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Effects of Navy Energy Goals on the Navy Shore Energy Programs

December 2017

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ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

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ABSTRACT

The purpose of this research project is two-fold: to explore the development and progression of the Navy's Green Procurement Program (GPP) and then to assess Navy organizations' degree of success with incorporating GPPs into their installation procurement processes. This project provides an account of the federal policies and guidance regarding green procurement and the salient parts of the Federal Acquisition Regulation (FAR), the framework through which any possible GPP policy would be set. As we surveyed the Navy installation's progress toward a more energy-efficient and resource-conscious procurement process, we measured that progress by the goals and metrics outlined in the Department of Defense's (DOD's) GPP instruction. The green procurement process was measured by integrating the Contract Management Maturity Model (CMMM), which describes a procurement agency's level of development across the six phases of the Contract Management Process (CMP) framework. The CMP divides the procurement process into six major phases: procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout or termination. While previous applications of the CMMM focused on broader aspects of buying commands, our questions and diagnosis of Navy installation organizations were specifically focused through a lens of green procurement and energy efficiency. Our results show that Department of Navy procurement personnel have only a "basic level" of contract management maturity in green procurement.

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ABOUT THE AUTHORS

Lieutenant Commander Patrick D. Amundson, Supply Corps, United States Navy, A native of Anchorage, Alaska, and graduated from Concordia College, Moorhead Minnesota, with a BA in Political Science and Psychology in 2005. He was commissioned in the Navy after attending Officer Candidate School and graduated the Navy Supply Corps School in Athens, Georgia in 2008. At sea, LCDR Amundson served on USS Carney (DDG 64) as Assistant Supply Officer, USS Nebraska (SSBN 739) as Supply Officer; USS Ohio (SSGN 726) and USS Pennsylvania (SSBN 735) as Acting Supply Officer, and USS Albuquerque (SSN 706) as her decommissioning Supply Officer.

Ashore, LCDR Amundson's tours include assignment as Deputy Site Director, NAVSUP Fleet Logistics Center Sigonella (formerly U.S. Fleet and Industrial Supply Center Sigonella) in support of NATO Operation Unified Protector and Operation Odyssey Dawn, and as Deputy Operations Officer, NAVSUP Fleet Logistics Center Sigonella Headquarters. LCDR Amundson is designated as both a Naval Submarine and Surface Warfare Supply Corps officer. His personal awards include the Navy and Marine Corps Commendation Medal (three awards), Navy and Marine Corps Achievement Medal (two awards), and Meritorious Unit Commendation, among other unit and campaign awards. LCDR Amundson is married to the former Emily Sanders of Anchorage, Alaska. They have three children and currently reside in Bremerton, Washington.

Major Edgar A. Yu, Acquisition Corps., United States Army**,** is currently pursuing a Master's in Business Administration in Acquisition & Contract Management (Curriculum 815) at Naval Postgraduate School and serves in the US Army Acquisition Branch. MAJ Yu's previous educational experience is a Business Administration degree from Ciudad Juarez Technological Institute and Master of Arts in Management degree from Webster University.

Prior to serving in the military, MAJ Yu served in a bilingual border community between the U.S. and Mexico as a Training Supervisor for Delphi Automotive PLC, an American multinational automotive parts manufacturing company.

MAJ Yu has served commendably in the Army for 21 years in diverse assignments and locations such as Panama, Korea, Germany, Iraq and Afghanistan. Notably his past duties, as a Human Resources Command Assignment Officer, allowed MAJ Yu to advise hundreds of Officers on personal and professional career decisions. His last assignment as the Logistical Director for the installation Supreme Headquarters Allied Powers Europe (SHAPE) located in Mons, Belgium, exposed him to strategic level decisions for the political headquarters of the Alliance and the permanent home of the North Atlantic Council, NATO's senior political decision-making body.

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EDGAR A. YU

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TABLE OF CONTENTS

LIST OF FIGURES

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LIST OF TABLES

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LIST OF ACRONYMS AND ABBREVIATIONS

AP	Affirmative Procurement
CAR	Contract Action Report
CPARS	Contractor Performance Assessment Reporting System
CRS	Congressional Research Service
DAU	Defense Acquisition University
DLA	Defense Logistics Agency
DOD	Department of Defense
DOE	Department of Energy
DON	Department of the Navy
DPAP	Defense Procurement and Acquisition Policy
DUSD(I&E)	Deputy Under Secretary of Defense for Installations and Environment
EA	Environmental Advocate
EMS	Environmental Management System
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act of 2005
EPP	Environmentally Preferable Purchasing
FAR	Federal Acquisition Regulation
FEMP	Federal Energy Management Program
FPDS-NG	Federal Procurement Data System–Next Generation
FY	Fiscal Year
GCPC	Government-Wide Commercial Purchase Card
GPP	Green Procurement Program
GPR	Green Procurement Reporting
IFB	Invitation for Bid

IT	Information Technology
NAVFAC	Naval Facilities Engineering Command
NAVSUP	Naval Supply Systems Command
OASD(EI&E)	Office of the Assistant Secretary of Defense for Energy, Installations, and Environment
OFEE	Office of the Federal Environmental Executive
OFPP	Office of Federal Procurement Policy
OSD	Office of the Secretary of Defense
OUSD	Office of the Under Secretary of Defense
OMB	Office of Management and Budget
RFI	Request for Information
RFQ	Request for Quotes
RFP	Request for Proposals
SECNAV	Secretary of the Navy
SOW	Statement of Work
SOO	Statement of Objectives
USC	United States Code
USDA	U.S. Department of Agriculture
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics

I. INTRODUCTION

In this initial chapter, we familiarize readers with the premise of our project and important factors driving its inception. Subsequently we present the more recent and salient statutory guidelines which have helped give shape to DOD and U.S. Navy green procurement programs. We then investigate existing models of assessing contract management programs and utilize those models in order to evaluate the impact that DOD and U.S. Navy green procurement policies have had on Navy installation buying and contracting organizations. In the last section, we make final conclusions and take-away from the assessments and make further recommendations to better-implement existing DOD green procurement policy into buying and contracting organizations.

A. BACKGROUND

All DoD acquisition workforce members are guided by the Federal Acquisition Regulation (FAR) in how to consider and in some cases give preference to a certain contract offeror or to certain products. Among these preferred products are those described in Executive Order (EO) No. 13693 (2015), *Planning for Federal Sustainability in the Next Decade*, as being "environmentally preferable." Environmentally preferable products and services are defined as those acquired products and services 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" (Executive Order No. 13693, 2015). Similarly, Part 7 of the FAR emphasizes consideration of the environmental and energy impacts of acquisition.

The U.S. federal government's "Green Product Procurement" began in earnest with Executive Order No. 12873 of October 20, 1993, which encouraged the bolstering of such programs, including the "the acquisition of recycled and environmentally preferable products by the Federal Government" and "the development of a federal implementation plan and guidance for instituting economically efficient federal waste prevention, energy and water efficiency programs, and recycling programs within each agency." (Executive Order No. 12873, 1993). Green Product Procurement (GPP) guidance is further expanded to its most recent policy and implementing instructions by Executive Order No. 13693, dated March 19, 2015, *Planning for Federal Sustainability in the Next Decade*. The goal of this executive

order to "maintain Federal leadership in sustainability and greenhouse gas emission reductions" is carried out by directing the use of "environmental performance and sustainability factors," which are "included to the maximum extent practicable for all applicable procurements in the planning, award, and execution phases of the acquisition" (Executive Order No. 13693, 2015).

Furthermore, in August 2004 the DOD issued GPP policy, guidance, and strategy that significantly broadened the focus for the use of preferential purchasing programs. That policy, which became the cornerstone of the Department of the Navy (DON) Green Procurement Program, defines *green procurement* as the "purchase of environmentally preferable products and services in accordance with federally mandated 'green' procurement preference programs" (DON, 2009, p. 1). In 2010, this GPP policy was both solidified and made more strategically centered by then-Secretary of the Navy Ray (SECNAV) Mabus in his Energy Program for Security and Independence, wherein he created energy targets and metrics for Navy shore organizations to "produce 50 percent of shore-based energy from alternative sources by 2020" (DON, 2010, p. 16). To assess the extent to which Navy installations are accomplishing these goals and to subsequently make recommendations on continued green procurement improvements, we examined the current Navy acquisitions process by surveying Navy personnel at the installation level on meeting current SECNAV green procurement goals and their associated organizational feedback.

B. OBJECTIVE OF STUDY

This objective of this study is to assess the extent to which Navy shore and installation organizations are positioned to effectively and efficiently implement Navy GPP metrics and goals. The following assessment actions help us to identify the impacts, if any, that Navy GPP policy has had on installation contracting members and organizations:

- Identify salient mandated energy and green procurement performance parameters.
- Identify the steps that DON organizations have taken to become compliant with green procurement implementation guidelines.
- Assess organizational competency and performance by utilizing the Contract Management Maturity Model (CMMM).

- Interpret data collected to provide recommendations for the commander, Navy Installations Command (CNIC) to meet SECNAV goals as defined by green procurement implementation guidelines.

C. METHODOLOGY

In this study, we conducted an analysis of the U.S. Navy Green Procurement Policy, with a methodology that includes a literature review of the DON Renewable Energy Strategy; the DON Shore Energy Program; the Navy's report, *A Navy Energy Vision for the 21st Century*; and other policy and guidance issued to DOD and Navy personnel relating to the implementation of GPP objectives and goals. We analyzed the green procurement process knowledge and awareness of DON installation personnel, and compiled identified green procurement program implementation experiences and best practices used by former and current acquisition workforce stakeholders. The responses were then assessed and compared with reviewed reports from the United States Government Accountability Office (GAO), the Congressional Research Service (CRS), and other documented sources, which have identified inadequacies with contracting culture and organizational success in implementing green procurement processes. The research data helps point to compliance issues with mandated green procurement policy in regard to mission requirements and mission success.

The procedures outlined in our research include conducting a literature review and a thorough analysis of the Federal Acquisition Regulation (FAR; 2017), the executive orders that specify energy efficiency and green procurement, and the GAO and CRS reports that further expand on effective green procurement strategies and competences, and the associated barriers with carrying out those strategies. Next, comparative analysis was made between established executive orders and the most current DOD GPP policy, with a sampled population's ability to fulfill Navy GPP objectives and goals. In the final section, we used the results from our survey, which was given to current and prior military and civilian contracting workforce personnel, and we applied the Contract Management Maturity Model (Rendon, 2007) to assess the knowledge and awareness of personnel. We took into consideration respondents' understanding of the phases of acquisition as well as the degree to which procurement personnel were satisfying the DOD's green procurement strategies, as laid out in the 2008 GPP strategy report (OUSD[AT&L], 2008a) and the DON (2009) green procurement guide, which states,

> Each organization initiating contracting/procurement actions or credit card purchases is responsible for complying with GPP purchasing mandates. Environmental and procurement offices across the Department will support organizations in meeting these mandates. (p. 1)

We created a Green Procurement Program Model (GPPM) to help identify essential gaps within the contracting processes and to determine how well organizations are positioned to accomplish Navy GPP strategy. The resulting analysis highlights possible policy, training, and competency issues for personnel and managers, and lends support to developing additional training in green procurement.

D. RESEARCH QUESTIONS

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

1. What has been the impact of statutory and regulatory targets on Navy installations, specifically those that include green energy considerations in acquisitions?
2. How successful have Navy installations been in satisfying regulatory guidance with respect to Navy GPP strategy and policy?
3. How mature are the contract management processes that Navy installation contracting organizations use to fulfill Navy GPP strategy and policy?

E. ORGANIZATION

In Chapter I, we provide the associated information pertinent to our research project, including the objectives of the study, and the organization of the research and the benefits of this research.

In Chapter II, we provide the base of understanding for our topic through a literature review. We review the available statutory policy, executive orders, and DON implementation guidance; we then discuss green purchasing FAR provisions and clauses that implement statutes or executive orders.

In Chapter III, we identify DOD and DON guidance relating to green procurement strategy, the SECNAV's energy goals, the 1 Gigawatt Task Force mission, and the overall Navy Energy mission. The objective is to provide a foundation for understanding the Navy's GPP initiatives and to measure compliance in our analysis in Chapter IV.

In Chapter IV, we narrow the scope of our research and examine DON acquisition personnel's understanding and awareness of GPP implementation guidance. We do this by linking the different domains of the DON acquisition staff—including purchasing, contracting, and program management—and then surveying their knowledge and understanding of green procurement and why it matters in their current and former environments. We then utilize the CMMM (Rendon, 2007) to create a GPPM model that can help explain the practicability and consciousness of mandated energy efficiency policy in Navy shore acquisitions.

In Chapter V, we conclude our research by providing findings and recommendations, including a summary, conclusion, and recommendations for further research.

F. SUMMARY

In this chapter, we provided the background and contextual foundations for our research. The Background section introduced the objectives of the study while the research questions framed that research into the foundational questions we seek to answer. The Organization and final section explained how our research is laid out and presented for use by managers and organizations, and articulates the potential impacts that such research has on improving the ability of those organizations to fulfill DOD and DON GPP policy. In the next chapter, we provide acquisition and environmental-related definitions and a literature review of the DOD- and DON-established environmental policies and guidance.

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II. LITERATURE REVIEW

In this chapter, we conduct a thorough analysis of the comparable DOD literature, executive orders specific to energy efficiency and green procurement, the Federal Acquisition Regulation (FAR; 2017), and Government Accountability Office (GAO) and Congressional Research Service (CRS) reports that further expand on strategies, competences, and ,more saliently, on barriers and issues in the green procurement contracting process. The selected areas of literature highlight the established statutory requirements and related goals set forth by the SECNAV.

