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WORKING PAPER

Peak Oil:
A Survey of Security Concerns

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Center for a New American Security

INTRODUCTION

The world faces an energy challenge more dire than at any time in recent history. Oil prices have shot to record levels over the last year not due to some political upheaval, as with the 1973 Arab oil embargo, nor because of war and strife, as after the 1979 Iranian Revolution and the ensuing Iran-Iraq war. Deeper and more fundamental forces are driving prices this time, ranging from galloping demand in Asia and the Middle East to the skyrocketing costs and complications to discover and develop new oil basins.

Whether the world now faces a lasting oil-supply crunch is a debate that echoes across the Web and dominates oil gatherings from Abu Dhabi to London. Has the world passed the all-time peak in oil production, as the growing peak oil crowd believes? Or is the dramatic run-up in prices over the last several years simply a historical anomaly—a big bump in a road that will soon flatten out?

Many of the biggest names in the oil industry now agree on one point: That whatever the ultimate cause—be it political, geological or a mix of both—the world is now entering a new era of high energy costs and constrained supplies. Just as 1908 marked the birth of the Model T and the advent of the automotive age, historians may one day mark 2008 as the beginning of the end of the age of petroleum.

The evidence is strong that this period is not a blip. John Hess, the taciturn chief executive of Hess Oil, made a particularly gloomy case earlier this year for why, as he said, "an oil crisis is coming."[1] Demand growth around the world is unrelenting, and has abated only slightly as prices have soared to unimagined highs. But more to the point, he said, is that the industry isn't investing enough to surmount the many challenges on the supply side. As a result, oil supply capacity could hit its ceiling by 2015. Others argue that the shortfall could come much sooner.

The purpose of this paper is not to argue whether the world is about to hit its oil-production limit. The long-running feud over peak oil remains heated and unsettled, with whole armies of geologists, oil executives and statisticians blasting away from either side. Instead, the aim here is to take the evidence of real trouble ahead, and to explore what strains it may impose on the world's existing architecture.

Evidence of the coming turbulence is not hard to find. The world's two foremost energy forecasting

shops, the U.S. Energy Information Administration (EIA) and the Paris-based International Energy Agency (IEA), are both dropping their habitual optimism and assuming a much darker view of the challenges ahead. The IEA in November will release its first-ever comprehensive study of the world's oil supplies, and its conclusions are said to be chilling. A vast portion of the oil fields that fuel the world's cars, trucks, airplanes and ships are now growing tired and depleting rapidly. That depletion rate means that around the world, oil companies every year must bring onstream nearly the equivalent of all of America's annual oil production just to keep even. Many big producing countries, Norway and Mexico among them, are now in permanent decline.

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The problem the world faces can be summed up in a simple phrase: its supplies of oil are old and rapidly aging, while demand for that oil is young and rapidly growing. For the first time since the rise of modern capitalism, our society and its engrained way of life—its restlessness, its mobility, its reliance on sustained economic growth and expansion—may literally begin running short of fuel.

The ramifications of a sustained supply shortfall, if it comes, will be massive and wide-ranging. Economists are just beginning to examine the dramatic changes the U.S. economy and the global trading system will experience if oil prices continue to notch ever higher. The average cost of a barrel of oil has crept up about $12 every year since 2003. Last year it averaged around $72 a barrel, a figure which this year is all but certain to remain over $100. What this summer has clearly shown is that oil at $150 a barrel or more would force wrenching changes in the United States, where planners would face the challenge of having to reverse a half century of development and sprawl built entirely around the automobile.

Far less understood, though, are the equally sweeping national security challenges that will multiply as the impact of sky-high oil prices ripples through international capitals.

The current world order has been built on cheap and abundant oil more than any other commodity. Without it, the United States could not have established a global military posture reaching from the shores of Italy to the Pacific outpost of Guam. Nor would the world have seen the breakneck industrialization and economic growth of the last century, much of it driven literally by the U.S. model of upward mobility and individual consumption. Oil, and the need to protect it, secure it, or fight over it, have figured prominently in nearly every major war of the modern age.

Those impulses will only increase in an age of scarcity—and with a cast of players far more complicated than during any earlier energy crisis. At the end of the Second World War, as the only real industrialized powers, the United States and Europe jockeyed over control of the oil riches of

the Middle East. By 1973, when the West got its first oil scare, the United States still produced a sixth of the world's oil and consumed almost twice as much every day as did all of Asia, including Australia, China, India, and Japan.

The picture now is dramatically different. The United States last year produced just eight percent of the world's oil, while the booming economies of Asia consumed more crude than the United States, Canada, and Mexico combined. And the United States and Europe are now competing for new pockets of oil from West Africa to the Arctic against equally hungry actors from China, India, Malaysia, Brazil, Russia, and Korea. The Seven Sisters have multiplied into a cacophonous crowd of large and small companies, some private, some state-owned. And it is the state-owned ones, the big national oil companies like Saudi Aramco and Russia's Gazprom, which will grip the oil nozzle the tightest in the decades to come.

