

**Air Force FY2012 Implementation Plan for the
DoD Strategic Sustainability Performance Plan**

2012 Report



U.S. AIR FORCE

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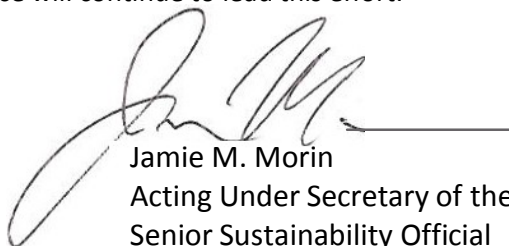
EXECUTIVE SUMMARY

Through the issuance of Executive Order 13514, *"Federal Leadership in Environmental, Energy, and Economic Performance,"* the President formally established an integrated strategy linking past Executive Office and congressional efforts to move the federal government towards more sustainable operations. EO 13514 seeks to leverage the significant purchasing power of the federal government to create market demand for sustainable goods and services, transform behavior and establish processes that will assist agencies in becoming more resource-conscious and fiscally prudent.

The mission of the United States Air Force is, *to fly, fight, and win... in air, space, and cyberspace,* and we provide the National Command Authority with the most effective air power in the world. Our mission is energy intensive, and requires considerable access to and dependence upon natural resources. Our strategic vision is to create a culture where environmental, energy and workforce protection considerations serve as the central elements in the foundation for sustainable Air Force operations and are incorporated into everything we do.

Achievement of the desired culture change will not happen overnight, and progress towards meeting sustainability goals will often require incremental progress. By actively collaborating with the Office of the Secretary of Defense (OSD), the other military Services and sister agencies to refine implementation approaches, and by continually improving our processes, we are assisting the entire federal family in pursuing sustainability goals that are both achievable and cost-effective.

The information contained in our Fiscal Year 2012 implementation plan describes how the Air Force will achieve the goals and sub-goals of the Department of Defense's Strategic Sustainability Performance Plan (SSPP). The process of integrating sustainable practices into Air Force operations must be deliberate and focused on the long-term. In times of limited resources, understanding the tradeoffs between short- and long-term efficiencies and their implications on sustainability becomes even more important. To temper our appetite for, and impact on, the natural and fiscal resources needed to execute the Air Force mission into the future, we must continue to seek and recognize opportunities for achieving long-term efficiencies and lifecycle benefits. Together, through the efforts of every Airman, everyday, the Air Force will continue to lead this effort.



Jamie M. Morin
Acting Under Secretary of the Air Force
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AIR FORCE FY2012 IMPLEMENTATION PLAN OF THE DOD STRATEGIC SUSTAINABILITY PERFORMANCE PLAN

Goal	Title of DoD Strategic Sustainability Performance Plan Objective/Goal	FY11 Target	FY11 Result	OPR	Page
Objective 1					
Ensure the Continued Availability of Resources Critical to the DoD Mission					
1	<i>The Use of Fossil Fuels Reduced</i>				5
1.1	Energy Intensity of Facilities Reduced by 30% of FY2003 Levels by FY2015 and 37.5% by FY2020	18%	16.3%	AF/A7C	5
1.2	By FY2020 Produce or Procure Energy From Renewable Sources in an Amount that Represents at Least 20% of the Electricity Consumed by Facilities	11%	7.1%	AF/A7C	9
1.3	Use of Petroleum Products by Vehicle Fleets Reduced 30% by FY2020 Relative to FY2005	12%	8%	AF/A4LE SAF/IEE	13
1.4	Ten Landfills or Wastewater Treatment Facilities Recovering Biogas for Use by DoD by FY2020	0	2	AF/A7C	15
2	<i>Water Resources Management Improvement</i>				17
2.1	Potable Water Consumption Intensity by Facilities Reduced by 26% of FY2007 Levels by FY2020	8%	13.1%	AF/A4LE	17
2.2	Industrial and Irrigation Water Consumption Reduced by 20% of FY2010 Levels by FY2020	2%	17.8%	AF/A7C	20
2.3	All Development and Redevelopment Projects of 5,000 Square Feet or Greater Maintain Pre-Development Hydrology to the Maximum Extent Technically Feasible	100%	100%	AF/A7C	22
Objective 2					
DoD Readiness Maintained in the Face of Climate Change					
3	<i>Greenhouse Gas Emissions from Scope 1 and 2 Sources Reduced 34% by FY2020, Relative to FY2008</i>	5%	17.5%	AF/A7C AF/A4LE SAF/IEE	25
4	<i>Greenhouse Gas Emissions from Scope 3 Sources Reduced 13.5% by FY2020, Relative to FY2008</i>	n/a	n/a	AF/A7C AF/A4LE SAF/IEE	27
4.1	Greenhouse Gas Emissions from Employee Air Travel Reduced 7% by FY2020, Relative to FY2011	n/a	+14.9%	AF/A1PC	27
4.2	30% of Eligible Employees Teleworking at Least Once a Week, on a Regular, Recurring Basis, by FY2020	10%	6%	AF/A1PC	29
Objective 3					
Ensure The Ongoing Performance of DoD Assets by Minimizing Waste and Pollution					
5	<i>Solid Waste Minimized and Optimally Managed</i>				30
5.1	Air Force Organizational Components Implementing Policies by FY2014 to Reduce Use of Printing Paper	1	0	TBD	30
5.2	50% of Non-Hazardous Solid Waste Diverted from the Waste Stream by FY2015 and Thereafter Through FY2020	42%	52%	AF/A7C	32
5.3	60% of Construction and Demolition Debris Diverted from the Waste Stream by FY2015, and Thereafter Through FY2020	52%	80%	AF/A7C	34
6	<i>The Use and Release of Chemicals of Environmental Concern Minimized</i>				36
6.1	On-Site Releases and Off-Site Transfers of Toxic Chemicals Reduced 15% by FY2020, Relative to CY2006	2%	33.7%	AF/A7C SAF/AQX SAF/IEE	36

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Objective 3					
Ensure The Ongoing Performance of DoD Assets by Minimizing Waste and Pollution					
6.2	100% of Excess or Surplus Electronic Products Disposed of in Environmentally Sound Manner	100%	100%	AF/A7C SAF/CIO	37
6.3	100% of DoD Personnel and Contractors Who Apply Pesticides Are Properly Certified	100%	98.2%	AF/A7C	39
Objective 4					
Continuous Improvement in DoD Mission Achieved Through Management and Practices Built on Sustainability and Community					
7	<i>Sustainability Practices Become the Norm</i>				40
7.1	95% of Procurement Conducted Sustainably	95%	98%	SAF/AQC	40
7.2	15% of Existing Buildings Conform to the Guiding Principles on High Performance and Sustainable Buildings By FY2015, Holding Through FY2020	7%	<1%	AF/A7C	42
8	<i>Sustainability Built into DoD Management Systems</i>				44
8.1	All Environmental Management Systems Effectively Implemented and Maintained	Green	Red	TBD	44
8.2	Sustainability of Transportation and Energy Choices in Surrounding Areas Optimized by Coordinating with Related Regional and Local Planning	Qualitative – no data		AF/A7C	46
8.3	All DoD Installations Have Integrated Pest Management Plans Prepared, Reviewed, and Updated Annually by Pest Management Professionals	100%	100%	AF/A7C	48

OBJECTIVE 1

Ensure the Continued Availability of Resources Critical to the DoD Mission

GOAL 1: The Use of Fossil Fuels Reduced

SUB-GOAL 1.1: Energy Intensity of Facilities Reduced by 30% of FY 2003 Levels by FY 2015 and 37.5% by FY 2020

Description of Metric

The metric is the percent reduction relative to FY 2003 of the total facility energy consumed by Air Force facilities per gross square foot of total Air Force building space. A facility is defined as per the Energy Independence and Security Act (EISA) of 2007 §432(1)(C) to be any building, installation, structure, or other property (including any applicable fixtures) owned or operated by, or constructed or manufactured and leased to, the Air Force. The term “facility” includes a group of buildings at a single location or multiple locations managed as an integrated operation, and contractor-operated facilities owned by the Air Force. It does not include any land or site for which the cost of utilities is not paid by DoD.

Air Force Annual Targets for Sub-Goal 1.1 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	15%	18%	21%	24%	27%	30%	31.5%	33%	34.5%	36%	37.5%
RESULT	14.9%	16.3%									

A. Description of Performance Toward Sub-Goal: While actions taken to enhance the effectiveness of the facility energy program led to many successes in FY2011 we fell behind our energy intensity reduction target, achieving a 16.3% reduction against the 18% target. On the surface, the official results for energy intensity fall short of the target. Yet, when we take into account several factors, our FY2011 results actually exceeded our expectations. We had projected less than a 3% improvement as compared to FY2010 (mostly a result of minimal energy investments in FY2007-2009) yet our “raw” intensity reduction was 3.7%. We surmise that our better-than-projected outcome for FY2011 reflects tangible benefits from our stepped-up awareness and culture change initiatives.

B. Performance Considerations: The Air Force is very proud of our history of past successes, having met virtually every federal mandate related to facility energy use since 1975. Most recently the Air Force reduced its facility energy intensity by over 30 percent in a 20-year period ending in 2005. However, we acknowledge that it will be harder to achieve the current 30 percent reduction goal (relative to a 2003 baseline) by 2015, so we need to get more aggressive. When new mandates are considered with previous mandates, the result we are seeking will be an over 60 percent reduction in facility energy intensity from 1975 to 2015.

There are a number of factors that will make it challenging to attain the current 30% reduction mandate by 2015. Most investments require two years from contract award to realize measureable energy savings due to contract and construction lag time. We anticipate that this lag, coupled with the FY2012 expiration of federal agency ability to use renewable energy credits (RECs)/renewable energy towards energy intensity goals may result in the Air Force falling behind energy intensity targets in the near term (FY2011-2015).

The Air Force Civil Engineer's "20/20 by 2020" program seeks to offset a 20% reduction in funding available for installation support activities by achieving a 20% reduction in the Air Force's physical plant that requires funds by 2020. Reducing square footage while consolidating people and functions within a smaller footprint, however, may ultimately penalize the energy intensity metric.

The Air Force is in the process of addressing its lack of an enterprise-wide energy information management system. In FY2011 larger Air Force installations began implementing a programmatic approach for a standard, enterprise-wide automatic energy meter reading solution. The Air Force continued making progress in this area with 6,809 advanced meters having been installed as of the close of FY2011.

Lastly, the Air Force is working with DoD and others on a number of important energy security policy issues and Air Force Subject Matter Experts are working to plan and field practical energy security solutions to these complex issues.

C. Implementation Successes: In August 2011 the Air Force was announced as the recipient of almost half of the U.S. Department of Energy Federal Energy Management Program's 2011 Federal Energy and Water Management Awards earned by Department of Defense entities, and a quarter of awards overall.

The Vandenberg AFB Energy Conservation Program saved more than 144 million Btus in energy and 336,000K gallons of water through awareness and training programs, building retrofits, and innovative energy management and control systems.

Minot AFB earned one of the Air Force's 2011 Reducing Energy Appreciation Program (REAP) awards for surpassing federally mandated energy and water conservation goals. One of the projects that had a significant impact on the base's energy conservation efforts was the revamping of its primary heating systems. The base replaced its primary heating plant with high efficiency pulse boilers in select facilities which led to a savings of \$2.6M in energy and water costs, a 19% reduction in greenhouse gas emissions, and more than \$48,000 in annual maintenance savings. Additionally, since 2007, water consumption has been reduced by 20% since 2007, far exceeding targets, and the base's energy savings has also exceeded its target with a reduction of 31% since 2003.

Toledo ANGB was also the recipient of an Air Force REAP award. Since 2003 the base has reduced its energy consumption nearly 36% and water consumption 10%. Base Civil Engineers developed a systematic approach to the replacement of built-up roofing systems. Now nearly every building has a "cool" roof with R-25 insulation and white highly solar reflective coverings. Engineers also upgraded

fluorescent lights to T-5 bulbs and fixtures and implemented an aggressive heating and air conditioning policy to establish temperature set points. Toledo ANGB implemented an automated base-wide light management system so that all exterior street and parking lot lights automatically turn off when not needed and come back on prior to the next scheduled shift. The base features a 1.2MW utility scale photovoltaic solar electric generation plant which has the capability to produce 37 percent of the base's annual electrical requirements.

Davis-Monthan AFB was awarded the 2011 Air Force Civil Engineer Energy Conservation Award for leading by example and surpassing federally mandated energy and water conservation goals. In addition to executing a 14.5 MW solar renewable energy power purchase agreement (REPP) to provide 35% of the base's electrical power needs at a cost savings of \$500K annually, the use of high efficiency natural gas equipment retrofits reduced emissions of nitrogen oxides (NO_x), carbon monoxide (CO) and carbon dioxide (CO₂) by 30%. Base-wide savings associated with funded and completed energy and water efficiency projects are expected to total \$1.7M annually.

D. Implementation Approach: The Air Force energy vision is to reduce demand through conservation and efficiency, increase supply through alternative energy sources, and create a culture where all Airmen make energy a consideration in everything we do. In FY2012 the Air Force will continue to invest in proven, high-return (both energy and financial savings) projects and initiatives to ultimately meet or exceed conservation mandates. The Air Force will implement proven energy conservation measures and technologies to reduce consumption and minimize costs while matching system reliability and critical asset security with Air Force mission requirements.

