

Fiscal Year 2013

Operational Energy Annual Report



October 15, 2014

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Fiscal Year 2013 Operational Energy Annual Report

Introduction

This report responds to the requirement in section 2925(b) of title 10, United States Code, and provides an overview of FY 2013 operational energy activities in the Department of Defense, including information on operational energy demand, investments in alternative fuels, and support to current operations. For a description of each initiative related to the “Operational Energy Strategy,” a summary of funds appropriated for each initiative in the previous fiscal year and current fiscal year, and requested for each initiative over the next five fiscal years, please see the “FY13 Budget Certification Report: Energy Investments for Military Operations.”¹

President Obama established the Office of the Assistant Secretary of Defense for Operational Energy Plans and Programs (OASD(OEPP)) in June 2010, both to reflect the relationship between energy security and national security as well as to honor Congress’s call to establish an operational energy office at the Department of Defense. By statute, operational energy is defined as “energy required for training, moving, and sustaining military forces and weapons platforms for military operations.” The mission of OEPP is to improve military effectiveness while lowering risks and costs to the Department. Since being established three years ago, OEPP has achieved considerable progress by:

- Promoting institutional change within the Department;
- Supporting current operations with energy innovations; and
- Building operational energy considerations into the future force.

In FY 2013, the Department consumed an estimated \$14.8 billion of operational energy, with more than 60 percent of that purchased outside of the U.S. In FY 2014, the Department anticipates spending almost \$16 billion to provide more than 104 million barrels of operational energy for military operations, training, and readiness.

DoD Operational Energy Summary

	OE Demand	OE Cost
FY 2013	89.8 million barrels	\$14.8 Billion
FY 2014 (est.)	104.6 million barrels	\$16.0 Billion

As we draw down forces from ongoing operations and adapt to a changing security environment, the Department’s use of energy will remain a significant risk and opportunity. While the cost and service lives of our equipment will make this a decades-long process, improving the energy performance of current and future military platforms will pay dividends in times of peace and war. Improving

¹ This report is available at http://energy.defense.gov/Portals/25/Documents/Reports/20120815_FY13_OE_Budget_Cert_Report.pdf

operational energy use and reducing dependence on large liquid fuel supply lines enhances the ability to disperse, maneuver and operate over long distances and conduct operations in remote locations.

Institutionalizing Operational Energy

Throughout FY 2013, the Department made steady progress in integrating operational energy considerations into decision-making and business processes. The “Operational Energy Strategy” released in June 2011 set the overall direction for energy use in the Department while the March 2012 release of the “Implementation Plan” initiated a range of changes to governance, policy, and strategies.

The Defense Operational Energy Board (DOEB), co-chaired by the ASD(OEPP) and the Joint Staff Director for Logistics, continued to serve as the key forum for sharing operational energy lessons learned and best practices. The DOEB was scheduled to meet twice in FY 2013, but the second meeting was delayed until FY 2014 due to preparations for the government shutdown in October 2013. Shifting from developing operational energy policy to the implementation of that policy, the DOEB discussed near-term planning shortfalls associated with energy, the implementation of the energy Key Performance Parameter (KPP), and the inclusion of operational energy in war games. The DOEB will continue meeting on a semi-annual basis to provide oversight and coordination for energy initiatives across the Department.

In June 2013, the Deputy Secretary of Defense issued “Deputy’s Management Action Group Guidance for a Comprehensive Defense Energy Policy.” Highlighting how changes in the Department’s use of energy are needed to enhance military capability, improve energy security and mitigate costs, the Deputy Secretary initiated the development of a Department of Defense Issuance scheduled for completion in FY 2014. When complete, the Issuance will adapt core business processes – including requirements, acquisition, planning, programming, budgeting, mission assurance, operations, and training – to improve the Department's use and management of energy.

The Department also issued other policies over the past year to support the operational energy mission. In January 2013, the Under Secretary of Defense for Acquisition Technology and Logistics (USD(AT&L)) released “Department of Defense Directive 3000.10, Contingency Basing Outside the United States.” In addition to outlining Department policy related to interoperability, construction standards, and other areas, the Directive specified the role of operational energy and identified a smaller logistics footprint as enabling more effective and capable contingency bases.

