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**Green Acquisition Gap Analysis of the United States Air
Force Operational Contracting Organizations**

10 November 2011

by

Capt. Amanda L. DeLancey, USAF,

Capt. Caitlin E. Harris, USAF, and

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ABSTRACT

In this thesis we explore the goals and requirements of green procurement in order to assess the Air Force's degree of success with incorporating the Department of Defense's (DoD's) Green Procurement Program (GPP) into its procurement process. This thesis provides an outline of the federal policies and guidance regarding green procurement, including Executive Order 13514 (2009) and relevant parts of the Federal Acquisition Regulations. We examine the Air Force's progress towards a more environmentally friendly process, measured by the metrics set forth in the DoD GPP. To evaluate these metrics, we conducted an analysis to determine if the Air Force is implementing environmental considerations to the maximum extent practical. This analysis relied on the use of the Green Acquisition Gap Analysis (GAGA) model, which is a unique framework that we developed. The GAGA model fuses the personnel, platform, and protocol pillars of the Mandatory Pillars for Integrative Success (Yoder, 2010) framework with the Contract Management Process framework, which dissects the six segments of the contracting process: procurement planning, solicitation planning, the solicitation, source selection, contract administration, and contract closeout or termination (Rendon, 2007). Further, in order to document best practices for Air Force-wide dissemination, we identified the leading Air Force installations through our extensive research and collaboration with key leadership.



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Disclaimer: The views represented in this report are those of the author and do not reflect the official policy position of the Navy, the Department of Defense, or the Federal Government.



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LIST OF ACRONYMS AND ABBREVIATIONS

AAD	Advanced Academic Degree
ACO	Administrative Contracting Officer
AFB	Air Force Base
AFCEE	Air Force Center for Engineering and the Environment
AF GPP	Air Force Green Procurement Program
AFI	Air Force Instruction
AP	Affirmative Procurement
BPA	Blanket Purchase Agreement
CAR	Contract Action Report
CCR	Central Contractor Registration
CE	Civil Engineering
CEQ	Council on Environmental Quality
CLC	Continuous Learning Course
CMP	Contracting Management Process
CO	Contracting Officer
CONS	Contracting Squadron
CRS	Congressional Research Service
DAU	Defense Acquisition University
DBO	Director of Business Operations
DLA	Defense Logistics Agency
DLIS	Defense Logistics Information Service
DoD	Department of Defense
DOE	Department of Energy
EA	Environmental Advocate
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPC	Environmental Protection Committee
EPEAT	Electronic Product Environmental Assessment Tool
EPP	Environmentally Preferable Products
ERLS	Environmental Reporting Logistics System
ESOHC	Environment, Safety, and Occupational Health Committee
ETL	Engineering Technical Letter
FAR	Federal Acquisition Regulation
FEC	Federal Electronics Challenge
FEMP	Federal Energy Management Program
FPDS–NG	Federal Procurement Data System–Next Generation
FY	Fiscal Year
GAGA	Green Acquisition Gap Analysis
GAO	Government Accountability Office
GHG	Green House Gas
GP	Green Procurement



GPP	Green Procurement Program
GPT	Green Procurement Team
GSA	General Services Administration
HQ	Headquarters
HTSA	Host-Tenant Support Agreement
IDIQ	Indefinite Delivery Indefinite Quantity
IFB	Invitation for Bid
ISO	International Standards Organization
IT	Information Technology
LRS	Logistics Readiness Squadron
MAJCOM	Major Command
MPIS	Mandatory Pillars for Integrative Success
NAICS	North American Industry Classification System
NIB	National Institute for the Blind
NISH	National Institute for the Severely Handicapped
ODS	Ozone-Depleting Substances
OFEE	Office of the Federal Environmental Executive
OMB	Office of Management and Budget
PM	Program Management
PWS	Performance Work Statement
QAE	Quality Assurance Evaluation
QDR	Quadrennial Defense Review
RCRA	Resource Conservation and Recovery Act
RFI	Request for Information
RFQ	Request for Quotes
RFP	Request for Proposals
SABER	Simplified Acquisition Base Engineering Resources
SOW	Statement of Work
SOO	Statement of Objectives
SPEED	Special Experience Exchange Duties
SPS	Standard Procurement System
SSO	Senior Sustainability Officer
USC	United States Code
USDA	United States Department of Agriculture
WBS	Work Breakdown Structure



EXECUTIVE SUMMARY

On October 5, 2009, the President of the United States, Barack Obama, issued Executive Order (EO) 13514 (2009), *Federal Leadership in Environmental, Energy, and Economic Performance*. The major focus of this EO (2009) was to “establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies.” President Obama further explained the importance of the federal government leading by example and developing “a clean energy economy that will increase our Nation’s prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of our environment” (EO 13514, 2009, p. 248). The most recent energy consumption data available shows that the DoD accounts for 57% of the U. S. government’s energy consumption (Department of Energy [DOE], 2011). The DoD occupies 539,000 buildings and structures, covering 2.2 billion square feet, and operates more than 169,000 vehicles, with a total DoD energy bill of \$15.2 billion in fiscal year (FY) 2010. Within the DoD, the Chairman of the Joint Chiefs of Staff, Admiral Mike Mullen (Mullen, 2010), recognized that “the Air Force is pushing forward, focusing on three goals of reducing demand, increasing supply through renewable and alternative sources, and changing the culture,” and that “for the last several years ... the Air Force has led the way in this area.” Furthermore, the Chief of Staff of the Air Force, General Norton Schwartz (as cited in Lyle, 2010), made it clear that “for the Air Force’s part, we must embrace the notion that energy efficiency is not a standalone priority because it binds together and enables every dimension of our mission; and the idea that energy efficiency affords us greater resiliency, which translates to greater capability and versatility.”

Aside from being a top presidential priority, this area of the procurement process was interesting to us, as researchers, because of our occupational backgrounds. As Air Force contracting officers, each of us holds a personal, vested interest in the procurement process and the statutory guidance that defines it. We are the tip of the spear in enforcing the policies outlined in the EOs. Each of us brought fresh, diverse contracting experience to this project, which proved to be essential to our in-depth analysis of this entire process.



We first conducted an extensive literature review of EOs and Congressional Research Service (CRS) reports, specifically, R41297, *Environmental Considerations in Federal Procurement: An Overview of the Legal Authorities and Their Implementation* (Manuel & Halchin, 2010), and R41197, *Green Procurement: Overview and Issues for Congress* (Fischer, 2010). In addition, we analyzed relevant sections of the Federal Acquisition Regulation (FAR; 2010) and current published policy, and we attended the 2011 Environment, Energy Security, and Sustainability Symposium.

Next, we identified the current environmental considerations in the procurement process and, using the Contract Management Process (Rendon, 2007) in conjunction with the successful implementation of the three pillars—personnel, platform, and protocol—model (Yoder, 2010), we developed the Green Acquisition Gap Analysis (GAGA) model. This model allowed us to analyze the implementation and compliance of the Green Procurement Program in the Air Force. This enabled us to identify the strengths and weaknesses in the Air Force’s “green” contracting process and analyze the overall implementation of the Air Force Green Procurement Program (AF GPP) in this Service’s operational contracting squadrons. For our final step, we outlined our recommendations of ways the Air Force could more effectively implement the Green Procurement Program and its objectives.



I. INTRODUCTION

A. OVERVIEW

In this chapter, we provide an introductory layout of the research. In the Background section, we present the basic government environmental policies and objectives of the study. The research questions outlined in section E of this chapter, guide the study, and in the Organization section, we clarify how the research is organized and presented. In the final section, we discuss the benefits of the study and the impact that this research will have on the Air Force and on the DoD as a whole.

B. BACKGROUND

On October 5, 2009, the President of the United States, Barack Obama, issued Executive Order (EO) 13514 (2009), *Federal Leadership in Environmental, Energy, and Economic Performance*. The major focus of this EO is to “establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies.” One goal presented in the EO is to advance sustainable acquisitions to ensure that 95% of new contract actions, including task and delivery orders, are energy and water efficient, and environmentally preferable. Furthermore, each agency is required to develop, implement, and annually update an integrated Strategic Sustainability Performance Plan. The Chief of Staff of the Air Force, General Norton Schwartz (as cited in Lyle, 2010), made it clear that “for the Air Force’s part, we must embrace the notion that energy efficiency is not a standalone priority because it binds together and enables every dimension of our mission; and the idea that energy efficiency affords us greater resiliency, which translates to greater capability and versatility.”

The goals and mandates outlined in EO 13514 (2009) will require changes in the Air Force’s procurement process. In order to make recommendations on how to effectively implement EO 13514 (2009) and incorporate environmental considerations into the Air Force procurement process, our team conducted research to determine how the Air Force is addressing the goals outlined in this EO, to find out which installations are leading the way in meeting these goals, and to identify the Air Force’s best practices.



C. OBJECTIVE OF STUDY

In this research study, we conducted an analysis of the AF GPP, which was implemented in response to EO 13514 (2009). The methodology included a literature review of policy and issues related to green procurement, as well as an exploration of the Air Force's environmental goals and its past implementations. Additionally, we reviewed reports from the Government Accountability Office (GAO) and the Congressional Research Service (CRS), Quadrennial Defense Review Reports (QDR) prior Joint Applied Project, and other documented sources.

The project accomplished the following objectives:

- identify the current mandated environmental policies and their role in the procurement process,
- identify the steps the Air Force has taken to become compliant with the objectives outlined in the DoD GPP and determine if they have been successful,
- identify the gaps within the six phases of the contract management process regarding the objectives outlined in the DoD GPP, and
- interpret the data analyzed and provide recommendations for operational organizations to meet the goals defined by the DoD GPP.

D. METHODOLOGY

The scope of this research project was limited to the environmental considerations pertaining to the Air Force's procurement process at installations and major command levels. Our intent was to identify the Air Force's current green acquisition environment and some of the best practices used by contracting organizations, while also determining the extent to which the Air Force is in compliance with the DoD GPP. In the first step of our research, we conducted a literature review that included an in-depth analysis of the Federal Acquisition Regulation (FAR; 2010), executive orders pertaining to environmental and energy concerns, published DoD and AF GPP guides, and GAO and CRS reports.

In the next step of our research, we compared the requirements outlined by the DoD GPP strategy document with the published AF GPP guide. The purpose of this



section is to provide the reader with a solid understanding of the objectives and goals set forth by both the DoD and the Air Force.

In the next section, we fused the Mandatory Pillars for Integrative Success (Yoder, 2010) with the Contract Management Process framework (Rendon, 2007) in order to create the Green Acquisition Gap Analysis (GAGA) model. We then utilized the GAGA model to analyze results from the survey questions we sent to a field of Air Force contracting personnel. Our analysis helped identify crucial gaps within the contracting process, which need to be addressed in order for the Air Force to properly implement and be in compliance with the objectives of the DoD GPP. This framework also allowed us to identify best practices and formulate our recommendation section. Our recommendations are key to successfully implementing green procurement into the acquisition process and fully achieving the goals outlined by the Green Procurement Program.

E. RESEARCH QUESTIONS

With this research, we intended to answer the following questions:

1. What steps has the Air Force taken to become compliant with the goals/requirements of the DoD GPP?
2. Has the Air Force successfully implemented the goals and objectives outlined in the DoD GPP?
3. How can the Air Force strengthen its application of GPP principles in the operational procurement process?

F. ORGANIZATION

In Chapter I, we provide background information about our research project, including the objectives of the study, the research questions, the organization of the research, and the benefits of this research.

In Chapter II, we lay the foundation for the research topic through a literature review. First, we examine the government's policies and guidance, which provide all agencies with their roles and responsibilities in accordance with President Obama's direction. We then identify FAR (2010) clauses that are relevant for the procurement



community, and we conclude the chapter with an examination of reports pertaining to green initiatives.

In Chapter III, we identify the guidance the DoD provides in its Green Procurement Program strategy document regarding environmental considerations that relate to the procurement process. We identify the purpose and objectives of the Green Procurement Program. Our purpose is to outline the DoD's requirements in conjunction with the Air Force's GPP initiatives; thus, we build a foundation of knowledge about the program in preparation for the analysis in Chapter IV.

In Chapter IV, we narrow the scope of the research and examine the Air Force's progress in implementing the requirements established in the DoD's GPP strategy. We do this by crosscutting two frameworks, the Contract Management Process model (Rendon, 2007) and the three pillars from the Mandatory Pillars for Integrative Success model (Yoder, 2010), to create the GAGA model. In this chapter, we explore the feasibility and challenges of the GPP, and we provide examples of leading Air Force installation Green Procurement Programs.

In Chapter V, we conclude this research report by answering our initial research questions, providing our recommendations, and, finally, presenting areas that could benefit from further research.

G. BENEFITS OF THE STUDY

As stated in President Obama's State of the Union address (2009), the environment is an important asset that we must protect. The DoD GPP is a step in the right direction; however, in order for contract managers to properly implement the GPP, they must have an idea of the current state of compliance and be equipped with a tool that they can use to manage and audit the organization's GPP. The primary benefit of this study is to provide contracting managers with an accurate picture of where the Air Force stands with regard to implementing the DoD GPP and how successfully the Air Force is making progress toward reaching the goals and mandates outlined by EO 13514 (2009). In addition, this study provides managers of contracting organizations with an assessment tool that they can use to manage and audit the implementation of the DoD GPP in contracting operations at all levels of the Air Force. Another benefit of this study is to



help the Air Force identify key best practices in implementing GPP and to allow for broader discussion and implementation of the GPP. With this research, we identify policies, initiatives, and assessments to help the DoD and the Air Force achieve a more effective Green Procurement Program. Based on research and analysis, our recommendations provide the Air Force with the appropriate tools to lead the various services of the DoD in implementing and managing a successful GPP, as well as significantly reducing the government's environmental impact worldwide.

H. SUMMARY

In this chapter, we provided the reader with an introductory layout of the research. In the Research Background section, we presented the basic environmental information and the objectives of the study. In the Research Questions section, we provided the questions that guided the study, and in the Organization section, we clarified how the research is organized and presented. In the final section, we presented both the benefits of the study and the impact that the research will have on the Air Force, and on the DoD as a whole. In Chapter II, we provide environmental-related definitions and a literature review of the environmental policies and guidance established by the DoD.



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II. LITERATURE REVIEW

A. INTRODUCTION

In this chapter, we review the executive orders, relevant FAR (2010) clauses, and federal reports that provided the foundation of our research. We chose these pertinent areas of literature, because they outline the goals set forth in the DoD GPP and current procurement process. We begin the chapter by examining the two primary executive orders and the similarities and differences established in their guidance. Following that evaluation, we review other policies, including the Energy Policy Act of 2005 and the guidelines established by the international community in order to minimize their business's environmental impact. Next, we address the applicable FAR (2010) clauses that govern the way the DoD procures supplies and services. In the final section of the literature review, we summarize the purpose and findings of the major federal reports applicable to green procurement.

B. DEFINITIONS

In this section of this chapter, we provide key vocabulary terms and definitions that are used in the green procurement process and throughout this thesis.

- Acquisition: acquiring by contract using appropriated funds for supplies or services (including construction) by and for the use of the federal government through purchase or lease, whether the supplies or services are already in existence or must be created and developed, or demonstrated and evaluated. Acquisition begins when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation, selection of sources, contract award and financing details, contract performance and administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract. (Under Secretary of Defense for Acquisition, Technology, and Logistics [USD(AT&L)], 2008, p. 24)
- Agency—an executive agency as defined in section 105 of title 5, United States Code, excluding the Government Accountability Office (EO 13514, 2009, sec. 19[b]; Federal Facilities Environmental Stewardship & Compliance Assistance Center [Federal Facilities], 2011)
- Energy-Efficient Product—a product in the upper 25% of efficiency for all similar products or, if there are applicable federal appliance or equipment efficiency standards, a product that is at least 10% more efficient than the minimum federal standard. (USD[AT&L], 2008, p. 25)



- Environmentally Preferable—products or services having a lesser or reduced effect on human health and the environment when compared with competing products or services serving the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or product or service disposal. (USD[AT&L], 2008, p. 25)
- Green Products/Services—for the purposes of this document, green products and services are defined as products and services meeting the requirements of one or more of the components of federal green procurement preference programs as defined in the Resource Conservation and Recovery Act (RCRA), section 6002; the Farm Bill, section 9002; the Energy Policy Act of 2005; EO 13423 (2007) and EO 13221 (2001); and Electronic Stewardship requirements. (USD[AT&L], 2008, p. 25)
- Installation—a grouping of facilities, located in the same vicinity, which support particular functions. Installations may be elements of a base. (USD[AT&L], 2008, p. 25)
- Life Cycle, Cost Effective—the life cycle costs of a product, project, or measure are estimated to be equal to or less than the base case (i.e., current or standard practice or product). (EO 13423, 2007, sec. 9)
- Preference—when two products or services are equal in performance characteristics and price, the government, in making purchasing decisions, will favor the more environmentally sound or energy-efficient product. (USD[AT&L], 2008, p. 26)
- Recovered Material—waste materials and by-products recovered or diverted from solid waste, excluding those materials and by-products generated from and commonly reused within an original manufacturing process. (USD[AT&L], 2008, p. 27)
- Recycled Material—a material utilized in place of raw or virgin material in product manufacturing consisting of materials derived from postconsumer waste, industrial scrap, material derived from agricultural wastes, and other items, all of which can be used in new product manufacture. (USD[AT&L], 2008, p. 27)
- Recycling—the series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion. (USD[AT&L], 2008, p. 27)
- Solid Waste—garbage, refuse, sludge, and other discarded solid materials, including those from industrial, commercial, and agricultural operations, and from community activities. This excludes solids or dissolved materials in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial waste water effluents,



dissolved materials in irrigation return flow, etc. (USD[AT&L], 2008, p. 27)

- Sustainability and Sustainable—to create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations of Americans (Federal Facilities Environmental Stewardship & Compliance Assistance Center [Federal Facilities], 2011).

C. POLICY/ GUIDANCE

This section lays out the major environmental policies and guidance that have been established to direct agencies towards meeting environmental requirements and goals.

1. Executive Orders

Executive orders (EOs) are legally binding orders written by the president that direct federal agencies in their execution of Congressionally established laws and policies (Environmental Protection Agency [EPA], 2011). Many of the earlier environment-related EOs have been revoked and incorporated into more recent EOs. Figure 1 depicts the evolution of the environmental EOs and illustrates how the U.S. arrived at the three most current and relevant EOs. EO 13221 (2001), *Energy Efficient Standby Power Devices*, does not have a major impact on our area of study and, therefore, we do not address it in detail. However, as we dig deeper into EO 13423 (2007) and EO 13514 (2009), it is evident that they have been refined and evolved from previous orders.



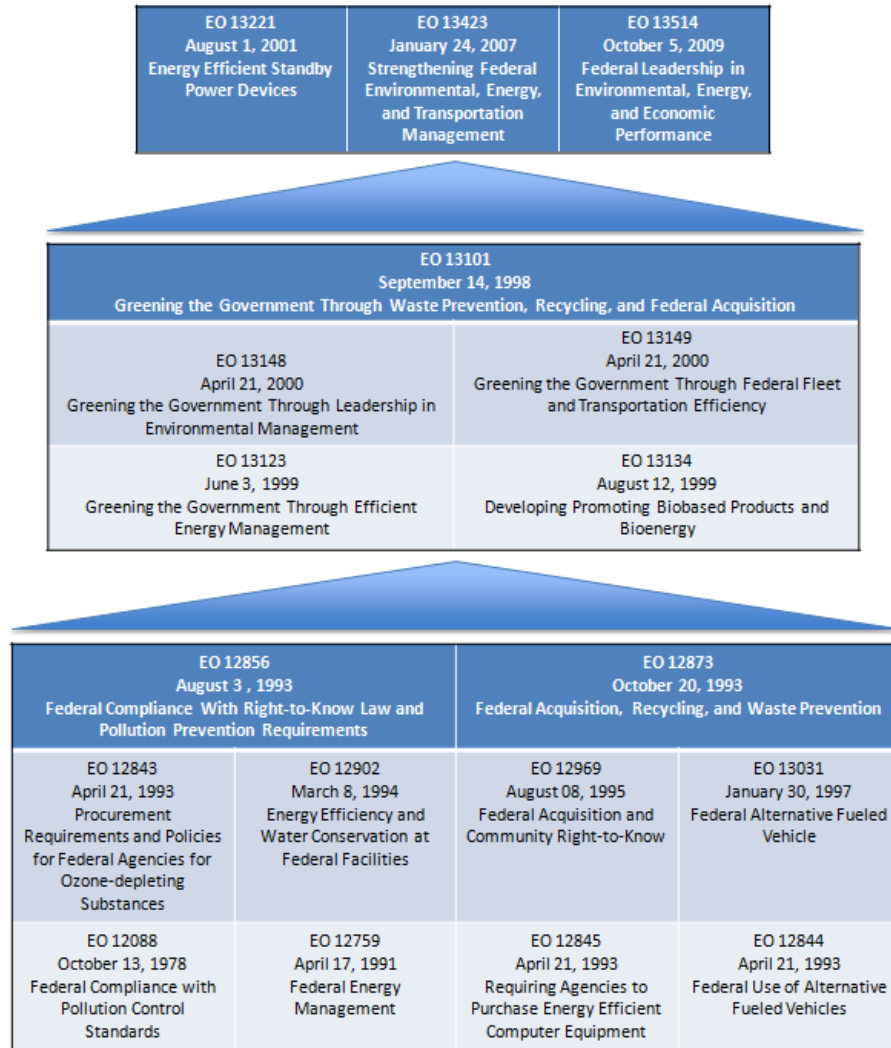


Figure 1. Evolution of the Executive Orders
(Defense Logistics Agency [DLA], 2010, p. 16)

a. Executive Order 13423 (2007)

EO 13423 (2007), *Strengthening Federal Environmental, Energy, and Transportation Management*, was signed by President Bush on January 24, 2007. This EO instructs federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in a manner that is environmentally, economically, and fiscally sound, and that is integrated, continuously improving, efficient, and sustainable. EO 13423 (2007, p. 3919) sets goals in the following areas:



- energy efficiency
- acquisition
- renewable energy
- toxic chemical reduction
- recycling
- sustainable buildings
- electronics stewardship
- fleets
- water conservation

This EO rescinds several previous EOs, including EO 13101, EO 13123, EO 13134, EO 13148, and EO 13149. It also requires federal agencies to lead by example to advance the nation’s energy security and environmental performance by setting percentage goals and timetables to achieve the following objectives:

- improve energy efficiency and reduce greenhouse gas emissions;
- increase renewable energy sources;
- reduce water consumption intensity;
- procure bio-based, environmentally preferable, energy-efficient, water-efficient, and recycled-content products;
- reduce acquisition and use of toxic and hazardous chemicals;
- ensure that construction projects comply with the *Guiding Principles for Federal Leadership in High Performance and Sustainable Building* (EO 13514, Section 2(g)(ii));
- reduce consumption of petroleum products; and
- acquire electronic products meeting Electronic Product Environmental Assessment Tool (EPEAT) standards.

b. Executive Order 13514 (2009)

On October 5, 2009, President Obama signed EO 13514 (2009), *Federal Leadership in Environmental, Energy, and Economic Performance*. This EO does not rescind or eliminate the requirements of EO 13423 (2007). Instead, it expands on the energy reduction and environmental performance requirements for the federal agencies identified in the earlier EO. The goal of EO 13514 (2009) is “to establish an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions (GHG) a priority for Federal agencies.”



GHG Reduction Timeline

This section outlines the dates set forth by EO 13514 to ensure compliance with the mandated DoD GPP (Federal Facilities, 2011):

- By November 5, 2009, each agency submitted the name of their senior sustainability officer (SSO) to the Council on Environmental Quality (CEQ) Chair and the Office of Management and Budget (OMB) Director;
- On January 4, 2010, an FY2020 percentage-reduction target, in absolute terms, for agency-wide reductions of Scope 1 and 2 GHG emissions, relative to an FY2008 baseline of the agency's Scope 1 and 2 GHG, was due to the CEQ Chair and OMB Director;
- On June 2, 2010, Scope 3 targets and the Strategic Sustainability Performance Plan were due to the CEQ Chair and the OMB Director (Note: Section 8 of EO 13514 (2009) describes the required contents of the Strategic Sustainability Performance Plan); and
- On January 31, 2011, the comprehensive GHG inventory is due from each of the agencies to the CEQ Chair and OMB Director.

Metrics

This section outlines the metrics and measurement baselines mandated by EO 13514.

- Reduce the following by 2% annually by FY2020:
 - Petroleum consumption. This applies to agencies with fleets of more than 20 vehicles. The baseline is FY2005.
 - Potable water intensity. The baseline for this reduction is FY2007, which will result in a 26% total reduction.
 - Industrial, landscaping, and agricultural water intensity. The baseline for this reduction is FY2010, which will result in a 20% total reduction.
- Achieve a 50% or higher diversion rate for the following items by FY2015:
 - Non-hazardous solid waste
 - Construction and demolition materials and debris



- Ensure that at least 15% of existing buildings and leases (for properties that are more than 5,000 gross sq. ft.) meet the Guiding Principles by FY2015, with continued progress towards 100%.
- Ensure 95% of all new contracts, including non-exempt contract modifications, require products and services that are energy efficient, water efficient, bio based, environmentally preferable, non-ozone depleting, and that contain recycled-content, non-toxic, or less toxic alternatives.

Abstract Metrics

This section presents the abstract metrics identified in EO 13514.

- Increase renewable energy and renewable energy generation on agency property;
- Pursue opportunities with vendors and contractors to reduce GHG emissions (i.e., transportation options and supply-chain activities);
- Reduce building energy intensity;
- Ensure all new federal buildings that enter the planning process in 2020 and thereafter are designed to achieve zero-net-energy standards by 2030;
- Use low-GHG-emitting vehicles, including Agency Fleet Vehicles (AFV), and optimize the number of vehicles in agency fleets;
- Implement water management strategies, including water-efficient and low-flow fixtures;
- Implement source reduction to minimize waste and pollutant generation;
- Decrease use of chemicals directly associated with GHG emissions;
- Participate in transportation planning and recognize existing infrastructure in regions and communities; and
- Ensure procurement preference for EPEAT-registered electronic products.

c. Noted Differences Between Executive Orders

Both Section 2(d) of [EO 13423](#) (2007) and Section 2(h) of [EO 13514](#) (2009) support agencies' acquisition of goods and services through the use of sustainable environmental practices, including the acquisition of bio-based, environmentally preferable, energy-efficient, water-efficient, and recycled-content products. EO 13514 (2009) further mandates that 95% of new contract actions, including task and delivery



orders, for products and services, with the exception of weapon systems acquisitions, meet the requirements for sustainable environmental practices. This EO also mandates non-ozone depleting, non-toxic, or less toxic products and services, as long as they meet agency performance requirements. Both EOs also specifically require that agencies acquire paper with at least 30% post-consumer fiber content. EO 13514 (2009) further stipulates the use of uncoated printing and writing paper. This EO also specifically requires procurement preference for EPEAT-registered electronic products and for Energy Star and Federal Energy Management Program (FEMP)-designated electronic equipment (Federal Facilities, 2011).