Installation audits are the primary source for identification of energy conservation projects. During FY2012 the Air Force will continue to complete energy audits, with the goal of completing audits on 75% of our buildings in 2013. It is expected that more than 1800 project ideas will be generated from the audit reports.

Several different funding sources for capital investments are available for energy efficiency and conservation projects. These sources include regular MILCON funds, regular SRM funds, Energy Conservation Focus (NRG) funds, and Energy Conservation Investment Program (ECIP) funds. The Air Force Capital Investment Plan targets capital investments that will help the Air Force attain required performance improvements. The Air Force Major Commands determine the best method of executing centrally funded energy projects and contracts. Table 1 provides centrally managed investment levels for ECIP and NRG Funds for FY12-FY17.

Table 1: ECIP and Energy Conservation Focus (NRG) Funds

	PROJECT PROGRAM FUNDING (\$M)						
	FY12	FY13	FY14	FY15	FY16	FY17	Total
PROGRAM							
ECIP Projects	37.0	37.0	37.0	37.0	37.0	37.0	222
ECIP Design	3.5	3.5	3.5	3.5	3.5	3.5	21
Energy Initiative (Enabler)	0	0	0	0	0	0	0
Energy Conservation	198.4	180.0	180.0	180.0	0	0	738.4
Total	238.9	220.5	220.5	220.5	40.5	40.5	981.4

The continued use of Energy Savings Performance Contracts (ESPC) and Utility Energy Savings Contracts (UESC) in FY2012 will allow the Air Force to focus on large energy conservation measures such as heat plant decentralization or other more complex technologies. By focusing on these types of projects, third party investments are now an integrated component of the Air Force energy conservation strategy to help achieve energy reduction goals now and in the future.

Studies conducted regarding Leadership in Energy and Environmental Design (LEED) and Energy Intensity Reduction have indicated that new buildings certified under the U.S. Green Building Council's LEED certification system, on average, perform 25% to 30% better than non-LEED certified buildings in terms of energy use. In accordance with the FY2012 Defense Planning & Programming Guidance (DPPG) all new vertical construction and major renovations of Air Force buildings will meet or exceed LEED Silver standards.

In FY2012 the Air Force will continue implementing a programmatic approach for a standard, enterprise-wide automatic energy meter reading solution that began in FY2011 on larger Air Force installations. Advanced metering will enable measurement and verification, provide transparent energy consumption data, facilitate operational decisions, support accurate cost capture and billing, and influence individual behavior.

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a "net zero" posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced environmental, energy and economic performance.

The Headquarters Air Force (HAF) Energy Management Steering Group (EMSG) will continue to manage the enterprise-wide energy conservation program in order to help meet or exceed energy reduction goals. The EMSG will continue to serve as the local focal point for identifying savings opportunities, building energy awareness and driving policy efforts to influence real cultural change.

SUB-GOAL 1.2: By FY2020, Produce or Procure Energy from Renewable Sources in an Amount that Represents at Least 20% of Electricity Consumed by Facilities

Description of Metric

The metric is the percent of total energy consumed by Air Force facilities that is produced or procured from renewable energy sources. The energy may be produced by the Air Force, produced from an Air Force-controlled location, or procured from another source. Renewable energy is defined as per 10 U.S.C. §2911(e) to be either thermal or electrical energy that is produced from renewable sources, including solar, wind, biomass, landfill gas, ocean (including tidal, wave, current and thermal), geothermal (including electricity and heat pumps), municipal solid waste, and new hydroelectric generation capacity if achieved from increased efficiency or additions of new capacity at existing hydroelectric projects. A facility is defined as per EISA §432(1)(C).

Air Force Annual Targets for Sub-Goal 1.2 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
RESULT	8.1%	7.1%									

A. Description of Performance Toward Sub-Goal: EAct 2005 mandates that agencies increase their consumption of renewable energy from 3% in FY2005 to not less than 7.5% by FY2013 and beyond. U.S.C. §2911 DoD must produce or procure at least 25% of its electric energy consumption from renewable sources by the year 2025. In FY2011, 6.1% of the electrical energy used by the Air Force was from a mixture of renewable on-base projects, purchased commercial renewable supply and RECs. While this fell short of the 11% target, it exceeded the EAct 2005 target of at least 5% of all electricity used being derived from renewable sources. When considering performance toward the 10 U.S.C. § 2911(e) renewable energy goal, 7.1% of combined electric and non-electric energy used in FY2011 was from renewable sources. The Air Force is aggressively working projects to reach the target or glide slope effort to reach the 10 USC 2911 goal of 25% in FY2025.

B. Performance Considerations: The Air Force renewable energy plan focuses on the development of on-base renewable electric and non-electric renewable projects that are cost-competitive. The renewable energy market will continue to be constrained for the foreseeable future by prevailing utility commodity costs and the availability of economic incentives, such as Federal, state, and local tax incentives and rebates.

Direct Air Force funding of renewable projects through MILCON or other Air Force capital sources is very rarely cost-effective when compared to commercial utility rates. This is based on inability of the Air Force to gain the benefit of REC sale value, tax rebates and incentives. Investment levels to reach goals

solely by Air Force-funded capital would be in excess of \$7B dollars based on cost per megawatt hour (MWh) of recently installed projects.

These considerations have moved the Air Force to purchase power from third-party financed projects developed on its installations. The developer can recoup the investment by the sale of power, sale of RECs, and take advantage of tax credits. The government will benefit by purchasing lower-cost power and dedicated renewable electric supply on-base. Otherwise, the government cannot benefit from these financial mechanisms (when the Air Force owns the project). Therefore, the primary Air Force strategy for achieving renewable energy goals is the use of third-party investment. This public-private partnership approach helped Nellis AFB reduce its energy costs and convert to 25 percent renewable energy by installed a 14.2-megawatt, 70,000-panel photovoltaic solar array in 2007 that enabled Nell to reduce its CO₂ emissions by 24,000 tons a year.

C. Implementation Successes: In FY11, the Air Force had approximately 181 renewable energy projects on 77 sites either installed and in operation or under construction.

According to the U.S. Environmental Protection Agency's Top 25 list of Green Power Partners, in FY2011 the Air Force was the second largest Federal purchaser of renewable energy and the fifteenth largest overall in the nation. This distinction has been achieved through a mixture of renewable energy on-base projects, purchased commercial renewable energy supply and RECs.

The Air Force hosted a Renewable Energy Symposium at Davis-Monthan AFB in June 2011. The second such Air Force symposium on renewable energy was attended by roughly 75 companies, and provided industry with a chance to learn about opportunities to partner with the Air Force as we seek to add an additional 1,000 MW of renewable energy capacity on Air Force installations over the next few years.

Davis-Monthan AFB was awarded the 2011 Air Force Civil Engineer Energy Conservation Award, in large part due to successfully executing a 14.5 MW solar renewable energy power purchase agreement (REPP) that will provide 35% of the base's electrical power needs at a cost savings of \$500K annually.

In October 2011 the Air Force announced the installation of two new wind turbines at the Massachusetts Military Reservation (MMR). The 1.5 megawatt turbines supplement an existing turbine and were built to offset electrical costs associated with powering groundwater cleanup systems at MMR. It is estimated that the new wind turbines, in conjunction with an existing wind turbine, will produce 10,131 MWh of clean energy, offsetting annual energy use by the groundwater cleanup systems by nearly 93% and saving more than \$1.5 million per year.

The Air Force issued a Sources Sought Synopsis announcement requesting information as the preliminary step in pursuing the Dyess AFB Waste-to-Energy (WTE) facility. The project is for a power purchase agreement (PPA) for renewable energy (electricity) with a vendor who will design, build, own, and operate a WTE electric power generating facility on property leased from Dyess AFB, TX. The Air Force will purchase the entire output of the expected 4-6 MW facility which will be fueled from municipal solid waste and/or biomass.

The Headquarters Air Combat Command Energy Program installed numerous small photovoltaic (PV) arrays at 14 bases by reusing excess solar panel equipment, which is expected to yield an estimated 582,536 MWh in renewable energy over their life cycles.

The Air Force has long recognized the significant role the MILCON program plays in achieving Federal energy mandates. Currently, 70% of the active Air Force MILCON program is pursuing on-site renewable energy generation and/or is incorporating energy conserving roof design elements. To more effectively coordinate renewable energy efforts and to leverage knowledge and resources across the Air Force enterprise we established the Air Force Renewable Energy Project Development (REPD) Panel to provide leadership for, and coordination of, renewable energy projects .

D. Implementation Approach: During FY2012 the Air Force will continue to pursue renewable energy on a cost effective basis through a three tier priority order. The first priority is to develop and put in place on Air Force property (or adjacent federal property) renewable energy generation. Within this priority, there are three avenues to accomplish this. The first is a Renewable Energy Power Purchase Agreement developed with third parties under a utility purchase contract. This allows third party developers to obtain financing and build renewable generation with cost recovery through a long term utility purchase agreement. The second is entering into a utility or other third party financed agreement to provide renewable energy. The third avenue is a direct Air Force investment through military construction (MILCON) or other fund sources where a project is cost effective and best suited for the location and need. The second priority is to procure from local providers renewable energy that is available from the commercial power grid. The third priority is to purchase RECs as a means of obtaining the renewable energy attribute produced from a third party renewable source and contributing to the development of additional renewable investment.

During FY2012 the Air Force REPD Panel will continue to provide leadership for and coordination of renewable energy projects by providing a forum, process, and tools for evaluation and decision-making. Key to incorporation of renewable energy components into new facilities is identification/analysis at the earliest stages of project development. Efforts of the REPD will allow an exchange of information that facilitates identification of viable renewable options for new building construction that are compatible with the local Air Force mission. The REPD will also continue to explore the role of the DoD Energy Conservation Investment Program (ECIP) in augmenting the MILCON funds available for new building renewable energy development. The planned renewable energy projects shown in Table 2 are actively being pursued for the period FY12 through FY15.

Table 2: Planned Renewable Energy Projects FY2012-2015

Fiscal Yr	Base	Project Type	Capacity (KW)	Govt Funded	Third Party Funded	Design Output MWh/Yr	Construction Cost (\$M)
2012	Tinker AFB	Solar PV	300		PPA	526	

AIR FORCE FY2012 IMPLEMENTATION PLAN OF THE DOD STRATEGIC SUSTAINABILITY PERFORMANCE PLAN

Fiscal Yr	Base	Project Type	Capacity (KW)	Govt Funded	Third Party Funded	Design Output MWh/Yr	Construction Cost (\$M)
2013	Luke AFB	Solar PV	15,000		PPA	34,000	
2012	Cape Cod AFS	Wind	3,000	Envir		7,800	10.0
2013	Pave Paws, MA	Wind	3,200	ECIP		8,872	11.5
2012	Davis-Monthan AFB	Solar PV	14,500		PPA	29,215	
2012	Burlington ANGS	Solar PV	1450	MILCON		1,284	5
2012	Ft Stewart ANGS	Solar PV	800	MILCON		1,612	4.5
2013	Nellis AFB	Solar PV	17,000		PPA	25,000	
2013	Cheyenne Mtn AFB	Solar PV	1,000		PPA	1,750	
2013	El Dorado Pave Paws Site, TX	Wind	6,000		PPA	27,594	
2013	Spangdahlem AB	PV Roof	600	ECIP		788	3.6
2013	Otis ANGB	Solar PV	6,000		PPA	11,563	
2013	JB McGuire-Dix	Solar PV	9,000		PPA	18,133	
2013	Sheppard AFB	Solar PV	3,000		PPA	6,044	
2013	JB Elmendorf - Richardson	Landfill gas	6,400		UP	50,000	
2014	McConnell AFB	Wind	6,000		PPA	18,396	
2014	2 Alaskan Long Range Radar Site (LRRS)	Wind	1,000	ECIP		3,066	13.5
2014	Vandenberg AFB	Wind	48,000		PPA	135,000	
2014	Dyess AFB	Waste to Energy	5,400		PPA	42,574	

Fiscal Yr	Base	Project Type	Capacity (KW)	Govt Funded	Third Party Funded	Design Output MWh/Yr	Construction Cost (\$M)
2014	Eglin AFB	Woody Biomass	25,000		PPA	157,680	
2015	RAF Molesworth	Wind	500	ECIP		900	2.7
2015	Eareckson Air Station	Wind	1,500		PPA	4000	
2015	Davis-Monthan AFB	Waste to Energy	7,000		PPA	34,690	

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a “net zero” posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced environmental, energy and economic performance.

SUB-GOAL 1.3: Use of Petroleum Products by Vehicle Fleets Reduced 30% by FY2020 Relative to FY2005

Description of Metric

The metric is the percent reduction in petroleum product consumption by Air Force non-tactical motor vehicle fleets relative to FY2005. Only fleets numbering 20 motor vehicles or more are covered.