To support specific oversight and policy mechanisms, the Department also expanded efforts to communicate the purpose, intent, and progress being made in the area of operational energy. In FY 2013, OEPP released an updated website (<http://energy.defense.gov>) with social media and blogging feeds, and started a monthly newsletter to share recent news and achievements. In September 2013, OEPP also released an infographic “Operational Energy by the Numbers” that summarized the concept

of operational energy, the challenges faced by the Department, and innovations being pursued across air, land, and sea.

In parallel with Department-wide initiatives, the Military Departments updated or released operational energy guidance and policies, including:

- Air Force Energy Strategic Plan: Released in March 2013, the Air Force identified four energy priorities: improve resiliency, reduce demand, assure supply, and foster an energy aware culture.²
- Army Operational Energy Policy: In April 2013, the Secretary of the Army identified operational energy as a “critical enabler for the range of military operational capabilities from the individual Soldier to strategic levels,” and assigned responsibilities for integrating operational energy, as appropriate, into Army policy, strategy, and regulations.³
- Navy Strategy for Renewable Energy: In October 2012, the Secretary of the Navy (SECNAV) released a roadmap for achieving the goals of deriving 50% of Navy energy from alternative sources by 2020 and generating half of Navy shore facilities’ power from renewable sources by that same year.⁴
- USMC Order 3900.19, “Applying Energy Performance Metrics and Measures in Requirements Development and Acquisition Decision-Making:” Noting that 70 percent of logistics required to sustain USMC expeditionary forces consists of fuel and water, this May 2013 order, issued by the Commandant of the Marine Corps, called for increasing the combat effectiveness of the MAGTF by directing “the integration of energy performance metrics and measures into all applicable materiel capabilities.”⁵

In addition, each of the Military Departments and the National Defense University instituted programs to integrate operational energy considerations into professional military education. For example, the SECNAV Executive Energy Series reaches the Navy’s most influential senior leaders and shapes discussion of increasing capabilities and reducing vulnerabilities associated with energy requirements and consumption. In FY 2013, the first two courses were held with Flag, Senior Executive Service, and Senior Enlisted leader attendees.

Supporting Current Operations

In FY 2013, support to current operations remained the top priority of the Department. The Military Departments and Combatant Commands began or continued numerous operational energy initiatives to

² This document is available at: <http://www.safie.hq.af.mil/shared/media/document/AFD-130325-132.pdf>

³ This document is available at: <http://usarmy.vo.llnwd.net/e2/c/downloads/295964.pdf>

⁴ This document is available at: http://greenfleet.dodlive.mil/files/2013/01/DASN_EnergyStratPlan_Final_v3.pdf

⁵ This document is available at: http://www.hqmc.marines.mil/Portals/160/MCO%203900_19.pdf

support the warfighter and bolster mission assurance, including rapid fielding projects, partnership capacity-building activities, and others.

Rapid Fielding

The Department has used rapid fielding initiatives to realize near-term operational energy gains at the tactical edge, and continues to address emerging warfighter energy requirements and fuel efficiency needs with both materiel and non-materiel solutions. Initiatives in FY 2013 included:

- Operation Dynamo I/II: The Army's Project Manager Mobile Electric Power (PM-MEP) continued to assist deployed units with power generation, power distribution, and environmental control capabilities at forward operating locations in Afghanistan. Since FY 2012, PM-MEP has provided safe, efficient, and reliable power equipment to 57 sites by fielding standard, type-classified Army generators, environmental control units, and power distribution systems. These systems have greatly improved electrical and environmental control systems efficiency, increased reliability and safety, and reduced logistical demands at these remote, logistically constrained forward locations. In addition, Operation DYNAMO III began in FY 2013 to provide technical and maintenance assistance, and training to rotating units, to ensure we continue to apply the lessons we have learned, and responsibly supervise the retrograde of equipment as forces drawdown.
- Army Soldier Power: The Army's Project Manager Soldier Warrior is involved in developing, acquiring, and fielding expeditionary power solutions that reduce Soldier load and increase mobility and endurance for dismounted operations. This equipment was fielded to five brigades in FY 2013, and six brigades will receive the upgraded equipment set and associated training in FY 2014. This equipment includes the Squad Power Manager (SPM), the Integrated Soldier Power / Data System (ISPDS), the Conformal Wearable Battery (CWB), and the Modular Universal Battery Charger (MUBC).
- Contingency Base Demand Data Collection (CB-DDC): The U.S. Army Logistics Innovation Agency, partnered with the Logistics Civil Augmentation Program (LOGCAP), began the collection of detailed electrical power demand data at contingency bases in Afghanistan. The CB-DDC project will document electrical demand at selected facilities on six contingency bases over a 12-month period and use the data to improve power system designs, inform and validate base camp models, and increase accuracy in power demand predictions.
- Joint Special Operations Task Force – Trans Sahara (JSOTF-TS): The Army's Rapid Equipping Force (REF) conducted an energy assessment to assist Special Operations Forces experiencing significant power, water, and fuel supply constraints. In addition to integrating with host nation electrical and fuel generator power sources, certified electricians incorporated

