which it states "the Army shall not purchase RECs solely to meet Federal renewable energy goals."[175] The efforts of the Army's new EITF, discussed in the Energy Security and Sustainability section, are expected to help increase the percentage of electricity generated from renewable energy projects.[176] Related GRI information is reported in GRI indicators EN6, which directs disclosure of initiatives to provide renewable energy.

Energy Security

For the Army, energy security is an operational imperative that focuses on preventing loss of access to power and fuel sources. It means that the Army is able to obtain energy and remain operational even in the event that traditional energy sources become unavailable, an essential consideration for Army installations, systems, and operations. As a part of energy security, the Army must take measures to reduce the amount of energy it requires and establish alternative and renewable energy options to provide the energy it needs.[180] This ensures resilience by assessing alternative and renewable supplies and supporting crucial missions and the Army's community and environment. Army mission accomplishment must not be impeded by interruptions in the electrical grid in the United States. At FOBs, the price of fuel is not only paid in dollars, but in casualties and mission resources. The Army's Net Zero initiative and Net Zero energy pilot installations (discussed previously) are an important step toward improved energy security and sustainability.

The Army Energy Enterprise reflects the Army's commitment to meeting current and future mission requirements while reducing energy requirements and enhancing energy security on installations and during deployments. Army Directive 2008-04 established the Senior Energy Council, since superseded

by the Senior Energy and Sustainability Council (SESC). The Under Secretary of the Army and the Vice Chief of Staff of the Army co-chair the SESC, which "is an intra-Army committee responsible for the enterprise level energy security and sustainability goals, objectives, performance metrics, and priorities for initiatives and programs throughout the Army."[181] The AESIS presents the Army's vision, mission, and goals for improving energy security and encompasses all Army energy use, including installations and facilities, weapons systems, and sustainable contingency operations base camps.[182] For additional information on the AESIS, see the Operational Energy section.

In September 2010, the Army released the *Installation Management Energy Portfolio: 2010–2017*, which summarizes ways Army installations can reduce energy consumption while increasing efficient use of renewable energy. It has sections on Army energy guidance, moving toward energy security, various energy resource opportunities, energy programs, and completed or current energy projects. To improve energy security, Army installations are pursuing energy reduction and efficiency through a variety of practices or projects, including renewable energy, implementing the Army Metering Implementation Plan, incorporating efficient and cost-effective energy technologies into MILCON projects, and investing in Smart Grid technology.[183] In addition, the Army issued its Utilization of Efficient Lighting policy in October 2010, which requires lighting used in Army facilities to meet the efficiency standards of the Energy Independence and Security Act of 2007 (EISA 07) and more efficient lighting to be employed where feasible within five years.[184]

The Army awarded 11 Energy Savings Performance Contract (ESPC) task orders in FY11 that involve approximately $74 million in investments, as well as 11 UESC projects worth approximately $70 million.[185] An ESPC is a partnership between the Army and an energy service company (ESCO) in which the ESCO designs projects that will reduce energy consumption on an installation through energy efficiency improvements or renewable project implementation. In addition, the ESCO arranges the financing of the project, so an ESPC does not require any upfront capital costs to the Army. The ESCO guarantees such projects will pay for themselves through energy cost savings over the life of the ESPC, and once the contract is complete, the Army accrues any additional cost savings.[186] Under a UESC, a utility company arranges financing for such projects as renewable energy or energy-efficiency improvements. Energy savings repay the capital costs over the life of the contract.[187] The 11 ESPCs and 11 UESCs are expected to save the Army $12 million annually.[188]

SECARMY John McHugh created the EITF in September 2011, another move that will improve energy security. The primary goal of the EITF is to work with private industry and businesses to make the process for establishing large-scale renewable energy projects on Army installations more efficient. In turn, this will increase the Army's utilization of renewable energy and help it attain sustainability goals.[189]

Greenhouse Gas (GHG) Emissions

GHGs, such as carbon dioxide, are gases that trap heat in the atmosphere. Some GHGs are natural, and others result from human activity. EO 13514 required all federal agencies to establish a GHG

Energy Savings Performance Contract to Benefit White Sands Missile Range

The Army awarded a $16.8 million ESPC that will help offset energy requirements for White Sands Missile Range (WSMR), NM and support Army energy security objectives and renewable energy goals. With this ESPC, the Army will receive approximately 10,000 solar RECs every year from a third-party-owned 4.465 megawatt solar PV system, the largest in the Army. By the end of FY12, 10.8 percent of WSMR's energy requirement will be met by this solar PV system.[190]

Biogas Recovery from Landfills or Wastewater Treatment Facilities		
DoD SSPP	**Army Progress**	
DoD SSPP Subgoal 1.4: Ten landfills or wastewater treatment facilities recovering biogas for use by DoD by FY20. Note: The ten landfills or wastewater treatment facilities recovering biogas for use by DoD by FY20 is a DoD-wide goal.	**2010** Baseline Year	**2011** New pilot methane recovery system at Fort Benning in FY11[191]
Related GRI Indicators: EN6, EN18		

baseline for non-operational emissions in FY08, along with FY20 reduction targets (excluding emissions from tactical sources supporting combat operations). Scope 1 and 2 emissions result from sources controlled directly by the agency. Scope 3 emissions result from sources the agency uses but it does not own or directly control. Per EO 13514, DoD developed separate targets for GHG emissions from these two sources.[192] Although Army Scope 1 and 2 GHG emissions increased by 10.8 percent in FY10 from FY08, these emissions decreased to 1.3 percent above FY08 levels in FY11.[193] The Army intends to reduce Scope

1 and 2 emissions through energy-efficiency improvements, increased use of renewable energy, and decreased use of petroleum in non-tactical vehicles.

Employee commuting and business air travel are the first and second largest sources of DoD's Scope 3 emissions. DoD has targeted increases in teleworking and decreases in employee air travel to reduce indirect emissions.[194] Army Scope 3 GHG emissions increased by 0.9 percent in FY10 and 7.5 percent in FY11 from FY08,[195] but the Army is taking steps to reduce indirect GHG emissions. In February 2011, the Army issued an updated travel policy, which formalized

a more rigorous screening process so that business travel is only approved if other means of communication are not available and travel is deemed mission essential. The Army closely scrutinizes its business travel, using other forms of communication such as teleconferencing or video teleconferencing (VTC) when feasible.[196] The Army is also striving to increase implementation of telework policies Army-wide. Related GRI information is reported in GRI indicators EN16-EN18, which direct disclosure of GHG emissions as well as initiatives to reduce GHG emssions.

Fort Sam Houston Testing Electric Vehicles to Reduce GHG Emissions and Save Money

In March 2010, Fort Sam Houston, TX acquired 20 electric vehicles as part of a DoD initiative to decrease usage of conventional, gasoline-powered vehicles worldwide. The vehicles delivered to Fort Sam Houston—called neighborhood electric vehicles—have a top speed of 25 mph and run on a 40-volt battery with a range of 30 miles, making them ideal for transport around Army installations. These 20 vehicles are expected to save the installation a significant amount of money, and in 6 years, it will reduce its carbon dioxide emissions by a projected 115,000 tons.[197]

Neighborhood electric vehicles are parked at the curb on Fort Sam Houston (photo: Courtesy Photo).

Greenhouse Gas Emissions (Reducing Scope 1 and 2 Emissions)

EO 13514	Army Progress	
§ 2(a): Within 90 days of the date of this order, establish and report to the Chair of the Council on Environmental Quality (CEQ Chair) and the Director of the Office of Management and Budget (OMB Director) a percentage reduction target for agency-wide reductions of Scope 1 and 2 GHG emissions in absolute terms by FY20, from a FY08 baseline of the agency's Scope 1 and 2 GHG emissions. Where appropriate, the target shall exclude direct emissions from excluded vehicles and equipment and from electric power produced and sold commercially to other parties in the course of regular business. This target shall be subject to review and approval by the CEQ Chair in consultation with the OMB Director under section 5 of this order.	**2010**	**2011**
	10,677,117 metric tons carbon dioxide equivalent (MT CO_2e), an increase of 10.8 percent since FY08[198]	9,756,749 MT CO_2e, an increase of 1.3 percent since FY08[199]
DoD SSPP		
DoD SSPP Subgoal 3.1: GHG Emissions from Scope 1 and 2 sources reduced 34% from FY08 by FY20. Note: Emissions totals do not include tactical emissions. Targeted emissions for EO 13514 exclude tactical emissions.		
Related GRI Indicators: EN16, EN17, EN18		

Greenhouse Gas Emissions (Reducing Scope 3 Emissions)

EO 13514	Army Progress	
§ 2(b): Within 240 days of the date of this order and concurrent with submission of the Strategic Sustainability Performance Plan as described in section 8 of this order, establish and report to the CEQ Chair and the OMB Director a percentage reduction target for reducing agency-wide scope 3 GHG emissions in absolute terms by FY20, from a FY08 baseline of agency Scope 3 emissions. This target shall be subject to review and approval by the CEQ Chair in consultation with the OMB Director under section 5 of this order. In establishing the target, the agency head shall consider reductions associated with: (i) pursuing opportunities with vendors and contractors to address and incorporate incentives to reduce GHG emissions (such as changes to manufacturing, utility or delivery services, modes of transportation used, or other changes in supply chain activities); (ii) implementing strategies and accommodations for transit, travel, training, and conferencing that actively support lower-carbon commuting and travel by agency staff; (iii) GHG emission reductions associated with pursuing other relevant goals in this section; and (iv) developing and implementing innovative policies and practices to address Scope 3 GHG emissions unique to agency operations.	**2010**	**2011**
	2,969,450 MT CO_2e, an increase of 0.9 percent since FY08[200]	3,161,217 MT CO_2e, an increase of 7.5 percent since FY08[201]
DoD SSPP		
DoD SSPP Subgoal 3.2: GHG Emissions from Scope 3 sources reduced 13.5% by FY20, relative to FY08. Note: Emissions totals do not include tactical emissions. Targeted emissions for EO 13514 exclude tactical emissions.		
Related GRI Indicators: EN16, EN17, EN18		

Greenhouse Gas Emissions (Reducing Scope 3 Emissions from Employee Air Travel)

EO 13514	Army Progress	
§ 2(b)(ii): Implementing strategies and accommodations for transit, travel, training, and conferencing that actively support lower-carbon commuting and travel by agency staff.	**2010**	**2011**
	Not Applicable for FY10. FY11 is the baseline year.	Baseline Year: 919,014 MT CO_2e[202]
DoD SSPP		
DoD SSPP Subgoal 3.3: GHG emissions from employee air travel reduced 7% by FY 20 relative to FY11.		
Related GRI Indicators: EN16, EN17, EN18		

Water

Various issues—such as climate change, reduced surface stream and aquifer levels, competing regional requirements, and environmental regulations—may result in future water shortages at Army installations. Anticipated water shortages, in turn, could impede the Army's ability to carry out its mission.[205] To protect its accessibility to sufficient water resources into the future, the Army is taking steps to improve water use efficiency, track water use, assess water supply availability and vulnerability, and comply with applicable regulations.

Army Facility Water Efficiency

Army facilities used 41.85 billion gallons of water in FY10 and 42.01 billion gallons in FY11,[206,207] both improvements from the FY09 consumption of 48.97 billion gallons.[208] Army water intensity decreased to 48.8 gallons per gross square foot (gal/GSF) in FY10, a reduction of 15.3 percent from FY07.[209] The Army's water intensity increased to 51.7 gal/GSF in FY11, still a reduction of 10.3 percent from the FY07 baseline year (Figure 15).[210] As noted in the Energy Efficiencies section, demand for energy and water increased in FY11, resulting from an increased number of Soldiers at
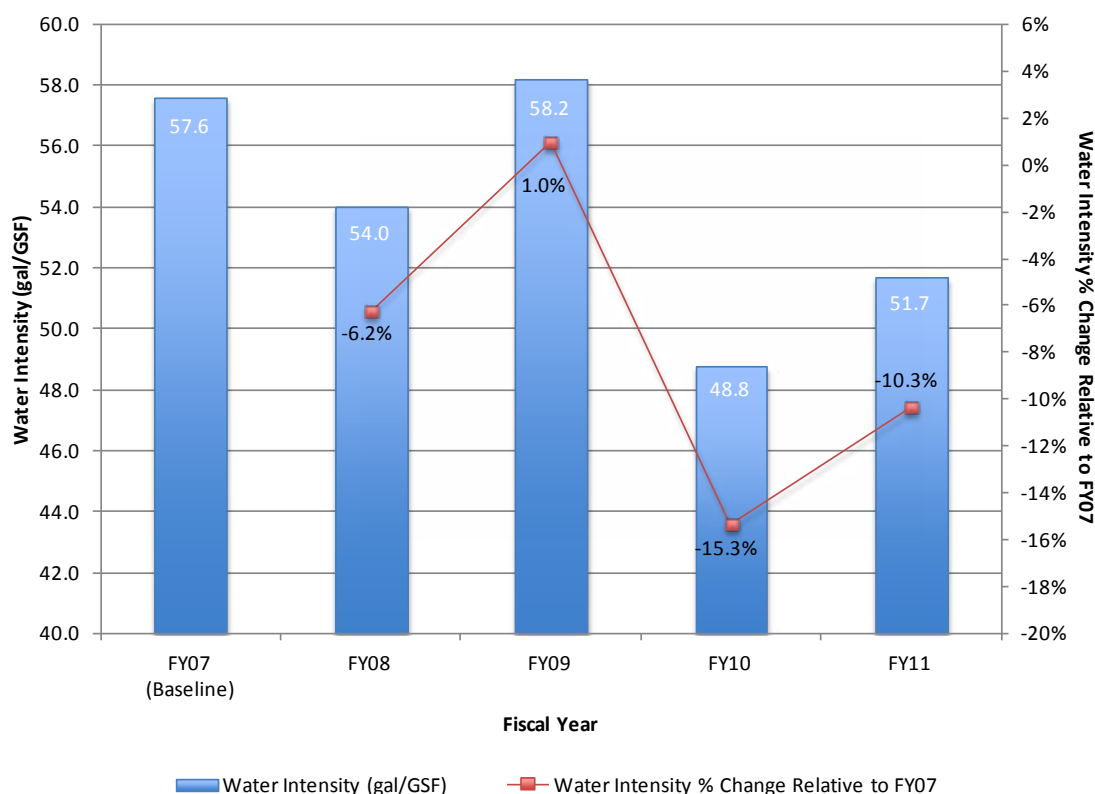
Sources: FY08–10 DoD Annual EMRs and FY11 DoD SSPP; FY11 values provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and the FY11 DoD Annual EMR and also made public in ASR12.

Figure 15. Army Water Intensity and Percentage Change Relative to FY07 for FY08–11

Army installations.[211] However, despite the increase in water intensity, the FY11 reduction from FY07 exceeded the DoD FY11 planning target of 8 percent. Thus, the Army remains on target to achieve the EO 13514 and DoD 26 percent reduction goal from FY07 to FY20. Related GRI information is reported in GRI indicators EN8-EN10, which direct disclosure of water consumption (see Table 14).

The Army continued to take steps to improve water use efficiency, expand the use of reclaimed or recycled water, and assess vulnerability in 2010 and 2011. The *Army Installation Management Water Portfolio 2011–2017,* published in April 2011, highlights the capabilities of the Army's water management "toolbox," a resource for reducing water consumption through increased efficiency and water recycling and reclamation. This portfolio—a companion to the energy portfolio and environmental portfolio—highlights successful water conservations projects across the Army that use both conventional and new technologies. The Water Portfolio can be found at http://army-energy.hqda.pentagon.mil/docs/Water_Portfolio_Final_April_2011.pdf. The *Water Reuse and Wastewater Recycling at US Army Installations* study, published by the Army in June, can be found at www.aepi.army.mil/docs/whatsnew/ERDC-CERL_SR-11-7(AEPI).pdf.[212]

In FY11, the Army published several water availability studies, which evaluated installation vulnerability to potential water shortages over the next 30 years. These studies assessed 10 installations in the US (www.aepi.army.mil/docs/whatsnew/ERDC-CERL_TR-11-5%20Water%20Sustainability%20Assessment%20for%20Ten%20Army%20Installations.pdf) and three overseas installations (www.aepi.army.mil/docs/whatsnew/ERDC-CERL_TR-11-15.pdf) as well as two additional US installations evaluated through a pilot effort in FY10.[213]

Comprehensive energy and water master plans (CEWMPs) are installation-specific road maps that include a standardized framework for analyzing future energy and water needs, recommending strategies for implementing sustainable measures, and complying with EPAct 05, EISA 07, and EOs 13423 and 13514. CEWMPs have been developed for 44 installations in IMCOM.[214]

Water (Reducing Potable Water Consumption Intensity)

EO 13514		Army Progress	
§2(d)(i): Improve water use efficiency and management by (i) reducing potable water consumption intensity by 2 percent annually through FY20, or 26 percent by the end of fiscal year 2020, relative to a baseline of the agency's water consumption in FY07; (iii): Consistent with State law, identifying, promoting, and implementing water reuse strategies that reduce potable water consumption.		**2010** The Army reported a 15.3 percent decrease in water consumption intensity since FY07.	**2011** The Army reported a 10.3 percent decrease in water consumption intensity since FY07.
DoD SSPP DoD SSPP Subgoal 2.1: Potable water consumption intensity by facilities reduced by 26% from FY 2007 by FY20.			
Related GRI Indicators: EN8, EN9, EN10			

In October 2010, the Army released an updated sustainable design and development (SDD) policy, requiring 50 percent reductions in outdoor potable water consumption over consumption by conventional means. The 2010 policy established that, effective in 2013, additional low-impact development (LID) criteria be incorporated into project planning.[215] To improve LID implementation, the Army developed and hosted formal LID training for installation-level master planners and project designers in FY11.

