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The Military Dimensions of Post-Cold War US Oil Policy: Access to Oil and Consequences for Geostrategy

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Abstract
My objective is to analyze the military dimensions of United States oil policies since the end of the Cold War. America’s increasing economic dependency on imported oil, a vital input in the health of western economies, has been widely documented, but how does the military understand the role of oil, particularly in war times? I question long-standing assumptions about oil and international politics, particularly regarding “access” to the resource. In the end, I hope to produce a report that will shed light on aspects of the military’s oil strategy that either contradicts or is not captured by the existing scholarship.

Keywords
oil, petroleum, military, DoD, energy security, energy, national security, logistics, Social Sciences, Political Science, Robert Vitalis, Vitalis, Robert

Disciplines
Political Science

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The Military Dimensions of Post-Cold War U.S. Oil Policy:
Access to Oil and Consequences for Geostrategy

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<td>Area of Responsibility</td>
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<tr>
<td>COCOM</td>
<td>Combatant Command</td>
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<td>DLA Energy</td>
<td>Defense Logistics Agency - Energy</td>
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<td>DoD</td>
<td>Department of Defense</td>
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<td>DOE</td>
<td>Department of Energy</td>
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<td>EIA</td>
<td>US Energy Information Administration</td>
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<td>FY</td>
<td>Fiscal Year</td>
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<td>IEA</td>
<td>International Energy Agency</td>
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<td>JFCOM</td>
<td>Joint Forces Command</td>
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<td>NSD</td>
<td>National Security Directive</td>
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<td>OIF</td>
<td>Operation Iraqi Freedom</td>
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<td>OPEC</td>
<td>Organization of Petroleum Exporting Countries</td>
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<td>OSD</td>
<td>Office of the Secretary of Defense</td>
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<td>QDR</td>
<td>Quadrennial Defense Review</td>
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<td>RDF</td>
<td>Rapid Deployment Force</td>
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<td>SPR</td>
<td>US Strategic Petroleum Reserve</td>
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<td>USA</td>
<td>United States Army</td>
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<td>USAF</td>
<td>United States Air Force</td>
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<td>United States Marine Corps</td>
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<td>USN</td>
<td>United States Navy</td>
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<td>USCENTCOM</td>
<td>United States Central Command</td>
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Introduction

“He who has oil has empire.”
--Advisor of French Prime Minister Georges Clemenceau, December 1919

How has the United States military thought about the role of oil since the end of the Cold War? A great deal has been written in academia and in the media about America’s increasing economic dependency on imported oil, a vital input for industry, transportation, and the home, and thus for the health of western economies, but how does the US military understand the role of oil, particularly in war times? The US military is the largest consumer of oil in the world, yet most people hardly understand how they actually secure oil on a day-to-day basis. Although scholars have long analyzed the emphasized the relationship between oil and the military during the Cold War, there is no new theoretical, scholarly work focusing on the military dimensions of post-Cold War oil policy. In 1992, Professor Michael Palmer wrote in Guardians of the Gulf that “the end of the Cold War has and will continue to further enhance the relative importance of the Persian Gulf to the United States.” With political unrest currently spreading rapidly across the Middle East and North Africa, there is no better time than now to analyze the changing geopolitics of oil landscape, and how the US military plays a part in it. By collecting and reviewing existing primary sources—technical studies, consulting reports, and specialized journalism—one can begin to assess planners’ assumptions about securing “access” to oil supplies today in order to fight wars tomorrow.

2 Palmer, Guardians of the Gulf, 248.
International relations theorists distinguish the war-fighting dimension, which is historically a key part of US grand strategy, from notions of preventing the rise of other would be great powers by preempting access or control of energy resources. All discussions of oil and grand strategy by specialists in international relations today focus exclusively on preemption and say nothing about war fighting. Is the military no longer planning for global war in which world oil supplies matter (under the premise that prospects for a great power war have grown increasingly unlikely)? If so, why has it stopped doing so? Does it assume that any large scale conflict short of general war will rely exclusively on western hemisphere resources? The reality is that existing scholarship has no answer to these questions, and that understanding how the military gains access to oil would provide clues into the assumptions about war-fighting.

Professor Robert Vitalis (2009) is the latest among a small number of scholars who have begun to question long-standing assumptions about oil and international politics. Virtually all existing analyses discuss the problem of oil as one of “access” (or, in some versions, “control.”) The problem arises when one attempts to pin down the idea of access. The biggest problem for those who imagine that political interventions of various sorts are necessary to preserve or enhance access is that access is more or less guaranteed for all producers and consumers via the market. Thus, many economists rejected the necessity for going to war in Iraq in 1990 and in 2003 because no real threat to access to oil supplies existed. The reality is that oil producers—so called “moderates” such as Saudi Arabia, Kuwait and the “radicals” such as Iraq prior to 2003, Iran and Venezuela alike—need to sell their oil. And no oil producing country can successfully

3 e.g. Christopher Layne, John Mearsheimer, Michael Klare, Flynt Leverett
5 Maury Adelman, “The Real Oil Problem,” Regulation, Spring 2004, pp. 16-21
boycott one country unless it boycotts all countries, which has never happened in history. Although supply manipulations by these countries obviously affect or influence market-determined prices, they do not determine those prices.

The unauthorized publication in 1992 of a Pentagon planning document serves as the starting point for an emerging geopolitical perspective on oil’s strategic value, which one can call preemption. That is, the preservation and enhancement of US access or control of foreign oil resources is a means to reduce the prospects of any Eurasian rival power emerging to challenge American primacy. Where most IR scholars take this presumed relation at face value, Christopher Layne, Eugene Gholz and a few others have challenged either, narrowly, the need to deploy military power in the Gulf and Central Asia in support, or, broadly, the validity of the assumptions underlying preemption as a foreign policy strategy. What is missing from these latter debates is any discussion of the military’s view of oil importance in fighting wars (and what form future wars will take) rather than in preventing the rise of a European or Asian challenger. It may be that the distinction no longer exists in the minds of strategists or no longer matter to planners. It may also be, however, that IR scholars together with journalists and pundits are as wrong about defense policies as they are about the workings of the oil market.

The hypothesis is that the Pentagon has to do close to nothing geopolitically to gain access to oil, as the market will provide access regardless of political relationships. To what extent does the US military actually contract with different governments and to what extent does politics play a role in these deals? These questions fall under the umbrella of energy security, an area that

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US policymakers talk more about today than they have at any time since the energy crises of the 1970s. Researching the workings of the US military, the largest consumer of oil in the world, should provide academics and interested outsiders with a compelling new view on access to oil assumptions and geopolitics as a whole.

The organization of the thesis is as follows: Chapter One will consist of an overview of how IR scholars and policymakers have thought about the role of oil in geopolitics with a focus post-Cold War. Chapter Two will essentially act as a “primer” that will outline the oil needs of the military, how those needs are determined, how oil is secured, and how oil is distributed to the bases around the world. This primer is based on interviews with people with this specific knowledge in day-to-day oil procurement policies and special plans for contingency in the military, along with released documents by the Department of Logistics Agency—Energy (DLA Energy), which is the Department of Defense (DoD) organization responsible for purchasing and managing all petroleum resources used by the US Military. Examining the energy environment of DoD requires an understanding of the DoD energy consumption profile (how and where is energy being consumed). Energy consumption falls into two categories: facility energy use and mobility energy use. Facility energy is the energy required to fuel bases and other stationary products. Mobility energy is the fuel used to power DoD weapons platforms, tactical equipment, and all other types of vehicles. These concepts will be crucial moving forward as we analyze the relationship between oil and the military. By constructing this “primer,” the reader will be armed with the technical knowledge of the US military oil procurement procedures, which will enable to one to make inferences about the future significance of US military presence in the Persian Gulf and other resource-heavy areas.
Chapter Three will deal with policy recommendations, with particular concern for discussions of how the military secures its “normal” peacetime energy needs and what plans exist for meeting “extraordinary” needs in wartime. The presumption is that these issues are key aspects of planning that need to be integrated into our accounts of post-cold war grand strategy. The conclusions presented in this paper lead to a number of policy recommendations, including adjusting the size of military bases, reducing the defense budget, reexamining political relationships between the US and oil producers like Iran or oil consumers such as China, and reexamining the relationship between oil revenues and terrorism.

The final product will identify key analytical assumptions and differences among schools of thought, together with the best-informed analysts and specialists on the topic. The assumptions that many scholars make about the imminent danger of US access to foreign oil and an impending global war over energy resources will certainly be challenged in the analysis.
Chapter 1: How People Think About Access to Oil In International Relations

I. Oil and National Security: A History

From the battlefields of World War I, to Hitler’s pursuit of the oil fields in the Caucasus in the Second World War, to the 1956 Suez Crisis, to the 1990 Gulf War, to the current civil war in Libya, oil as a commodity has been intimately intertwined with national strategies and global politics and power. Given society’s dependence on oil—we use it for transportation, fertilizers, plastics, chemicals, and more—nations have found that oil is “central to security, prosperity and the very nature of civilization.” As a result, access to oil has been a political and strategic concern since the US moved from being an oil exporter to an oil importer in the late 1940s. Today, these concerns have been amplified both because of the outflow of money and because of turbulence and extremism in parts of the Middle East, a region where the US imports a substantial percentage of its oil from. The current debate about the role of oil in foreign policy falls under the “energy security” umbrella, which the Department of Defense defines as, “having assured access to reliable supplies of energy and the ability to protect and deliver sufficient energy to meet operational needs.” To DoD, “assured access” is crucial—not only is American reliance on foreign oil at 60 percent of total national consumption, but also DoD is the world’s single largest customer for energy, accounting for 0.8 percent of total US energy consumption.

8 Daniel Yergin, The Prize: The Epic Quest For Oil, Money & Power (New York: Free Press, 2009), xiv
9 Ibid
and over 80 percent of Federal government energy consumption. To put this in perspective, DoD burns 395,000 barrels of oil per day—about as much as the entire country of Greece. Many scholars have written about the link between energy and national security and the “obvious” long-term implications, such as bolstering illiberal regimes that control oil reserves and indirectly financing terrorist groups to driving climate change that endangers global stability and the American economy. But before examining the plausibility of these linkages, we first must examine the history between US geostrategy and oil.