renewable power generation and energy storage to reduce fuel consumption and dependency on host nation services.

- Air Force Mission Index Flying (MIF): MIF is an onboard mission indexing system allowing strategic airlift and tanker aircrew to optimize fuel consumption and other flying operations cost parameters. Including altitude, speed, and descent profiles, MIF helps aircrew fly within optimal parameters, yet is flexible enough to allow aircrew to make necessary adjustments to meet mission requirements. Business case analysis shows a 1.25 percent savings in fuel burned annually. In FY13, MIF saved \$7.7M in O&M fuel costs.
- Mobility Air Forces Cost Avoidance Tankering (MAFCAT): Led by Transportation Command, in collaboration with DLA-Energy, CENTCOM, and Air Mobility Command, MAFCAT optimizes fuel purchasing to take advantage of aviation fuel cost differentials at airfields in Afghanistan. This system enabled “tankering,” or the ferrying of additional lower cost fuel from a base outside Afghanistan for use on follow-on mission legs in lieu of buying higher cost fuel in Afghanistan. Operational support for this effort is resulting in millions of dollars in cost avoidance across DoD energy accounts.
- Naval Aviation Energy Conservation Program (Air ENCON): Air ENCON promotes fuel conservation across the Navy through metrics, reporting, conservation practices, and awards. Fiscal year 2013 marked the beta test year where two aviation energy conservation initiatives were approved and six more continued to develop. The first approved initiative was Short-Cycle Mission and Recovery Tanking (SMART), which creates a more efficient F-18 in-flight refueling plan, reducing tanker loiter time for the carrier air wing. The second was Truck Refueling for fixed wing aircraft, which advocates shutting aircraft down to refuel using trucks vice refueling in the hot pits with engines online. Air ENCON will be online in FY 2014 and seeks to reduce Naval Aviation fuel consumption four percent by 2020.
- Navy Shipboard Energy Efficient Technologies: The Navy has pursued several methods to increase energy performance. An energy dashboard was installed onboard the USS Wayne E. Meyer (DDG-108) and provides real-time ship-wide monitoring, computing the power use and operating conditions of ship systems and displays this information to crew members. Stern flaps were installed on the USS Iwo Jima (LHD 7), the USS Essex (LHD 2), and the USS Oak Hill (LSD 51) save enough fuel to power the equivalent of five additional steaming days per year. Finally, combustion trim loops, which optimize the air/fuel mixture to improve boiler efficiency, were installed on the USS Wasp (LHD-1) and the USS Bataan (LHD-5) and add capability equal to three extra steaming days per year.
- Replenishment at Sea Planner (RASP): Developed by the Naval Postgraduate School, RASP is a software tool that optimizes underway resupply of Navy ships. RASP is intended to minimize the distances combat support ships and combatants must travel to conduct underway

replenishment. Already in use in Fifth and Seventh Fleets, RASP is expected to be incorporated into Sixth Fleet in 2014 with the potential to save millions of dollars in fuel costs and reduce staff planning time.

- USMC Experimental Forward Operating Base (ExFOB): ExFOB is an annual demonstration that brings together energy stakeholders from across the Marine Corps and DoD to evaluate and accelerate deployment of commercial technologies that reduce battlefield energy and water requirements. The latest demonstration, ExFOB 2013, was held at Marine Corps Air Ground Combat Center 29 Palms in May 2013. It focused on hybrid power systems that will redefine how the Marine Corps powers the future force and could yield up to 50 percent fuel savings and up to 80 percent reduced generator run time.