Water (Reducing Industrial, Landscaping, and Agricultural Water Consumption)

EO 13514		Army Progress	
§ 2(d)(ii): Reducing agency industrial, landscaping, and agricultural water consumption by 2 percent annually or 20 percent by the end of FY20 relative to a baseline of the agency's industrial, landscaping, and agricultural water consumption in FY10.		**2010** Baseline Year	**2011** The Army worked to improve tracking of landscaping, industrial, and agricultural water consumption.
DoD SSPP DoD SSPP Subgoal 2.2: Industrial and irrigation water consumption reduced by 20% from FY10 by FY20.			
Related GRI Indicators: EN8, EN9, EN10			

Water (Achieving Stormwater Management Objectives)		
EO 13514	**Army Progress**	
§ 2(d)(iv): Implementing and achieving the objectives identified in the stormwater management guidance referenced in section 14 of this order (Per Note in FY11 DoD SSPP: issued by EPA as required under §14 - see §14 excerpt below). § 14: Stormwater Guidance for Federal Facilities. Within 60 days of the date of this order, the EPA, in coordination with other Federal agencies as appropriate, shall issue guidance on the implementation of section 438 of the EISA 07.	**2010** Baseline Year	**2011** The Army worked to establish a mechanism to track LID implementation.
DoD SSPP		
DoD SSPP Subgoal 2.3: All development and redevelopment projects of 5,000 square feet or greater maintain pre-development hydrology to the maximum extent technically feasible.		
Related GRI Indicators: EN8, EN9, EN10		

Fort Stewart Wins 2011 SECARMY Installation Water Conservation Award

Through its "Purple Pipe" Initiative, Fort Stewart, GA is now reusing water from the Hinesville, GA wastewater treatment plant to significantly reduce potable water consumption. Currently, reuse water is used in the installation's central energy plant and golf course, though this project can be expanded to meet additional industrial and irrigation water demands throughout Fort Stewart. In FY10, annual water savings were projected to be 314 million gallons. Current annual water and cost savings from "Purple Pipe" are estimated at 315 million gallons and $167,000, respectively. These impressive savings won Fort Stewart the 2011 SECARMY Installation Water Conservation Award.[216]

Water Supply Management Programs (WSMPs)

Under the USAPHC Water Supply Management Program (WSMP) water system vulnerability assessments are performed for Army installations' potable water supplies. The findings and recommendations contribute to the yearly anti–terrorism evaluation of garrison infrastructure and operations. In addition, the information and assessments obtained have been incorporated into revisions of the installation emergency water plans, optimizing available materials and procedures to minimize the potential for water system disruptions. These results have also been incorporated into the overall installation emergency management plans, providing additional resources for mitigation, as necessary.[217]

The Army also conducts ongoing risk assessments and medical oversight during tactical operations. Such activities include ongoing efforts to identify opportunities and mechanisms to recycle and reuse potable water produced and used in the field. In addition, Army research is developing novel water treatment membranes and systems that will reduce the energy required to operate high–pressure reverse osmosis water purifier units.[218]

Waste

Army installations implemented solid waste management and recycling programs in the 1990s. More recently, the Army expanded its efforts and began to implement more comprehensive waste management approaches. An effective waste management strategy considers waste streams at the time of purchase so the end state of the items, as well as packaging materials and the like, can be planned for, reuse or recycling of items and materials maximized, and the need for disposal minimized or eliminated.[219] This highlights the importance of sustainable procurement as the starting point in the Net Zero waste hierarchy. Procuring durable goods that can be reused, or items made of recyclable or compostable material, will decrease the need for solid waste disposal and help installations achieve Net Zero waste status.[220]

Recycling strategies and programs are growing to encompass materials beyond typical items, such as metal, paper, and cardboard.[221] For instance, as listed on the Directorate of Public Works website at Fort Hood, the Recycling Center accepts white and colored paper; newspaper; cardboard; telephone books; coloring books; wooden pallets; printer toner cartridges; milk, water, and juice jugs; metal cans; and various types of bottles, among other materials.[222]

The Army diverted less solid waste in FY10 than FY09, decreasing from a rate of 42 percent to 38 percent.[223] The solid waste diversion rate again decreased slightly, to 36 percent in FY11 (Figure 16).[224] The slight decrease from FY10 to FY11 stems from an increase in deployment, redeployment, and
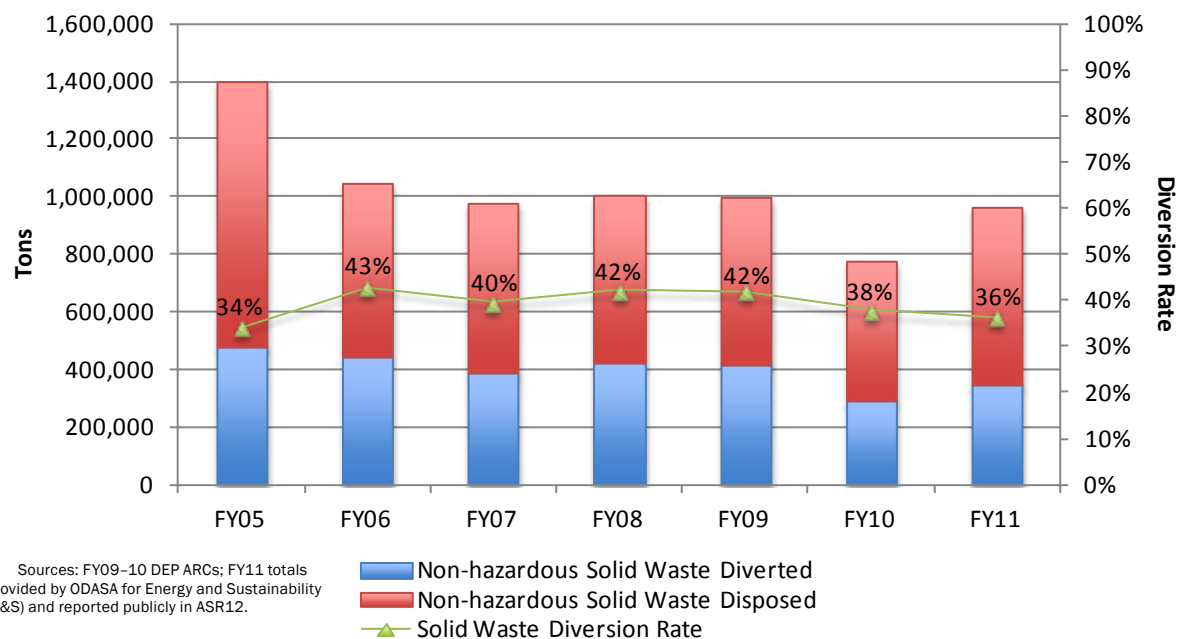
Figure 16. Non-Hazardous Solid Waste (without C&D Debris) Diverted, Disposed, and Diversion Rate, FY05–11

restationing actions that often generate large volumes of non-hazardous solid waste beyond the manageable capacity of an installation's recycling facility. The Army's FY12 diversion rates are projected to improve, reflecting completion of BRAC movements

and a projected decrease in overseas deployments and redeployments.[225]

Although the amount of C&D debris increased from 1.28 million tons in FY09 to 1.38 million tons in FY10, the Army's C&D debris diversion rate remained consistent at 73 percent in both

FY09 and FY10.[226] The Army's C&D debris diversion rate decreased slightly to 71 percent in FY11, but the Army continues to exceed the DoD goal of 60 percent C&D diversion by FY15 (Figure 17).[227] GRI indicator EN22 directs disclosure of total waste (Table 14).
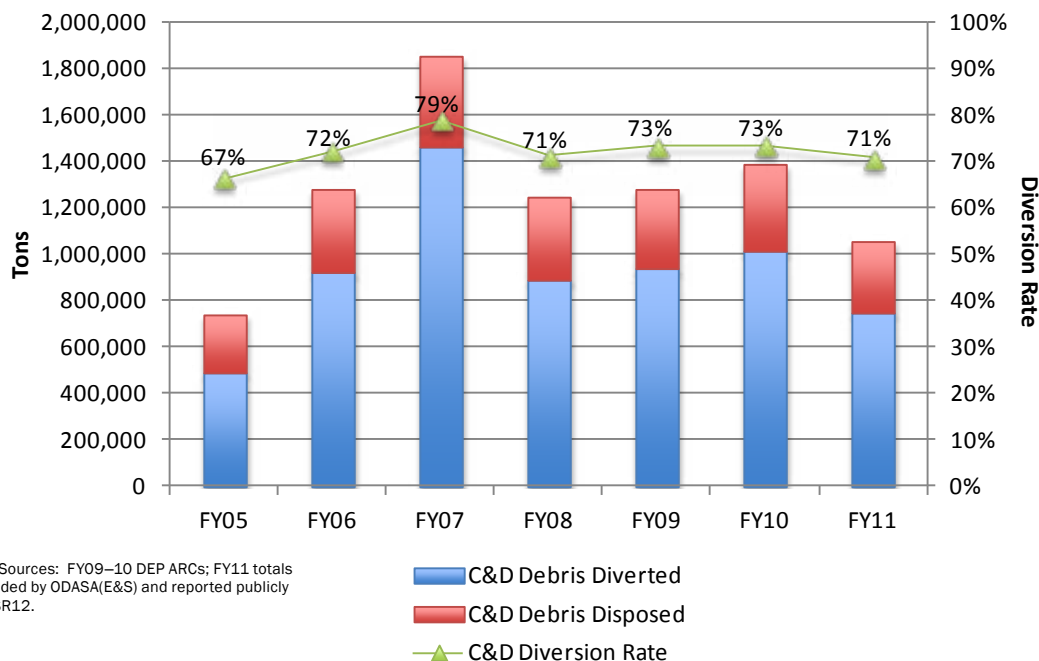
Figure 17. Construction and Demolition Debris Diverted, Disposed, and Diversion Rate, FY05–11

Waste (Diverting Solid Waste)

EO 13514	Army Progress	
§ 2(e)(ii): Diverting at least 50 percent of non-hazardous solid waste, excluding C&D debris, by the end of FY15; (vi): Increasing diversion of compostable and organic material from the waste stream.	**2010** 38 percent	**2011** 36 percent
DoD SSPP DoD SSPP Subgoal 4.2: 50% of non-hazardous solid waste diverted from the waste stream by 2015 and thereafter through 2020.		
Related GRI Indicators: EN22		

Waste (Diverting C&D Debris)

EO 13514	Army Progress	
§ 2(e)(iii): Diverting at least 50 percent of C&D materials and debris by the end of FY15.	**2010** 73 percent	**2011** 71 percent
DoD SSPP DoD SSPP Subgoal 4.3: 60% of C&D debris diverted from the waste stream by fy 2015, and thereafter through FY20.		
Related GRI Indicators: EN22		

Waste (Proper Disposal of Electronic Waste)

EO 13514	Army Progress	
§ 2(i)(i): Ensuring procurement preference for EPEAT-registered electronic products; § 2(i)(ii): Establishing and implementing policies to enable power management, duplex printing, and other energy-efficient or environmentally preferable features on all eligible agency electronic products; § 2(i)(iii): Employing environmentally sound practices with respect to the agency's disposition of all agency excess or surplus electronic products; § 2(i)(iv): Ensuring the procurement of ENERGY STAR and FEMP designated electronic equipment; § 2(i)(v): Implementing best management practices for energy-efficient management of servers and Federal data centers.	**2010** The Army utilizes DLA's Disposition Services for compliant disposal of excess or surplus property book electronics	**2011** The Army utilizes DLA's Disposition Services for compliant disposal of excess or surplus property book electronics
DoD SSPP DoD SSPP Subgoal 5.2: 100% of excess or surplus electronic products disposed of in environmentally sound manner.		
Related GRI Indicators: EN22		

Fort Stewart-Hunter Army Airfield Teaches Local School Children about Recycling

School children celebrate the 14th annual National America Recycles Day at a Fort Stewart-Hunter Army Airfield school (photo: US Army).

On November 15, 2011, the 14th annual National America Recycles Day encouraged recycling efforts and awareness of products made from recycled material. The Directorate of Public Works Environmental Division challenged the Fort Stewart-Hunter Army Airfield schools to participate in this day by building robots made out of recyclable materials and then chose winners from each grade level. This activity helped raise awareness of Fort Stewart-Hunter Army Airfield's commitment to exceeding the DoD goal of reducing the installation's solid waste stream by 50 percent by 2015. The installation's 2011 solid waste diversion rate was 43.68 percent; exceeding the overall goal will take the support of all residents and patrons of the installation.[228]

Madigan Army Medical Center Comprehensive Recycling: Clinical and Non-Clinical Sources

Transport carts for blue wrap collection at Madigan AMC (photo: MEDCOM OACSFAC).

Madigan Army Medical Center (AMC) at Joint Base Lewis-McChord (JBLM), WA has maintained a successful, comprehensive recycling program since 2003. In 2011, Madigan AMC recycled 43 percent of their waste stream and is actively working to increase that percentage. Madigan AMC's active and comprehensive recycling program saved the MTF $55,429.68 and diverted 346 tons of waste in FY11. The most recent Madigan AMC success involves removing clean, used blue wrap from the operating room waste stream for recycling. The Madigan AMC operating room and housekeeping staff work together to recycle about 29 pounds of blue wrap every day. Madigan AMC's partnership with JBLM has helped Madigan AMC achieve successes in waste reduction and recycling. Madigan AMC sustainability goals are aligned with the JBLM sustainability and zero waste goals, and are tracked and reported on a quarterly basis.[229]

Sustainable Design and Development (SDD)

SDD is an integrated and holistic approach to planning, designing, building, operating, and maintaining facilities. The Army issued its first SDD policy in 2001 and adopted the US Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system in January 2006. And updated SDD policy was issued by the HON Katherine Hammack, ASA(IE&E) signed on October 27, 2010. Under the updated policy, project planning and development for new construction and major renovations beginning in FY13 must be in accordance with the American Society of Heating, Refrigerating and Air–Conditioning Engineers (ASHRAE) Standard 189.1. The policy also requires such practices as the incorporation of LID criteria, the maximization of the use of existing topography, and the minimization of site

Sustainable Design and Development (Conforming with Building Standards)

EO 13514	Army Progress	
	2010	**2011**
§2(g): Implement high performance sustainable Federal building design, construction, operation and management, maintenance, and deconstruction including by (i) beginning in 2020 and thereafter, ensuring that all new Federal buildings that enter the planning process are designed to achieve zero-net-energy by 2030; (ii) ensuring that all new construction, major renovation, or repair and alteration of Federal buildings complies with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles); (iii) ensuring that at least 15 percent of the agency's existing buildings (above 5,000 GSF) and building leases (above 5,000 GSF) meet the Guiding Principles by FY15 and that the agency makes annual progress toward 100-percent; (iv): Pursuing cost-effective, innovative strategies, such as highly reflective and vegetated roofs, to minimize consumption of energy, water, and materials; (v): Managing existing building systems to reduce the consumption of energy, water, and materials, and identifying alternatives to renovation that reduce existing assets' deferred maintenance costs; (vi): When adding assets to the agency's real property inventory, identifying opportunities to consolidate and dispose of existing assets, optimize the performance of the agency's real-property portfolio, and reduce associated environmental impacts; (vii): Ensuring that rehabilitation of federally owned historic buildings utilizes best practices and technologies in retrofitting to promote long-term viability of the buildings.	The Army issued an updated SDD policy in October 2010 requiring new construction and major renovations beginning in FY13 to meet performance-based standards following ASHRAE Standard 189.1.	The Army issued policy guidance in November 2011 that directs installations to incorporate SDD practices into their real property master plans (RPMPs) by the close of FY14.
DoD SSPP		
DoD SSPP Subgoal 6.2: 15% of existing buildings conform to the guiding principles on high performance and sustainable buildings by FY 2015, and thereafter through FY20. Note: Per the Federal Leadership in High Performance and Sustainable Buildings MOU (www.energystar.gov/ia/business/Guiding_Principles.pdf), the Guiding Principles are: I. Employ Integrated Design Principles; II. Optimize Energy Performance; III. Protect and Conserve Water; IV. Enhance Indoor Environmental Quality; and V. Reduce Environmental Impact of Materials.		
Related GRI Indicators: EN5, EN6, EN8, EN10, EN26, PA3		

High Performance Housing Construction at Fort Campbell

In December 2009, a ceremony at Fort Campbell, KY launched construction of the first zero-energy homes (ZEHs) built on a military installation. Through a partnership between Fort Campbell Family Housing, Actus Lend Lease (the managing partner for the installation's privatized housing), and the Military Housing Privatization Initiative (MHPI), two duplex homes were constructed that are expected to offset about 16 tons of carbon dioxide emissions each year. The homes were designed to use 54 percent less energy and 27 percent less water than traditional homes and will save about $1,041 per home annually. These new homes are expected to achieve LEED platinum certification, though the overall focus is on effective implementation of sustainable design and construction practices. From November 2010 to February 2012, the ZEHs consumed 21 percent less energy than the baseline homes. It also was observed that baseline homes used less energy than similar Woodlands homes. This could possibly be the result of residents in the baseline homes being able to monitor the energy they consume.[233, 234]

Army's First Passive Houses Completed in Ansbach Germany

The Army completed construction of 22 passive houses on the installation in Ansbach, Germany. As of 2011 all houses are occupied and being monitored for actual energy use. The Army is compiling this along with occupant feedback about quality of life in a passive house compared to standard private industry housing. These homes were calculated during design to use one-third of the energy compared to similar new home construction in Germany. Performance results will be included in the next ASR.[235]

Fort Carson Focuses on Sustainable Design

Company Operations Facility North (photo: US Army).

Fort Carson, CO implemented numerous sustainable design features in the construction of its 4th Engineer Company Operations Facility North, which achieved Gold certification. Throughout the facility, the project's design team employed strategies to reduce water use, decrease energy demands, limit construction impacts, and improve indoor air quality. This new facility will serve as a multifunctional space for classrooms, offices, locker rooms, and storage and can be easily reconfigured internally to adapt to changing space demands.[236]

clearing.[230] Depending on the location, the Army estimates the updated policy will result in approximately 45 percent energy savings in a standard building.[231]

In November 2011, the Army issued a memorandum directing installations to update their real property master plans (RPMPs) to incorporate SDD practices no later than FY14. An RPMP incorporates all installation plans affecting or using real property assets into one overarching plan that expresses the installation commander's intent for the management and development of such assets and documents the real property master planning process. Incorporation of SDD policy objectives such as more effective life-cycle planning, energy efficiency, renewable resources, water conservation, LID, and building reuse, will result in more efficient Army facilities.[232] New master planning policy and Army guidance for master planning, which will emphasize sustainability, are under development and due out in 2012.

Integrated Cultural Resources Management Plans (ICRMPs)

The ICRMP, a component of an installation's master plan, is a five-year planning document used to carry out the cultural resources management program at an installation. This plan aids installation commanders in decision making involving cultural resources management activities and compliance procedures. In addition, it helps integrate the cultural resources

program with mission activities and allows the identification of possible conflicts between an installation's cultural resources and its mission. The ICRMP is also important to the SRP and land management activities, as it identifies necessary compliance actions to keep mission-critical properties ready for use.[237]

US Army Corps of Engineers (USACE) Civil Works Program

USACE contributes to national sustainability by serving the public beyond Army installations through its Civil Works program's innovative and environmentally sustainable solutions. Army Civil Works serves the public and the Nation by providing (1) development and management of the Nation's water resources, (2) support to marine transportation systems for commercial navigation, (3) protection and management of the natural environment, (4) restoration of aquatic ecosystems, (5) flood risk management and emergency management, and (6) engineering and technical services. These activities and services are carried out in an environmentally sustainable, economic, and technically sound manner with a focus on public safety and collaborative partnerships.

The Civil Works program is known for its management of recreational facilities. Of the total 370 million visitors at USACE lands and waters, USACE-managed recreation areas had 135 million visitors each in FY10 and FY11, more than in FY09 and exceeding the target of 132 million cited in the *FY10 US Army Annual Civil Works Financial Statement* and *FY11 US Army Annual Civil Works Financial Statement*.

USACE Jacksonville District Host Groundbreaking Ceremony for Everglades Restoration Project

In 2011, the USACE Jacksonville District initiated a project to help restore America's Everglades. It held a groundbreaking ceremony for the Indian River Lagoon-South C-44 Reservoir and Stormwater Treatment Area project on October 28, 2011, in Indiantown, FL. More than 4,300 species reside in the Indian River Lagoon and the St. Lucie Estuary, which have been impacted by reduced water quality and altered flow. Construction projects, that include a 3,400-acre aboveground reservoir, a pump station, and a 6,300-acre stormwater treatment area, will provide many benefits to the estuaries, including reduction of the average annual nutrient load, restoration of the freshwater and salt-water balance, treatment of polluted water, and the rejuvenation of habitat.[238]

USACE Jacksonville hosts a groundbreaking ceremony to mark the start of another project to restore America's Everglades— The Indian River Lagoon-South C-44 Reservoir and Stormwater Treatment Area (photo: John Campbell, USACE).