Air Force Annual Targets for Sub-Goal 1.3 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	10%	12%	14%	16%	18%	20%	22%	24%	26%	28%	30%
RESULT	7%	8%									

A. Description of Performance Toward Sub-Goal: In FY2011 the Air Force reduced its petroleum consumption by 8% and did not meet its target of 12% relative to FY2005. An exercise in data reconciliation revealed that not all ground fuel data was being accounted for in past reporting, resulting in more than 500,000 gasoline gallon equivalents (GGE) of additional fuel consumption. We remain committed to reducing our consumption of petroleum products in Air Force non-tactical vehicle fleet with a diverse portfolio of acquisition strategies, alternative fuel use, vehicle management best practices, and by exploring new and emerging technologies that are fit for purpose. Since FY2005 alternative fuel use has increased by 70% (800,000 GGE).

B. Performance Considerations: The lack of commercial alternative fuel refueling infrastructure continues to be a challenge for the Air Force and other Federal agencies. In many cases alternative fuel that would otherwise be used instead of petroleum fuel is not reasonably available due to the proximity of refueling stations to installations. For purposes of compliance with the Energy Policy Act of 2005 (EPA 2005) an alternative fuel is “not reasonably available” if it cannot be obtained within a 15 minute drive or within five miles (one way) of a vehicle’s garaged location. In such cases the Air Force can and does request an alternative fuel use waiver in accordance with EPA 2005. Of the more than 7,000 E85 capable AFVs in the Air Force Fleet, the Air Force requested an alternative fuel use waiver for 3,663 vehicles on the basis that E85 was not available.

AFV availability for Air Force purchase is dependent on both the number and type of AFVs being produced by original equipment manufacturers (OEMs). Another consideration impacting the ability of the Air Force to meet its performance targets is the availability of AFVs that meet Air Force requirements, as well as the availability of OEM-recognized service and maintenance infrastructure.

One of the actions the Air Force has taken is to create an alternative fuel infrastructure checklist in order to prioritize alternative fuel projects for funding by Defense Logistics Agency-Energy (DLA-Energy). The Air Force is currently not pursuing new compressed natural gas (CNG) infrastructure because of the diminishing availability of CNG vehicles that meet Air Force mission requirements and the high cost of new refueling infrastructure.

C. Implementation Successes: In September 2011 the Air Force announced plans to establish Los Angeles AFB as the first federal facility to replace its owned and leased general purpose fleet vehicles with electric vehicles (EVs). There are approximately 40 eligible vehicles, ranging from passenger sedans to two-ton trucks and shuttle buses. Vehicles used for force protection, and tactical and emergency response vehicles, are exempt.

We continue to develop a new vehicle validation tool that will support truly “right-sizing” our vehicle fleet to meet overall Air Force needs. The tool will balance mission requirements with installation-specific demands and vehicle availability, and will also place an emphasis on alternative fuel use, fuel efficient hybrid technology, and reducing greenhouse gas (GHG) emissions. Over the past 18 months, the Air Force successfully down-sized 370 large Class III/IV vehicles to smaller, more efficient models.

The Air Force has been deploying AIM2 Radio Frequency Identification (RFID) devices on all CONUS-based fleet vehicles as a means of more effectively tracking and reporting fuel consumption. The AIM2 RFID is also being used to monitor and reduce vehicle idling which will generate additional fuel savings and reduce air emissions.

In FY2011 the Air Force acquired 942 E-85 alternative fuel vehicles (AFVs), bring the total number of E85 vehicles in the Air Force inventory to 10,151. We also acquired 477 hybrid electric vehicles (HEVs) bring the total number in our inventory to 955. Approximately 27.6% of the Air Force’s light duty applicable fleet is now either an HEV or an AFV. The Air Force began evaluation of the logistical aspects of re-locating AFVs to areas where the Air Force already has access to alternative fuels, and to install new

alternative fuel infrastructure on-base where there is demand. One E85 on-base fuel station was added at Dover AFB in the last six months. The Air Force now has 28 E85 and 63 B20 on-base fuel stations.

D. Implementation Approach: In accordance with the 24 May 2011 Presidential Memorandum on Federal Fleet Performance the Air Force developed and submitted to the General Services Administration (GSA) our comprehensive Vehicle Fleet Management Plan. The plan addresses procedures to achieve the minimum most fuel efficient, economical-to-maintain vehicle inventory to accomplish the mission; the number and types of vehicles owned/leased and the purpose each vehicle serves; and plans for acquiring all AFVs by 31 December 2015. The Air Force will continue executing plan elements during FY2012.

The Air Force's AFV acquisition strategy allows the flexibility for the USAF to make the decision to procure either an AFV, and HEV or a conventional vehicle in order to meet mission requirements. The number of HEVs that the Air Force will be able to procure is limited by the availability and types of HEVs available through the GSA.

In FY2012 the Air Force will continue evaluating the logistical aspects of re-locating AFVs to areas where the Air Force already has access to alternative fuels, and to install new alternative fuel infrastructure on-base where there is a demand-based business case to do so. We will continue procuring low-GHG-emitting vehicles (as defined by EISA § 141) in FY2012. The Air Force also expects to finalize an internal policy that will help identify those vehicles that will be exempt based on functional requirements and require that low-GHG-emitting vehicles are procured for all applicable vehicles.

During FY2012 we will also continue development of an Air Force vehicle validation tool that will support truly "right-sizing" our vehicle fleet. The tool will balance mission requirements with installation-specific demands and vehicle availability, with an emphasis on alternative fuel use, fuel efficient hybrid technology, and reducing GHG emissions.

The Air Force will continue deploying AIM2 Radio Frequency Identification (RFID) devices on all CONUS-based fleet vehicles in FY2012. The AIMR2 RFID will allow more effective tracking and reporting of fuel consumption, and is also being used to monitor and reduce vehicle idling. Reduced vehicle idling will generate additional fuel savings and reduce air emissions.

The Air Force will continue to populate and refine an enterprise-wide energy dashboard that will provide increased visibility of energy consumption and metrics, including ground vehicle fuel metrics, to every Airman.

SUB-GOAL 1.4: Ten Landfills or Wastewater Treatment Facilities Recovering Biogas for Use by DoD by FY2020

Description of Metric

The DoD metric is based on the cumulative number of qualifying landfills and wastewater treatment

AIR FORCE FY2012 IMPLEMENTATION PLAN OF THE DoD STRATEGIC SUSTAINABILITY PERFORMANCE PLAN

facilities that are owned by DoD and became operational for the production, capture and use of methane from biogas; or that are owned by other parties, with which DoD has entered agreements to buy biogas (or energy from it), and became operational for the production and capture of methane from biogas for use by the DoD. A project will be counted towards the sub-goal if it came on-line during FY2010 or later; and it results in the collection, on average, of at least 50,000 standard cubic feet of biogas per day.

DoD Annual Targets for Sub-Goal 1.4 by Fiscal Year*

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	-	0	2	3	4	5	6	7	8	9	10
RESULT	n/a	2									

*No Air Force-specific targets have been provided by OSD for this Sub-Goal

A. Description of Performance Toward Sub-Goal: The metric and sub-goals have been established by OSD at the DoD level. While OSD has not yet provided guidance as to how project responsibility will be allocated among the Services, the Air Force currently has one qualifying landfill project at Hill AFB.

B. Performance Considerations: The Air Force has outsourced most landfill and wastewater treatment requirements for economic reasons. Most installations receive these services from municipal providers who control the methane resource from the facilities. Awareness and municipal development of renewable resources is increasing across the country so availability of these resources is decreasing. The large capital costs generally associated with gas collection at wastewater plants make the economics for these projects difficult to justify. Despite these considerations, the Air Force has included landfill gas as a reviewed item in Renewable Energy Feasibility studies completed for all major U.S. installations. Additional efforts will be incorporated to evaluate wastewater treatment sources where there appears to be potential.

C. Implementation Successes: At Hill AFB landfill gas from the nearby Davis County landfill is piped to three on-base power producing generators totaling 2.3 MWs. This project was funded with no upfront capital to the Air Force utilizing a 20 year contract through the Department of Energy (DoE) Energy Savings Performance Contract (ESPC) that provides the base with inexpensive, reliable, renewable energy. In FY2011, the project produced 14,949 MWh of energy.

D. Implementation Approach: The Air Force Civil Engineering community is very aware of the energy potential of landfill gas, has actively evaluated a number of Air Force landfills, and is engaged with municipalities on mutual use of off base landfill opportunities. Additional work will be focused on wastewater treatment facilities.

During FY2012, work will continue on a landfill gas recovery project at Joint Base Elmendorf Richardson (JBER). The result of a three way partnership between the Municipality of Anchorage Solid Waste Services Department, the JBER Utility Privatization Contractor and JBER, the project will divert landfill gas currently being flared off to meet federal Clean Air Act requirements from the existing flare facility

to a scrubber facility located at the landfill. The processed gas will then be piped to an electric power generating plant located on JBER. The power plant, designed to be able to use both landfill gas and commercial natural gas, will consist initially of four (4) 1.2 MW units that will generate a total of 4.8 MW. After the first five years of operation, as landfill gas production increases due to the degradation of landfilled waste, a fifth, 1.2 MW unit is planned. The energy plant is anticipated to be operational in 2013. The facility will provide approximately 23% of the general operating demand and can support all emergency power needs at JBER.

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a “net zero” posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced environmental, energy and economic performance.

GOAL 2: Water Resources Management Improvement

SUB-GOAL 2.1: Potable Water Consumption Intensity by Facilities Reduced by 26% of FY2007 Levels by FY2020

Description of Metric

The metric is the percent reduction relative to FY2007 in total potable water consumed by Air Force facilities per gross square foot of total building space. Consumption includes the loss of water after it is delivered (for example though leaking or malfunctioning fixtures such as toilets). A facility is defined as per EISA §432(1)(C).

Air Force Annual Targets for Sub-Goal 2.1 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	6%	8%	10%	12%	14%	16%	18%	20%	22%	24%	26%
RESULT	11.3%	13.1%									

A. Description of Performance Toward Sub-Goal: The Air Force achieved an estimated 13.1% reduction in potable water intensity from the FY2007 baseline, exceeding the FY2011 target of 8%. This reduction is the result of water system improvements and conservation efforts and initiatives under the Air Force Sustainment, Restoration, and Modernization program.

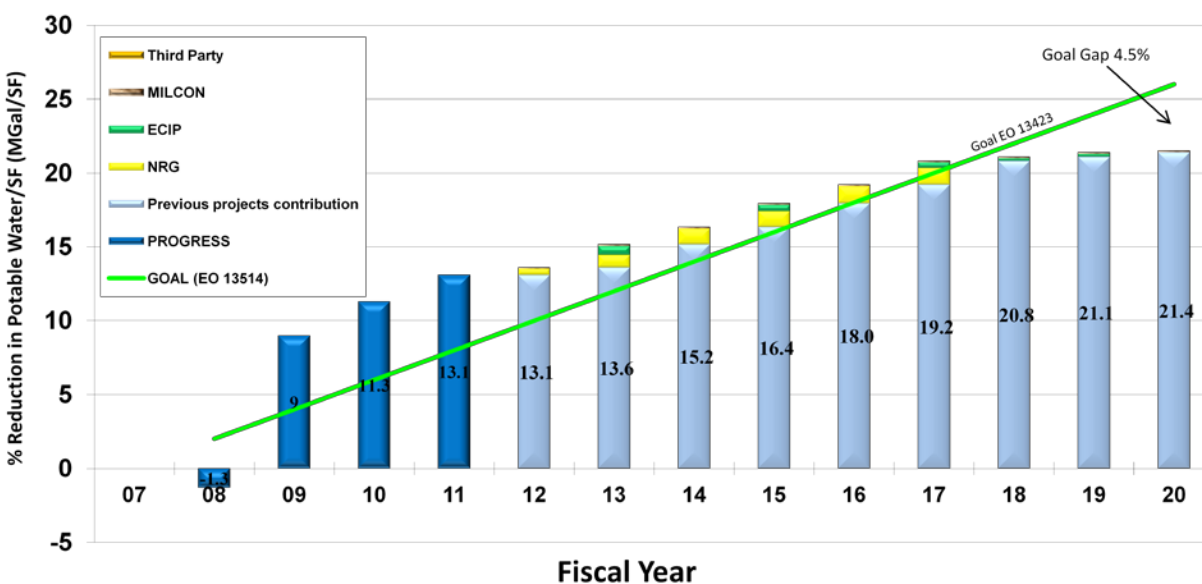
B. Performance Considerations: The primary considerations associated with reducing potable water consumption include: (1) distribution systems currently being unmetered or inadequately metered; (2) difficulty justifying investment in conservation projects because of the relatively low cost of water that often makes return on investment and economic justification for projects difficult; and (3) an aging water infrastructure and associated unmetered water loss. Other considerations include changing

climatic conditions such as the record-setting heat and drought conditions experienced by much of the continental United States during FY2011.

An on-going challenge will be the relatively short life expectancy of water conservation equipment and the associated need for a regular replacement program. According to established ECIP program life cycles water fixtures typically have only a 5 year life cycle so they need to be changed out in due time in order to maintain water savings. Installations will need to either establish a replacement program or program another project to ensure water savings are maintained over time.

C. Implementation Successes: The conducting of leak detection/repair activities and successful incorporation of Leadership in Energy and Environmental Design (LEED) design principles into new MILCON are the principle factors that contributed to the Air Force's success in FY2011. Figure 1 projects Air Force progress towards meeting potable water reduction goals through FY2020.