Both for the health of US economy and for broader national security reasons, the US has given ensured access to oil a high priority among its foreign and defense policy imperatives since World War II. As Navy Secretary James Forrestal wrote to Secretary of State Edward Stettinius Jr. in 1944, “the prestige and hence influence of the United States is in part related to the wealth of the Government and its national in terms of oil resources, foreign as well as domestic.”

As US-Soviet tensions escalated after the war, the Middle East assumed a growing military importance as a base to wage a strategic bombing campaign against the Soviet Union in event of war. America’s regional strategic objectives—gaining control over Middle Eastern and Persian Gulf oil, and establishing the United States as the region’s dominant power—were formed during World War II and the years after.

Although the commitment to guarantee access to Persian Gulf oil was a tenet of US policy before the oil crises of the 1970s, it was not until the end of the decade that a US administration

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12 Layne, The Peace of Illusions, 46.
13 Ibid
openly announced its readiness to intervene militarily in the region to prevent a hostile power from dominating the supply of oil from the Persian Gulf. The Carter Doctrine, announced in President Jimmy Carter’s State of the Union address on January 23, 1980, stated that the United States would not tolerate being shut out of that region:

Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.\(^\text{14}\)

This statement had clear linkages to military strategy. Just a few years prior to the speech, in September 1978, the Joint Chiefs of Staff issued its “Review of US Strategy Related to the Middle East and the Persian Gulf,” in which it named ensuring “continuous access to petroleum resources” as the primary US priority in the region, along with ensuring the survival of Israel.\(^\text{15}\)

Yet the clearest manifestation of the expanding US military commitment to protect access to Middle Eastern oil was the creation in 1979 of the Rapid Deployment Force (RDF), which soon gained full, unified command status as the US Central Command (USCENTCOM). It was originally conceived as a package of forces available for worldwide contingences, although its focus quickly tilted heavily toward the Persian Gulf region after the Soviet invasion of Afghanistan in December 1979 and the announcement of the Carter Doctrine in response a month later. Indeed, the “specter of a threat to Persian Gulf petroleum” served as an official rationale for the RDF.\(^\text{16}\)


\(^{15}\) Palmer, Guardians of the Gulf, 102.

President Ronald Reagan, just nine months into his first year in office, extended President Carter’s pledge to cover not just external but also intraregional threats to US access. In what came to be called the Reagan Corollary to the Carter Doctrine, the President made clear the nature of the threat and the US commitment: “there is no way . . . that we could stand by and see [Saudi Arabia] taken over by anyone that would shut off the oil.”

The prominence of Persian Gulf oil in US national defense strategy did not diminish as the end of the Cold War approached. National Security Directive (NSD-26), issued by President George H.W. Bush on October 2, 1989, stated,

Access to Persian Gulf oil and the security of key friendly states in the area are vital to US national security. The United States remains committed to defend its vital interests in the region, if necessary and appropriate through the use of US military force, against the Soviet Union or any other regional power with interests inimical to our own.

As it turned out, the declaratory national security policy on the criticality of securing the production and transit of oil was not just rhetoric. When Saddam Hussein invaded Kuwait and threatened Saudi Arabia, President Bush ordered the Pentagon to begin making plans to protect Saudi oil fields and, three days later, authorized Secretary of Defense Dick Cheney to begin deploying US troops to the region. “Our country now imports nearly half the oil it consumes and could face a major threat to its economic independence” were Saudi Arabia to come under Iraqi control, President Bush said in his address to the American people on August 8, 1990.

18 Keith Crane, et.al, Imported Oil and National Security (Santa Monica, RAND, 2009). http://www.rand.org/pubs/monographs/MG838.html
National Security Directives issued during Operations Desert Shield and Desert Storm reiterated the importance of oil security to US strategy in the Middle East. “US interests in the Persian Gulf are vital to the national security. These interests include access to oil and the security and stability of key friendly states in the region,” began NSD-45 of August 20, 1990, the presidential directive outlining US policy in response to the Iraqi invasion of Kuwait. On January 15, 1991, NSD-54 repeated this statement of interests and authorized offensive military action against Iraq. Many scholars were echoing the NSD sentiment about access to oil as well: “the military. . . needs to have secure fuel supplies . . . it needs access both to ongoing production and to refining facilities.”

President Bill Clinton’s administration also cited the United States’ critical interest in access to oil, particularly from the Middle East. “Our paramount national security interest in the Middle East is to maintain the unhindered flow of oil from the Persian Gulf to world markets at stable prices, the 1995 United States Security Strategy for the Middle East read. Efforts to close the Strait of Hormuz “would be of particular concern, since they would touch directly on the availability of oil on world markets.” The first objective listed as a USCENTCOM mission at this time was “to ensure uninterrupted access to regional resources (oil).” The 2001 annual defense report from the secretary of defense to Congress expressed the US defense interest in the Middle East and South Asia to be a region at peace, “where access to strategic natural resources

22 The Strait of Hormuz, located between Oman and Iran, connects the Persian Gulf with the Gulf of Oman and the Arabian Sea. The Strait of Hormuz is by far the world’s most important “chokepoint” with a daily oil flow of 15.5 million barrels in 2009. See Chapter 2 “Chokepoints” for more in-depth analysis.
at stable prices is unhindered, where no hostile power is able to exercise de facto hegemony, and where free markets are expanding.”

Although the Iraq war that began in 2003 arose from a number of factors, a key concern expressed by the George W. Bush administration was the potential for Saddam Hussein, armed with weapons of mass destruction, to “seek domination of the entire Middle East [and] take control of a great portion of the world’s energy supplies.” President Bush even asserted after the war in 2006 that “you can imagine a world in which these extremists and radicals got control of energy resources. And then you can imagine them saying, 'We're going to pull a bunch of oil off the market to run your price of oil up unless you do the following. And the following would be along the lines of, well, 'Retreat and let us continue to expand our dark vision.'”

To prevent terrorist from monopolizing the oil market, the President asserted a necessity that the US military remain in Iraq and the region. Also, the 2006 Quadrennial Defense Review (QDR) noted that the energy resources of the [Middle East] offer “both an opportunity for economic development, as well as a danger that outside powers may seek to gain influence over those resources.” This affirms that the planners writing the QDR at the time believed in preemption as a strategy with regards to energy resources.

Access to foreign oil remains a top priority driving US strategy and defense policy in the Obama administration. The National Defense Strategy issued by Secretary of Defense Robert Gates in June 2008 notes that securing access to energy resources is one of the key components

of the overall defense strategy aimed to achieve US national security objectives as laid out in the National Security Strategy:

The United States requires freedom of action in the global commons and strategic access to important regions of the world to meet our national security needs. The well-being of the global economy is contingent on ready access to energy resources. . . . The United States will continue to foster access to and flow of energy resources vital to the world economy. 28

In line with the language of the QDRs and the policymakers, several scholars, primarily Michael Klare, have predicted that oil will become “the preeminent strategic resource on the planet, whose acquisition, production, and distribution will increasingly absorb the time, effort, and focus of senior government and military officials.” 29 This will occur because of oil’s increasing importance to the healthy operation of the global economy, the dependence of the military on fuel, and the increasingly global competition for oil resources with rising powers such as China and India seeking to emulate the industrialized power in prowess. According to former Secretary of Defense and Secretary of Energy James Schlesinger, the day may come when the US military will be unable “to obtain the supply of oil products necessary for maintain our military preponderance.” 30 Furthermore, a 2007 study commissioned by DoD on future energy requirements noted that the current Pentagon strategy of global military engagement “may be unsustainable in the long-term” given the reliance on energy-intensive, high-tech weaponry along with diminishing worldwide oil supplies. 31 Scholars like Klare have argued that

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the best US policy moving forward to avoid an international conflagration over energy resources is to establish collaborative political partnerships with China and India.

In fact, many IR theorists and policymakers today believe that a combination of the world’s oil supply running out and the emergence of new energy powers means that the US needs to decrease dependence on foreign oil and find alternative ways for DoD (and the country as a whole) to secure energy, both in wartime and in peacetime. Some argue that states with large oil reserves are able to use commercial access for oil companies as a source of diplomatic leverage (like Iraq in the 1990s), thereby cutting off access to the US and its military. They also argue that OPEC states have exploited their market power to raise oil prices to a level that is not consistent with a fully competitive market. Unless we increase domestic oil production radically or cut consumption, or nations like Russia quickly exploit recently discovered oil fields, the United States will find itself in an oil crisis. Others, such as Professor Flynt Leverett of the New America Foundation, have written of an emerging “new axis of oil” that is acting as a “counterweight to American hegemony on a widening range of issues.” Dr. Leverett believes that the best way to ensure continued US access to oil is to induce China and India away from “statist” approaches in their external energy strategies so as to “reduce the chances that they will bolster the strategic commitments to an axis oil as an international counterweight to the United States.” For Leverett, the future of energy will boil down to political relationships, and how the US can leverage them to achieve success in acquiring energy resources.

33 Dr. Flynt Leverett, Testimony before Senate Committee on Energy and Natural Resources, “The Geopolitics of Oil and America’s International Standing” Jan 10, 2007, 1.
34 *Ibid*, 9
II. An Alternative Approach

Not all IR scholars have agreed with the prevailing US approach to securing access to oil in the Persian Gulf. Gholz and Press (2009) argue that the US “can get what it needs from the Persian Gulf—principally oil—without any ground-based military presence there and without close, public ties to Saudi monarachs or other Middle Eastern petro-dictators.35 They argue for an “over-the horizon” strategy, which calls for maintaining forces in the Indian Ocean and (as needed) in the waters of the Persian Gulf, but it would eliminate peacetime US deployments to bases throughout the region. In an earlier article, Gholz and Press argue that “political instability in the Persian Gulf poses surprisingly few energy security dangers” and that “market forces . . . determine most of the key factors that affect oil supply prices.”36 Furthermore, they believe that the US does not need to be militarily active or confrontational to allow the oil market to function, to allow oil to get to consumers, or to ensure access in coming decades.