A carpenter and mason out of Schofield Barracks, HI seals gaps in sheet metal roofing in an effort to add on to the Ayut Family Hospital during the Engineering Civic Action Program portion of Exercise Khaan Quest 2011 in Ulaanbaatar, Mongolia

(photo: US Army).

Awards Programs

While the Army and DoD have recognized installations for their environmental achievements for many years, the Army's first sustainability award was established in 2007. In 2009, DoD followed the Army's lead and established the SECDEF Environmental Sustainability awards category eligible for the 2010 SECDEF Environmental Awards submission. Table 9 summarizes Army projects recognized with the 2010-11 annual SECARMY Environmental Awards.

Table 10 shows the Army winners in the SECDEF environmental awards program in FY10 and FY11. Of note, in both FY10 and FY11, the Army earned SECDEF environmental awards in the acquisition category (Environmental Excellence in Weapon Systems Acquisition for the Small Program in FY10 and Team in FY11) and the non-industrial installation category (Sustainability in FY10 and Environmental Quality in FY11).

The SECARMY Energy and Water Management Awards Program recognizes significant energy and water conservation achievements of installations and individuals in the Active Army, ARNG, and USAR. Table 11 shows projects recognized in 2010 for the SECARMY Water and Energy Management Awards.

FEMP makes awards to encourage a sustainable approach to energy management and a reduction in GHG emissions. FEMP awards recognize outstanding achievements in reducing total ownership cost through energy and water efficiency. Fort Drum was awarded a 2011 (FY10) FEMP Project (Team) Award for its Fort Drum Mountain Community Homes (FDMCH) project.[239] In addition, Fort Bragg, Tobyhanna Army Depot, and Fort Bliss were awarded 2012 (FY11) FEMP Project Awards.[240]

Table 9. 2010–11 SECARMY Environmental Award Winners

Category		2010 Recipient	2011 Recipient
Natural Resources Conservation	Large Installation	Fort Drum, NY	[awarded in even years]
	Small Installation	[awarded in odd years]	Marseilles Training Center, IL
	Individual/Team	[awarded in odd years]	Natural Resource Program Team, USAG Hawaii
Cultural Resources Management	Installation	Fort Bliss, TX	Fort Indiantown Gap, PA
	Individual/Team	Ms. Chantal McKenzie, Texas ARNG	[awarded in even years]
Environmental Quality	Industrial Installation	Tobyhanna Army Depot, PA	[awarded in even years]
	Non-Industrial Installation	[awarded in odd years]	Fort Hood, TX
	Overseas Installation	USAG Grafenwoehr, Germany	[awarded in even years]
	Individual/Team	[awarded in odd years]	Team Recycle, Fort Hood, TX
Sustainability	Non-Industrial Installation	Joint Base Lewis-McChord, WA	[awarded in even years]
	Industrial Installation	[awarded in odd years]	Scranton Army Ammunitions Plant, PA
	Team	Army and Air Force Exchange Service (AAFES) Sustainability Team	[awarded in even years]
Environmental Restoration	Installation	USACE Alaska District, Manning Point (Jago River) FUDS Team	Fort Stewart/Hunter Army Airfield, GA
	Individual/Team	[awarded in odd years]	Facilities Lead Agreement Team, Fort A.P. Hill, VA
Environmental Excellence in Weapon System Acquisition	Small Program/Team	RDECOM	Stryker Brigade Combat Team

Source: aec.army.mil/usaec/newsroom/awards01.html.

Table 10. Army Winners in 2011 (FY10) and 2012 (FY11) SECDEF Environmental Awards

2011 (FY10) Secretary of Defense Environmental Awards	2012 (FY11) Secretary of Defense Environmental Awards
• Joint Base Lewis-McChord, WA: Sustainability—Non-Industrial Installation • The Exchange Corporate Sustainability Program, AAFES, TX: Sustainability—Individual/Team • USAG Grafenwoehr, Germany: Environmental Quality—Overseas Installation • Sustainable Painting Operations for the Total Army, Aberdeen Proving Ground, MD: Environmental Excellence in Weapon Systems Acquisition—Small Program	• Scranton Army Ammunition Plant, PA: Sustainability—Industrial Installation • Fort Hood, TX: Environmental Quality—Non-Industrial Installation • USAG Hawaii, Oahu, Army Natural Resource Team: Natural Resources Conservation—Individual/Team • Fort Hood Recycle Team, TX: Environmental Quality—Individual/Team • Stryker Brigade Combat Team, Warren, MI: Environmental Excellence in Weapon System Acquisition—Team

Sources: 2011 (FY10) winners at www.denix.osd.mil/awards/FY10SECDEF.cfm; 2012 (FY11) winners at www.denix.osd.mil/awards/FY11SECDEF.cfm.

Table 11. 2011 (FY10) SECARMY Energy and Water Management Awards

Category		Recipient
Energy Efficiency/ Energy Management	Small Group	Aberdeen Proving Ground, MD: Jeffery Presgraves and Keith Pomraning
		USAG Kaiserslautern, Germany: Willimore Mack and Paul Lindemer
		Fort Hood, TX: Bobby Lynn, Richard Strohl, Donald Clary, Huey Keaton, and Cody Tippit
	Exceptional Performance	Picatinny Arsenal, NJ: Lt. Col. Charles Koehler, John Costea, Richard Havrisko, Michael Maier, and Thomas Struble
Innovative/ New Technology	Small Group	Fort Knox, KY: Pat Walsh, Pat Appelman, Warren Clifford, R. J. Dyrdek, and Steven Fries
	Individual	Regina Kranz, USAG Ansbach, Germany
Renewable/ Alternatives	Small Group	National Guard Training Center, Sea Girt, NJ: John Hastings and Thomas Comyack
Water Conservation	Installation	Fort Stewart, GA: Denise Kelley, Randy Parks, Stanley Thomas, Tressa Rutland, and Matthew Bolen

Source: http://army-energy.hqda.pentagon.mil/awards/sec_army.asp.

One of three greenhouses used by the Oahu Natural Resources Team to grow common and endangered plants for reintroduction and reforestation efforts on Hawaii. The USAG Hawaii, Oahu, Army Natural Resource Team was awarded the 2012 (FY11) Secretary of Defense Environmental Award for Natural Resources Conservation—Individual/Team (photo: USAG Hawaii).

Fort Drum Wins 2011 FEMP Project Award

Fort Drum, NY was awarded a 2011 (FY10) FEMP Project (Team Award for its FDMCH project). The FDMCH is a partnership between the Department of the Army and Actus Lend Lease through MHPI. Through this project, more than 900 new energy-efficient and environmentally sound homes were constructed on Fort Drum in FY10, making this the largest ENERGY STAR development in the history of New York State. The homes include energy and water conserving features, such as greater insulation, energy-efficient features (e.g., windows, lighting, equipment, appliances), and low-flow fixtures. Compared with similar leased housing, these energy-efficient homes will save approximately 32 billion Btus and nearly $570,000 in electricity and gas costs annually.[241]

Fort Belvoir Residential Communities Team Receives President's GreenGov Award

The Fairfax Village Neighborhood Center at Fort Belvoir, VA the product of a public-private partnership between Fort Belvoir Residential Communities, LLC, and the Department of the Army, was highlighted in ASR10 for earning the first LEED Platinum certification in the military and the second in Virginia. In October 2010, the Fort Belvoir Residential Communities Team received the prestigious President's GreenGov Award in the category of "Building for the Future." The White House Council on Environmental Quality selected the Belvoir project for its overall sustainable design practices, recycling, renewable energy, innovation, and community engagement. The project involves a 50-year public-private partnership to develop, rehabilitate, and construct more than 2,000 homes on 576 acres at Fort Belvoir. The Town Center includes residential and retail space, solar panels, a salvaged playground, and a stormwater management system, serving as a model for mixed-use space that encourages walking and reduces the building footprint.[242]

Pest Management

Pests, such as ticks and other insects, weeds, and fungi can negatively impact DoD and Army personnel, facilities, and material. To control such pests, the Army utilizes an integrated pest management (IPM) approach. Under IPM, pesticides are applied only after they are determined to be the best method of controlling pests after accounting for such factors as safety, cost, and effectiveness. The Army actively monitors its pesticide usage and reports that usage to DoD, which, in turn, reports it to EPA annually.[243]

Appropriate certification for individuals applying pesticides is a key factor in making certain that pesticides are applied safely and effectively, and only in situations when pesticides are absolutely necessary. In FY10 and FY11, all Army personnel and contractors who applied pesticides were properly certified. In FY10, all 957 pesticide applicators were properly certified;[244] in FY11, all 1,259 pesticide applicators were properly certified.[245]

An integrated pest management plan (IPMP) is another key component of pest management on an installation. IPMPs are a way for the Army to implement IPM strategies to reduce the reliance on pesticides while achieving effective pest control. These plans document all of the resources necessary to support requirements of the pest management program, such as training, certification, recordkeeping, surveillance, and control.

Pest Management (Certifying Applicators)		
EO 13514	**Army Progress**	
§ 2(e)(vii): Implementing integrated pest management and other appropriate landscape management practices.	**2010** 100 percent	**2011** 100 percent
DoD SSPP DoD SSPP Subgoal 5.3: 100% of DoD personnel and contractors who apply pesticides are properly certified.		
Related GRI Indicators: EN22		

Pest Management (Preparing Integrated Pest Management Plans)		
EO 13514 § 2(e)(vii): Implementing integrated pest management and other appropriate landscape management practices.	**Army Progress**	
	2010 76.9 percent[246]	**2011** 80.8 percent[247]
DoD SSPP DoD SSPP Subgoal 5.4: All DoD installations have integrated pest management plans prepared, reviewed, and updated annually by pest management professionals.		
Related GRI Indicators: EN22		

Installations with Fully Implemented Environmental Management Systems (EMSs)

An EMS is a formal framework that integrates environmental issues into operations and facility management to identify the environmental aspects of the organization's activities. An EMS prioritizes efforts to address the significant impacts of those activities, implement solutions, and track progress.

The Army has adopted International Organization for Standardization (ISO) standard 14001 (ISO 14001) as its EMS standard. The ISO 14001 model employs a continual cycle of policy, planning, implementation, corrective action, and review. As of September 2010, 93 percent of the Army's 142 installations required to implement EMSs had declared conformance and fully implemented EMSs.[248,249] Nine more installations declared conformance by the end of 2010.[250] The Army continued to make progress through FY11. By September 2011, 97 percent of appropriate facilities (138 of 142) had declared conformance and fully implemented EMSs.[251]

EO 13514 raised the bar for EMS implementation at federal agencies by requiring external audits on a 3-year cycle. DoD Instruction (DoDI) 4715.17, *Environmental Management Systems*, issued April 2009, updated EMS implementation requirements (including external audits and redeclaration).[252] In October 2010, the Army issued updated EMS policy guidance to reflect the three-year external audit and redeclaration requirements. The Army's land-holding commands continue to provide EMS auditor training classes and conduct installation assistance visits to facilitate compliance with applicable regulations.[253]

Implementing and Maintaining Environmental Management Systems		
EO 13514 §2(j): Sustain environmental management, including by (i) continuing implementation of formal EMSs at all appropriate organizational levels; and (ii) ensuring these formal systems are appropriately implemented and maintained.	**Army Progress**	
	2010 93 percent	**2011** 97 percent
DoD SSPP DoD SSPP Subgoal 6.3: All EMSs effectively implemented and maintained.		
Related GRI Indicators: EN26		

Environmental Enforcement Actions (ENFs)

GRI indicator EN28 recommends that users of GRI reporting metrics report the monetary value and total number of sanctions for noncompliance with environmental laws. New ENFs issued to Army installations, including overseas installations, increased from 75 in FY09 to 96 in FY10.[254] From FY10 to FY11, new ENFs decreased slightly to 92 (Figure 18).[255] From FY09 to FY10, fines and penalties decreased from $552.1 thousand to $422.7 thousand, [256] and further decreased to $117.7 thousand in FY11.[257]
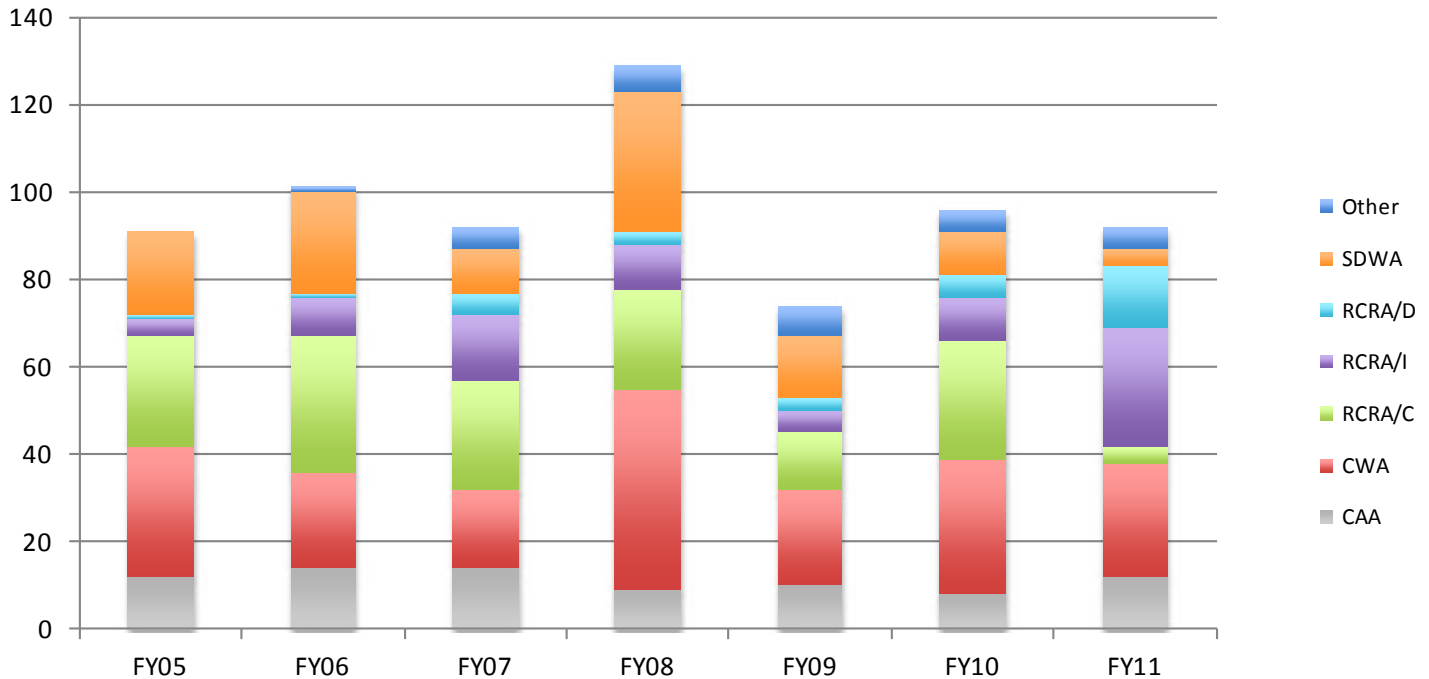
Notes: CAA = Clean Air Act; CWA = Clean Water Act; RCRA/C = Resource Conservation and Recovery Act, Subtitle C (Hazardous Waste); RCRA/D = Resource Conservation and Recovery Act, Subtitle D (Managing Non-hazardous Municipal and Solid Waste); RCRA/I = Resource Conservation and Recovery Act, Subtitle I (Underground Storage Tanks); SDWA = Safe Drinking Water Act.

Sources: FY09-10 DEP ARCs; FY11 data compiled from fourth quarter Army Environmental Database—Environmental Quality survey roll-up provided by ODASA for Environment, Safety and Occupational Health (ESOH).

Figure 18. Number of New ENFs by Statute, FY05–11, United States and Territories

Environmental Funding

Environmental programs—such as compliance, conservation, pollution prevention, and cleanup—require adequate resourcing. GRI indicator EN30 directs users to disclose total expenditures.

In FY10, the Army allocated $1,408 million to environmental programs for restoration, compliance, pollution prevention, and conservation,[258] while in FY11, it allocated $1,052 million to these programs (Figure 19).[259] Restoration funding supports the Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). IRP funding goes toward

the cleanup of hazardous substances, pollutants, and contaminants that result from Army activities at installations, BRAC locations, and FUDS. MMRP funding is used to clean up sites contaminated with munitions. Together, these programs help the Army and DoD comply with environmental cleanup laws.[260] Restoration funding is also used to finance planning and compliance activities at BRAC locations.[261] Compliance funding supports activities to achieve or maintain compliance with applicable laws and regulations. Compliance activities include sampling of pollutant discharges to air and water,

regulated waste disposal, management of environmental permits, and other activities such as the sampling and analyses associated with providing safe drinking water. Pollution prevention supports proactive solutions to reduce waste, natural resource losses, and process emissions, and reduce future costs. Conservation funding provides for endangered species and cultural, historic, and natural resources management, which helps the Army maintain mission readiness and training capabilities.[262]

Although the Army is the executive agent for FUDS, the program is funded by OSD. To reflect the OSD funding,
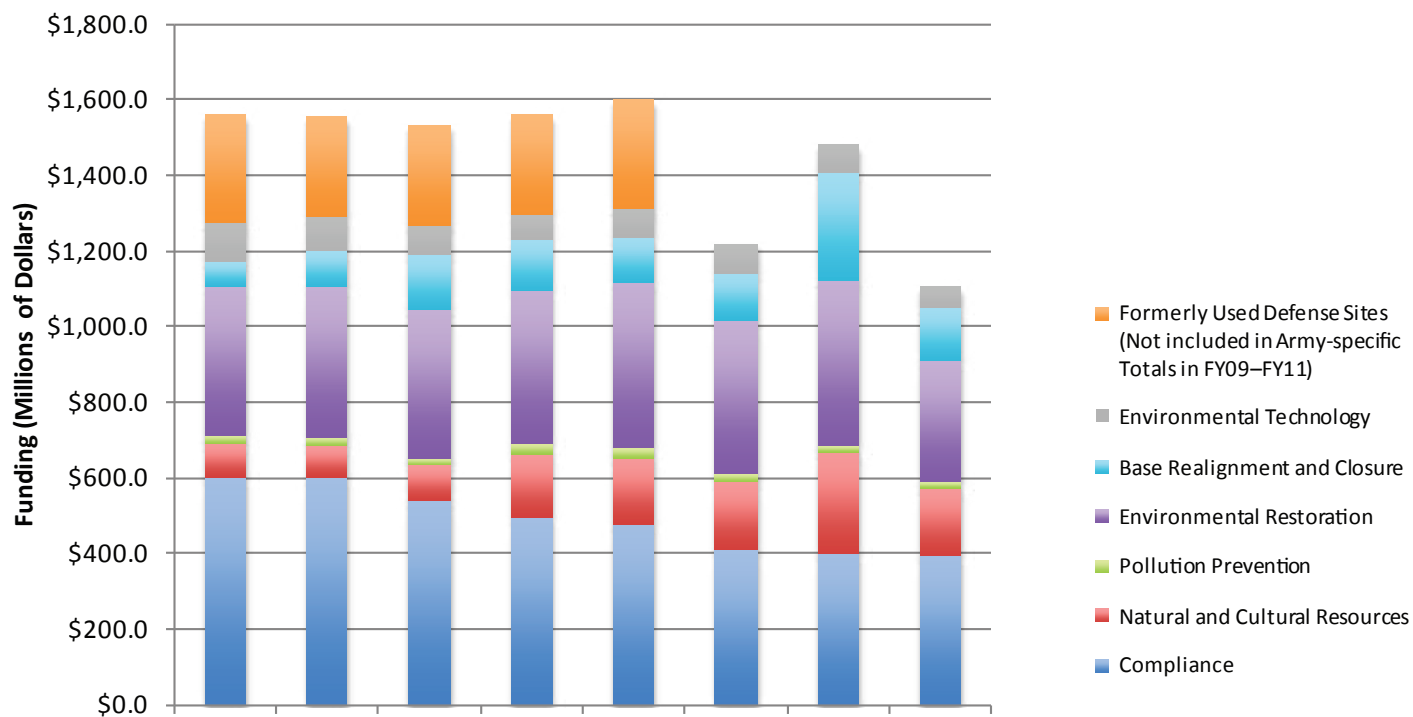
Notes: The DEP ARC removed FUDS funding amounts from Army environmental funding totals starting in FY09.
Sources: FY08–11 DEP ARCs.