Figure 1: Air Force Projected Progress Toward Water Reduction Goals, FY2007-FY2020



D. Implementation Approach: In FY2012 the Air Force will continue to invest in proven, high-return (both water and financial savings) projects and initiatives to ultimately meet or exceed water conservation goals. Primary factors and actions that are expected to lead to continued success at reducing potable water consumption include: conduct of system leak checks and repairs; widespread utilization of low-flow bathroom fixtures; extensive use of xeriscaping and native grasses/plants in landscaping; development and use of reclaimed water irrigation systems at installations; and incorporating LEED design principles into new MILCON.

The Air Force will also continue to implement FEMP's Water Best Management Practices (BMPs) to the greatest extent possible in FY2012. These BMPs, originally implemented as a result of EO 13123, have proven to reduce water consumption and provide a valuable tool in the Air Force's overall water reduction strategy.

The Air Force incorporates water conservation in its energy audits. Water conservation measures identified are submitted for funding and vetted based on return on investment, legal requirements and impact to critical infrastructure. Water conservation projects that score well are funded and implemented with follow-up with periodic measurement and verification. Table 3 identifies example water conservation projects for FY2011 and beyond.

Table 3: Example Air Force Potable Water Conservation Projects

Location	Project Description
FE Warren AFB	ECP – conduct leak detection/repair potable water distribution system
Whiteman AFB	Repair water line 5 th street
Tinker AFB	ESPC project for steam plant decentralization will eliminate three steam plants
Hill AFB	Reduce aircraft wash water through recycling, saving 4.2MGal annually; evaluate potable water distribution system
McConnell AFB	Conduct leak detection/repair activities
Edwards AFB	Conduct leak detection/repair activities on main base and Air Force Research Laboratory
Lackland AFB	Repair men’s shower and locker rooms in fitness center; repair water lines in areas 9000 and 1000; renovate rest rooms in Bldg 7535
Arnold AFB	Phase 2 of water distribution system project to reduce potable water consumption (will complete in FY12)
Peterson AFB	Replace toilets, urinals, faucets and shower heads with low consumption equivalents in 14 facilities saving 5.9MGal annually
Eglin AFB	Various conservation measures at numerous buildings
Hanscom AFB	Repair steam and condensate lines
Cape Canaveral AS	Repair potable water lines in port area, repair water distribution system in northern portion of installation
Patrick AFB	Repair water distribution system and pumps. Replace old cast-iron, ductile iron or galvanized mains and piping with PVC pipe at various locations throughout the base
Schriever AFB	Replace toilets/urinals with low-flow systems
Travis AFB	Conduct leak detection/repair activities
Osan AB	Repair leaking water lines, saving 84 MGal annually
Kadena AFB	Conduct leak detection/repair activities
Spangdahlem AB	Install low-flow water fixtures in dorms, expected to save 15.4 MGal, \$230K annually

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a “net zero” posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced environmental, energy and economic performance.

SUB-GOAL 2.2: Industrial and Irrigation Water Consumption Reduced by 20% of FY2010 Levels by FY2020

Description of Metric

The metric is the percent reduction relative to an FY2010 baseline in total Industrial, Landscaping, and Agricultural (ILA) water consumed by the Air Force for irrigation (agricultural and/or landscaping) and industrial purposes (for industrial processes that do not require potable water).

Air Force Annual Targets for Sub-Goal 2.2 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	-	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%
RESULT	n/a	17.8%									

* estimated

A. Description of Performance Toward Sub-Goal: Despite challenging climactic factors and a generally low payback for water conservation projects the Air Force achieved an estimated 17.7% reduction in ILA water intensity from the FY2010 baseline, exceeding the FY2011 target of 2%. This reduction is the result of water system improvements and conservation efforts and initiatives under the Air Force Sustainment, Restoration, and Modernization program. With continued emphasis on xeriscaping, water recycling/reuse, and other conservation measures the Air Force expects to continue to meet ILA water reduction goals. Although the data was gathered using current guidance and estimating techniques and cannot be verified with actual metered measurements the Air Force is confident of meeting the ILA reduction goals.

B. Performance Considerations: The most challenging issues affecting ILA water efficiency performance are variable and uncontrollable climatic conditions, the low payback for water conservation projects in general, and the estimation, versus actual measurement of, up to 90% of total reported ILA water consumption.

C. Implementation Successes: Installations across the Air Force have benefited from xeriscaping to reduce water consumption, and implementing recycling projects to service remaining landscaping applications. Ellsworth AFB has identified 17 high profile areas, spanning approximately 50 acres, where water dependent blue grass will be eliminated and replaced with a drought resistant prairie grass mix that requires less irrigation. Ellsworth AFB expects to save an estimated 11 million gallons of water each year, resulting in an annual cost savings of \$113,000.

Holloman AFB is one of the bases in the Air Force extensively adapted to its desert environment with base-wide xeriscape landscaping and the use of artificial turf on exercise and parade fields. The 47 acre golf course is the only large area of irrigated ground and up until September 15, 2011 was irrigated with potable drinking water. In 2011, Holloman installed a treated wastewater reuse system for irrigation of the golf course, replacing more than 70 million gallons per year of potable water. This amounts to more than 15% of Holloman's annual water demand.

Because of the complexity of determining what utility information is required to be collected and reported to satisfy various legislative and Executive Order drivers, and to provide clear guidance on how to report it, the Air Force in 2011 issued *Engineering Technical Letter (ETL) 11-6: Utilities Reporting for Air Force Facilities*. The ETL established roles, responsibilities, and procedures to standardize utilities reporting for Air Force active duty, Reserve and National Guard installations and activities.

D. Implementation Approach: Air Force FY2012 initiatives to reduce the consumption of water used for irrigation and industrial purposes will include: the implementation of xeriscape landscaping practices that group together plants with similar watering requirements and/or utilize drought resistant native plant species; the use of more water efficient drip versus sprinkler irrigation systems; collection and use of rain water; and recycling of gray water from laundry, dishwashing and bathing for use in landscaping and irrigation. Some Western states, including Utah, Washington, and Colorado, actually prohibit individuals and organizations from collecting rainwater on their own properties as an unlawful diversion of rainwater that affects aquifer and groundwater supplies.

Because the Air Force is currently addressing non-potable water usage as a result of state and local water conservation requirements it is important to recognize that in some states, particularly those that follow the prior appropriation water law system, a significant reduction in water consumption over time may result in a partial forfeiture or abandonment of the water right. The precise circumstances that could produce this result vary widely state by state. Other factors, including whether the installation's right is a federal reserved water right, are relevant in making this complex determination. Air Force installations will have to continue to seek advice from their legal office to determine whether such a result is possible in their jurisdiction and to identify steps that can be taken to protect the water right. Table 4 provides example Air Force ILA water conservation projects for FY2011 and beyond.

Table 4: Example Air Force ILA Water Conservation Projects

Location	Project Description
FE Warren AFB	Increase non-potable water in base lakes and install required infrastructure to use lake water for irrigation, replacing potable water currently used. Install sub-surface irrigation system
FE Warren AFB	Three projects to replace Kentucky Blue Grass with Buffalo grass, reducing irrigation requirements by 80%, saving approximately 50MGal annually
Hill AFB	Repair Memorial Park with goal of reducing water consumption and increase efficiency by minimizing the use of sprinkler style irrigation systems; repair the Maxi-Com irrigation system and xeriscape irrigated greenspace

Location	Project Description
Peterson AFB	Repair irrigation plant beds
Incirlik AB	Provide wastewater reuse irrigation system for Incirlik base golf course and surrounding area
Kirtland AFB	Design 300,000 gallon water tank that will hook up with the local County Water Authority's reusable water supply for base landscaping; replace grass with xeriscaping

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a "net zero" posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced environmental, energy and economic performance.

SUB-GOAL 2.3: All Development and Redevelopment Projects of 5,000 Square Feet or Greater Maintain Pre-Development Hydrology to the Maximum Extent Technically Feasible

Description of Metric

The metric is the percent of applicable projects (those development and redevelopment projects of 5,000 square feet (ft²) or greater) that can demonstrate with documentation that they maintain or restore, to the maximum extent technically feasible, the pre-development hydrology of the property with regard to the temperature, rate, volume, and duration of flow.

Air Force Annual Targets for Sub-Goal 2.3 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	-	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
RESULT	n/a	100%									

A. Description of Performance Toward Sub-Goal: The Air Force Civil Engineer (AF/A7C) issued detailed *Air Force Sustainable Design and Development (SDD) Implementing Guidance* in June 2011. There is currently no enterprise-wide method for tracking and reporting compliance with the goal. However by virtue of the OSD policy, the inclusion of the SDD requirements in UFC 3-210-10, and the fact that the requirements of the Air Force implementing guidance memorandum are not optional, it is expected that 100% of all projects comply.

B. Performance Considerations: The Air Force has recently identified the Automated Civil Engineer System – Program Management (ACES-PM) platform as an existing tool to collect and assess Air Force compliance with the requirement. Although briefings to senior Air Force leaders, water program managers, and MILCON project managers have been completed, the tool is not being used to the extent

envisioned. Air Force management is evaluating the issue to identify underlying causes, and to determine if it is necessary to issue a time- and labor-intensive data call to obtain the necessary data.

Although the performance requirements of EISA § 438 apply only to a project's footprint, the flexibility exists to utilize the entire federal property in implementing the stormwater strategies for a project. Therefore, alternatively the installation may report compliance with this metric by reporting completion of an installation-wide stormwater management hydrology evaluation that defines the installation pre-development condition and demonstrates, through established hydrology methods and tools, the post-development parameters of temperature, rate, volume and duration of storm water flow do not exceed pre-development parameters at the federal property boundary.

C. Implementation Successes: The 2011 issuance of Air Force SDD guidance reinforced our commitment to incorporate sustainable concepts, including low impact development and stormwater management, into the planning, programming, design, construction and operation of facilities and infrastructure.

The Air Force uses a variety of low impact stormwater and green infrastructure practices to comply with EISA § 438. Typical compliant projects include rain gardens, vegetated swales, blue roofs, green roofs, porous pavements and detention/bioretention ponds. Because each of these features has pros and cons that require careful evaluation prior to construction it is important to consider O&M costs prior to design and construction activities. Air Force personnel recently developed a tool to assist base civil engineering staffs in evaluating their project's pre-development and post-development hydrology parameters. The tool enables engineers to run different scenarios quickly to find the best solutions for a specific project. The tool is available to users on a ".mil" domain and can be found at the Air Force/A7C eDASH website at:

[https://eis.af.mil/cs/eDASH/Web%20Part%20Pages%20%20Main%20Pages/QueryFilterTopics.aspx?Topic=EISA 2007 Section 438](https://eis.af.mil/cs/eDASH/Web%20Part%20Pages%20%20Main%20Pages/QueryFilterTopics.aspx?Topic=EISA%202007%20Section%20438)

In 2011 Joint Base Andrews-Naval Air Facility Washington (JBA) proposed redevelopment of the existing Malcolm Grow Medical Center (MGMC) on Andrews AFB. JBA announced its intent to construct a consolidated ambulatory care clinic (ACC) to replace out-dated facilities on the MGMC medical campus. The ACC will be a consolidated building consisting of a service center, specialty care center, ambulance shelter, and a building connector; project-wide elements include new construction, demolition and renovation of existing construction, utility work, and beneficial landscaping. Construction will result in a net decrease of impervious surface and reduce the quantity of runoff that requires control and treatment. Central to the development plan for the new ACC, parking garage, and parking lots is the integration of low impact stormwater management features and bioretention devices. Specific management features, such as detention basins and infiltration structures, will be selected during the project design phases in accordance with the JBA Stormwater Pollution Prevention Plan (SWPPP). Because the demolition of the existing facilities and construction of the ACC will consist of redevelopment of ten buildings (totaling 412,654 square feet in size) into the 344,542 square-foot ACC,

there will be more green space and pervious surfaces in the developed area providing long-term direct beneficial effects. Similarly, the design of the four-story parking garage will result in less stormwater impact than the existing parking lots which the garage will replace.

To comply with California Ocean Plan requirements at Pillar Point AFS intended to protect the adjacent James V. Fitzgerald Marine Reserve, the Air Force proposed to implement a low impact development (LID) retrofit project in 2011. The proposed project would replace an existing concrete drainage ditch with a series of vegetated bioretention cells, and install two additional cells. The surface area of the cells will total approximately 0.26 acres. The project will help promote infiltration of storm water runoff from impervious areas, reduce runoff flow rates, and improve the quality of residual stormwater runoff. Engineered fill in the cells will be mixed with optimized percentages of different soil types to maximize the storage capacity of the cells, each of which would also be planted with native wetland vegetation. While not yet finalized, staff of the California Coastal Commission agreed with Air Force engineers that the LID project at Pillar Point AFS will reduce the volume of storm water and residual pollutants discharged to the Pacific Ocean, will not adversely affect coastal resources, and will be fully compliant with regulatory requirements.

D. Implementation Approach: The Air Force issued updated Sustainable Design and Development Guidance in June 2011 to establish the implementation, management, and reporting methods to comply with EISA § 438. The Air Force SDD memorandum reinforced the Air Force commitment to incorporate sustainable concepts , including low impact development and stormwater management, in the planning, programming, design, construction and operation of 1) new projects with a footprint greater than 5,000 ft², and 2) existing facilities that expand their footprint by more than 5,000 ft² .