EO 13514 (2009) expands on the energy reduction and environmental performance requirements for the federal agencies it identifies. It also extends the goal established in EO 13423 (2007) of reducing potable water consumption intensity by 2% annually, by requiring a 26% reduction by the end of FY2020, relative to the baseline of FY2007. This is to be accomplished, at least in part, by using water-efficient and low-flow fixtures and efficient cooling towers. Furthermore, EO 13514 (2009) extends the earlier EO's goal of ensuring that 15% of an agency's existing facilities and leases meet the Guiding Principles by FY2015. "Note that EO 13514 builds upon and, in some cases, adds to or amends EO 13423. The goals, objectives, and sustainable practices outlined in both EOs must be met" (Federal Facilities, 2011).

EO 13423 (2007) established the requirement for Environmental Management Systems (EMS) and required federal agencies to conduct sustainable practices in environment-, energy-, and transportation-related activities.

EO 13514 (2009) enhances the environmental and energy management requirements established in EO 13423 (2007), because it adds a focus on climate change risks and on promoting a clean energy economy. EO 13514 (2009) continues the cohesive approach towards environmental and energy management in the government by establishing federal agencies' requirements for greenhouse gas (GHG) emissions management, sustainable building and community design, water efficiency, electronics stewardship, pollution prevention and waste diversion, and environmental management.



2. The Energy Policy Act of 2005

The Energy Policy Act of 2005 requires federal agencies to purchase energy-efficient (Energy Star) products and requires increased use of alternative fuels. In addition, this regulation requires an overall decrease in energy use in the federal government, along with an incremental increase in the use of renewable energy (Defense Acquisition University, 2009).

3. ISO 14000 Series Environmental Management System

The International Organization for Standardization (ISO) created a group to investigate how environmental standards might benefit business and industry. As a result of the Rio Summit on the Environment, held in 1992, ISO 14000 was formed. The major objective of ISO 14000 is to create a series of norms “to promote more effective and efficient environmental management in organizations and to provide useful and usable tools—ones that are cost effective, system-based, flexible and reflect the best organizations and the best organizational practices available for gathering, interpreting and communicating environmentally relevant information” (International Organization for Standardization [ISO], n.d.). ISO 14000 provides a framework for the development of an EMS and the supporting audit program.

The ISO 14000 series became the most well known environmental standard in the U.S. This standard specifies a framework of control for an EMS in which an organization can be certified by a third party. It does not specify levels of environmental performance. The intention is to provide a broad framework to help establish individual organizations’ environmental policy, plans, and actions. ISO 14001 provides generic EMS requirements and establishes a common reference for communicating about environmental issues between organizations, their customers, regulators, the public, and other stakeholders.

ISO 14001 is based on the plan-do-check-act methodology, which has been expanded to include 17 more specific elements, grouped into five phases that relate to the plan-do-check-act methodology: environmental policy, planning, implementation and operation, checking and corrective action, and, lastly, management review (Martin, 1998). The phases include the following:

Plan—establish the objectives and required processes.



This is the initial review or gap analysis of the organization's processes. In this phase, elements are identified in the current operation and, if possible, future operations.

Do—implement the processes.

This includes documentation of all procedures and processes, including operational and documentation control processes, emergency procedures and responses, and the education of employees. This is to ensure employees can competently implement the necessary processes and record results.

Check—measure and monitor the processes and report results.

In this step, performance is monitored and periodically measured to ensure that the organization's environmental targets and objectives are being met.

Act—take action to improve performance of the EMS based on results.

Recommendations are then fed back into the plan stage to be implemented into the EMS moving forward.

Other standards in the series include the following:

- ISO 14004—guidance on the development and implementation of the EMS,
- ISO 14010—general principles of environmental auditing (now superseded by ISO 19011),
- ISO 14011—specific guidance on auditing an EMS,
- ISO 14012—guidance on qualification criteria for auditors (now superseded by ISO 19011),
- ISO 14013/5—audit program review and assessment material,
- ISO 14020—labeling issues,
- ISO 14030—guidance on performance targets and monitoring within an EMS, and
- ISO 14040—life cycle issues.

4. Relevant FAR Parts

All federal procurement officials are required by the FAR (2010) to assess and give preference to those products and services that have energy or environmental attributes (i.e., green products). Environmentally preferable products are a subset of the broader universe of green products. Under EO 13423 (2007), these products are defined



as those that “have a lesser or reduced effect on human health and the environment when compared to other products and services that serve the same purpose.” Requirements for purchasing green products and services can be found throughout the FAR. Part 23 of the FAR (2010) defines the statutes and requirements for purchasing specific types of green products and services, including recycled-content products, energy- and water-efficient products, bio-based products, and environmentally preferable products.

The FAR (2010) is the primary statute used by agencies to regulate the acquisition of supplies and services with appropriated funds. Guidelines for environmental-related procurement concerns are found in the following FAR (2010) parts: 4, 7, 10, 11, 23, 36, and 42. The specific parts are taken directly from the FAR and are detailed as follows:

a. Part 7 Acquisition Planning

7.103 The agency head or a designee shall prescribe procedures for—

(p) Ensuring that agency planners—

(1) Specify needs for printing and writing paper consistent with the 30 percent postconsumer fiber minimum content standards specified in section 2(d)(ii) of Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management, and section 2(e)(iv) of Executive Order 13514 of October 5, 2009 (see 11.303);

(2) Comply with the policy in 11.002(d) regarding procurement of: bio-based products, products containing recovered materials, environmentally preferable products and services (including Electronic Product Environmental Assessment Tool (EPEAT)-registered electronic products, nontoxic or low-toxic alternatives), ENERGY STAR® and Federal Energy Management Program-designated products, renewable energy, water-efficient products, and non-ozone depleting products;

(3) Comply with the Guiding Principles for Federal Leadership in High-Performance and Sustainable Buildings (Guiding Principles), for the design, construction, renovation, repair, or deconstruction of Federal buildings

(4) Require contractor compliance with Federal environmental requirements, when the contractor is operating Government-owned facilities or vehicles, to the same extent as the agency would be required to comply if the agency operated the facilities or vehicles.

7.105

(b) *Plan of action*—



(17) *Environmental and energy conservation objectives.* Discuss all applicable environmental and energy conservation objectives associated with the acquisition (see part 23), the applicability of an environmental assessment or environmental impact statement (see 40 CFR 1502), the proposed resolution of environmental issues, and any environmentally related requirements to be included in solicitations and contracts (see 11.002 and 11.303).

b. Part 10 Market Research

10.001(a) (3)

(a) Agencies must –

(3) Use the results of market research to —

(v) Ensure maximum practicable use of recovered materials (see subpart 23.4) and promote energy conservation and efficiency.

c. Part 11 Describing Agency Needs

11.002

(d)(1) When agencies acquire products and services, various statutes and executive orders (identified in part 23) require consideration of sustainable acquisition (see subpart 23.1) including—

(i) Energy-efficient and water-efficient services and products (including products containing energy-efficient standby power devices) (subpart 23.2);

(ii) Products and services that utilize renewable energy technologies (subpart 23.2);

(iii) Products containing recovered materials (subpart 23.4);

(iv) Bio-based products (subpart 23.4);

(v) Environmentally preferable products and services, including EPEAT-registered electronic products and non-toxic or low-toxic alternatives (subpart 23.7); and

(vi) Non-ozone depleting substances (subpart 23.8).

d. Part 23 Environment, Energy and Water Efficiency, Renewable Energy Technologies, Occupational Safety, and Drug-Free Workplace

23.000 Scope.

This part prescribes acquisition policies and procedures supporting the Government's program for ensuring a drug-free workplace, for protecting and improving the quality of the environment, and encouraging the safe operation of vehicles by—

(a) Controlling pollution;



(b) Managing energy and water use in Government facilities efficiently;

(c) Using renewable energy and renewable energy technologies;

(d) Acquiring energy-efficient and water-efficient products and services, environmentally preferable products, products containing recovered materials, and bio-based products; and

(e) Requiring contractors to identify hazardous materials; and

(f) Encouraging contractors to adopt and enforce policies that ban text messaging while driving.

See Appendix A for additional text from FAR part 23.

e. Part 36 Construction and Architect—Engineer Contracts

36.601-3(a)

(1) For facility design contracts, the statement of work shall require that the architect-engineer specify, in the construction design specifications, use of the maximum practicable amount of recovered materials consistent with the performance requirements, availability, price reasonableness, and cost-effectiveness. Where appropriate, the statement of work also shall require the architect-engineer to consider energy conservation, pollution prevention, and waste reduction to the maximum extent practicable in developing the construction design specifications.

(2) Facility design solicitations and contracts that include the specification of energy-consuming products must comply with the requirements at subpart 23.3.

f. Part 42 Contract Administration

42.302

(a)(68) Monitor the contractor's environmental practices for adverse impact on contract performance or contract cost, and for compliance with environmental requirements specified in the contract. ACO responsibilities include—

(i) Requesting environmental technical assistance, if needed;

(ii) Monitoring contractor compliance with specifications requiring the delivery or use of environmentally preferable products, energy-efficient products, products containing recovered materials, and bio-based products. This must occur as part of the quality assurance procedures set forth in part 46;

(iii) As required in the contract, ensuring that the contractor complies with the reporting requirements relating to recovered material content utilized in contract performance (see subpart 23.4).



5. DoD Green Procurement Program

On August 27, 2004, Michael Wynne, the Acting Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L]) signed a memorandum that officially established the DoD GPP (Wynne, 2004). Its goal was to achieve 100% compliance in all acquisition transactions by implementing mandatory federal GPP programs through the purchase of environmentally preferable products and services. Attached to Wynne's memo was a strategy document that all organizations were required to follow. This document outlined the goals, roles and responsibilities, and metrics for the program. Four years later, on December 2, 2008, a follow-up strategy document was issued that provided a more in-depth explanation of green procurement and better defined the purpose of the program.

6. Air Force Green Procurement Program

As directed by the DoD GPP strategy, it is the responsibility of each agency procurement executive to ensure the issuance of "procurement policies and regulations in consonance with green procurement requirements" (USD[AT&L], 2008). On September 29, 2006, the Air Force Chief of Staff issued a memo establishing the initial guidelines and expectations of the AF GPP.

Again on June 2, 2011, the Air Force issued a memo to reemphasize the importance and purpose of its Green Procurement Program. The Air Force's newest goal is that each Air Force headquarters office must integrate GPP requirements into its respective instructions by October 2011.

D. REPORTS

The following reports capture the government's current view on environmental concerns and highlight the need for the Department of Defense to focus on environmentally sound procurement practices.

1. Quadrennial Defense Review Report—February 2010

In February 2010, for the first time ever, the Quadrennial Defense Review (QDR; DoD, 2010) included a discussion of the impact of environmental and energy concerns on DoD operations and the DoD's plan to address those impacts. According to the DoD, the



QDR is a mandated review of DoD strategy and priorities that “will set a long-term course for DoD as it assesses the threats and challenges that the nation faces and re-balances DoD's strategies, capabilities, and forces to address today’s conflicts and tomorrow’s threats” (DoD, 2010). These energy- and environment-related discussions in the QDR re-enforce the important role these concerns will play in the future of America’s safety and security. A section titled “Crafting a Strategic Approach to Climate and Energy” begins on page 84 of the QDR (DoD, 2010). This section explains how the issues of climate change and energy will play a large role in determining the security environment of the U.S. in coming years and decades. A key piece of the QDR provides the DoD’s definition of energy security, which focuses on the U.S.’s need for assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs. The QDR further explains how energy efficiency is a force multiplier, because it increases the range and endurance of forces in the field and can reduce the number of combat forces diverted to protect energy supply lines, which are vulnerable to both asymmetric and conventional attacks and disruptions. Next, the QDR broadly proclaims that the DoD must include “operational energy considerations into force planning, requirements development, and acquisition processes.” The QDR gets more specific on the topic of operational energy considerations. For example, it gives a high-level overview of the type of projects military departments have invested in, including “non-carbon power sources such as solar, wind, geothermal, and biomass energy at domestic installations and in vehicles powered by alternative fuels, including hybrid power, electricity, hydrogen, and compressed natural gas.” A final emphasis is placed on the DoD partnering with academia, other U.S. agencies, and international partners in order to research, develop, test, and evaluate new sustainable energy technologies. Finally, the QDR lays out broad methods for achieving a more energy-secure future:

DoD will conduct a coordinated energy assessment, prioritize critical assets, and promote investments in energy efficiency to ensure that critical installations are adequately prepared for prolonged outages caused by natural disasters, accidents, or attacks. At the same time, the Department will also take steps to balance energy production and transmission with the requirement to preserve the test and training ranges and the operating areas that are needed to maintain readiness. (DoD, 2010)



Although there are few specifics in the QDR, it is a giant leap in the right direction to include energy and environmental concerns in this high-level document, a leap that further verifies the importance of our research.

2. CRS Report R41197—April 20, 2010

The Congressional Research Service (CRS; Fischer, 2010) wrote the Green Procurement Report for Congress in order to not only outline the magnitude and complications of green procurement, but also to provide recommendations to mitigate some of the barriers and ambiguities of green procurement in order for Congress to implement more effective and efficient policies. The report begins by defining green procurement and explaining how it can be evaluated. Many of the problems with current policies and initiatives stem from a lack of the definition of “green.” As stated in the report (Fischer, 2010), “Such variations in [green] usage and meaning can create significant difficulties in understanding what green procurement is and in the development and implementation of policy goals” (p. 4). The report continues by defining green and evaluation criteria that can be used to implement the policy and to measure its success. Much of the report discusses the multitude of issues and barriers encountered with green initiatives, including incomplete and imperfect information, and lack of common standards, as well as real, perceived, and hidden costs (Fischer, 2010, pp. 25–26). We discuss many of these issues in Chapter IV. The CRS report concludes with an evaluation of the current goals and performance of green procurement, and provides alternative and more objective recommendations for Congress to implement as part of federal green procurement programs.

3. CRS Report R41297— June 21, 2010

CRS report R41297 (Manuel & Halchin, 2010) addresses the legal authorities that support environmental considerations within the procurement process and includes the following topics: the extent to which agencies consider environmental factors when procuring goods or services, the legal authorities that require agencies to take environmental factors into account when acquiring goods or services, and the existing provisions authorizing agencies to consider environmental factors.



This CRS report demonstrates a current snapshot of procurement-related environmental considerations and shows that federal procurement involves agencies acquiring the goods and services they need to carry out their missions. FAR part 11 (2010) states that the goal is “to deliver on a timely basis the best value product or services to the customer, while maintaining the public’s trust and fulfilling public policy objectives.” Although “best value” is not defined in this context, the FAR further explains that environmental objectives can constitute one of the “public policy objectives” (Fischer, 2010, p. 1) that can be translated into environmental considerations. This statement leads to an obvious question: What precedence should these considerations be given in relation to other public policy objectives? This question has not yet been answered.

Three main legal authorities allow contracting officers to take environmental considerations into account when procuring goods and services (Fischer, 2010, p. 5). These include the following:

1. attribute-focused authorities that generally require agencies to avoid or acquire products based on their environmental attributes (e.g., ozone-depleting substances and recovered content),
2. general contracting authorities that allow agencies to purchase goods with certain environmental attributes when they have bona fide requirements for such goods, and
3. responsibility-related authorities that require agencies to avoid certain dealings with contractors who have been debarred for violations of the Clean Air or Clean Water Acts. (Fischer, 2010, p. 5)

The existing provisions that authorize agencies to implement the environmental factors involve two components: identification of prospective products and contractors, and implementation of various purchasing methods. The report (Fischer, 2010, p. 5) goes on to establish that contracting officers generally rely on third-party designations of eligible (or ineligible) products, rather than making their own case-by-case determinations of which products qualify. With regard to the various purchasing vehicles, the determining factor is the complexity of the procurement, which takes into account the



nature or type of the agency's requirement and the anticipated cost. Purchasing methods include bilateral contracts, the Federal Supply Schedules, and government-wide commercial purchase cards.



III. GREEN PROCUREMENT PROGRAM

A. INTRODUCTION

In this chapter, we provide a comprehensive overview of the AF GPP in conjunction with the guidelines set forth by the DoD GPP strategy. We begin this chapter with an explanation of the DoD's purpose with regard to the objectives of the Green Procurement Program. In the following sections, we describe the five areas of the Green Procurement Program. Within each category, we outline the DoD GPP guidelines, followed by a discussion of the Air Force's initiatives and implementation of its own Green Procurement Plan. In this chapter, we provide the reader with the foundation needed for the subsequent chapter's analysis of the AF GPP.

B. PURPOSE OF THE DOD GPP

The DoD's GPP policy and strategy were issued in August 2004 (Wynne, 2004) and updated in November 2008 (USD[AT&L], 2008). The purpose of the policy is to "enhance and sustain mission readiness through cost effective acquisition that achieves compliance and reduces resource consumption and solid and hazardous waste generation" (Wynne, 2004). The DoD, the single largest buyer of supplies and services throughout the government, established this guidance to ensure that its procurement practices meet the requirements of applicable federal green procurement preference programs (USD[AT&L], 2008, p. 2). The purpose of the GPP strategy is to instruct each agency within the DoD to develop its own Green Procurement Program in accordance with the guidelines and goals provided in the DoD's strategy. The DoD GPP also outlines the roles and responsibilities that each agency will need to assume in order to play its part in creating a more environmentally sustainable force. The program's strategy is divided into five areas: policy, planning, implementation and operation, checking and corrective action, and management review.

These areas provide guidance that outlines the day-to-day purchasing activities and the responsibility of every person involved in the procurement process. From requirements planners, to administrative contracting officers (ACO), to government purchase card (GPC) holders, each person has a role to play to ensure that the DoD



complies fully with all federal procurement preference requirements (USD[AT&L], 2008, p. 1). The main goal of the program is to achieve “100% compliance with mandatory Federal GPP programs in all acquisition transactions” (USD[AT&L], 2008, p. 1). We outline the mandatory GPP programs in Chapter II, Section 1.b of this thesis. This goal applies to all acquisitions, from major systems programs to individual unit supply and service requisitions (Wynne, 2004).

C. OBJECTIVES

The objectives of the DoD GPP include the following (USD[AT&L], 2008, p. 1):

- educate appropriate DoD employees on the requirements of federal green procurement preference programs, including their roles and responsibilities relevant to the DoD GPP, and the opportunities to purchase green products and services;
- increase purchases of green products and services consistent with the demands of mission, efficiency, and cost effectiveness, with continual improvement toward federally established procurement goals;
- reduce the amount of solid waste generated;
- reduce consumption of petroleum and increase the use of alternative and renewable fuel sources;
- increase the use of renewable energy;
- reduce the use of ozone-depleting substances and hazardous and toxic chemicals;
- improve the procurement of green electronic equipment through smarter acquisition;
- increase the use of bio-based products and reduce dependence on fossil energy-based products derived from imported oil and gas;
- reduce consumption of energy and natural resources; and
- expand markets for green products and services.

D. POLICY FOR GPP

This section compares the policy objectives outlined in the DoD GPP with the policy requirements in the Air Force’s GPP.



1. DoD Policy

Green procurement is the purchase of environmentally preferable products and services. The Green Procurement Program is intended to increase green purchasing by federal agencies. Products made with recycled materials were the first to be included in the program, and the program was known as affirmative procurement (AP). On August 27, 2004, the Acting Under Secretary of Defense issued a document titled *Establishment of the DoD Green Procurement Program (GPP)*. This policy memorandum (Wynne, 2004) stated, “the DoD goal is to achieve 100% compliance with mandatory Federal GPP programs in all acquisition transactions.” This goal applied to all acquisitions from major systems programs to individual unit supply and service requisitions. The result of this policy was an expanded program that included several other procurement preference programs known as GPP program elements. The AP program was renamed the Green Procurement Program to reflect the broader emphasis on all types of green products.

The GPP strategy was established to provide guidance on how to achieve this compliance. Alongside the GPP strategy, the FAR (2010) is the source of statute for all federal agencies, and it encompasses many of the GPP requirements we referenced in Chapter II of this project. The most effective implementation of these requirements is to “think green” from the very start of each acquisition. Some of the major highlighted parts of the FAR (2010) include part 7.105 (b) (16), which requires acquisition plans to include environmental and energy conservation objectives associated with the acquisition, and subpart 11.002, which requires acquisition members to consider “use of recovered materials, energy- and water-efficient products and services, products containing energy-efficient standby power devices, environmentally preferable purchasing criteria developed by the EPA, and environmental objectives” whenever we do the following:

- develop, review, or revise federal and military specifications, product descriptions (including commercial item descriptions), and standards;
- describe government requirements for supplies and services; and
- develop source-selection factors.

The overall framework selected for the DoD GPP is the Environmental Management System (EMS). The basic EMS framework consists of the following: policy, planning, implementation and operation, checking and corrective action, and



management review (USD[AT&L], 2008). The Deputy Under Secretary of Defense jointly manages the DoD GPP for Installations and Environment (DUSD[I&E]) and the Director, Defense Procurement, Acquisition Policy, and Strategic Sourcing (USD[AT&L]/DPAPSS). Every organization in the DoD that defines requirements, places orders, makes purchases, or contracts for products and services should implement management elements in its GPP.

2. Air Force Policy

Each person who specifies or purchases products and services is responsible for understanding and following the GPP requirements. Contracting personnel, GPC holders, environmental management personnel, technical staff including engineers and architects, construction management and service contract quality assurance evaluators, and material control specialists all play key roles in the GPP. As previously mentioned, GPP requirements are part of the FAR (2010) and are mandatory for all Air Force organizations, including non-appropriated fund activities.

Government purchase cards (GPC) and contracting actions of all types must be used to obtain products and services that result in less of an environmental impact than in the past. The GPP applies to construction contracts, service contracts, products stocked by Civil Engineering (CE) or other shops for in-house use, GPC purchases, commodity purchases, items bought from base supply stores, and everything an installation purchases. The dollar value of the purchase is irrelevant. Green procurement requirements apply to everything from GPC micro purchases to major weapon system acquisition contracts.

AFI 32-7080, *Pollution Prevention Program* (Department of the Air Force, 2009), requires the implementation of affirmative procurement programs for recycled-content products. Air Force Engineering Technical Letter (ETL) 00-1, *EPA Guideline Items in Construction and Other Civil Engineering Specifications* (Cook, 2000), requires the inclusion of EPA guideline items containing recovered material in the amounts recommended by the EPA for all civil engineering specifications. This includes construction, renovation, and repair projects, as well as service contracts. The ETL also requires project managers (PMs) to look for opportunities to use bio-based products,



energy-efficient products, and other environmentally preferable products in all contracts (Department of the Air Force, 2009).

Under the AP program, Air Force installations had previously established a policy for recycled-content product purchasing. Installation GPP policy helps demonstrate commitment, provides direction for all personnel, and fulfills an EMS requirement. It also fulfills two legal requirements. First, it requires agencies to have a “Preference Program” in order to demonstrate that the installations prefer to acquire recycled content; second, it requires agencies to use bio-based products whenever they are cost effective and meet technical requirements:

- the Resource Conservation Recovery Act (RCRA)—the law that established the recycled content purchasing program, and
- the Farm Security and Rural Investment Act of 2002 (Farm Bill)—the law that created the bio-based product program.

E. PLANNING

The following section describes the Green Procurement Program planning objectives of the DoD and the Air Force.

1. DoD Planning

The DoD’s overarching objective is for each agency to develop a plan that identifies activities that significantly impact the environment and to determine ways these impacts can be managed from an acquisition standpoint. Ideally, when environmental considerations are included in the procurement process, the EMS process takes over to ensure that the GPP is carried out effectively, meets all legal requirements, and becomes a tool for improving the installation’s overall environmental performance.

2. Air Force Planning

With the Air Force’s tremendous purchasing power comes the opportunity and obligation to be responsible stewards by choosing green products. Stewardship is one motivation to buy green, but there are also legal requirements that we further outline in Chapter IV. Green procurement is not just about helping the environment or complying with the law. Green products can achieve better performance than their conventional counterparts. The choices that are made when purchasing products and services can significantly influence the environmental performance of an installation, because these



decisions open the door to all of the wastes and emissions that a base must manage, track, and pay for. Some examples include the following:

- Hazardous material, at the end of its life cycle, becomes a hazardous waste that is costly to manage and dispose of.
- Products or building designs that are energy inefficient result in higher utility bills and contribute to regional air pollution.
- Water-wasting products and systems drive up costs for water purchase and wastewater treatment, and products that are energy inefficient cost more to operate, wasting funds that could have been used for mission requirements.

The goal of the GPP is to use procurement practices to avoid costs and impacts. Green purchasing requirements affect all purchases of products and services made by Air Force personnel and their contractors—no matter how they are purchased, or what the dollar value of the purchase is. All personnel who purchase items, write contract specifications, or write performance work statements for service contracts must know what the GPP requirements are and comply with them. (Department of Defense, Air Force Center for Environmental Excellence [AFCEE], 2005).

After the Air Force defined green purchasing as a significant environmental aspect of an installation's EMS, its next step was to create objectives and set targets. Objectives are defined as long-term goals that an organization sets out to achieve and that reflect the principles established in the organization's environmental policy. Targets are short-term goals that move an organization toward achieving its environmental objectives. Targets are specific and measurable and must be assigned a specific time frame for completion.

As previously stated, the objective of the DoD's GPP policy is 100% compliance with all mandatory GPP elements in all acquisition transactions—from major defense acquisition programs to individual unit supply and service requisitions. The DoD's policy requires continual improvement in GPP performance, but sets no deadline for 100% compliance.

The AF GPP policy complies with the DoD's goals and explains the training requirements for Air Force personnel. The Air Force policy, like the DoD policy, does not require specific timelines for meeting the overall DoD objective. The AF GPP plan



defines how an installation will achieve its goals and targets for green purchasing. The plan identifies specific actions and their priorities, the action officers and other responsible personnel, and the milestones or projected completion dates for each action. The installation policy formally establishes the preference for acquiring the environmentally friendly products.

F. IMPLEMENTATION AND OPERATION

In the following section, we detail the DoD's implementation and operation requirements and the Air Force's implementation and operation method (Department of Defense, AFCEE, 2005).

1. DoD Implementation and Operation Steps

The following sections outline the steps of the DoD implementation and operations requirements.