Figure 19. Army Environmental Funding, FY04–11

the DEP ARC removed FUDS funding amounts from the Army environmental funding totals starting in FY09. FY04–08 environmental funding totals in Table 1 and Figure 19 include FUDS dollars, while FY09–11 totals do not.

The DoD's environmental technology programs aid the military services in reducing risks, while ensuring that military readiness needs are still met. Funding for these programs provides new materials, methods, equipment, and protocols that seek to achieve both environmental and readiness goals.[263] Army environmental technology funding decreased slightly from $76.0 million in FY09 to $75.0 million in FY10. It decreased further to $53.1 million in FY11.[264]

DEPARTMENT OF THE ARMY
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SEP 26 2012

Today's Army faces multiple challenges, including increased global demand for scarce resources. To ensure our ability to operate now and into the future, we are striving to ensure effective and efficient use of resources. Our vision is to establish sustainable operations and installations that support the Army's national defense mission.

The Army's sustainability efforts are showing real results, as highlighted in the *Army Sustainability Report 2012*. In FY2010-2011, the Army reduced the energy and water intensities of our facilities, the petroleum use of our non-tactical fleet, and toxic chemical use at our industrial bases. At the same time, the Army increased habitat protected under our Army Compatible Use Buffer program, improved our Sustainable Range Program compatibility scores, and increased the number of Army installations with fully-implemented environmental management systems.

Several recent Army initiatives will further improve our sustainability posture in the coming years. The Net Zero initiative, launched in FY2011, is designed to improve our installations' sustainability. A Net Zero installation uses integrated design principles to produce as much energy as it uses, capture or reuse water equal to the amount it uses, and eliminate the landfill disposal of solid waste. The Energy Initiatives Task Force, also launched in FY2011, will augment installation energy efforts with large scale renewable energy development that will improve our energy security and continuity of operations during service interruptions or natural disasters. Our sustainability efforts extend to our military operations as well. This includes efforts to develop and field more energy- and water-efficient tactical equipment. We are also working to design and operate more sustainable contingency bases.

Embedding a culture of sustainability into the Army is a force multiplier, enabling the Army to appropriately steward available resources, manage costs, and ensure mission effectiveness today and into the future. Army Strong!

Katherine Hammack

Annex

This annex contains supplemental information about the Army's organization and services using the internationally accepted GRI reporting framework. The Army continues to improve its performance against GRI indicators. Of 87 indicators, the Army fully reports on 37 and partially reports on 25, an increase of four in each catagory, from ASR10. Additionally, more Army and DoD public references and data have been added to improve the transparency of the Army's sustainability reporting against GRI. The first report, ASR07, published in 2008, spurred sustainability discussions throughout the Army, which have continued with various initiatives since that time.

GRI directs users to evaluate indicators that reflect the organization's significant economic, environmental, and social impacts that influence stakeholders and are material to the organization. For the Army, material indicators affect the well-being of its stakeholders. As a public agency, the Army's stakeholders include the American public, Congress, and Army Soldiers, Families, and Civilians.

Please note the following limitations and changes in ASR12:

- For disclosures of the management approach and performance indicators, there are four reasons for omission of a disclosure:
  - » Not material. An explanation has been provided as to why the indicator is not material to the Army's corporate business.
  - » Not applicable.
  - » Not available.
  - » Proprietary. This reason is for anything that is sensitive or a matter of national security.
- All substance in the ASR is reported publicly in other accessible locations or directly in this report. The purpose of this report is to facilitate public access to this information. The Army reports additional information internally and within the federal government. Some of this information may be material to Army sustainability, and the use of GRI has helped the Army evaluate improvements in its internal reporting practices.
- The Army primarily uses publicly available information for reporting, including data released in this report which is considered a publicly sourced document. The Army understands the importance of and need for quality data and continues to improve its data collection and reporting efforts. It also has set processes in place to ensure that all data reported in the ASR12 has been reviewed by the appropriate Army organization responsible for that information. In addition, the Army relies on external and internal audit coverage, which can evaluate the effectiveness of programs and processes related to sustainability data, for providing assurance and continued improvements for this report.

- The primary source documents for the ASR have been updated or changed and are as follows:
  - » Fiscal Year 2010 and 2011 United States Army Annual Financial Statements.
  - » FY10 and FY11 DEP ARC. Every year since 1994, the Army submits its environmental performance data to DoD, which publishes them as part of the DEP ARC. This report fulfills congressional reporting requirements under Title 10 USC § 2706; the Comprehensive Environmental Response, Compensation, and Liability Act; the Resource Conservation and Recovery Act; and various other regulations.
  - » 2010 and 2011 Army Posture Statements. These statements address sections 517 and 521 of NDAA 1994 and support budget and posture statements given to Congress.[265]
  - » DoD Annual Energy Management Reports, FY10 and FY11. DoD, like all federal agencies, is required to submit an annual energy management report to the DOE. The Army annual energy data are submitted to DoD, which then submits the DoD agency report to DOE. The submittals respond to current regulations, including EPAct 05, EO 13423, the John Warner NDAA of 2007, EISA 07, and EO 13514.
  - » 2011 and 2012 DoD SSPPs.

- All past ASRs were annual reports. Unlike prior reports, ASR12 covers a two-year period in order to bring reporting up-to-date and to better align with annual DoD SSPP reporting.

- Performance is tracked for data from FY10-11 and CY10-11. The "FY10" and "FY11"columns have a few metrics that include data reported from CY10 and CY11, such as hazardous waste and TRI data from CY10 and CY11, when available. In addition, CY09 data are newly reported for certain metrics. In particular, hazardous waste and TRI releases from CY09 are published in the FY10 DEP ARC and were not available for ASR10.

- A few performance metrics were reported differently in 2010-11 than in previous years due to changes in the source material.

- Each indicator may not reflect the entire boot print of the Army's activities, such as the majority of contingency operations, because of potential national security or sensitive information.

- These data are not publicly available or may not be relevant to the indicator.

- The Army's real property inventory, specifically the land it manages, changes each year.

ASR12—Global Reporting Initiative Content Index

Table 12 contains the index for GRI–recommended content for an organization sustainability report, and Tables 13, 14, and 15 contain the recommended GRI economic, environmental, and social responsibility performance, respectively. For each GRI recommended report content element, the tables provide a reference (page number or website) to the source of the Army data.

### Table 12. GRI Content Index to Army 2010–11 Information

GRI Indicator	Description of GRI Recommended Report Content	Reference to Army FY10 and FY11 Information
1	Vision and Strategy	Front of this report, "Endorsement from Army Leaders."
1.1	Statement from the most senior decision maker of the organization	Front of this report, "Endorsement from Army Leaders."
1.2	Description of key impacts, risks, and opportunities	Pages 8, 11, and 13–15 describes some of the risks to global sustainability that will affect the Army's mission success. It also discusses the evolution of Army Sustainability.
2	Organization Profile	
2.1	Name of reporting organization	United States Army.
2.2	Organization mission, functions and responsibilities	Page 11–13.
2.3	Operational structure of the organization	Pages 11–13. In 2010, the ODASA(E&S) was established under ASA(IE&E) to direct, establish policies, develop and refine strategies, and oversee implementation of all programs and initiatives related to energy security and sustainability within the Army.
2.4	Location of organization's headquarters	Arlington, VA, pentagontours.osd.mil/.
2.5	Number of countries where the organization operates	More than 80 countries worldwide; see the FY11 Posture Statement Army Global Commitments for specific countries of significance for sustainability, https://secureweb2.hqda.pentagon.mil/vdas_armyposturestatement/2010/aps_pages/roles_of_land_forces.asp.
2.6	Nature of ownership and legal form	Page 11, the Army executes Title 10 and Title 32 USC directive, to include organizing, equipping, and training forces to conduct prompt and sustained combat operations on lands. It accomplishes missions assigned by the President, SECDEF, and combatant commanders.
2.7	Markets served	Although the Army does not serve markets in the way private organizations do, for GRI reporting the Army considers its markets to be the lines of operations it supports. This includes its institutional and operational missions described in this report and its materiel, training, intelligence, medical, engineering, and acquisition needs.
2.8	Scale of the reporting organization, including number of employees, net revenues and quantity of products or services provided	Pages 45–46 includes net costs and end strength. Assets are available on pages 7, 23–24 of the FY10 Army Financial Report (AFR) and Pages 14–15 and 31–37 of the FY11 AFR. Information on the quantity of services provided is located throughout ASR12, the FY10 and FY11 Army Posture Statements (APS), and the FY10 and FY11 AFRs. The Annual Army Budget provides transparency to public or private sector organizations regarding revenues as well as how the Army has used its budget and plans to allocate funds into the future, asafm.army.mil/offices/BU/BudgetMat.aspx?OfficeCode=1200.
2.9	Significant changes during the reporting period regarding size, structure or ownership including: the location of, or changes in, operations including facility openings, closings and expansions	Annex, page 73 describes changes to the size of the Army; additional info is also located on pages 1–2 of the FY10 AFR and pages 8–9 of the FY11 AFR.
2.10	Awards received in the previous reporting period	This report only includes awards given by the headquarters, or higher levels, and recognizes that installations give awards recognizing superior performance and may receive recognition from local communities. Additional award information can be found at www.army.mil/. Relevant awards include: White House GreenGov Presidential Awards, www.whitehouse.gov/administration/eop/ceq/Press_Releases/November_1_2011 Commander in Chief's Annual Award for Installation Excellence, www.defense.gov/releases/release.aspx?releaseid=13443 and www.defense.gov/releases/release.aspx?releaseid=14428 SECDEF Environmental Awards, www.denix.osd.mil/awards/ SECARMY Energy and Water Management Awards, army-energy.hqda.pentagon.mil/awards/sec_army.asp SECARMY Environmental Awards, aec.army.mil/usaec/newsroom/awards01.html Army Safety Award Programs, https://safety.army.mil/awardsprogram/RECIPIENTS/tabid/345/Default.aspx.

GRI Indicator	Description of GRI Recommended Report Content	Reference to Army FY10 and FY11 Information
3	**Report Profile**	
3.1	Reporting period for information provided	2010 and 2011.
3.2	Date of most recent previous report (if any)	2007, 2009, and 2010.
3.3	Reporting cycle (annual, biennial, etc.)	Annual for all past reports, ASR12 is a biannual report covering 2010 and 2011 to adjust the reporting timeline. All future reports are expected to be annual again.
3.4	Contact point for report	Back cover of report.
	Report Scope and Boundary	
3.5	Process for defining report content	Pages 73 lists the restrictions and changes in report content. The resources in the ASR12 GRI Annex provide further access for stakeholders for topics relevant to sustainability, but not determined material for the report. Stakeholders include individual Soldiers, Families, Army Civilians, the US public, and lawmakers.
3.6	Boundary of the report	This report includes Army operational and institutional programs, though performance metrics are limited as described in their source documentation. For the most part, the performance highlights metrics that apply to operations within the United States, and when reported for outside the United States, they do not include forward operating locations unless specified. This report does not cover activities and impacts of suppliers or privatized facilities, but does cover most leased facilities. The Army is dedicated to a one Army approach, including the Active Army, Army Reserve, National Guard, and Army Corps of Engineers, where possible. This report will not include any information that is considered sensitive, proprietary, or jeopardizes National Security.
3.7	State any specific limitations on the scope or boundary of the report	Pages 73–94. Some performance information is only available for certain sections of the Army or is not reported, such as indirect energy use. This Annex does not include the impact of contingency operations for 2010 and 2011 due to National Security constraints.
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations and other entities that can significantly affect comparability from period to period and/or between organizations	As ASR12 only reports on publicly available or releasable data, the basis of reporting for each metric is specific to the source text. This may affect reporting when methods for collecting information or data guidelines change year to year. For financial reporting, the FY10 and FY11 AFRs provide detail on leases and state and locally owned land used for federal purposes (pages 41, 55, 79, and 113–114 and 50, 63–65, 86–87, and 117, respectively). For energy reporting, the FY10 DoD Annual Energy Management Report includes some discussion of leased facilities (page 58). For environmental reporting, the FY10 DEP ARC is mandated by Congress and its scope responds to changes in reporting requirements or changes in Army mission or structural responsibilities within the DoD.
3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report	All performance metrics in this report are from other sources, and those other sources are the locations for any measurement techniques. Any divergence from the GRI indicator protocols is explained in Tables 12, 13, 14, and 15.
3.10	Explanation of the effect of any restatements of information provided in earlier reports	Annex, Page 73.
3.11	Significant changes from previous reporting periods	Annex, Page 73.
3.12	Table identifying the location of the Standard Disclosures in the report	Annex, Table 12.
3.13	Policy and current practice with regard to seeking external assurance for the report	The Army did not seek external assurance for this report.
4	**Governance Commitments and Engagement**	
4.1	Governance structure of the organization	The Army governance structure is described on pages 8–10 of this report and in USC Title 10—Armed Forces, Chapters 303–307, uscode.house.gov/download/title_10.shtml.
4.2	Indicate whether the Chair of the highest governance body is also an executive officer	The Civilian and military leadership roles are prescribed in the USC Title 10—Armed Forces, Chapter 303—Department of the Army, uscode.house.gov/download/pls/10C303.txt.
4.3	The number of members of the highest governance body that are independent and/or non-executive members	Not applicable to the Army. GRI's Sector Supplement for Public Agencies does not have any direction for how to apply this indicator.

GRI Indicator	Description of GRI Recommended Report Content	Reference to Army FY10 and FY11 Information
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body	As a public agency, the general public can provide direction for the highest governance body through action through civic participation—including elections and through engaging their representatives. For its employees, the Army has a chain of command and open door policy. This is outlined in AR 600-20, Army Command Policy, in Sections 2-1 and 2-2, armypubs.army.mil/epubs/pdf/r600_20.pdf. Mailing address provided at www.Army.mil/contact/.
4.5	Linkage between compensation for members of the highest governance body, senior managers and executives and the organization's performance	Organizational performance for the Army as a public agency is linked to program execution and sustainment, not to economic profits. Individuals can be considered for general pay increases, performance-based promotions, and placement actions through a rating from the Personnel Management Information and Support System. Part of an individual's rating may reflect their ability to execute programs as part of the organization's performance, http://cpol.army.mil/library/permiss/.
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided	All government employees are held to the standards in 5 Code of Federal Regulations (CFR) 2635, Standards of Ethical Conduct for Employees of the Executive Branch, ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title05/5cfr2635_main_02.tpl. DoD officials are further held to the Joint Ethics Regulation, DoD 5500.7-R Chapter 5, which covers conflict of interest, https://ia.signal.army.mil/docs/DoD5500_7/jer1-4.pdf. Procurement conflicts of interest are also listed in USC Title 10—Armed Forces, Chapter 137 Procurement Generally, uscode.house.gov/download/pls/10C137.txt.
4.7	Process for determining the qualifications and expertise of the members of the highest governance body for guiding the organization's strategy on economic, environmental and social topics	Title 10 Chapter 305—The Army Staff, describes how members of the staff are selected. The Chief of Staff and Vice Chief of Staff are appointed by the President and confirmed by the Senate, according to Title 10, Chapter 305, § 3033-3034. The SECARMY, Undersecretary, Assistant Secretaries, and General Counsel are appointed by the President with Senatorial confirmation, according to Title 10, Chapter 303, §3013-3019. Qualifications for Senior Leadership for the Army are outlined in How the Army Runs: A Senior Leader Reference Handbook, 2011–2012, www.carlisle.army.mil/usawc/dclm/HTAR.pdf.
4.8	Internally developed statements of mission or values, codes of conduct and principles relevant to economic, environmental and social performance and the status of their implementation	Pages 13–15 describe the evolution and goals of sustainability and the drivers behind the ASCP.
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental and social performance	In December 2009, the SECARMY appointed the Under Secretary as the Army Senior Sustainability Official to oversee the implementation of EO 13514. These responsibilities are described on pages 8–10.
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental and social performance	In 2010 and 2011, the Army continued the process of strengthening the methods through which the organization evaluates economic, environmental, and social performance. This will be described in more detail in future reports and through further integration with the ASCP. The highest governance body is evaluated by its accordance to laws and EOs, described in GRI indicator PA3 (Table 12).
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization	On pages 8–13, the Army describes its dedication to acting proactively through meeting the requirements of EO 13514 and other policies described throughout this report. The ASCP embodies this approach.
4.12	Externally developed economic, environmental and social charters, principles or other initiatives to which the organization subscribes or endorses	Numerous statutes, regulations, and EOs apply to DoD activities, http://www.archives.gov/federal-register/codification/numeric-executive-orders.html. The Army also adheres to all DoD Directives, www.dtic.mil/whs/directives/corres/ins1.html. The Army also applies the US Green Building Council's LEED® standards for new construction, www.usgbc.org.
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization has positions in governance bodies, participates in projects or committees, provides substantive funding beyond routine membership dues or views membership as strategic	Not reported in one Army location. The Army is involved in many interagency working groups, including the Interagency Sustainability Working Group, www1.eere.energy.gov/femp/program/sustainable_workinggroup.html. The Army is also associated with the National Guard Association of the United States and the Association of the United States Army, as well as similar organizations.
4.14	List of stakeholder groups engaged by the organization	As a public agency, the Army has several classes of stakeholders outside its organization, including communities outside installations, lawmakers, other agency officials, and the US public in general.