Others, such as Drake University Professor Ismael Hossein-Zadeh, believe that it is a “dubious assumption” that access to cheap oil requires control of oil fields and/or oil producing countries,” since “any country or company can have as much oil as they wish if they pay the going market (or spot) price.”37 In addition, the desire of the Organization of Petroleum Exporting Countries (OPEC) to sometimes limit the supply of oil in order to shore up its price is limited. Most notably, the share, and hence the influence, of Middle Eastern oil producers as a percentage of world oil production has steadily declined over time, from “almost 40 percent

when OPEC was established to about 30 percent today.”³⁸ Also, Zadeh adds that the fear of terrorist regimes using the oil weapon to manipulate prices (which requires a US military presence to prevent) seems grossly exaggerated.

Christopher Layne, like Gholz, Press and Zadeh, believes in an alternative approach to the oil question, asserting that “there is no need for an on-the-ground US military presence in the Gulf and Middle East.”³⁹ He prefers an “over-the-horizon deterrence” strategy, which would prevent the emergence of a Gulf oil hegemon without triggering the kind of anti-American backlash that occurs when US forces are visibly present in the region.⁴⁰ The wisest policy for the US, according to Layne, is to reduce its footprint in the Gulf and the Middle East and formulate a viable long-term energy strategy that minimizes its vulnerability to the day-to-day struggle in the turbulent region.

These statements directly counter the statements of the scholars and senior US officials described earlier, and provide the impetus for the research carried out here. If the market can provide the military and the country as a whole with all of the petroleum it needs, do we need to re-examine US grand strategy? The fundamental question is two-fold moving forward—does the military need to maintain a robust presence in the Persian Gulf to secure access to oil, and if not, to what extent do political relationships matter in securing oil versus relying on the market? To answer these questions, we must first analyze what the Pentagon thinks about oil and how it buys the strategic resource on a day-to-day basis both in peacetime and in wartime.

³⁹ Layne, Peace of Illusions, 180.
⁴⁰ Ibid, 180.
Chapter 2: How Does the Military Think About Oil?

I. Overview of the Oil Needs of the Military

“No matter how well fed, equipped, or officered, without oil and gasoline the modern army is a hopeless monster, mired and marked for destruction.” - T.H. Vail Motter, US Army Historian

In this section, we will develop a “primer” of the US military energy portfolio, in order to later analyze assumptions about US access to oil. First, we will examine energy consumption facts and figures of each service, followed by an overview of unclassified assumptions about military planning and oil. After that, we will analyze the anatomy of a military fuel contract, and how the military buys oil and a day to day basis, along with some recent problems with these fuel contracts. Finally, using data from interviews and various military documents, we can analyze peacetime vs. wartime contingencies—is the military planning for future wars in which world oil supplies matter, under the premise that prospects for a great power war have grown increasingly likely?

A. Overall Spending Trends

The US military as a whole is the single largest institutional consumer of oil in the United States, and one of the largest consumers of energy in the world. Based on 2009 numbers, the Department of Defense accounts for 80.3% of all federal energy use, and 88.0% of all federal

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petroleum use. While these numbers only correspond to roughly 1.7% of total energy consumption in the US, the number is greater than the entire nation of Greece, and if DoD were a state, it would rank thirty-second in the United States, roughly equal to the entire economy of Oregon, in annual energy consumption. Said another way, every 3 days, DoD consumes about 1 million barrels of petroleum.

In FY09, the Defense Department spent, by its estimate, $10.5 billion on fuel amounting to 129 million barrels of oil for the year, up from 107 million barrels of oil in 2000. Also, in FY00, fuel costs represented 1.2% of the total DoD spending, but by FY08, fuel costs had risen to 3.0%. Over the same time, total defense spending had more than doubled, but fuel costs increased nearly 500%. Some analysts have estimates that the military uses fuel at twice the rate it did in the first Persian Gulf War and four times the rate it did in the Second World War. The amount of fuel that DoD consumes is simply astounding, and it continues to grow given commitments to two wars and rising oil prices. Below are two graphs that illustrate the rise in military fuel spending and consumption since 2000:

**Figure 1A and 1B: US Military Petroleum Consumption and Spending**

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<tr>
<th>Petroleum Consumption (millions of barrels)</th>
<th>Petroleum Spending ($ billions)</th>
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While consumption only increased by 20 million barrels over the 11 year period (a 15% increase), spending has increased by over $8 billion, a 500% increase over the same period. The wars in Afghanistan and Iraq certainly led to a surge in fuel use in that period, but price fluctuations in the market also contributed to the abrupt rise in spending, as it peaked at over $17 billion during the 2008 recession. Such large-scale spending is highly sensitive to fluctuations in global prices of crude oil; between 2004 and 2006, for example, DLA Energy expenditures on oil procurement doubled due in large part to the run-up in world crude prices.

In order to obtain a deeper and more nuanced sense of what the military spends on oil, it is necessary to break down the DoD organizational structure into its essential parts related to energy. While the following figure (Figure 2) does not account for every DoD agency, it highlights the most important agencies for scope of this paper.

**Figure 2: Department of Defense Organizational Structure (Modified)**

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47 The rise in oil consumption during the Afghanistan and Iraq campaign is clear from the graph, but was also confirmed by several DLA Energy officials during interviews.
For the purposes of this paper, I will focus on the Office of Secretary of Defense (OSD), Unified Combatant Commands (COCOMS), the four services (Army, Navy, Air Force, Marine Corps), the Office of the Assistant Secretary of Defense for Operational Energy Plans and Programs (OEPP) and the Defense Logistics Agency Energy (DLA Energy), which falls under OSD Acquisition, Technology, and Logistics (AT&L)/Logistics and Material Readiness (L&MR). These agencies comprise the core of the Pentagon that devises military energy policy on a day-to-day basis.

B. Office of the Secretary of Defense (OSD)

The Office of the Secretary of Defense is principal staff element of the Secretary of Defense (currently Robert Gates) in the exercise of policy development, planning, resource management, fiscal, and program evaluation responsibilities. OSD includes the offices of the Secretary and the Deputy Secretary of Defense, as well as five Under Secretaries of Defense in the fields of
C. Unified Combative Commands

Under OSD lies the Unified Combative Commands, which are United States joint military commands that are composed of forces from two or more services that have a broad and continuing mission. These commands are established to provide effective command and control of US military forces, regardless of branch of service, in peace and war. These types of “forward-deployed” forces provide the basic building blocks with which to project military power in crises and strengthen US military access. They are organized either on a geographical basis or on a functional basis, and there are currently 10 commands.

Given the topic of this paper, an emphasis will be played on the United States Central Command (CENTCOM), with its coverage of the Middle East and other oil-rich areas. The CENTCOM Area of Responsibility (AOR) contains more than half of the world’s proven oil reserves and nearly half of its natural gas. As a result, the region contains some of the world’s busiest trading routes linking Europe, Africa, and East Asia to the Gulf. The region’s trading routes contain three of the world’s major maritime chokepoints, including the Strait of Hormuz, the Suez Canal, and the Bab al Mandeb Strait joining the Red Sea to the Gulf of Aden.

Figure 3: CENTCOM Area of Responsibility—20 Countries

While CENTCOM’s AOR is most notable for its coverage of the oil fields of the Middle East, some of the other combatant commands include other oil rich areas too: the Southern Command includes responsibility for Colombia’s Cano Limon pipeline, the European Command covers the Baku-Tbilisi-Ceyhan pipeline, the Pacific Command patrols sea routs that oil tankers use in the Indian Ocean, South China Sea, and the Pacific, and the recently formed Africa Command’s area of responsibility includes the oil rich Libya and parts of West Africa. However, in terms of importance to oil strategy, CENTCOM is the most important. Because of the large troop presence and the active American foreign policy in the region, CENTCOM’s Commander (currently General James Mattis) is probably “the second-most-important figure in Persian Gulf politics, ranking behind only local heads of government.”49 Interestingly, in recent years, CENTCOM has dropped “access to oil” as a vital US interest from its posture statements (see earlier 1980s and 1990s statements from Chapter 1). Yet recently, General Mattis told Congress that a vital US interest in the region is “free flow of commerce and trade within the region, through strategic maritime chokepoints, and via land-based trade routes to international

49 Gholz and Press, Footprints in the Sand.
While this statement does not directly refer to an access to oil interest, the idea of opening up chokepoints is closely related to securing oil. This issue will be explored more deeply in a later section on the Navy.

D. Air Force

Among the services, the Air Force (USAF) stands out as particularly reliant on petroleum, given its use of fuel to power aircraft as well as tactical vehicles and equipment. Energy, particularly petroleum, is its lifeblood—for without jet fuel, the fleet of high performance aircraft would be grounded. The USAF alone accounts for more than half the consumption of oil by all government agencies, primarily due to its heavy use of jet fuel (explained in a later section).  

**Figure 4: Breakdown of fuel usage by military branch**

![Figure 4](source: Deloitte Energy Security report)

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For example, a modern F-16 fighter jet burns up to 2,000 gallons per flight hour in normal flight conditions, and much more if using after burners. 52 Being such a major consumer means that a $10 increase in the price of a barrel of oil translates into an additional $619 million in cost annually for the Air Force. 53 Keeping this in mind, Air Force leadership has placed an emphasis on lessening its dependence on foreign oil. In a speech given in May 2010 to the USAF Energy Forum, Air Force Chief of Staff Norton Schwartz claimed that “with the oil-producing nations that are in fact our rivals and adversaries, or are potential aggressors, we are effectively helping to finance their defense expenditures through our dependence on their oil reserves.” 54 Clearly, the top ranks of the Air Force are thinking about potential aggressors in the Middle East who are able to build up their military through oil revenues. While General Schwartz acknowledges in that same speech that “not all oil exporters are our adversaries,” he does add later on that “our dependence on oil effectively helps to enhance their current and future military capability, both intrinsically and relative to our own.” 55 General Schwartz does eloquently attack our “adversaries,” but he fails to account for the fact that even if the Air Force lessened its dependence on oil, the “adversaries” would simply find other countries to bankroll their defense spending—-that is the nature of the oil market. The Air Force does hold largest portion of the largest consumer of oil in the world, but it does not hold enough power to affect the market enough to inhibit our “adversaries” from making money on oil. Regardless, it’s important to note

55 Ibid
that the Air Force does consider the rise of Middle Eastern militaries in its planning for future wars.

E. Navy

If the Air Force is the service that consumes the most petroleum, the Navy is the service that has produced the most literature and taken the most action on oil issues. The latest Department of the Navy “Energy Program for Security and Independence” sets two priorities for energy reform—1) energy security, which they define as “having the ability to protect and deliver sufficient energy to meet operational needs,” and 2) energy independence, which they believe is “achieved when Naval forces rely only on energy resources that are not subject to intentional or accidental supply disruptions.”\(^5\) The Navy sincerely believes that they need to become less dependent on vulnerable energy production and supply lines. This concept of supply line vulnerability will be further explored later.