A. DEFINITIONS

In this section, we provide key vocabulary terms and definitions that are used in the *DON Green Procurement Program Implementation Guide* (DON, 2009) and in the following chapters of this report.

- Acquisition—the acquiring of supplies and services including construction, using appropriated funds, 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, 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, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract. (DON, 2009, p. 51)

- Activity/Installation—any Federal facility or organization that is formally accountable for compliance under environmental regulation or conducts activities that can have a significant impact on the environment, either directly or indirectly, individually or cumulatively, due to the operations of that facility's or organization's mission, processes or functions. (DON, 2009, p. 51)

- Affirmative Procurement—assuring CPG items composed of recovered materials (EPA-designated items) will be purchased to the maximum extent practicable, consistent with Federal law and procurement regulations. (DON, 2009, p. 51)

- Agency or Executive Agency—as defined in section 105 of title 5, United States Code (U.S.C.), excluding the Government Accountability Office. Military departments, as defined in section 102 of title 5, U.S.C. 102, are covered under the auspices of the DOD. (DON, 2009, p. 51)

- Certification—provided by offerors/bidders/vendors, written documentation certifying the percentage of recovered materials contained in products or to be used in the performance of the contract is at least the amount required by applicable specifications or other contractual requirements. (DON, 2009, p. 51)

- Components of the Federal Green Procurement Program

    - Recovered materials (Affirmative Procurement),
    - Energy efficient (FEMP, Energy Star, EPEAT),
    - Alternative fuels/AFVs,
    - Biobased Products,
    - Non-Ozone Depleting Substances, and
    - Environmentally Preferable Products.

  (DON, 2009, p. 51)

- Comprehensive Procurement Guidelines—regulations issued by EPA pursuant to section 6002 of RCRA:

    - Identifying items produced (or can be produced) with recovered materials and where procurement of such items will advance the objectives of RCRA; and
    - Providing recommended practices for the procurement of such items. (DON, 2009, p. 52)

- Energy Efficient—measures, practices, or programs that reduce the energy used by specific devices and systems, typically without affecting the services provided. Such savings are generally achieved by substituting technically more advanced equipment or operating procedures to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less energy input. (DON, 2009, p. 52)

- "Energy performance—the degree to which the DOD achieves missions, functions, or goals for the amount of energy consumed." (DOD, 2014).

- Energy Savings Performance Contracts (ESPCs), also known as Energy Performance Contracts—an alternative financing mechanism authorized by the United States Congress designed to accelerate investment in cost effective energy conservation measures in existing Federal buildings. (Energy Savings Contracts and Activities, 2008)

- Environmental Management System (EMS)—a set of processes and practices that enable an organization to increase its operating efficiency, continually improve overall environmental performance and better manage and reduce its environmental impacts, including those environmental aspects related to energy and transportation functions. EMS implementation reflects accepted quality management principles based on the "Plan, Do, Check, Act" model found in the ISO 14001:2004(E) International Standard and using a standard

process to identify and prioritize current activities, establish goals, implement plans to meet the goals, evaluate progress, and make improvements to ensure continual improvement. (DON, 2009, p. 52)

- Environmentally Preferable—products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, product, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service. (DON, 2009, p. 52)

- EPA-Designated Item—an item designated by the EPA in a Comprehensive Procurement Guideline and for which EPA recommended procurement practices, including recovered materials content levels, in a Recovered Materials Advisory Notice. (DON, 2009, p. 52)

- Green Procurement—purchase of products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution reuse, operation, maintenance or disposal of the product or service. Green Procurement is also known as Affirmative Procurement or Environmentally Preferable Procurement. (DON, 2009, p. 52)

- Green Products/Services—products and services meeting the requirements of one or more of the components of Federal green procurement preference programs: RCRA Section 6002; EO 13423, (including traditional Affirmative Procurement and Environmentally Preferable Products); Electronic Stewardship requirements; the Buy-Bio requirements of the 2002 Farm Bill (Public Law 107–171); and any Federal procurement preference programs implemented after the date of this document. (DON, 2009, p. 52)

- Installation—"a grouping of facilities, located in the same vicinity, which support particular functions. Installations may be elements of a base" (Joint Chiefs of Staff, 2010, p. 232).

- Life-Cycle Cost—Means the sum of the present values of investment costs, capital costs, installation costs, energy costs, operating costs, maintenance. (DON, 2009, p. 52)

- Navy Shore Energy (Shore Energy and Tactical Energy Management While Ashore)—"congressionally reportable facilities and vehicle energy consumption on permanent installations" (Office of the Chief of Naval Operations, 2012).

- Net-Zero Installations—an installation, which over the course of a fiscal year, matches or exceeds the electrical energy it consumes ashore with electrical energy generated from alternative or renewable energy sources. The

alternative energy may be: (1) generated and consumed on the installation; (2) generated off of the installation but directly transmitted to and consumed on the installation; or (3) generated on the installation and sold into the utility grid. (Office of the Chief of Naval Operations, 2012)

- Practicable—capable of performing in accordance with applicable specifications, available at a reasonable price and within a reasonable period of time, while maintaining a satisfactory level of competition with other products is being maintained. (DOD, 2006)

- 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. (DOD, 2006)

- Renewable Energy—energy produced by solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project. (Executive Order No. 13693)

- Specification—a clear and accurate description of the technical requirements for materials, products, or services including the minimum requirement for materials' quality and construction and any equipment necessary for an acceptable product. In general, specifications are in the form of written descriptions, drawings, prints, commercial designations, industry standards, and other descriptive references. (DOD, 2006)

- Sustainable—of or pertaining to creating and maintaining 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. (DON, 2009, Appendix)

B. DOD RESEARCH, STATUTORY POLICY, AND GUIDANCE

This section discusses the comparable DOD research, principal statutory and legal policies, and executive orders that give statutory guidance establishing green procurement and directing the DON to meet energy requirements and goals.

1. DOD Research

Scholarly work analyzing the ability of defense organizations to effectively and efficiently conduct procurement operations has helped build upon a growing body of knowledge that DOD contracting and purchasing agencies are utilizing to improve their organizations, processes, and abilities.

In 2005, Dr. Rene Rendon of the Naval Postgraduate School (NPS) introduced a developed process by which to assess federal contract management capability within various defense agencies and commands by utilizing the Contract Management Maturity Model (CMMM; Rendon, 2003). The CMMM paradigm was originally developed to assess the organizational contract management process capabilities of the DOD and defense contractors. For the purposes of this study, the CMMM brought two salient applications from the assessment: the model assessed agencies using five discernable ratings of development, or maturity, that were clearly defined and characterized, and it sorted those ratings across the six major phases of the contracting process (Garrett & Rendon, 2005). Because contracting is an executive function, agencies could diagnose the strength and maturity issues of their respective contracting departments through each of the individual phases of contracting. They could also look holistically at whether their organization was internally set up to succeed across the entire contracting spectrum. Since its inception, the CMMM has been applied at various Army (Rendon, 2011), Navy (Graham, Wallace, & Lewis, 2010), and defense contractor organizations (Puma & Scherr, 2009), and has also been used to analyze and diagnose specific traits and abilities of those respective contracting shops, including ethics, mentorship, and overall contracting competencies (Anglin & Good, 2009).

An NPS thesis project carried out by DeLancy, Harris, and Ramsey (2011) assessed the ability of operational contracting organizations to successfully accomplish green acquisition goals. Their assessment of Air Force organizational capability in achieving green procurement goals was made by taking the Yoder Three-Tier model for optimal planning and execution of contingency contracting (Yoder, 2004), and applying that framework and the metrics to grade an organization's personnel, platforms, and protocol across the six major phases of contracting. Although they did not utilize the CMMM to assess or diagnose their contracting organizations, the researchers' focus on green energy procurement coupled with the questions posed in their respondent surveys were useful in establishing the level of organizational competency and ability of their organizations to accomplish Air Force and DOD green acquisition policy.

2. Executive Orders

Executive orders are directives or actions made by the president that have a direct impact on federal agencies and the service branches. They are orders generally directed to, and intended to govern actions by, government officials and agencies. Over the last 15 years, the volume of executive orders pertaining to environmental practices grew with the government's and the public's growing interest in energy conservation. Further EO's then subsequently became more refined into the newest iteration of environmental executive orders, which is discussed next.

a. Executive Order No. 13693 (2015)

Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*, was signed by President Obama on March 19, 2015. Its goal is to maintain federal leadership in sustainability and greenhouse gas emission reductions; Section 16 of the EO revokes the following:

- Executive Order 13423 of January 24, 2007;
- Executive Order 13514 of October 5, 2009;
- Presidential Memorandum of December 2, 2011 (Implementation of Energy Savings Projects and Performance-Based Contracting for Energy Savings);
- Section 1 of Presidential Memorandum of February 21, 2012 (Driving Innovation and Creating Jobs in Rural America through Biobased and Sustainable Product Procurement); and
- Presidential Memorandum of December 5, 2013 (Federal Leadership on Energy Management); and
- Presidential Memorandum of May 24, 2011 (Federal Fleet Performance). (Executive Order No. 13693, 2015, p. 15881).

The resultant Executive Order 13693 directs federal agencies, when life-cycle cost-effective, to promote building energy conservation, efficiency, and management. Starting in fiscal year (FY) 2016, federal agencies would reduce their agency infrastructure energy consumption by 2.5 percent annually through the end of FY 2025, "relative to the baseline of the agency's building energy use in fiscal year 2015 and taking into account agency progress

to date" (Executive Order No. 13693, §3(a)(1)). The order further directs federal agencies as follows:

> Improve data center energy efficiency at agency facilities by:
>
> - Ensuring the agency chief information officer promotes data center energy optimization, efficiency, and performance;
> - Installing and monitoring advanced energy meters in all data centers by fiscal year 2018; and establishing a power usage effectiveness target of 1.2 to 1.4 for new data centers and less than 1.5 for existing data centers.
> - Federal Agencies shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified, ensure that at a minimum, the following percentage of the total amount of building electric energy and thermal energy shall be clean energy, accounted for by renewable electric energy and alternative energy:
> - Not less than 10 percent in fiscal years 2016 and 2017;
> - Not less than 13 percent in fiscal years 2018 and 2019;
> - Not less than 16 percent in fiscal years 2020 and 2021;
> - Not less than 20 percent in fiscal years 2022 and 2023; and
> - Not less than 25 percent by fiscal year 2025 and each year thereafter.
> - Federal Agencies shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified, improve agency water use efficiency and management, to include storm-water management by:
> - Reducing agency potable water consumption intensity measured in gallons per gross square foot by 36 percent by fiscal year 2025 through reductions of 2 percent annually through fiscal year 2025 relative to a baseline of the agency's water consumption in fiscal year 2007
> - Installing water meters and collecting and utilizing building and facility water balance data to improve water conservation and management;
> - Reducing agency industrial, landscaping, and agricultural (ILA) water consumption measured in gallons by 2 percent annually through fiscal year 2025 relative to a baseline of the agency's ILA water consumption in fiscal year 2010;
> - Installing appropriate green infrastructure features on federally owned property to help with stormwater and wastewater management.

- If an agency operates a fleet of at least 20 motor vehicles, they will improve agency fleet and vehicle efficiency and management by taking actions that reduce fleet-wide per-mile greenhouse gas emissions from agency fleet vehicles, relative to a baseline of emissions in fiscal year 2014, to achieve the following percentage reductions:
    - Less than 4 percent by the end of fiscal year 2017;
    - Not less than 15 percent by the end of fiscal year 2021; and
    - Not less than 30 percent by the end of fiscal year 2025. (Executive Order No. 13693, 2015, p. 15872)

3. Energy Policy Act of 2005

The Energy Policy Act (EPA) of 2005 addresses energy production in the United States, and pertinent to this research, it requires federal agencies to be energy efficient and to maximize the use of renewable energy. Most saliently to this research, the act sets the following targets:

- By 01 October 2012, all federal buildings shall, for the purposes of efficient use of energy and reduction in the cost of electricity used in such buildings, be metered.
- Renewable energy purchase requirement:
    - $\geq$ 3 percent for FY2007-FY2009,
    - $\geq$ 5 percent for FY2010-FY2012,
    - $\geq$ 7.5 percent for FY2013 and each fiscal year thereafter.

    (Energy Policy Act of 2005 p. 652)

4. DOD Directive Number 4180.01 (2014)

The genesis of DOD Directive (DODD) 4180.01 (DOD, 2014) was to address DOD national energy security, and to assign responsibilities for energy planning, use, and management for DOD agencies. Among other things, its purpose was to mitigate costs associated with the use and management of energy and to direct the improvement of the energy performance of DOD installations and military forces. Of the six major directed actions by the Office of the Secretary of Defense, there are three that we focus on in this research:

1. Diversify and expand energy supplies and sources, including renewable energy sources and alternative fuels,

2. Ensure that energy analyses are included in DOD requirements, acquisition, and planning, programming, budgeting, and execution (PPBE) processes, and

3. Educate and train personnel in valuing energy as a mission essential resource. (DOD, 2014, pp.1–2)

The implications from this directive are also numerous; however, we look specifically at three items that would impact Navy installation and procurement planning, the first of which is that the subsequent procurement guidance and doctrine created by the service secretaries must be consistent with this energy guidance. The second impact of DODD 4180.01 on procurement planning is that installations must "improve energy performance and mission effectiveness; [be] cost effective; and as appropriate, [be] capable of using multiple energy sources" (DOD, 2014, p. 5). Third, energy considerations and performance incentives now have to be considered in contracts and operational contract support. This third factor is integral in assessing federal agency contracting competency when we are measuring the achievement of green energy and efficiency goals.