GRI Indicator	Description of GRI Recommended Report Content	Reference to Army FY10 and FY11 Information
4.15	Basis for identification and selection of stakeholders with whom to engage	The Army engages with stakeholders in the communities around installations in different ways depending on the purpose. For example, the Comprehensive Environmental Response, Compensation, and Liability Act and NEPA require the Army to solicit and consider stakeholder comments on alternatives. The Army requires Community Relations Plans for properties on the National Priority List. AR 200-1, Environmental Protection and Enhancement, includes guidelines for identifying stakeholders for environmental restoration plans, page 59, www.apd.army.mil/pdffiles/r200_1.pdf.
		The Army also has some special partnership programs, including the ACUB Program, described in this report on pages 31–32.
		Additionally, the Army engages with the community in open houses or community educational events. Guidelines for these events are in AR 360-1, The Army Public Affairs Program, pages 29–30, www.apd.army.mil/pdffiles/r360_1.pdf.
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group	The Army gives testimony to Congress repeatedly throughout the year and has specific dates for reports. Army installations interact with their local community at variable rates throughout the organization. In 2008, the Army created the Army Community Covenant, a resource for communities and Army Soldiers and Families to identify programs outside of the installations for support, www.army.mil/community.
		The Army also has four Regional Environmental and Energy Offices that coordinate region sustainability issues, review state regulations, facilitate partnerships, identify and address issues and actions having potential effects on military operations, and share best practices http://www.asaie.army.mil/Public/InfraAnalysis/REEO/. The Army is required to include public comment periods for activities analyzed under NEPA.
4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting	The Army reports continuously to the Congress on its activities and responds to many concerns and reporting requirements throughout each year. Reporting via the ASR and the APS is one way the Army provides information to the general public on its activities beyond reports aimed toward Congress.
		The Army Family Covenant represents the Army's commitment to ensuring a quality of life for Soldiers and their Families appropriate for the service they provide. Although there is still much to be done, significant progress has been made in improving such programs as Family programs, education, health care, and housing. http://www.myarmyonesource.com/default.aspx.
Public Policies and Performance Integration Measures		
PA1	Describe the relationship to other governments or public authorities and the position of the agency within its immediate governmental structures	Pages 11–13. The DoD organization chart describes the position of the Army within its immediate governmental structures, www.defense.gov/orgchart/#3.
		DoD's position within the federal government is seen in the US Government Manual Chart, frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2008_government_manual&docid=214669tx_xxx-3.pdf.
PA2	Define sustainable development used by the public agency and identify any statements or principles adopted to guide sustainable development policies	For this report, the Army interprets sustainable development to refer to its infrastructure and planning activities. Specific policies include the Army's SDD Policy for buildings, www.asaie.army.mil/Public/IE/doc/Sustainable%20Design%20and%20Dev%20Policy%20Update.pdf, and guidance designed to encourage integrated strategic and sustainability planning at the installation level. The requirements of EO 13514 also include many aspects of sustainable development across the entire organization.
PA3	Identify the aspects for which the organization has established sustainable development policies	The ASCP set broad goals for sustainability, which were discussed in ASR10. Specific policies include the Army's SDD Policy for buildings, http://www.asaie.army.mil/Public/IE/doc/Sustainable%20Design%20and%20Dev%20Policy%20Update.pdf and guidance designed to encourage integrated strategic and sustainability planning at the installation level.
		The requirements of EO 13514 also include many aspects of sustainable development across the entire organization. The Army is currently working on incorporating Sustainability goals into the 2012 Army Campaign Plan, which will apply to the next ASR.
PA4	Identify the specific goals of the organization for each aspect listed in PA3	The Army's energy and environmental goals are well delineated within EO 13514, EO 13423, EPAct 05, and EISA 07, and are listed in and are listed in Tables 2, 3, 4, and 7. DOE created a crosswalk of the goals and statutes, www.fedcenter.gov/_kd/Items/actions.cfm?action=Show&item_id=14107&destination=ShowItem.
		The Army has additional goals outside of its federal requirements, including for SDD. Beginning with FY08, MILCON new vertical projects must achieve a minimum of the Silver level of the LEED® for New Construction.

GRI Indicator	Description of GRI Recommended Report Content	Reference to Army FY10 and FY11 Information
PA5	Describe the process by which the aspects and goals in PA3 and PA4 were set	The goals in EO 13514 were signed by President Barack Obama in October 2009. The DOE crosswalk listed in PA4 also references the statute sources of some of the goals. The goals in the Army's 2007 SDD Policy were signed by the Acting Deputy Assistant Secretary of the Army (Installations and Housing). The policy was updated on October 27, 2010, eko.usace.army.mil/_kd/go.cfm?destination=ShowItem&Item_ID=204110. The other aspects above are plans and programs established by the Army leadership because of identified needs.
PA6	For each goal, provide the following: implementation measures; results of relevant assessments of the effectiveness of measures before they are implemented; targets and key indicators used to monitor progress, with a focus on outcomes; description of progress relative to goals and targets in the reporting periods, including results of key indicators; actions to ensure continuous improvement toward reaching the public agency's goals and targets; post-implementation assessment and targets for the next time period; and public policies and implementation measures	The Army is working to improve its response to this indicator. EO 13514 expanded the goals set in EO 13423. The Army reports its progress on this implementation to OSD, for roll-up in OSD submissions on the various OMB scorecards, www.fedcenter.gov/admin/itemattachment.cfm?attachmentid=296. In FY10 and FY11, DoD as a whole improved on Transportation and Environmental Stewardship. Some of this information is available in the DoD Annual Energy Management Report on energy, water, and building performance, www.acq.osd.mil/ie/energy/energymgmt_report/main.shtml. This is also reported on the Army's Energy Program website, army-energy.hqda.pentagon.mil/. Energy, water, and building performance data, as well as information concerning renewable energy use, GHG emissions reduction efforts, and waste reduction (among other information) are addressed in the DoD SSPP, www.denix.osd.mil/sustainability/PlansGuidance.cfm. Some of these goals are also listed in the Performance Highlights section of this report with information on progress and developments in relation to the performance.
PA7	Describe the role of, and engagement with, stakeholders relative to the items disclosed in PA6	External or public/private stakeholders are generally not involved in the goals described in PA3-PA6 for the Army. However, DoD is considered an overall organization stakeholder for the Army corporately and they are involved to a certain extent. External stakeholders can influence sustainability goals for federal agencies through their representatives in Congress. However, each Army installation may have external stakeholders involved in making plans on the local level.

ASR12—Global Reporting Initiative Economic Indicators

The Army differs from most GRI–based sustainability reporters, because its economic performance reflects how well it is operating as a steward for the American public rather than showing the profit earned. In addition, it has economic impacts on local communities. The Army's financial statements are in accordance with the accounting principles established by the Federal Accounting Standards Advisory Board. The highest officials for these indicators are the Assistant Secretary of the Army for Financial Management and Comptroller.

Table 13. Combined 2010 & 2011 Army Sustainability Report Economic Indicators

GRI Indicator [266]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments	▬	The FY10 and FY11 AFRs present financial records broken out into Army General Fund, Army Working Fund, and the Civil Works program. Each division includes a consolidated balance sheet, a consolidated statement of changes in net position, and other summaries. The Army FY11 and FY12 Budget documentation includes FY10 and FY11 funds enacted on Operation and Maintenance, Procurement, Research, Construction, Personnel, and other obligations. The FY11 and FY12 Defense Budget Reports include tables on the Army's total obligation authority, budget authority, and outlay, asafm.army.mil/offices/BU/BudgetMat.aspx?OfficeCode=1200.

GRI Indicator [266]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	▬	See discussion on page 8–10. Although the Army has not publically released its own individual analysis of the budgetary impact of climate change on its operation, it does report these analyses to OSD, which then are reported as Department-wide analyses to Congress and the public under the DoD Budget Request Overview. The FY12 Budget Request Overview, dated February 2011, is at http://comptroller.defense.gov/defbudget/fy2012/FY2012_Budget_Request_Overview_Book.pdf

The Overview book emphasizes the most significant aspects of each year's budget request, focusing on changes from previous years and subjects likely to be of high interest to Congress and the public.

In addition, the Department is in the process of publishing an analysis of Defense Budget Priorities and Choices that will further document risks and opportunities for the Department, which includes the Army. http://www.defense.gov/news/Defense_Budget_Priorities.pdf.

The Army has acknowledged that climate change may further stress its resources.

An additional source to support this indicator is a Government Accountability Office (GAO) report titled "Maximizing DoD's Potential to Face New Fiscal Challenges and Strengthen Interagency Partnerships," GAO-10-359CG dated January 6, 2010, www.gao.gov/products/GAO-10-359CG. This speech focuses on DoD and the challenges it faces given the federal government's current long term unsustainable fiscal path and ongoing US commitments in Iraq and Afghanistan. DoD can take steps to better position itself for the future and maximize the use of taxpayer dollars, particularly by improving its business operations. |
| EC3 | Coverage of the organization's defined benefit plan obligations | ▬ | The Army has a website discussing Army benefits for military personnel, including planning calculators and benefits at the federal and state level, myarmybenefits.us.army.mil/.

Army Civilian benefits are listed on the Defense Finance and Accounting Service website, www.dfas.mil/civilianemployees.html. This site also includes pay tables for military and Civilian personnel as well as benefits for retirees.

The annual Army contribution to the military and other federal employment benefits is provided in the FY10 AFR, pages 24–27, 30, 44, 57–58, and 65–66, and the FY11 AFR, pages 33–37,40, 52–53, 65–66, and 72–73. This includes military retirement pensions and health benefits, Voluntary Separation Incentive Programs, DoD Education Benefits Fund, and the Federal Employees Compensation Act cost. |
| EC4 | Significant financial assistance received from government | ▬ | The FY10 and FY11 AFRs include tables on budgetary financing sources broken out into the Army General Fund, Army Working Capital Fund, and the Civil Works program. |
| EC5 | Range of ratios of standard entry-level wage compared to local minimum wage at significant locations of operation | ▬ | The Army is held to the Fair Labor Standards Act (FLSA) and takes state and local laws into account when applicable in setting pay, www.opm.gov/oca/wage/index.asp. Soldier pay is prescribed by law and its computation is listed in the DoD Financial Management Regulations, comptroller.defense.gov/fmr/07a/07a_01.pdf. Soldiers can receive changes in pay for hazardous duty, submarine duty, diving duty, hardship duty, career sea pay, pay for service as a member of a Weapons of Mass Destruction Civil Support Team, assignment incentive pay, duty subject to hostile fire or imminent danger, an extension of duty at a designated overseas location, and for particular skills, including foreign language proficiency or critical skill retention, page 1-21. The Army provides allowances to offset cost of living based on locality. A basic allowance for housing is based on local Civilian housing markets, myarmybenefits.us.army.mil/Home/Benefit_Library/Federal_Benefits_Page/Allowances.html?serv=147.

Information on pay for the ARNG in comparison to federal and military pay charts is found at myarmybenefits.us.army.mil/Home/Benefit_Library/Federal_Benefits_Page/Basic_Pay.html?serv=150.

The Office of Personnel Management (OPM) includes information on how pay differs for Army Civilians. Civilians have locality pay areas that take into account local cost of living, www.opm.gov/oca/10tables/indexGS.asp and www.opm.gov/oca/11tables/indexGS.asp.

Pay for foreign national employees located outside the United States is based in the Foreign Service Act of 1980 and can include Local Compensation Plans that take into account consistency with prevailing wage rates. Further, the rate cannot be lower than the minimum set by FLSA, www.dtic.mil/whs/directives/corres/pdf/141608m.pdf and www.dtic.mil/whs/directives/corres/pdf/1400.25-V1251.pdf.

This GRI indictor is listed as fully reported, although no ratio is reported due to the detailed directives. |
| EC6 | Policy, practices and proportion of spending on locally based suppliers at significant locations of operation | Not Material | The metric of how this indicator is measured is not material to the Army. Although locally based purchasing is a very important indicator of sustainability, this metric is not significant with how the Army corporately operates. |

GRI Indicator [266]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation		Only part of this indicator is applicable to the Army. The first part addresses whether there is a procedure and the second part addresses the metric of the local hiring proportion of senior management. The Army fully reports against the portion of the indicator that is applicable to their operations. The Army does have procedures and hires from the local community in many locations for Civilian roles, www.dtic.mil/whs/directives/corres/pdf/1400.25_SC1950.pdf. DoDI 1400.25 Volume 1231 (page 8) lists processes for hiring foreign nationals, www.dtic.mil/whs/directives/corres/pdf/1400.25-V1231.pdf. This hiring practice is also guided by individual treaties. The portion of this metric indicator that is not applicable to how the Army operates with regard to the hiring of Senior Leadership. The employment of senior management hired from the local community is not an Army Military personnel priority—nor is it aligned with the operational structure of the Army.
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind or pro bono engagement		The Army, as a public agency, has a mission based on providing services directly for public benefit—the Nation's security as well as a vibrant Civil Works program. The Civil Works program is focused on infrastructure and supports navigation, flood risk management, ecosystem restoration, recreation, hydropower, and other needs. The Army Civil Works FY10 and FY11 Financial Statements provide detail on the size and scope of the Civil Work program's efforts. This makes the Army unique in comparison to other organizations using GRI. In addition to providing infrastructure for the community, the Army also conducts analysis on the community infrastructure affected by changes in Army presence, as described under indicator EC9. BRAC 2005 was completed at the end of 2011. The Army has resources for community relations with the military, with regional contacts, www.army.mil/comrel/.
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts		As major regional employers, the Army is sensitive to its economic impact. DoD Directive 5410.12 "Economic Adjustment Assistance to Defense-Impacted Communities," (July 5, 2006) directs military personnel to assist local communities impacted by military activities, realignment, or closure, www.dtic.mil/whs/directives/corres/pdf/541012p.pdf. The Army conducts a variety of studies to understand and describe the indirect economic impacts as part of its BRAC initiatives. The public can view the Army's recommendations, community concerns, and commission findings for each BRAC location using the map at: www.hqda.Army.mil/ACSIM/brac/braco.htm. In 2009, the Army published a handbook to assist local communities with installation growth, http://www.google.com/url?. This handbook details the challenges in changing demand for housing, construction, schools, infrastructure, and social services. It also lists lessons learned.
PA8	Gross expenditures broken down by type of payment		See data for EC1.
PA9	Gross expenditures broken down by financial classification		See data for EC1.
PA10	Capital expenditures broken down by financial classification		See data for EC1.
PA11	Procurement policy of the public agency related to sustainable development		EO 13514 directs agencies to ensure that 95 percent of all new contracts require products and services that are energy-efficient, water-efficient, bio-based, environmentally preferable, non-ozone depleting, and non-toxic or less-toxic alternatives, and that contain recycled content. The DoD Green Procurement Strategy is available at, www.fedcenter.gov/_kd/go.cfm?destination=ShowItem&Item_ID=12371. It also lists alternative fuels and products using renewable energy.
PA12	Describe economic, environmental and social criteria that apply to expenditures and financial commitments		AR 70-1, *Army Acquisition Policy*, directs that each program formally address questions of need, cost, risk, and stability. The Army defines cost beyond the capital, to "the total cost to the Government for a program over its full life, and includes the cost of research and development, investment in mission and support equipment (hardware and software), initial inventories, training, data, facilities, and the operating, support and, where applicable, demilitarization, detoxification, or long term waste storage." This policy also calls for managing risk to environment, safety, and occupational health, preventing pollution, and using recovered materials (1-5 (j, j, p)), www.army.mil/usapa/epubs/pdf/r70_1.pdf. Army purchasing is also driven by the Federal Acquisition Regulation (FAR), www.acquisition.gov/far/index.html. The FAR's guiding principles are to satisfy the customer in terms of cost, quality, and timeliness, to promote competition, minimize administrative costs, and fulfill public policy objectives. The FAR has priority for some businesses, including small business (Part 19), directs purchase of energy-, environment-, and water-efficient products, as well as safe products (Part 23) and other socioeconomic programs (Part 26).

GRI Indicator [266]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
PA13	Describe linkages between the public agency's procurement practices and its public policy priorities		The Army does not publicly report how its public policy priorities are specifically linked to or factored into designing its procurement policies. General information concerning the DoD Green Procurement Program (GPP), as well as the DoD GPP Strategy, can be found online at http://www.denix.osd.mil/gpp/GeneralInformation.cfm.
PA14	Percentage of the total value of goods purchased that were registered with voluntary environmental or social labels and/or certification programs, broken down by type	Not Material	This indicator is not material to the Army. Although the Army makes considerable efforts corporately to purchase goods that are registered with voluntary environmental/social/certification programs (see PA11), the ratio of all goods purchased by the Army compared to these goods are small.
PA15	Administrative efficiency: describe the results of assessments of the efficiency and effectiveness of services provided by the public agency, including the actions taken to achieve improvements in service delivery		It is difficult to measure the service delivery efficiency of the Army. The FY10 and FY11 AFRs report on the Army's operations and use of funds for the prior year. This report informs the taxpayer on how and where funds are used. The GAO issues many reports every year on the performance of DoD. From October 2009 to December 2011, there were 388 reports on DoD programs, www.gao.gov/docsearch/agency.php. The following link was used to produce this number http://www.gao.gov/browse/agency/Executive/Department_of_Defense/custom?&rows=10&o=&now_sort=issue_date_dt+desc,title_sort+asc&adv_begin_date=10/01/2009&adv_end_date=12/31/2011&o=10. For this report, the following are of particular relevance:
Defense Infrastructure: DoD Renewable Energy Initiatives, GAO-10-681R, April 26, 2010, www.gao.gov/new.items/d10681r.pdf
Post-deployment health reassessments, GAO-10-56, www.gao.gov/new.items/d1056.pdf
BRAC costs, GAO-10-98R, www.gao.gov/new.items/d1098r.pdf
Improving access to benefits for Wounded Warriors, GAO-09-762, www.gao.gov/new.items/d09762.pdf
Fuel demand management at forward-deployed locations, GAO-09-388T, www.gao.gov/new.items/d09388t.pdf.

ASR12—Global Reporting Initiative Environmental Indicators

The Army is required by Congress to report on many of the GRI environmental indicators; not all this reporting is public or on the Internet. The Army's environmental goals are driven by regulations set by Congress. Readers can learn more about these requirements by using the references provided in relevant ARs as well as legislation, including the following:

• AR 200–1, *Environmental Protection and Enhancement*, www.army.mil/usapa/epubs/pdf/r200_1.pdf, which addresses the following

» Pest Management (p. 27), Cultural Resources (p. 28), Pollution Prevention (p. 30), Munitions Use on Ranges (p. 31), Materials Management (p. 32), Waste Management (p. 34), Spills (p. 36), Cleanup (p. 38), Environmental Quality Technology (p. 42), Operational Noise (p. 43).

• AR 420–1, *Army Facilities Management*, which addresses management of public works, housing, utilities services and energy management

• EPAct 05, www.gpo.gov/fdsys/pkg/PLAW-109publ58/pdf/PLAW-109publ58.pdf

• EISA 07, www.gpo.gov/fdsys/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf

• EO 13514. *Federal Leadership in Environmental, Energy, and Economic Performance,* October 2009, www.fedcenter.gov/programs/eo13514/. The most senior official for environmental GRI indicators at the ASA (IE&E).