Define and Document Roles and Responsibilities

The first step of the DoD's GPP strategy requires each service to define and document the roles and responsibilities for GPP implementation and operation, as well as to hold the personnel in those roles accountable for GPP implementation. This includes making sure that all personnel know their responsibilities and have received the training they need in order to execute their responsibilities competently. The DoD's strategy even suggests including green procurement responsibilities in the job descriptions and performance standards of key personnel, as soon as the personnel have been identified and trained. Some examples of key personnel suggested by the strategy are facility managers, information technology (IT) managers, environmental and energy program managers, vehicle fleet managers, contracting officials, GPC program managers, and others as appropriate. Lastly, the strategy suggests, when necessary, to create a green procurement team or to assign a reviewer to review proposed procurements and acquisitions as potentially green purchases.



Implement Training

After defining the roles and responsibilities and ensuring that key personnel are held responsible, the strategy requires tailored GPP training. This training should be tailored to the quantity and nature of the purchasing organization, and should be provided to personnel involved in all stages of the acquisition process. The strategy also states that GPP training should be incorporated into existing training curriculums where possible, such as new employee orientation or contracting officer representative training.

Internal and External Communication

The next key for implementation and operation is to implement internal and external communication programs. This means informing not only government personnel but also contractors of the GPP requirements. The strategy includes a detailed list of possible ways to ensure the information is effectively disseminated.

Define Documentation Requirements

The DoD's GPP strategy document requires that Services define the documentation requirements of GPP and provide a list of examples of possible documentation requirements. These include documenting training, certifications, acquisition plans, performance data, and metrics.

Operational Controls

Lastly, the DoD's GPP strategy document requires the Services to implement operational controls. This requirement mainly calls for the establishment of procedures that will ensure that the GPP is considered in the acquisition process, as well as a justification and approval procedure when green purchasing is not employed.

2. Air Force Implementation and Operation

The Air Force's GPP guide (Department of Defense, AFCEE, 2005) places the responsibility for the GPP with the installation's Environmental Protection Committee (EPC) or its Environment, Safety, and Occupational Health Committee (ESOHC), and requires a team to be created to manage and execute the GPP. The following functional areas are listed as key members of the team:

- environmental flight or environmental management office,



- contracting,
- civil engineering construction and operations,
- base energy manager,
- transportation personnel who are responsible for purchasing vehicles and fuels, and
- base pollution prevention program manager.

The Air Force's GPP guide also mentions that public affairs and legal offices should provide support as necessary. The guide continues by listing the typical responsibilities for each of the previously mentioned key areas, but these responsibility definitions are limited to a few sentences of general description, rather than an in-depth list of specific, measurable responsibilities.

Implement Training

The Air Force's GPP guide echoes the DoD guide's emphasis on training as a crucial element to the success of the GPP. The guide explains that training is required on an initial and recurring basis and that a specific GPP training plan for each base will be developed and implemented by the GPP team established in the Define and Document Roles and Responsibilities section, and that it will incorporate all existing Air Force policy and major command (MAJCOM) and local policy. The guide focuses on training for contracting personnel, but also discusses the importance of providing training to everyone who has a stake in the acquisition process. This section of the Air Force's GPP guide details the authority that requires GPP training to be accomplished and provides links to available training at both an Air Force and a DoD level.

Models for Success

The DoD's GPP guide does not specifically require the Services to document models for successful GPP implementation, but the Air Force's GPP guide provides this section to emphasize the successes being achieved in the Air Force and to serve as a catalyst for other bases to embrace the GPP. This section lists seven Air Force success stories and two from other government agencies.



Internal and External Communication

This section of the Air Force's GPP guide incorporates the guidance from the DoD's GPP guide regarding internal and external communication, further defines the internal and external audiences, and then explains the importance of clearly communicating the GPP to each of these groups. The guide lists nine detailed methods of communicating to internal personnel and three methods for reaching out to external audiences.

Document Control

This section elaborates on the Defining Documentation Requirements section of the DoD's GPP guide and states that all aspects of the GPP must be thoroughly documented, including installation policy and execution plan; construction plans and specifications; Performance Work Statements; commodity purchase orders; written determinations justifying recycled-content exemptions; sample GPP forms and directions for use; completed project-specific GPP forms; lists of green products recommended for purchase; training records; and documentation of GPP audits and management reviews (Department of Defense, AFCEE, 2005, p. 35).

The guide also suggests filing these documents electronically on a server that is easily accessible by each of the key personnel identified in the Define and Document the Roles and Responsibilities section. The guide calls for annual reviews of all documents and requires that any changes identified by the reviews be implemented to improve the base's GPP. A detailed list of GPP documents is listed in the next section, titled Operational Controls.

Operational Controls

Although the Operational Controls section of the DoD's GPP plan is short and ambiguous, the Air Force's GPP guide provides a robust section on this topic that describes the tools available to product users and to the procurement and contracting personnel who support them. The guide explains that the objective of the operational controls is to ensure that product users and contracting personnel "include environmental impacts along with price, performance and availability in the criteria on which



purchasing decisions are made” (Department of Defense, AFCEE, 2005, p. 35). The guide explains that no standard forms are required by the DoD or Air Force guidance, but that some installations have created their own forms to support the program. This section provides a list of six forms that have been created and explains their purpose; it also provides example forms in the guide’s appendix. The next five sections of the Operational Control section are perhaps the most robust of the guide. They “describe a series of typical actions that can be used to ensure GPP is successfully included in product, service, and facility acquisitions” (Department of Defense, AFCEE, 2005, p. 36). These sections are detailed, provide in-depth references to the FAR (2010) clauses, and describe how to apply those regulations to specific types of purchases.

G. CHECKING AND CORRECTIVE ACTIONS

In this section, we discuss the DoD’s checking and corrective action requirements and the Air Force’s plan to implement these measures.

1. DoD Checking and Corrective Actions

The DoD guide states that Services must establish a process to evaluate and report GPP performance and that the Services should measure performance based on installation-level objectives and targets, and on DoD component-level objectives and targets. Further, the Services should use pre-existing DoD tracking and audit systems to properly evaluate and report GPP performance. The DoD guide also says that organizations can develop other measurement tools, as necessary. Organizations are required to conduct annual reports, which will be sent up the chain of command in order to meet the reporting requirements at federal, DoD, and component levels. However, this section references outdated executive order reporting requirements. This section also requires installations to incorporate GPP requirements into pre-existing self-inspection programs and to develop corrective action plans to address shortcomings. Lastly, this section of the DoD’s GPP guide states that installations must conduct routine assessments of the effectiveness of GPP awareness training and audit procedures.

2. Air Force Checking and Corrective Actions

The Air Force’s GPP guide takes a more forward-looking approach and requires its installations to do more than simply evaluate past performance. The guide makes it clear that metrics and reporting are crucial to the *check* part of the plan–do–check–act



cycle and that metrics are “used by higher headquarters as indicators of overall progress, but metrics alone won’t provide all of the detail needed to ensure the installation GPP is performing as it should” (Department of Defense, AFCEE, 2005, p. 50). This section also explains the process for conducting management reviews. The review analyzes ways to not only assess and improve GPP execution, but also to improve program structure. The Air Force’s GPP guide goes on to discuss the three top-level metrics for the GPP. This section references detailed information; however, these metrics are based on outdated executive orders or are tracked using obsolete tracking and auditing systems.

H. MANAGEMENT REVIEW

In this section, we discuss the Green Procurement Program management review process required by the DoD and Air Force.

1. DoD Management Review

The DoD’s GPP requires the agency to establish procedures for routine senior management reviews to occur at least annually in order to determine the effectiveness of the agency’s implementation of GPP. The purpose of these reviews is to ensure that the agency meets green procurement requirements at all levels and shows continual performance improvement. The management review process output should include results, corrective actions, and recommendations. At a minimum, the DoD wants to see progress of objectives and targets through the following:

- audits,
- Federal Procurement Data Systems–Next Generation (FPDS-NG) data,
- Defense Logistics Agency (DLA) data,
- training data, and
- DoD GPP requirements reporting.

2. Air Force Management Review

The Air Force recognizes the management review process as the necessary feedback loop for senior management to continually monitor and improve the Green Procurement Program. In Section 4, Checking and Corrective Action, of its GPP, the Air Force incorporated many of the mandatory reports and audits listed in the Management Review section of the DoD’s GPP strategy document. However, the Air Force encourages each leader and installation to assess their programs by using the DoD’s



Management Assessment questions in conjunction with the Green Procurement Program Annual Review Form created by the Air Force (Department of Defense, AFCEE, 2005, p. 103).

This form must be filled out by each installation's GPP team, which reports its findings to the Environmental Protection Committee and files the form with its EMS. The form allows the GPP team to document its progress and annotate its milestone accomplishments. The team can also assess the installation's progress in training personnel and in implementing its green contracting process. There is room on the form to annotate the necessary updates such as a change in team members or an addition to or change in milestones (Department of Defense, AFCEE, 2005, pp. 103-105). Finally, in order to provide incentives, this section includes ways to recognize and reward outstanding contributors to the Green Procurement Program. Some of the major awards include the General Thomas D. White Environmental Awards for Environmental Quality and the Secretary of Defense Environmental Awards, each recognizing individuals, teams, and installations that are working towards a more environmentally sustainable Air Force (DoD, 2011).

3. Metrics

The DoD outlined the following metrics to monitor the progress and success of the Green Procurement Program (USD[AT&L], 2008):

- percent reduction in the number of *Not Required* codes entered in the Use of EPA-Designated Products field in the Contract Action Report (CAR) (or corresponding fields in successor data capture system), and percent increase in the number of *Meets Requirements* codes entered in the Use of EPA-Designated Products field in the Contract Action Report (CAR);
- increase in the purchases of federally defined indicator items;
- increase in the percentage of personnel trained in green procurement;
- increase in organizations or installations participating in the Federal Electronics Challenge (FEC); and
- decrease in contract audit findings indicating lack of compliance with GPP requirements. (USD[AT&L], 2008, p. 22)

The information necessary to track these metrics can be found in the following databases: the Federal Procurement Data System–Next Generation (FPDS–NG), the



Defense Logistics Information Service (DLIS), and the Defense Acquisition University (DAU) training log.

Table 1 summarizes the DoD’s objectives and the tools needed to find the appropriate information in order to measure the progress.

Table 1. DoD GPP Metrics and Tools
(USD[AT&L], 2008, p. 22)

	Metric	Tool
1	Decrease <i>Not Required</i> Code and increase <i>Meets Requirements</i> code	Obtain data from CAR and FPDS–NG system
2	Increase purchases of federally defined indicator items	Capture data from DLA's Environmental Reporting Logistics system or Green Procurement Reporting system
3	Increase % of personnel trained in green procurement	Run training report in DAU's information database
4	Increase organizations participating in the FEC	Obtain numbers from FEC website: http://www.federalelectronicchallenge.net/curpart.htm
5	Decrease contract audit findings indicating lack of GPP compliance	Does not define one particular audit

However, there are several gaps in these metrics. For example, the first metric, measuring the decrease in *Not Required* EPA products, is based on a code that a contract administrator inputs in the CAR, which is often based on the information given to them by the requestor. Thus, the code may often be wrong due to the lack of training, understanding, or attention to detail of one or both of the people.

Another issue is that the system used to track the second metric only compiles information from purchases made through the Defense Logistics Agency (DLA) and the General Services Administration (GSA). This significantly skews the completeness of the data (DLA, 2011).

One of the top objectives, and the third metric, is for an organization to train personnel who are involved in the procurement process. To measure the progress of this metric, an organization must require personnel to submit accomplished training to the DAU information database. However, both the DoD and the Air Force offer several methods other than the DAU course to accomplish this task. Therefore, the tool to measure the progress of this metric will not provide a complete picture of the number of



personnel who have completed the training. Instead, it will include only those personnel who completed green procurement training through the DAU course.

In 2008, the fourth metric was added to the updated DoD GPP strategy document. The Federal Electronics Challenge (FEC) is a partnership program that encourages federal facilities and agencies to purchase greener electronics, reduce the impacts of electronics during use, and manage used electronics in an environmentally safe way. To date, 257 facilities participate in the FEC, including a variety of organizations, from Congress to the U.S. Postal Service. The DoD, with its 17 installations that have joined over the last three years, makes up only 6.6% of the participating facilities.

The final metric is to reduce the number of contract audits that indicate a lack of compliance with the GPP. First, multiple audits occur both at a DoD and a Service level that look at a sample of the contracts, including the GPC audits, the Environmental Compliance Assessment Management Program audits, and the Inspector General audits. The results show that this metric includes a reduction of findings from all the audits; however, without a more defined metric and tool, there is the possibility for error. The guidelines provided by the DoD and the Air Force's GPP provide the tools and resources required for compliance; however, without one audit designated to review *all* the contracts for GPP conformity each fiscal year, it is very difficult to accurately measure the progress of the Green Procurement Program.

I. SUMMARY

In this chapter, we provided an overview of the DoD's strategy for the Green Procurement Program and, more specifically, the Air Force's implementation of the initiative. We broke this chapter into the following sections: goals, policy, planning, implementation and operations, checking and corrective action, and management review metrics. In the chapter, we highlighted the broader perspective of the DoD and its expectations of the agencies underneath it. We also identified the roles and responsibilities of the key personnel who implement the GPP, establish training requirements, highlight the importance of internal and external communication, and develop operational controls in order to meet the metrics.



IV. PROGRESS OF THE AIR FORCE GREEN PROCUREMENT PROGRAM

A. INTRODUCTION

In this chapter, we analyze the AF GPP using two recognized models, the Contract Management Process and the Mandatory Pillars for Integrative Success (Rendon, 2007; Yoder, 2010). These models are used as a diagnostic tool to determine if the AF GPP has been effectively implemented or, if the AF GPP is not being well executed, to identify the location of the gaps. In order to perform our analysis, we combined the concepts of these models to form our own framework, the GAGA model.

The evolution of the GAGA model is presented in a logical manner by first introducing the two recognized models, then providing an overview of each step in the Contract Management Process, and, finally, defining the three pillars of the Mandatory Pillars for Integrative Success (Yoder, 2010). Using these two models, we then combined the contracting steps and pillars into the Green Acquisition Gap Analysis model, which allowed us to analyze the Air Force's implementation of and compliance with the Green Procurement Program. This enabled us to identify strengths and weaknesses in the Air Force's green contracting process and to assess the overall health of the AF GPP in operational Contracting Squadrons.

B. MODELS

In this section, we define the two models we combined in order to develop the GAGA model that we used to analyze the progress of the AF GPP. We create the foundation for our framework by first defining the six phases of the Contract Management Process and the three pillars of the Mandatory Pillars for Integrative Success (Rendon, 2007; Yoder, 2010). We chose the Contract Management Process because it helps organizations assess the maturity level of their contract operations and because it encompasses all phases of the contracting life cycle (Garrett & Rendon, 2005).

We selected the Mandatory Pillars for Integrative Success model (Yoder, 2010) because it is a widely recognized business process framework. By infusing these two models into the GAGA model, we ensured that all elements of the GPP are thoroughly examined



from both a business method and a contract process perspective. The GAGA model allowed us to analyze the AF GPP in order to identify gaps and determine the Air Force's progress in green procurement.

1. The Contracting Management Process

Rene Rendon of the Naval Postgraduate School first developed the six-phase Contract Management Process model. This model is a cradle-to-grave contracting procedure that is divided up into six phases, including procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout (Rendon, 2007). The model stresses the importance of the customer's and the contracting office's roles in the procurement processes. Rendon first published this concept in 2003 in a doctoral dissertation titled *A Systematic Approach to Assessing Organizational Contract Management Maturity*. In 2005, Rendon and Gregory Garrett expanded the model in their book *Contract Management: Organizational Assessment Tools*. In addition, Rendon (2007) briefed the model at the 92nd Annual International Supply Management Conference in May 2007. In their book, they defined contract management as "the art and science of managing a contractual agreement throughout the contracting process," and they developed "a systematic approach to measuring the implementation of modern initiatives within the procurement process" (Garrett & Rendon, 2005). Using their six-phase model, depicted in Figure 2, as a starting point, we developed adapted definitions for each phase, which are defined as follows:



Figure 2. Six Phases of the Contract Management Process
(Rendon, 2007)

1. Procurement Planning: This stage involves the process of identifying which business needs can best be met by procuring products or services from outside the organization. This process involves determining whether to procure, how to



procure, what to procure, how much to procure, and when to procure. The requirement originator is ultimately responsible for this phase in the Contract Management Process; however, this phase usually requires a team effort and includes the assistance of contracting personnel.

2. Solicitation Planning: Contracting personnel are responsible for all phases from this phase through the contract closeout and termination phase. The solicitation planning phase is the process of preparing the documents needed to support the solicitation. This process involves documenting program requirements and identifying potential sources. This phase includes the following activities:
 - selecting the appropriate contract type;
 - determining the procurement method (sealed bids, negotiated proposals, e-procurement methods, procurement cards, etc.);
 - developing the solicitation document (IFB, RFQ, or RFP);
 - determining the proposal evaluation criteria and contract award strategy (lowest priced versus best value);
 - structuring contract terms and conditions; and
 - finalizing solicitation work breakdown structures (WBS), statements of work (SOW), or product or service descriptions.

A best practice in solicitation planning includes using cross-functional teams for developing solicitations and identifying contract risks. The use of statements of objectives (SOO) and performance-based statements of work (SOW) are also considered best practices.

3. Solicitation: The solicitation phase is the process of obtaining proposals from the contractors. This is done by taking the information about the product or service gained from market research and putting it into a government requirement to be bid on. This process can include pre-proposal conferences, request for information (RFI) documents, and advertising or soliciting interested parties for a bid.
4. Source Selection: The source selection phase is the process of formally selecting an awardee. This process can be as simple as going with the lowest price technically acceptable or it can be a more complex process that includes a source



selection committee, negotiations with suppliers, and an analysis of evaluation factors.

5. **Contract Administration:** This is the process of ensuring that each party's performance meets the contractual requirements. The activities involved in contract administration will depend on the contract statement of work, contract type, and contract performance period. This contract administration process typically includes conducting a pre-performance conference, monitoring the contractor's work results, measuring the contractor's performance, and managing the contract change-control process.
6. **Contract Closeout/Termination:** This is the process of verifying that all administrative matters are concluded on a contract that is otherwise physically complete. A government contract can end in one of three ways. First, the contract can be completed successfully, allowed to run its full period of performance, and then closed out. Second, the contract can be terminated for the convenience of the government. Finally, the contract can be terminated for default. Regardless of how the contract ends, all contracts must be closed out. This contract closeout/termination process includes the processing of government property dispositions, making final contractor payments, and documenting the contractor's final past-performance report.

These phases represent the contracting life cycle and are imperative in order to successfully develop, award, and manage effective contracts. All of these phases correlate to statutory requirements directed by specific FAR parts and key contracting activities as seen in Table 2.



Table 2. Contract Management Phases and Correlating FAR References

Contract Management Phase	FAR Part/ Reference
Procurement Planning	FAR 7: Acquisition Planning
Solicitation Planning	FAR 10: Market Research FAR 11: Describing Agency Needs FAR 12: Acquisition of Commercial Items FAR 13: Simplified Acquisition Procedures FAR 16: Types of Contracts
Solicitation	FAR 5: Publicizing Contract Actions FAR 6: Competition Requirements FAR 9: Contractor Qualifications
Source Selection	FAR 12: Acquisition of Commercial Items FAR 13: Simplified Acquisition Procedures FAR 15: Contracting by Negotiation
Contract Administration	FAR 42: Contract Administration and Audit Services FAR 46: Quality Assurance
Contract Closeout/ Termination	FAR 4.804: Closeout of Contract Files FAR 45: Government Property FAR 49: Termination of Contracts

2. Mandatory Pillars for Integrative Success

E. Cory Yoder (2010) developed the Mandatory Pillars for Integrative Success in his report, *Phase Zero Operations for Contingency and Expeditionary Contracting—Keys to Fully Integrating Contracting into Operational Planning and Execution*. The pillars were an integral part of the successful implementation of the Phase Zero Operations model, a tool used to assist mission planners in maximizing the effectiveness and efficiency of contingency contracting operations. The purpose and intent of our research was to apply the three pillars as a concept model that could improve the implementation of the AF GPP through the utilization of the recommended changes in personnel, platforms, and protocols in order to achieve better contracting effects, create efficiencies and effectiveness, and improve business operations across the full spectrum of military operations.

The concepts developed and presented in our research report will meet the warfighter and federal requirements for improved green procurement by incorporating the right mix of credentialed personnel; refining and utilizing existing platforms in the contracting environment; and implementing, exercising, and employing the protocols necessary for the creation of a sound business outcome.



Represented in Figure 3, the three Mandatory Pillars for Integrative Success (Yoder, 2010) are crucial to the successful implementation of green procurement. Unless all three pillars function at their maximum capability, the Air Force will not be able to effectively implement its GPP.



Figure 3. Mandatory Pillars for Integrative Success
(Yoder, 2010, p. 42)

a. Personnel

Personnel is the first pillar of the Mandatory Pillars for Integrative Success. This pillar is the critical link between personnel, rank, position, credentials, and capability (Yoder, 2010, pg. 42). The combination of having the right people with the right skill sets in the right positions of the organization dictates the success of the implementation of a green procurement plan.



Having the right personnel plays several roles that have an impact on green procurement. The term “personnel” does not just refer to the contracting officer (CO) who best fulfills the solicitation requirements and selects the source that is most advantageous to the government. It also includes the policy-makers and regulators, the advocates for technology through research and development, the generator of pollution, the managers of facilities, and the consumers and purchasers of goods and services.

The Air Force Green Procurement Guide (Department of Defense, AFCEE, 2005) outlines that the installation’s Environmental Protection Committee (EPC) or Environment, Safety and Occupational Health Committee (ESOHC) is required to oversee all EMS activities, including the GPP, and to charter a team to manage and execute the action items. The EPC or ESOHC is then supposed to either establish a new cross-functional green procurement team or assign GPP to an existing cross-functional team. A green procurement team is made up of the environmental flight or environmental management office; contracting; civil engineering construction and operations; the base energy manager; the transportation personnel who are responsible for purchasing vehicles and fuels; and the base pollution prevention program manager. The public affairs and legal offices provide support to the team.

In accordance with the 2005 Air Force Green Procurement Guide (Department of Defense, AFCEE, 2005), different roles and responsibilities are defined for the different organizations at base level. The environmental management office provides technical guidance, explaining the program requirements and helping buyers to identify green products. The environmental office also takes the lead for preparing the GPP plan, with support from the rest of the team members. The environmental office, upon request from civil engineering, reviews project specifications for GPP compliance. The personnel who review AF Form 3952s (Hazardous Material Authorization Form) must keep the criteria for priority chemicals and environmentally preferable products (EPP) in mind and suggest these preferred products replace the requested product, if the requested product is not a priority chemical or designated as an EPP.

The Air Force Green Procurement Guide also outlines the responsibilities within contracting. Contracting officers should ensure compliance with the FAR parts



addressing energy and water conservation, bio-based product acquisition, and reduction of ozone-depleting substances (ODS) and hazardous chemicals. They should also insert the correct FAR clauses in all contracts that use any of the designated Comprehensive Procurement Guidelines items, and track and report information for the recycled-content product purchasing metrics using DD Form 350, the Individual Contracting Action Report. The base GPC program manager should ensure that all cardholders and approving officials receive training that includes GPP requirements. The GPP should be discussed in all GPC training sessions, using briefing slides provided by the environmental management office. The GPC PM and the approving officials are also responsible for annual surveillance to ensure cardholders meet GPC program requirements, including GPP compliance, in accordance with AFI 64–117.

Within civil engineering, PMs in construction flight and operations flight should be responsible for specifying green products to be included in service contracts and construction projects, whether they are in-house, contracted, or accomplished through on-call contracts such as SABER (Simplified Acquisition of Base Engineering Resources). The PM and quality assurance evaluator (QAE) must understand the full spectrum of GPP requirements and, whenever a construction project or service contract requires a contractor to provide one or more of the affected items, the PM must ensure that the project specifications or performance work statement (PWS) include a requirement for the contractor to purchase and use products that meet the GPP requirements. The QAE then ensures that the GPP requirements in the specifications or PWS are met. All materiel management functions in the Civil Engineering Squadron, Maintenance Group/Squadron, Logistics Readiness Squadron, or other organizations should review and apply the mandatory GPP requirements for the products they acquire.

The Logistics Readiness Supply Squadron is responsible for the supply stores that are usually operated by the National Institute for the Blind/National Institute for the Severely Handicapped (NIB/NISH) according to the terms of a host-tenant support agreement (HTSA) developed by the mission support group or plans and programs office. Each time an HTSA is updated, it is distributed to selected installation organizations for comment. Environmental management should review and comment on the agreements and ensure that GPP requirements are clearly identified for the products



stocked in base supply stores. The base energy manager should guide the GPP team in setting and achieving energy-related targets, and in translating these targets into specific actions for the GPP plan. Transportation personnel should manage the alternative fuel and fuel efficiency program element of the GPP. As part of this responsibility, they should guide the GPP team in setting and achieving appropriate targets and integrating them into the base GPP plan.

Within the base agencies, the base pollution prevention specialist guides the GPP team in setting and achieving targets for the use of priority chemicals and environmentally preferable products (EPP), and translating these targets into specific actions for the GPP plan. Legal and public affairs offices should support the GPP team by reviewing program activities and promoting the program to the base populace.

Filling the manning positions of the previously mentioned jobs is not the roadblock. Ensuring the members have the adequate skill sets and training to be successful enforces the objectives outlined in the EOs. Training is the key to executing a successful GPP. Procurement staff, PMs, and product users need training to ensure they know how to request and purchase goods and services that reduce environmental impacts and meet performance standards.

It is obvious that contracting personnel require training, but it is no less important for product users, quality assurance personnel, and contracting officer representatives to be trained. One of the DoD's GPP metrics is formal GPP training for contracting personnel and for civil engineering personnel in the environmental, engineering, and operations flights. As seen by the results of our survey, this training requirement is not being enforced. Of the contracting personnel we surveyed, 84% had never had any form of green procurement training.

The DoD GPP outlines required training for all contracting personnel, GPC cardholders, and PMs. This training is mandated by EO 13101 (1998) and can be satisfied by the Government Online Learning Center's (GoLearn's) GPP awareness course, which is called "What Is 'Green' Purchasing, Anyway?" (Office of Personnel Management, n.d.), and by the Defense Acquisition University's (DAU; 2009) online course, CLC046, Green Procurement. Specific training for GPC cardholders is outlined in



AFI 64–117 (Department of the Air Force, SAF/AQCA, 2011, p. 18). Section 4.3.3.3.3, Required Training Areas, states that training on the use of recovered materials (purchase of EPA guideline items) must be included. The DoD GPP also states that awareness training should be provided to everyone who buys or specifies goods for purchase. The source of this training includes Office of the Environmental Executive (OFEE) slides for green purchasing overview training for agency contracting, environmental, and facilities staff. The training primarily addresses purchasing of recycled content and of bio-based and environmentally preferable products. It also touches on the purchasing of energy-efficient products. Fact sheets and briefing slides are also available for downloading from the Air Force Center for Engineering and the Environment (AFCEE) GPP website.

b. Platform

Platform is the second pillar of the Mandatory Pillars for Integrative Success. Platforms are those hardware and tangible software systems that provide the mechanisms for analysis, decision-making, and communication (Yoder, 2010, p. 42). The need for the DoD to employ robust hardware and software systems to accurately plan, track, and analyze green procurement metrics is paramount to achieving the goals put forth in EO 13514 (2009).