Some in the Navy have written about a “two hub” model of global influence—one hub in the Western Pacific, and one in the Middle East.\(^5\) To calm fears in energy markets, the Navy’s posture emphasizes forward presence, including patrolling the waters with US Navy warships. Some have even referred to the recently issued US Navy Maritime Strategy as designed to provide military protection to globalization: America’s active leadership allegedly provides a key global public good, the protection of international commerce and especially the oil trade.\(^5\) To the Navy, the primary reason for a US presence in the Gulf is to open international trade and sea

\(^5\) See current CENTCOM Commander Mattis’ comments about vital US interests from earlier in the paper. CENTCOM embraces the Navy view of the US patrolling international waters to open trade lanes and guarantee the free movement of goods.
lanes, not access to oil. CENTCOM commanders have stated in congressional testimony that access to oil is a vital national interest, but based on interviews conducted with defense scholars and DoD personnel, the number one priority is to open sea lanes, and American strategic thinkers also add the auxiliary assumption that international business is likely to panic and run from the first sign of conflict. Combined with other suspicions about the diplomatic, military, and technological capabilities and intentions of countries like Iran, this logic leads to a hair-trigger Navy force posture in the Gulf. In terms of global presence, the Navy has its Fifth Fleet stationed in Bahrain, right in the heart of the oil-rich Middle East. The Fleet’s responsibility encompasses about 2.5 million square miles of water area and includes the Arabian Gulf, Red Sea, Gulf of Oman and parts of the Indian Ocean. In its mission statement, the Fleet promises to contribute to maritime security as well as provide a persistent presence--the U.S. Navy has been in the region for 60 years and “will be [in the region] for decades to come.”

**Chokepoints**

One of the main threats that the Fifth Fleet faces in the Persian Gulf are securing chokepoints, which are narrow channels along widely used global sea routes. These passageways are a critical part of global energy security due to the high volume of oil traded through their narrow straits. The most prominent of these include the Strait of Hormuz (connecting the Persian Gulf and the Gulf of Oman), the Strait of Malacca (linking the Indian Ocean to the South China Sea and Pacific Ocean), the Suez Canal (connecting the Red Sea and the Mediterranean Sea) and the Strait of Bab el-Mandab (linking the Red Sea and the Gulf of Aden). In 2009, total world oil production amounted to approximately 84 billion barrels per day, and about one-half was moved...
by tankers on fixed maritime routes. The Navy (along with many geostrategists) believes that a blockage of a chokepoint, even temporarily, can lead to substantial increases in total energy costs. In addition, the Navy believes that chokepoints leave oil tankers vulnerable to theft from pirates, terrorist attacks, and political unrest in the form of wars or hostilities as well as shipping accidents which can lead to disastrous oil spills.

**Figure 5: Largest Oil Chokepoints in the World**

![Map of largest oil chokepoints](source)

Source: Energy Information Administration

Threats to these chokepoints are numerous, and the Navy utilizes its forward presence to protect them. According to the Navy, the Strait of Hormuz is under a direct threat of closure by Iran, the Bab el-Mandeb Strait has problems with Somali pirates and terrorists, the Strait of Malacca might be the source of a future conflict with China as Asia’s demand for energy grows.

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61 “EIA World Oil Transit Chokepoints,” [http://www.eia.doe.gov/cabs/world_oil_transit_chokepoints/Full.html](http://www.eia.doe.gov/cabs/world_oil_transit_chokepoints/Full.html)
and for the Turkish Straits, environmental catastrophes are a concern. But some scholars, like Eugene Gholz, have questioned the Navy view on chokepoints—to Gholz, the Navy posture on chokepoints is based on a “substantial exaggeration of the risk that a military disruption to oil flows through the Strait of Hormuz would be large enough to have a significant effect on the market.” According to him, any attack on the Strait by Iran is likely to produce short term panic, but the oil market has built-in compensation mechanisms that can readily handle the loss of up to a couple of million barrels a day.

F. Marine Corps

In the civilian leadership structure of the United States military, the Marine Corps is a component of the Navy, often working closely with US naval forces for training, transportation, and logistic purposes; however, in the military leadership structure the Marine Corps is a separate branch. Thus, we can treat their view on energy in a separate light. On 13 August 2009, the Commandant of the Marine Corps (CMC) declared energy a top priority for the USMC, and a few months later, the CMC created the USMC Expeditionary Energy Office (E2O) with the mission to “analyze, develop, and direct the Marine Corps’ energy strategy in order to optimize expeditionary capabilities across all warfighting functions.” The Marine Corps today consumes in excess of 200,000 gallons of fuel per day in Afghanistan, and each of the more than 100 forward operating bases in Afghanistan requires a daily minimum of 300 gallons of diesel fuel.

G. Army

65 Ibid. 7.
The Army has been the third most aggressive (or least aggressive) branch on energy issues, behind the Air Force and the Navy. Historically, the Army operated with the assumption that low cost energy would be readily available when and where it is needed. Now, however, reliable access to affordable, stable energy supplies is a significant challenge for the Army, according to the latest Army Energy Strategy.66

II. Military Planning and Oil

Unclassified Assumptions

In recent years, the Department of Defense has come to see excessive energy use and reliance on foreign energy sources as strategic vulnerabilities. In the words of Chairman of the Joint Chiefs of Staff Admiral Mike Mullen, “Energy security needs to be one of the first things we think about, before we deploy another soldier, before we build another ship or plane, and before we buy or fill another rucksack.”67 To many military planners, the key is not the availability and access to oil, but the cost per barrel. Planners realize that there is a world oil market, and if disaster occurs in the Middle East, the world will pay a higher price—it’s just the fundamentals of supply and demand. From an American perspective, supply is generally not an issue. DoD can buy oil, and access is guaranteed through the market. A key premise is that the US will always have fuel to fight wars—there has never had a problem in the past, and planners don’t anticipate access problems in the future. Future theatres of war will be more and more like Afghanistan, where the US will be challenged logistically in getting fuel to the battlefield. The United States

does include the security of oil supplies and global transit of oil as a prominent element in its force planning. But, there are other US interests in the region too, such as opening international trade lanes, and preserving the security of Israel.

The central problem for the coming decade will not be a lack of petroleum reserves, but rather a shortage of drilling platforms, engineers and refining capacity. According to the 2010 Joint Operating Environment, OPEC nations will remain a focal point of great-power interest. These nations may have a “vested interest in inhibiting production increases, both to conserve finite supplies and to keep prices high”. Should one of the consumer nations choose to intervene forcefully, the “arc of instability” running from North Africa through to Southeast Asia easily could become an “arc of chaos,” involving the military forces of several nations.

Furthermore, according to planners, OPEC nations will find it difficult to invest much of the cash inflows that oil exports bring. While they will invest substantial portions of such assets globally through sovereign wealth funds – investments that come with their own political and strategic difficulties – past track records, coupled with their appraisal of their own military weaknesses, suggest the possibility of a military buildup. With the cost of precision weapons expected to decrease and their availability increasing, US military commanders could find themselves operating in environments where even small, energy-rich opponents have military forces with advanced technological capabilities. These could include advanced cyber, robotic, and even anti-space systems.

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68 Joint Operating Environment 2010, http://www.jfcom.mil/newslink/storyarchive/2010/JOE_2010_o.pdf, 24. The Joint Operating Environment is provided annually by the Joint Forces Command (a functional command that is one of the 10 Combatant Commands (see section on UCC for more details). The JOE does not constitutes US government policy and must necessarily be speculative in nature, it seeks to provide the Joint Force an intellectual foundation upon which we will construct the concepts to guide our future force development.
Finally, presuming the forces propelling radical extremism at present do not dissipate, a portion of OPEC’s windfall could find its way into terrorist coffers, or into the hands of movements with deeply anti-modern, anti-Western goals – movements which have at their disposal increasing numbers of unemployed young men eager to attack their perceived enemies.

Whatever the outcome of the conflicts in Iraq and Afghanistan, planners believe that US forces will find themselves again employed in the region on numerous missions ranging from regular warfare, counterinsurgency, stability operations, relief and reconstruction, to engagement operations. They believe that the region and its energy supplies are too important for the US, China, and other energy importers to allow radical groups to gain dominance or control over any significant portion of the region.69

However, while some planners believe that access will always be available to fight wars, others aren’t so sure. The JOE states that, “the implications for future conflict are ominous, if energy supplies cannot keep up with demand and should states see the need to militarily secure dwindling energy resources.”70 This falls more in line with Klare and Leverett thinking. The JOE supports its claim by adding that the Chinese are laying down approximately 1,000 kilometers of four-lane highway every year, a figure suggestive of how many more vehicles they expect to possess, with the concomitant rise in their demand for oil. Furthermore, the presence of Chinese “civilians” in the Sudan to guard oil pipelines underlines China’s concern for protecting its oil supplies and could portend a future in which other states intervene in Africa to protect scarce resources.

Peak Oil

69 JOE 2010, 50.
70 JOE 2010, 26.
The potential for future supply constraints to limit availability and increase costs is a very real concern to the military. According to the JOE assessment, “By 2012, surplus oil production capacity could entirely disappear, and as early as 2015, the shortfall in output could reach nearly ten MBD [million barrels per day].” But this language about peak oil is not something new—in fact, scholars and planners have been writing about peak oil dating back almost a century. There haven’t been any works released by the military about peak oil, but based on interviews, planners believed that peak oil will occur in the future, but not in a timeframe that will affect future warfighting in the next 20 years. Instead, most planners believe that reducing fuel demand would help mitigate the effects of peak oil, whenever it may occur.