Beginning in FY2012 and regardless of funding source all permanent construction activity on Air Force installations in the United States (including Alaska and Hawaii) and its territories on permanent Active Air Force installations, resulting in Air Force Real Property Assets, are required to comply. Compliance is also required of DoD or other federal agency that has an applicable construction project on an Air Force installation. The policy also applies to overseas construction activities to the extent practicable, considering mission objectives and Host Nation agreements. Sustainable elements necessary to comply with SDD requirements cannot be eliminated to save scope or cut cost. A separate line item entitled “SDD, EPAActo05, EO 13423, EISA 438 and EO 13514” is required to list the scope and estimated cost of comply with the identified sustainability drivers.

OBJECTIVE 2

DoD Readiness Maintained in the Face of Climate Change

GOAL 3: Greenhouse Gas Emissions from Scope 1 and 2 Sources Reduced 34% by FY2020, Relative to FY2008

Description of Metric

The terms “target subject” and “target excluded” refer to GHG emission sources that agencies are required or not required to include in their GHG emissions reduction target under EO 13514. While EO 13514 requires agencies to report all relevant GHG emission sources in the agency GHG inventory, DoD’s GHG target excludes tactical vehicles and equipment. The metric addresses the reduction of targeted Scope 1 and Scope 2 GHG emissions that fall within the Air Force operational boundary. Scope 1 emissions are direct emissions from sources that are owned or controlled by the Air Force. They result from the combustion of solid, liquid or gaseous fuels in: stationary sources used in the generation of electricity, heat, cooling or steam; non-tactical mobile sources such as fleet vehicles and construction and support equipment; and from fugitive releases of fluorinated gases used in refrigeration and air conditioning equipment. Scope 2 emissions are indirect emissions associated with the consumption of purchased or acquired energy such as electricity and steam, and for heating and cooling.

Air Force Annual Targets for Goal 3 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	3%	5%	7%	10%	13%	16%	19%	22%	28%	30%	34%
RESULT	14%	17.5%									

A. Description of Performance Toward Sub-Goal: The Air Force achieved an estimated 17.5% reduction in Scope 1 and 2 GHG emissions against the FY2008 baseline, exceeding the FY2011 target of 7%. This reduction is a result of initiatives implemented under the Air Force energy strategy that simultaneously reduce energy consumption, regulated air pollutants under the Clean Air Act, and Scope 1 and 2 GHG emissions.

B. Performance Considerations: The same challenges that impact the Air Force’s ability to implement energy efficiency, conservation and renewable measures (i.e., incomplete metering infrastructure, limited funding for project, reduced maintenance funding, etc.) also impact our ability to achieve the Scope 1 and 2 GHG emissions reduction target. Despite those challenges, continued visibility of the operational and environmental benefits associated with Air Force energy strategy initiatives is expected to allow the Air Force to meet the 34% reduction target.

C. Implementation Successes: Initiatives implemented under the Air Force energy strategy have demonstrated the ability to simultaneously reduce energy consumption, regulated air pollutants under

the Clean Air Act, and Scope 1 and 2 GHG emissions. Sub-goals 1.1, 1.2 and 1.3 discussed earlier in this plan provide examples of energy strategy successes that have contributed to GHG emissions reductions.

While operational emissions are not subject to GHG reduction targets the Air Force continues to assess opportunities to achieve operational emission reductions without compromising our ability to execute the mission. In FY 2011, the Air Force evaluated operating procedures on the E-3 airborne warning and control system (AWACS) and found that certain procedures could be modified to reduce emissions of the potent fluorinated GHG sulfur hexafluoride (SF6) without impacting mission. Crews now wait until the aircraft reaches an altitude of 20,000 ft before turning on the radar, an action that reduces the amount of gas typically vented during aircraft climb out by approximately 50%.

D. Implementation Approach: In FY2011, energy use accounted for approximately 98% of Air Force Scope 1 and 2 targeted emissions. We recognize that energy use and GHG emissions are closely linked, and that the same factors impacting energy consumption also affect GHG emissions. The Air Force energy strategy – reduce demand through conservation and efficiency, increase supply through alternative energy sources, and create a culture where all Air Force employees make energy consideration in everything we do – is fundamental to our ability to achieve the Scope 1 and 2 GHG emissions reduction goal of 34%.

The Air Force expects to achieve the Scope 1 and 2 GHG reduction targets in FY2012 and beyond by implementing energy efficiency and conservation measures; continuing the acquisition and use of more energy efficient equipment and technologies; leveraging Air Force and private sector investment to implement proven, high-return energy projects and increase the use of renewable energy sources; and reducing the generation and disposal of solid waste. Implementation of energy efficiency and conservation initiatives will reduce not only the fossil fuels consumed directly through boilers, fleet vehicles and construction and other support equipment, and indirectly through the consumption of fossil fuel-generated electricity, but also the resulting GHGs and other Clean Air Act regulated emissions. When coupled with initiatives to increase the use of energy produced or procured by renewable sources, and evaluation of opportunities to recover biogas from waste management activities, the Air Force expects to meet or exceed annual reduction targets and achieve the 34% reduction target by FY2020.

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a “net zero” posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals, and provide the impetus for enhanced environmental, energy and economic performance.

In FY2012 the Air Force will continue evaluating opportunities to reduce SF6 emissions associated with the operation of the E-3 AWACS. Expected actions include minimizing system leaks, and initiating the steps necessary to institutionalize the recovery and reuse of SF6 from the E-3. Once the Air Force is assured that recycled SF6 is suitable for use in the E-3, it will identify appropriate SF6 gas-reclaiming cart

A. Description of Performance Toward Sub-Goal: Because efforts to account for and reduce Scope 3 GHG emissions are recent and evolving, this subgoal reflects a phased approach for achieving a 7% reduction in air travel emissions by FY2020 relative to FY2011. The FY2011 and FY2012 reduction target of 0% reflects acknowledgement of the lead time necessary to begin to manage an issue that has not previously been tracked, and to make the technical and policy changes required to achieve targeted reductions.

B. Performance Considerations: Responsibility for travel decisions lies with individual commanders and organizations. As TDY travel is driven by any number of operational and mission requirements and needs and is strongly influenced by the budget environment, advocacy by senior leaders will be needed in order to achieve sustained reductions in air travel and the associated reductions in GHG emissions envisioned by this goal. Even with such advocacy, revisions to joint federal travel regulations by an organization such as the Office of Personnel Management would ultimately be needed to memorialize and incorporate requirements into regulation.

Increased emphasis on the use of audio and video teleconferencing, and the affect of current and projected fiscal constraints on TDY travel, have the potential to synergistically reduce the number of personnel using air transportation in the execution of their job responsibilities, and in so doing reduce associated Scope 3 GHG emissions. Additionally, greater use of virtual telecommunication technologies presumes that available budgets will allow for their acquisition and more widespread use, a presumption that may conflict with the current fiscal environment and DoD and corporate Air Force efficiency initiatives. While greater use of telecommunication technologies will reduce air travel-related GHG emissions it is important to recognize that such reductions will be offset by additional facility electricity/energy consumption, a factor that ultimately conflicts with efforts to reduce Scope 1 and 2 GHG emissions.

Air Force manpower and mission requirements are not static and vary over time. Variations in the number of uniformed and civilian Air Force personnel, changes in mission, and the development, introduction and maintenance of new systems are all factors that can influence the need for and frequency of TDY travel. While some travel may be eliminated or reduced due to telecommunication technologies, the need to be physically located at a duty area will remain in many cases, which in turn will impact GHG emissions associated with TDY travel.

C. Implementation Successes: The Air Force minimizes employee air travel by complying with the 14 March 2011 SECDEF memorandum "Track Four Initiative Decisions." The SECDEF memo mandates that all DoD travel authorizations/orders must include justification that alternate means such as, Secure Video Teleconference (SVTC) or other web-based communication, are not sufficiently able to accomplish travel objectives of organizational missions. The Joint Federal Travel Regulations (JFTR) and the Joint Travel Regulations (JTR) have been updated to comply with this mandate.

D. Implementation Approach: The Air Force will reduce costs and GHG emissions associated with employee TDY travel, when practicable, in a manner consistent with the SEDEF memo and DoD's

planned implementation approach. In the short term the Air Force believes recent personnel, budgeting and programming actions, coupled with increased use of technology-based conferencing capabilities, will serve to reduce the number of authorized TDYs and thus associated air travel emissions. The Air Force will also encourage employees to consider travel distances in deliberations on where to site a conference, and use alternative travel modes (such as using rail for travel between cities on major rail corridors) in lieu of air travel.

SUB-GOAL 4.2: 30% of Eligible Employees Teleworking at Least Once a Week, on a Regular, Recurring Basis, by FY2020

Description of Metric

The metric is the percent of Air Force employees eligible to telework who are doing so at least once a week on a regular, recurring basis. The eligible workforce consists of encumbered civilian positions which, based on the characteristics of the position and the incumbent, are suitable for teleworking on a regular and recurring basis (at least one day per pay period). Telework can be at any approved location: home, a regular General Services Administration telework Center, and/or a secure telework site meeting the additional requirements for facility construction, network security, and access control for employees needing access to classified networks. An employee's day off during a compressed work schedule cycle does not count as a telework day.

Air Force Annual Targets for Sub-Goal 4.2 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	-	10%	15%	17%	19%	21%	23%	25%	27%	29%	30%
RESULT	n/a	6%									

A. Description of Performance Toward Sub-Goal: As of September 2011, approximately 800 civilian employees (about 6% of the eligible workforce) teleworked at least one day per pay period, a 1% increase from the previous year. Although the 30% goal for FY2020 is aggressive, it is believed to be achievable with the appropriate manager and/or supervisory support.

B. Performance Considerations: Because of unique requirements of the Air Force military mission, many supervisors are unable to support telework due to the need to have the employee at the worksite. As supervisors become more experienced at supervising employees in a telework status, the Air Force expects to see the number of employees participating in telework programs increase. In order for telework data to be collected employees must enter their time under a Telework function on the employee time card. DoDI 1035.01, Telework Policy, reflecting the new requirements of the Telework Enhancement Act of 2010, was released on 4 April 2012.

C. Implementation Successes: SAF/AA permanently reduced its square footage in the Pentagon 66%, enabling 48 personnel the ability to work "virtually" and when the individuals need to be in the Pentagon, created 12 high density swing spaces, aka "hoteling," to allow access to the network and

telephones. Initial savings for the pilot teleworking/hoteling is expected to save \$314,190 in facility costs.

D. Implementation Approach: The Air Force is committed to maximizing employee participation in telework to the extent that mission is not disrupted or jeopardized. Air Force Policy Directive (AFPD) 36-8, Employee Benefits and Entitlements and Work/Life Programs establishes it is Air Force policy to promote the use of flexible work arrangements, to include compressed work schedules, flexible work schedules with credit hours, and telework for eligible civilian employees. Consistent with workload and mission requirements, Installation Commanders, Tenant Commanders, and Heads of Activities are encouraged to overcome artificial barriers and permit flexible work arrangements that allow employees to better balance their work and family responsibilities on a daily basis, to regularly promote their use throughout their organizations for eligible employees, and remind supervisors to inform applicants of available work/life flexibilities.

Commanders and Heads of Activities are also encouraged to incorporate plans for telework arrangements into their Continuity of Operations (COOP) plans. Teleworking uniquely supports the Air Force mission during times of national phenomena such as Continuity of Operations during the influenza pandemic of 2009, natural crises such as government shut downs due to inclement weather (blizzards, flooding, etc.), or when workers must attend to ill family members. Teleworking enables increased performance which would otherwise be lost opportunities of productivity.

To more effectively implement DoDI 1035.01 requirements a corresponding AFI which more clearly defines eligibility requirements, roles and responsibilities is currently in staff coordination with an anticipated release in the first quarter of FY2013.

OBJECTIVE 3

Ensure the On-Going Performance of DoD Assets by Minimizing Waste and Pollution

GOAL 5: Solid Waste Minimized and Optimally Managed

SUB-GOAL 5.1: Air Force Organizations Implementing Policies by FY2014 to Reduce the Use of Printing Paper

Description of Metric

The metric is the number of Air Force organizational components that: 1) have issued a policy that establishes a program for reducing the use of printing paper, where the program consists of two or more initiatives that drive the transition to a culture of reduced paper; and 2) are actively implementing that program. For purposes of this metric, an organizational component includes the HAF, the 10

MAJCOMs, and the Air National Guard.

Air Force Annual Targets for Sub-Goal 5.1 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	n/a	1	6	11	12	12	12	12	12	12	12
RESULT	n/a	0									

A. Description of Performance Toward Sub-Goal: No new overarching Air Force policy for reducing demand for printing paper was issued as of October 2011.

B. Performance Considerations: Service level policy regarding this goal is multi-dimensional and does not naturally reside with any one office. Subsequently, the amount of office printing paper used by organizations across the Air Force enterprise is not currently being tracked by any particular office. Collection of such data would require a resource intensive data call. As such, anecdotal evidence via the issuance of policy will be presumed to equate to reduced consumption of printing paper. Until there is widespread use of wireless technology to access Air Force computer networks, which would allow more mobile access by Air Force workers from meeting or work locations, reduction in the use of printed information will continue to be a challenge.