(1) Contract Writing Systems. The Air Force contracting community relies on two primary contract writing systems: Procurement Desktop–Defense (PD²) and Con Write. For the purpose of this research, we focus on PD². This is because Con Write is being phased out and PD² is the most relevant software platform used by Air Force installation-level contracting organizations. According to the contractor who developed and maintains PD², CACI International (2011), PD² is part of a larger program called the Standard Procurement System (SPS), and is “the cornerstone for the Department of Defense paperless acquisition initiative” (CACI International, 2011). CACI’s literature states, “PD² automates and streamlines the procurement process within a complete workflow management solution that also ties the logistical, contracting, and fiscal aspects of procurement into one enterprise business system” (CACI International, 2011). Further, CACI proclaims one goal of SPS is to “assist sites to reach ‘green’ status” (CACI International, 2011).



(2) Contract Reporting Systems. The Federal Procurement Data System–Next Generation (FPDS–NG) was created because “the Office of Federal Procurement Policy Act, as amended, 41 USC 401 et seq. requires the Administrator for Federal Procurement Policy to establish a computer-based Federal Procurement Data System for collecting, developing, and disseminating procurement data to the Congress, Executive Branch, and private sector” (Department of the Navy, n.d.). The FPDS–NG system interfaces with PD² through a function known as the Contract Action Report (CAR), which is required for every contract that has an estimated value of \$3,000 or more and for every contract modification, regardless of dollar value, including modifications to blanket purchase agreements (BPAs) and indefinite deliver indefinite quantity (IDIQ) contracts, even if no money is obligated (CACI International, 2011). The main purpose of the FPDS–NG system is to measure and assess the impact of federal procurement on the nation’s economy, the dollars spent and the number of actions for categories that have goals set by the Small Business Administration, the extent to which full and open competition is being used in the acquisition process, how the government is funding its contract awards, and how the government is meeting its statutory goals for using recycled products (i.e., how many contracts have used the EPA clauses for recycled materials). Our research determined the most developed and environmentally focused reporting platform was the Defense Logistics Agency’s (DLA’s) Environmental Reporting Logistics System (ERLS). The DLA (2011) specifically states that the need for ERLS was driven by EOs 13514 (2009) and 13423 (2007), and that ERLS is meant to help achieve the EO goals of pollution prevention, improvements in water-use efficiency and management, reduction in energy intensity in buildings, sustainable acquisition, electronic stewardship, and other issues related to sustainability and greenhouse gas emission reduction. According to the DLA (2011), the ERLS is a data warehouse that integrates the current DLA Automated Information System business and supply processes. Further, the ERLS provides the information necessary to meet the reporting required by EO 13514 (2009) and EO 13423 (2007) for the following organizations (United States Army Environmental Command [USAEC], 2011):

- DLA distribution depots;



- DLA defense reutilization and marketing offices (DRMOs);
- DLA inventory control points (ICPs);
- DLA centers and commands; and
- other federal agencies, all military Services and commands (ERLS can provide electronic and hard-copy reports of the environmental and non-environmental items of supply purchased from DLA).

The U.S. Army Environmental Command's website (USAEC, 2011) says, "ERLS provides environmental specialists, installation commanders, and HQ DLA managers" the ability to support "reporting requirements and measure specific pollution prevention efforts." In general, ERLS boasts the ability to provide visibility to daily chemical and isotope inventories and to provide notification of chemicals nearing or exceeding threshold quantities. Further, ERLS facilitates pollution-prevention reporting, which provides visibility for environmentally preferred items and alternatives, tracks requisitions from the DLA and acquisitions by the DLA for both hazardous and environmental items, creates reports to summarize purchases and sales of environmental items, and provides the ability to display life cycle cost per item (USAEC, 2011).

(3) Databases and Guides for Buyers. The EPA's database of environmental information for products and services, which is located at <http://yosemite1.epa.gov/oppt/epstand2.nsf> (EPA, 2010), can be used by contract specialists as "a quick reference guide to the various programs and products involved in DoD's GPP" (USD[AT&L], 2008, p. 5). The EPA database provides information about contract language, specifications, policies, environmental standards and guidelines, and lists of vendors' product brands, and it also provides fact sheets, guidance materials, and case studies.

Another database of information is located on the Fedcenter.gov website, on its buy green database, which can be found at <http://www.fedcenter.gov/programs/buygreen/> (Federal Facilities, 2011). Although this database includes links and references on a wide range of topics (including EOs, laws, regulations, agreements, catalogs, newsletters, organizations and programs, case studies, purchasing guides, and training documents), the database also has a robust collection of software tools that procurement personnel can use to get a clearer picture of the



environmental impact of the product or service they are purchasing. For example, included in this list of software tools is the Green Cleaning Pollution Prevention Calculator, which provides a quantitative estimate of the impact of purchasing environmentally sound janitorial services and products. Another example is a link to a database from the U.S. Department of Agriculture (USDA) that contains maps of more than 3,200 companies that manufacture or distribute bio-based products (Federal Facilities, 2011).

These databases from the EPA and Fedcenter.gov are Internet portals that help educate and guide contracting personnel who have questions about environmentally sound procurement practices, rather than integrated software platforms that personnel can use to plan, track, and analyze green procurement metrics.

c. Protocol

Protocol is the third pillar of the Mandatory Pillars for Integrative Success model. The protocol pillar, as defined in Yoder's "Phase Zero" research report (2010) includes the rules, decision-making framework, and business models necessary to provide purpose and instruction to achieve a desired end state (p. 42). In simple terms, protocols describe what should be done and, in a general sense, how it should be done (Yoder, 2010, p. 42). For the purpose of the Green Procurement Program, protocol includes the guidance and direction given in the DoD GPP strategy document and the AF GPP to each level of personnel in the contracting hierarchy, as well as the guidance that governs the six steps in the contracting process.

In Chapter II, we discussed the policies that initiated the DoD GPP strategy document. These policies, such as EO 13514 (2009), the Energy Policy Act of 2005 (Environmental Protection Agency, 2005), and part 23 of the FAR (2010), set the foundation for both the DoD GPP and AF GPP. When developing and analyzing the protocol pillar, we focus specifically on the Air Force's green policies within the contracting process.

As required by the DoD's GPP strategy, the Air Force developed their own guidance, which mandated specific green objectives and requirements necessary to meet the goals outlined by the DoD's GPP strategy and, ultimately, by the EOs. In



Chapter III, we detailed the objectives and goals of the AF GPP; in each section, we highlighted the protocols within their policy, planning, implementation and operation, checking and corrective actions, and management review phases. Many of these protocols were implemented in a top-down manner and required most of the actions to be executed by contract specialist, buyers, and contracting officers in operational squadrons. Much of the responsibility to ensure these protocols were implemented fell on the shoulders of the Contracting Squadron commanders and flight chiefs.

3. Green Acquisition Gap Analysis Model

The framework shown in Figure 4 combines the Contract Management Process and the Mandatory Pillars for Integrative Success (Rendon, 2007; Yoder, 2010). This model then charts the progress of the AF GPP within the contracting process, based on our discussions with Air Force contracting personnel. Our purpose in using the Green Acquisition Gap Analysis (GAGA) model was to identify gaps in the implementation of the AF GPP. After we located these gaps, we then determined if it was feasible to correct these weakness and, if so, we provided recommendations to help fix these shortcomings.

	Personnel	Platform	Protocol
Procurement Planning			
Solicitation Planning			
Solicitation			
Source Selection			
Contract Administration			
Contract Closeout/ Termination			

Figure 4. Green Acquisition Gap Analysis Model Example
(Rendon, 2007; Yoder 2010)

C. AIR FORCE GPP ANALYSIS

We accomplished our analysis by first examining the results of the green procurement survey we sent to Air Force contracting personnel. We defined the relation of our survey questions to our GAGA model and then discussed how we measured the



level of compliance the AF GPP has achieved. This allowed us to visually identify gaps in the contracting process and pillars in relation to the AF GPP.

To begin our analysis, we examined the results of a survey sent to contracting personnel across the Air Force. We accomplished this examination by segmenting each survey question into a corresponding contract process phase and pillar (Tables 4–6). We then determined the level of compliance with the objectives and goals outlined in the AF GPP. Our GAGA model allowed us to easily identify weaknesses in the contracting process pertaining to the AF GPP’s objectives and to identify gaps in the personnel, platform, and protocol pillars.

Our survey consisted of 29 questions and was completed by 29 contracting personnel from across the Air Force. The survey was observational and provided a common element analysis. The survey questions and their results are presented in Appendix B. The results shown in Appendix B display the raw number and percentage of participant responses for each answer. We combined these percentages with our GAGA model to form an overall analysis of the AF GPP. To do this, we first translated the percentages, numbers, and answers from the survey into a color-coded chart, which is presented in Table 3.

The color-coding was based on the majority of responses among our survey participants. As a rule of thumb, we gave questions a red rating if at least 33% of the surveyors answered “No” to it. If at least 33% of the respondents answered, “I don’t know,” we gave the question a yellow rating. If more than 33% of the respondents answered, “Yes” to the question, we gave it a green rating. On the Survey Scale Responses, we gave an item a red rating if 33% or more of the survey participants responded to it with either a 1 or 2. If at least 33% responded with a 3 or 4, we color-coded the rating result yellow, and if more than 33% of the survey participants responded with a 5, we gave the item a green rating.

Table 3. Green Acquisition Gap Analysis Color Key

Color Key	Survey Response	Survey Scale Response
	No < 33%	1-2 < 33%



	I don't know < 33%	3-4 < 33%
	Yes < 33%	5 < 33%
N/E	Not Evaluated	

We then divided the survey questions into the appropriate pillars, as defined by the Mandatory Pillars for Integrative Success model (Yoder, 2010), and steps, as defined by the Contract Management Process model (Rendon, 2007); the results are presented in Tables 4–6. We also created an overall color-coded snapshot based on our analysis of the survey results and the overall GPP environment they portrayed. These results are presented in Figure 5. The following sections provide in-depth detail regarding the process we used to associate the survey results with a color code.

1. GPP Analysis of the Contract Management Process for the Personnel Pillar

This section provides a detailed analysis of the personnel pillar in conjunction with each of the six phases in the Contract Management Process. To analyze the Contract Management Process in conjunction with this pillar, we presented survey respondents with 11 questions that would help us to measure the presence of adequately trained and equipped personnel who were performing the process.



Table 4. Survey Questions Pertaining to the Personnel Pillar

Contract Management Process	Personnel Pillar	Related Survey Question Reference
Procurement Planning	<ol style="list-style-type: none"> 1. Are you familiar with the Air Force Green Procurement Guide? 2. Have you taken the DAU course CLC046 Green Procurement? 	<p>Question #3 Question #6</p>
Solicitation Planning	<ol style="list-style-type: none"> 1. Does the organization have documented procedures to ensure green procurement opportunities are identified for each purchasing action? 2. Does the organization have documented procedures for justifying and granting approval for decisions NOT to purchase green products or services? 	<p>Question #14 Question #15</p>
Solicitation	<ol style="list-style-type: none"> 1. Have you received training on incorporating green requirements in the solicitation phase to include the appropriate FAR clauses, green considerations in PWS/SOW's, etc.? 2. Time permitting, before posting a solicitation are there any RFI's posted requesting information for environmentally friendly opportunities for the services or products on the solicitation? 3. Are there green requirements or considerations incorporated in the PWS/SOW? 	<p>Question #16 Question #17 Question #19</p>
Source Selection	<ol style="list-style-type: none"> 1. Does the organization have documented procedures for justifying and granting approval for decisions not to purchase EPA- and USDA-designated items with recovered material or bio-based content and energy-efficient products designated by ENERGY STAR®/DOE? 2. Does the organization have documented procedures to ensure that the relevant green procurement contract language and FAR clauses are incorporated in all contracts? 3. When awards involve use of recovered materials or EPA products are the appropriate blocks completed when submitting the CAR information? 	<p>Question #20 Question #24 Question #25</p>
Contract Administration	<ol style="list-style-type: none"> 1. Does the organization have checklists or procedures in place to ensure that contractors are compliant with the Green Procurement Plan aspects included in contracts? 2. Does the organization's Green Procurement Plan have procedures and assign responsibility for routine measurement, evaluation and reporting of Green Procurement Plan performance data? 	<p>Question # 27 Question #26</p>
Contract Closeout/Termination	No survey questions	

a. Phase 1: Procurement Planning Identified with the Personnel Pillar

In order to measure the credentials and capabilities of the personnel involved in the contracting process, we started by asking a broad question: “Are you familiar with the Air Force Green Procurement Guide?” Before Phase 1 of the contracting process begins, it is important to ensure that the personnel executing the



phases are adequately trained and equipped with the right tools. According to AF GPP policy, each unit should establish its own green procurement guide and disseminate it to contracting members. This is one of the most important keys to the success of the unit's implementation of green procurement. Our survey results showed that the Air Force received an overall red rating and was not in compliance with this portion of AF GPP policy. The failure of the implementation of the AF GPP can be directly attributed to the failure of each organization to provide a green procurement guide for the acquisition members.

Our next question asked whether the member had taken DAU course CLC046, Green Procurement. According to the policy memorandum "Air Force Green Procurement Program" published on June 2, 2011 (Breedlove, Van Buren, & Yonkers, 2011), this course was made mandatory for all procurement personnel. Our survey results showed the Air Force earned an overall red rating for the incorporation of green procurement in this phase. Eighty-four percent of the members had not taken this course. This is a firsthand snapshot showing that it does not matter if a policy mandates these tools—they are not being implemented. This is evidence that the Air Force is failing at enforcing this training.

Based on the results of our survey, shown in Appendix B, we believe that the Air Force is failing to take the correct steps to create the foundation of an educated workforce early in the procurement process. This step is crucial to effective execution throughout the entire procurement process. The lack of education and tools for the acquisition workforce will, in the long run, result in increased lead-time and financial cost. Therefore, the procurement planning phase identified with the personnel pillar received an overall red rating.

b. Phase 2: Solicitation Planning Identified With the Personnel Pillar

Another area that requires adequate tools and training is the solicitation phase. Section 3.5 of the AF GPP (Department of Defense, AFCEE, 2005) states that, with regard to operational controls, "the objective is to ensure that product users and the procurement and contracting personnel who support them include environmental impacts along with price, performance and availability in the criteria on which purchasing



decisions are made” (p. 35). We asked the survey participants if their organization had documented procedures in place to ensure green procurement opportunities were identified for each purchasing action. Our results show that the Air Force is red with regards to compliance with the operational controls.

We then followed up with this question: “Does the organization have documented procedures for justifying and granting approval for decisions not to purchase green products or services?” The DoD GPP requires each unit to identify what would constitute an exemption for purchasing green products or services. Again, our results showed a red rating on compliance for this portion, giving an overall red rating to the solicitation planning phase. Survey participants’ responses to both of these questions proved there is a huge communication disconnect between policy-makers and the actual buying units.

c. Phase 3: Solicitation Identified With the Personnel Pillar

With regard to the solicitation phase of the process, we asked if the members had received training on incorporating green requirements into the solicitation phase, including the appropriate FAR clauses, green considerations in PWS/SOWs, etc. Over half of the survey participants responded, “No.” We also asked survey participants if, before they posted the solicitation (time permitting), they posted any RFIs requesting information for environmentally friendly opportunities for the services or products on the solicitation? The results showed a rating of red. We followed up by inquiring if green requirements or considerations are incorporated in the PWS/SOW. The AF GPP requires these considerations to be made (Department of Defense, AFCEE, 2005, p. 38). The overall results of this phase in the contracting method received a red; again, survey participants’ responses demonstrated that the personnel executing the procurement process lack education on AF GPP policies.

d. Phase 4: Source Selection Identified With the Personnel Pillar

For this phase, we wanted, first, to identify the types of procedures personnel had in place and, second, to determine these procedures’ effectiveness in achieving AF GPP goals. We asked survey participants, “Does the organization have



documented procedures for justifying and granting approval for decisions not to purchase EPA- and USDA-designated items with recovered material or bio-based content and energy-efficient products designated by ENERGY STAR®/DOE?” The results were red and a mere 7% of respondents said, “Yes,” to even having these procedures.

As directed by the AF GPP, contracting officers must insert the correct FAR clauses in all contracts that are used to procure green items (Department of Defense, AFCEE, 2005, p. 30). We asked the members if their organization had documented procedures to ensure that the relevant green procurement contract language and FAR clauses were incorporated in all contracts? In addition, we asked, “When awards involve use of recovered material or EPA products are the appropriate blocks completed when submitting the CAR information?” Again, the results of both questions were red. If the information is not reported in CARs, there is no way to track the number of contracts that successfully acquire EPA-designated products, which is the number one metric the DoD must report to the president (Department of Defense, AFCEE, 2005, p. 52). Not only is the Air Force out of compliance with its own GPP, but it is also failing to meet the requirements outlined in the DoD GPP.

e. Phase 5: Contract Administration Identified With the Personnel Pillar

In this phase of the contracting process, it is not only important that the contracting officers are well trained and educated, but also that the contractors are as well. According to the Implement Internal and External Communication Programs section of the DoD GPP, the Green Procurement Management team must educate government personnel and contractors about complying with the requirements of federal procurement preference programs (USD[AT&L], 2008, p. 6). It is important to ensure that contractors are aware of the procedures and ways in which they will be measured for their compliance with the GPP. We asked the members if their organization had checklists and procedures in place to ensure that the contractors were in compliance with the GPP-related aspects of the contract. The response was an overwhelming “No,” resulting in a red rating.

For this phase, we also asked, “Does the organization’s Green Procurement Plan have procedures and assign responsibility for routine measurement,



evaluation, and reporting of the Green Procurement Plan performance data?” The survey results showed that the Air Force was red for this phase as well. The key to determining the success of a program is to measure it, but to do so metrics are required. It is a vicious cycle, but, without metrics, there is no accountability and, without accountability, there is no enforcement.

f. Phase 6: Contract Closeout Identified With the Personnel Pillar

Neither the DoD nor AF GPP outlined training requirements in order to rate the contract closeout phase. Thus, this phase received an NE for Not Evaluated. We recommend the closeout phase be considered for further research, especially with regard to environmental procedures.

2. GPP Analysis of the Contract Management Process for the Platform Pillar

The DoD has numerous software platforms that facilitate the six phases in the Contract Management Process. This section analyzes these platforms within the Contract Management Process and their effectiveness in promoting the Green Procurement Program by evaluating the responses to the nine survey questions shown in Table 5.



Table 5. Survey Questions Pertaining to the Platform Pillar

Contract Management Process	Platform Pillar	Related Survey Question
Procurement Planning	1. Does the Organization have a list of vendors that offer green products or services?	Question # 8
	2. Has the Organization shared this list with requesting units?	Question #9
	3. Does the organization have written procedures for setting, tracking, and updating objectives and targets?	Question # 11
Solicitation Planning	1. Does the organization have documented procedures to ensure green procurement opportunities are identified for each purchasing action?	Question #14
Solicitation	1. Time permitting, before posting a solicitation are there any RFI's posted requesting information for environmentally friendly opportunities for the services or products on the solicitation?	Question #17
	2. Are there green requirements or considerations incorporated in the PWS/SOW?	Question #19
Source Selection	1. When awards involve use of recovered materials or EPA products are the appropriate blocks completed when submitting the CAR information?	Question #25
Contract Administration	1. Does your unit/office track the number of green products or services it contracts?	Question #4
	2. Does the organization have checklists or procedures in place to ensure that contractors are compliant with the Green Procurement Plan aspects included in the contract?	Question #27
Contract Closeout/Termination	No survey questions	

a. Phase 1: Procurement Planning Identified With the Platform Pillar

Survey Questions 8, 9, and 11 helped us better understand the current state of the platform pillar in the procurement planning phase of the Contract Management Process. Question 8 asked, “Does the Organization have a list of vendors that offer green products or services?” We concluded that the Air Force received a red rating based on the survey responses, which showed that 43% of respondents did not have a green vendor list, 50% were unsure whether their organization had a green vendor list, and only 7% of respondents said their organization maintained a green vendor list. If the DoD plans to meet the goals presented by EO 13514 (2009), procurement personnel must be familiar with vendors who can provide environmentally sound goods and services. In order for procurement personnel to know which vendors can provide green products and services, current and accurate vendor lists must be maintained within the procuring organization. Numerous tools are available to aid procurement personnel in creating and maintaining



green vendor lists—for example, the USDA map tool mentioned previously that geographically shows the green vendors near the organization.

Question 9, a follow-on question to Question 8, asked, “Has the Organization shared this list with requesting units?” The Air Force received a red rating for this question because only 3% of responders said their organizations share green vendor lists with requesting units, 35% did not share this information, and 62% were unsure. This question revealed that the current platforms being used do not allow all parties involved in a procurement to be aware of potential green vendors.

Question 11 asked, “Does the organization have written procedures for setting, tracking, and updating objectives and targets?” Again, the Air Force received a red rating for this question because 59% of respondents did not have procedures set up in their organization, 41% were not sure if their organization had procedures in place, and no respondents were from organizations that had well-established and up-to-date procedures that set, track, and update objectives and targets for green procurement. Overall, the Air Force received a red rating for procurement planning from the perspective of the platform pillar.

b. Phase 2: Solicitation Planning Identified With the Platform Pillar

We did not have any survey questions that directly pertained to the solicitation planning phase from the perspective of the platform pillar. However, when we asked the survey members if their organization had documented procedures to ensure green procurement opportunities were identified for each purchasing action, 66% of the members responded, “No”; 28% did not know; and only 7% said, “Yes.” This showed that procurement personnel are not routinely or effectively utilizing the multitude of database platforms that are available to them as they conduct the tasks that are required in the solicitation planning phase, tasks such as the development of the solicitation document, statement of work, and statement of objectives. The Air Force received a red rating for this area because, although platforms exist for the solicitation planning phase, organizations have not integrated these platforms into their procedures in order to ensure green procurement opportunities are identified for each purchasing action.



c. Phase 3: Solicitation Identified With the Platform Pillar

With regard to the solicitation phase of the process, we did not specifically address platforms, but we asked, “Are there green requirements or considerations incorporated in the PWS/SOW?” Only 3% of the survey participants responded, “Very Often.” The current platforms have the capability to allow procurement personnel to include the appropriate FAR clauses and green considerations in the PWS/SOW. However, we identified a gap; specifically, the platforms do not make it easy for procurement personnel to identify and include the appropriate clauses and green considerations, which increases the likelihood that these clauses and considerations will be omitted. We followed this question up by asking, “Time permitting, before posting a solicitation are there any RFI’s posted requesting information for environmentally friendly opportunities for the services or products on the solicitation?” In response to this question, 48% of the survey participants responded, “Never,” and 0% responded, “Very Often.” Again, these questions helped identify a gap, which is that the current platforms present a barrier to accurately and consistently including green clauses and considerations into solicitation documents. Therefore, we gave the Air Force an overall red rating for this item.

d. Phase 4: Source Selection Identified With the Platform Pillar

Contract action reporting is a vital component for the Air Force and for the entire DoD: both must record, analyze and track the effectiveness of GPP. “This action is critical because the ... electronic data base in the Federal Procurement Data System is used to report AF progress for one of the DoD GPP metrics” (Department of Defense, AFCEE, 2005, p. 41). In Question 25 of the survey, we asked, “When awards involve the use of recovered materials or EPA products are the appropriate blocks completed when submitting the [Contract Action Report] CAR information?” In response to this question, 53% of survey participants said, “Yes”; 18% said, “No”; and 29% were unsure. This means that just over half of AF contracting personnel check the appropriate boxes when recovered materials or EPA products are purchased. From a platform standpoint, we rated the CAR process as a yellow because, although the FPDS–NG platform includes GPP



measures, it only captures two questions. In addition, because these two questions are auto-filled from PD², they can easily be overlooked.

e. Phase 5: Contract Administration Identified With the Platform Pillar

To administer a contract, organizations must have the proper platforms. To gauge the use and effectiveness of the platforms currently used in the contract administration phase, Question 4 of our survey asked, “Does your unit/office track the number of green products or services it contracts?” In response to this question, 7% of survey respondents said, “Yes”; 61% said, “No”; and 32% were unsure. These results made it clear that there is a tracking and reporting gap in the current platforms, which is why we gave the Air Force a red rating for this question.

Question 27 asked, “Does the organization have checklists or procedures in place to ensure that contractors are compliant with the Green Procurement Plan aspects included in the contract?” In their responses to this question, 14% of survey participants said, “Yes”; 45% said, “No”; and 41% were unsure. This low positive response rate revealed a gap, which is that the current platforms do not make it easy for procurement personnel to see what GPP requirements are included in a contract and hold the contractor accountable for meeting those GPP requirements.

Based on the results of Questions 4 and 27, analyzed previously, we rated the Air Force as red for the contract administration phase as viewed from the perspective of the platform pillar.

f. Phase 6: Contract Closeout Identified With the Platform Pillar

Our survey did not contain questions that analyzed the contract closeout phase in conjunction with the platform pillar. Based on our knowledge and experience, the current platforms contain the necessary input fields to adequately capture the needs of the GPP; however, the tools within the contract closeout platforms need to have specific input and output capability. For example, although the platform allows personnel to input information regarding the disposal of hazardous material, the platform would be improved if it reminded personnel that this is an important reporting field. Because of the possibility for improvement in this area, we gave the contract closeout platform a yellow



rating. In our recommendations section, we discuss areas for improving the contract closeout phase with regard to the platform pillar.

3. GPP Analysis of the Contract Management Process for the Protocol Pillar

In the following section, we analyze the six phases of the Contract Management Process in conjunction with the protocols outlined by the DoD GPP strategy, the AF GPP, and other federal regulations. We evaluate each phase based on the corresponding survey question, which can be found in Table 6, and we assign an overall rating for each contracting phase for the protocol pillar based on the collective outcome of the survey results.