5. SECNAV Instruction 4101.3A

SECNAV Instruction (SECNAVINST) 4101.3A establishes and implements the Navy's most current iteration energy program policy to date (Office of the SECNAV, 2017). It cancels SECNAVINST 4100.9A and assigns responsibility for the administration of the energy program and its associated and proper procurement actions to DON management across six major areas emphasizing and treating energy as a strategic resource. From these areas, several cogent implications can be drawn:

1. DON leadership will focus on increasing "the reliability, resiliency, and efficiency of [its] installations to mitigate vulnerabilities related to energy supply and ensure energy security" (Office of the SECNAV, 2017, p. 2) when it comes to the management of installation energy and resources. In that focus, DON personnel should specifically look at diversifying energy sources, "including the use of distributed energy resources; maximize energy efficiency; and consider all options to meet mobility and electric distribution planning requirements" (Office of the SECNAV, 2017, p. 2).

2. In fulfilling these goals through installation acquisition, DON managers will include "evaluation of energy performance in procurement actions" and by

integrating "energy reliability, resilience, and efficiency into facility and utility system design for new construction, repair, and modernization projects" (Office of the SECNAV, 2017, p. 2).

3. Installation leadership should look to "strategic partnerships" (Office of the SECNAV, 2017, p. 2), which are the result of ongoing collaborations and partnerships with government and non-government organizations at local, state, and federal levels to better understand alternate approaches to address energy and resource allocation and conservation. These partnerships will help address challenges and shortfalls that the DON could experience with satisfying energy policies.

4. DON leadership is charged with the education and training of their personnel on energy programs and goals, along with how to utilize the data-driven management and oversight of those programs. Military and civilian personnel should be trained on the use of those data, including "collection, aggregation, and analytics to develop business decision tools, optimize energy decisions, improve management, and inform future investment in DON assets and programs" (Office of the SECNAV, 2017, p. 3).

6. OPNAV Instruction 4100.5E

The Office of the Chief of Naval Operations issued Energy Instruction 4100.5E, *Shore Energy Management*, on June 22, 2012, which set forth an aggressive and systemic energy consumption reduction strategy at all Navy installations. The energy-reduction strategy's implications for acquisitions are two-fold:

1. The strategy reiterates that procurement of renewable energy will be in accordance with Public Law 111-84, Executive Order 13423, and Public Law 109–58 (Sec. 2843). Public Law 111–84 is better known as the National Defense Authorization Act for Fiscal Year 2010, which states that energy procurement and resource considerations will be aligned with existing DOD renewable energy goals and will be made with sources that meet facility energy needs. EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, was revoked by and replaced by EO 13693, as previously discussed. Public Law 109–58, from August 8, 2005, is better known as the Energy Policy Act of 2005, which further elaborates on federal procurement of energy-efficient products, specifically Energy Star products and other items rated for energy efficiency.

2. The strategy specifies that business decision models should be followed in energy reduction acquisitions, specifically, that the selection process for partnerships and acquisition-level constraints should be considered in the acquisitions process.

The strategy is designed to achieve, in the most cost-effective manner, the legal compliance for shore energy and sustainability as well as the following shore energy and sustainability goals listed in OPNAVINST 4100.SE June 2012:

a. A 30 percent facility energy intensity reduction by 2015

b. A fossil fuel consumption reduction and an increase in the use of alternative fuels by the Navy's non-tactical vehicle (NTV) fleet. (As stated by OPNAVINST 4100.SE June 2012, "To the maximum extent possible, NTVs powered by alternative fuels shall be cost-effective over their life cycle when compared to NTVs powered by fossil fuels" [p. 2].)

c. An increase in water efficiency of shore infrastructure

d. Fifty percent ashore consumption reduction by 2020

e. Fifty percent total ashore energy from alternative sources by 2020

f. Fifty percent of installations net-zero consumers by 2020

g. Fifty percent reduction in petroleum used in the commercial vehicle fleet by 2015

Here we note that the "cost-effective" measures used to achieve these goals can largely be considered a product of how well the acquisition strategy was performed by the installation organization.

7. Relevant Federal Acquisition Regulation (FAR) Parts

The Federal Acquisition Regulations System is established for the codification and publication of uniform policies and procedures for acquisition by all executive agencies. The Federal Acquisition Regulations System consists of the Federal Acquisition Regulation (FAR), which is the primary document of the system, and agency acquisition regulations that implement or supplement the FAR.

a. FAR Part 7: Acquisition Planning

In this section we provide a brief definition and legal scope of the FAR Part 7 that arranges for federal agency responsibilities in the acquisition planning systems.

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 Executive Orders

(2) Comply with statutory policy regarding procurement of: bio-based products, products containing recovered materials, environmentally preferable products and services, 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 Contents of Written Acquisition Plans

(b) Plan of action—

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

b. FAR Part 23

FAR Part 23 prescribes acquisition policies and procedures for protecting and improving the quality of the environment, and for fostering markets for sustainable technologies, materials, products, and services. The following is an excerpt from FAR Part 23:

(1) Subpart 23.1—Sustainable Acquisitions Policy.

(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.

(2) Subpart 23.2—Energy and Water Efficiency and Renewable Energy

(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. (FAR Part 23, 2016)

8. Reports

Government documents and reports contain useful information that can explain executive policy, compliance with orders and directives as well as provide statistical data to illustrate strengths and weakness identified within the report.

a. *Congressional Research Service Report:* Identifying Incentives and Barriers to Federal Agencies Achieving Energy Efficiency and Greenhouse Gas Reduction Targets

The 2010 CRS report, *Identifying Incentives and Barriers to Federal Agencies Achieving Energy Efficiency and Greenhouse Gas Reduction Targets*, explains that through Energy Savings Performance Contracts (ESPCs), federal agencies may use an energy service company (ESCO) to accomplish energy-efficiency improvement projects without incurring up-front capital cost or requiring special appropriations; however, the lack of federal rules delays implementation opportunities for energy efficiency goals, and greenhouse gas reduction targets in the future may come through smaller, more difficult-to-achieve reductions in energy consumption based on high-tech solutions.

b. *Department of Defense Office of Inspector General Report 2017-044:* Naval Facilities Engineering Command Management of Energy Savings Performance Contracts Needs Improvement

As outlined in DOD Office of the Inspector General (DODIG; 2017) Report 2017–044, the objective of this IG report is to determine whether the DON has been effectively managing energy savings performance contracts. The DODIG found that Naval Facilities Engineering Command (NAVFAC) officials did not effectively manage all 38 ongoing performance-phase energy savings performance contracts, valued at $1.55 billion. Specifically, NAVFAC officials did not appoint contracting officer's representatives for 31 of the ongoing performance-phase energy savings performance contracts and did not develop a quality assurance surveillance plan for any of the 38 ongoing performance-phase energy savings contracts. As of August 1, 2016, NAVFAC officials had reduced the number of ongoing energy savings performance contracts without an appointed contracting officer's representative from 31 to six and had developed a quality assurance surveillance plan for all 38 ongoing contracts. NAVFAC officials may not know whether the 38 ongoing contracts are fully compliant with FAR, DOD, and NAVFAC guidance. (DODIG; 2017)

c. *Government Accountability Office Report (GAO-17-461):* Additional Data and Guidance Needed for Alternatively Financed Energy Projects

GAO (2017), *Additional Data and Guidance Needed for Alternatively Financed Energy Projects*, explains that the DOD has used alternative financing arrangements for hundreds of energy projects to improve energy efficiency, save money, and meet energy goals; however, the military services have not collected and provided the DOD with complete and accurate data to aid DOD and congressional oversight of alternatively financed energy projects. GAO-17-461 report seeks to

1. Evaluate the military services' use of alternative financing arrangements since 2005 and data collected and provided to DOD on those projects.
2. Assess reported project savings and verification of reported performance.
3. Describe benefits and disadvantages and potential other costs of using alternative financing rather than up-front appropriations. (GAO-17-461, 2017)

The GAO (2017) report found that since 2005, the DOD has awarded 464 contracts for alternatively financed energy projects. The GAO was unable to identify, and the military

services could not provide, total contract costs for 196 of the 446 alternatively financed energy projects since 2005. While DOD guidance requires the military services to track and store data related to energy projects, the military services have not collected complete and accurate data or consistently provided the data to the military department or DOD headquarters level on an annual basis to aid DOD oversight and to inform Congress.

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III. DEPARTMENT OF NAVY GREEN PROCUREMENT PROGRAM IMPLEMENTATION

In this chapter, we provide a contextual summary of the DOD Green Procurement Program policy and discuss its application to all service agencies for direct implementation to achieve an efficient sustainable acquisition strategy. This chapter also expands on the DON Energy vision and the goals that directly address the procurement of green sustainable energy efficiency.

A. PURPOSE OF DOD GREEN PROCUREMENT

Green procurement was set by the DOD's Green Procurement Program (GPP) strategy of FY 2004; however, the updated governing policy was issued by then Under Secretary of Defense for Acquisition, Technology, and Logistics, Honorable John J. Young, Jr., in the updated *Green Procurement Program (GPP) Strategy* memorandum of Dec 2, 2008 (OUSD[AT&L], 2008b). This policy grants the exercising power for implementing the GPP program across all DOD component services with the purpose of

> Enhancing and sustaining mission readiness through cost effective acquisition that achieves compliance and reduces resource consumption and solid and hazardous waste generation. Green procurement includes the acquisition of:
>
> - Recycled content products
> - Environmentally preferable products and services,
> - Bio based products, energy- and water-efficient products,
> - Alternate fuel vehicles and alternative fuels,
> - Products using renewable energy, and
> - Alternatives to hazardous or toxic chemicals.
>
> (OUSD[AT&L], 2008a, p. 5)

1. Green Procurement Program Objectives

With a clear of understanding of GPP, the next step is to understand which objectives are relevant and appropriate for the DOD service components to achieve. Again, we look at

the established guidance set by the DOD GPP Strategy (OUSD[AT&L], 2008a), which states that the Green Procurement Program objectives are as follows:

- Educate appropriate DOD employees on the requirements of Federal "green" procurement preference programs, 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 in 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.
- Expand markets for green products and services.

  (OUSD[AT&L], 2008a, p. 6)

2. DoD Requirements for Green Procurement Management

This section of the DOD green procurement policy is also mandated by the established guidance set by DOD GPP Strategy (OUSD[AT&L], 2008a), which states the minimum requirements within the framework for all DOD service agencies, which are succinctly described

a. Policy

"Establishing policies that will meet the set forth requirements, objectives, and are appropriate to the organization/installation that is conducting the procurement activities." (OUSD[AT&L], 2008a, p. 10).

b. Planning

"Establish and document a process that institutes a GPP preference program and will meet or exceed the requirements in accordance with law, regulations, and executive orders" (OUSD[AT&L], 2008a, p.10).

c. Implementation and Operation

This step ensures that all "GPP roles and responsibilities are identified and that proper training is tailored to the nature and quantity of purchases made by the organization." Accordingly, it calls for an "implementation of a communication program that educates all government personnel and contractors about GPP compliance, the documentation requirements, and the appropriate operational controls" (OUSD[AT&L], 2008a, p. 12).

d. Checking and Corrective Actions

All GPP programs must have a "process for evaluating and reporting performance that complies with installation- and DOD-level objectives and targets." "Ensure the use of DOD data tracking and audit systems, develop measurement tools that meet local missions and goals, and help achieve self-assessments to address deficiencies. Develop corrective actions procedures to include evaluation of effectiveness of implementation actions" (OUSD[AT&L], 2008a, p. 13).

e. Management Review

Establish an "annual comprehensive review by organizations senior management at each level of the department. The aim is to ensure suitability, effectiveness, and continual improvement of the GPP program" (OUSD[AT&L], 2008a, p. 14)

3. DOD Green Procurement Metrics

All employees who perform procurement and acquisition functions for the OSD and its subordinate components must observe the following DOD Green procurement metrics:

1. Accurately completing the Codes in the Contract Action Report (or successor data capture report), using data from the Federal Procurement Data System-Next Generation (or successor system).

2. Purchases of Federally-defined indicator items as determined using data from Defense Logistics Agency's Green Procurement Reporting/Environmental Reporting Logistics System at Defense Logistics Information Service (DLIS).

3. Personnel trained in green procurement using data from the Defense Acquisition University's training information database.

4. Number of negative contract audit findings that indicate lack of compliance with GPP requirement. (OUSD[AT&L], 2008a, p. 26)

A fifth metric was to measure organizations participating in the Federal Electronics Challenge (FEC). This partnership program ended in August 2013 but is still providing technical information to federal procurement and acquisitions personnel (Environmental Protection Agency [EPA], 2017).

B. NAVY ENERGY PROGRAM

1. Navy Energy Goals

Secretary Mabus (SECNAV) set forth five energy goals for the DON to use toward its energy efficiency and energy conservation on installations and in operational forces efforts. This strategy stresses that the DON must improve operational effectiveness and increase energy security and to advance energy independence. Among these goals is a commitment to reform requirements-setting, acquisition, and contracting processes to incorporate energy performance criteria into decisions for new systems (Office of the SECNAV, 2009).