C. Implementation Successes: The concept of a largely “paperless” Air Force was incorporated in 2006 as a guiding principle of the Air Force Smart Operations for the 21st Century (AFSO 21) office, and since 2008 all Air Force printers, copiers, fax machines and multifunction devices are duplex capable and configured to default double sided printing by vendors prior to shipment to Air Force customers.

While an Air Force policy for reducing demand for printing paper was not issued in 2011, consistent with a paperless office approach, most offices: use electronic communications as the primary means of maintaining information on policies and procedures; maintain or submit in electronic format most reports, plans, checklists and other documentation in electronic format unless prohibited by other regulations; and staff workflow and coordination processes electronically. Computer scanning of records and images and the use of smart forms will contribute to Air Force achievement of paperless work environment goals. While the use of electronic communications in Air Force organizations is the norm rather than the anomaly there remain legitimate reasons to print certain sensitive and classified information.

Headquarters Air Force, Information Management (HAF/IM) encourages the use of the web-based SharePoint system to reduce printing, and the HAF Task Management Tool (TMT) is being used across the HAF. While there is not enough data to capture the actual paper reductions, the use of TMT has greatly reduced the volume of hardcopy staff packages. The HAF is also evaluating the use of handheld computer tablets by senior leadership, and determining how to improve internal processes within the Pentagon to reduce paper usage and promote the use of electronic devices.

D. Implementation Approach: During FY2012 Air Force personnel will continue to minimize the use of printing paper by printing documents double-sided; printing presentation slides as handouts, with two slides per page; scanning and converting hard copy to digital format; electronic document management; requiring all new copying and printing devices to have duplexing capability and providing training opportunities via electronic media .

SUB-GOAL 5.2: 50% of Non-Hazardous Solid Waste Diverted from the Waste Stream by 2015 and Thereafter Through 2020

Description of Metric

The metric is the percent of the total non-hazardous solid waste stream generated and collected by Air Force facilities (by weight), without construction and demolition debris, that is directed away from the waste stream, for example by reuse, recycling, and/or composting.

Air Force Annual Targets for Sub-Goal 5.2 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	40%	42%	44%	46%	48%	55%	55%	55%	60%	60%	65%
RESULT	42%	52%									

A. Description of Performance Toward Sub-Goal: In FY2011 the Air Force diverted 52% of targeted solid waste. While this performance exceeds the FY2020 50% diversion goal, continued emphasis will be required to ensure sustained achievement of the goal.

B. Performance Considerations: The Air Force has implemented an Asset Management Program that includes Waste Management as one of its five primary mission lines. The Air Force Waste Activity Management Plan identifies the investment strategy and approach for achieving program goals in the area of solid waste management and diversion rates. Senior leadership support and effective outreach appear to be the biggest issues affecting solid waste management performance. Installations where base commanders have highlighted the importance of reducing waste as means of more effectively sustaining and supporting mission, and as a way to realize fiscal efficiencies and save money in day-to-day operations, seem to have more effective programs. Similarly, the development and dissemination of installation-specific waste reduction and recycling information, coupled with availability of easily accessible recycling receptacles seem to have very positive effects on the success of recycling and waste diversion efforts.

C. Implementation Successes: Through a an aggressive education and outreach program, Eglin AFB has increased base recycling by 24%, diverting an estimated 17,000 tons of waste that would otherwise have been landfilled. Successful diversion of combined municipal solid waste (MSW) and C&D waste streams over the last several years has reduced Air Force waste disposal costs at Eglin AFB by an estimated \$3M.

The Air National Guard's 187th Fighter Wing developed and provided base wide and community recycling procedures that enabled installation personnel to identify and implement potential recycling opportunities for white paper, cardboard, ink cartridges, and a variety of plastics. The success of those efforts are demonstrated by the distribution of 40 recycling containers to Wing and tenant units, recycling of over 15 tons of white/mixed paper, and over 55 tons of cardboard, and the resulting cost avoidance of over \$15K in landfill disposal fees.

The Air Force Academy received a 2011 Colorado Environmental Leadership Program Gold Leader award from the Colorado Public Health and Environment Department. Over the last several years academy initiatives such as a recycling program that has reclaimed more than 2M lbs of non-hazardous paper, cardboard, metals, glass and wood wastes, and more than 93,000 lbs of household hazardous waste, were cited in the award.

Peterson and Schriever AFBs in Colorado have introduced a new single recycling stream pickup program to make it easier than ever to collect all recyclable materials. All recyclables can be put into a 95-gallon recycling cart without worry about separating paper, plastic, glass, computer parts, rubber, ink cartridges and more.

D. Implementation Approach: The Air Force implements Asset Management Program principles and practices a comprehensive integrated solid waste management (ISWM) approach to managing non-hazardous solid waste. ISWM encompasses waste prevention, recycling, composting, and disposal programs. Through ISWM, the Air Force determines the most cost effective, energy-efficient, innovative, least-polluting ways to deal with the various segments of an installation or facility solid waste stream.

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a "net zero" posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced environmental, energy and economic performance.

The Air Force will continue to implement an Asset Management Program that includes Waste Management as one of its five primary mission lines. During FY2012 the Air Force will continue to develop a Waste Activity Management Plan to guide the investment strategy and approach for achieving program goals in the area of solid waste management and diversion rates. Air Force achievement of the Non-Hazardous Waste Diversion goal will be dependent upon each MAJCOM developing a strategy to attain the goal across the installations within their command. Installation programs will be reviewed to prioritize installations based upon knowledge of opportunities, markets, and waste volume to make the appropriate increase in overall waste diversion. Other potential actions include revisiting Air Force Qualified Recycling Program (QRP) guidelines, and updating methods and guidance for collection of ISWM data.

Additional resources regarding diversion of non-hazardous solid waste can be obtained at the Air Force eDASH/ANSR portal website at:

<https://eis.af.mil/cs/eDASH/Web%20Part%20Pages%20%20Main%20Pages/QueryFilterTopics.aspx?Topic=Solid+Waste>

SUB-GOAL 5.3: 60% of Construction and Demolition Debris Diverted from the Waste Stream by FY2015, and Thereafter Through FY2020

Description of Metric

The metric is the percent of construction and demolition materials and debris generated and collected by Air Force facilities (by weight) that is directed away from the waste stream, for example by reuse, recycling, and/or mulching.

Air Force Annual Targets for Sub-Goal 5.3 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	50%	52%	54%	56%	58%	60%	60%	60%	60%	60%	60%
RESULT	69.8%	80%									

A. Description of Performance Toward Sub-Goal: In FY2011 the Air Force diverted 80% of targeted construction and demolition waste and is currently exceeding the FY2020 60% diversion sub-goal. Because year-to-year diversion rates can vary significantly based on the type of C&D projects executed each year, however, continued emphasis will be required for select installations to ensure sustained Air Force achievement of the sub-goal. The Air Force expects its C&D diversion rate to continue to meet or exceed the sub-goal.

B. Performance Considerations: The Air Force has implemented an Asset Management Program that includes Waste Management as one of its five primary mission lines. The Air Force Waste Activity Management Plan identifies the investment strategy and approach for achieving program goals in the area of solid waste management and diversion rates. Senior leadership support and effective outreach appear to be the biggest issues affecting solid waste management performance. Installations where base commanders have highlighted the importance of reducing waste as means of more effectively sustaining and supporting mission, and as a way to realize fiscal efficiencies and save money in day-to-day operations, seem to have more effective programs.

There are long-term programmatic challenges associated with installations receiving weight reports from construction contractors. These challenges can be addressed through additional education of Quality Assurance Evaluator (QAE) personnel conducting contract oversight, an action that will assist the Air Force in sustaining achievement of the diversion target.

C. Implementation Successes: In the past, waste material produced from the demolition of structures was land-filled, in part because construction material was destroyed during the process and unable to be repurposed. However, more and more often recycling and repurposing efforts such as those described below are becoming the norm across the Air Force. It has become status quo to maximize the material recycled and repurposed during Air Force demolition efforts as a means to eliminate the resource drain caused by excess, obsolete and under-utilized infrastructure, while directly supporting Air Force-wide recycling goals.

As part of its recent \$43M runway reconstruction project, Fairchild AFB recycled an estimated 90K tons of concrete, 106.5K tons of asphalt, and 125 tons of metal. The concrete from the old runway was crushed, with most of it re-used on-site for the runway project. The runway shoulders have concrete underneath them and asphalt on the top. Remaining small chunks of asphalt were recycled and used as field material under the new runway and on the over runs. The runway project used not only the recycled concrete, but also \$12M of recycled content new concrete. The balance of the concrete was donated to the local community where it was expected to be re-used as road foundation material.

Peterson AFB recently demolished an aging commissary building. More than 550 tons of steel were diverted from landfills and repurposed, while the concrete slab was reused as backfill, a green solution for providing a stable surface for future projects on the site. When hailstorms damaged the roofs on several homes in the Peterson AFB area, engineers found an innovative way to keep the shingles out of the local landfill. The shingles were ground-up by a contractor hired for the project and were added to recycled concrete and used to repave a parking lot. The existing parking lot was milled up, with 30% of the millings mixed with recycled concrete, to provide a foundation for the pavement, and the remainder was transferred to the recycle yard at Peterson AFB to be used for other projects on base.

A military family housing demolition effort at Shaw AFB led to the recycling and repurposing of several tons of material. Completed in September 2011, more than 80% of the 44,212 tons of material removed was recycled, including 33,901 tons of concrete, 95 tons of metal and 2,250 tons of asphalt. In addition to large-scale recycling, the project led to the repurposing of playground equipment, gazebos, a bus stop and street lamps.

D. Implementation Approach: Where as traditional demolition emphasizes taking down a structure as quickly as possible and hauling the pieces to a C&D landfill, deconstruction involves the deliberate, systematic and manual disassembly of targeted structures to save as many of the components as possible for reuse or recycling. In FY2012 and beyond the Air Force will continue to leverage deconstruction techniques to effectively manage C&D waste. Additionally, a Demolition and Deconstruction Guide is being developed to facilitate increased C&D diversion. The guide will offer C&D diversion strategies and discuss project planning, acquisition, execution and incentive programs to help installations manage their C&D debris in accordance with ISW goals.

Additional resources regarding diversion of C&D waste can be obtained at the Air Force eDASH/ANSR portal website:

<https://eis.af.mil/cs/eDASH/Web%20Part%20Pages%20%20Main%20Pages/QueryFilterTopics.aspx?Topic=Solid+Waste>

GOAL 6: The Use and Release of Chemicals of Environmental Concern Minimized

SUB-GOAL 6.1: On-Site Releases and Off-Site Transfers of Toxic Chemicals Reduced 15% by FY2020, Relative to CY2006

Description of Metric

The metric is the reduction in toxic chemicals released into the environment and transferred off-site (in total pounds), as a percentage of the CY 2006 baseline. The chemicals reported are the sum of releases reported on EPA Toxic Release Inventory (TRI) Form R Part II from: 1) Section 5 (Quantity of the Toxic Chemical Entering Each Environmental Medium On-Site); 2) Section 6.1 (Discharges to Publicly Owned Treatment Works; and 3) Section 6.2 (Transfers to Other Off-Site Locations) for disposal and treatment. This sub-goal does not include releases and off-site transfers from operational range activities. DoD toxic chemical reporting to EPA is done by calendar year, so fiscal year reporting on this sub-goal corresponds to data for the previous calendar year (e.g., FY 2011 reporting is CY 2010 data).

Air Force Annual Targets for Sub-Goal 6.1 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	10%	12%	14%	16%	18%	20%	23%	27%	30%	32%	35%
RESULT	35.9%	33.7%									

A. Description of Performance Toward Sub-Goal: The Air Force achieved a 33.7% reduction in the on-site release and off-site transfer of Toxic Chemicals based upon a comparison of CY 2010 reported chemicals and CY 2006 reported chemicals.

B. Performance Considerations: Coal-burning power plants at two installations accounted for approximately 35% of Air Force reportable TRI releases. These plants should be considered for evaluation to determine the feasibility of alternate energy sources in order to further reduce emissions and optimize energy consumption. Additionally, weapon system activities at the three Air Logistics Centers account for a substantial portion of the remaining Air Force reportable releases.

C. Implementation Successes: Installation Hazardous Materials Management Program (HMMP) Teams review all workplace processes to identify opportunities to reduce chemical usage and release. This business practice has been expanded upon in the Air Force Hazardous Material “Playbook” to identify best practices to implement the Air Force Hazardous Material Management Program. In addition to reductions in reportable releases, the Air Force has achieved significant reductions in the use of hexavalent chromium through the use of alternative conversion coatings (47.5% reduction since 2003), reductions in the use of HCFC-225g solvent for oxygen lines (31.9% since 2008), and is on-track to eliminate installed lead tire weights by 2012.

D. Implementation Approach: During FY2012 the Air Force will implement a number of initiatives to reduce or eliminate the use, production, release, and transfer of toxic chemicals and increasing the accuracy and consistency of our reported release data.

The Air Force regularly reviews TRI releases to identify potential chemicals, processes, and installations where reduction opportunities exist. A November 2011 AFCEE Broad Agency Announcement seeks to identify, demonstrate and validate innovative, sustainable, and cost-effective technologies and/or methodologies to reduce Air Force releases and transfer of toxic chemicals to the environment.