Table 6. Survey Questions Pertaining to the Protocol Pillar

Contract Management Process	Protocol Pillar	Related Survey Question Reference
Procurement Planning	<ol style="list-style-type: none"> 1. Have you taken the DAU course CLC046 Green Procurement? 2. Does your organization already have a green procurement checklist in place for customers to use in creating their requirements package? 3. Has the organization established objectives/targets for Green Procurement Plan performance (purchase of green products and services) that are consistent with the nature and quantity of the purchasing activities? 4. Does the organization have written procedures for setting, tracking, and updating objectives and targets? 	<p>Question #6 Question #12</p> <p>Question #10</p> <p>Question #11</p>
Solicitation Planning	<ol style="list-style-type: none"> 1. Does the organization have defined language, which they place in Solicitations that demonstrates a preference for green products or services? 2. Does the organization have documented procedures to ensure green procurement opportunities are identified for each purchasing action? 3. Does the organization have documented procedures for justifying and granting approval for decisions NOT to purchase green products or services? 	<p>Question #13</p> <p>Question #14</p> <p>Question #15</p>
Solicitation	<ol style="list-style-type: none"> 1. Time permitting, before posting a solicitation are there any RFI's posted requesting information for environmentally friendly opportunities for the services or products on the solicitation? 2. Are there green requirements or considerations incorporated in the PWS/SOW? 	<p>Question #17</p> <p>Question #19</p>
Source Selection	<ol style="list-style-type: none"> 1. Does the organization have documented procedures for justifying and granting approval for decisions not to purchase EPA- and USDA-designated items with recovered material or bio-based content and energy-efficient products designated by ENERGY STAR®/DOE? 2. Does the organization have documented procedures to ensure green products or services are purchased preferentially in each purchasing action? 3. If yes, is there an approval authority required to approve justifications for not purchasing green products or services? 4. Were environmental factors, such as reuse, recycle, waste reduction, and green procurement, evaluated as part of the performance, cost, and schedule analysis? 5. Does the organization have documented procedures to ensure that the relevant green procurement contract language and FAR clauses are incorporated in all contracts? 6. When awards involve use of recovered materials or EPA products are the appropriate blocks completed when submitting the CAR information? 	<p>Question #20</p> <p>Question #21</p> <p>Question #22</p> <p>Question #23</p> <p>Question #24</p> <p>Question #25</p>
Contract Administration	<ol style="list-style-type: none"> 1. Does your unit/office track the number of green products or services it contracts? 2. Does the organization's Green Procurement Plan have procedures and assign responsibility for routine measurement, evaluation, and reporting of Green Procurement Plan performance data? 3. Does the organization have checklists or procedures in place to ensure that contractors are compliant with the Green Procurement Plan aspects included in the contract? 	<p>Question #4</p> <p>Question #26</p> <p>Question #27</p>
Contract Closeout/ Termination	No survey questions	

a. Phase 1: Procurement Planning Identified With the Protocol Pillar

In order to measure the Air Force's progress and compliance with GPP protocols during the procurement planning phase, we analyzed the questions found in the



procurement planning row of Table 6. We took these questions straight from the planning section, titled “Assessing your GPP,” of the DoD’s GPP strategy document (USD[AT&L], 2008, p. 20). As stated in the AF GPP, if we think green from the start of every acquisition, the implementation of the Green Procurement Plan will be more effective (Department of Defense, AFCEE, 2005, p. 4). Procurement planning is the most important step of the procurement process, because it can either cause hurdles down the road or set up the acquisition for success. However, this phase requires effort from both the requirements generator and the contracting office in order to put together a good requirements package. In order to do this properly, both the customer and contracting personnel must be properly trained. According to AF GPP policy, anyone involved in the acquisition process must complete the DAU’s CLC046 training course. We feel that it is also important to ensure that customers understand how to generate a solid requirements package. Based on the survey data, we concluded that few guidelines, such as checklists and training, are given to the customer to set the acquisition up for success. Therefore, the common pattern analysis would show that this requirement is not being accomplished in accordance with AF GPP policy.

In order for the procurement phase to be successful, it is important for the commanders to create policies that lay out their expectations, priorities, and goals in order to measure progress and hold people accountable. We believed that our survey questions would indicate whether leadership has successfully established objectives and goals for the Contracting Squadron and their customers. Based on our survey results, we concluded that the AF is below average in this area. Combining this result with the lack of mandatory training and the minimal implementation of policy required by the AF GPP protocols, we deduced that the Air Force has earned an overall red rating for the procurement planning process.

b. Phase 2: Solicitation Planning Identified With the Protocol Pillar

The solicitation planning phase requires the contracting specialist to determine an acquisition strategy after thorough market research and understanding of the requirement. According to part 7.105(b)(16) of the FAR (2010), every acquisition plan shall include environmental and energy conservation objectives associated with the



acquisition. Our survey questions that pertained to this phase helped us determine which protocols have been put in place in accordance with the AF GPP. Based on the survey results shown in Appendix B, we determined that Contracting Squadrons have not defined language giving preference to green products or services, documented procedures to ensure green procurement opportunities are identified, or determined the necessary procedures to justify or grant approval for not purchasing green products or services. All of these are necessary actions that were deemed the responsibility of the procurement office in the DoD GPP strategy document (USD[AT&L], 2008, p. 6) and reemphasized in the AF GPP document (Department of Defense, AFCEE, 2005). Therefore, we rated the implementation of the AF GPP protocols within the solicitation planning phase as red.

c. Phase 3: Solicitation Identified With the Protocol Pillar

According to the AF GPP document (Department of Defense, AFCEE, 2005), “GPP language at the beginning of the contract is the minimum that is required. Success at meeting GPP requirements is much more likely if a little more effort is made” (p. 39). In order to determine if GPP language was being incorporated early in the contracting process, our survey asked if contracting specialists and officers were posting RFIs to determine the availability of green products and services or if the PWS/SOW included green requirements. According to the protocols outlined by the DoD GPP, the Contracting Squadrons “should have established procedures to ensure GPP requirements are addressed in all procurement actions and at each appropriate stage of the procurement process” (USD[AT&L], 2008, p. 8).

Based on the survey results, we determined that the Air Force is weak in implementing the protocols for the solicitation phase in accordance with the AF GPP. As shown in our results, found in Appendix B, it does not appear that contracting specialists are taking any additional steps to determine the availability of green supplies or services in the market. Also, it appears that the PWS/SOWs the contracting office is publicly announcing often lack green requirements or considerations for the contractors to meet. Contracting offices are required to include these items in PWS/SOWs in accordance with the AF GPP protocols and FAR (2010) subpart 11.002, which states that environmentally preferable products must be considered when developing specifications and describing



government requirements (Department of Defense, AFCEE, 2005, p. 4). Therefore, we used a red rating to describe the AF's implementation of GPP protocols for the solicitation phase.

d. Phase 4: Source Selection Identified With the Protocol Pillar

The survey questions we asked in order to analyze this section helped us determine that, overall, the AF is significantly lacking in a preference program, which is required by multiple legal statutes, including the Resource Conservation Recovery Act (1976) and the Energy Policy Act of 2005. These regulations enumerate specific procurement requirements that demonstrate that the Air Force should give preference to products that use recycled-content and energy-efficient products whenever they are cost effective and meet the technical requirements (Department of Defense, AFCEE, 2005, p. 5).

The survey results also highlighted the fact that the Air Force lacks the required authority in the procurement process to waive the preference requirement. Without a designated approval authority, neither contracting personnel nor their customers are being held accountable for not following the green policies and procedures. Both the DoD GPP (USD[AT&L], 2008, p. 5) and the AF GPP (Department of Defense, AFCEE, 2005, p. 35) mandate an approval authority and documented procedures in order to justify not procuring environmentally preferable products and services.

In accordance with the protocols set forth by the DoD GPP strategy document (USD[AT&L], 2008, p. 12), it is the contracting official's responsibility to accurately complete the Contract Action Report in the FPDS-NG system for data-tracking purposes. The AF GPP also discusses the importance of contract action reporting in order to capture pertinent data in the FPDS-NG system (Department of Defense, AFCEE, 2005, p. 41). Contrary to the weaknesses identified in the previous discussion, the survey results pertaining to CAR submission indicated that contracting personnel are aware that they must report contracts that involve the use of recovered materials or EPA products when they award a contract. Based on the contradictory practices we identified in the survey data, we gave this phase a red rating because there is not a consistent or



strong policy that emphasizes the importance of implementing green procurement practices throughout the entire source selection phase.

e. Phase 5: Contract Administration Identified With the Protocol Pillar

The survey questions for this phase helped us determine if the operational Air Force Contracting Squadrons have created goal-oriented protocols that will drive results and identify expectations to hold themselves, customers, and contractors accountable.

One important process within the contract administration phase involves performing routine inspections as a tool to evaluate the performance of the Green Procurement Program. According to the DoD GPP strategy document (USD[AT&L], 2008, p. 21), Contracting Squadron inspections should develop protocols that include GPP awareness training evaluations, performance and compliance measurements, and management audits identifying deficiencies in the protocols pertaining to GPP. However, our survey results identified a lack of sufficient protocols, as well as poor implementation of the existing protocols. For example, the most important survey result showed that the majority of contracting organizations do not appear to track the number of green products or services as required by the AF GPP (Department of Defense, AFCEE, 2005, p. 52). We believe that if a proper protocol is not in place for this step, then follow-on contract administrative actions, such as ensuring contractors are compliant with GPP aspects in the contract, will not be achievable.

Participants' responses to our survey questions also highlighted the lack of policy and accountability in the AF GPP (Department of Defense, AFCEE, 2005), which states,

Recycled-content product information is provided by contractors whenever FAR Clause 52.223-9 is used on contracts over \$100,000. No requirement exists for bases to roll up this information and report it to anyone, but it should be used internally to see how well your contractors are following Executive Order requirements. (p. 53)

Another weakness we identified in the AF GPP is that it emphasizes the importance of record keeping in order to track the progress of the program and even includes forms and checklist for this purpose (AFCEE, 2005, p. 56). However, later in



the document these same forms are labeled as optional (AFCEE, 2005, p. 59). Having contradictory policies, let alone contradictory direction, within the same policy is counterproductive. These weaknesses helped us identify gaps that led us to conclude that without the necessary policies and procedures in place, personnel cannot be expected to be able to properly evaluate and report either performance or contractor compliance as required by the DoD GPP (USD[AT&L], 2008, p. 20). Therefore, we gave the contract administration phase a red rating.

f. Phase 6: Contract Closeout Identified With the Protocol Pillar

Neither the DoD nor the AF GPP identifies specific Green Procurement Program policies or metrics for the contract closeout or termination phase. Even the FAR does not discuss any statutes other than requiring proper disposal of hazardous waste for contract closeout. Thus, we were unable to develop questions for our survey and, therefore, we were also unable to adequately rate this section. As seen in our results, this section received an NE for Not Evaluated.

4. Summary of Analysis

From our analysis, we concluded that the Air Force lacks a solid foundation in the personnel, platform, and protocol pillars that is necessary to implement a successful Green Procurement Program. The process we used to make this conclusion is visually represented in the GAGA model shown in Figure 5. As explained in the Analysis Methodology section, each rating is defined by a color that correlates to the survey results (see Table 7). As shown in Figure 5, the results of the GAGA process consist of the rating we gave to each of the survey questions that we analyzed within each of the three pillars and six contracting phases. The thicker border represents the overall rating given to each of the phases within a pillar. For example, the procurement planning phase within the protocol pillar included four survey questions. Three of the survey questions resulted in a red rating, while Question 12 received a yellow rating. The overall rating for this segment was red and is shown in the table with a thick red border.

The GAGA model highlights the Air Force’s strengths and weaknesses in implementing the GPP. The visual snapshot depicted in Figure 5 portrays the overwhelming number of areas where the Air Force has failed to successfully comply



with the goals and objectives outlined in the DoD GPP strategy. Throughout our analysis, we used the Contract Management Process (Rendon, 2007) and Mandatory Pillars for Integrated Success (Yoder, 2010) to identify areas that are weak and hindering the Air Force’s success.

	Personnel			Platform			Protocol					
Procurement Planning	Q3	Q6		Q8	Q9	Q11	Q6	Q12	Q10	Q11		
Solicitation Planning	Q14	Q15		Q14			Q13	Q14	Q15			
Solicitation	Q16	Q17	Q19	Q17	Q19		Q17		Q19			
Source Selection	Q20	Q24	Q25	Q25			Q20	Q21	Q22	Q23	Q24	Q25
Contract Administration	Q26	Q27		Q4	Q27		Q4	Q26		Q27		
Contract Closeout	N/E						N/E					

Figure 5. Overall Air Force Ratings Using the Green Acquisition Gap Analysis Model

Table 7. Green Acquisition Gap Analysis Color Key (Same as Table 3— Repeated for Reader’s Convenience)

Color Key	Survey Response	Survey Scale Response
	No < 33%	1-2 < 33%
	I don’t know < 33%	3-4 < 33%
	Yes < 33%	5 < 33%
N/E	Not Evaluated	

D. OVERALL AIR FORCE PROGRESS

A strong foundation in each phase of the Contract Management Process combined with solid personnel, platforms, and protocols should equate to the successful implementation of the Green Procurement Program. Based on the results of our analysis, we concluded that the Air Force does not currently have the business tools or contracting



policies and resources in place to have a strong Green Procurement Program. In addition, our analysis allowed us to identify some of the Air Force’s main challenges. In this section, we discuss these issues, identify the difficulties associated with correcting these areas of weakness, and determine whether it is feasible to correct these problems. Our research helped identify some best practices that the Air Force is currently implementing and provided recommendations that will enable the AF GPP to become a best-practice program for the DoD.

1. Main Challenges

Based on our survey results and the results of our green acquisition gap analysis, we recognized significant issues with the implementation of the Green Procurement Program in operational Air Force Contracting Squadrons. In the sections that follow, we discuss the main challenges we identified.

a. Contract Closeout Gap

One challenge that was made apparent through our analysis is the failure of either the DoD or the Air Force to address the three pillars in the closeout phase. The Air Force has not established education tools for its personnel, created protocols for the entire contracting life cycle, or established solid platforms for phase 6—closeout. An emphasis should be placed on this final stage because follow-through is important with any new program implementation.

As demonstrated by the results of our survey, acquisition personnel were unfamiliar with any contract closeout procedures concerning green procurement. To overcome this deficiency, we recommend that an informal presentation be added to the in-processing/newcomers brief that identifies what is expected of all personnel when it comes to item disposal. This presentation will heighten awareness and help more people become environmentally conscious. Contracting, civil engineering, and logistics readiness personnel will need to complete a more formalized training. This training should be added to the individual technical school training specific to each of these career fields. The training should address the roles and responsibilities each area will have in the contract closeout process with regard to green initiatives. Closeout protocol should be established or updated to ensure contractor compliance with contract provisions and



existing laws and regulations. The policies set forth by the Air Force and, more importantly, the priority and emphasis squadron commanders give them provide the core foundation for the success and training of personnel in an operational Contracting Squadron.

Without policies in place, it is impossible to measure progress and hold people accountable. Our recommendation is to develop GPP policies for the contract closeout phase, including proper disposal of products and property in an environmentally friendly way, such as by recycling and reusing. These new GPP policies could be in the form of guidance written in the AF GPP or they could be set in stone as a protocol in part 45 of the FAR. The Air Force should also mandate paperless contracting or, at the very least, shredding and recycling contract files after the mandatory holding period as required by the contract closeout phase.

From a platform standpoint, small changes and/or additions to the existing contract writing platforms will ensure that contracting personnel are taking the proper steps to include environmental considerations in the contract closeout phase. For example, some changes/additions might include prompts that ask whether toxic materials used during the contract were properly disposed of, or whether any government-furnished property was recycled or sent to the Defense Logistics Agency Disposition Services (formerly known as the Defense Reutilization and Marketing Service). Environmental laws are constantly being updated, and it would be ideal if the existing platforms had a way of informing contracting personnel of the most current laws and regulations concerning the disposal of materials.

b. Managerial Focus

Although some bases have succeeded in executing large-scale, highly visible environmental or energy-efficient projects, our research showed that there is a serious deficiency in the day-to-day operations of contracting organizations at the installation level. Part of the solution is sure to be found in changing the culture, but our research showed that the proper personnel, platforms, and protocol are also deficient. For example, if you're going to be fit or athletic, you don't just exercise really hard once every six months. Instead you commit to a lifestyle that allows you to exercise on a daily



basis, and you arrange the priorities in your life in order to stay fit. This same cultural mindset must be implemented in all AF contracting organizations.

c. Outdated Guidance

As we established in the literature review, there was a strong push for green policies and regulations from 2004–2008. Since then, the policies that have been published have not been updated. For instance, the Air Force wrote their Green Procurement Program document in 2005, and many of its references are obsolete and do not include requirements from the newer EOs or other regulations. Our recommendation is for the DoD to hold the Air Force accountable in its pursuit of sustainability through green procurement. This is feasible and, as we discuss in Chapter V, actions are currently being taken to reemphasize the AF GPP.

2. Feasibility of Implementation

Even if the Air Force makes progress in improving its weak areas and correcting its main issues, it will still face many challenges that it may not be able to overcome. In the CRS report *Green Procurement: Overview and Issues for Congress*, Fischer (2010) discussed the barriers of implementing green procurement. He stated, “The apparent fuzziness of green procurement as a concept can create uncertainty and even confusion that may make addressing policy issues difficult” (p. 4). His first example identified the difficulty of defining green terms and shows that such variations in meaning can make it difficult to understand green procurement, let alone develop and implement green policies (Fischer, 2010, p. 4).

Next, he explained that federal initiatives lack agreement on what is, in fact, green procurement; areas of inconsistency include “lack of common standards, concerns about costs, and both market and technical uncertainties” (Fischer, 2010, p. 4). The author provided an in-depth discussion about how these issues affect the way green procurement is evaluated. He discussed the types of trade-offs that are made when evaluating green products. For instance, there are trade-offs in upfront and life cycle costs between a green product and a product that is not environmentally friendly (Fischer, 2010, p. 4). Green products are sometimes classified as more costly and as less effective than standard products. The author described this as a possible trade-off that has to be



considered for procurements. He stated, “if a reduction in impact is accompanied by a reduction in performance the acquisition may not be cost-effective” (Fischer, 2010, p. 17). In order to reduce the environmental footprint of products and services, a complete assessment should integrate evaluation factors across the life cycle of that product or service (Fischer, 2010, p. 16). Lastly, Fischer discussed the difficulties, for both the government and non-government entities, in determining if they have been successful in reducing their environmental impacts while maintaining cost effectiveness and performance.

The idea of the Green Procurement Program is great; however, the issues discussed throughout our research show how difficult and complex this concept can be to execute. Until the federal government is able to provide guidance that standardizes the definition of “going green” and addresses the issue of trade-offs in evaluation criteria, it will be impossible to implement and measure the overall success of the Green Procurement Program.

3. Best Practices

Throughout our research, we found that one of the key areas to a sustained integration of green initiatives is the foundation of a solid GPP. Few units had achieved a successful integration, and the common thread was their implementation of their plan. One successful base that we found was Keesler AFB, located in Biloxi, MS, on the Gulf Coast. This base provides high-tech training courses on electronics, communications and computer networking, information management, personnel support, aerospace command and control, and air traffic control. Keesler AFB is also home to the second largest medical facility in the Air Force and educates doctors, nurses, and technicians in a variety of medical specialties.

Keesler AFB already had an Affirmative Procurement (AP) Program, but had expanded it into their Green Procurement Program (GPP), as directed by the Acting Under Secretary of Defense for Acquisition, Technology, and Logistics’ policy memorandum (Wynne, 2004), *Establishment of the DoD Green Procurement Program*. This new GPP served as a management action plan. Keesler’s GPP document identifies personnel and their responsibilities, while providing instructions on integrating the plan into Keesler AFB’s EMS. The GPP also describes each of the following program



elements: training and awareness, communication strategies, purchasing document control, green procurement processes and forms, metrics and reporting, performance measures, and management review. Keesler AFB's policy directs the base to consider environmental factors in all purchasing decisions.

One of the greatest contributions to their success is that they chartered a Green Procurement Team (GPT). This team is made up of representatives from various divisions, including contracting, civil engineering construction and operations and the environmental flight, who are intimately responsible for managing purchasing decisions. The team enforces the plan, which details green procurement responsibilities for all base personnel responsible for purchases and contracts, such as PMs, QAEs, GPC, etc.

The GPP places a huge emphasis on training. Keesler identified, much as we did in our research, that training of personnel is key to executing a successful GPP. The GPP requires both formal and informal awareness training for personnel in contracting and civil engineering. But it also enforces informal training awareness to all Keesler AFB personnel who buy or specify items for purchase. The GPP also focuses on communication strategies for both internal customers (i.e., Keesler personnel) and external customers, including contactors and vendors.

To ensure they maintain compliance with their GPP, the GPT enforces performance measures through Environment, Safety, and Occupational Health Compliance Assessment and Management Program (ESOH CAMP) audit protocols, contract performance information, GPC program audits, and regulatory inspections. The plan also includes all necessary forms, checklists, logs, and review sheets to help maintain compliance. The appendix includes specifications for SOWs and FAR clauses, GPC training information, comprehensive procurement guidelines and other supplemental program element, a green procurement quick reference sheet for each program element, a green products list, and a list of procurement sources and their websites.

Keesler AFB was selected as our best practice for GPP because they have covered almost every aspect that we identified as a deficiency. We have added additional recommendations to further improve this new initiative, but we feel that if other units



mirrored the plan developed by Keesler, they, too, would have a more successful program, and the Air Force, as a whole, would be moving in the right direction to meet the goals outlined in the mandated EOs.

4. Recommendations

This section addresses our five major follow-on recommendations that will ensure the successful implementation of green initiatives in the procurement process.

a. Implement GPP at ESG

In order for the Air Force to more quickly and effectively achieve the goals established in EO 13514 (2009) and the DoD's GPP strategy document (USD[AT&L], 2008), it is extremely beneficial to implement the GPP at the Enterprise Sourcing Group (ESG) level. Because the Air Force is currently working towards expanding the number of ESGs, this offers the perfect opportunity to successfully implement the GPP on a bigger level. Since the groups are newly established, there is little to no cultural hurdle to overcome and green initiatives can be implemented immediately. With the size of the orders, the consolidation of contract actions ensures more bang for the environmentally friendly buck and encourages more industries to offer green products with the incentive of profit. Figure 6 depicts the top procurement spending by North American Industry Classification System (NAICS) group. The two groups circled in Figure 6, "Computer and electrical equipment" and "Building construction," are both ESG branches. This proves there is an opportunity for this idea to not only be successful, but also to save money and make a positive environmental impact. The success of implementing green procurement at the ESG level would help set the precedent for the smaller operation units and create corporate knowledge.



Federal Procurement Spending for FY2008 by North American Industry Classification System (NAICS) Group (\$ Billions)		
Group	Amount	
	FY2008	FY2009
Products	226.9	217.9
Transportation equipment	113.6	104.5
Computer and electrical equipment	33.2	33.1
Wholesale and Retail Trade	28.5	30.0
Metals	12.9	12.6
Petroleum and coal products	11.4	13.1
Machinery	6.7	6.4
Chemicals	4.9	8.3
Other	15.8	10.0
Services	240.4	263.8
Professional, Scientific, and Technical Services	141.3	150.8
Administrative and Support Services	36.8	39.3
Information	10.4	11.9
Transportation	10.3	10.9
Finance and Insurance	9.7	12.3
Real Estate, Rental, and Leasing	5.3	4.7
Health Care and Social Assistance	5.2	6.8
Waste Management and Remediation Services	5.1	9.0
Educational Services	4.5	5.2
Repair and Maintenance	4.0	4.4
Utilities	2.2	2.8
Other	5.9	5.7
Construction	57.2	38.7
Building construction	41.5	25.6
Heavy and Other Construction	15.7	13.2
Other	13.6	15.9
Total	538.1	536.4

Figure 6. FY2008 Top Federal Procurement Spending by NAICS Group
(Fischer, 2010, p. 3)

b. CONS/CE/LRS Exchange Program

AF contracting and civil engineering (CE) should do an exchange program. We envision a program that would be included in the Advanced Academic Degree and Special Experience Exchange Duties (AAD/SPEED) program that would allow contracting personnel and civil engineering personnel to switch places and that would include in-depth training and real-life work experience. The AAD/SPEED



programs are designed “as part of the force development construct ... to provide targeted developmental education and/or broadening developmental assignments for officers” (Department of the Air Force, Air Force Institute of Technology, 2011, p. 1). The goal is for officers from the contracting (64P), civil engineering (32E), and logistics (21A/M/R) career fields to develop a complementary understanding of each other’s tradecraft and to provide these officers with an in-depth understanding of how these career fields can work together to achieve greater success in procuring environmentally friendly goods and services. Ultimately, officers from each career field would complete a robust academic program studying the skills necessary for their counterparts’ career field and then take a follow-on assignment working as the Environmental Advocate for a Contracting, Civil Engineering or Logistics Readiness Squadron. This follow-on assignment would ensure that the skills these exchange officers learned were being put to use and would provide AF with the proper personnel to implement our recommendation that an Environmental Advocate be established in the Contracting, Civil Engineering, and Logistics Readiness Squadrons.

c. Green Socioeconomic Goals

We recommend that an additional environmental category under socioeconomic goals be created. This new category would include businesses that are identified by the EPA, USDA, DOE, and other government agencies as being environmentally conscious. These agencies have established lists of vendors who provide environmentally preferred products and services. This category would be known as an environmental set aside and businesses in this category would be identified in systems such as the Central Contractor Registration (CCR). The environmental goals would be developed at the Secretary of the Air Force level and the subordinate units would adhere to these goals, just as they currently implement socioeconomic goals.

d. Establish an Environmental Advocate

We recommend the Air Force consider establishing a position for an Environmental Advocate (EA) in the Contracting, Civil Engineering and Logistics Readiness Squadron at each Air Force installation. The EAs would report to a MAJCOM-



level supervisor, but their roles and responsibilities would mimic the Competition Advocate/DBO position in the Contracting Squadrons. The MAJCOM- level supervisor would then report to the currently established DoD Environmental Management Systems Committee. Creating this position across several MSG Squadrons would create a bellybutton for green procurement, someone who is held responsible for enforcing the Green Procurement Program and disseminating information, such as updated policies and goals. One of the main roles of this position would be to develop acquisition strategies that focus on environmental concerns and that are consistent with public law. Environmental Advocates would provide advice to the Acquisition Team on all matters involving compliance with environmental policy. They would also act as representatives at environmental conferences and attend weekly or monthly meetings with each other to ensure they are actively participating and communicating lessons learned, updates, and best practices with each other. In order to establish the Environmental Advocate position, it would need to be incorporated in the Federal Acquisition Regulation. In Appendix C, we have outlined an example of what this FAR reference would look like.

e. Apply the GAGA Model to AF GPP

We recommend that the Assistant Secretary of the Air Force amend the appropriate policy memorandums to adopt the GAGA model as the Air Force’s primary tool to manage and audit the implementation of GPP. Air Force major commands should mandate that the GAGA model be used as an analytical self-assessment tool to prepare for Operational Readiness Inspections. Further, this model should be run on a recurring basis by contracting organizations to provide a long-term picture of the health of the organization’s GPP rather than a one-time snapshot. Beyond its use as a management and audit tool for contracting, the GAGA model can be applied to any business process or workflow to help assess the organization’s ability to meet the demands of a policy. Lastly, the GAGA model is designed to evolve as green procurement grows, which will allow it to become the primary analytical model for measuring an organization’s GPP successes or gaps.