Table 14. Combined 2010 & 2011 Army Sustainability Report Environmental Indicators

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN1	Materials used by weight or volume		The Army does track materials based on the processes or operations in which those materials are used. Reporting against this indicator based on the defined scope and boundaries of this report would require releasing sensitive information or information that is otherwise not allowed to be released publically. Therefore, this indicator is not reported within the boundaries and scope of this report.
EN2	Percentage of materials used that are recycled input materials		This indicator is based directly on EN1 and therefore is not reported.
EN3	Direct energy consumption by primary energy source		Direct energy totals, as well as non-renewable, alternative, and renewable energy totals are provided in the table below by primary source. This information was provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and also made public in ASR12.
EN4	Indirect energy consumption by primary source		The Army does not publicly report the amount of indirect non-renewable sources and indirect renewable sources in terms of intermediate energy, nor the primary energy consumed in its production and therefore is not reported.
EN5	Energy saved due to conservation and efficiency improvements		The FY11 DoD SSPP (p. II–13; www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf) and the FY10 DoD Annual Energy Management Report (pp. 17–18; www.acq.osd.mil/ie/energy/DoD_AEMR_FY2010__July_2011[1][1].pdf) note a reduction in energy intensity from 100.3 thousand Btu/GSF in FY03 to 91.5 thousand Btu/GSF in FY10. The FY11 Army energy intensity value (85.7 thousand Btu/GSF) was reported in the FY11 DoD Annual EMR (http://www.acq.osd.mil/ie/energy/library/FY.2011.AEMR.PDF, p. 17). FY10 and FY11 Army energy intensity values are also addressed in the Energy Efficiencies section of the ASR12 (p. 46). The total FY10 Army facility energy use was 72.9 trillion Btu, while the total FY11 facility energy use decreased to 69.5 trillion Btu. Total FY10 and FY11 facility energy use values are reported in the FY11 DoD Annual EMR (p. 18). These measurements account for facility energy use, not total Army energy use. This indicator is listed as partially reported as the Army does not specifically report energy saved due to process redesign, conversion and retrofitting of equipment, and changes in personnel behavior.

EN3 — Direct Energy Source Data

Direct Energy Source	FY10	FY11
Non-renewable		
Coal	8,375.9 Billion Btu	8,755.0 Billion Btu
Natural Gas	26,934.0 Billion Btu	25,371.5 Billion Btu
Fuel Distilled from Crude Oil	123,279.4 Billion Btu	129,606.0 Billion Btu
Electricity	76,519.0 Billion Btu	77,047.6 Billion Btu
Total Non-renewable	235,108.3 Billion Btu	240,780.1 Billion Btu
Alternatives		
Biodiesel	98.0 Billion Btu	24.1 Billion Btu
E-85	156.2 Billion Btu	160.2 Billion Btu
CNG	0.002 Billion Btu	6.8 Billion Btu
M-85 (Alternative)	0.0 Billion Btu	0.5 Billion Btu
LNG	0.003 Billion Btu	0.0 Billion Btu
Electric	0.0 Billion Btu	1.0 Billion Btu
Biomass	2.2 Billion Btu	0.0 Billion Btu
Biogas (captured methane)	0.0 Billion Btu	2.0 Billion Btu
Solar Thermal (including water and space conditioning)	11.2 Billion Btu	13.6 Billion Btu
Ground Source Heat Pumps	5.0 Billion Btu	10.0 Billion Btu
Total Alternatives	272.6 Billion Btu	218.2 Billion Btu
Total Renewable Energy (includes wind, solar, etc.)	1,150,562.0 MWH	292,752.5 MWH

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives		The Army reports on its energy efficiency and renewable energy initiatives and programs in the FY11 DoD SSPP (www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf) and the FY10 DoD Annual EMR (www.acq.osd.mil/ie/energy/DoD_AEMR_FY2010__July_2011[1][1].pdf). Some initiatives include Green Procurement policy for energy-efficient products (FY11 DoD SSPP, p. II–65), retrofits and capital improvement projects (FY10 DoD Annual EMR, pp. E-1 & E-2), the use of ESPCs (FY10 DoD Annual EMR, p. 46), the use of UESCs (FY10 DoD Annual EMR, p. 47), the issuance of the Memorandum for SDD Policy Update (Environmental and Energy Performance) (FY11 DoD SSPP, p. II–70), and new on-site renewable energy generation projects (FY11 DoD SSPP, p. II–21). FY11 initiatives are addressed in the final FY12 DoD SSPP (http://www.denix.osd.mil/sustainability/PlansGuidance.cfm) and the final FY11 DoD Annual EMR (http://www.acq.osd.mil/ie/energy/library/FY.2011.AEMR.PDF). This indicator is listed as partially reported as the Army does not specifically report reductions in energy requirements as a result of these initiatives.
EN7	Initiatives to reduce indirect energy consumption and reductions achieved		The FY11 DoD SSPP (www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf) discusses initiatives to update the Army's telework policy and to increase the number of Army organizations that have implemented telework programs (p. II–44). The final FY12 DoD SSPP, discusses Army business travel and telework initiatives. This indicator is listed as partially reported as the Army does not specifically report reductions in indirect energy consumption as a result of these initiatives. Additionally, this indicator is listed as partially reported as the Army does not publicly report underlying assumptions and methodologies used to calculate other indirect energy use.
EN8	Total water withdrawal by source		This indicator is listed as partial because it does not list water withdrawals by source and it does not publicly report on non-potable water use. The US Army Geospatial Center's (AGC's) Water Resources program is the Army's tactical authoritative data source for Water Resources information and the DoD's primary agent for the US Africa Command (AFRICOM), the US Central Command (CENTCOM), and TACOM areas for military water resource analysis and water detection. Support is provided by the AGC's Water Resources Database (WRDB), which focuses on existing water facilities, surface water, and ground water resources, www.agc.army.mil/fact_sheet/wrdb.pdf. The Army does not plan to report this information indicator by sources publicly in this report. The Army publically reports a portion of this indicator. FY10 Army estimated potable water consumption is reported in the FY11 DoD SSPP (p. II–34; www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf) and the FY10 DoD EMR) (p. 19; www.acq.osd.mil/ie/energy/DoD_AEMR_FY2010__July_2011[1][1].pdf) in million gallons (41,850). The FY11 potable water consumption value (42,012 million gallons) was provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and the FY11 DoD Annual EMR and also made public in ASR12. In addition, Army Environmental Policy Institute released a report titled "Quantifying the Army Supply Chain Water Bootprint" in December 2011 which estimates Army indirect (embedded) water use throughout the supply chain at approximately 258 billion gallons over a 12-month period. Of the total estimate, 249 billion gallons represent withdrawal throughout the supply chain, while 9 billion gallons represent consumption throughout the supply chain (p. vii; www.aepi.army.mil/docs/whatsnew/Quantifying%20the%20Army%20Supply%20Chain%20Water%20Bootprint.pdf).
EN9	Water sources significantly affected by withdrawal of water		This indicator is directly dependant on EN8. The AGC's Water Resources program is the Army's tactical authoritative data source for Water Resources information and the DoD's primary agent for AFRICOM, CENTCOM, and TACOM for military water resource analysis and water detection. Support is provided by the AGC's WRDB, which focuses on existing water facilities and surface water and ground water resources (more information: www.agc.army.mil/fact_sheet/wrdb.pdf). The Army does not plan to report this information indicator by sources publically in this report.
EN10	Percentage and total volume of water recycled and reused		Not reported. Water recycling is reported by installations in the Army Energy and Water Reporting System but is not tracked by DoD or included in the Annual Energy Report. Although volumes are not reported, water recycling and reuse are discussed in the Army Water Security Strategy (p. A-12; www.aepi.army.mil/docs/whatsnew/ArmyWaterStrategy.pdf). As the Army does not report the total volume of water recycled/reused, the total volume of water recycled/reused by the Army as a percentage of the total water withdrawal (addressed under EN8) is not reported in ASR12.
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high bio-diversity value outside protected areas		The FY07 TES Report (published in FY09) includes information about the location of designated critical habitat and TES on the base or off site. Critical habitat is designated as essential to the conservation of the species. This indicator is listed as partial because it does not include the size of the land, in or adjacent to protected areas or areas of high bio-diversity. aec.army.mil/usaec/endangered/index.html.

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN12	Description of significant impacts of activities, products and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	�as	The Army reports its impacts on and programs for endangered species and their habitat in the TES Report, aec.army.mil/usaec/endangered/index.html. The DoD Biodiversity website lists resources on the impacts of activities on protected areas, www.denix.osd.mil/nr/OtherConservationTopicsAH/Biodiversity.cfm. The Army reports on the progress of its habitat and land resource protection programs, including the Sustainable Range program, www.denix.osd.mil/sri/, and the ACUB program, aec.Army.mil/usaec/acub/index.html.
EN13	Habitats protected or restored	▰▱	This indicator is listed as partial because the Army does not report on the gross amount of habitat protected. The TES Report cites which installations have protected habitat for endangered species. Also, the Army does report on conservation partnerships, especially the ACUB program, where enduring conservation purchases are created with local landowners and other partners.

The Annual DoD REPI Reports to Congress summarize accomplishments under the §2684a authority by Service. The 2011 REPI Report states that the Army protected 134,529 acres through FY10. The 2012 REPI Report states that the Army protected 166,901 acres through FY11. Both reports, as well as REPI Fact Sheets for individual installations, are found at www.repi.mil/Documents.html#RTC. The FY10 ACUB Program Year End Summary reported a subset of the REPI total, stating that 17,398 acres of land were protected by IMCOM installations in FY10, and that 103,988 acres of land were protected through the lifespan of the ACUB program through FY10, aec.army.mil/usaec/acub/docs_acub/eoys-fy10.pdf. The ACUB Program Year End Summary provides a summary of each IMCOM installation included. |
| EN14 | Strategies, current actions and future plans for managing impacts on biodiversity | ▰▰ | Title 32, CFR Part 651 is the Army's NEPA regulation, frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2002_register&docid=02-192-filed.pdf. It notes the Army's responsibilities and policies for integrating environmental considerations into planning and decision-making. Additional information about the Army and NEPA can be found at aec.army.mil/usaec/nepa/army00.html. Programs for biodiversity are guided by AR 200-1, www.apd.army.mil/pdffiles/r200_1.pdf. For specific programs, DoD's Legacy Resource Management Program seeks to protect the public's natural and cultural heritage, www.dodlegacy.org/legacy/index.aspx. This site includes links on public laws, products that include evaluations of programs, and monthly newsletters. |
| EN15 | Number of International Union for Conservation of Nature (IUCN) Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk | ▰▱ | The FY07 TES Report (published in FY09) includes all species and designated critical habitat on and contiguous to Army installations in the United States that are listed by the ESA, aec.army.mil/usaec/endangered/index.html. It designates species as endangered, candidate, threatened, or proposed as endangered. The report may be used to interpret habitats that may be affected by military operations and vice versa. Many of these species are also listed by the IUCN. The US is governed by the ESA. The IUCN Red List is used as a reference by the DoD. The IUCN and the IUCN Red List are included in the DoD Biodiversity Conservation Toolbox, an annotated list of online resources related to biodiversity conservation on DoD lands. This data will be updated when the data becomes publically available, www.dodbiodiversity.org/docs/toolbox.pdf. The Overseas Environmental Baseline Guidance Document lists species that are on the red list that could impact military operations at DoD facilities overseas, www.dtic.mil/whs/directives/corres/pdf/471505g.pdf.

The TES Report does not designate which species are IUCN-listed species, so this indicator is listed as partial. |
| EN16 | Total direct and indirect GHG emissions by weight | ▰▰ | The Army GHG inventory methodology uses metered energy use, actual fuel purchase data, and various estimates, such as the number of commute days per year (which assumes five workdays per week for 52 weeks per year, 10 holidays, and 20 vacation/sick days; this equals a total of 230 workdays per employee per year). Additional information on federal GHG accounting can be found in the Federal GHG Accounting and Reporting Guidance, http://www.whitehouse.gov/sites/default/files/microsites/ceq/revised_federal_greenhouse_gas_accounting_and_reporting_guidance_060412.pdf.

Total Army direct and indirect GHG emissions for FY10 and FY11 equal 21,415,165 MT CO_2e and 21,183,374 MT CO_2e, respectively. These emissions include tactical emissions, which are excluded from targeted emissions in EO 13514. Scope 1, 2, and 3 target GHG emissions are addressed on pages 57–60 of the ASR12. This information was provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and also made public in ASR12. |
| EN17 | Other relevant indirect GHG emissions by weight | ▰▰ | Total Army indirect GHG emissions for FY10 equal 10,096,241 MT CO_2e (Scope 2 = 7,126,791 MT CO_2e; Scope 3 = 2,969,450 MT CO_2e). Total Army indirect GHG emissions for FY11 equal 9,466,926 MT CO_2e (Scope 2 = 6,305,709 MT CO_2e; Scope 3 = 3,161,217 MT CO_2e). Reductions for renewable energy use have been subtracted from the Scope 2 and overall totals for each year. These values are included in the totals presented previously in this Table (EN16). This information was provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and also made public in ASR12. |

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN18	Initiatives to reduce GHG emissions and reductions achieved	▮▯	Scope 1 and 2 GHG emissions will be reduced through other initiatives to increase the use of renewable energy and to reduce fossil fuel use in facilities and vehicles. The Army reports on its energy efficiency and renewable energy initiatives and programs in the FY11 DoD SSPP (www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf) and the FY10 DoD Annual EMR (www.acq.osd.mil/ie/energy/DoD_AEMR_FY2010__July_2011[1][1].pdf). Some initiatives include Green Procurement policy for energy-efficient products (FY11 DoD SSPP, p. II–65), retrofits and capital improvement projects (FY10 DoD Annual EMR, pp. E-1 & E-2), the use of ESPCs (FY10 DoD Annual EMR, p. 46), the use of UESCs (FY10 DoD Annual EMR, p. 47), the issuance of the Memorandum for SDD Policy Update (Environmental and Energy Performance) (FY11 DoD SSPP, p. II–70), right-sizing its vehicle fleet and using the most fuel efficient and environmentally friendly vehicles to achieve mission goals (FY11 DoD SSPP, p. II–31), and new on-site renewable energy generation projects (FY11 DoD SSPP, p. II–21). FY11 initiatives are addressed in the final FY12 DoD SSPP and the final FY11 DoD Annual EMR. FY11 initiatives are addressed in the final FY12 DoD SSPP (http://www.denix.osd.mil/sustainability/PlansGuidance.cfm) and the final FY11 DoD Annual EMR (http://www.acq.osd.mil/ie/energy/library/FY.2011.AEMR.PDF). The FY12 DoD SSPP discusses Army business travel and telework initiatives. This indicator is listed as partially reported as the Army does not publicly report GHG emissions reductions achieved as a direct result of the initiatives discussed.
EN19	Emissions of ozone-depleting substances (ODSs) by weight	▮▯	Since 1992, the Army has eliminated 98 percent of Class I ODSs used in facilities, including 100 percent of halon used for fire suppression and chlorofluorocarbons used for air conditioning and refrigeration. It has eliminated 75 percent of class I ODSs used in weapons system support, including 68 percent of halon used for legacy weapon systems. Lastly, the Army has eliminated 100 percent of Class I ODS solvents used for maintenance and industrial operations. All remaining ODSs are managed internally for the Army. This indicator is reported as partial because the weights are currently not corporately reported publicly. Individual installations and facilities report individual amounts of ODSs to their local emergency planning committee, state emergency response commission, and their local fire departments under EPCRA Section 311–312 reporting requirements (discussed at http://www.epa.gov/oem/content/epcra/epcra_storage.htm#tier2). All Army installations have ODS elimination plans. See the FY09 DEP ARC for more detail (pp. 54–55; www.denix.osd.mil/arc/upload/FY09DEPARC_Complete_Report_DENIX.pdf). This indicator is partially reported according to the GRI guidelines since the total emissions by weight are not publicly available.
EN20	NOx, SOx, and other significant air emissions by type and weight	▮▯	The Army reported significant air emissions from stationary sources by type and weight in the FY10 DEP ARC, Appendix D (Figures D-4.1 and D-4.2). In CY09, the Army emitted HAPs (457), VOCs (3,185), NO_x (3,596), PM_{10} (2,973), $PM_{2.5}$ (328), SO_2 (6,374), CO (1,606), and Lead (13.38) [tons/year]. In FY10, the Army reported fugitive emissions of 130,973.3 metric tons of CO_2e. The Army reported the following significant air emissions for FY11: HAPs (591), VOCs (3,488), NO_x (3,630), PM_{10} (1,442), $PM_{2.5}$ (977), SO_2 (6,055), CO (1,804), Lead (13) [tons/year], and all fugitive emissions for FY11 (132,674.6 metric ton of CO_2e). FY10 fugitive emissions data and FY11 data are reported publicly in the ASR12. This indicator is partially reported according to the GRI guidelines because the weight of persistent organic pollutants are not publicly reported by the Army.
EN21	Total water discharge by quality and destination	▯	Not Reported. This is a qualitative indicator. Installations are required to track this information at local levels, but the Army does not track or publicly report a corporate total for water discharges by destination, by treatment method, or by whether it was reused by another organization. Under the National Pollutant Discharge Elimination System in the United States, Army installations report water quantity and quality for all point source discharges. The Army also published CY09 information and information for the first half of CY10 regarding clean water pollution control permits in compliance with the CWA (Figure D-4.3) and facilities discharging wastewater that are compliant with Final Governing Standards (Figure D-4.4) in the FY10 DEP ARC (www.denix.osd.mil/arc/upload/FY09DEPARC_Complete_Report_DENIX.pdf). In addition, the FY10 DEP ARC reports on the number of new ENFs in FY10 associated with the CWA, the Safe Drinking Water Act (Figure D-4.7), and water and safe drinking water overseas (Figure D-4.8).

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN22	Total weight of waste by type and disposal method	▭	The Army reported FY10 total non-hazardous solid waste generated (776,383 tons), diverted (291,846 tons), and disposed (484,537 tons); total C&D debris generated (1,383,765 tons), diverted (1,015,843 tons), and disposed (367,922 tons); and total non-hazardous solid waste and C&D debris generated (2,160,148 tons) and diverted (1,307,689 tons) in the FY10 DEP ARC (Fig. D-5.1; www.denix.osd.mil/arc/upload/508-FY10DEP-ARC_Final-Report.pdf). The Army also reports CY09 hazardous waste disposal (26,204 tons) in the FY10 DEP ARC (Fig. D-5.2; www.denix.osd.mil/arc/upload/508-FY10DEP-ARC_Final-Report.pdf). The Army also reports FY11 total non-hazardous solid waste generated (961,948 tons), diverted (347,113 tons), and disposed (614,834 tons) and total C&D debris generated (1,052,129 tons), diverted (744,920 tons), and disposed (307,208 tons). It also reports CY10 hazardous waste disposal (75.624 million pounds, or 37,812 tons) and CY11 hazardous waste disposal (96.365 million pounds, or 48,183 tons). FY11 non-hazardous solid waste, FY11 C&D debris, and CY10 & CY11 hazardous waste totals are publicly reported in the ASR12.

This indicator is listed as partially reported as the Army does not track or publicly report the weight of waste by disposal method or how the method of disposal has been determined as specified by the GRI G3 reporting guidelines. Disposal methods vary across the Army and totals noted previously are Army-wide. |
| EN23 | Total number and volume of significant spills | ▭ | The Army reports all oil, chemical, radiological, biological and etiological discharges in the United States and its territories to the National Response Center, www.nrc.uscg.mil/download.html. This indicator is partially reported, because the full information provided at the NRC website is not separated by agency (e.g., the Army as an institution is not reported).

This indicator is listed as partially reported as the Army does not track or publicly report the impact of significant spills in the format specified by the GRI G3 reporting guidelines. |
| EN24 | Weight of transported, imported, exported or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally | Not Material | The US has not ratified the Basel Convention, so this indicator is not material to the ASR12. The Army reports hazardous waste disposal data (see Table 1 in the ASR12, as well as EN22 in Table 14). The Army does publicly report hazardous waste transported, imported, exported, and treated. |
| EN25 | Identity, size, protected status and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff | ▭ | Not reported. The Army does not publicly report data concerning the identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by its discharges of water and runoff.