Furthermore, the Air Force Research Laboratory collaborates with the Department of Defense’s Environmental Security Technology Certification Program (ESTCP) and the Joint Services Solvents Substitution (JS3) team to investigate new technologies related to reduce the use and release of hazardous organic solvents and coatings associated with de-painting and surface coating activities, and to reduce the use of chromium, cadmium and other inorganic materials associated with weapon system maintenance.

In FY2012 the Air Force will issue updated policies on achieving efficiencies through pollution prevention and waste elimination, and on achieving a “net zero” posture for Air Force installation water, energy and solid waste. The policies will build upon existing sustainability policy and goals and provide the impetus for enhanced performance in the area of minimizing the release of TRI chemicals. Installation commanders will strive to achieve the goal by using the Environmental Management System framework to identify and manage operations that generate pollution and waste. Each organization is requested to review their existing mission activities that can best be influenced to achieve additional efficiencies.

SUB-GOAL 6.2: 100% of Excess or Surplus Electronic Products Disposed of in Environmentally Sound Manner

Description of Metric

The metric is the percent of excess or surplus Air Force electronic products disposed of in an environmentally sound manner, where environmentally sound is defined as either:

- Donating to a charitable cause;

- Using a manufacturer’s take-back or trade-in service; or
- Trading-in, recycling (including refurbishment and resale) or disposal through the Defense Logistics Agency Disposition Services (DLADS) or a facility that is fully licensed for treatment and disposal, and in a manner consistent with the EPA guide titled “Plug-In to eCycling: Guidelines for Materials Management” (<http://www.epa.gov/osw/partnerships/plugin/pdf/guide.pdf>).

Electronic products are defined (per the DoD Electronics Stewardship Plan) as, “devices that are dependent on electric currents or electromagnetic fields in order to work properly.”

Air Force Annual Targets for Sub-Goal 6.2 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
RESULT	100%	100%									

A. Description of Performance Toward Sub-Goal: The Air Force expects to achieve the sub-goal target of 100% of excess or surplus electronic products in an environmentally sound manner through unit-level disposition processes. While unit level disposition processes exist, the ability to document actual quantities, volume, weight or salvage value of surplus or excess electronic products and equipment disposed of enterprise-wide does not exist. Collection of such data would currently require a resource-intensive data call.

B. Performance Considerations: The Air Force disposition process ensures the provision of surplus or excess electronic products to schools, other agencies, non-profits and DLADS, formerly known as the Defense Logistics Agency’s Defense Reutilization and Marketing Service (DRMS). Such disposition constitutes disposal in an environmentally sound manner. For equipment with remaining life cycle, units are encouraged to find school districts, other federal agencies, or non-profits which may benefit from purchasing or otherwise receiving surplus or excess electronic products. Management of most military unique electronic equipment and commercial products with no remaining utility are provided to DLADS for disposition. DLADS awards contracts to process DoD-generated electronic equipment containing hazardous components or requiring demilitarization; these contracts in turn serve to minimize potential third party liability from improper disposal of hazardous components, minimize the health and safety risks associated with the demilitarization of DoD electronics, and maximize the reuse and recycling of electronic products and components.

While the Air Force has successfully integrated Electronic Product Environmental Assessment Tool (EPEAT) and Energy Star into our electronics procurement process, an enterprise-wide approach for the tracking and reporting of the disposal and responsible recycling of item-by-item electronic products does not currently exist. An Air Force electronics stewardship policy would integrate activities of installation Communication Squadrons (responsible for operating and maintaining ground communications, electronics, and computer systems and facilities in support of installation mission) with the recycling, waste management and waste diversion responsibilities of installation Environmental

A. Description of Performance Toward Sub-Goal: In FY2011, 100% of Air Force pest management personnel (465 of 465) held DoD certification. 402 of 418 (96%) of contract pesticide applicators were properly certified; and 68 of 68 host nation pesticide applicators (non-Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)) employed overseas.

B. Performance Considerations: AFI 32-1053 requires Air Force installations to utilize the Integrated Pest Management Information System (IPMIS) to collect pesticide certification and pesticide use data. The current Integrated Waste Management Information System (IWMIS) is no longer capable of capturing pesticide use data. AFCESA is pursuing the full implementation of IPMIS throughout the Air Force. When fully implemented, Air Force and DoD pest management data can be centrally collected, backed-up, analyzed and reports generated for data calls or regulatory queries. Resources must be available to maintain this database for indefinite archiving of pesticide use data IAW DoDI 4150.07.

Resources, course availability and deployments often cause applicators to have their certification lapse. The Air Force must continue to provide resources for personnel and equipment for DoD Pest Management Certification and Recertification Courses. Commanders must understand it is easier (and less expensive) to maintain certifications than to send applicators back for initial training (3 weeks TDY). In addition, TDY funding must be available to send pesticide applicators to this training every 3 years. Air Force Pest Management Recertification Mobile Training Courses can provide up to 25 students training at far lower cost than traditional classes.

C. Implementation Successes: In FY2011, 100% of Air Force pest management personnel (465 of 465) held DoD certification. 402 of 418 (96%) of contract pesticide applicators were properly certified; and 68 of 68 host nation pesticide applicators (non-Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)) employed overseas.

D. Implementation Approach: During FY2012 the Air Force will continue to ensure pest management personnel receive appropriate training, will continue to use certified individuals to apply pesticides in a manner consistent with their intended use, and will continue to evaluate opportunities to minimize the use of pesticides while maintaining mission support requirements.

GOAL 7: Sustainability Practices Become the Norm

SUB-GOAL 7.1: 95% of Procurement Conducted Sustainably

Description of Metric

The metric is the percent of contract actions (new contracts and modifications) that adhere to the principles of sustainability by containing requirements for (as relevant and where such products and services meet DoD performance requirements): energy-efficient (Energy Star or Federal Energy Management Program (FEMP) designated), water-efficient, bio-based, environmentally preferable (e.g.,

certified by the Electronic Product Environmental Assessment Tool), non-ozone depleting, containing recycled content, and/or are non-toxic or less-toxic alternatives. The sub-goal applies to products and services, including task and delivery orders, but excluding the acquisition of weapon systems and their components and spare parts. The Federal Procurement Data System will be used as the source of data on contracts meeting these requirements.

Air Force Annual Targets for Sub-Goal 7.1 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	-	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%
RESULT	n/a	98%									

A. Description of Performance Toward Sub-Goal: In accordance with guidance provided by OSD Defense Procurement and Acquisition Policy (DPAP) the Air Force was tasked to review and sample 100 applicable contract actions with a value greater than \$3000.00 in April 2011 and in November 2011 to determine if the contract actions include requirements for sustainable products and services. Approximately 98% of the procurements included requirements for green products.

B. Performance Considerations: A fundamental challenge to integrating sustainability concepts into the acquisition process is that Government contracting personnel generally lack the knowledge to effectively identify sustainable procurement criteria for contracts being awarded. This is true of the GPP in that contracting personnel have historically not been familiar with green procurement requirements and rely on the initiating office to identify their procurement requirements. Another challenge is the current lack of formal DoD GPP policy as only guidance has been issued thus far.

C. Implementation Successes: Air Force FY2011 initiatives focused on educating Air Force personnel about Green Procurement Program (GPP) requirements and responsibilities. SAF/IE issued a 2 June 11 memorandum on the Air Force Green Procurement Program re-affirming existing green procurement requirements. The memo directs program managers and requirement owners in every mission area to consider and document green alternatives as they develop their requirement and product specifications for purchase, and to incorporate GPP language in performance work statements, statements of work and other product specifications for all new contracts. The memo also requires key personnel involved in the acquisition process to be trained on GPP requirements. Rather than creating a separate AFI on GPP, the policy memo directs all Air Force functional offices to identify procurement related Air Force Instructions and update them through the interim change process to integrate GPP requirements.

On 29 Apr 11 SAF/AQC provided contracting officials guidance on the use of the EPA-Designated product field options, the Use of Recovered Material Clause field, and corrective action report (CAR) entry procedures. SAF/AQCP updated the 2005 Contracting Officer's Primer on Green Procurement and forwarded to all contracting officials, reinforcing the use of EPA-Designated products and use of recovered material in accordance with the Department of Defense Federal Acquisition Regulations. In

In addition, the two EPA-related fields have been included as data elements for verification and validation in accordance with the Air Force Federal Procurement Data System (FPDS) Verification and Validation plan.

D. Implementation Approach: Air Force FY2012 initiatives for this sub-goal area will include continued emphasis on educating contracting personnel on existing green procurement requirements and responsibilities, and partnering with GSA and DLA on ways to make environmentally preferable products more visible and accessible through GSA and DLA procurement tools.

SUB-GOAL 7.2: 15% of Existing Buildings Conform to the Guiding Principles on High Performance and Sustainable Buildings By FY2015, Holding Through FY2020

Description of Metric

The metric is the percent of existing Air Force buildings over 5,000 ft² (combined owned and leased) that meet the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (HPSB Guiding Principles), as per the December 2008 implementation guidance developed by the Interagency Sustainability Work Group.

Air Force Annual Targets for Sub-Goal 7.2 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	n/a	7%	9%	11%	13%	15%	15%	15%	15%	15%	15%
RESULT	n/a	<1%									

A. Description of Performance Toward Sub-Goal: The Air Force did not meet the FY2011 target of 7% of the existing building inventory meeting the HPSB Guiding Principles by FY2011. Only 11 of the 15,463 eligible Air Force buildings greater than 5,000 ft² met the HPSB Guiding Principles. To meet this sub-goal, the Air Force must upgrade at least some portion of the existing building stock.

B. Performance Considerations: Current Air Force efforts to meet the intent of the HPSB Guiding Principles are fragmented and follow on-going, well-established program lines rather than holistically approaching the requirements. Guidance on the requirement and Air Force implementation strategy must be issued to, and incorporated into, the appropriate programs at the Air Force Field Operating Agencies (FOAs), MAJCOMs, and installations.

Data collection issues represent a challenge. Information is currently entered by the installation into the Automated Civil Engineering System – Real Property (ACES-RP) database. ACES-RP data is uploaded to the Federal Real Property Profile (FRPP) annually. OMB annually retrieves data from FRPP in December for Agency reporting. Limited access to Air Force, ACES-RP aggregate data restricts tracking of progress towards meeting the HPSB goals, and negatively impacts program efficacy.

C. Implementation Successes: The Air Force remains committed to the principles on High Performance and Sustainable Buildings. Air Force Sustainable Design and Development (SDD) policy requires all new construction and major renovations to incorporate the Federal building performance requirements of EPCACT '05, EO 13423, EISA 07, and EO 13514, collectively known as the High Performance and Sustainable Building (HPSB) Guiding Principles. The new building and major renovations requirements outlined in the Interagency Sustainability Working Group, *High Performance and Sustainable Buildings Guidance* document dated 1 Dec 08 have been fully incorporated into the Air Force MILCON Sustainability Requirements Scoresheet included in the contract documents for Air Force MILCON projects.

The new 80,000 square foot Air Reserve Personnel Center (ARPC) at Buckley AFB is a state-of-the-art facility that replaced an old 1950s era facility. The energy-efficient ARPC was designed consistent with LEED guidelines and constructed with sustainable material. The building has a sloped roof, which is created from reflective materials designed to reduce the heat island effect. The Energy Management Control System inside the building is designed to minimize energy costs and increase the system's reliability and maintainability. The open office areas have access to natural daylight, reducing the need for traditional light fixtures.

Moody AFB was an Air Force 2011 Design Awards Merit Award winner for Sustainable Design. The construction of a new 46,791 square foot dormitory incorporated recycled building materials, such as wood doors, carpet and wall tiles, recycled structural steel, and metal roofing. Local suppliers provided most of the materials, reducing the amount of energy to transport them and adding a boost to the local economy. The facility was constructed of autoclave aerated concrete panels. These economical, sustainable, solid blocks provide much greater thermal insulation than conventional masonry, thus resulting in added energy savings. The largest energy efficiency comes from the geothermal ground water heating and air conditioning system.

D. Implementation Approach: In terms of performance, the HPSB requirements most difficult to achieve are energy and water related. In an installation setting, HPSB energy and water requirements must compete with all energy and water infrastructure requirements based on the savings-to-investment ratio (SIR) per the EO 13514 requirement to "prioritize agency actions based on lifecycle return on investment", and 10 CFR 436 Subpart A. The Air Force success in meeting the HPSB goal is directly linked to the ability of the HPSB projects to favorably compete with other energy and water conservation projects. Starting in FY2011, the Air Force began combining energy and water audits, HPSB assessments, facility condition assessments, and space optimization assessments into a single Sustainable Infrastructure Assessments (SIA) activity.

In FY2012 and beyond, the SIA will assess the current HPSB status of 25% of the buildings (by square foot) annually, and will provide investment grade project documentation. The documentation will include SIR so HPSB projects can compete with other energy and water infrastructure projects for resources.