The following are the SECNAV (2009) energy goals:

- Increase Alternative Energy Use DON-Wide: By 2020, 50 percent of total energy consumption will come from alternative sources.
- Increase Alternative Energy Ashore: By 2020, the DON will produce at least 50 percent of shore-based energy requirements from alternative sources; 50 percent of Navy and Marine Corps installations will be net-zero.
- Sail the Great Green Fleet: The DON will demonstrate a Green Strike Group in local operations by 2012 and sail it by 2016.
- Reduce Non-Tactical Petroleum Use: By 2015, the DON will reduce petroleum use in the commercial fleet by 50 percent.
- Energy Efficient Acquisition: Evaluation of energy factors will be mandatory when awarding DON contracts for systems and buildings.

2. Navy Energy Strategy

The Navy's energy strategy is to remain the world's leading maritime power with an overall plan of action or policy designed to achieve energy security, efficiency, and sustainability (Office of the SECNAV, 2009).

The following are the SECNAV energy goals:

- Maintain Presence—Energy efficient operations and diverse energy supplies strengthen DON ability to provide the presence necessary to ensure stability, deter potential adversaries, and provide options in times of crisis.
- Provide Strategic Flexibility—Diversifying energy sources helps shield the DON from volatile energy prices and/or supplies and arms us with operational flexibility.
- Boost Combat Capability—Optimizing energy use is a force multiplier that can increase range, endurance, and payload, and is essential for the effective deployment of next-generation weapons including the directed energy weapons and the rail gun.
- Protect Sailors and Marines—Using energy efficiently takes fuel convoys off the road and reduces the amount of time ships are tied to oilers at sea, saving lives, time, and money.
- Ensure Mission Success—Shore installations play a critical role in promoting readiness and generating the force structure necessary for mission success. Improving energy efficiency and increasing the use of alternative energy promotes more secure and resilient installation operations.
- Promote Sustainability—Increasing the use of environmentally responsible technologies afloat and ashore reduces greenhouse gas emissions and lessens dependence on fossil fuels, creating a sustainable model for national defense.

  (Office of the SECNAV, 2009)

3. Navy Metrics

SECNAVINST 4101.3 establishes that the

> DON will approach the development and application of energy policy and development and use of energy metrics in a comprehensive manner which seeks consistent application across the DON. Metrics will be reviewed not less than biannually to ensure value and appropriateness of measures and analysis. (Office of the SECNAV, 2012)

In order to provide descriptive metric information and fiscal year estimates, the Office of Assistance Secretary of Defense (Energy, Installations, and Environment) produces an annual report that separates all DOD services into energy management programs. This report, titled the *2015 Annual Energy Management Report* (AEMR), details each branch of service of the DOD in its corresponding fiscal year and compares the projected goal with accomplished yearly goals.

Overall, the DOD and DON have fallen short of meeting their proposed goals and evaluated performance objectives (see Figure 1).

Goals & Objectives	Metric	Component	FY15	Goal (FY15)
Reduce Facility Energy Intensity Relative To FY03 Baseline (EISA 2007)	British Thermal Unit (Btu) of energy consumed per gross square foot of facility space.	DoD	-19.9%	-30%
		USAF	-24.3%	
		Army	-18.0%	
		Navy	-21.5%	
		USMC	-20.2%	
Consume More Electric Energy From Renewable Sources (EPACT 2005)	Total renewable electricity consumption as a percentage of total facility electricity consumption.	DoD	3.6%	7.5%
		USAF	6.2%	
		Army	1.8%	
		Navy	1.9%	
		USMC	9.5%	
Produce Or Procure More Energy From Renewable Sources (10 U.S.C. §2911e)	Total renewable enegy (electric & non-electric) produced or consumed as a percentage of total facility energy consumption.	DoD	12.4%	25% by 2025
		USAF	6.9%	
		Army	12.0%	
		Navy	25.9%	
		USMC	5.0%	
Reduce Potable Water Intensity Relative To FY07 Baseline (EO 13423)	Gallons of water used per square foot of facility space.	DoD	-22.3%	-16%
		USAF	-23.4%	
		Army	-26.5%	
		Navy	-12.2%	
		USMC	-31.1%	
Reduce Petroleum Consumption In Non-Tactical Vehicles Relative To FY05 Baseline (EISA 2007, EO 13514)	Gallons of gasoline equivalent of petroleum fuel consumed.	DoD	-33.6%	-20%
		USAF	-14.7%	
		Army	-41.1%	
		Navy	-25.1%	
		USMC	-42.9%	

Figure 1. Fiscal Year 2015 Progress toward Installation Energy and Water Goals. Source: OASD(EI&E) (2016).

C. ACQUISITION POLICY FOR NAVY GPP

On February 5, 2009, Assistant Secretary of the Navy for Installations and Environment B. J. Penn and Assistant Secretary of the Navy for Research, Development, and Acquisition Sean J. Stackley signed the *DON Green Procurement Program Implementation Guide* (DON, 2009). The intent was to formalize and direct all Navy activities and installations to procure green products such as energy-efficient, bio-based products, non-ozone depleting substances, and so forth. The publication also made all DON personnel responsible for executing and understanding GPP policy (DON, 2009).

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IV. ASSESSMENT OF NAVY SHORE GREEN PROCUREMENT

In this chapter, we investigate Navy GPP and assess both the Navy shore procurement process and the organizational contract management capability by utilizing two recognized models. The first model used is the Contract Management Process (Rendon, 2007), which helps to define and distinguish the six major phases of the acquisition process. The second is the Contract Management Maturity Model (CMMM), which uses the phases defined by the Contract Management Process by assessing the acquisition processes of organizations through each phase. The CMMM serves as a tool that helps to assess and measure process and organizational gaps by ranking the maturity of those processes in each phase of acquisition. Organizational leadership can then realize improvement opportunities from the assessments, and can make deliberate steps to add efficiency to their organizational procedures and improve critical core procurement processes. The CMMM also aids in identifying shortfalls in organizational competencies and subsequently improve knowledge-sharing opportunities for improving organizations' mission success—in this case, through effective contract management. We use these two models to help determine how Navy GPP has influenced Navy installation organizations, and whether Navy GPP has been effectively implemented in those organizations.

A. MODELS

In this section, we define the two models and frameworks through which we assess the impact of Navy GPP on Navy shore activities and the progress those organizations have made to integrate those policies into their organizations. The framework of the Contract Management Process and CMMM and their various components are defined, and we explain how we fit GPP process maturity into each of the phases of the acquisition process. We chose the Contract Management Process because it clearly distinguishes and lays out the entire span of the acquisition life cycle. Capability models that measure maturity have been utilized by other organizations to assess their varying levels of process capability, and those models have traditionally defined *capability* as "the inherent ability of a process to produce planned results" (Ahern, Clouse, & Turner, 2001 p.4) and defined *maturity* as "a measure of effectiveness in any specific process" (Dinsmore, 1998, p. 169). The CMMM can be scaled

and tuned to effectively diagnose the maturity of an organization's contract and buying processes in any capacity (e.g., ethics, potential for fraud, mentoring, etc.). Because those varying degrees of maturity are then seen through the lens of all the phases of the Contract Management Process, we selected the CMMM as the most advantageous way to assess the impact of GPP on those organizations.

1. The Contract Management Process

The six-phase Contract Management Process model was first developed and introduced by Dr. Rene Rendon (Rendon, 2003) of the Naval Postgraduate School. The phases encompass the entire life cycle of the acquisition process, and the model was a departure from the way that many contracting organizations characterized existing government acquisition, as occurring in two major steps: pre-award and post-award. Now, contracting procedures are divided up into six phases: procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout (Rendon, 2007). The roles and relationships of end-users, stakeholders, and contracting offices have likewise changed, based on which of the six phases the acquisition is in. Regardless of the phase, each phase "provides critical planning, execution, and control of the overall contracting process, and is integral to the success of the resultant contract and contractor" (Rendon, 2007, p.1). Rendon initially published this framework in a 2003 doctoral dissertation titled *A Systematic Approach to Assessing Organizational Contract Management Maturity*, and later applied the model in his 2005 book, *Contract Management: Organizational Assessment Tools*, which he co-authored with Gregory A. Garrett. The phases are adapted and expanded upon in Figure 2 and the following description taken from (Garrett & Rendon, 2005).

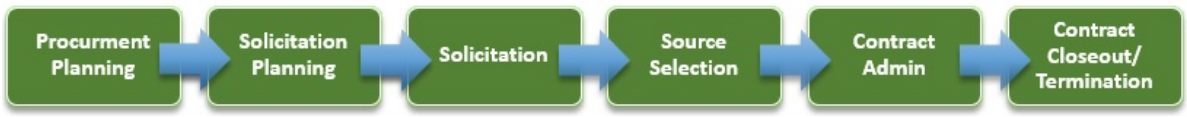


Figure 2. The Six Phases of the Contract Management Process. Source: Garret and Rendon (2005).

Procurement Planning: This initial phase concerns itself with "identifying which business needs can best be met by procuring products or services from outside the organization" (Garrett & Rendon, 2005). This initial process involves making a series of make or buy decisions, the source of the procurement, and the timeline in which to complete the contract. The supply or service to be procured is normally defined by a major stakeholder, usually an end-user; however, the final requirements can be crafted by an integrated team of financial, technical, and marketing specialists, based on the technical complexities of the supply or service.

Solicitation Planning: While contracting personnel are not responsible for the determination of procurement requirements during the procurement planning phase of the acquisition, it is crucial that they stay engaged with end-users and those who are defining the requirements desired, to ensure that the type of contract and methods used to acquire the desired product or service are effective. The solicitation planning phase also includes the following activities:

- Selecting the appropriate contract type;
- Preparing the documents needed to support the solicitation.
- Documenting program requirements and identifying potential sources.
- 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 verses best value);
- Structuring contract terms and conditions; and
- Finalizing solicitation work breakdown structures (WBS), statements of work (SOW), or product or service descriptions. (Garrett & Rendon, 2005)

> The use of cross-functional teams is seen as a best practice during this phase in the development of solicitations and identifying contract risks. The use of statements of objectives (SOO) and performance-based statements of work (SOW) are also considered best practices. (Rendon, 2007, p.2).

Solicitation: The solicitation phase is the process of obtaining bids and proposals (information) from prospective sellers on how they can meet project needs. Based on the

information gleaned from market research and information from industry, advertising is conducted on the procurement opportunity for interested suppliers to bid on through formal channels.

Source Selection: The source selection phase is the process of grading or assessing potential offerors using evaluation criteria, and formally awarding the contract. This process can be as simple as buying the product or service with a government credit card using the lowest price technically acceptable, or more complex for contracts requiring negotiations and independent cost estimates with sellers.

Contract Administration: This is the ongoing, post-award activity of ensuring that both the government and the awarded contractor are upholding the terms and conditions of the contract. Those requirements of the contract—and thus the amount of oversight—will differ, based on the statement of work, the contract type, and the period of performance for the contract. Typically, this administration phase of the process includes monitoring the contractor's work, using performance evaluation tools like schedule analysis to gauge the contractor's costs, schedule, and performance; and conducting project milestone reviews.

Contract Closeout/Termination: This final series of activities concern themselves with ensuring the contract vehicle is properly and effectively closed to all stakeholders involved. There are typically three ways a government contract is ended and is closed out: because of successful completion (that is, it finishes the full period of performance), because the contract was terminated for the convenience (a unilateral decision made out of necessity by the government), or by termination for default, made when a contractor is deemed to be not responsible, in accordance with FAR Part 9 (See Table I). This final process includes the acceptance of products or services, processing final contractor payments, and documenting the contractor's performance (Garrett & Rendon, 2005).

Deliberate and successful execution of each of these phases is crucial to properly develop, award, and oversee contracts. Collectively, the proper execution of the entire acquisition life cycle also correlates to adherence with federal policies and procedures, specifically the FAR. These specific contracting activities with their associated FAR parts are shown in Table 1.

Table 1. The Contract Management Process and Corresponding FAR Parts

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

2. Contract Management Maturity Model

The CMMM is utilized by organizations and outside assessors to provide a systematic assessment of an organization's contract management processes and their associated capability. The assessed processes are then perceived in varying levels of maturity, which consist of five levels ranging from Ad Hoc (Level 1) to Optimized (Level 5). The assessment results from the CMMM provide organizational leadership a means by which to gauge individual areas of the contracting process for further development and internal process improvement. While the initial application of the CMMM was utilized to assess the general contracting competencies of management, it has expanded to gauge other aspects of contracting processes management, such as ethics, organizational culture, and communication, to name a few. The contract management key process areas for both buyers and sellers are described as follows.

3. Levels of Maturity

The CMMM gauges process capability through each of the six phases of contracting, which are graded into one of five distinct levels of maturity. The lowest grade begins with Ad Hoc (Level 1), and then increases all the way to the most robust and defined Optimized level (Level 5). The more integrated and organizationally-aligned the processes, the higher the grade that specific phase of the contracting management is assigned. This ranges to Optimized, wherein it is the most clear that contract management is fully invested in continuous process monitoring and improvement (Garrett & Rendon, 2005).