E. SUMMARY

Without strong personnel, platforms, and protocol the Contract Management Process is more susceptible to weaknesses and poor implementation. By crosscutting the Contract Management Process (Rendon, 2007) and Mandatory Pillars for Integrative Success (Yoder, 2010) models, we were able to identify the major gaps in the AF GPP and with that, make our educated recommendations on how to overcome these deficiencies. Through our analysis, we recognized that a solid GPP would ensure the right mixture of personnel, platforms, and protocol throughout the Contract Management Process and, therefore, ensure the successful implementation of green initiatives into the contract phases. Furthermore, we determined that it is important for contracting organizations to have the three pillars in place to ensure successful day-to-day green procurement activities.



V. SUMMARY, CONCLUSION, FURTHER RESEARCH TOPICS

A. INTRODUCTION

This chapter provides a brief overview of the findings from the literature review and a summary of the current Green Procurement Program, including DoD and Air Force policy with regard to planning, implementation and operation, checking and corrective actions, and management review. It also discusses the overall progress of the AF GPP through the crosscutting of the Contract Management Process and Mandatory Pillars for Integrative Success models. This chapter includes noted specific areas worthy of further analysis. These areas will be discussed in further detail later in this chapter.

B. SUMMARY

In Chapter II, we provided an extensive literature review that included definitions of key terms in green procurement. Next, we examined the executive orders, relevant FAR (2010) clauses, and federal reports. To further build on that, we reviewed other policies, including the Energy Policy Act of 2005, as well as the guidelines set forth by the international community to minimize their environmental impact. Next, we highlighted the applicable FAR (2010) clauses that govern the way the DoD procures supplies and services. Finally, we summarized the purpose and findings of federal reports related to green procurement.

In Chapter III, we provided a comprehensive overview of the Air Force Green Procurement Program in conjunction with the guidelines set forth by the DoD GPP strategy. In this chapter, we began with an explanation of the DoD's purpose and the objectives of the Green Procurement Program, and we further broke down the DoD strategy and the Air Force GPP requirements into the following sections: policies, planning, implementation and operation, checking and corrective actions, and management review. In this chapter, we provided a solid foundation that allowed reader to understand the background and policies for the Green Procurement Program.

Chapter IV examined the Air Force's current Green Procurement Program by infusing two recognized models, the Contract Management Process (Rendon, 2007) and



the Mandatory Pillars for Integrative Success (Yoder, 2010), and creating a new framework, the Green Acquisition Gap Analysis model. This model analyzed the gaps in the Air Force's implementation of and compliance with the AF GPP. Based on our analysis, we identified the main challenges the Air Force faces with implementing the GPP, as well as some notable best practices. Finally, we provided recommendations that will enhance the success of the AF GPP in operational Contracting Squadrons.

C. CONCLUSIONS

We have established that without a solid foundation of personnel, platforms, and protocol, the Contract Management Process is more liable to poor execution. By utilizing the fused GAGA model, we identified the major gaps in the Air Force's Green Procurement Program. Through our analysis, we confirmed that a solid GPP requires the right mixture of personnel, platforms, and protocol throughout the Contract Management Process in order to result in the successful implementation of green initiatives into the contract phases. Furthermore, we determined that it is imperative for contracting agencies to have the three pillars in place to ensure successful day-to-day green procurement activities.

Based on the data and information we gathered during our analysis of the Air Force's compliance with GPP, we answered the following research questions and made three primary conclusions.

Research questions:

1. What steps has the Air Force taken to become compliant with the goals/requirements of the DoD GPP?

In its attempt to become compliant with the goals of the DoD GPP, the Air Force has taken two primary steps. First, the Air Force developed an AF GPP as directed by the DoD GPP. Through our research, we found the AF's GPP to be thorough, but not uniformly implemented across Air Force contracting organizations. Second, the latest development that our research uncovered is that each HQ Air Force office must integrate GPP into its respective instructions. This integration is to be completed by October 2011,



but at the time our research concluded nothing had yet been published concerning the results of this mandate.

2. Has the Air Force successfully implemented the goals and objectives outlined in the DoD GPP?

It is evident by our research that the Air Force has not successfully implemented the goals and objectives outlined in the DoD GPP. Our survey demonstrated that the AF GPP does not currently have the correct business tools or contracting policies and resources in place. The hindrances to success can be attributed to the gaps we identified using our GAGA model. However, our results revealed that not all of the phases of the contracting process received a red rating. Some individual questions within a particular contracting phase resulted in a yellow or sometimes green rating, but, overall, the phase received a red rating due to the multiple questions with a red rating. The majority of the survey participants we questioned indicated a lack of understanding and compliance, which resulted in an unfavorable rating. The GAGA model exposed the Air Force's overall failure to implement successfully the goals and objectives in the DoD GPP.

3. How can the Air Force strengthen its application of GPP principles in the operational procurement process?

In order for the Air Force to strengthen their GPP, they need to align their platforms, personnel, and protocols within each phase of the procurement process. This can be accomplished by modeling the foundation of the Green Procurement Program around the Green Acquisition Gap Analysis model, which incorporates these essential business operations and key contracting workflow processes. We have identified recommendations to improve the Air Force's implementation of the Green Procurement Program. Our recommendations include implementing the Green Procurement Program at a higher level of contracting and not just at the operational Contracting Squadrons. We believe that this will help achieve the goals of the federal policies and quickly create cultural awareness. Another recommendation is to create a contracting, logistics, and civil engineering exchange program to enhance the knowledge and, ultimately, the effectiveness and efficiency of the personnel in each of these career fields in the area of green procurement. Our third recommendation is to create a new socioeconomic category



in order to meet the goals outlined in the DoD and AF GPPs and, thereby, hold contracting units accountable for their green procurement actions. This recommendation goes hand in hand with our fourth proposal, which is the creation of an Environmental Advocate (EA) position. The main role of the EA is to spearhead all aspects of environmental contracting. Our last recommendation is to have the Air Force build upon their GPP by incorporating the GAGA model. This will ensure that the mandatory contracting workflow processes are combined with the necessary business pillars in order to create optimal results.

D. RECOMMENDATIONS

Based on our extensive research and the results demonstrated from the GAGA model, we have developed several recommendations that we feel would aid in ensuring the Air Force's compliance with the DoD GPP and the mandated EO 13514 (2009). These recommendations include the following:

1. Implement GPP at the Enterprise Sourcing Groups (ESG). This would quickly and effectively achieve the goals set forth by EO 13514 (2009) and the DoD GPP strategy document (USD[AT&L], 2008), and it would be extremely beneficial to implement the GPP at the ESG level.
2. Establish a CONS/CE/LRS Exchange Program. This program would be included in the Advanced Academic Degree and Special Experience Exchange Duties (AAD/SPEED) program and would allow contracting and civil engineering personnel to switch places. It would include in-depth training and real-life work experience.
3. Create Green Socioeconomic Goals. Create an additional environmental category under socioeconomic goals. This new category would include businesses that are identified by the EPA, USDA, DOE, and other government agencies as being environmentally conscious.
4. Establish an Environmental Advocate (EA). Establish a position for an EA in the Contracting, Civil Engineering, and Logistics Readiness Squadrons at each Air Force installation. Creating this position across several MSG Squadrons would create a bellybutton for green procurement, someone who is held responsible for enforcing the



Green Procurement Program and for disseminating information, such as updated policies and goals.

5. Apply the GAGA model. Use the GAGA model as an assessment tool to manage and audit the implementation of GPP into the daily operations of Air Force contracting organizations. The Air Force should mandate that the GAGA model be used as an analytical self-assessment tool to prepare for Operational Readiness Inspections. Further, this model should be run on a recurring basis by an organization to provide a long-term picture of the health of the organization's GPP, rather than a one-time snapshot.

E. CURRENT ACTIONS

Although, many of the green policies and guidance came out over six years ago as outlined in Chapter II, there has been a recent push to re-emphasize green procurement. During the time when we were conducting our research, several documents were issued that directly affect both the Air Force's and the DoD's Green Procurement Program. In the following sections, we provide a snapshot of these documents.

May 31, 2011

The DoD, GSA, and NASA submitted interim rules that amended certain FAR parts to conform to the goals of EO 13514 (2009; Federal Register, 2011). This action was deemed necessary in order to mandate federal agencies to leverage agency acquisitions to foster markets for sustainable technologies, materials, products, and services. Highlighted changes included adding definitions such as "renewable energy" and "sustainable acquisition" and revising FAR parts 5, 7, and 11 to ensure agencies are including or considering sustainable acquisition requirements in their requirements documents, synopses, and acquisition planning documents. Conforming changes were also made to FAR parts 12 and 13. FAR part 23 was revised to ensure that the policy of "leading by example" is followed by federal agencies.

June 2, 2011

The Air Force issued a memorandum to all MAJCOM's that emphasizes the AF GPP initiated in 2006 (Breedlove et al., 2011). The memo highlighted the importance of



building a sustainable Air Force using green alternatives. The memorandum also called attention to the fact that green procurement training is mandatory for everyone involved in the procurement process. The memo outlined two tasks that require each functional office within Air Force HQ to review and identify, by August 1, 2011, Air Force Instructions in which procurement and purchasing activities are outlined. By November 30, 2011, each functional office needs to draft interim change language for the implementation of green requirements.

August 23, 2011

The DoD developed a compilation of green products identified by the EPA, DOE, and USDA (General Services Administration [GSA], 2011). This tool allows customers and the contracting office to facilitate the procurement of green products and services. An attribute of this tool is that it identifies the percentage of recycled products, alternative fuels, Energy Star-rated attributes, and so forth in the products' content levels. The tool also indicates which items are available on UNICOR, AbilityOne, and GSA.

October 4, 2011

The Under Secretary of Defense issued a memo about reporting sustainability attributes in FPDS (Ginman, 2011). The purpose of this memo is to bring awareness to the workforce that the DoD's main system, the FPDS, has been updated to capture the data needed to measure the goals outlined by EO 13514 (2009).

October 5, 2011

The DLA decommissioned the ERLS and GPR systems that the DoD GPP strategy document (USD[AT&L], 2008) had identified as the tools for tracking green purchases and the method used to measure whether the DoD was accomplishing the goal of increasing its green purchases. The functions performed by ERLS and the GPR were not transferred to the replacement system. Instead, the DLA's functional management analyst will track the information.



F. FURTHER RESEARCH

In this project, we explored the many facets of the Air Force's Green Procurement Program. Because the implementation of green initiatives is such a new movement, we were fortunate to experience much of the evolution in real time. One downside was that because this is a newly emerging field, we were unable to find an overabundance of available historical facts, data, and statistics. As a result, there are additional areas in which investigation would be beneficial to the establishment of a successful DoD GPP.

1. Specifically Analyze the Closeout Process

As seen through our results, this is an overall weak phase in the contracting process. Further exploration would benefit the Air Force, not only from the environmental standpoint, but also in terms of the efficiency of the entire stage. Proper disposition of procured items and materials is crucial to increasing the Air Force's compliance with EO 13514 (2009) and we feel this area deserves further research.

2. Explore the Green Procurement Programs in Other DoD Departments

This project specifically addressed the Air Force's compliance with the goals outlined in the DoD GPP. It would be beneficial to assess the GPPs of other organizations within the DoD. Further research could examine the strengths and weaknesses of the other military Services, including the Navy, Army, and Marine Corp.

3. Explore the Green Procurement Programs in Other Federal Agencies

Besides the DoD, there are three other federal agencies—the Department of Homeland Security, the General Services Administration (GSA), and NASA—that have similar or related missions. Thus, additional research can be done to explore the methods other federal agencies use to meet their energy consumption or savings goals, which could better establish guidance and metrics for all organizations.



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APPENDIX A. FAR PART 23

Federal Acquisition Regulation (FAR; 2010) Part 23

23.000 -- Scope.

This part prescribes acquisition policies and procedures supporting the Government's program for ensuring a drug-free workplace, for protecting and improving the quality of the environment, and to foster markets for sustainable technologies, materials, products, and services, and encouraging the safe operation of vehicles by—

- (a) Reducing or preventing pollution;
- (b) Managing efficiently and reducing energy and water use in Government facilities;
- (c) Using renewable energy and renewable energy technologies;
- (d) Acquiring energy-efficient and water-efficient products and services, environmentally preferable (including EPEAT-registered, and non-toxic and less toxic) products, products containing recovered materials, non-ozone depleting products, and biobased products;
- (e) Requiring contractors to identify hazardous materials;
- (f) Encouraging contractors to adopt and enforce policies that ban text messaging while driving; and
- (g) Requiring contractors to comply with agency environmental management systems.

23.001 -- Definitions.

As used in this part—

“Environmental” means environmental aspects of internal agency operations and activities, including those aspects related to energy and transportation functions.



“Greenhouse gases” means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

“Toxic chemical” means a chemical or chemical category listed in 40 CFR 372.65.

“United States,” except as used in subpart 23.10, means—

- (1) The fifty States;
- (2) The District of Columbia;
- (3) The commonwealths of Puerto Rico and the Northern Mariana Islands;
- (4) The territories of Guam, American Samoa, and the United States Virgin Islands; and
- (5) Associated territorial waters and airspace.

23.002 -- Policy.

Executive Order 13423 sections 3(e) and (f) require that contracts for contractor operation of a Government-owned or -leased facility and contracts for support services at a Government-owned or -operated facility include provisions that obligate the contractor to comply with the requirements of the order to the same extent as the agency would be required to comply if the agency operated or supported the facility. Compliance includes developing programs to promote and implement cost-effective waste reduction.

Subpart 23.1--Sustainable Acquisition Policy

23.101 -- Definition.

As used in this subpart—

“Contract action” means any oral or written action that results in the purchase, rent, or lease of supplies or equipment, services, or construction using appropriated dollars,



including purchases below the micro-purchase threshold. Contract action does not include grants, cooperative agreements, other transactions, real property leases, requisitions from Federal stock, training authorizations, or other non-FAR based transactions.

23.102 -- Authorities.

- (a) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.
- (b) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.
- (c) All of the authorities specified in subparts [23.2](#), [23.4](#), [23.7](#), [23.8](#), [23.9](#), and [23.10](#).

23.103 -- Sustainable Acquisitions.

(a) Federal agencies shall advance sustainable acquisition by ensuring that 95 percent of new contract actions for the supply of products and for the acquisition of services (including construction) require that the products are—

- (1) Energy-efficient (ENERGY STAR® or Federal Energy Management Program (FEMP)-designated);
- (2) Water-efficient;
- (3) Biobased;
- (4) Environmentally preferable (e.g., EPEAT-registered, or non-toxic or less toxic alternatives);
- (5) Non-ozone depleting; or
- (6) Made with recovered materials.



(b) The required products in the contract actions for services include products that are—

- (1) Delivered to the Government during performance;
- (2) Acquired by the contractor for use in performing services at a Federally-controlled facility; or
- (3) Furnished by the contractor for use by the Government.

(c) The required products in the contract actions must meet agency performance requirements.

(d) For purposes of meeting the 95 percent sustainable acquisition requirement, the term “contract actions” includes new contracts (and task and delivery orders placed against them) and new task and delivery orders on existing contracts.

23.104 -- Exceptions.

This subpart does not apply to the following acquisitions:

- (a) Contracts performed outside of the United States, unless the agency head determines that such application is in the interest of the United States.
- (b) Weapon systems.

23.105 -- Exemption Authority.

(a) The head of an agency may exempt—

- (1) Intelligence activities of the United States, and related personnel, resources, and facilities, to the extent the Director of National Intelligence or agency head determines it necessary to protect intelligence sources and methods from unauthorized disclosure;



- (2) Law enforcement activities of that agency and related personnel, resources, and facilities, to the extent the head of an agency determines it necessary to protect undercover operations from unauthorized disclosure;
 - (3) Law enforcement, protective, emergency response, or military tactical vehicle fleets of that agency; and
 - (4) Agency activities and facilities in the interest of national security.
- (b) If the head of the agency issues an exemption under paragraph (a) of this section, the agency must notify the Chair of the Council on Environmental Quality in writing within 30 days of the issuance of the exemption.
- (c) The agency head may submit through the Chair of the Council on Environmental Quality a request for exemption of an agency activity other than those activities listed in paragraph (a) of this section and related personnel, resources, and facilities.

Subpart 23.2 -- Energy and Water Efficiency and Renewable Energy

23.200 – Scope.

- (a) This subpart prescribes policies and procedures for—
- (1) Acquiring energy- and water-efficient products and services, and products that use renewable energy technology; and
 - (2) Using an energy-savings performance contract to obtain energy-efficient technologies at Government facilities without Government capital expense.
- (b) This subpart applies to acquisitions in the United States and its outlying areas. Agencies conducting acquisitions outside of these areas must use their best efforts to comply with this subpart.



23.201 -- Authorities.

- (a) Energy Policy and Conservation Act (42 U.S.C. 6361(a)(1)) and Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901, et seq.).
- (b) National Energy Conservation Policy Act (42 U.S.C. 8253, 8259b, 8262g, and 8287).
- (c) Section 706 of Division D, Title VII of the Omnibus Appropriations Act, 2009 (Pub. L. 111-8).
- (d) Title VI of the Clean Air Act, as amended (42 U.S.C. 7671, et seq.).
- (e) Executive Order 11912 of April 13, 1976, Delegations of Authority under the Energy Policy and Conservation Act.
- (f) Executive Order 13221 of July 31, 2001, Energy-Efficient Standby Power Devices.
- (g) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.
- (h) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

23.202 -- Policy.

(a) *Introduction.* The Government's policy is to acquire supplies and services that promote a clean energy economy that increases our Nation's energy security, safeguards the health of our environment, and reduces greenhouse gas emissions from direct and indirect Federal activities. To implement this policy, Federal acquisitions will foster markets for sustainable technologies, products, and services. This policy extends to all acquisitions, including those below the simplified acquisition threshold and those at or below the micro-purchase threshold (including those made with a Government purchase card).



(b) *Water-efficient*. In accordance with Executive Order 13514, dated October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance, it is the policy and objective of the Government to use and manage water through water-efficient means by—

- (1) Reducing potable water consumption intensity to include low-flow fixtures and efficient cooling towers;
- (2) Reducing agency, industry, landscaping, and agricultural water consumption; and
- (3) Storm water management in accordance with section 438 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17094) as implemented in <http://www.epa.gov/nps/lid/section438>.

23.203 – Energy-efficient Products.

(a) Unless exempt as provided at 23.204—

- (1) When acquiring energy-consuming products listed in the ENERGY STAR® Program of Federal Energy Management Program (FEMP)—
 - (i) Agencies shall purchase ENERGY STAR® or FEMP-designated products; and
 - (ii) For products that consume power in a standby mode and are listed on FEMP’s Standby Power Devices product listing, agencies shall—
 - (A) Purchase items which meet FEMP’s standby power wattage recommendation or document the reason for not purchasing such items; or
 - (B) If FEMP has listed a product without a corresponding wattage recommendation, purchase items, which use no more than one watt in their standby power consuming mode. When it is impracticable to



meet the one watt requirement, agencies shall purchase items with the lowest standby wattage practicable; and

(2) When contracting for services or construction that will include the provision of energy-consuming products, agencies shall specify products that comply with the applicable requirements in paragraph (a)(1) of this section.

(b) Information is available via the Internet about—

(1) ENERGY STAR® at <http://www.energystar.gov/>; and

(2) FEMP at http://www1.eere.energy.gov/femp/procurement/eeep_requirements.html

23.204 – Procurement Exemptions.

An agency is not required to procure an ENERGY STAR® or FEMP-designated product if the head of the agency determines in writing that—

(a) No ENERGY STAR® or FEMP-designated product is reasonably available that meets the functional requirements of the agency; or

(b) No ENERGY STAR® or FEMP-designated product is cost effective over the life of the product taking energy cost savings into account.

23.205 – Energy-savings Performance Contracts.

(a) Agencies should make maximum use of the authority provided in the National Energy Conservation Policy Act (42 U.S.C. 8287) to use an energy-savings performance contract (ESPC), when life-cycle cost-effective, to reduce energy use and cost in the agency's facilities and operations.

(b)



- (1) Under an ESPC, an agency can contract with an energy service company for a period not to exceed 25 years to improve energy efficiency in one or more agency facilities at no direct capital cost to the United States Treasury. The energy service company finances the capital costs of implementing energy conservation measures and receives, in return, a contractually determined share of the cost savings that result.
- (2) Except as provided in 10 CFR 436.34, ESPC's are subject to [Subpart 17.1](#).
- (c) To solicit and award an ESPC, the contracting officer--
- (1) Must use the procedures, selection method, and terms and conditions provided in 10 CFR part 436, Subpart B; at <http://www.eren.doe.gov/femp/resources/legislation.html>; and
- (2) May use the "Qualified List" of energy service companies established by the Department of Energy and other agencies.

23.206 – Contract Clause.

Unless exempt pursuant to [23.204](#), insert the clause at [52.223-15](#), Energy Efficiency in Energy-Consuming Products, in solicitations and contracts when energy-consuming products listed in the ENERGY STAR® Program or FEMP will be—

- (a) Delivered;
- (b) Acquired by the contractor for use in performing services at a Federally-controlled facility;
- (c) Furnished by the contractor for use by the Government; or
- (d) Specified in the design of a building or work, or incorporated during its construction, renovation, or maintenance.



Subpart 23.3 -- Hazardous Material Identification and Material Safety Data

23.300 -- Scope of Subpart.

This subpart prescribes policies and procedures for acquiring deliverable items, other than ammunition and explosives, that require the furnishing of data involving hazardous materials. Agencies may prescribe special procedures for ammunition and explosives.

23.301 -- Definition.

“Hazardous material” is defined in the latest version of Federal Standard No. 313 (Federal Standards are sold to the public and Federal agencies through -- General Services Administration Specifications Unit (3FBP-W) 7th & D Sts. SW Washington, DC 20407.

23.302 -- Policy.

(a) The Occupational Safety and Health Administration (OSHA) is responsible for issuing and administering regulations that require Government activities to apprise their employees of --

- (1) All hazards to which they may be exposed;
- (2) Relative symptoms and appropriate emergency treatment; and
- (3) Proper conditions and precautions for safe use and exposure.

(b) To accomplish this objective, it is necessary to obtain certain information relative to the hazards which may be introduced into the workplace by the supplies being acquired. Accordingly, offerors and contractors are required to submit hazardous materials data whenever the supplies being acquired are identified as hazardous materials. The latest version of Federal Standard No. 313 (Material Safety Data Sheet, Preparation and Submission of) includes criteria for identification of hazardous materials.

(c) Hazardous material data (Material Safety Data Sheets (MSDS)) are required --



(1) As specified in the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract);

(2) For any other material designated by a Government technical representative as potentially hazardous and requiring safety controls.

(d) MSDS's must be submitted --

(1) By the apparent successful offeror prior to contract award, if hazardous materials are expected to be used during contract performance.

(2) For agencies other than the Department of Defense, again by the contractor with the supplies at the time of delivery.

(e) The contracting officer shall provide a copy of all MSDS's received to the safety officer or other designated individual.

23.303 -- Contract Clause.

(a) The contracting officer shall insert the clause at [52.223-3](#), Hazardous Material Identification and Material Safety Data, in solicitations and contracts if the contract will require the delivery of hazardous materials as defined in [23.301](#).

(b) If the contract is awarded by an agency other than the Department of Defense, the contracting officer shall use the clause at [52.223-3](#) with its Alternate I.

Subpart 23.4 -- Use of Recovered Materials

23.400 -- Scope of Subpart.

(a) The procedures in this subpart apply to all agency acquisitions of an Environmental Protection Agency (EPA) or United States Department of Agriculture (USDA)-designated item, if—

(1) The price of the designated item exceeds \$10,000; or



(2) The aggregate amount paid for designated items, or for functionally equivalent designated items, in the preceding fiscal year was \$10,000 or more.

(b) While micro-purchases are included in determining the aggregate amount paid under paragraph (a)(2) of this section, it is not recommended that an agency track micro-purchases when—

(1) The agency anticipates the aggregate amount paid will exceed \$10,000; or

(2) The agency intends to establish or continue an affirmative procurement program in the following fiscal year.

23.401 – Definition.

As used in this subpart—

(a) “EPA designated product” means a product that is or can be made with recovered material—

(1) That is listed by EPA in a procurement guideline (40 CFR Part 247); and

(2) For which EPA has provided purchasing recommendations in a related Recovered Materials Advisory Notice (RMAN) (available at <http://www.epa.gov/epaoswer/non-hw/procure/backgrnd.htm>).

(b) “USDA-designated item” means a generic grouping of products that are or can be made with biobased materials—

(1) That is listed by USDA in a procurement guideline (7 CFR part 2902, subpart B); and

(2) For which USDA has provided purchasing recommendations

23.402 – Authorities.



- (a) The Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. 6962.
- (b) The Farm Security and Rural Investment Act of 2002 (FSRIA), 7 U.S.C. 8102.
- (c) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.
- (d) The Energy Policy Act of 2005, Public Law 109-58.
- (e) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

23.403 -- Policy.

Government policy on the use of products containing recovered materials and biobased products considers cost, availability of competition, and performance. Agencies shall purchase these products or require in the acquisition of services, the delivery, use, or furnishing (see [23.103\(b\)](#)) of such products. Agency contracts should specify that these products are composed of the highest percent of recovered material or biobased content practicable, or at least meet, but may exceed, the minimum recovered materials or biobased content of an EPA- or USDA-designated product. Agencies shall purchase these products to the maximum extent practicable without jeopardizing the intended use of the product while maintaining a satisfactory level of competition at a reasonable price. Such products shall meet the reasonable performance standards of the agency and be acquired competitively, in a cost-effective manner. Except as provided at [23.404\(b\)](#), virgin material shall not be required by the solicitation (see [11.302](#)).

23.404 – Agency Affirmative Procurement Programs.

- (a) An agency must establish an affirmative procurement program for EPA and USDA-designated items if the agency's purchases of designated items exceed the threshold set forth in [23.400](#).



(1) Agencies have a period of 1 year to revise their procurement program(s) after the designation of any new item by EPA or USDA.

(2) Technical or requirements personnel and procurement personnel are responsible for the preparation, implementation, and monitoring of affirmative procurement programs.

(3) Agency affirmative procurement programs must include—

(i) A recovered materials and biobased products preference program;

(ii) An agency promotion program;

(iii) For EPA-designated items only, a program for requiring reasonable estimates, certification, and verification of recovered material used in the performance of contracts. Both the recovered material content and biobased programs require preaward certification that the products meet EPA or USDA recommendations. A second certification is required at contract completion for recovered material content; and

(b) “*Exemptions.*”

(1) Agency affirmative procurement programs must require that 100 percent of purchases of EPA or USDA-designated items contain recovered material or biobased content, respectively, unless the item cannot be acquired—

(i) Competitively within a reasonable time frame;

(ii) Meeting reasonable performance standards; or

(iii) At a reasonable price.