Continued Air Force participation in the U.S. Green Building Council's Portfolio Partnership Program (P3) will facilitate continuous improvement of the Air Force real property portfolio toward green building and sustainability goals. As a pilot participant, the Air Force will have a unique opportunity to both shape and recommend alignment with key Federal green building mandates. Air Force participation in the P3 pilot advances the concept of quantifying sustainability at the installation level, which directly supports the requirements of EO 13514.

GOAL 8: Sustainability Built into DoD Management Systems

SUB-GOAL 8.1: All Environmental Management Systems Effectively Implemented and Maintained by FY2020

Description of Metric

The metric represents the overall Air Force status using the Federal Environmental Management System Metrics as reported in the Defense Environmental Programs Annual Report to Congress. The overall Air Force status is a color rating (Green, Yellow or Red) for all facilities and organizations for which an environmental management system (EMS) is appropriate, with status based on the color ratings for individual facilities determined using the Federal EMS Metrics. An overall Green rating requires at least 80% of all EMS-appropriate facilities and organizations to have Green EMSs, with no more than 5% total Red EMSs. An overall Yellow requires no more than 10% Red EMSs. An overall Red is assigned when the status is neither Green nor Yellow.

Current Air Force Annual Targets for Sub-Goal 8.1 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	n/a	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
RESULT	Yellow	Red									

A. Description of Performance Toward Sub-Goal: The Air Force has implemented EMS at 89 appropriate facilities. While 51% of installations were rated green, 22% rated yellow and 27% rated red, under the current OSD directed approach because more than 10% of EMSs were red the overall status of the Air Force EMS was rated red for FY2011.

B. Performance Considerations: Currently, individual bases self-assess their performance using a somewhat subjective White House Office of the Federal Environmental Executive OFEE-generated survey questionnaire. As the questionnaire can, and likely is, interpreted differently by different personnel at different bases it introduces an undesirable degree of uncertainty. Assessment against formal, standardized criteria such as ISO 14001 or second-party conformance audits would reduce uncertainty and provide a more meaningful measure of performance effectiveness.

Additionally, there is currently no enterprise-wide system for tracking and reporting compliance with EMS requirements. While the Air Force is evaluating possible tools until the point in time when an enterprise-wide system exists, collection and analysis of Air Force EMS data requires a time consuming, resource intensive data call.

C. Implementation Successes: In November of 2011, the Air Force updated AFI 32-7001, its Environmental Management Instruction, to formally establish environmental management systems across the enterprise as the core framework for continual program and process improvement to achieve and attain sustainability and compliance goals. The Air Force EMS provides a systemic approach to planning, implementing, reviewing, and improving processes and actions, and will allow the Air Force to achieve federal environmental and sustainability goals; sustain and modernize its asset portfolio; increase mission capability; and maintain compliance with federal, state and local laws.

D. Implementation Approach: The Air Force will continue implementing EMS's in accordance with AFI 32-7001. The Air Force has established an EMS Panel composed of members from the Air Staff, AFCEE, each Major Command, and selected installations to work towards a standardized Air Force EMS model and identify ways to best meet the goals of EO 13514 and other goals. All installations have identified their environmental aspects; have developed targets and objectives and are tracking status; accomplished training and have improved awareness; rolled contractor operations into installations' EMSs; and have conducted required EMS audits and implemented corrective actions. These activities will continue during FY2012. Cross functional teams will be used to integrate ESOH requirements into mission processes providing inherent stability/compliance of ESOH requirements by making them a normal consideration in daily mission processes. Employing web-based technologies for reporting, documentation and training requirements ensures widespread visibility of, and access to, pertinent materials. In addition, actively pursuing partnerships with regulatory agencies will create a common understanding of requirements and expectations, and thus enhances the effectiveness of EMS implementation.

The Air Force has implemented a web-based, enterprise-wide tool for managing EMS requirements. The tool is called "eDASH" and it provides a venue for document control, reporting, communication, recordkeeping, training and performance monitoring from the installation to Air Staff level. Additionally, the Air Force has integrated its compliance and management system auditing process into the broader Air Force Inspector General (IG) process. This is expected to provide a holistic mission sustainability assessment approach (where environmental performance is part of overall mission). Conformance is measured during the EMS portion of the IG audit, using the ISO 14001 EMS Standard and the installation's own management system policy. The Air Force now uses this external audit, which mirrors a commercial industry approach for EMS auditing, as its primary basis for determining EMS conformance and for upward reporting to the HQ Air Force ESOH Council. Under this process, 95 percent of EMSs were determined to be in conformance (as of end of FY11)

Additional resources regarding Air Force EMS communications tools and brochures can be obtained at the Air Force eDASH/ANSR portal website:

<https://eis.af.mil/cs/edash/web%20part%20pages%20%20programs/ems.aspx>

SUB-GOAL 8.2: The Sustainability of Transportation and Energy Choices in Surrounding Areas Optimized by Coordinating with Related Regional and Local Planning

Description of Metric

Compliance with this qualitative metric is achieved when it can be demonstrated that coordination by the Air Force, at any level, has occurred to ensure that all relevant factors, including GHG emissions and potential impacts to operational mission, were considered in making the best decisions in the interest of sustainable transportation and energy choices in the area. This engagement can take the form of an installation coordinating its own transportation, energy, and/or facility planning with surrounding communities, and/or participating in regional- or community-level planning related to transportation or energy (including environmental impact statements and environmental assessments).

A. Description of Performance Toward Sub-Goal: Community Planners at the installation-level facilitate engagement with local municipal planning organizations (MPOs) on a recurring basis with sustainable interests often in mind. Installations address sustainable transportation and energy choices through recurrent interaction with local planning, transportation, and other organizations participating in short- and long-term planning. Because of the potential environmental, economic, safety, operational and other impacts associated with major federal actions occurring on military installations, NEPA, Joint Land Use Studies (JLUS) and related stakeholder processes provide additional forums through which Air Force personnel interact with regional/local MPOs on a variety of energy and transportation issues.

B. Performance Considerations: The Air Force must navigate a complex web of varying local factors dealing with land use regulation, renewable energy incentives and relationships with local utility providers. Renewable energy projects, including wind and solar, are developing on publicly and privately owned land throughout the country. With increasing competition for land and airspace, regional/local municipal planning organizations must seek compatible solutions which consider the diverse interests of renewable energy companies, military operations, endangered habitat and recreational uses, private land development, regional/local governments, and other stakeholders. A major challenge in regional planning is consensus building and finding a common understanding of the needs and impacts in a timely manner, and understanding the challenges of managing shared resources.

C. Implementation Successes: Air Force personnel collaborate with officials from Kern County, the Sacramento Area Council of Governments (SACOG) acting in its capacity as the Airport Land Use Commission (ALUC) for Sacramento, Sutter, Yolo, and Yuba counties, and other jurisdictions on a variety of renewable energy and military readiness initiatives. Examples of the collaboration include participating in the Advisory Committee for updating county Airport Land Use Compatibility Plans (ACLUPs) used in local jurisdiction General Plans and zoning ordinances to more fully integrate military

air facilities, airspace and Air Installation Compatible Use Zones (AICUZ) in regional and local planning decisions. In California ACLUPs are concerned with land use compatibility around airports in terms of noise, overflight, safety, airspace protection. While they are distinct from airport master plans and other types of airport development plans, they are closely connected to them. In simple terms, airport master plans are adopted by the agency that owns and/or operates the airport and primarily address on-airport issues. In contrast, compatibility plans are normally adopted by an ALUC and are concerned with issues affecting surrounding lands.

The Beale AFB Land Use Compatibility Plan provides a set of policies for use by the ALUC in evaluating the compatibility between future proposals for land use development in the vicinity of Beale AFB and the potential long-range aircraft activity at the Base. The compatibility criteria defined by the policies are also intended to be reflected in the plans and other policy instruments adopted by Yuba and Sutter counties as the two government entities having jurisdiction over land uses near the Base. As described in the ALUCP and later in this document, Yuba and Sutter counties will need to incorporate certain criteria and procedural policies from the ALUCP into their general plans and zoning ordinances, to assure that future land use development will be compatible with aircraft operations at the Base. No major changes to current land use designations, traffic patterns or transportation networks were found to be necessary.

After three years of planning and coordination with local officials and environmental agencies, Edwards AFB began work on the installation of three 1 MW solar farms at the Air Force Flight Test Center. While the systems will be owned and maintained by a commercial solar developer the base will buy the power produced at the facility under a power purchase agreement.

A Joint Land Use Study (JLUS) is a collaborative planning effort among the military and the surrounding communities, counties, municipalities, and stakeholders that is intended to offer voluntary guidance for land use and regulations with the goal of reducing potential conflicts between a military base and surrounding development. A JLUS is being conducted at Malmstrom AFB to address issues associated with development encroaching on the base (and the missile complex it operates) and future land use. Since it is recognized that the operation of the base affects, and is affected by, activity far beyond its perimeter fences, creating strategies to foster a responsive land use plan and regulations for the surrounding area is very important to balance appropriate uses, economic interests, and military readiness. Central to the Malmstrom AFB JLUS is an assessment of how best to accommodate proposed wind energy development on surrounding lands without infringing on security buffer zones and communications at Malmstrom's 165 missile sites.

The Avon Park Air Force Range has been working with the Central Florida Regional Planning Council to develop a JLUS for the Range. Affected counties include Polk, Osceola, Highlands and Okeechobee. The Study was developed by a working group comprised of representatives of the affected counties and cities, several state agencies, the Range and other relevant entities, and is intended to guide compatible land use between the Range and adjacent local governments. During 2011 local jurisdictions began the

process of evaluating the status of the JLUS, the relevance of its recommendations, and the potential impacts of the recommendations.

D. Implementation Approach: Communication and interaction with local communities is dependent on mutual and compatible local interests, goals, and initiatives, as well as personal relationships. The Air Force has routinely been an active community partner and participated with local and regional planning commissions to mutually support the needs of the community, the people working and living on the installation and the mission assurance requirements of the installation. These activities will continue in FY2012 and beyond.

OSD acknowledges this subgoal lacks an overall ability to be measurable. The lack of specificity by OMB and CEQ means there is insufficient definition on how each federal agency is to achieve meeting this sub-goal in a standardized manner throughout the federal government. Additionally, the roles and responsibilities to affect change beyond the perimeter of our facilities is limited as community partners would shoulder the preponderance of costs associated with any modifications to transportation infrastructure outside of an installation. The Air Force has limited capability to sponsor transportation or energy infrastructure improvements that do not enhance access to an installation or otherwise support the core Air Force mission.

SUB-GOAL 8.3: All DoD Installations Have Integrated Pest Management Plans Prepared, Reviewed, and Updated Annually by Pest Management Professionals

Description of Metric

The percent of Air Force installations that maintained integrated pest management plans that were prepared, reviewed and updated annually by a DoD-certified pest management consultant and/or the installation pest management coordinator. These plans describe how the installation will prevent, manage and control animal and plant pests while following the principles of integrated pest management and Federal, State and local laws. The plans are generated by the installation, are updated annually and are reviewed and approved by the respective Military Department senior pest management professional(s).

Air Force Annual Targets for Sub-Goal 8.3 by Fiscal Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Targets	n/a	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
RESULT	92.5%	100%									

A. Description of Performance Toward Sub-Goal: In FY2011, 194 of the 194 (100%) of Air Force installations that required pest management plans have had the plans prepared, reviewed and updated by a DoD-certified pest management consultant and/or the pest management coordinator.

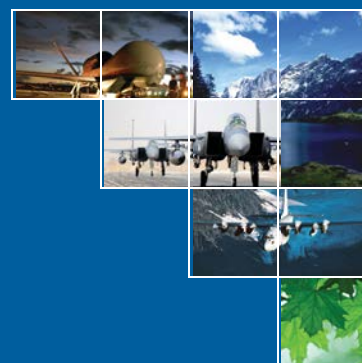
B. Performance Considerations: Sufficient resources, availability of qualified professionals, and command emphasis are challenges that have the potential to prevent IPMP's from being developed, reviewed and signed by installation commanders and MAJCOM Pest Management Professionals in a timely manner.

AFI 32-1053 requires Air Force installations to utilize the Integrated Pest Management Information System (IPMIS) to collect pesticide certification and pesticide use data. IWIMS is no longer capable of capturing pesticide use data. AFCESA is pursuing the full implementation of IPMIS throughout the Air Force. When fully implemented, Air Force and DoD pest management data can be centrally collected, backed-up, analyzed and reports generated for data calls or regulatory queries. Resources must be available to maintain this database for indefinite archiving of pesticide use data IAW DoDI 4150.07.

C. Implementation Successes: The success of Air Force IPMPs is demonstrated by the fact that in FY2011 Air Force installations applied 111,100 lbs of active pesticide ingredient, 15.2% below the FY2007-2009 baseline of 131,015 lbs, and 15,781 lbs less than in FY2010.

D. Implementation Approach: Air Force installations should update certification, pesticide and standard operating procedures annually. Commanders should sign a completely updated plan every 5 years that is consistent with the installation's INRMP for staffing to the US Fish and Wildlife Service for coordination IAW the Sikes Act.

For questions about the Air Force Strategic Sustainability Implementation Plan
please contact SAF/IEE at 703-697-9297
<http://www.safie.hq.af.mil/esoh/index.asp>



U.S. AIR FORCE

**Air Force FY2012 Implementation Plan for the
DoD Strategic Sustainability Performance Plan**

2012 Report