Combatant Command Initiatives

In coordination with the Military Departments, the Combatant Commands focused on a range of solutions in FY 2013 that reduced casualties from moving and protecting fuel, improved effectiveness of forces and equipment, strengthened resilience of fuel logistics and critical infrastructure, and enhanced partner nation capacity. These initiatives included:

- Energy Surety and Efficiency Improvement Assessments: In partnership with U.S. Central Command (USCENTCOM) and U.S. Southern Command (USSOUTHCOM), Department of Energy (DOE) National Laboratories conducted energy assessments at Bagram Airfield in Afghanistan and Soto Cano Airbase in Honduras. The final assessment reports included specific recommendations for energy efficiency and conservation improvements, renewable energy and hybrid power system applications, employment of microgrid technologies, and modifications of energy infrastructures to mitigate potential vulnerabilities.
- U.S. Pacific Command (USPACOM) Transformative Reductions in Operational Energy Consumption (TROPEC): Focused on decreasing energy demand at expeditionary outposts in tropical climates, USPACOM included TROPEC in recent bilateral exercises to build partnerships with other militaries and share in the development of energy-efficient contingency base systems.
- North Atlantic Treaty Organization (NATO) Energy Security Center of Excellence (ES-COE): NATO opened the ES-COE in September 2013 in Lithuania with staff from across the Alliance. U.S. European Command (USEUCOM) strongly supported the Center, assisted with its creation, and is an active participant in Center activities. The mission of the ES-COE is to assist NATO by providing comprehensive and timely subject matter expertise on all aspects of energy security.

- USSOUTHCOM Contingency Basing Assessment Initiative: This joint effort between PM-MEP, REF, and Product Manger Force Sustainment Systems (PM-FSS) coordinated future assessments to provide enhanced power and shelter systems for eight contingency bases in the USSOUTHCOM area of responsibility.

Shaping the Future Force

In addition to supporting current operations, the Department continued to integrate operational energy into future force development. Through the promotion of innovation, coordination of alternative fuels activities, partnerships with DOE, and improvements to requirements and acquisition processes, the Department will continue to improve the energy performance of the future force.

Operational Energy Capability Improvement Fund

In FY 2013, the Operational Energy Capability Improvement Fund (OECIF) funded a range of programs focused on reducing the energy load of expeditionary outposts, generating energy from waste, and collecting data on operational energy use. For example, under the Advanced Energy Efficient Shelter Systems (AEESS) program, 15 shelter systems were deployed to Kuwait for demonstration and evaluation and showed a 50 percent reduction in power consumption. At Camp Lemonnier, the Super Containerized Living Units (SuperCLU) program demonstrated a 54 percent reduction in energy use while significantly improving the living conditions of the occupants.

OECIF also initiated four consortia programs in FY 2013 to actively encourage the participation of small business and non-traditional innovators in solving broad operational energy problems. The four new consortia are Tactical Microgrid Standards, Energy Efficient Outpost Modeling, Soldier and Small Unit Operational Energy, and Engineered Surfaces and Coatings for Drag Reduction.⁶

Alternative Fuel Initiatives

In FY 2013, the Department invested in alternative fuels testing and certification activities to support the “Operational Energy Strategy” goal of expanding and securing the supply of energy to military operations. The Army successfully qualified new alternative fuels from two production processes (Fischer-Tropsch Synthetic Paraffinic Kerosene, and Hydro-Processed Renewable Jet) in 50-50 blends of JP8 for use in tactical/combat vehicles, tactical generator sets, and other deployable assets, and is on-track to certify their rotary wing aviation fleet to use these fuels by the end of FY 2014. The Navy gathered technical data as well as evaluated effects of alternative fuels on performance and reliability of Naval ship, aircraft, and fuel distribution systems. The Navy also updated JP5 specification to include up to 50 percent blends of Hydroprocessed Esters and Fatty Acids/Fischer Tropsch

⁶ More information is available here: <http://energy.defense.gov/Blog/tabid/2569/Article/3835/four-new-programs-to-improve-military-energy-performance.aspx>

(HEFA/FT), and it continues to work towards qualifying additional pathways, including Alcohol to Jet, Hydroprocessed Depolymerization Cellulosic, Synthesized Iso-Paraffins, and Catalytic Hydrothermolysis. Finally, the Defense Logistics Agency (DLA) performed testing and certification to support the addition of synthetic and alternative fuels to mobility fuels specifications.