(2) EPA and USDA may provide categorical exemptions for items that they designate, when procured for a specific purpose. For example, some USDA-



designated items such as mobile equipment hydraulic fluids, diesel fuel additives, and penetrating lubricants (see 7 CFR 2902.10 et seq.) are excluded from the preferred procurement requirement for the application of the USDA-designated item to one or both of the following:

(i) Spacecraft system and launch support equipment.

(ii) Military equipment, *i.e.*, a product or system designed or procured for combat or combat-related missions.

(c) Agency affirmative procurement programs must provide guidance for purchases of EPA-designated items at or below the micro-purchase threshold.

(d) Agencies may use their own specifications or commercial product descriptions when procuring products containing recovered materials or biobased products. When using either, the contract should specify—

(1) For products containing recovered materials, that the product is composed of the—

(i) Highest percent of recovered materials practicable; or

(ii) Minimum content standards in accordance with EPA's Recovered Materials Advisory Notices; and

(2) For biobased products, that the product is composed of—

(i) The highest percentage of biobased material practicable; or

(ii) USDA's recommended minimum contents standards.

(e) Agencies shall treat as eligible for the preference for biobased products, products from “designated countries,” as defined in [25.003](#), provided that those products—



(1) Meet the criteria for the definition of biobased product, except that the products need not meet the requirement that renewable agricultural materials (including plant, animal, and marine materials) or forestry materials in such product must be domestic; and

(2) Otherwise meet all requirements for participation in the preference program.

23.405 – Procedures.

(a) Designated items and procurement guidelines.

(1) *Recovered Materials.* Contracting officers should refer to EPA's list of EPA-designated items (available via the Internet at <http://www.epa.gov/cpg/products.htm>) and to their agencies' affirmative procurement program when purchasing products that contain recovered material, or services that could include the use of products that contain recovered material.

(2) *Biobased products.* Contracting officers should refer to USDA's list of USDA-designated items (available through the Internet at <http://www.usda.gov/biopreferred>) and to their agencies affirmative procurement program when purchasing supplies that contain biobased material or when purchasing services that could include supplies that contain biobased material.

(b) Procurement exemptions.

(1) Once an item has been designated by either EPA or USDA, agencies shall purchase conforming products unless an exemption applies (see [23.404\(b\)](#)).

(2) When an exemption is used for an EPA-designated item or the procurement of a product containing recovered material does not meet or exceed the EPA recovered material content guidelines, the contracting officer shall place a written justification in the contract file.



(c) *Program priorities.* When both the USDA-designated item and the EPA-designated item will be used for the same purposes, and both meet the agency's needs, the agency shall purchase the EPA-designated item.

23.406 – Solicitation Provision and Contract Clauses.

(a) Insert the provision at [52.223-1](#), Biobased Product Certification, in solicitations that—

(1) Require the delivery or specify the use of USDA-designated items; or

(2) Include the clause at [52.223-2](#).

(b) Insert the clause at [52.223-2](#), Affirmative Procurement of Biobased Products Under Service and Construction Contracts, in service or construction solicitations and contracts unless the contract will not involve the use of USDA-designated items at <http://www.usda.gov/biopREFERRED> or 7 CFR Part 2902.

(c) Except for the acquisition of commercially available off-the-shelf items, insert the provision at [52.223-4](#), Recovered Material Certification, in solicitations that—

(1) Require the delivery or specify the use of, EPA-designated items; or

(2) Include the clause at [52.223-17](#), Affirmative Procurement of EPA-designated Items in Service and Construction Contracts.

(d) Except for the acquisition of commercially available off-the-shelf items, insert the clause at [52.223-9](#), Estimate of Percentage of Recovered Material Content for EPA-Designated Items, in solicitations and contracts exceeding \$150,000 that are for, or specify the use of, EPA-designated products containing recovered materials. If technical personnel advise that estimates can be verified, use the clause with its Alternate I.

(e) Insert the clause at [52.223-17](#), Affirmative Procurement of EPA-Designated Items in Service and Construction Contracts, in service or construction solicitations and contracts unless the contract will not involve the use of EPA-designated items.



Subpart 23.6 -- Notice of Radioactive Material

23.601 -- Requirements.

- (a) The clause at [52.223-7](#), Notice of Radioactive Materials, requires the contractor to notify the contracting officer prior to delivery of radioactive material.
- (b) Upon receipt of the notice, the contracting officer shall notify receiving activities so that appropriate safeguards can be taken.
- (c) The clause permits the contracting officer to waive the notification if the contractor states that the notification on prior deliveries is still current. The contracting officer may waive the notice only after consultation with cognizant technical representatives.
- (d) The contracting officer is required to specify in the clause at [52.223-7](#), the number of days in advance of delivery that the contractor will provide notification. The determination of the number of days should be done in coordination with the installation/facility radiation protection officer (RPO). The RPO is responsible for insuring the proper license, authorization or permit is obtained prior to receipt of the radioactive material.

23.602 -- Contract Clause.

The contracting officer shall insert the clause at [52.223-7](#), Notice of Radioactive Materials, in solicitations and contracts for supplies which are, or which contain --

- (a) radioactive material requiring specific licensing under regulations issued pursuant to the Atomic Energy Act of 1954; or
- (b) radioactive material not requiring specific licensing in which the specific activity is greater than 0.002 microcuries per gram or the activity per item equals or exceeds 0.01 microcuries. Such supplies include, but are not limited to, aircraft, ammunition, missiles, vehicles, electronic tubes, instrument panel gauges, compasses and identification markers.



**Subpart 23.7 -- Contracting for Environmentally Preferable and Energy-Efficient
Products and Services**

23.700 – Scope.

This subpart prescribes policies for acquiring environmentally preferable and products and services.

23.701 – Definitions.

As use in this subpart—

“Computer monitor” means a video display unit used with a computer.

“Desktop computer” means a computer designed for use on a desk or table.

“Notebook computer” means a portable-style or laptop-style computer system

“Personal computer product” means a notebook computer, a desktop computer, or a computer monitor, and any peripheral equipment that is integral to the operation of such items. For example, the desktop computer together with the keyboard, the mouse, and the power cord would be a personal computer product. Printers, copiers, and fax machines are not included in peripheral equipment, as used in this definition.

23.702 -- Authorities.

- (a) Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901, *et seq.*).
- (b) National Energy Conservation Policy Act (42 U.S.C. 8262g).
- (c) Pollution Prevention Act of 1990 (42 U.S.C. 13101, *et seq.*).
- (d) Farm Security and Rural Investment Act of 2002 (FSRIA) (7 U.S.C. 8102).
- (e) Executive Order 13221 of July 31, 2001, Energy Efficient Standby Power Devices.



(f) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.

(g) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

23.703 – Policy.

Agencies must--

(a) Implement cost-effective contracting preference programs promoting energy-efficiency, water conservation, and the acquisition of environmentally preferable products and services, and

(b) Employ acquisition strategies that affirmatively implement the following environmental objectives:

(1) Maximize the utilization of environmentally preferable products and services (based on EPA-issued guidance).

(2) Promote energy-efficiency and water conservation.

(3) Eliminate or reduce the generation of hazardous waste and the need for special material processing (including special handling, storage, treatment, and disposal).

(4) Promote the use of nonhazardous and recovered materials.

(1) Realize life-cycle cost savings.

(2) Promote cost-effective waste reduction when creating plans, drawings, specifications, standards, and other product descriptions authorizing material substitutions, extensions of shelf-life, and process improvements.

(7) Promote the use of biobased products.



(8) Purchase only plastic ring carriers that are degradable (7 U.S.C. 8102(c)(1), 40 CFR part 238).

23.704 – Electronic Products Environmental Assessment Tool.

(a) *General.* As required by E.O.13423, agencies must ensure that they meet at least 95 percent of their annual acquisition requirement for electronic products with Electronic Product Environmental Assessment Tool (EPEAT) –registered electronic products, unless there is no EPEAT standard for such products. This policy applies to contracts performed in the United States, unless otherwise provided by agency procedures.

(b) *Personal computer products.* Personal computer products is a category of EPEAT-registered electronic products.

(1) The IEEE 1680 standard for personal computer products—

(i) Was issued by the Institute of Electrical and Electronics Engineers on April 28, 2006;

(ii) Is a voluntary consensus standard consistent with Section 12(d) of Pub. L. 104-113, the “National Technology Transfer and Advancement Act of 1995,” (see 11.102(c));

(iii) Meets EPA-issued guidance on environmentally preferable products and services; and

(iv) Is described in more detail at <http://www.epeat.net> .

(2) A list of EPEAT-registered products that meet the IEEE 1680 standard can be found at <http://www.epeat.net> .

(3) The IEEE 1680 standard sets forth required and optional criteria. EPEAT “Bronze” registered products must meet all required criteria. EPEAT “Silver” registered products meet all required criteria and 50 percent of the optional criteria.



EPEAT “Gold” registered products meet all required criteria and 75 percent of the optional criteria. These are the levels discussed in clause 1.4 of the IEEE 1680 standard. The clause at [52.223-16](#), IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products, makes EPEAT Bronze registration the standard that contractors must meet. In accordance with guidance from the Office of the Federal Environmental Executive encouraging agencies to procure EPEAT Silver registered products, Alternate I of the clause makes EPEAT Silver registration the standard that contractors must meet. Agencies also may use EPEAT Silver or Gold registration in the evaluation of proposals.

(c) The agency shall establish procedures for granting exceptions to the requirement in paragraph (a) of this section, with the goal that the dollar value of exceptions granted will not exceed 5 percent of the total dollar value of electronic products acquired by the agency, for which EPEAT-registered products are available. For example, agencies may grant an exception if the agency determines that no EPEAT-registered product meets agency requirements, or that the EPEAT-registered product will not be cost effective over the life of the product.

23.705 – Contract Clauses.

(a) Insert the clause at [52.223-10](#), Waste Reduction Program, in all solicitations and contracts for contractor operation of Government-owned or -leased facilities and all solicitations and contracts for support services at Government-owned or –operated facilities.

(b)

(1) Unless an exception has been approved in accordance with [23.704\(c\)](#), insert the clause at [52.223-16](#), IEEE 1680 Standard for the Environmental Assessment of Personal Computer Products, in all solicitations and contracts for—

(i) Personal computer products;



(ii) Services that require furnishing or personal computer products for use by the Government; or

(iii) Contractor operation of Government-owned facilities.

(2) Agencies may use the clause with its Alternate I when there are sufficient EPEAT Silver registered products available to meet agency needs.

Subpart 23.8 -- Ozone-Depleting Substances

23.800 -- Scope of Subpart.

This subpart sets forth policies and procedures for the acquisition of items which contain, use, or are manufactured with ozone-depleting substances.

23.801 -- Authorities.

(a) Title VI of the Clean Air Act (42 U.S.C. 7671, et seq.).

(b) Section 706 of Division D, Title VII of the Omnibus Appropriations Act, 2009 (Pub. L. 111-8).

(c) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.

(d) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

(e) Environmental Protection Agency (EPA) regulations, Protection of Stratospheric Ozone (40 CFR Part 82).

23.802 -- [Reserved].

23.803 -- Policy.



(a) It is the policy of the Federal Government that Federal agencies --

(1) Implement cost-effective programs to minimize the procurement of materials and substances that contribute to the depletion of stratospheric ozone; and

(2) Give preference to the procurement of alternative chemicals, products, and manufacturing processes that reduce overall risks to human health and the environment by lessening the depletion of ozone in the upper atmosphere.

(b) In preparing specifications and purchase descriptions, and in the acquisition of supplies and services, agencies shall—

(1) Comply with the requirements of Title VI of the Clean Air Act, Section 706 of Division D, Title VII of Public Law 111-8, Executive Order 13423, Executive Order 13514, and 40 CFR 82.84(a)(2), (3), (4), and (5); and

(2) Substitute safe alternatives to ozone-depleting substances, as identified under 42 U.S.C. 7671k, to the maximum extent practicable, as provided in 40 CFR 82.84(a)(1), except in the case of Class I substances being used for specified essential uses, as identified under 40 CFR 82.4(r). EPA's Significant New Alternatives Policy (SNAP) program (available at <http://www.epa.gov/ozone/snap>) has a list of safe alternatives to ozone-depleting substances.

23.804 -- Contract Clauses.

Except for contracts that will be performed outside the United States and its outlying areas, insert the clause at:

(a) 52.223-11, Ozone-Depleting Substances, in solicitations and contracts for ozone-depleting substances or for supplies that may contain or be manufactured with ozone-depleting substances.

(b) 52.223-12, Refrigeration Equipment and Air Conditioners, in solicitations and contracts for services when the contract includes the maintenance, repair, or disposal of any equipment



or appliance using ozone-depleting substances as a refrigerant, such as air conditioners, including motor vehicles, refrigerators, chillers, or freezers.

Subpart 23.9 – Contractor Compliance With Environmental Management Systems

23.900 -- Scope.

This subpart implements the environmental management systems requirements for contractors.

23.901 -- Authority.

(a) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.

(b) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

23.902 -- Policy.

(a) Agencies shall implement environmental management systems (EMS) at all appropriate organizational levels. Where contractor activities affect an agency's environmental management aspects, EMS requirements shall be included in contracts to ensure proper implementation and execution of EMS roles and responsibilities.

b) The contracting officer shall—

(1) Specify the EMS directives with which the contractor must comply; and

(2) Ensure contractor compliance to the same extent as the agency would be required to comply, if the agency operated the facilities or vehicles.

23.903 -- Contract clause.



The contracting officer shall insert the clause at [52.223-19](#), Compliance With Environmental Management Systems, in all solicitations and contracts for contractor operation of Government-owned or -leased facilities or vehicles, located in the United States. For facilities located outside the United States, the agency head may determine that use of the clause is in the best interest of the Government.

**Subpart 23.10 -- Federal Compliance with Right-to-Know Laws and Pollution
Prevention Requirements**

23.1000 – Scope.

This subpart prescribes policies and procedures for obtaining information needed for Government—

- (a) Compliance with right-to-know laws and pollution prevention requirements;
- (b) Implementation of an environmental management system (EMS) at a Federal facility; and
- (c) Completion of facility compliance audits (FCAs) at a Federal facility.

23.1001 -- Authorities.

- (a) Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. 11001-11050 (EPCRA).
- (b) Pollution Prevention Act of 1990, 42 U.S.C. 13101-13109 (PPA).
- (c) Executive Order 13423 of January 24, 2007, Strengthening Federal Environmental, Energy, and Transportation Management.
- (d) Executive Order 13514 of October 5, 2009, Federal Leadership in Environmental, Energy, and Economic Performance.

23.1002 -- Applicability.



The requirements of this subpart apply to facilities owned or operated by an agency in the customs territory of the United States.

23.1003 -- Definition.

As used in this subpart—

“Federal agency” means an executive agency (see [2.101](#)).

23.1004 -- Requirements.

(a) Federal facilities are required to comply with—

(1) The emergency planning and toxic release reporting requirements in EPCRA and PPA; and

(2) The toxic chemical, and hazardous substance release and use reduction goals of sections 2(e) and 3(a)(vi) of Executive Order 13423.

(b) Pursuant to EPCRA, PPA, E.O. 13423, and any agency implementing procedures, every new contract that provides for performance on a Federal facility shall require the contractor to provide information necessary for the Federal agency to comply with the—

(1) Requirements in paragraph (a) of this section; and

(2) Requirements for EMSs and FCAs if the place of performance is at a Federal facility designated by the agency.

23.1005 -- Contract Clause.

(a) Insert the clause at [52.223-5](#), Pollution Prevention and Right-to-Know Information, in solicitations and contracts that provide for performance, in whole or in part, on a Federal facility.

(b) Use the clause with its Alternate I if the contract provides for contractor—



(1) Operation or maintenance of a Federal facility at which the agency has implemented or plans to implement an EMS; or

(2) Activities and operations--

(i) To be performed at a Government-operated Federal facility that has implemented or plans to implement an EMS; and

(ii) That the agency has determined are covered within the EMS.

(c) Use the clause with its Alternate II if—

(1) The contract provides for contractor activities on a Federal facility; and

(2) The agency has determined that the contractor activities should be included within the FCA or an environmental management system audit.

Subpart 23.11--Encouraging Contractor Policies to Ban Text Messaging While Driving

23.1101 -- Purpose.

This subpart implements the requirements of the Executive Order (E.O.) 13513, dated October 1, 2009 (74 FR 51225, October 6, 2009), Federal Leadership on Reducing Text Messaging while Driving.

23.1102 -- Applicability.

This subpart applies to all solicitations and contracts.

23.1103 -- Definitions.

As used in this subpart—

“Driving”—



(1) Means operating a motor vehicle on an active roadway with the motor running, including while temporarily stationary because of traffic, a traffic light, stop sign, or otherwise.

(2) Does not include operating a motor vehicle with or without the motor running when one has pulled over to the side of, or off, an active roadway and has halted in a location where one can safely remain stationary.

“Text messaging” means reading from or entering data into any handheld or other electronic device, including for the purpose of short message service texting, e-mailing, instant messaging, obtaining navigational information, or engaging in any other form of electronic data retrieval or electronic data communication. The term does not include glancing at or listening to a navigational device that is secured in a commercially designed holder affixed to the vehicle, provided that the destination and route are programmed into the device either before driving or while stopped in a location off the roadway where it is safe and legal to park.

23.1104 -- Policy.

Agencies shall encourage contractors and subcontractors to adopt and enforce policies that ban text messaging while driving—

(a) Company-owned or -rented vehicles or Government-owned vehicles; or

(b) Privately-owned vehicles when on official Government business or when performing any work for or on behalf of the Government.

23.1105 -- Contract Clause.

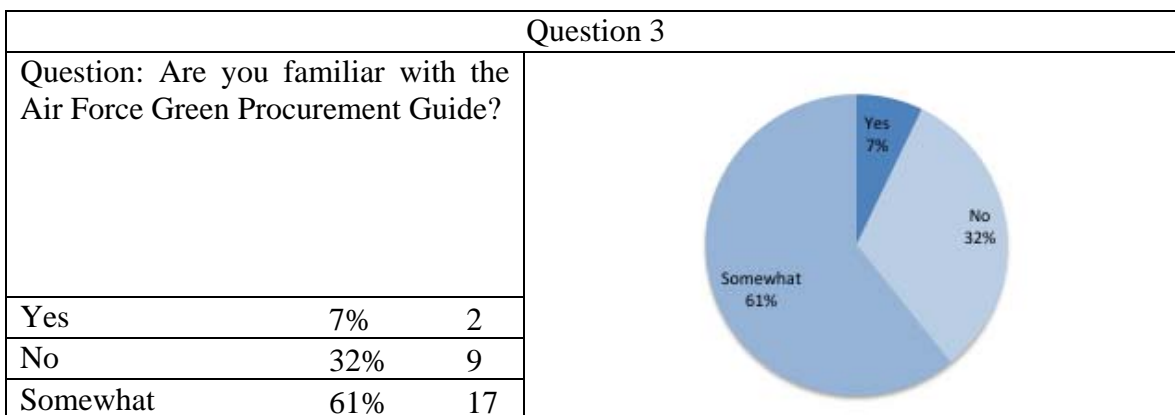
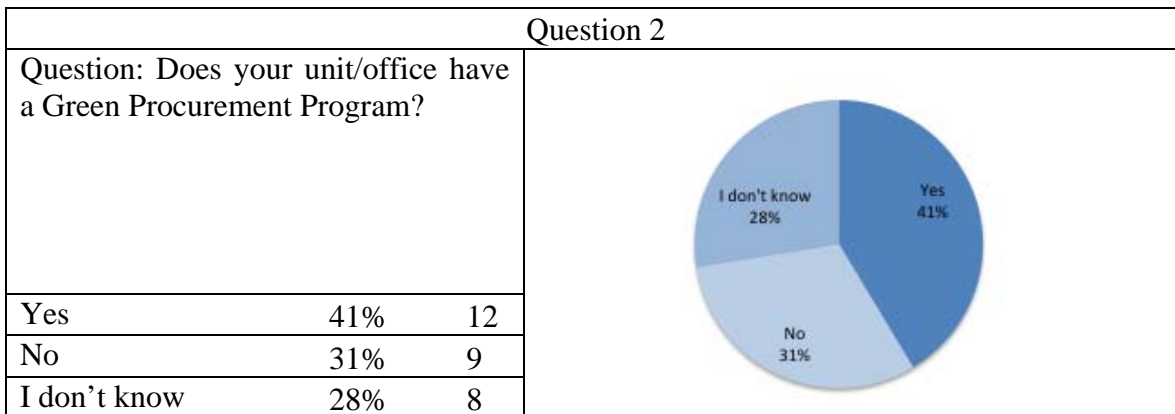
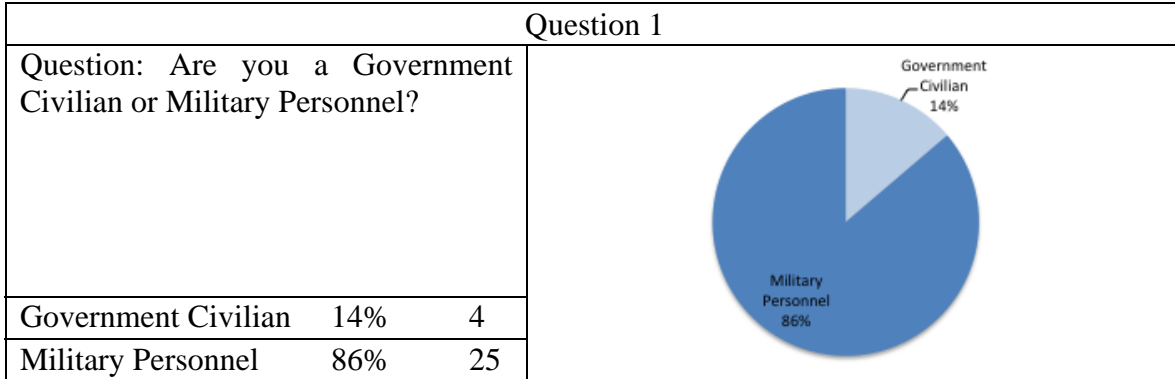
The contracting officer shall insert the clause at [52.223-18](#), Encouraging Contractor Policies to Ban Text Messaging While Driving, in all solicitations and contracts.

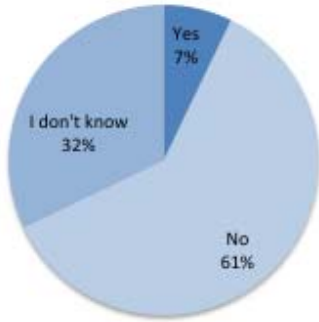


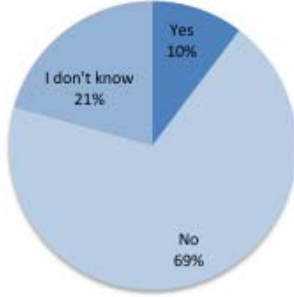
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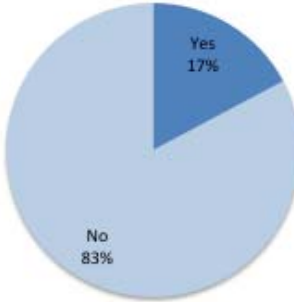


APPENDIX B. SURVEY QUESTIONS AND RESPONSES

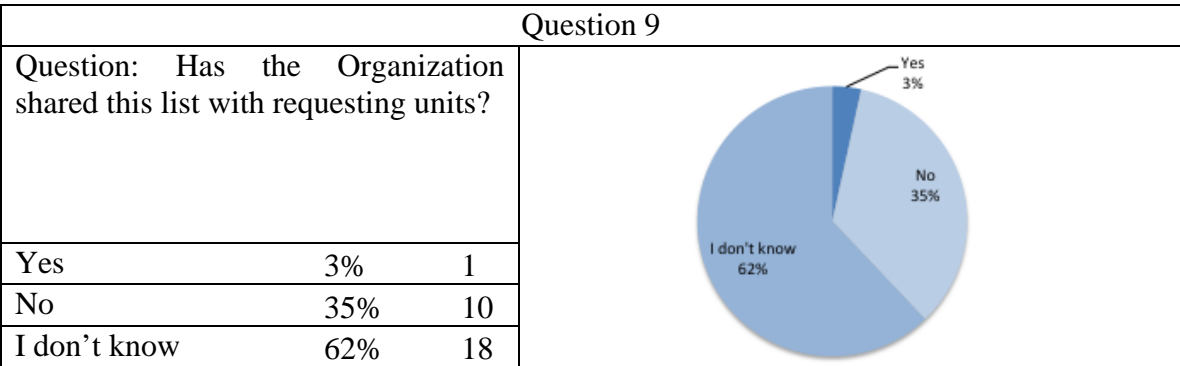
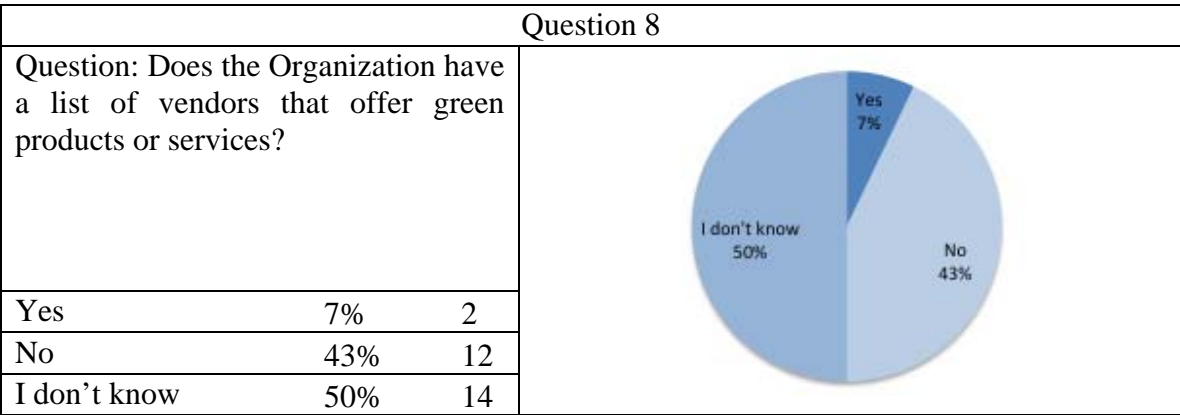
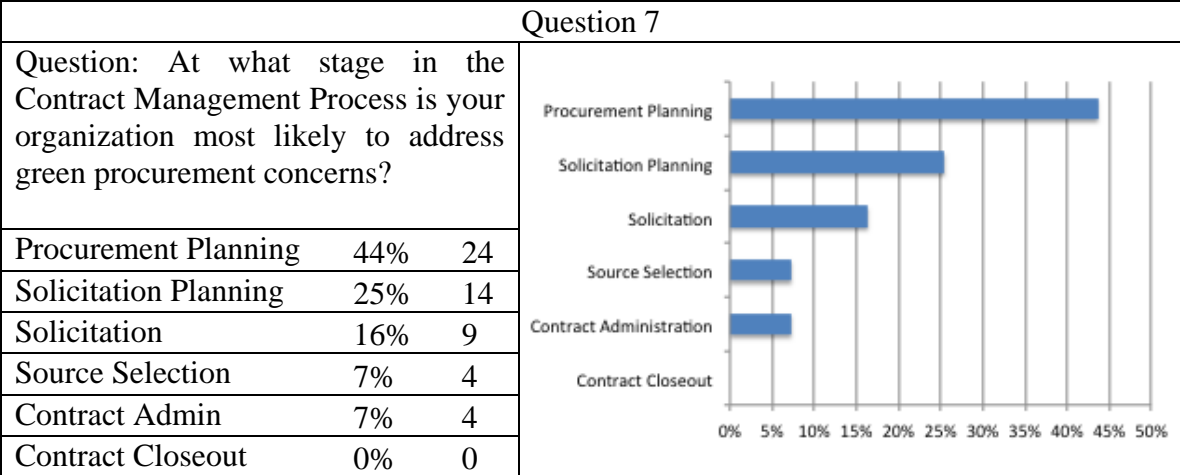