III. The Anatomy of a Fuel Contract – DLA Energy

Shifting gears to examining how the military actually buys fuel, we can continue to assess how planners view oil as an essential resource. In fact, fuel distribution in the military is a complex process involving many DoD offices. Joint Publication 4-03 sets forth principles and establishes doctrine for bulk petroleum in support of US military operations. The combatant commander (i.e. CENTCOM, AFRICOM, etc.) has the predominant responsibility for fuel within a theater, and this responsibility is discharged by its Joint Petroleum office. The Joint

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71 JOE 2010, 29.
72 Peak oil is the point in time at which roughly half of the extractable oil on the planet has been used, and future production enters terminal decline. Such a decline would put strong, persistent upwards pressure on prices. The theory was first advanced by Marion King Hubbert, an American geophysicist with Shell Oil, who created a method of modeling the production curve for an oil field. In 1956, Hubbert predicted US oil production would peak in approximately a decade, but his predictions were incorrect with respect to ultimate US production. Numerous other studies have estimated the timing of global peak oil, but a consensus hasn’t been reached in the literature as to exactly when that will occur.
Petroleum office is responsible for the overall planning of petroleum for operations, and it may establish sub-area petroleum offices as needed to support specific petroleum requirements.

However, the combatant commands have delegated the responsibility of meeting the petroleum support requirements to another agency. As stated earlier, the Defense Logistics Agency Energy (DLA Energy), formerly the Defense Energy Support Center (DESC), has the mission of purchasing fuel for all of DoD’s services and agencies, both in the continental US (CONUS) and outside (OCONUS). DLA Energy’s origins date back to World War II, when the Army-Navy Petroleum Board fell under the Department of the Interior. Its mission transferred to the War Department in 1945 and its designation changed to the Joint Army-Navy Purchasing Agency. In 1962, the agency became a part of the former Defense Supply Agency, now known as the Defense Logistics Agency (DLA). Designated the Defense Fuel Supply Center (DFSC) in 1964, it served as a single entity to purchase and manage DoD’s petroleum products and coal. In 1998, it was renamed the Defense Energy Support Center (DESC) with an expanded new mission to manage a comprehensive portfolio of energy products, and in July 2010, the agency was renamed DLA Energy.  

In practice, DLA Energy typically awards fuel contracts based on the lowest cost to the point of delivery, typically for lengths of one year. DLA Energy’s fuel procurement categories include bulk petroleum products (JP-8, JP-5, and diesel fuel), ships’ bunker fuel, into-plane (refueling at commercial airports), and post-camp-and-station (PC&S). Although DoD may represent the single largest consumer of petroleum products, its consumption primarily of JP-8, JP-5, and diesel fuel aligns more closely with the narrower market for refined fuels. The Air

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74 See http://www.desc.dla.mil/DCM/DCMPage.asp?LinkID=DESCHISTORY
75 See Appendix for definition of terms and description of fuels.
Force and the Army represent the primary consumers of JP-8 fuel. The Navy consumes JP-5 jet fuel, and all services to varying degrees consume diesel fuel. As we can see below in Table 1, DLA Energy’s total fuel purchases peaked at 145.1 million barrels in FY03, when US forces invaded Iraq. JP-8 purchases peaked in FY 2004 and have seen been declining.

Overall, DLA Energy Fuel expenditures grew from roughly $3.6 billion in FY00 to $10.5 billion by FY2009—a nearly 300% increase. Actual volumes purchased had only increased by 30% over the same time, so price is certainly a factor. DLA Energy petroleum product purchases, summarized by volume and total cost, appear in Table 1.

Table 1: DLA Energy Fuel Product Purchased by Category (million barrels per year)

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</thead>
<tbody>
<tr>
<td>JP-8</td>
<td>61.7</td>
<td>63.4</td>
<td>73.5</td>
<td>72.2</td>
<td>74.7</td>
<td>71.4</td>
<td>71.3</td>
<td>68.2</td>
<td>62.5</td>
<td>57.6</td>
</tr>
<tr>
<td>JP-5</td>
<td>15.4</td>
<td>18.6</td>
<td>20.6</td>
<td>17.9</td>
<td>16.1</td>
<td>12.8</td>
<td>14.1</td>
<td>13.6</td>
<td>12.1</td>
<td>13.6</td>
</tr>
<tr>
<td>Alt. Jet</td>
<td>0.1</td>
<td>0.2</td>
<td>8.7</td>
<td>11.3</td>
<td>5.4</td>
<td>9.3</td>
<td>15.6</td>
<td>19.3</td>
<td>23.1</td>
<td>25.8</td>
</tr>
<tr>
<td>Jet total</td>
<td>77.2</td>
<td>82.2</td>
<td>102.8</td>
<td>101.4</td>
<td>96.2</td>
<td>93.5</td>
<td>101.3</td>
<td>101.1</td>
<td>97.7</td>
<td>97.0</td>
</tr>
<tr>
<td>Diesel</td>
<td>15.5</td>
<td>20.8</td>
<td>21.6</td>
<td>25.2</td>
<td>21.0</td>
<td>21.2</td>
<td>22.1</td>
<td>22.8</td>
<td>24.5</td>
<td>21.1</td>
</tr>
<tr>
<td>Other</td>
<td>11.4</td>
<td>8.0</td>
<td>10.2</td>
<td>18.5</td>
<td>27.6</td>
<td>16.0</td>
<td>12.5</td>
<td>12.2</td>
<td>12.7</td>
<td>13.2</td>
</tr>
<tr>
<td>Total</td>
<td>104.1</td>
<td>111.0</td>
<td>134.6</td>
<td>145.1</td>
<td>144.8</td>
<td>130.7</td>
<td>135.9</td>
<td>136.1</td>
<td>134.9</td>
<td>131.5</td>
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<tr>
<td>$ Million</td>
<td>3,604</td>
<td>4,178</td>
<td>4,143</td>
<td>5,564</td>
<td>6,948</td>
<td>8,843</td>
<td>11,504</td>
<td>11,465</td>
<td>17,944</td>
<td>16,514</td>
</tr>
</tbody>
</table>

Source: DLA Energy Factbooks (FY2000-FY2009)
Notes: Alt. Jet (alternative jet fuels) includes Jet-A, Jet A-1, Jet B, and JP-4; Other includes lube oils, mogas, residuals, into-plane, post-camp and station, and ships’ bunker.

However, DLA Energy’s purchases do not necessarily correspond with DoD’s actual consumption. DLA Energy may draw fuel down from storage to supplement demand and may replenish fuel stores with purchases. DoD also maintains a fuel “war reserve” that it may draw down in contingencies.76

Fuel Acquisition

76 Based on interview with DLA Energy official, but war reserve stocks are classified information
Within a combatant command’s AOR, military units communicate their fuel requirements, which are based on historical usage and planned rotations, to sub-area petroleum offices. These offices, in turn, provide these requirements to the Joint Petroleum Office for validation. Once the requirements are validated, DLA Energy determines the most appropriate means to support the requirements and provides for the distribution of the fuel up to the “point of sale.” DLA Energy owns and tracks the fuel up until this point, at which time the fuel may be placed directly into a weapons system or a battlefield storage unit or handed off to the customer to move to a forward-deployed location.

The nature of a DLA Energy petroleum contract is as follows--first, contracts are indefinite delivery type contracts. DLA Energy requests proposals from suppliers and reviews them for consideration. Next, minimum/maximum delivery order limitations are defined, depending on DLA Energy’s needs at any given time. Also, fuel is called forward through delivery orders, so DLA Energy has stations all over the world to handle fuel and deliver it to the services on the battlefield. In addition, contracts contain price adjustment clauses, and contract prices are indexed to market price indicators. Contract prices are adjusted upward or downward as indicators rise or fall. Finally, DLA Energy pays the contract price in effect on the date of delivery, or as otherwise adjusted in the contract price.

Table 2: Top US fuel suppliers to DoD FY 03-08

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77 The point of sale is the point at which the customer (usually a service) takes possession of the fuel.
78 2009 DLA Energy Factbook
DLA Energy, along with its responsibilities to procure fuel and sell it to the services, also monitors the petroleum markets and negotiates international agreements for energy commodities (like the contracts at Manas described earlier.) Upon a glance at DLA Energy suppliers (Table 2), notice that US-owned companies and consortia control close to 40% on purchases. But upon closer look, as we can see in the Figure below, the “non-domestic” suppliers consist mostly of Korean, Kuwaiti, and Bahraini companies, none of whom conflict with US interests.

Table 3: Top Ten Petroleum Suppliers 2009 (US Dollars in Billions)\(^79\)

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Award Amount</th>
<th>Percent of Total Contract $</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>$2.201</td>
<td>11.70%</td>
</tr>
<tr>
<td>Shell</td>
<td>$1.893</td>
<td>10.06%</td>
</tr>
<tr>
<td>The Bahrain Petroleum Company</td>
<td>$1.757</td>
<td>9.34%</td>
</tr>
</tbody>
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\(^79\) Ibid
<table>
<thead>
<tr>
<th>Company</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuwait Petroleum Corporation</td>
<td>$1,210</td>
<td>6.43%</td>
</tr>
<tr>
<td>International Oil Trading Company LTD</td>
<td>$1,179</td>
<td>6.26%</td>
</tr>
<tr>
<td>Valero Marketing and Supply Company</td>
<td>$1,049</td>
<td>5.58%</td>
</tr>
<tr>
<td>SK Corporation</td>
<td>$0.761</td>
<td>4.04%</td>
</tr>
<tr>
<td>Petromax Refining Co. LLC</td>
<td>$0.540</td>
<td>2.87%</td>
</tr>
<tr>
<td>S-Oil Corporation</td>
<td>$0.482</td>
<td>2.56%</td>
</tr>
<tr>
<td>Exxon Mobil Corporation</td>
<td>$0.473</td>
<td>2.52%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$11,545</strong></td>
<td><strong>61.36%</strong></td>
</tr>
</tbody>
</table>

Source: DLA Energy Factbook 2009

Interestingly enough, an examination of these suppliers reveals that only two are NOCs—Bahrain and Kuwait, and the US has outstanding relationships with these two countries. The other top suppliers are a combination of British, Dutch, American, and Korean companies.