In 2009, the ERDC/CERL released an evaluation of vulnerability to the water supply, *Army Installations Water Sustainability Assessment*. This included identifying, among several factors, the presence of TES, pollutant non-attainment, and population (Table 3), www.aepi.army.mil/docs/whatsnew/ERDC-CERL_TR-09-38.pdf. The *Army Installations Water Sustainability Assessment* lists Army installation average vulnerability scores by basin (Table 6), highly vulnerable Army installation watersheds by basin (Table 7), and vulnerable basins and installations at high vulnerability (Table 9). The assessment bases vulnerability scores on a variety of factors. It does not identify the size of the associated water bodies in the watershed or specific protected status. |

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation	▬▭	For services (actions), the Army analyzes significant environmental impacts and potential mitigation measures in its NEPA documentation. For products, the Army is held to standards for hazardous materials it uses and handles, and has GP policies under FAR 52.223 for bio-based, recycled, and energy-efficient products and alternatives to ODS, https://acquisition.gov/far/current/html/52_223_226.html.

Army initiatives to reduce potable water use in facilities and outdoors (updated SDD policy, Net Zero Water under the Net Zero installations strategy) are discussed in the FY11 DoD SSPP (p. II–35; www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf). Other policies and initiatives, such as the LID policy, are addressed in the FY11 DoD SSPP, as well (p. II–37).

Initiatives to reduce GHG emissions are discussed previously in this table (see EN18).

For effluents, under the National Pollutant Discharge Elimination System in the United States, Army installations report water quantity and quality for all point source discharges.

To combat noise and other encroachment issues, the Army creates land buffers through the ACUB Program, aec.army.mil/usaec/acub/index.html. Also, the Operational Noise Program (ONP) can assist both Army and DoD personnel with issues pertaining to noise generated by military training and operations. It can assist with noise analysis required for NEPA compliance, noise modeling, and noise monitoring. In addition, the ONP has helped Army and ARNG installations develop more than 80 comprehensive Noise Management Plans since 1999, phc.amedd.army.mil/topics/envirohealth/on/Pages/default.aspx and phc.amedd.army.mil/organization/institute/dehe/Pages/OperationalNoiseProgram.aspx.

Initiatives and policies to reduce waste are addressed in the FY11 DoD SSPP, including: working to issue a policy to reduce printing paper use (II-47), targeting improved recycling and waste minimization at installations (p. II–50), the Army's Net Zero Waste Initiative (p. II–50), and progress on Service-specific chemical use reduction goals (p. II–53).

This indicator is reported as partial because it covers many aspects and the extent of mitigation for all aspects is not tracked in the format specified by the GRI G3 guidelines. |
| EN27 | Percentage of products sold and their packaging materials that are reclaimed by category | Not Material | Not material. The Army's mission is not driven by selling products. However, it does have a recycling policy and its installation pollution prevention programs work to recycle/reclaim packaging materials. This information is not tracked separately from total solid waste diversion. |
| EN28 | Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations | ▬ | The Army reported the monetary value of significant fines in the FY10 DEP ARC, Appendix D (Figure D-4.9) (www.denix.osd.mil/arc/upload/508-FY10DEP-ARC_Final-Report.pdf). Total Army fines and penalties assessed in FY10 equaled $422.7 thousand ($241.0 thousand from the EPA, $181.7 thousand from the state, and $0.0 locally). Total Army fines and penalties assessed in FY11 equaled $117.7 thousand ($79.2 thousand from the EPA, $34.8 thousand from the state, and $3.7 thousand locally). FY11 data are reported publicly in ASR12.

The Army reported FY10 new and open ENFs (96, 35) in the DEP ARC, Appendix D (Figure D-4.6). FY10 new ENFs are broken out by statute (Figure D-4.7). The Army had FY11 new and open ENFs (92, 25), which are provided in the ASR12. The new ENFs are broken out by statute, and are addressed in the Environmental Enforcement Actions section in the ASR12 (pages 69–70).

The Army has Environmental Conflict Resolution (ECR) policy and practices in place. It follows the OMB and President's CEQ Memorandum on Environmental Conflict Resolution, www.ecr.gov/pdf/OMB_CEQ_Joint_Statement.pdf. Army and USACE Annual ECR Policy Reports can be found at www.ecr.gov/Resources/FederalECRPolicy/AnnualECRReport.aspx. Additional information can be found at the Army Alternate Dispute Resolution website, ogc.hqda.pentagon.mil/Practice_Groups/ADR.aspx. |

GRI Indicator [268]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce		The Army reports Scope 3 Target Subject GHG emissions associated with Federal Employee Business Air Travel (FY10 = 794,366 MT CO_2e; FY11 = 919,014 MT CO_2e). It also reports Scope 3 Target Subject GHG emissions (domestic) for Federal Employee Business Ground Travel (FY10 = 107,240 MT CO_2e; FY11 = 105,903 MT CO_2e) and Federal Employee Commuting (FY10 = 1,372,136 MT CO_2e; FY11 = 1,477,631 MT CO_2e). In addition, the Army reports Scope 1 Mobile GHG emissions (Total FY10 = 8,498,031 MT CO_2e; Total FY11 = 8,965,789 MT CO_2e). This information was provided by OASA(IE&E) for compilation in the FY12 DoD SSPP Report and also made public in ASR12. AR 385-10 lists procedures for maximizing safety from spills and transporting explosives and other hazards, www.army.mil/usapa/epubs/pdf/r385_10.pdf.

GHG reporting requirements are addressed in EO 13514 and DoD goals for GHG emissions reductions are discussed in the DoD SSPP. The FY11 DoD SSPP (www.denix.osd.mil/sustainability/upload/DoD-SSPP-FY11-FINAL_Oct11.pdf) discusses initiatives to reduce Scope 3 GHG emissions, including the update of the Army's telework policy and to increase the number of Army organizations that have implemented telework programs (p. II–44). The FY12 DoD SSPP discusses Army business travel and telework initiatives. |
| EN30 | Total environmental protection expenditures and investments by type | | The Army reports its total FY10 environmental protection expenditures and investments for natural and cultural resources ($267.1M), compliance ($401.1M), pollution prevention ($18.7M), restoration ($436.3M), and BRAC ($284.6M) in the FY10 DEP ARC, Appendix D (Figures D-1.1, 1.2, 1.3, 1.4) (www.denix.osd.mil/arc/upload/508-FY10DEP-ARC_Final-Report.pdf). Army environmental technology funding ($75.0M) is reported in the FY10 DEP ARC (Figure 1-13). The Army reports its total FY11 environmental protection expenditures and investments for natural and cultural resources ($177.1M), compliance ($393.4M), pollution prevention ($18.6M), restoration ($322.1M), BRAC ($141.0M), and environmental technology ($53.1M) in the FY11 DEP ARC (Tables 4, 7, 8, 9, 10, 11, 12). |

ASR12—Global Reporting Initiative (GRI) Social Indicators

The Army does not report on many of the GRI labor, human rights, society, and product responsibility indicators. The activities of the Army are largely regulated by law, EOs and DoD regulations.

Relevant workplace safety regulations include the Army Safety Program (AR 385-10), Chemical Agent Safety (AR 385-61), Range Safety (AR 385-63), Explosives Safety (AR 385-64), Risk Management (Field Manual 100-14) and many others at www.army.mil/usapa/epubs/385_Series_Collection_1.html.

The Army also adheres to all labor management regulations, as described in DoD Manual 1400.25, *Labor-Management Relations.*

The relevant positions for the GRI social indicators are the Assistant Secretary of the Army for Manpower and Reserve Affairs; DASA(ESOH); AMC Commanding General; and TRADOC Commanding General.

Table 15. Combined 2010 & 2011 Army Sustainability Report Social Indicators

GRI Indicator [269]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
LA1	Total workforce by employment type, employment contract and region	■■■	Total workforce (Military and Civilian) attributes are found at the DoD's Statistical Information Analysis Division's online database of Personnel and Procurement Statistics, siadapp.dmdc.osd.mil/personnel/MMIDHOME.HTM.
LA2	Total number and rate of employee turnover by age group, gender and region	■■■	The Army summarizes this information in end strength reports as part of its AFR. Deployed forces by region are in the main APS document. A break out by demographic categories is in the FY10 and FY11 Army Demographics Profiles, www.armyg1.army.mil/hr/docs/demographics/FY10_Army_Profile.pdf and www.armyg1.army.mil/hr/docs/demographics/FY11_ARMY_PROFILE.pdf. Additionally, the 2009 Defense Advisory Committee on Women in the Services (DACOWITS) report issued in 2010 discusses retention by gender and grade, dacowits.defense.gov/Reports/2009/Annual%20Report/dacowits2009report.pdf. The Army's equal employment opportunity reporting in Management Directive 715 describes difficulties and plans for improving retention among different populations. The FY10 and FY11 reports are located at: eeoa.Army.pentagon.mil/web/prog_comp/reports/reports.htm. More detail is available in the FY10 and FY11 Annual Reports on the Federal Workforce, www.eeoc.gov/federal/reports/.
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations	■■■	The Army pay and benefits summary is found at www.goarmy.com/benefits/total-compensation.html, while the Civilian pay and benefits summary for FY10 is found at http://www.opm.gov/oca/10tables/index.asp, and the summary for FY11 is found at www.opm.gov/oca/11tables/index.asp.
LA4	Percentage of employees covered by collective bargaining agreements	■■□	USC Title 5, Chapter 71 provides for federal service labor management. DoD policy for labor management relations is in DoD Manual 1400.25-M Subchapter 711, http://www.cpms.osd.mil/cpm/. All collective bargaining agreements are managed at https://apps3.opm.gov/portal/pls/portal/LDR.LDR_RPT_CBA_PFL_ALL_PUB.show. All collective bargaining agreements (including the Army), whether they are active or inactive agreements, can be searched for in the OPM Labor Management database LAIRS (Labor Agreement Information Retrieval System), https://apps3.opm.gov/portal/page/portal/LAIRS_Main/BARGAINING_UNITS:TAB58361. It should be noted that collective bargaining agreements only apply to Army Civilian employees, not military employees, and therefore any numbers tracked do not include military personnel. All federal employees covered by collective bargaining agreements are tracked through internal reporting systems to be reported as one Federal number; see www.fas.org/sgp/crs/misc/R41897.pdf. Additional data can also be found at www.unionstats.com/. This metric is reported as partial because the percentage of Army employees is not broken out from the overall number of federal employees.

GRI Indicator [269]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements	�	For Reductions in Force, information must be presented to Congress 45 days before the reduction is to take place per 10 USC Chapter 81, Section 1597, uscode.house.gov/download/pls/10C81.txt. The employee must be notified within 60 days according to AR 690-351, page 7.1, www.army.mil/usapa/epubs/pdf/r690_351_1.pdf. DoD provides a guide for displaced employees on benefits and entitlement, http://www.cpms.osd.mil/ASSETS/9E43C08C52474716BF5A04AAEA84F910/deguide.pdf. DoD Manual 1400.25 Subchapter 711 Section 6.5 outlines reasons for suspending labor relations, http://www.cpms.osd.mil/cpm/ . Any change in this value for specific collective bargaining agreements is outside of the scope of this report.
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	▬	There are installation committees that involve employees and management to discuss health and safety—especially at industrial installations. This is described in DoDI 6055.1, DoD Safety and Occupational Health Program, page 29, www.dtic.mil/whs/directives/corres/pdf/605501p.pdf. The Army does not track this information to verify performance.
LA7	Rates of injury, occupational diseases, lost days and absenteeism, and total number of work-related fatalities by region	▬	Rates of injury caused by accidents are tracked in the US Army Combat Readiness/Safety Center website, safety.army.mil/statisticsdata/ARMYSTATISTICSREPORTS/tabid/373/Default.aspx. DoD also keeps a database of Personnel and Military Casualty Statistics, siadapp.dmdc.osd.mil/personnel/MMIDHOME.HTM.
LA8	Education, training, counseling, prevention and risk-control programs in place to assist workforce members, their Families or community members regarding serious diseases	▬	Serious disease information is managed by the USAPHC, phc.amedd.army.mil/Pages/default.aspx/. The mission of the USAPHC is to promote health and prevent disease, injury, and disability of Soldiers and military retirees, their Families, and Army Civilian employees; and to assure effective execution of full-spectrum veterinary services for the Army and DoD. MEDCOM provides medical services in the United States and in field units—including training and counseling. Prevention and risk-control programs are also led by USAPHC. DoD Directive 1010.10, Health Promotion and Disease Prevention, establishes requirements for programs, www.dtic.mil/whs/directives/corres/pdf/101010p.pdf, such as the DoD Safety and Occupational Health Program, which is addressed in DoDI 6055.1, www.dtic.mil/whs/directives/corres/pdf/605501p.pdf. Technical details on specific diseases and how they are addressed by the Army is available from the Medical Technical Bulletins, www.army.mil/usapa/med/index.html. Deployment may expose Soldiers to many diseases, which are listed by the Deployment Health Clinical Center website, www.pdhealth.mil/ehc/default.asp. This site lists information, policy, and training materials.
LA9	Health and safety topics covered in formal agreements with trade unions	▬	USC Title 5, Chapter 71 provides for federal service labor management, to include regulations for health and safety. All employees of the Army will be covered by the same health and safety regulations in accordance with DoDI 6055.1, DoD Safety and Occupational Health Program, www.dtic.mil/whs/directives/corres/pdf/605501p.pdf.
LA10	Average hours of training per year per employee by employee category	▭	The FY10 AFR, pages 10, 13–14, & 21, and the FY11 AFR, pages 17–21, include individuals trained in various courses. The Army reviews and updates training every six months. This indicator is listed as partial because this source shows employee training by type of course, which to varying degrees may or may not correspond to employee category. In 2009, the Army launched the Army Training Network, an internal one-stop website for all Army training resources, www.army.mil/standto/archive/2009/04/21/. The Army Civilian Training, Education, and Development System (ACTEDS) ensures planned development of Civilian workforce through a combination of progressive work assignments, formal training, and self-development for individuals. ACTEDS will enable the development and sustainment of the Army's Civilian workforce, and the development of technically competent Civilian leaders essential to Army readiness. Leadership development courses are managed by Army G-3 supporting these goals, cpol.army.mil/library/permiss/70.html.

GRI Indicator [269]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	▬	The FY10 and FY11 AFRs (pages 10–14 & 17–21, respectively) list programs for skills management and training. The US Army Human Resources Command provides information on educational opportunities for Soldiers by employee type, including active, Veterans, and reserve, www.hrc.army.mil/#. Much of this information is on internal websites. The Army Reserve Voluntary Education Program provides tuition assistance as well as the Montgomery GI Bill Program, www.hrc.army.mil/site/Reserve/Soldierservices/pay/mgib.htm. The Army has some additional programs for Wounded Warriors, including career and education assistance, wtc.army.mil/aw2/. AR 621-5, *Army Continuing Education System*, www.army.mil/usapa/epubs/pdf/r621_5.pdf, and AR 621-202, *Army Educational Incentives and Entitlements*, www.army.mil/usapa/epubs/pdf/r621_202.pdf, provide more information on responsibilities for education.
LA12	Percentage of employees receiving regular performance and career development reviews	▬	All employees receive regular performance reviews, in accordance with Army policies. See AR 623-3, *Personnel Evaluation, Evaluation Reporting System*, www.Army.mil/usapa/epubs/pdf/r623_3.pdf.
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership and other indicators of diversity	▬□	The Changing Profile of the Army report provides a breakdown of employees across several groups, www.Armyg1.Army.mil/hr/docs/demographics/Changing%20Profile%20report%20December%202008.pdf. This information can also be found in the Army demographic profile, www.Armyg1.Army.mil/hr/demographics.asp. Additional demographic information regarding DoD can be found at: www.militaryhomefront.dod.mil/12038/Project%20Documents/MilitaryHOMEFRONT/Reports/2010_Demographics_Report.pdf. The FY10 Annual Report on the Federal Workforce details the minority group membership and gender breakdown of Army employees as well as broad labor categories, www.eeoc.gov/federal/reports/fsp2010/index.cfm and www.eeoc.gov/federal/reports/fsp2010_2/index.cfm. This indicator is listed as partial because this source does not show the number of Civilian employees by age group, but they do have this information for the Military, prhome.defense.gov/RFM/MPP/ACCESSION%20POLICY/PopRep2010/. In general, the Army does not show demographic breakdowns by age for Civilians, but they have consistently reported Civilian workforce demographics by General Schedule (GS) grade level. See www.armyg1.army.mil/hr/demographics.asp for GS grade level and gender breakdowns. This is consistent with how OPM reports Civilian demographics across the federal government.
LA14	Ratio of basic salary of men to women by employee category	▬□	This indicator is listed as partial because the Army finds it more representative of the military to discuss and report levels of retention and promotion by gender, as salaries are tied directly to rank, grade, and years of service. See www.armyg1.army.mil/hr/demographics.asp for GS grade level and gender breakdowns. This is consistent with how OPM reports Civilian demographics across the federal government. The 2009 DACOWITS report discusses retention by gender and grade, dacowits.defense.gov/Reports/2009/Annual%20Report/dacowits2009report.pdf. Reports for 2010 and 2011 are located at dacowits.defense.gov/Reports/. Each report has a different themed focus for women in the DoD. More detail is available in the FY10 Annual Report on the Federal Workforce, www.eeoc.gov/federal/reports/fsp2010/index.cfm and www.eeoc.gov/federal/reports/fsp2010_2/index.cfm. Information on military pay rates can be found at www.dfas.mil/militarymembers/payentitlements/militarypaytables.html, while information on Army Civilian pay for FY10 and FY11 can be found at www.opm.gov/oca/10tables/index.asp and www.opm.gov/oca/11tables/index.asp.
HR1	Percentage and total number of significant investment agreements that include human rights clauses or that have undergone human rights screening	Not Material	Not material. The Army does maintain this information in various ways as required by reporting requirements by the State Department, but not in the manner required by this indicator.
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken	□	Not reported. The Army's policy on international transfer stipulates that the transfer adhere to US policy objectives, including human rights concerns, page 12, www.dtic.mil/whs/directives/corres/pdf/204002p.pdf. In general, the US government compiles the annual human rights report because the US believes it is imperative for countries, including our own, to ensure that respect for human rights is an integral component of foreign policy. For more information about the human rights report go to: www.state.gov/j/drl/rls/hrrpt/2010/index.htm.