The following are the Garrett & Rendon (2005) model descriptions of each of the contracting management maturity levels.

a. Level 1—Ad Hoc

> The organization at this initial level of maturity acknowledges that contract management processes exist; that these processes are accepted and practiced throughout various industries, and within the public and private sectors. In addition, the organization's management understands the benefit and value of using contract management processes. Although there are not any organization-wide established basic contract management processes, some established contract management processes do exist and are used within the organization, but these established processes are applied only on an ad-hoc and sporadic basis to various contracts. There is no rhyme or reason as to which contracts these processes are applied. Furthermore, there is informal documentation of contract management processes existing within the organization, but this documentation is used only on an ad-hoc and sporadic basis on various contracts. Finally, organizational managers and contract management personnel are not held accountable for adhering to or complying with any basic contract management processes or standards. (Garrett & Rendon, 2005, p.50)

b. Level 2—Basic

> Organizations at this level of maturity have established some basic contract management processes and standards within the organization, but these processes are required only on selected certain dollar thresholds, or contracts with certain customers. Some formal documentation has been developed for these established contract management processes and standards. Furthermore, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, at this maturity level, there is no organizational policy requiring the

consistent use of these contract management processes and standards on other than the required contracts. (Garrett & Rendon, 2005, p. 50)

c. Level 3—Structured

At this level of maturity, contract management processes and standards are fully established, institutionalized, and mandated throughout the entire organization. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Furthermore, since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior organizational management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents. (Garrett & Rendon, 2005, p. 50)

d. Level 4—Integrated

Organizations at this level of maturity have contract management processes that are fully integrated with other organizational core processes such as financial management, schedule management, performance management, and systems engineering. In addition to representatives from other organizational functional offices, the contract's end-user customer is also an integral member of the buying or selling contracts team. Finally, the organization's management periodically uses metrics to measure various aspects of the contract management process and to make contracts-related decisions. (Garrett & Rendon, 2005, p. 53)

e. Level 5—Optimized

The final and highest level of maturity reflects an organization whose management systematically uses performance metrics to measure the quality and evaluate the efficiency and effectiveness of the contract management processes. At this level, continuous process improvement efforts are also implemented to improve the contract management processes. Furthermore, the organization has established lessons learned and best practices programs to improve contract management processes, standards, and documentation. Finally, contract management process streamlining initiatives are implemented by the organization as part of its continuous process improvement program. (Garrett & Rendon, 2005, p. 51)

The traditional CMMM assessment tool first utilized a web-based survey composed of 62 questions for analyzing an organization's use of specific contract management policies, procedures, and professional best practices, as reflected in the literature. These practices

correlate to the strength, or maturity, of the organization's processes to successfully carry out acquisition outcomes in accordance with existing doctrine, and can be used as a barometer for managerial priorities.

B. NAVY INSTALLATION GPP ACQUISITION ANALYSIS

This section provides a detailed analysis of the Contract Management Maturity Model survey questions and responses, as they pertain to Navy GPP and acquisition. We provide in-depth detail on the processes we used to associate the model with adherence to Navy GPP; an overall estimation of organizational process capability is also made.

1. NAVY GPP Survey sampling and demographics

Our Navy installation GPP assessment is a web-based survey composed of 29 items related to green energy policy that spans the six contract management key process areas (approximately 5–6 items per key area). The questions consisted of yes/no, open-ended, and Likert scale–option responses with 3-point responses (Yes, No, I Don't Know), with 5-point responses from highest (Always) to lowest (I Don't Know), and binary, yes/no questions. The final survey question was an optional open-ended question that invited respondents to share any challenges or successes they had with implementing green procurement programs or adhering to green procurement policies. Each survey question directly relates to a specific phase in the contracting management process (see Table 2), with the exception of question 1 and question 29. We gave the responses numerical values that ultimately represent the organization's use of specific policy guidance and best practices as they pertain to fulfilling green energy procurement.

While CMMM assessments conventionally use approximately 62 questions to assess contracting process capability, we chose to use a less-exhaustive 29-question assessment that focuses the questions around green energy procurement, much as other organizations have previously done to assess GPP familiarity within their organizations. The questions were formulated from the checklist of organizational action items found in the DOD Green Procurement Guide, 2008, and utilized by previous research on DOD Green Procurement policy implementation by DeLancey, A., Harris C., & Andrew R., 2011. We also deliberately scaled down the number and types of questions from the typical assessment so as not to

identify specific individuals or organizations answering the survey. The typical CMMM assessment tool allows for specific respondents and their respective contracting office to be identified, and we wanted individuals to feel open and comfortable taking the assessment, knowing that their identity would not be gleaned, based on the information they provided. The nature of the questions also align with the six phases of contract management, and as previously discussed, their answers correlate with a level of process maturity within the CMMM assessment model. Since the assessment is meant to acquire data on the contract management processes of organizations, purposeful sampling of respondents was important in order to accurately capture an organization's level of GPP contracting process maturity. The answers that respondents give, especially to the open-ended questions, would give the most utility to organizational leadership if responses were gathered from a smaller, more selective pool of participants—in this case from acquisition process stakeholders.

Table 2. Survey Questions and Their Associated Contract Management Phase

Contract Management Process	Related Survey Question	Reference
Procurement Planning	1. Are you familiar with the Navy's Green Procurement Program Implementation Guide (2009)?	Question #3
	2. Have you taken the DAU course, CLC 046 Sustainable Procurement Program (formerly called "Green Procurement")?	Question #7
	3. Does the Organization have a list of vendors that offer green products or services?	Question #9
	4. Has the Organization shared this list with requesting units?	Question #10
	5. Has the organization established objectives/targets for GPP performance (purchase of green products and services) that are consistent with the nature and quantity of the purchasing activities?	Question # 11
	6. Does the organization have written procedures for setting, tracking, and updating objectives and targets?	Question #12
	7. Does your organization already have a green procurement checklist in place for customers to use in creating their requirements package?	Question #13

Contract Management Process	Related Survey Question	Reference
Solicitation Planning	1. Does the organization have defined language which they place in Solicitations that demonstrates a preference for green products or services?	Question #14
	2. Does the organization have documented procedures to ensure green procurement opportunities are identified for each purchasing action?	Question #15
	3. Does the organization have documented procedures for justifying and granting approval for decisions NOT to purchase green products or services?	Question #16
Solicitation	1. Have you received training on incorporating green requirements in the solicitation phase to include the appropriate FAR clauses, green considerations in PWS/SOWs, etc.?	Question #17
	2. Before posting a solicitation, are there any RFIs posted requesting information for environmentally friendly opportunities for the services or products on the solicitation?	Question #18
	3. When generating the solicitation, have green FAR clauses been included?	Question #19
	4. Are there green requirements or considerations incorporated in the PWS/SOW or conditions for selecting a vendor?	Question #20
Source Selection	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?	Question #21
	2. Does the organization have documented procedures to ensure green products or services are purchased preferentially in each purchasing action?	Question #22
	3. If yes, is there an approval authority required to approve justifications for not purchasing green products or services?	Question #23
	4. Were environmental factors, such as reuse, recycle, waste reduction, and green procurement, evaluated as part of the performance, cost, and schedule analysis?	Question #24
	5. Does the organization have documented procedures to ensure that the relevant green procurement contract language and FAR clauses are incorporated in all contracts?	Question #25
	6. When awards involve use of recovered materials or EPA products, are the appropriate blocks completed when submitting the Contract Action Report information?	Question #26

Contract Management Process	Related Survey Question	Reference
Contract Administration	1. Does your unit/office have a Green Procurement Program?	Question #2
	2. Does your unit/office track the number of green products or services it contracts or purchases?	Question #4
	3. Does your organization's Green Procurement Plan have procedures and assign responsibility for routine measurement, evaluation, and reporting of Green Procurement Plan performance data?	Question #27
	4. Does the organization have checklists or procedures in place to ensure that contractors are compliant with the Green Procurement Plan aspects included in contracts?	Question #28
Contract Closeout/ Termination	1. Does your unit/office have any specific "green" goals it tries to achieve? This could include things like Navy energy sustainability metrics, energy efficiency benchmarks, etc.	Question #5
Other Data	1. At what stage in the Contract Management Process is your organization most likely to address green procurement concerns?	Question #8
	2. Does your organization utilize a Green Procurement Program POC or advocate(s): personnel who help ensure Green Procurement Program adherence, training, etc.?	Question #29

Table Note: Questions developed from the DOD Green Procurement Guide, 2008, and utilized by DeLancey, A., Harris C., & Andrew R. (2011).

The sampling in our research consisted of both Navy military and civilian personnel who were currently or had recently been in an acquisition or buying capacity. Active duty Navy personnel were sourced from buying and procurement divisions at Naval Support Activity (NSA) Monterey and its tenant commands, which included Naval Facilities Engineering Command (NAVFAC) and Naval Postgraduate School (NPS). These agencies and their personnel provide contracting and acquisition support for the installation and are supporting elements to commander, Navy Installations Command (CNIC) for the fulfillment of Navy energy conservation and GPP metrics and policy. Faculty, staff, and students of the NPS Graduate School of Business and Public Policy (GSBPP) were selected if they had had experience in a contracting and/or purchasing capacity. The NSA Monterey and NPS civilian employee population included those selected employees currently working in a contracting

and buying role at NPS, NAVFAC, and NSA Monterey. These individuals were selected by organizational management as necessarily being one of these stakeholders.

The types of supplies and services that these organizations and their contracting personnel acquire are different; however, the common denominator between them is the contract management processes involved. The potential respondents' emails were given to us by the directors of these contracting and buying organizations for these specific agencies, and the eligible respondents were then emailed the survey website link. Reminder emails were sent one week into the survey period. The survey included the appropriate provisions for maintaining the confidentiality of the respondents. Of the total 172 eligible survey participants, 26 completed the survey, yielding a response rate of a little over 15%.

2. Survey results and analysis

The CMMM assessment was analyzed by taking the survey responses and scoring the various types of question responses (see Tables 4–6) and placing an overall rank in the corresponding phases of contracting (see Figure 3). The results are placed in their respective phase of the acquisition life cycle and assigned a maturity level based on the aggregate score that question received. Question 29 is an optional open-ended question that respondents can share best practices and challenges with implementing or adhering to green procurement programs.

Table 3. Navy GPP Response Scores (Questions 2, 4, 5, 9–17, 21–29)

Survey Response	Survey Scale Response
I do not know < 33%	1 < 33%
No < 33%	3 < 33%
Yes <33%	5 < 33%

Table 4. Navy GPP Response Scores (Question 3)

Survey Response	Survey Scale Response
No < 33%	1 < 33%
Somewhat < 33%	3 < 33%
Yes <33%	5 < 33%

Table 5. Navy GPP Response Scores (Question 7)

Survey Response	Survey Scale Response
No < 50%	1 < 50%
Yes < 50%	5 < 50%

Table 6. Navy GPP Response Scores (Questions 18–20)

Survey Response	Survey Scale Response
I don't know	0
Never	1 < 20%
Seldom	2 < 20%
Sometimes	3 < 20%
Often	4 < 20%
Always	5 < 20%

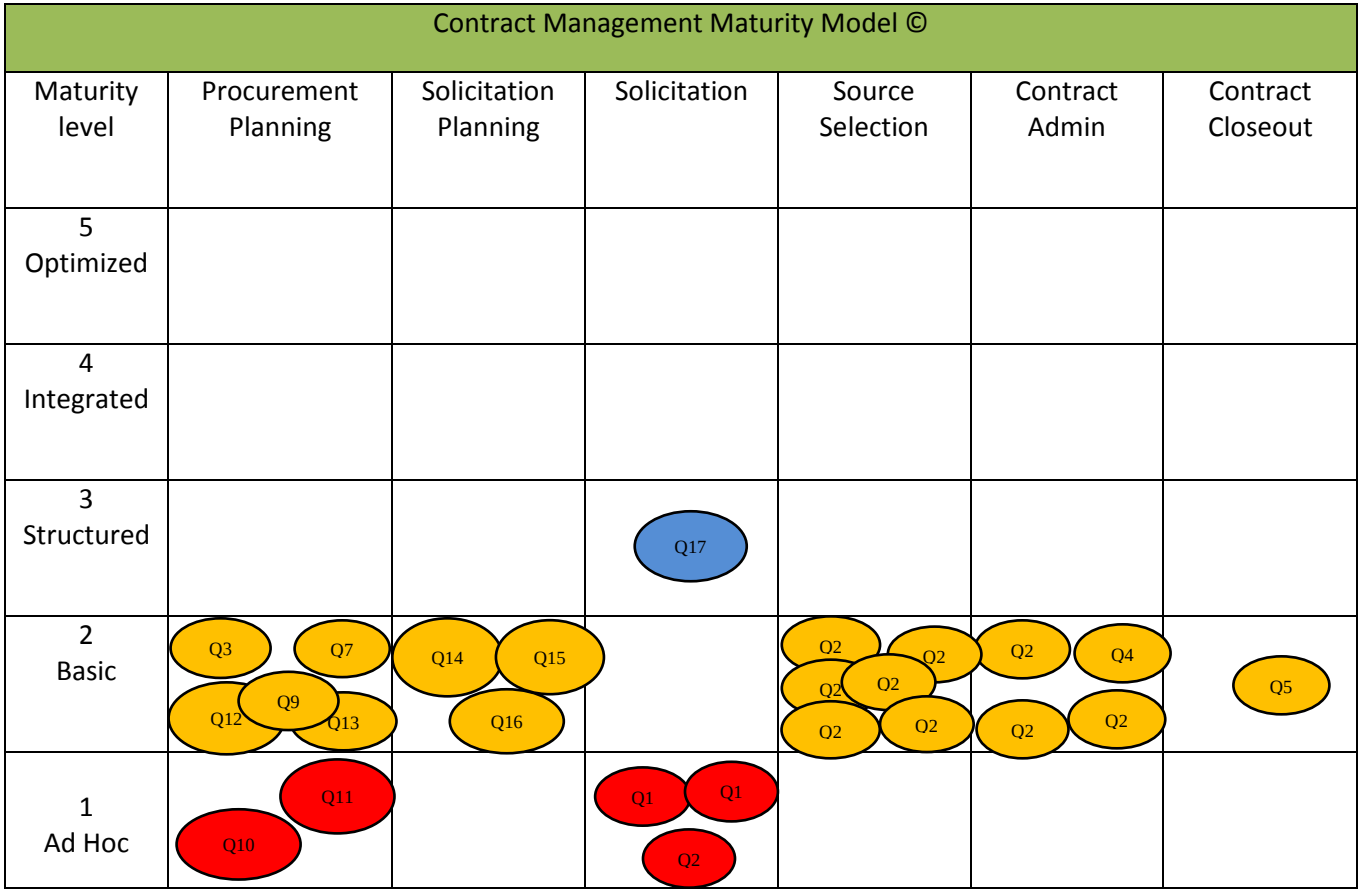


Figure 3. Navy GPP Contracting Management Maturity Assessment

a. Phase 1: Procurement Planning Identified as Ad Hoc/ Basic

In order to gauge Navy installation organizations' progress with adhering to Navy GPP doctrine during procurement planning, we analyzed the questions that ask about setting up personnel and organizations for GPP procurement success. According to the Navy green procurement guide, anyone involved in the acquisition process must complete the DAU's CLC046 training course (DON, 2009). End-users and the organizations that define the requirements of the contract or purchase also need to be cognizant of how to design their requirements correctly. Based on the survey data, we concluded that the organizations did not consistently give training to either personnel or customers on setting up buys and acquisitions that satisfy Navy GPP. Organization leadership can improve the processes in this phase by laying out expectations and priorities that are accomplished with metrics which hold personnel accountable.