**IV. Problems with Fuel Contracts**

While DLA Energy planners generally operate a smooth system in terms of buying petroleum from suppliers and subsequently selling it to the services, there have been several emerging problems arising from these contracts. High prices, hedging, the Manas corruption scandal, and fuel convoy security are four of the most pressing issues facing DLA Energy and higher-level planners at this juncture.

**Prices**
Over the current decade, which has seen an unprecedented spike in crude oil prices (first in 2008, now in 2011), DoD experienced a 500% increase in the cost of fuel (dollars per barrel). The concern over declining worldwide crude oil production has preceded rising fuel costs also for several years. For instance, in 2006, due to increasing fuel costs and military operations in Iraq and Afghanistan, the Air Force had to reduce funding available for flying hours used to train Air Combat Command aircrews.\textsuperscript{80} Also, DLA Energy in particular has been negatively impacted by the price of fuel. DLA Energy establishes fixed prices for fuel purchases at the beginning of each year to facilitate budgeting. If market prices undergo rapid increases and exceed DLA Energy established rates, as they have more than once in recent years, it can result in budgetary shortfalls that constrain or delay other activities like training and maintenance.\textsuperscript{81} DoD operates on a six year Future Year Defense Plan (FYDP) funding horizon. Thus, increases in oil prices of great magnitude (such as FY07, when DLA Energy had to increase its standard price in mid-year for the first time ever) mean that large sums of money must be re-programmed in order to meet operating costs, wreaking havoc on programs from which funds are taken even beyond training and maintenance.

DLA Energy’s pricing model does provide the flexibility needed to meet changing operational requirements from year-to-year. As discussed earlier, DLA Energy uses fixed-price contracts that include an economic price adjustment clause that provides for upward and downward price revisions. DLA Energy has designed this contract provision to take advantage of swings in fuel prices, which ultimately reflect crude oil prices. If prices decline, DLA Energy’s


costs decline. If prices rise, the economic clause adjusts the price that DLA Energy would pay to the going market rate. This limits DLA Energy’s risk in holding contracts for fuel priced above the market rate but does not hold down costs during rapidly escalating prices. DLA Energy will pay higher prices, but will look for the best offer.

**Hedging**

Fuel costs are a real problem for DoD—they have represented as much as 3% of DoD’s spending and over 7% of the Operation and Maintenance budget in the past decade. In comparison, the airline industry’s major operating costs are fuel. However, the airline industry has the option during periods of high fuel costs of passing the costs onto consumers, adjusting flight schedules, withholding stock dividends, or even declaring insolvency. Unlike the airlines, DoD’s only recourse has been to request supplemental appropriations to pay for the increased costs and supplies. For example, DoD identified $500 million in the FY07 Emergency Supplemental Request for increases in baseline fuel costs resulting from higher market costs in the first half of FY07. 82 DoD has looked at several options to limit its vulnerability to fuel price swings and supply shortages. These include “fuel hedging,” multi-year contracting, and alternate fuels. 83 In particular, increasing purchases of more widely available commercial Jet A fuel have not only reduced DoD’s fuel costs but have expanded the range of supplies—an arguable goal for an alternative fuel.

This practice used in the airline industry makes use of various “hedging” strategies to minimize the risk of future jet fuel price increases. A simple hedge involves buying “futures” contracts to lock in prices. DoD has looked to emulate this recently—in 2004, the Defense Business Board convened the Fuel Hedging Task Group to examine potential ways of reducing DoD’s exposure to fuel price volatility by hedging in commercial markets. Although the Board Task Group concluded that DoD could feasibly hedge its fuel purchases, it gave broader support to engaging in “no-market” hedging through the Department of the Interior’s Mineral Management Service. DoD could seek legislative authority to transfer funds from Interior to Defense during crude oil price spikes.

*Mystery at Manas*

A recent scandal involving DLA Energy fuel contracts in Kyrgyzstan highlights the fact that the US launched wars in an era when ubiquitous petroleum availability was taken for granted and in which oversight of war spending was relaxed. Last December, the Congressional Subcommittee on National Security and Foreign Affairs of the Committee on Oversight and Government Reform, after an eight-month investigation, released a report exposing the troubling circumstances surrounding the Department of Defense’s massive fuel contracts at the Manas Transit Center in Kyrgyzstan. The Congressional report found that DLA Energy and DoD as a whole failed to properly oversee the political, diplomatic, and geopolitical collateral consequences of its contracting arrangements. More specifically, “DLA Energy’s by-the-book

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85 Consuming up to 500,000 gallons of TS-1 jet fuel per day, the Transit Center at Manas International Airport in Bishkek, Kyrgyzstan is one of the busiest U.S. Air Force installations in the world, and is essentially to the US war effort in Afghanistan.
focus on performance and price was inadequate for proper strategic oversight of multi-billion dollar fuel contracting in a highly graft-prone region of the world.\textsuperscript{86} Since 2003, the report added, jet fuel suppliers Mina and Red Star have supplied hundreds of millions of gallons of jet fuel to the U.S. military in Kyrgyzstan and Afghanistan and have been widely praised by DoD for their strong performance and high degree of reliability. The companies operate in an ultra-secrective manner, however, and initially stonewalled the Subcommittee’s investigation. The lack of transparency in the fuel contracts has engendered Kyrgyz public perceptions of corruption at Manas and resulted in seriously strained diplomatic relations.

\textit{Protection of logistics supply chain}

The Manas fiasco has highlighted an important aspect of energy security for the military—fuel convoy security. At the US Marine Corps’ 2009 Energy Summit, Commandant General James Conway identified fuel convoy security in Afghanistan as one of his most pressing problems related to risk of casualties.\textsuperscript{87} The transport of fuel via truck convoy represents casualty risks, not only from roadside bombs and enemy attacks, but also rough weather, traffic accidents, and pilferage. DoD officials reported that in June 2008 alone, a combination of these factors caused the loss of some 44 trucks and 220,000 gallons of fuel.\textsuperscript{88} High energy intensity and a long logistics tail have serious repercussions in maneuverability, endurance — and in lives. Fuel supply convoys make attractive targets for attack through direct assault or by Improvised Explosive Devices (IEDs); nearly half of all U.S. casualties in Iraq over a six-year period ending

\textsuperscript{87} Deloitte, Energy Security, 15.
\textsuperscript{88} \textit{Ibid}
in May 2009 were inflicted by IEDs. American casualties also show high correlation with increases in fuel consumption in Afghanistan.\textsuperscript{89} According to one Army study, one soldier or civilian responsible for fuel transport or security is killed for every twenty-four fuel convoys in these areas.\textsuperscript{90} The need to protect large and frequent fuel convoys can occupy units that could be redeployed to active combat operations elsewhere. According to Secretary of the Navy Ray Mabus, “Fossil fuel is the No. 1 thing we import to Afghanistan, and guarding that fuel is keeping the troops from doing what they were sent there to do, to fight or engage local people.”\textsuperscript{91}

\section*{V. Improving Energy Efficiency – DoD Operational Energy}

One of the key recommendations from the Manas report was that DoD itself must expand its own operational energy efforts, by reducing demand.\textsuperscript{92} As energy prices have surged and volatility has increased in important oil-producing regions, the military has redoubled its efforts to rein in consumption through conservation, increased fuel-efficiency measures and greater use of alternative energy. As a result, following a number of Defense Science Board and Government Accountability Office (GAO) reports urging DoD to cut energy demand--in 2009, the Office of the Assistant Secretary of Defense for Operational Energy Plans and Programs was created (OEPP). The military realizes that it can’t affect the whole oil market because it’s such a small user, but it can do things differently, like produce more efficient weapons systems or schemes of maneuver. The official mission of this new office is to help the military services and

\begin{footnotes}
\item[89] Deloitte, \textit{Energy Security}, 16
\item[91] \textit{Ibid}
\item[92] Operational Energy is defined by DoD as “the energy required to train, move, and sustain forces, weapons, and equipment for military operations.” Referring back to Figure 2, OEPP is located under the Assistant Secretary of Defense for Acquisition, Technology and Logistics (AT&L).
\end{footnotes}
combatant commands improve military capabilities, cut costs, and lower operational and strategic risk through better energy accounting, planning, management, and innovation. In fact, operational energy accounted for 75 percent of all energy used by the Department of Defense in 2009.93

To OEPP planners, future wars will likely be held in theaters very close in style to Afghanistan, which means that DoD will be challenged logistically to get oil to soldiers for combat operations.94 A key assumption of OEPP planners is that logistics supply lines will be challenged in the future by terrorists or other extremists, so steps need to be put into place to ensure efficient delivery of fuel. For instance, fuel is delivered to forward-deployed locations in Iraq via three main tours—from Kuwait in the south, Jordan in the west, and Turkey in the north—and to forward-deployed locations in Afghanistan via two main routs—from Central Asian states in the north and from Pakistan in the east.95 Certainly in Afghanistan and Pakistan, the confluence of weak states, non-state actors, and irregular warfare increases the likelihood of attacks on fuel convoys. While these developments do not help us analyze “access to oil” assumptions of military planners, they are still important to address since the military is focusing so much effort in reducing energy demand (along with other initiatives to reduce oil purchases, such as investing in alternative energies). The core of the issue underlying OEPP is that DoD’s unnecessarily inefficient use oil makes it move huge quantities of fuel from purchase to use, imposing high costs in blood, treasure, and combat effectiveness.