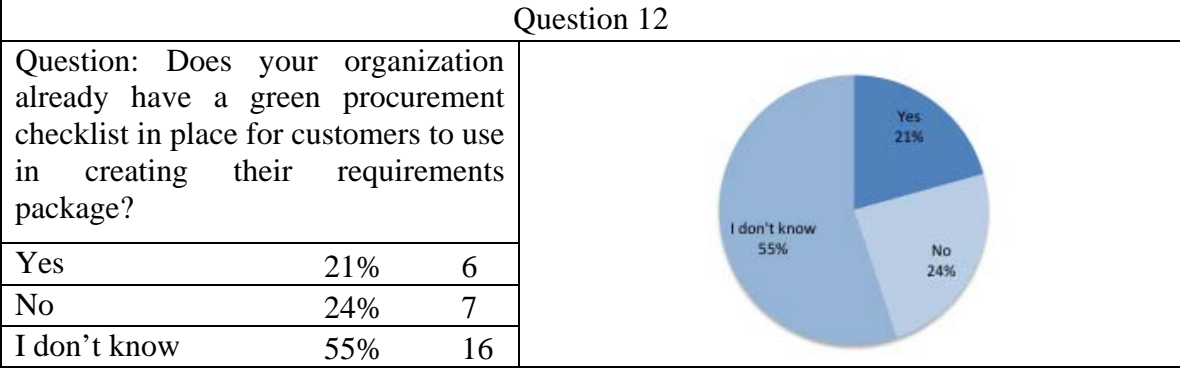
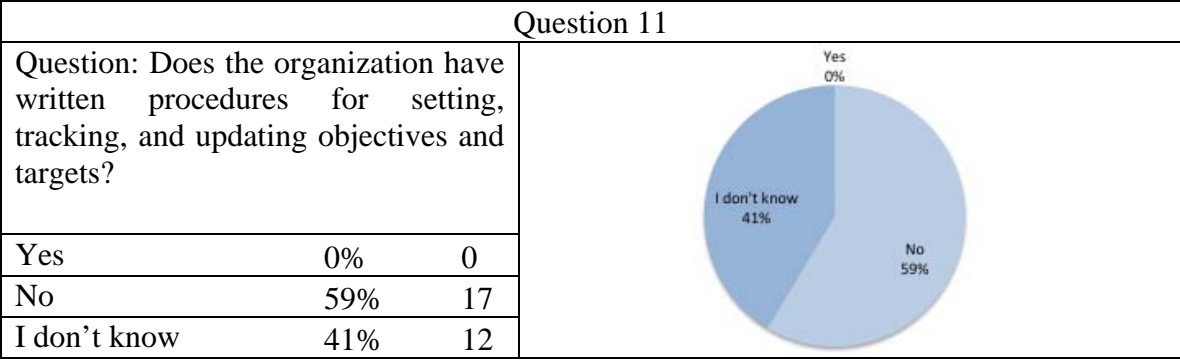
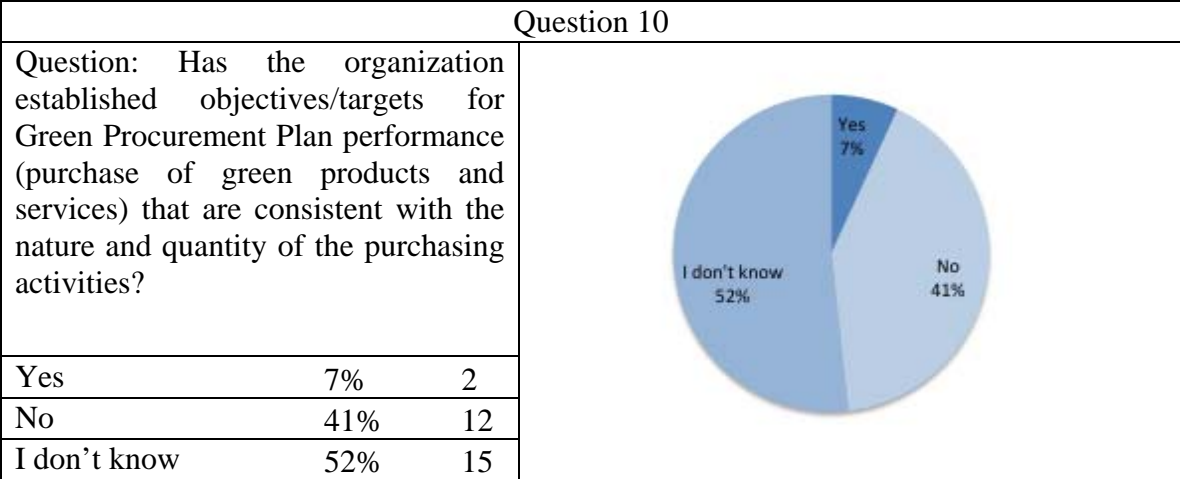
Question 4		
Question: Does your unit/office track the number of green products or services it contracts?		
Yes	7% 2	
No	61% 17	
I don't know	32% 9	

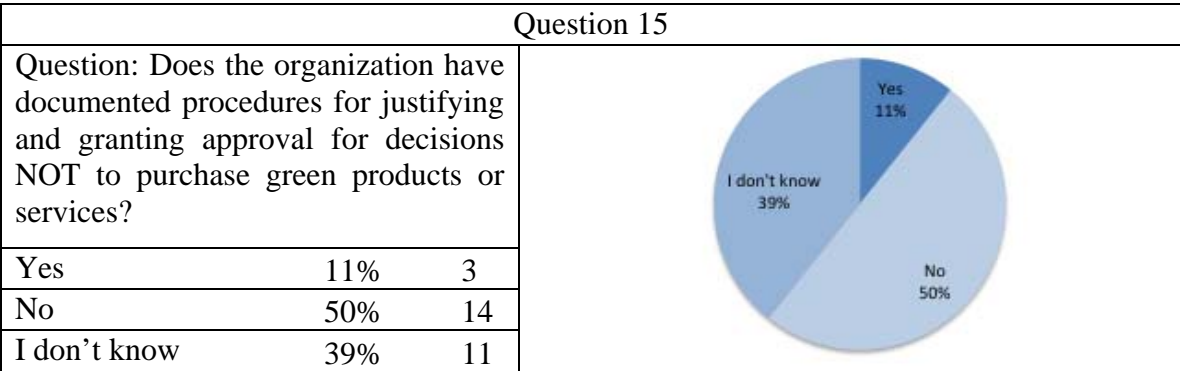
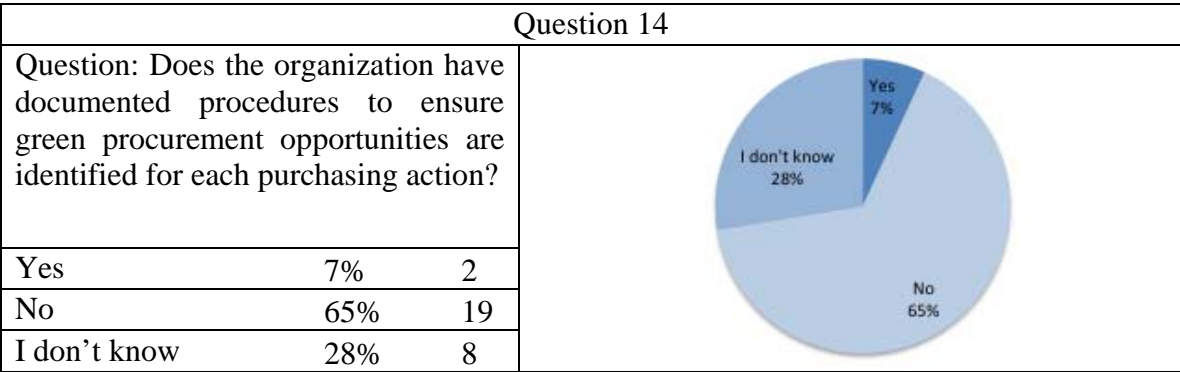
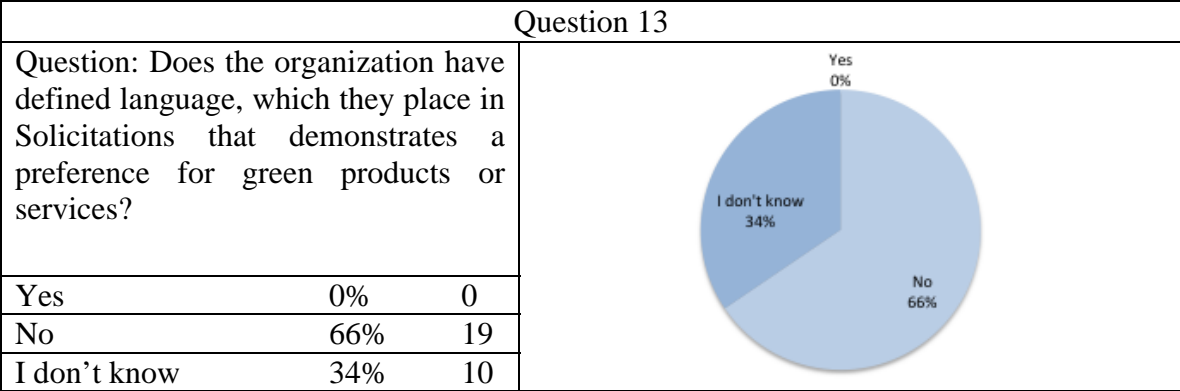
Question 5		
Question: Does your unit/office have any specific “green” goals it tries to achieve?		
Yes	10% 3	
No	69% 20	
I don't know	21% 6	
Additional Comments: <ul style="list-style-type: none"> - A Green Procurement Program compliance waiver is a required part of each Purchase Request package. - Yes, the procurement office has defined goals based on metrics established by the headquarters. - No, we have general goals in reducing our energy consumption through purchasing green technology. 		

Question 6		
Question: Have you taken the DAU course CLC046 Green Procurement?		
Yes	17% 5	
No	83% 24	



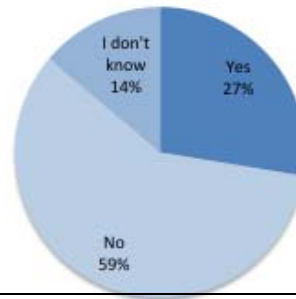






Question 16

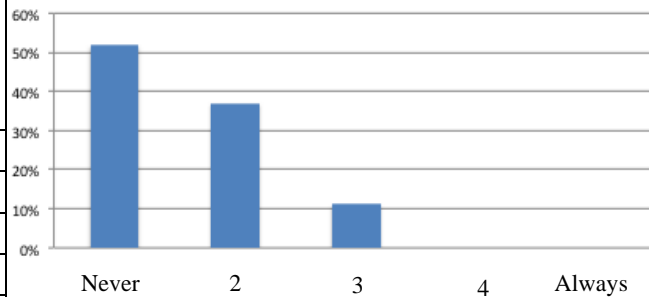
Question: Have you received training on incorporating green requirements in the solicitation phase to include the appropriate FAR clauses, green considerations in PWS/SOW's, etc.?



Yes	27%	8
No	59%	17
I don't know	14%	4

Question 17

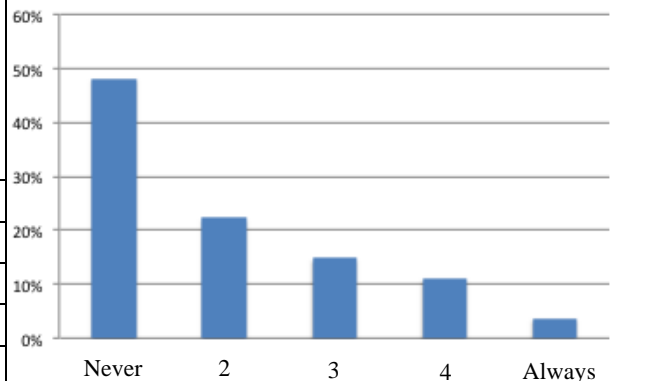
Question: Time permitting, before posting a solicitation are there any RFI's posted requesting information for environmentally friendly opportunities for the services or products on the solicitation?



1 – Never	52%	14
2	37%	10
3	11%	3
4	0%	0
5 - Always	0%	0

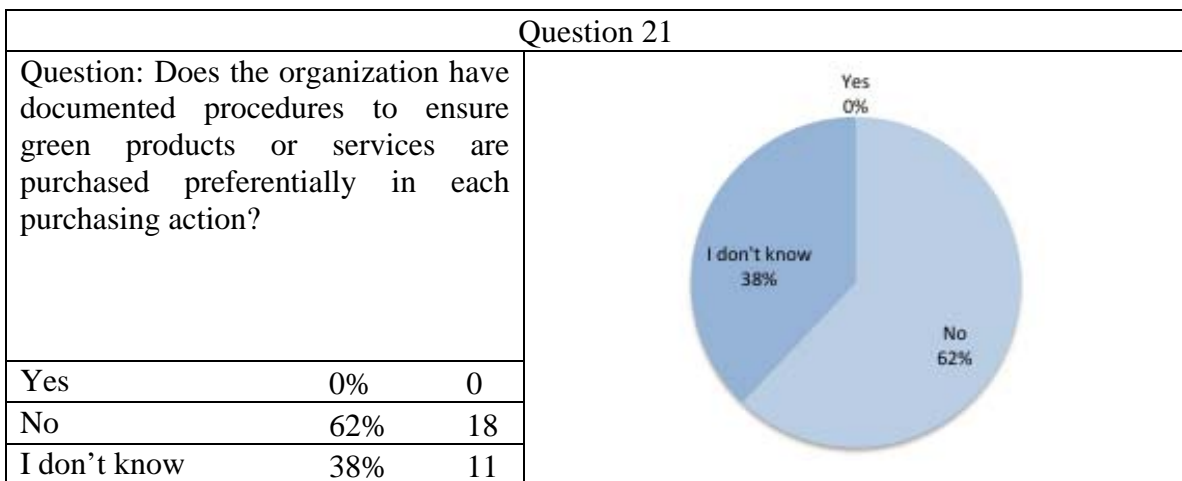
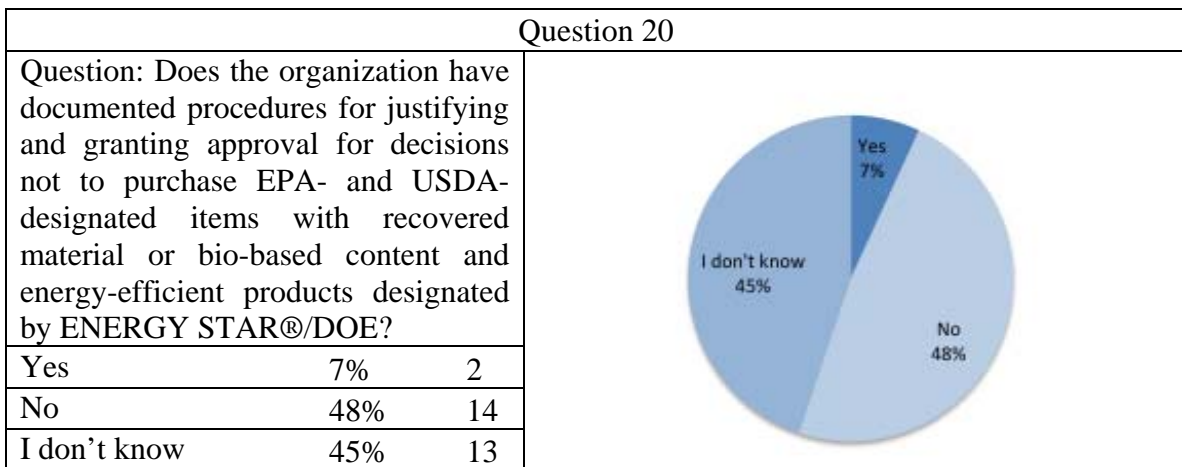
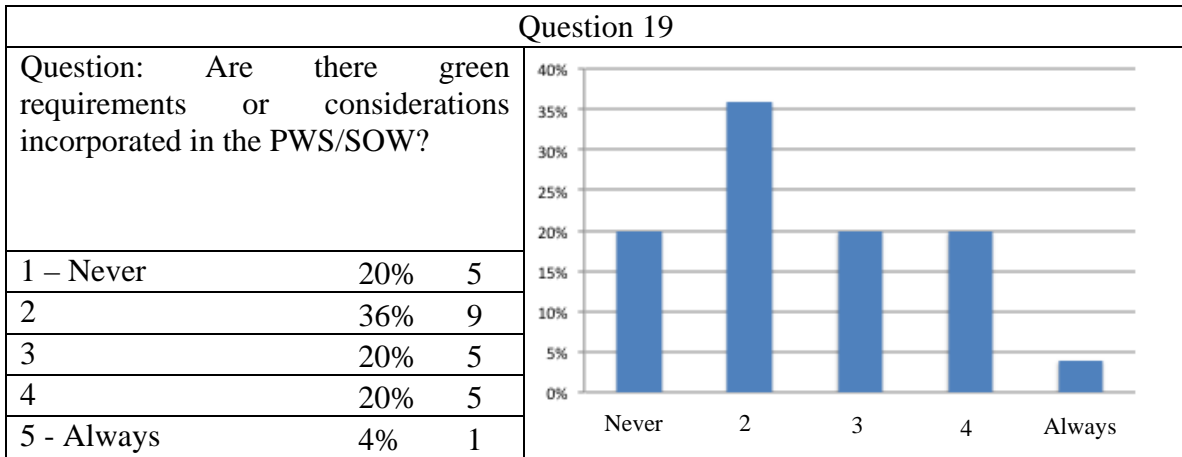
Question 18

Question: When generating the solicitation have green FAR clauses been included?

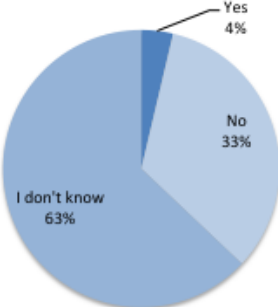


1 – Never	48%	13
2	22%	6
3	15%	4
4	11%	3
5 - Always	4%	1






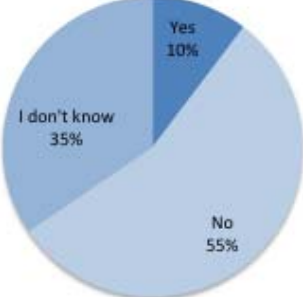
Question 22		
Question: If yes, is there an approval authority required to approve justifications for not purchasing green products or services?		
Yes	4%	1
No	33%	9
I don't know	63%	17



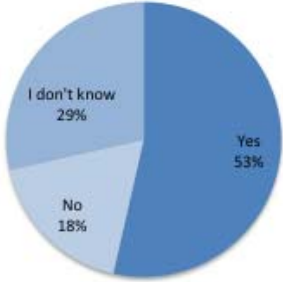
Question 23		
Question: Were environmental factors, such as reuse, recycle, waste reduction, and green procurement, evaluated as part of the performance, cost, and schedule analysis?		
Yes	17%	5
No	52%	15
I don't know	31%	9



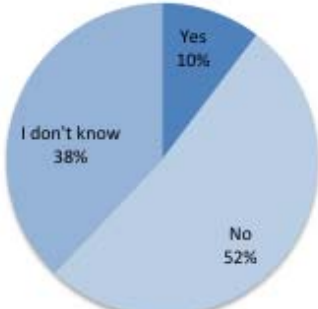
Question 24		
Question: Does the organization have documented procedures to ensure that the relevant green procurement contract language and FAR clauses are incorporated in all contracts?		
Yes	10%	3
No	55%	16
I don't know	35%	10



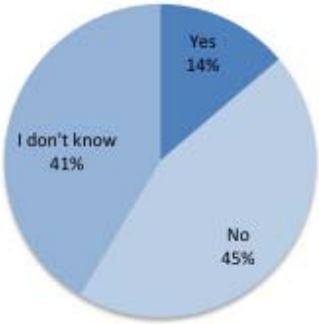

Question 25		
Question: When awards involve use of recovered materials or EPA products are the appropriate blocks completed when submitting the CAR information?		
Yes	53%	15
No	18%	5
I don't know	29%	8



Question 26		
Question: Does the organization's Green Procurement Plan have procedures and assign responsibility for routine measurement, evaluation, and reporting of Green Procurement Plan performance data?		
Yes	10%	3
No	52%	15
I don't know	38%	11



Question 27		
Question: Does the organization have checklists or procedures in place to ensure that contractors are compliant with the Green Procurement Plan aspects included in the contract?		
Yes	14%	4
No	45%	13
I don't know	41%	12



Question 28			
Question: Does your organization recycle contract files after the mandatory holding period?			
Yes	21%	6	
No	17%	5	
I don't know	62%	18	

Question 29	
Question: Please feel free to share any wonderful or horrible Green Procurement experiences or practices with us in the box below!	<ul style="list-style-type: none"> - Our base has a 'biggest loser' contest between units to see who can reduce their energy consumption the most. However, I don't think the contracting office has anything to do with the program I believe it is run by CE. - Green what? - The Federal Government has made baby steps in Green Procurement. Green Procurement is costly and there is a balancing act between making effective procurements while keeping costs down, at a time when budgets are shrinking. Further customer education will help achieve Federal mandates, however identifying personnel to effectively carry the message is a challenge. I created some minor tools to assist COs while at DHS, but there is unclear guidance which makes achieving the goals difficult.



APPENDIX C. EXAMPLE EA FAR REFERENCE

FAR

X.XXXX Requirement.

As required by _____, the head of each executive agency shall designate a Competition Advocate for the agency and for each procuring activity of the agency. The Environmental Advocates shall—

- (a) Be in positions other than that of the agency senior procurement executive;
- (b) Not be assigned any duties or responsibilities that are inconsistent with X.XXX; and
- (c) Be provided with staff or assistance (e.g., specialists in engineering, technical operations, contract administration, financial management, supply management, and utilization of environmental concerns), as may be necessary to carry out the advocate's duties and responsibilities.

X.XXX Duties and Responsibilities.

(a) Agency and procuring activity Environmental Advocates are responsible for promoting the acquisition of commercial items and non-commercial items consistent with the goals outlined in the Air Force Green Procurement Guide.

(b) Agency Competition Advocates shall—

(1) Review the contracting operations of the agency and identify and report to the agency senior environmental procurement executive and the chief acquisition officer—

- (i) Opportunities and actions taken to acquire green procurement items to meet the needs of the agency;
- (ii) Opportunities and actions taken to achieve green procurement in the contracting operations of the agency;
- (iii) Actions taken to challenge requirements that are not stated in terms of functions to be performed, performance required or essential physical characteristics;
- (iv) Any condition or action that has the effect of unnecessarily restricting the acquisition of green procurement items in the contract actions of the agency;

(2) Prepare and submit a quarterly report to the agency senior environmental procurement executive and the chief acquisition officer in accordance with agency procedures, describing—

- (i) Such advocate's activities under this subpart;
- (ii) New initiatives required to increase the acquisition of green procurement items;
- (iii) New initiatives required to increase environmentally friendly items;
- (iv) New initiatives to ensure requirements are stated in terms of functions to be performed, performance required or essential physical characteristics;
- (v) Any barriers to the acquisition of green procurement that remain;
- (vi) Other ways in which the agency has emphasized the acquisition of green procurement items and increased areas such as acquisition training and research;



- (3) Recommend goals and plans for increasing green procurement on a quarterly basis to the agency senior environmental procurement executive and the chief acquisition officer;
- (4) Recommend to the agency senior environmental procurement executive and the chief acquisition officer a system of personal and organizational accountability for green procurement, which may include the use of recognition and awards to motivate program managers, contracting officers, and others in authority to promote green procurement in acquisition; and
- (5) Be responsible for maintaining/establishing a Green Procurement Plan for their individual unit.



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- The Software, Hardware Asset Reuse Enterprise (SHARE) repository

Contract Management

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- Contractors in 21st-century Combat Zone
- Joint Contingency Contracting
- Model for Optimizing Contingency Contracting, Planning and Execution
- Navy Contract Writing Guide
- Past Performance in Source Selection
- Strategic Contingency Contracting
- Transforming DoD Contract Closeout
- USAF Energy Savings Performance Contracts
- USAF IT Commodity Council
- USMC Contingency Contracting

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- Acquisitions via Leasing: MPS case



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- Capital Budgeting for the DoD
- Energy Saving Contracts/DoD Mobile Assets
- Financing DoD Budget via PPPs
- Lessons from Private Sector Capital Budgeting for DoD Acquisition Budgeting Reform
- PPPs and Government Financing
- ROI of Information Warfare Systems
- Special Termination Liability in MDAPs
- Strategic Sourcing
- Transaction Cost Economics (TCE) to Improve Cost Estimates

Human Resources

- Indefinite Reenlistment
- Individual Augmentation
- Learning Management Systems
- Moral Conduct Waivers and First-term Attrition
- Retention
- The Navy's Selective Reenlistment Bonus (SRB) Management System
- Tuition Assistance

Logistics Management

- Analysis of LAV Depot Maintenance
- Army LOG MOD
- ASDS Product Support Analysis
- Cold-chain Logistics
- Contractors Supporting Military Operations
- Diffusion/Variability on Vendor Performance Evaluation
- Evolutionary Acquisition
- Lean Six Sigma to Reduce Costs and Improve Readiness
- Naval Aviation Maintenance and Process Improvement (2)
- Optimizing CIWS Lifecycle Support (LCS)



- Outsourcing the Pearl Harbor MK-48 Intermediate Maintenance Activity
- Pallet Management System
- PBL (4)
- Privatization-NOSL/NAWCI
- RFID (6)
- Risk Analysis for Performance-based Logistics
- R-TOC AEGIS Microwave Power Tubes
- Sense-and-Respond Logistics Network
- Strategic Sourcing

Program Management

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