b. Phase 2: Solicitation Planning Identified as Basic

The solicitation panning of a purchase or contract requires personnel to conduct proper market research and review the past performance of prospective vendors. This is done to ensure the government receives products and services that are fair and reasonable in price, but also conducted to help the organization better understand its own requirements. According to DOD and Navy Green Procurement Strategy, all purchases and acquisition plans need to incorporate environmental and energy conservation objectives in the buying policy and contract clause language (OSD Green Procurement Strategy, 2008). Because of the lack of processes which ensure the implementation of these policies, the solicitation planning phase was rated Ad Hoc in maturity.

c. Phase 3: Solicitation Identified as Ad Hoc/Structured

According to the Navy green energy procurement guide, GPP language needs to be incorporated in the early stages of the contracting process. Our questions that aligned to this phase of contracting asked contracting specialists and officers if they were posting RFIs or if they constructed the Performance Work Statement to include green requirements. Based on these survey results, we determined that Navy installations do not have robust systems in place to facilitate the solicitation phase of contracting in accordance with Navy GPP. As

shown in the results, shown in Appendix B, it does not appear that contracting specialists or buying personnel are deliberately seeking out green supplies or services, or if they are taking such action, they are doing so absent of established local processes.

d. Phase 4: Source Selection Identified as Basic

The questions asked in the survey pertaining to the source selection phase helped determine if Navy installations incorporate processes that establish and maintain preference programs to facilitate green energy initiatives. The results indicate that these organizations significantly lack these processes, and also indicate that if organizations are fulfilling existing Navy green energy regulations, it is not because of internal policy or structure that guides them to do so. The survey results also underscore the need for processes from authority to waive the requirement for green procurement preference. The protocols established in the *Department of Defense Green Procurement Program Strategy* document declare that it is the contracting official's responsibility to accurately complete such a waiver and document it in the respective contracting organization's contracting database for tracking purposes (OUSD[AT&L], 2008a, p. 12) Most of the personnel surveyed are aware that they must report on contracts that involve EPA products when considering and awarding purchases and contracts; however, the inconsistent application of such action, coupled with the general lack of knowledge of the process, reduced the organizations' contract process in this phrase of contracting.

Of note, the open-ended question responses- which did not contribute to the maturity scores assigned in the assessment- were still expressive of how robust installation organizations are with their source selection strategies. A few respondents stated that vendors who offered a battery turn-in and recycle program should be preferred, while others stated that many contracts for vehicles are awarded on a sole source basis, and the requirements for that specific vehicle may not take green procurement into consideration.

e. Phase 5: Contract Administration Identified as Basic

The survey questions that aligned with the contract administration phase helped to indicate if the installation organizations have goal-oriented processes in place which would help drive results for their organization and ensure ongoing oversight of their personnel.

Ongoing follow up with contracted service providers did not routinely monitor their adherence with EPA and federal GPP guidance. Routine inspections of process performance, GPP awareness training, and a green energy point of contact for the organization are measures of compliance with policy (OSD Green Procurement Strategy (2008, pg. 12) and are generally not being followed by organizations.

f. Phase 6: Contract Closeout Identified as Basic

While the Navy and the DOD do not identify any specific metrics or policies for the closeout of contracts and buying during the contract closeout phase, there are activities usually associated with this final phase of the acquisition life cycle, as previously discussed. Documenting the kind of procurement, formally assessing the contractor or service provider in computer programs such as the Contractor Performance Assessment Reporting System (CPARS), and updating metrics on purchases and contracts that satisfy energy efficiency program goals are among these activities. Even though major contracting doctrine such as the FAR does not discuss any specific contract closeout mandates, we developed question 5 for our survey to adequately rate this section. As shown in the survey results, the organizational processes that support this last phase of contracting received a rating of Basic.

a. Supplemental Question Results

In addition to the Navy GPP questions, which aligned with the contracting management process, respondents were additionally given the opportunity to share their perspectives regarding GPP contracting processes and policy. While the results from the final question do not align with a specific contracting management process, the information gathered helped to underscore the effect that Navy green energy procurement policy has had on the respondent's organization and spoke to the contracting organization's internal policies and procedures. One respondent noted that while their organization had stated energy/utility use savings, there was no direct link between that and stated Navy GPP policies. Another comment made by several respondents was that government cardholders were generally encouraged to purchase green products; however, there were no metrics or procedures in place to ensure that was happening. Additionally, contracting personnel who administer service contracts regularly utilize an in-house contractor supplies/materials sheet, which

shows the required green and environmentally safe items used service contractors. While several buildings throughout NSA Monterey employ advanced energy-saving technologies such as waterless urinals, automatic light switches and several electric vehicles, respondents were unable to specifically tie these contracted and purchased products with any specific GPP strategy or local policy that would have guided their procurement. Generally, respondents were aware that policy existed, and expressed a desire and need for more training and awareness on green procurement from higher-level authority.

C. SUMMARY OF ANALYSIS

From the analysis made with the Navy GPP CMMM assessment, we concluded that Navy installations lack the processes and internal mechanisms that would enable them to achieve the standards set forth in Navy green procurement policy. The process used in making these conclusions are drawn out in Table 3. As previously discussed in the analysis section, the ratings were defined by how each question was answered and also by how they aggregated to a process maturity ranking. The assessment model breaks down the stronger and weaker areas in each key phase of contracting and illuminates the Navy's unsuccessful implementation of processes to facilitate compliance with Navy green energy program goals.

V. CONCLUSIONS AND RECOMMENDATIONS

This research analyzed the results of an assessment made to the Contracting and procurement organizations at various Navy installation entities. By using the CMMM and deriving survey questions directly linked with existing Navy Green Energy Procurement policy, we can assess the strengths and weaknesses of the contract management processes at the Navy installation level, and further assess the varying degrees to which current DOD and Navy green energy procurement strategy and policies have affected installation organizations. The overall results of the assessment also give indications as to the maturity levels for specific contract management key process areas. The analysis of these results also identified improvement opportunities for organizational leadership in how they manage processes, implement organizational internal controls, and train personnel in the adherence to current Navy energy and green energy procedures

A. IMPROVEMENTS TO GPP CONTRACT MANAGEMENT PROCESSES

As an assessment tool, the Contracting Management Maturity Model may be limited because it is based strictly on qualitative data. The quality and clarity of the responses largely drive the results from the assessment, and such an assessment is best served as an initial snapshot of processes capability. Organizations should follow-up and supplemental assessments in tandem with the results of the CMMM, including process audits, interviews with various personnel, and process controls within the organization. Used in conjunction with other processes improvement initiatives, the CMMM can greatly assist organizations with developing subject-specific improvements to their procurement metrics and procedures.

B. CONCLUSIONS

We have explored the development and evolution of DOD and Navy GPP strategy and policy, and have shown that the impact of these policies is not being directly felt at the Navy installation level. Further, through our assessments of contract management processes, we have established that inadequate levels of knowledge and awareness of GPP strategy and policy affected all phases of the acquisition process. Based on the data compiled and our analysis of Navy installation's fulfillment of Navy GPP policy, we answered our original research questions.

(1) What has been the impact of statutory and regulatory targets on Navy installations, specifically those that include green energy considerations in acquisitions?

While Navy GPP strategy and policy have grown and developed over the last ten years, the implementation of that policy has been slow and inconsistent. Navy installations meet some of that policy in only varying degrees, their personnel only possess general awareness of its existence, and organizational leadership are willing to implement it.

(2) How successful have Navy installations been in satisfying regulatory guidance with respect to Navy GPP strategy and policy?

As shown in the assessment data, Navy installations have not implemented Navy GPP policy at their organizations in such a way as to successfully fulfill Navy GPP strategy. The data from the assessments also echoes this insufficient level of policy at installation acquisition organizations, and while organizations may fulfill Navy energy reduction goals or metrics, they do so absent of a robust GPP acquisition process.

(3) How mature are the contract management processes that Navy installation contracting organizations use to fulfill Navy GPP strategy and policy?

The results of the assessment, found in Figure 3, shows that throughout the entire spectrum of the acquisition life cycle, there is at best a minimally-structured process to adequately fulfill Navy GPP strategy and policy. Based on the assessment, contract management processes were scored in the lowest categories of maturity, with the procurement planning, source selection, and administration of acquisitions and buying showing only ad hoc and only basic levels of process maturity was seen at organizations, as shown by the data.

C. RECOMMENDATIONS

Based on the research conducted and from the subsequent results from assessing Navy installation-level buying and contracting personnel, we offer recommendations for improving how those organizations fulfill DOD and Navy GPP.

1. Establish and Identify Navy GPP liaisons. Implement dedicated personnel to oversee and facilitate Navy GPP awareness and program fulfillment. These individuals and their responsibilities within procurement organizations are articulated in the Navy GPP Strategy (page 11) and as an advocate of GPP they will be best positioned to ensure that personnel are completing mandatory GPP requirements.

2. Identify Green Procurement Socioeconomic metrics. Existing socioeconomic policies, such as the 8(a) Business Development Program, which OUSD AT&L fulfills through contracting, were created to help assist small disadvantaged businesses compete in the marketplace. Green socioeconomic policies could be added to existing federal socioeconomic acquisition goals to include environmentally conscience contractors and products identified by USDA and the EPA.

3. Echelon/ installation utilization of the CMMM. As CNIC and higher echelon leadership develop explicit metrics and goals to achieve the Navy's GPP strategy, they would also capitalize on the CMMM to assess how installation contracting organizations are best meeting those metrics. Developing a systematic means of compiling bodies of knowledge, best practices, and process improvement within the organization are among a few of the benefits from this.

D. FURTHER RESEARCH

In this project, we examined Navy installation GPP policy adherence, and assessed an organization's process maturity to fulfill such policy. While Navy green energy policy and strategy has existed and been developed for over a decade, the implementation of that policy is still in its infancy. Because of this, there are many areas to further explore policy implementation while also examining process improvements within DOD and Navy contracting organizations.

(1) The relationships of high level Navy GPP policy with the Installation

At the installation level, most of the metrics, goals, and policy fulfillment associated with Navy GPP comes from CNIC and other higher-level authority. It would be beneficial to assess the existing policy of higher echelons at NAVFAC, NAVSUP, and CNIC to assess how and where those policies touch the installation level contracting organizations and how that policy translates to installation-level implementation of DOD GPP strategy.

(2) Use a different assessment tool to analyze Navy contracting and buying organizations

While the CMMM was utilized because of its value to leaders to assess specific areas of weakness and pinpoint process improvements, other varieties of assessment models could be used to assess how organizations are structured and managed to fulfill Navy GPP strategy.

(3) Explore the touchpoints between policy and organizational implementation.

The data from the survey results indicate that many organizations inadvertently fulfill DOD and Navy GPP strategy and policy without realizing it. Many of their organizational automated systems and personnel are set up in a way to inconspicuously fulfill green strategy. Thus, additional research could be conducted to explore the means by which higher-level Navy GPP strategy and policy is explicitly being met at lower echelons.

APPENDIX A. FAR PART 23

FAR Part 23: Environment, Energy and Water Efficiency, Renewable Energy Technologies, Occupational Safety, and Drug-Free Workplace (FAC 2005–92) (19 December 2016)

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 for encouraging the safe operation of vehicles.

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, nitrogen triflouride, 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/eep_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://www1.eere.energy.gov/femp/financing/espcs_regulations.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/epawaste/conserve/tools/cpg/index.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 3201, 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
(iv) Annual review and monitoring of the effectiveness of the program.

(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, all USDA-designated items (see 7 CFR 3201.3(e)) are excluded from the preferred procurement requirement for 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.biopreferred.gov) 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.

(3) When acquiring recovered material or biobased products, the contracting officer may request information or data on such products, including recycled or biobased content or related standards of the products (see 11.302(c)).

(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.biopreferred.gov or 7 CFR Part 3201.

(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 23.7—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" means a device that performs logical operations and processes data. Computers are composed of, at a minimum:

(1) A central processing unit (CPU) to perform operations;

(2) User input devices such as a keyboard, mouse, digitizer, or game controller; and

(3) A computer display screen to output information. Computers include both stationary and portable units, including desktop computers, integrated desktop computers, notebook computers, thin clients, and workstations. Although computers must be capable of using input devices and computer displays, as noted in paragraphs (2) and (3) of this definition, computer systems do not need to include these devices on shipment to meet this definition.