93 http://energy.defense.gov (OEPP website)
94 Based on interviews with OEPP staff.
VI. Peacetime v. Wartime Contingencies – DoD Oil Buying Priority

Now that we have a sense of the latest developments in the military thinking on oil, we can begin to analyze contingency plans for war-fighting. The general consensus from the literature and from interviews is that for the military, there is little distinction between peacetime and wartime contingency planning. As stated before, the types of wars that the military is planning for (surges), take weeks, not years to complete, so there wouldn’t be a substantial boost in fuel needed for these types of operations. DLA Energy maintains a robust global network of supply points and sources for all types of DoD fuels, and has established contracts with strategically placed refineries around the world. The DLA Energy director of bulk petroleum has the job of anticipating how much fuel storage is required to meet military wartime combat and peacetime training needs. Former DLA Energy director of bulk petroleum Colonel Jon Larvick describes how those needs are determined:

It starts out with the combatant commanders and their identification of requirements. As we generate the requirements and work with the combatant commanders in the field, we turn that into an inventory management requirement similar to what a Wal-Mart would do when they stock their shelves. We determine the most efficient place to put fuel. We look at our entire supply chain when we do that.\footnote{Tom Marlowe, “Fuel Supply,” \textit{Military Logistics Forum}, 2009, http://www.military-logistics-forum.com/military-logistics-forum/113-mlf-2009-volume-3-issue-3/1034-fuel-supply.html}

In addition, if needed for national security, DoD could exercise eminent domain over commercial energy contracts. The Department of Defense has authority under the Defense Priorities and Allocations System (DPAS), which falls under the Defense Production Act, to place industrial priority ratings on its contracts. DoD uses two ratings: “DO” and “DX.” If necessary to meet required delivery dates at any level in the supply chain, DO-rated orders must...
be given production preference over unrated (commercial) orders, and DX-rated orders must be
given preference over DO-rated orders and unrated orders. As of July 2010, there are 11
programs that fall under this DX category.97

If DLA Energy needs fuels in a time of crisis, it could invoke Program Code A2 “Missile
Fuels” or Program Code C9 “Miscellaneous.” DLA Energy must request special priorities
assistance (SPA) from the Department of Commerce, which is a process than generally takes two
weeks. Commerce can either issue a Directive, which is an order to require a contractor or
supplier to take a certain action; or they can issue a Letter of Understanding which is an
alternative to a directive and summarizes an agreement among the powers. If the commercial
contractors violate the code, the DPA has penalties of a $10,000 fine, one year in prison, or both.

Therefore, the consensus from interviews is that it would be difficult to imagine a
scenario where DoD would be unable to obtain the petroleum it needs in the future. Even if fuel
supply is low, DLA Energy can override commercial fuel suppliers to send oil to troops in war-
fighting mode.

97 Based on interviews with DPAS personnel.
Chapter 3: Policy Implications

I. Access to Oil and Consequences for Geostrategy – Keeping Scholars Honest

What can one learn from the military energy primer described in Chapter 2? How can any of this information translate into tangible policy moving forward? The main goal in this paper has been to keep geostrategists like Michael Klare and Flynt Leverett honest, by focusing on the military dimensions of oil policy and how DoD buys oil on a day-to-day basis. And after extensive research and interviews, it is clear that while the military strives to reduce energy demand and invest in alternative energies, oil will continue to be the key resource in war-fighting (and the global economy) for many decades to come. What is also clear is that the Persian Gulf region will remain an essential global supplier of these resources for the foreseeable future. While some military planners prescribe to the doctrine of preempton (the preservation and enhancement of US access or control of foreign oil resources is a means to reduce the prospects of any Eurasian rival power emerging to challenge American primacy), the overwhelming sentiment among DoD personnel is that access to oil will be guaranteed through the market for future war-fighting purposes. Some consulting reports have claimed that, for instance, “the control over enormous oil supplies gives exporting countries the flexibility to adopt policies that oppose democratic interests and values—and the US and its allies.”

But, as long as there is a world market, there will be oil for all services in war-time. If prices increase, demand decreases (and vice versa), and states will look for alternatives. Yes, the cost of fuel for DoD increases with the world price, but DoD will always be able to pay whatever price the market demands.

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especially given its ability to override civilian oil needs in times of national crisis through the Defense Production Act.

Keeping these assessments in mind, there a number of policies that can be implemented by the military in light of the research revealed in Chapter 2.

1) Reducing the number and size of forward-operating military bases

The first policy recommendation is to reduce the number and size of forward-operating military bases, particularly in the Persian Gulf. The removal or scaling back of a key defense imperative--ensuring the supply and the safe global transit of oil--would almost certainly lead to some reduction in active-duty forces to reflect this. Were oil security no longer a consideration, the US could expect to avoid periodic military operations that respond to threats to the petroleum and global transit of oil.

Figure 6: Current US Bases in the Middle East

Source: Klare, Rising Powers, Shrinking Planet, 187.
As one can see from the diagram, US forces are spread throughout much of the Gulf, from prepositioned equipment in Qatar, to forces and equipment in Kuwait, to the naval facilities in Bahrain. Simon Bromley has argued that in oil, as more generally, “the forward deployment of military power to guarantee the general openness of international markets to the mutual benefit of all leading capitalist states remains at the core of US hegemony.”99 But why does there have to be such a robust US presence in the Middle East if the military can get the oil it needs to fight wars without it?

Two central questions since the end of the Cold War have been whether the United States needs to have a military presence in the region at all and whether the primary aim has been to defend Saudi Arabia and other Gulf states with whom we now discover we have serious policy disagreements. Moreover, many scholars and commentators, frustrated with the tension in relations between the United States and Saudi Arabia, have stepped up calls for weaning the United States of foreign oil broadly and of Middle Eastern oil in particular. But the debate entirely misses the logic of the American involvement in the region.

First, buying oil from regions other than the Middle East will not resolve the problem. As the adage reminds us, “we are all sipping from the same cup.” The oil market is seamless and is largely driven by supply and demand. Middle Eastern supplies affect the price of Middle Eastern oil, yes, but also the price of global oil. And while the US military can and should conserve energy and develop alternate energy sources, the gap between what the United States now produces and what it consumes (nearly 10 million barrels a day) is simply too wide to be bridged. Also, the clustering of the reserves in the Middle East also means that at some point in

99 Simon Bromley, “The United States and the Control of World Oil,” Government and Opposition, (Spring 2005), 254.
the not too distant future, a greater share of the oil supply will inescapably be coming from that region.

Nonetheless, it is not entirely clear why oil economics should be mixed with oil politics or what necessitates a military strategy with a great deal of forward-operating bases at all. Indeed, many countries that depend heavily on Middle Eastern oil—countries such as Japan and many in Europe—have assumed that they can base their policy entirely on the demands of the market without seeing a need for political and military intervention. This attitude may in part be driven by their taking the US for granted and assuming that America will do the job to the benefit of all consumers (and many people at DoD and the Department of State believe the US has a moral imperative to open international trade lanes and promote globalization). But there is more to it than that. Outside the United States the view is growing that assuring the flow of oil does not require a significant military strategy. This view is bolstered by historical trends. With the exception of the 1973 Arab oil embargo, which was politically motivated and which led to extraordinary increases in oil prices, long-term evidence suggests that the market, more than any other issue, determines trends in oil prices.\(^{100}\) Historically, political alliances have not greatly altered patterns of trade between the oil countries and the rest of the world. Oil producers sell oil to the countries that need it and are willing to pay the price and import the best products they can from the best sources they can find. The same was true even during the Cold War years, when political relationships were obviously not central to the oil producers' trading behavior. A case in point was Libya, which, up until 1969, had been a strategic ally of the West and had hosted British and American military bases. The overthrow of the monarchy there in 1969 and the rise

of President Gadafi shifted Libyan politics in favor of the Soviet Union. Yet its trade patterns before and after the coup were largely the same. For example, the share of trade with Soviet Bloc nations stood at 1.9 percent in 1960 and 1965, 1.8 percent in 1970, 1.3 percent in 1975, and 1.0 percent in 1980.\textsuperscript{101} Moreover, moderate states in the Middle East did not differ radically from pro-Soviet states in their trading: the oil-exporting nation with the greatest share of trade with the Soviet Bloc was the Shah's Iran, not Libya, Algeria, or Iraq. The bottom line was that these states did what was in their economic interest, regardless of their political orientation.

After the 1991 Gulf War, with momentum on the rise for deploying American forces and establishing what amounted to a new fleet in the Gulf region, some observers believed that the increased American presence would give the United States a decided advantage over Europe and Japan in trade with the Gulf states. In some instances, no doubt, Washington was able to use its political leverage to help American businesses win contracts in the region, especially in the military and aerospace arenas. But at the aggregate level, the trade figures between the region and the rest of the world show that the United States had no visible advantage. In 1989, the year before Iraq invaded Kuwait, European exports to the Middle East stood at $40.2 billion, as against $13.7 billion for the United States. In 1992, the year after the Gulf War, Europe's export total was $57.2 billion, as against $19.9 billion for the United States. This trend continued. In 2000, Europe shipped $63.7 billion of exports to the Middle East; the United States, $23.0 billion.\textsuperscript{102}

2) Reducing the defense budget

\textsuperscript{101} Telhami, \textit{The Persian Gulf.}
\textsuperscript{102} \textit{Ibid}
What if the US chose to no longer protect oil production and transit from the Persian Gulf? If the US scales back the size of some of their forward-operating bases in the Middle East, it would certainly cut costs and lower the budget. Maintaining the US military presence in the Persian Gulf costs upward of $500 billion a year.\textsuperscript{103} Because these forces can also be used elsewhere, that sum is not entirely spent on defending the region. Still, one wonders why the United States devotes so much of its resources, energies, and war planning to the Persian Gulf. Would it not be more sensible to leave the oil issue to market forces and to leave politics out of it?

The use of fuel to power the weapons and implements of warfare represent an increasingly higher consumer of energy itself. Mobility fuel drives DoD energy spending: just 25\% of DoD fuel today is used for buildings and installations; the rest of the spending—about $12 billion per year—is for combat and combat-related systems.\textsuperscript{104} Fuels used for mobility, such as jet fuel and marine diesel, account for almost 71\% of the fuel used by DoD.\textsuperscript{105} Wartime and combat operations increase DoD fuel consumption due to the necessity for long range transport of equipment and personnel, as well as operations of the technologies and implements of warfare. In 2008, DoD supplied at least 90 million gallons of fuel each month (approximately 2.1 million barrels) to support US forces operating in Iraq and Afghanistan, representing some 20\% of the department’s total fuel purchases.\textsuperscript{106} This type of spending is not sustainable, especially with another operation in Libya in the works at this time of this publication.