The Department also supported alternative fuels activities through the advanced drop-in biofuels production initiative funded through the Defense Production Act (DPA). In partnership with the private sector, DOE, and the Department of Agriculture, this initiative aims to catalyze a domestic capability to produce cost-competitive, advanced drop-in renewable fuels at commercial scale. This initiative is subject to the same rigorous review process as all DPA projects, and seeks matching or greater private sector investment. In FY 2013, the Department on behalf of the three agencies, took the first step in this effort by competitively selecting four companies for Phase I of the DPA Advanced Biofuels Production Project.

More information on alternative fuels initiatives and funding can be found in **Appendix C** of this report.

Cooperation with the Department of Energy

In FY 2010 the Department and DOE signed a Memorandum of Understanding (MOU) entitled “Concerning Cooperation in a Strategic Partnership to Enhance Energy Security.” The MOU established an Executive Committee to jointly execute energy-related projects and participate in a formal process to “strengthen and broaden” existing collaboration.

In FY 2013, this MOU led to significant progress in more than 20 joint initiatives, including the Advanced Vehicle Power Technology Alliance (AVPTA), managed by the Army Tank-Automotive Research, Development and Engineering Center and DOE’s Office of Energy Efficiency and Renewable Energy Vehicle Technologies Office. In September 2013, DOE awarded \$45 million to AVPTA and the Army contributed \$3 million to co-fund 38 advanced vehicles projects, including advanced batteries, power electronics, and better lubricants.⁷

Operational Energy in Force Development

Alongside efforts to boost energy-related science and technology, the Department continued to incorporate operational energy considerations in the development and acquisition of future forces.

Across OSD, Defense Agency, and Service wargames in FY 2013, operational energy constraints and opportunities gained more visibility in game play, adjudication, and lessons learned. As this trend continues, the Department will better understand how energy demand on the battlefield affects

⁷ More information is available at: <http://energy.gov/articles/energy-department-awards-45-million-deploy-advanced-transportation-technologies>

warfighting, and better able to identify possible changes or trade-offs in future platforms, concepts of operations, and force structure that improves effectiveness, capabilities, and cost. For example, the Air Force “Futures” game compared the capabilities in a planned/programmed structure with an alternative force structure, and traded planned/programmed structure to “buy” different capabilities. The Navy also funded and held planning conferences for the Logistics Centric Game, which will be held in FY 2014 to explore the impact of degraded logistics capabilities, including disruptions to fuel supply and distribution, during combat operations.

The Joint Staff J-4 and OEPP also continued to assess Military Department compliance with use of the energy KPP in new systems. Specifically, OSD and the Joint Staff collaborated through DOEB working groups to educate requirements offices on how the energy KPP is assessed and how to conduct energy analyses needed to support that assessment. Over the past year, the Military Departments began implementation of the energy KPP, but are still developing analytical tools, techniques, and products to better inform requirements development and force structure decisions.

As programs move from requirements to acquisition, OEPP continued to act as an advisor to the Defense Acquisition Board (DAB), chaired by the Department Acquisition Executive. In FY 2013, there were over 30 DAB meetings with an equal number of preparatory meetings. In that capacity, OEPP continued to bring operational energy issues to the attention of the DAB, reviewing documents (such as Acquisition Decision Memoranda, Acquisition Strategies, and Acquisition Program Baselines) and recommending changes before signature.

Conclusion

In a November 2013, Secretary of Defense Chuck Hagel stated that, “DoD invests in energy efficiency, new technologies, and renewable energy sources at our installations and all of our operations because it makes us a stronger fighting force and helps us carry out our security mission.”⁸ The Department is committed to understanding how energy affects our missions strategically, operationally, and tactically and improving how energy and resilient infrastructure contributes to warfighting capabilities and mission assurance. To do so, the Department has made great strides in reforming institutional business processes and decision-making, supporting current operations, and applying energy considerations to the development of the future force.