This definition does not include server computers, gaming consoles, mobile telephones, portable hand-held calculators, portable digital assistants (PDAs), MP3 players, or any other mobile computing device with displays less than 4 inches, measured diagonally.
"Computer display" means a display screen and its associated electronics encased in a single housing or within the computer housing (e.g., notebook or integrated desktop computer) that is capable of displaying output information from a computer via one or more inputs such as a VGA, DVI, USB, DisplayPort, and/or IEEE 1394–2008™ , Standard for High Performance Serial Bus. Examples of computer display technologies are the cathode-ray tube (CRT) and liquid crystal display (LCD).
"Desktop computer" means a computer where the main unit is intended to be located in a permanent location, often on a desk or on the floor. Desktops are not designed for portability and utilize an external computer display, keyboard, and mouse. Desktops are designed for a broad range of home and office applications.
"Electronic products" means products that are dependent on electric currents or electromagnetic fields in order to work properly.
"Imaging equipment" means the following products:
(1) Copier – A commercially available imaging product with a sole function of the production of hard copy duplicates from graphic hard-copy originals. The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as copiers or upgradeable digital copiers (UDSs).
(2) Digital duplicator – A commercially available imaging product that is sold in the market as a fully automated duplicator system through the method of stencil duplicating with digital reproduction functionality. The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as digital duplicators.
(3) Facsimile machine (fax machine)-- A commercially available imaging product whose primary functions are scanning hard-copy originals for electronic transmission to remote units and receiving similar electronic transmissions to produce hard-copy output. Electronic transmission is primarily over a public telephone system but also may be via computer network or the Internet. The product also may be capable of producing hard copy duplicates. The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as fax machines.
(4) Mailing machine -- A commercially available imaging product that serves to print postage onto mail pieces. The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as mailing machines.
(5) Multifunction device (MFD) – A commercially available imaging product, which is a physically integrated device or a combination of functionally integrated components, that performs two or more of the core functions of copying, printing, scanning, or faxing. The copy functionality as addressed in this definition is considered to be distinct from single-sheet convenience copying offered by fax machines. The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as MFDs or multifunction products.
(6) Printer -- A commercially available imaging product that serves as a hard-copy output device and is capable of receiving information from single-user or networked computers, or

other input devices (e.g., digital cameras). The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as printers, including printers that can be upgraded into MFDs in the field.
(7) Scanner -- A commercially available imaging product that functions as an electro-optical device for converting information into electronic images that can be stored, edited, converted, or transmitted, primarily in a personal computing environment. The unit is capable of being powered from a wall outlet or from a data or network connection. This definition is intended to cover products that are marketed as scanners.
"Integrated desktop computer" means a desktop system in which the computer and computer display function as a single unit that receives its AC power through a single cable. Integrated desktop computers come in one of two possible forms:
(1) A system where the computer display and computer are physically combined into a single unit; or
(2) A system packaged as a single system where the computer display is separate but is connected to the main chassis by a DC power cord and both the computer and computer display are powered from a single power supply. As a subset of desktop computers, integrated desktop computers are typically designed to provide similar functionality as desktop systems.
"Notebook computer" means a computer designed specifically for portability and to be operated for extended periods of time either with or without a direct connection to an AC power source. Notebooks must utilize an integrated computer display and be capable of operation off of an integrated battery or other portable power source. In addition, most notebooks use an external power supply and have an integrated keyboard and pointing device. Notebook computers are typically designed to provide similar functionality to desktops, including operation of software similar in functionality to that used in desktops. Docking stations are considered accessories for notebook computers, not notebook computers. Tablet PCs, which may use touch-sensitive screens along with, or instead of, other input devices, are considered notebook computers.
"Personal computer product" means a computer, computer display, desktop computer, integrated desktop computer, or notebook computer.
"Television, or TV," means a commercially available electronic product designed primarily for the reception and display of audiovisual signals received from terrestrial, cable, satellite, Internet Protocol TV (IPTV), or other digital or analog sources. A TV consists of a tuner/receiver and a display encased in a single enclosure. The product usually relies upon a cathode-ray tube (CRT), liquid crystal display (LCD), plasma display, or other display technology. Televisions with computer capability (e.g., computer input port) may be considered to be a TV as long as they are marketed and sold to consumers primarily as televisions.

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.

(5) Realize life-cycle cost savings.

(6) 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.

(1) As required by E.O.s 13423 and 13514, agencies, when acquiring an electronic product to meet their requirements, shall meet at least 95 percent of those requirements with Electronic Product Environmental Assessment Tool (EPEAT®) – registered electronic products, unless—

(i) There is no EPEAT® standard for such product;

(ii) No EPEAT® -registered product meets agency requirements; or

(iii) The agency head has provided an exemption in accordance with 23.105.

(2) Contracting officers, when acquiring an electronic product, except as specified in paragraphs (a)(1)(i), (ii), or (iii) of this section, shall acquire an EPEAT® -registered electronic product, unless the agency determines, in accordance with agency procedures, that the EPEAT® -registered product will not be cost effective over the life of the product.

(3) This subpart applies to acquisitions of electronic products to be used in the United States, unless otherwise provided by agency procedures. When acquiring electronic products to be used outside the United States, agencies must use their best efforts to comply with this section.

(b) Personal computer products, imaging equipment, and televisions. These are the categories of EPEAT® -registered electronic products.

(1) The IEEE 1680.1™-2009 Standard for the Environmental Assessment of Personal Computer Products, the IEEE 1680.2™-2012 Standard for the Environmental

Assessment of Imaging Equipment, and the IEEE 1680.3™-2012 Standard for the Environmental Assessment of Televisions—

(i) Were issued by the Institute of Electrical and Electronics Engineers, Inc., on March 5, 2010; October 19, 2012, and October 19, 2012, respectively;

(ii) Are voluntary consensus standards consistent with section 12(d) of Pub. L. 104–113 (15 U.S.C. 272 note), the "National Technology Transfer and Advancement Act of 1995," (see 11.102);

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

(iv) Are described in more detail at https://www.epa.gov/greenerproducts/epas-recommendations-specifications-standards-and-ecolabels.

(2) A list of EPEAT® product categories and EPEAT®-registered electronic products that are in conformance with these standards can be found at https://www.epa.gov/greenerproducts/epas-recommendations-specifications-standards-and-ecolabels.

(3) EPEAT® electronic products are designated "bronze-," "silver-," or "gold-" registered.

(4) Agencies shall, at a minimum, acquire EPEAT® bronze-registered products.

(5) Agencies are encouraged to acquire EPEAT® silver- or gold-registered products.

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 applies in accordance with 23.704(a), insert the clause at 52.223-13, Acquisition of EPEAT®-Registered Imaging Equipment, in all solicitations and contracts when imaging equipment (copiers, digital duplicators, facsimile machines, mailing machines, multifunction devices, printers, and scanners) will be--

(i) Delivered;

(ii) Acquired by the contractor for use in performing services at a Federally controlled facility; or

(iii) Furnished by the contractor for use by the Government.

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

(c)

(1) Unless an exception applies in accordance with 23.704(a), insert the clause at 52.223-14, Acquisition of EPEAT®-Registered Televisions, in all solicitations and contracts when televisions will be--

(i) Delivered;

(ii) Acquired by the contractor for use in performing services at a Federally controlled facility; or

(iii) Furnished by the contractor for use by the Government.

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

(d)

(1) Unless an exception applies in accordance with 23.704(a), insert the clause at 52.223-16, Acquisition of EPEAT®-Registered Personal Computer Products, in all solicitations and contracts when personal computer products will be--

(i) Delivered;

(ii) Acquired by the contractor for use in performing services at a Federally controlled facility; or

(iii) Furnished by the contractor for use by the Government.

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

Subpart 23.8—Ozone-Depleting Substances and Greenhouse Gases.

23.800—Scope of Subpart.

This subpart—

(a) Sets forth policies and procedures for the acquisition of items that—

(1) Contain, use, or are manufactured with ozone-depleting substances; or

(2) Contain or use high global warming potential hydrofluorocarbons; and

(b) Addresses public disclosure of greenhouse gas emissions and reduction goals.

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 13693 of March 25, 2015, Planning for Federal Sustainability in the Next Decade.

(d) Environmental Protection Agency (EPA) regulations, Protection of Stratospheric Ozone (40 CFR part 82).

23.802—Policy.

It is the policy of the Federal Government that Federal agencies --

(a) Implement cost-effective programs to minimize the procurement of materials and substances that contribute to the depletion of stratospheric ozone and/or result in the use, release or emission of high global warming potential hydrofluorocarbons;

(b) Give preference to the procurement of alternative chemicals, products, and manufacturing processes that reduce overall risks to human health and the environment by minimizing--

(1) The depletion of ozone in the upper atmosphere; and

(2) The potential use, release, or emission of high global warming potential hydrofluorocarbons;

(c) Lead efforts to reduce greenhouse gas emissions at the Federal level in accordance with Executive Order 13693 and the President’s Climate Action Plan of June 2013; and

(d) In order to better understand both direct and indirect greenhouse gas emissions that result from Federal activities, require offerors that are registered in the System for Award Management (SAM) database and received $7.5 million or more in Federal contract awards in the prior Federal fiscal year to—

(1) Represent whether they publicly disclose greenhouse gas emissions;

(2) Represent whether they publicly disclose a quantitative greenhouse gas emissions reduction goal; and

(3) Provide the website for any such disclosures.

23.803—Procedures.
In preparing specification and purchase descriptions, and in the acquisition of products and services, agencies shall—
(a) 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 13693, and 40 CFR 82.84(a)(2), (3), (4), and (5);

(b) Substitute acceptable 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(n);
(c) Unless a particular contract requires otherwise, specify that, when feasible, contractors shall use another acceptable alternative in lieu of a high global warming potential hydrofluorocarbon in products and services in a particular end use for which EPA's Significant New Alternatives Policy (SNAP) program has identified other acceptable alternatives that have lower global warming potential; and
(d) Refer to EPA's SNAP program for the list of alternatives, found at 40 CFR part 82, subpart G, as well as supplemental tables of alternatives (available at http://www.epa.gov/snap).

23.804—Contract Provision and Clauses.
(a) Except for contracts for supplies that will be delivered outside the United States and its outlying areas, or contracts for services that will be performed outside the United States and its outlying areas, the contracting officer shall insert the clauses:
(1) 52.223-11, Ozone-Depleting Substances and High Global Warming Potential Hydrofluorocarbons, in solicitations and contracts for--
(i) Refrigeration equipment (in product or service code (PSC) 4110);
(ii) Air conditioning equipment (PSC 4120);
(iii) Clean agent fire suppression systems/equipment (e.g., installed room flooding systems, portable fire extinguishers, aircraft/tactical vehicle fire/explosion suppression systems) (in PSC 4210);
(iv) Bulk refrigerants and fire suppressants (in PSC 6830);
(v) Solvents, dusters, freezing compounds, mold release agents, and any other miscellaneous chemical specialty that may contain ozone-depleting substances or high global warming potential hydrofluorocarbons (in PSC 6850);
(vi) Corrosion prevention compounds, foam sealants, aerosol mold release agents, and any other preservative or sealing compound that may contain ozone-depleting substances or high global warming potential hydrofluorocarbons (in PSC 8030);
(vii) Fluorocarbon lubricants (primarily aerosols) (in PSC 9150); and
(viii) Any other manufactured end products that may contain or be manufactured with ozone-depleting substances.
(2) 52.223-12, Maintenance, Service, Repair, or Disposal of Refrigeration Equipment and Air Conditioners, in solicitations and contracts that include the maintenance, service, repair, or disposal of—
(i) Refrigeration equipment, such as refrigerators, chillers, or freezers; or
(ii) Air conditioners, including air conditioning systems in motor vehicles.

(3) 52.223-20, Aerosols, in solicitations and contracts—

(i) For products that may contain high global warming potential hydrofluorocarbons as a propellant, or as a solvent; or

(ii) That involve maintenance or repair of electronic or mechanical devices.

(4) 52.223-21, Foams, in solicitations and contracts for—

(i) Products that may contain high global warming potential hydrofluorocarbons or refrigerant blends containing hydrofluorocarbons as a foam blowing agent, such as building foam insulation or appliance foam insulation; or

(ii) Construction of buildings or facilities.

(b) The provision at 52.223-22, Public Disclosure of Greenhouse Gas Emissions and Reduction Goals—Representation, is required only when 52.204-7, System for Award Management, is included in the solicitation (see 52.204-8, Annual Representations and Certifications).

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 and environmental management system audit.

APPENDIX B. SURVEY QUESTIONS AND RESPONSES

NPS Survey on Navy Green Procurement
Questions developed from the DOD Green Procurement Guide, 2008, and previously utilized by DeLancey, A., Harris C., & Andrew R., 2011.