GRI Indicator [269]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained		Not reported. The Judge Advocate General, in coordination with the Deputy Chief of Staff for Operations and Deputy Chief of Staff for Logistics, is responsible for human rights training, www.army.mil/usapa/epubs/pdf/r27_1.pdf. Although there is a DoDI 5111.19, Section 1206 "Global Train-and-Equip Authority" (www.dtic.mil/whs/directives/corres/pdf/511119p.pdf), which requires training to be conducted (and training is conducted by the Army), this indicator is listed as not reported because the quantitative detail on hours or how often this training is conducted is not provided in a public location. A GAO report published on October 27, 2011, documents recommendations for improving training to personnel who will be deployed to areas of the world where human rights are of concern. The DoD concurred with the report in 2011 and plans to implement training improvements. For more information on this report go to: www.gao.gov/products/GAO-12-123.
HR4	Total number of incidents of discrimination and actions taken		The Army Equal Opportunity Reporting System database collects, records, and maintains racial, ethnic group, and gender data and statistics needed to support the Army Equal Opportunity Program, to include Affirmative Action Plan reporting requirements. The Army reported late in FY09 on the FY08 progress for the Equal Employment Opportunity Report Management Directive 715, eeoa.Army.pentagon.mil/web/prog_comp/reports/reports.htm. More detail is available in the FY10 Annual Report on the Federal Workforce, www.eeoc.gov/federal/reports/.
HR5	Operations identified in which the right to exercise freedom of association or collective bargaining may be at significant risk, and actions taken to support these rights		The Army is required to maintain and report this information through OSD to OPM. OPM provides information on all collective bargaining agreements in the LAIRS repository. All Army agreements can be located by searching on "Department of the Army" under the Agency field, https://apps3.opm.gov/portal/pls/portal/LDR.LDR_RPT_CBA_PFL_ALL_PUB.show. This information is partially reported because a compiled list of measures taken by the Army during the report period intended to support rights to freedom of association and collective bargaining was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.
HR6	Operations identified as having significant risk for incidents of child labor, and measures taken to contribute to the elimination of child labor		DoD Manual 1400.25, Subchapter 1403, Section 5.2 has a clause requiring DoD to adhere to child labor laws and 29 CFR 570, www.dtic.mil/whs/directives/corres/pdf/1400.25_SC1403.pdf. In addition, the Army, under the DoD, is required to adhere to EO 13126, "Prohibition on Acquisition of Products Produced by Forced or Indentured Child Labor." The EO is intended to ensure that federal agencies enforce laws relating to forced or indentured child labor in the procurement process. It requires the Department of Labor, in consultation with the Departments of State and Homeland Security, to publish and maintain a list of products, by country of origin, which the three Departments have a reasonable basis to believe, might have been mined, produced, or manufactured by forced or indentured child labor. Under the procurement regulations implementing the EO, federal contractors who supply products on a list published by the Department of Labor must certify that they have made a good faith effort to determine whether forced or indentured child labor was used to produce the items listed. The current list of products and countries on the EO 13126 list was published in the April 3, 2012 Federal Register and is found at: www.dol.gov/ILAB/regs/eo13126/main.htm. This indicator has been reported as partial because measures taken by the Army during this report period intended to contribute to the elimination of child labor was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.
HR7	Operations identified as having significant risk for incidents of forced or compulsory labor, and measures taken to contribute to the elimination of forced or compulsory labor		The Army has a "Combating Trafficking in Persons" policy and program that applies worldwide with a zero tolerance stance toward any and all activities associated with human trafficking, including mandatory training, www.combat-trafficking.Army.mil/policy.htm. This policy is in place to train Civilian employees, Soldiers, and DoD contractors, as well as subcontractors to the DoD contractors. Army operations considered to have significant risk for incidents of compulsory or forced labor are not considered material to the Army because they have a zero tolerance policy in place.
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations		Partially reported. The Judge Advocate General, in coordination with the Deputy Chief of Staff for Operations and Deputy Chief of Staff for Logistics, is responsible for human rights training, www.army.mil/usapa/epubs/pdf/r27_1.pdf. Although there is a DoDI 5111.19, Section 1206 "Global Train-and-Equip Authority" (www.dtic.mil/whs/directives/corres/pdf/511119p.pdf), which requires training to be conducted (and training is conducted by the Army), this indicator is listed as not reported because the policy does not specify if it applies to third party organizations, such as contractor security personnel. It only specifies Civilian, US, and foreign military personnel. This is reported as partial because the percentage of security or Army personnel who have received training on the Army policies and procedures regarding human rights and security was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.

GRI Indicator [269]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken	☐ (empty bar)	Not reported. One hundred installations have consulted with federally recognized Indian tribes during ICRMP development. Thirty-one installations have known tribal rights that can be impacted. The Army tracks what resources it impacts and works with federally recognized tribes to mitigate impacts. See the FY10 DEP ARC, Appendix B Section 5, http://www.denix.osd.mil/ arc/upload/508-FY10DEP-ARC_Final-Report.pdf for more detail on the program. This indicator is listed as not reported as incidents are not recorded and it is restricted to the United States.
SO1	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating and exiting	▉ (partial bar)	BRAC has a regulated process for managing impacts to the community, described on the BRAC website—BRAC 2005 Army, www.defense.gov/brac/ and http://www.hqda.army.mil/acsim/brac/. The Army also developed a Handbook for Growth Communities, http://www.google.com/url?.

More information is available from the DoD Office of Economic Adjustment, www.oea.gov/.

This indicator is listed as partial because these sources do not specify the operations that are included or the effectiveness of programs. |
| SO2 | Percentage and total number of business units analyzed for risks related to corruption | ☐ (empty bar) | Not reported. The Army currently does maintain and track this information, but the information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator. |
| SO3 | Percentage of employees trained in organization's anti-corruption policies and procedures | ▉ (full bar) | SECARMY policy requires all Army Military and Civilian personnel to attend ethics training annually, ogc.hqda.pentagon.mil. AR 350-1, *Army Training and Leader Development*, also contains training requirements, www.Army.mil/usapa/epubs/pdf/r350_1.pdf. The following website contains a link to 2010 and 2011 Ethics training, ogc.hqda.pentagon.mil/EandF/ training_EandF.aspx. |
| SO4 | Actions taken in response to incidents of corruption | ▉ (partial bar) | The US Army Criminal Investigation Command (USACIDC) is responsible for investigating procurement corruption as a felony crime, www.army.mil/usapa/epubs/pdf/r195_2.pdf.

USACIDC as a DoD investigative agency refers to the Federal Bureau of Investigation (FBI) all significant allegations of bribery and conflict of interest involving military or Civilian personnel of DoD. DoD obtains the concurrency of the Department of Justice prosecutor or FBI before initiating independent investigations, www.dtic.mil/whs/directives/corres/pdf/552507p.pdf.

This is listed as partial as actions taken in response to corruption are not listed and were not readily available at the time this report was prepared. |
SO5	Public policy positions and participation in public policy development and lobbying	▉ (full bar)	As a federal entity, the Army is regulated on how it interacts in policy development; two Army-specific regulations are AR 1-20, *Legislative Liaison*, www.Army.mil/usapa/epubs/pdf/r1_20.pdf, and AR 360-1, *Army Public Affairs Regulation*, www.Army.mil/usapa/epubs/pdf/r360_1.pdf.
SO6	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country	Not Applicable	Not applicable to Army; as a federal entity, the Army does not provide financial or in-kind contributions to political parties or politicians in the United States or any other country.
SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	☐ (empty bar)	Not reported. The Army currently does not maintain or track this information, or the information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	▉ (partial bar)	The Army reports the amount of fines and ENFs related to environmental compliance in the FY10 DEP ARC, Appendix D, Figure D-4.9, http://www.denix.osd.mil/arc/upload/508-FY10DEP-ARC_ Final-Report.pdf, as well as FY11 data as listed in Table 1 of this report. This indicator is listed as partial because the Army does not report publicly on other types of fines and sanctions.
PR1	Life-cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures	▉ (full bar)	The Army's Acquisition Policy AR 70-1 (Section 1-4 (n-o)) identifies health, safety and pollution prevention requirements, www.Army.mil/usapa/epubs/pdf/r70_1.pdf. Pamphlet 70-3 Section VI also describes the Environmental, Safety and Occupational Health aspects of system acquisition, http://armypubs.army.mil/epubs/pdf/p70_3.pdf.
PR2	Total number of incidents of noncompliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	☐ (empty bar)	Not reported. The Army currently does maintain or track this information, however the information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.

GRI Indicator [269]	Description of GRI Recommended Report Content	Status [267]	Link to 2010 & 2011 Army Source Data
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements		Not reported. The Army currently does not maintain or track this information, or the information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.
PR4	Total number of incidents of noncompliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes		Not reported. The Army currently does maintain or track this information, however the information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction		The Army maintains an Interactive Customer Evaluation system that tracks comments on programs at each installation for each military branch (ice.disa.mil/).

The Army also participates in the Federal Human Capital Survey, a tool that measures employees' perceptions of whether, and to what extent, conditions characterizing successful organizations are present in their agencies. The most recent results are found at www.fedview.opm.gov/2010FILES/2010_Govtwide_Report.pdf and www.fedview.opm.gov/2011/. For additional information about the annual Federal Human Capital Survey go to: www.fedview.opm.gov/. |
| PR6 | Programs for adherence to laws, standards and voluntary codes related to marketing communications, including advertising, promotion and sponsorship | | The Army currently does maintain AR 360-1 "The Army Public Affairs Program" that provides communication guidelines for the organization. The Army reviews this regulation regularly and updates it as required. The last update to this regulation was May 25, 2011.

This is partial because information regarding whether the Army sells products that are banned in certain markets or are the subject to stakeholder question or public debate was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator. |
| PR7 | Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion and sponsorship, by type of outcomes | | Not reported. The Army currently does maintain or track this quantitative information, but this information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator.

The Army is required to comply with AR 360-1, www.army.mil/usapa/epubs/pdf/r360_1.pdf and Army Regulation 380-5 Department of the Army Information Security Program, www.army.mil/usapa/epubs/pdf/r380_5.pdf. |
| PR8 | Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data | | Not reported. The Army currently does currently maintain and track this information, which is reported to OSD and published in reports by the Defense Privacy and Civil Liberties Office, dpclo.defense.gov/privacy/Res_And_Pub/reports.html. The specific number of complaints received from outside bodies, regulatory agencies, or identified leaks, thefts, or losses of customer data was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator. |
| PR9 | Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services | | Not reported. The Army currently does not maintain or track this information, or the information was not readily available at the time this report was prepared. Future reports will reevaluate the reporting status of this GRI indicator. |

Acronyms

AAFES	Army and Air Force Exchange Service
ACH	Army Community Hospital
ACOM	Army command
ACSIM	Assistant Chief of Staff for Installation Management
ACTEDS	Army Civilian Training, Education and Development System
ACUB	Army Compatible Use Buffer
AESIS	Army Energy Security Implementation Strategy
AFAP	Army Family Action Plan
AFR	Army Financial Report
AFRICOM	US Africa Command
AGC	US Army Geospatial Center
AMC	US Army Materiel Command
AMMPS	Advanced Medium Mobile Power Source
APFT	Army Physical Fitness Test
APRT	Army Physical Readiness Test
APS	Army Posture Statement
AR	Army Regulation
ARCENT	US Army Central Command
ARFORGEN	Army Force Generation
ARNG	Army National Guard
ARNORTH	US Army North
ARRA	American Recovery and Reinvestment Act
ARSOUTH	US Army South
ASA(IE&E)	Assistant Secretary of the Army for Installations, Energy and Environment
ASCP	Army Sustainability Campaign Plan
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
ASR	Army Sustainability Report
ASR07	Army Sustainability Report 2007
ASR09	Army Sustainability Report 2009
ASR10	Army Sustainability Report 2010
ASR12	Army Sustainability Report 2012
ATEC	US Army Test and Evaluation Command
AVC	Army Volunteer Corps
BCT	Brigade Combat Team
BOCC	Building Operations Control Center
BRAC	Base Realignment and Closure
Btu	British thermal unit
C&D	construction and demolition
CAA	Clean Air Act

CECOM-LCMC	Communications-Electronics Command, Life Cycle Management Command
CENTCOM	US Central Command
CEQ	Council on Environmental Quality
CERDEC	US Army Communications-Electronics Research, Development and Engineering Center
CEWMP	comprehensive energy and water master plan
CFR	Code of Federal Regulations
CMA	US Army Chemical Materials Agency
CO_2e	carbon dioxide equilivant
COTS	commercial off the shelf
CS	combat support
CSA	Chief of Staff, Army
CSF	Comprehensive Soldier Fitness
CSS	combat service support
CWA	Clean Water Act
CY	calendar year
DACOWITS	Defense Advisory Committee on Women in the Services
DEP ARC	Defense Environmental Programs Annual Report to Congress
DHA	Deployment Health Assessment
DHAP	Army Deployment Health Assessment Program
DHC	Deployment Health Cards
DHG	Deployment Health Guides
DoD	Department of Defense
DoDI	Department of Defense Instruction
DOE	Department of Energy
DRU	direct reporting unit
DSCA	Defense Support of Civil Authorities
DVH	Double-V Hull
E2E	Energy to the Edge
ECIP	Energy Conservation Investment Program
ECR	Environmental Conflict Resolution
EISA	Energy Independence and Security Act
EITF	Energy Initiatives Task Force
EMR	energy management report
EMS	environmental management system
EN	environmental (GRI indicator)
ENF	enforcement action
EO	executive order
EPA	Environmental Protection Agency
EPAct	Energy Policy Act
EPCRA	Emergency Planning and Community Right-to-Know Act

EPEAT	Electronic Product Environmental Assessment Tool		IUCN	International Union for Conservation of Nature
ERDC/CERL	Engineer Research and Development Center/Construction Engineering Research Laboratory		JBLM	Joint-Base Lewis McChord
			KPP	key performance parameter
			kW	kilowatt
ESA	Endangered Species Act		LA	labor (GRI indicator)
ESCO	energy service company		LAIRS	Labor Agreement Information Retrieval System
ESPC	Energy Savings Performance Contract			
FAR	Federal Acquisition Regulation		LEED	Leadership in Energy and Environmental Design
FBI	Federal Bureau of Investigation			
FDMCH	Fort Drum Mountain Community Homes		LID	low impact development
FEMP	Federal Energy Management Program		LTC	Lieutenant Colonel
FLSA	Fair Labor Standards Act		MAJ	Major
FMC	fully mission capable		MDW	US Army Military District of Washington
FOB	forward operating base		MEDCOM	US Army Medical Command
FORSCOM	US Army Forces Command		MG	Major General
FoV	Family of Vehicles		MHPI	Military Housing Privatization Initiative
FUDS	formerly used defense sites		MILCON	military construction
FY	fiscal year		MMBtu	Million Metric British thermal units
G3	third generation		MMRP	Military Munitions Response Program
Gal/GSF	gallons per gross square foot		MOU	memorandum of understanding
GAO	Government Accountability Office		MT CO_2e	metric ton carbon dioxide equivalent
GAT	Global Assessment Tool		MTB	Medical Threat Briefings
GEN	General		MTF	Medical Treatment Facilities
GHG	greenhouse gas		MW	megawatt
GP	green procurement		MWh	megawatt hour
GPQ	Green Procurement Program		NCO	Noncommissioned Officer
GRI	Global Reporting Initiative		NEPA	National Environmental Policy Act
GS	General Schedule		NETCOM	Army Network Enterprise Technology Command
GSF	gross square foot			
HAP	hazardous air pollutant		NMC	not mission capable
HHAT	Higher Headquarters Assessment Teams		NO_X	nitrogen oxides
HON	Honorable		NRC	National Response Center
HP&RR	Health Promotion and Risk Reduction		NTC	National Training Center
HQDA	Headquarters, Department of the Army		OACSFAC	Office of the Assistant Chief of Staff for Facilities
ICRMP	integrated cultural resource management plan			
			OACSIM (DAIM-ISE)	Office of the Assistant Chief of Staff for Installation Management, Army Environmental Division
ILA	industrial, landscaping, and agricultural			
IMCOM	Installation Management Command			
INRMP	Integrated Natural Resources Management Plan		OASA(IE&E)	Office of the Assistant Secretary of the Army for Installations, Energy and Environment
INSCOM	US Army Intelligence and Security Command		OCONUS	outside the continental United States
			OCR	Office of Coordinating Responsibility
IPM	integrated pest management		ODASA(E&S)	Office of the Deputy Assistant Secretary of the Army for Energy and Sustainability
IPMP	integrated pest management plan			
IRP	Installation Restoration Program		ODASA(ESOH)	Office of the Deputy Assistant Secretary of the Army for Environment, Safety and Occupational Health
ISO	International Organization for Standardization			
ITAM	Integrated Training Area Management		ODASA(P)	Office of the Deputy Assistant Secretary of the Army for Procurement

ODS	Ozone Depleting Substances	SSPP	strategic sustainability performance plan
OEA	DoD Office of Economic Adjustment	STOMP	Sedans, Trucks, Off-road vehicles, Motorcycles and Pedestrians program
OEH	occupational and environmental health	TACOM	Tank-automotive & Armaments Command
OMB	Office of Management and Budget	TCE	trichloroethylene
ONP	Operational Noise Program	TES	threatened and endangered species
OPM	Office of Personnel Management	TQG	Tactical Quiet Generators
OPR	office of primary responsibility	TRADOC	US Army Training and Doctrine Command
OPTEMPO	Operational Tempo	TRI	toxics release inventory
OSD	Office of the Secretary of Defense	UESC	Utility Energy Service Contracts
PA	public agency (GRI indicator)	USAASC	US Army Acquisition Support Center
PEO C3T	Program Executive Office for Command, Control and Communications-Tactical	USACE	US Army Corps of Engineers
PHC	Public Health Command	USACIDC	US Army Criminal Investigation Command
PIO	personnel injury–other	USAG	US Army Garrison
PM	particulate matter	USAPHC	US Army Public Health Command
PMC	partially mission capable	USAR	US Army Reserve
PMO SBCT	Project Management Office for the Stryker Brigade Combat Team	USARAF	US Army Africa
POV	privately owned vehicle	USARC	US Army Reserve Command
PV	photovoltaic	USAREUR	US Army Europe
RCRA	Resource Conservation and Recovery Act	USARPAC	US Army Pacific
RDECOM	US Army Research, Development and Engineering Command	USASOC	US Army Special Operations Command
REC	renewable energy credit	USC	United States Code
REF	Rapid Equipping Force	USFOR-A	US Forces–Afghanistan
REPI	DoD Readiness and Environmental Protection Initiative	USMA	United States Military Academy
REPPS	Rucksack Enhanced Portable Power System	VOC	volatile organic compound
RPMP	real property master plan	VTC	video teleconferencing
SBCT EMT	Stryker Brigade Combat Team Environmental Management Team	WCTP	Warrior Care and Transition Program
SDD	sustainable design and development	WRDB	Water Resources Database
SDDC	Surface Deployment and Distribution Command	WSMP	Water Supply Management Program
SDWA	Safe Drinking Water Act	WSMR	White Sands Missile Range
SECARMY	Secretary of the Army	WTC	Warrior Transition Command
SECDEF	Secretary of Defense	ZEH	zero-energy home
SESC	Senior Energy and Sustainability Council		
SFC	Sergeant First Class		
SGM	Sergeant Major		
SGT	Sergeant		
SMDC/ARSTRAT	Space and Missile Defense Command/Army Forces Strategic Command		
SO_x	sulfur oxides		
SPOTA	Sustainable Painting Operations for the Total Army		
SRI	Sustainable Ranges Initiative		
SRP	Sustainable Range Program		
SSG	Staff Sergeant		

End Notes

1 GRI is a network-based organization, which developed the guidelines through a consensus-seeking process with business, civil society, labor, and professional participants. In 2009, 1,272 entities—40 from the United States—reported to the GRI that they used the GRI guidelines.

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resources, wetlands, species at risk, or ecological issues require a level of planned management that can only be addressed by an INRMP. 6. In some cases, it may be difficult to determine whether an installation has significant natural resources. In these cases the ACSIM is delegated the authority to determine whether significant natural resources are present, and, therefore, whether an INRMP is required."

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