\textsuperscript{104} Deloitte, Energy Security, 10.
\textsuperscript{105} Ibid.
\textsuperscript{106} Ibid
3) **Reexamining political relationships between the US and oil producers like Iran and oil consumers such as China and India**

The argument in this paper is not that political relationships do not matter, but that they are over-emphasized in large portions of IR literature. If the US pulled back its installations in the Persian Gulf, it could still encourage other nations to collaborate in patrolling the sea-lanes and ensuring that oil supplies are secure. The oil-exporting states bordering the Persian Gulf have increased their expenditures on defense in recent years. Not all of these expenditures are desirable from the point of view of the United States (i.e. Iran’s expenditures). However, the Arabian Gulf States of Kuwait, Bahrain, Qatar, United Arab Emirates (UAE) and Oman are important partners in the effort to maintain stability in the Gulf, and can continue to remain so even if the US adopts a revised geostrategy. Also, as China and India increase their defense expenditures and capabilities, those two countries may take a greater role in patrolling sea-lanes, including those through the Strait of Hormuz. Whether an increased Chinese naval presence in the Indian Ocean is in the United States’ interest is another question, given the Taiwan dilemma in the South China Sea, for instance. Nevertheless, it is in the best interests of US, China and India to have a strong oil market (all three countries are heavy oil importers), so there is certainly room for collaboration even with a decreased presence of the US in the region.

Even with a strong oil market, political relationships still matter, especially when there is a time disconnect and a slowness of response in a crisis. Having political relationships and the International Energy Agency (IEA) to assess what is happening on the ground in unstable countries is essential to stabilizing markets.\(^{107}\) In 1990, for example, Iraqi dictator Saddam

\(^{107}\) Based on interview with Department Of Energy official
Hussein invaded Kuwait with a clear intention to grab Kuwaiti oil fields. Because of the intervention of the US military and the IEA, that situation was avoided. The coordinated response mechanism employed by the IEA will be certainly essential moving forward, and political relationships define the agency.

4) **Reexamining the relationship between oil revenues and terrorism**

A direct connection between oil revenues and international terrorism is frequently invoked in public discussions of energy security. For instance, Air Force Colonel Gregory J. Lengyel has written that “instability and hostility towards the United States characterizes most of the oil-producing world, and terrorist organizations have called for attacks on oil infrastructure and military supply lines.”\(^{108}\) In addition, former CENTCOM Commander General John Abizaid said in 2006 testimony to the House Armed Services Committee that “as always, we must guard against and be ready to respond to the potential for strategic surprise and unwelcome developments, such as a major terrorist strike against oil infrastructure, a closure of one of the region's strategic sea lanes, escalating political strife, or nation state expansion or support of terrorist activity.”\(^{109}\) The reality is that the likelihood of a terrorist attack on oil infrastructure is quite low, and while military planners are worried about fuel convoy disruptions in Afghanistan, the threat of a larger scale attack is exaggerated in the literature. Gholz’s analysis of oil flows in the Strait of Hormuz determined that “complex military operations like an effort to disrupt oil flows through the Strait of Hormuz are hard to pull off,” and “oil tankers are difficult targets,


specifically the Very Large Crude Carriers (VLCCs) that ply the waters of the Arabian Gulf.”\textsuperscript{110} The study adds that in estimates considered “most likely” to be accurate, a small boat suicide attack on a tanker still only has around a 5% chance of delaying the tanker’s transit for more than a few days. The natural conclusion here is that the US military does not need to react immediately with overwhelming force to quell any provocations. Thus, the need to protect global energy trade should not be used carelessly to justify continuing operations in the Gulf or aggressive tactics in interactions with terrorist forces.

II. Alternative Energies

One other aspect of the military’s energy profile that should be mentioned is alternative energies. All DoD personnel want to talk about is the latest renewable energy project, whether that be the Navy’s planned “green fleet” powered solely on alternative fuels or the Air Force’s plan by 2016 to acquire amounts of alternative fuel blends sufficient to meet 50 percent of its domestic requirements for aviation fuel. Also, a series of reports in the last few years have claimed that the DoD must rid itself of its addiction to petroleum as soon as possible, or else they will be unable to fight wars in the future.\textsuperscript{111} One report from the Center for New American Security even calls for DoD to use 100% non-petroleum fuels by 2040. While ambitious, this does not seem attainable at all. In fact, there is an exaggeration of the role of energy across the literature; there is an overemphasis of its importance and the impending doom of dependence on oil. The main problem with all of these reports is that there is no military benefit from

\textsuperscript{110} Gholz, Threats to Oil Flows through the Strait of Hormuz, 3.
\textsuperscript{111} Most notably “War Without Oil” by Michael Hornitschek (February 17, 2006) and “Fueling the Future Force” from the Center for New American Security.
alternative fuels—they don’t make planes fly faster or tanks move faster. Also, once these fuels hit the market, they’ll be sold for the same price as oil (the nature of supply and demand). As the latest Joint Operating Command concedes, “fossil fuels will very likely remain the predominant energy source going forward.”112 The latest RAND report on this issue, “Alternative Fuels for Military Applications,” calls for the military to direct its efforts toward using energy more efficiently (utilizing the new OEPP office) instead of using alternative-fuel technologies that are unproven, too expensive, or too far from commercial scale to meet the military’s needs over the next decade.113 The military should certainly still invest in renewable technologies, as large-scale military projects have turned into mainstream economic success before (i.e. computers, the Internet, satellites, large-scale aircraft). But the sense of urgency to transform DoD into completely petroleum free in just a few decades is unreasonable. Oil is here to stay, and military planners know that.

III. Opportunities for Further Research

While a great deal of material was covered in these pages, there is always room to explore these issues more in-depth. There would be substantial value in research that sought an exact figure on the cost of the US military presence in the Persian Gulf. Stern’s analysis is an admirable start, but given the ever-changing commitments of the military in the region, more work can be done. Also, fleshing out which Middle East bases are more necessary for operations than others would be worthwhile research. I was unable to gain access to someone with intimate knowledge of the operations of the bases in Bahrain, Qatar, or the UAE, for example, so it was difficult to draw conclusions about the exact bases to decrease in size. Finally, as the newly

112 JOE 2010, 34.
created DoD Operational Energy expands in size and scope, an analysis of its progress would certainly prove to be useful in understanding the military dimensions of oil policy.

Conclusion

The key take away from this exercise is that as long as there is a world oil market, there will be oil available for every stakeholder, most notably for the largest consumer of oil in the nation—the US military. The United States is part of a global oil market, an extraordinarily huge logistical system that moves 84 billion barrels of oil around the world every day. As a result, US security resides in the stability of this global market.\textsuperscript{114} “It is in the producers’ interest to be seen as credible suppliers on whom buyers can count. Well-functioning domestic and international petroleum markets are a primary means by which the economic costs of disruptions in the supply of oil can be minimized. The military seems to be focused more on operational energy (reducing demand) and investing in alternative energies, which certainly makes sense given the rising price of fuel and the fact that access to oil is assured for future wars. In terms of its Middle East presence, the core of US military strategy should be simple: Remain close enough to prevent major acts of military aggression, but stay out of the daily fray of the region’s politics. Preemption is the wrong strategy to embrace in this globalized society, even if the prospects of a Eurasian rival power emerging to challenge American primacy is more likely. If there is a challenge to US hegemony, it won’t be over energy resources (as Klare would say); it is more likely to be over jobs and productivity.

\textsuperscript{114} Yergin, \textit{The Prize}, 55.
Recent events in Libya and Egypt have one again raised access to oil questions. Congressman Ed Markey recently stated that, “we are in Libya because of oil . . . it all goes back to the 5 million barrels of oil we import from OPEC on a daily basis.” Even Libyan leader Moammar Gadafi has declared that “those who are on the land will win the battle,” while warning without explanation that “oil will not be left to the United States, France and Britain.” Clearly, access to oil continues to play a vital role in military strategy, but it remains to be seen moving forward how exactly that role changes, if at all. By casting more reasoned doubt on some of the more expansive claims about the oil, we can ensure that a global battle over energy resources does not occur, and that every nation can acquire the energy resources it needs for years to come.

Appendix -- Glossary

**Forward-Operating** describes any secured forward military position, commonly a military base, that is used to support tactical operations. A FOB may or may not contain an airfield, hospital, or other facilities. The base may be used for an extended period of time. FOBs are traditionally supported by main operating bases that are required to provide backup support to them. A FOB also improves reaction time and increases time on task to forces operating from it.

**Jet A-1 (JA1)** is a civilian-aviation kerosene based turbine fuel adopted by international commercial aviation.

**Jet A (JA)** is a civilian-aviation kerosene type of jet fuel (similar to JA-1) normally only available in the United States.

**JP-5** is a fuel developed for use in military aircraft stationed aboard aircraft carriers where the risk of fire is a great concern (kerosene based)

**JP-8** is the military equivalent of Jet A-1 but with corrosion inhibitors and icing inhibitors. The Air Force switched to JP-8 in 1996 out of concerns for safety and combat survivability. JP-8 has also been adopted for use in diesel-powered tactical ground vehicles.

**Military Installation** means a base, camp, post, station, yard, center, or other activity under the jurisdiction of the Secretary of a military department or, in the case of an activity in a foreign country, under the operational control of the Secretary of a military department or the Secretary of Defense.
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David Alexander, Chief, International Agreements Division, DLA Energy

Dr. James Bartis, Senior Policy Researcher, RAND

Raymond Cervantes, Chief, Defense Contract Management Agency

Jonathan Elkind, Principal Assistant Deputy Secretary, Office of Policy & International Affairs, Department of Energy

Joseph Figueiredo, Special Assistant, Office of the Coordinator for International Energy Affairs, Department of State

Dr. Ron Filadelfo, Center for Naval Analysis

Col. Michael Fitzgerald, CENTCOM

Professor Eugene Gholz, University of Texas

Alex Greenstein, Bureau of Economic, Energy and Business Affairs, Department of State

David King, Senior Policy Analyst, DoD Operational Energy

Commander Esther McClure, Office of Secretary of Defense for Policy

Edward Morse, Foreign Affairs & Citi

Dan Nolan, DoD Energy Blog

Captain Charlie Race, Chief of Staff, DLA Energy

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