Question 1	Government Civilian	Military Personnel	Other
Are you a Government Civilian or Military Personnel?	16	9	
Total %	**64%**	**36%**	**0**

Question 2	Yes	No	I do not know
Does your unit/office have a Green Procurement Program?	9	6	10
Total %	**36%**	**24%**	**40%**
CMMM Score 2.92 (Basic level)			

Question 3	Yes	No	I do not know
Are you familiar with the Navy's Green Procurement Program Implementation Guide (2009)?	5	10	10
Total %	**20%**	**40%**	**40%**
CMMM Score 2.6 (Basic level)			

Question 4	Yes	No	I do not know
Does your unit/office track the number of green Products or services it contracts or purchases?	2	12	10
Total %	**8%**	**48%**	**44%**
CMMM Score 2.28 (Basic level)			

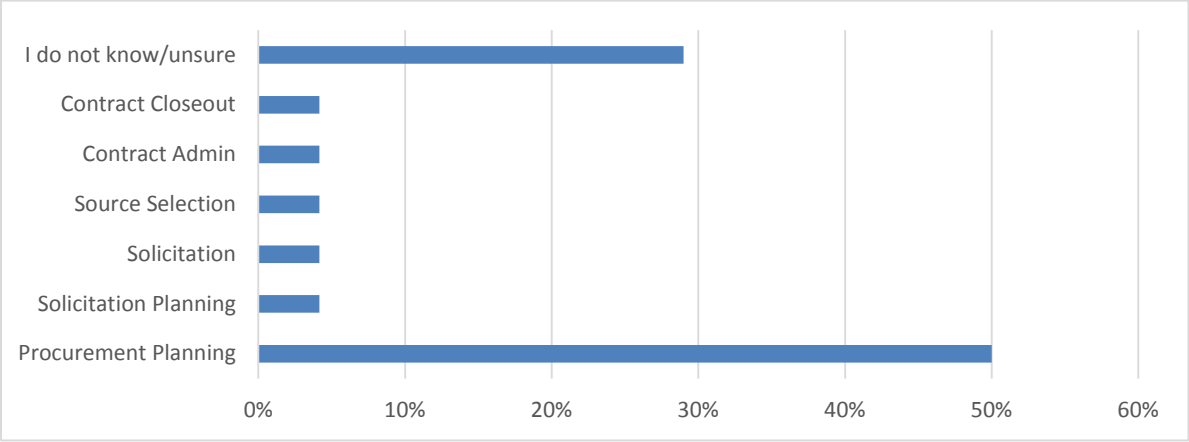
Question 5	Yes	No	I do not know
Does your unit/office have any specific "green" goals it tries to achieve? Including things like Navy Energy Sustainability metrics, energy efficiency benchmarks?	7	9	9
Total %	**28%**	**36%**	**36%**
CMMM Score 2.84 (Basic level)			

Question 6
Additional Comments of Question 5 *"Energy Savings and Efficiency Projects for NSAM Real Property facilities"* *"It is Energy Manager responsibility"* *"The Command as a whole may have green goals, but goals are not set/determined at the individual acquisition level. "*

Question 7	Yes	No
Have you taken the DAU course CLC 046 Sustainable Procurement Program (Formerly called "Green Procurement?	6	18
Total % **CMMM Score 2.00 (Basic level)**	**25%**	**75%**

Question 8

At what stage in the Contract Management Process is your organization most likely to address green procurement concerns?



Question 9	Yes	No	I do not know
Does the Organization have a list of vendors that offer green products or services?	3	8	13
Total % **CMMM Score 2.16 (Basic level)**	**28%**	**36%**	**36%**

Question 10	Yes	No	I do not know
Has your Organization shared this list with requesting units?	1	5	18
Total % **CMMM Score 1.58 (Ad Hoc level)**	**4%**	**21%**	**75%**

Question 11	Yes	No	I do not know
Has your organization established objectives/targets for Green Procurement Plan performance (purchase of green products and services) that are consistent with the nature & quantity of the purchasing activities?	2	7	15
Total %	**8%**	**29%**	**63%**
CMMM Score 1.91 (Ad Hoc level)			

Question 12	Yes	No	I do not know
Does your organization have written procedures for setting, tracking, and updating green objectives and targets?	3	8	11
Total %	**14%**	**36%**	**50%**
CMMM Score 2.27 (Basic level)			

Question 13	Yes	No	I do not know
Does your organization already have a green procurement checklist in place for customers to use in creating their requirements package?	1	10	9
Total %	**5%**	**50%**	**45%**
CMMM Score 2.20 (Basic level)			

Question 14	Yes	No	I do not know
Does your organization have defined language, which they place in solicitations, that demonstrates a preference for green products or services?	7	7	8
Total %	**5%**	**50%**	**45%**
CMMM Score 2.90 (Basic level)			

Question 15	Yes	No	I do not know
Does the organization have documented procedures to ensure green procurement opportunities are identified for each purchasing action?	3	8	11
Total %	**14%**	**36%**	**50%**
CMMM Score 2.27 (Basic level)			

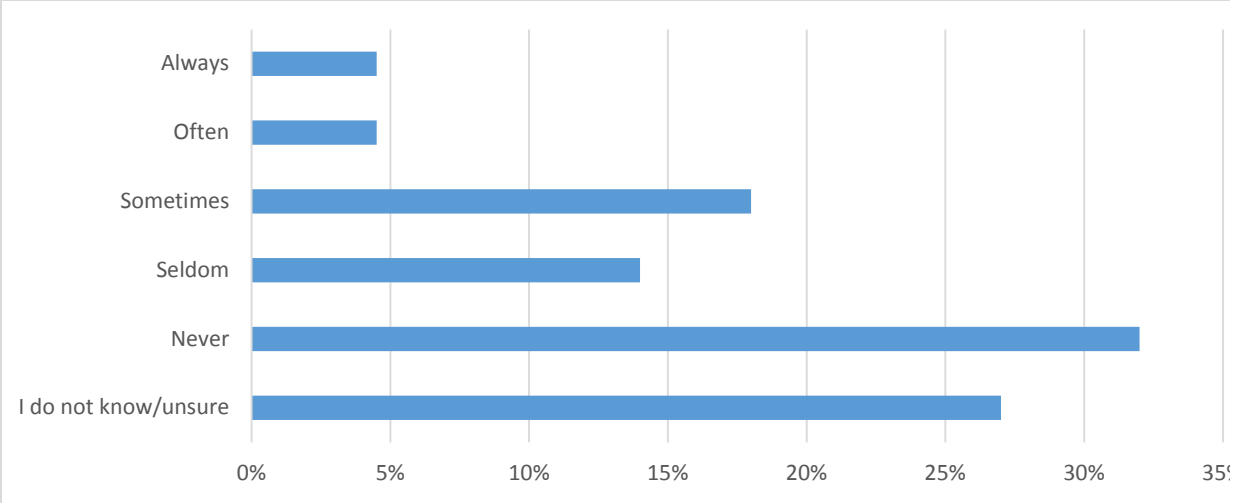
Question 16	Yes	No	I do not know
Does the organization have documented procedures for justifying and granting approval for decisions NOT to purchase green products or services	2	10	10

Total %	**9%**	**45%**	**45%**
CMMM Score 2.27 (Basic level)			

Question 17	**Yes**	**No**	**I do not know**
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.	5	16	1
Total %	**23%**	**73%**	**4%**
CMMM Score 3.36 (Structured level)			

Question 18

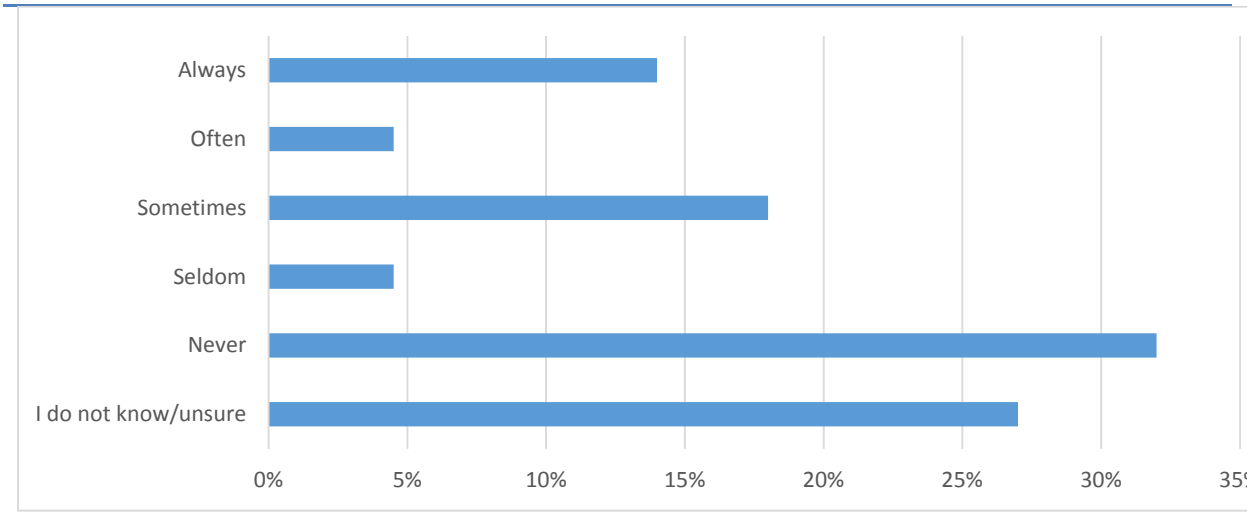
Before posting a solicitation, are there any RFI's posted requesting information for environmentally friendly opportunities for the services or products on the solicitation?



CMMM Score 1.55 (Ad Hoc level)

Question 19

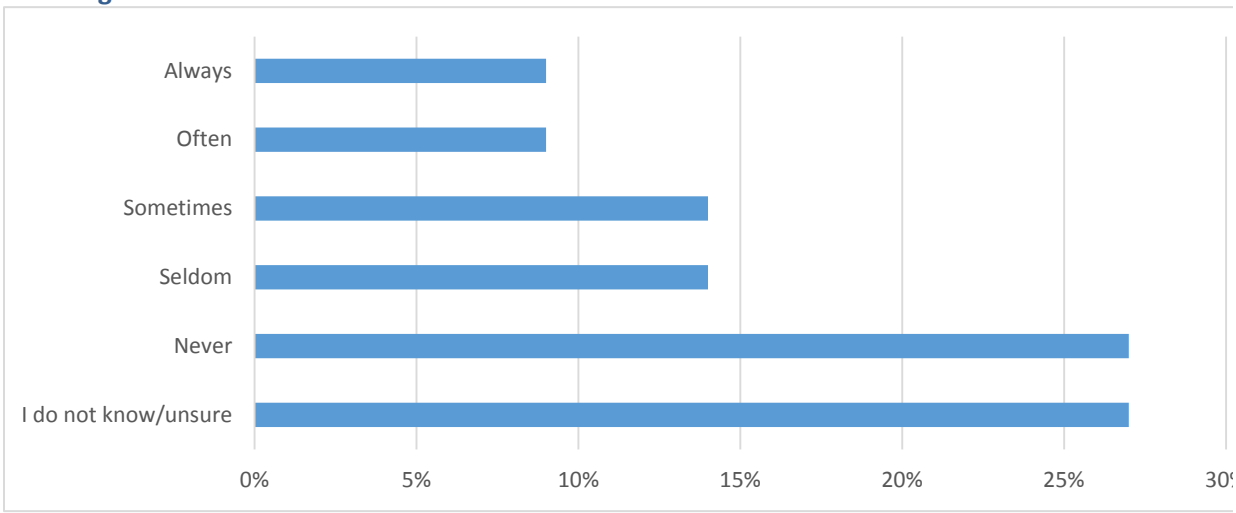
When generating the solicitation have green FAR clauses been included?



CMMM Score 1.82 (Ad Hoc level)

Question 20

Are there green requirements or considerations incorporated in the PWS/SOW or conditions for selecting a vendor?



CMMM Score 1.77 (Ad Hoc level)

Question 21	Yes	No	I do not know
Does your 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?	4	8	10
Total %	**18%**	**36%**	**45%**

CMMM Score 2.45 (Basic level)

Question 22	Yes	No	I do not know

Does your organization have documented procedures to ensure green products or services are purchased preferentially in each purchasing action?	3	9	10
Total %	**14%**	**41%**	**45%**
CMMM Score 2.36 (Basic level)			

Question 23	**Yes**	**No**	**I do not know**
If yes, is there an approval authority required to approve justifications for not purchasing green products or services?	3	7	12
Total %	**14%**	**32%**	**54%**
CMMM Score 2.18 (Basic level)			

Question 24	**Yes**	**No**	**I do not know**
Were environmental factors, such as reuse, recycle, waste reduction, and green procurement, evaluated as part of the performance, cost, and schedule analysis?	5	10	7
Total %	**23%**	**45%**	**32%**
CMMM Score 2.82 (Basic level)			

Question 25	**Yes**	**No**	**I do not know**
Does your organization have documented procedures to ensure that the relevant green procurement contract language and FAR clauses are incorporated in all contracts?	4	9	9
Total %	**18%**	**41%**	**41%**
CMMM Score 2.55 (Basic level)			

Question 26	**Yes**	**No**	**I do not know**
When awards for products or services involve use of recovered materials or EPA products, are the appropriate EPA-designated blocks and codes entered in the Contract Action Report?	5	5	12
Total %	**23%**	**23%**	**54%**
CMMM Score 2.36 (Basic level)			

Question 27	**Yes**	**No**	**I do not know**
Does your organization's GPP have procedures and assign responsibility for routine measurement, evaluation, and reporting of GPP performance data?	3	8	11
Total %	**14%**	**36%**	**50%**
CMMM Score 2.27 (Basic level)			

Question 28	Yes	No	I do not know
Does your organization have checklists or procedures in place to ensure that contractors and vendors are compliant with the GPP aspects included in the contract?	4	8	10
Total %	**18%**	**36%**	**45%**
CMMM Score 2.45 (Basic level)			

Question 29	Yes	No	I do not know
Does your organization utilize a GPP POC or advocate(s): personnel who help ensure GPP adherence, training, etc?	3	9	10
Total %	**14%**	**41%**	**45%**
CMMM Score 2.36 (Basic level)			

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