As the Department rebalances to the Asia-Pacific region while maintaining a global presence, energy will be all the more important. Not only will the Department need extended range and endurance to operate – whether for today’s humanitarian relief missions in the Philippines or as tomorrow’s regional deterrent – but we also will need energy and logistics interoperability with our allies and partners. To

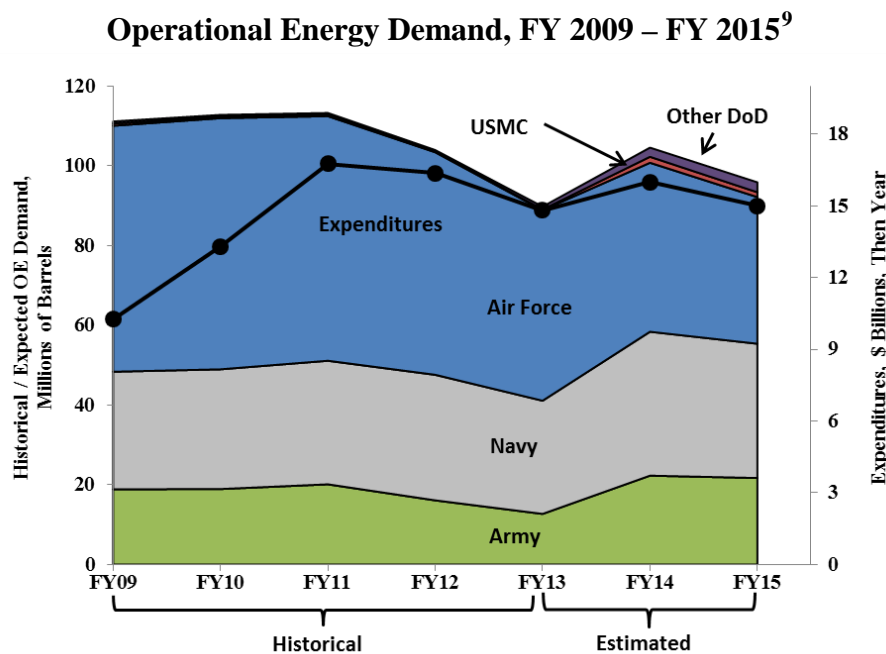
⁸ Secretary of Defense Speech to the Halifax International Security Forum; Friday, November 22, 2013; <http://www.defense.gov/speeches/speech.aspx?speechid=1821>

this end, energy can be a positive tool for cooperating with emerging partners to help support operations and build partner capacity.

Our vision to better manage the Department's use of energy will continue to improve military capability across all missions. As we adapt to threats and geopolitics shaped by energy, now is the time to drive long-term innovation and energy improvements into our core business processes, force structure, and planning to ensure we have the military we need to succeed in the future. The Department appreciates the support of Congress in achieving the operational energy mission in support of military operations around the globe.

Appendix A: Historical and Estimated Demand for Operational Energy

The figure below describes the historical demand for operational energy in FY 2009 – FY 2013, estimated demand for operational energy in FY 2014 – FY 2015, and total expenditures to purchase that fuel. Historical operational energy demand is based on net sales of selected liquid fuels by DLA to the Services, while future operational energy demand estimates are based on the FY 2015 President’s Budget. Expenditures for operational energy are estimated using the average fuel sales price for the specific fuel provided to the customer at the point of sale, and include procurement and overhead costs. This price does not reflect additional costs imposed on the Department for force protection, storage, and transportation beyond the point of sale. As a purchaser of fuel on the open market, the Department is subject to the same price volatility experienced by commercial consumers.



⁹ **Note:** Expenditures are not adjusted for inflation; data on historical demand may not capture final end use nor account for fuel transfers between the Services; and Historical and Estimated Demand include Base and Overseas Contingency Operations (OCO) funding, and purchases using Transportation Working Capital Fund (TWCF). Fiscal year 13 data is not available for USMC in Afghanistan and is not included in the total.”

		<i>Historical</i>					<i>Estimated</i>	
		FY09	FY10	FY11	FY12	FY13	FY14	FY15
Operational Energy Demand, Million Barrels	Army	18.9	18.9	20.1	16.1	12.7	22.3	21.7
	Navy	29.5	30.0	31.0	31.5	28.4	36.1	33.7
	Air Force	61.7	63.0	61.4	55.8	47.8	42.4	36.8
	USMC	0.6	0.4	0.3	0.2	0.2	1.5	1.2
	Other DoD	0.5	0.5	0.5	0.4	0.7	2.3	2.5
	Total Demand	111.2	112.8	113.3	104.0	89.8	104.6	96.2
	Expenditures, \$ Billion	\$ 10.3	\$ 13.3	\$ 16.8	\$ 16.4	\$ 14.8	\$ 16.0	\$ 15.0

Appendix B: Additional Report Requirements

Operational Energy Initiatives and Funding, FY 2012 – FY 2018

(C) A description of each initiative related to the operational energy strategy and a summary of funds appropriated for each initiative in the previous fiscal year and current fiscal year and requested for each initiative for the next five fiscal years.

See the FY 2013 Operational Energy Budget Certification Report provided to the Secretary of Defense and available at <http://energy.defense.gov/>.

Progress in Implementing the Operational Energy Strategy

(D) An evaluation of progress made by the Department of Defense— (i) in implementing the operational energy strategy, including the progress of key initiatives and technology investments related to operational energy demand and management; and (ii) in meeting the operational energy goals set forth in the strategy.

In addition to the information contained in this report, see the FY 2013 Operational Energy Budget Certification Report provided to the Secretary of Defense and available at <http://energy.defense.gov/>.

Recommended Changes in Organization or Authority

(G) Such recommendations as the Assistant Secretary considers appropriate for additional changes in organization or authority within the Department of Defense to enable further

implementation of the energy strategy and such other comments and recommendations as the Assistant Secretary considers appropriate.

At this time, OASD(OEPP) has no recommendations for changes in organization or authority.

Appendix C: Alternative Fuels Initiatives

This section is in response to the following requirement for the Operational Energy Annual Report as outlined in section 2925(b) of title 10, United States Code: *A description of the alternative fuel initiatives of the Department of Defense, including funding and expenditures by account and activity for the preceding fiscal year, including funding made available in regular defense Appropriation Acts and any supplemental Appropriation Acts.*

Initiatives to Model and Develop Biomass Feedstocks and Biofuel Production Capabilities

Service	Program Title	Initiative Title	Description	Treasury Code (TC)	Budget Activity (BA)	Budget Line Item	Program Element (PE)	FY 2013 Funding (,000)
Navy	Fuels S&T	Energy Efficiency & Alternative Energy Technologies - Biofuels	Determine the viability of alternative fuels derived from biomass and waste sources for naval gas turbine and diesel engine operations.	2040	03	441	0603005A	\$2,000
Defense Production Act Title III	Defense Production Act Purchases	Advanced Drop-in Biofuels Production Project (ADBPP)	The objective of this project is to form one or more Integrated Biofuels Production Enterprises (IBPEs) comprised of partnerships that establish the complete value chain capable of producing drop-in replacement biofuels.	0360D	01	1	0902199D8Z	\$60,000
							Total	\$62,000

Initiatives to Test and Evaluate Alternative / Non-Petroleum Fuels for Use in Military Fuel Systems¹⁰

Service	Program Title	Initiative Title	Description	Treasury Code (TC)	Budget Activity (BA)	Budget Line Item	Program Element (PE)	FY 2013 Funding (,000)
Army	Aviation Technology	Fuel Qualification and Certification Efforts	Assess the impact of using emerging alternative fuels in aviation platforms and identify changes in fuel specifications to implement alternative fuels into Army aviation systems.	2040	02	EM8	0602211A	\$959
Army	Combat Vehicle and Automotive Advanced Technology	Fuel Qualification and Certification Efforts	Assess the impact of using emerging alternative fuels in tactical/combat vehicles and other deployable assets, and will identify changes needed in fuel specifications to implement alternative fuels into Army systems.	2040	02	H77	0602601A	\$2,165
Navy	Alternative Fuels Program	Alternative Fuels Program	Develop technical data through the execution of laboratory, component, engine, fuel system, and weapon system tests, which evaluates the effects of changes in fuel chemistry and properties on the performance and reliability of Naval ship, aircraft, and fuel distribution systems.	1319	04	0838	0603724N	\$9,897
DLA Energy	Quality/Technical Support Office	Energy Readiness Program	The program objective is managing projects that bring improvements to the Class IIIB supply system for Military fuels. Current focus is on assisting the conversion to commercial Jet A fuel in CONUS and the incorporation of alternative fuels into Military acquisition schemes.	0400	03	24	0603712S	\$1,300
							<u>Total</u>	<u>\$23,421</u>
Total Budgeted / Obligated in FY 2013								\$85,421

¹⁰ All of these initiatives include the procurement of alternative fuels to support testing and evaluation activities.