A Superpower Turned Supplicant

The threat of systemic supply shortages has been strikingly slow to seep into official thinking in Washington. The traditional national security crowd has remained focused on the usual menu of concerns—Islamic extremism, Iran, the Palestinians, a belligerent Russia, Darfur, lately even global warming—but with almost no attention given to the oil question. When the issue has received some brief focus, it has usually been glancing and diluted by assumptions that now appear questionable.

In late 2006, a blue-ribbon coterie of top retired military and corporate CEOs brought together by the Washington-based group Securing America's Future Energy released a thick report on reducing U.S. oil dependence. The report touched on the usual vulnerabilities of the United States being under the thumb of the oil sheiks and at the mercy of terrorists attacking the world's oil infrastructure. But it did not entertain the threat of an enduring supply crimp.

The group has also conducted several war games to weigh the grim ripple effects of sudden instability in the Caspian, or an Iranian decision to curtail its oil exports in retaliation over Western economic sanctions. One such "Oil Shockwave" exercise, conducted in November 2007, contemplated how those very geopolitical disruptions could drive oil to nearly $140 per barrel by July 2008. As it turns out, far less dramatic but more fundamental forces—a slipping U.S. dollar, rising Chinese demand, shrinking global spare capacities for crude production—ended up propelling crude prices higher than those foreseen by the blue-ribbon panel. U.S. car companies, airlines and other industries have paid far less attention to signs of a coming supply crimp that is already forcing painful changes.

The United States, more than any other country, is still in the denial phase when it comes to understanding the potential seriousness of limited oil supplies going forward. As oil prices soared this summer, Congress pursued a lengthening rogue's list of culprits to carry the blame. Topping that list were Big Oil, the 13 member states of OPEC, Saudi Arabia itself, and myriad financial players and speculators. Republicans have championed the need to open all of America's territorial waters to offshore drilling, while both parties wave the grail of energy independence. Underlying all this is the deep sense that the U.S. way of life is under attack, and that something should and can be done to return things to normal.

For many analysts, these whiffs of panic underscore what may be one of the largest challenges if oil supplies grow tighter and prices continue to soar: the potential for irrational and costly responses within the U.S. political establishment. For strictly domestic gain, and with limited sense of their implications, members of Congress could

easily begin to take steps that would reverberate adversely around the world.

U.S. lawmakers have already begun to lash out at Arab governments, threatening various forms of retaliation if they don't ramp up production. Relations are becoming increasingly tense between the United States and Saudi Arabia, the world's largest oil exporter and for years the only country with any real ability to step up output in times of real crisis. New York's Democratic Senator Charles

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Schumer led the way on Capitol Hill this summer by lobbing threats at the Saudis if they didn't immediately boost their oil production. His proposals ranged from threats to bar U.S. arms sales to prohibiting any form of nuclear cooperation with the Saudis.

The senior-most Republican on the House Foreign Affairs Committee, Florida's Ileana Ros-Lehtinen, put out a statement in July that typified the curious bluster of many in Congress. While "ordinary Americans are finding it increasingly difficult to afford to drive to work," she said, "the streets of Riyadh are paved with petrodollar gold and oil profits help fund Islamist militants." The solution? Saudi Arabia must increase production "and adhere to its leading role in the world market."

These and other congressional rumblings have raised eyebrows both in the Middle East and in Western financial circles, largely because their effect would almost certainly weaken an already vulnerable U.S. economy. America's huge thirst for imported oil is now costing the country $1.2 billion a day, up from around $330 million a day in 2002. The U.S. foreign energy bill now accounts for nearly half of the country's soaring trade deficit, which in turn weakens the dollar and drives investors all the more into commodity investments. A weaker dollar in turn boosts the price of oil, thus increasing the trade deficit—an evil spiral that batters the United States like no other country.

The risk is that U.S. lawmakers and the public react to the increasing financial pressures by turning against outside investors, particularly those coming from the oil-rich Persian Gulf. In a repeat of the Dubai Ports World blow up of 2006, such a reaction would help drive still more dollar-denominated capital away from the United States, assuring that it lands instead in Europe, Asia, and the Middle East. The big petro-states, including Saudi Arabia and Russia, have recently emerged as the U.S. government's biggest creditors as they plow their profits back into U.S. Treasury notes. What we are witnessing is a slow resetting of the world's economic and geopolitical stage as wealth seeps from the United States to countries with interests that often don't overlap with those of Washington. This dependence on financing from cash-rich petro-states like Saudi Arabia will become all the more intense in the wake of September's Wall Street crisis, and the administration's $700 billion bail out proposal.

The anti-Arab sentiment that swept through the United States after September 11th has already brought changes that will undermine U.S. energy security over the long haul. Middle East petroleum geologists and young oil executives that used to flock to U.S. universities are now increasingly staying at home or going to China and Europe instead.

The personal ties that have long linked the United States to the world's largest oil repositories are now rapidly fraying.

As oil supplies grow tighter, the heaviest economic blow will clearly fall on the United States, which today soaks up nearly a quarter of the world's daily output. If the worsening mortgage crisis ends up shoving the United States into recession, as seems increasingly likely, high oil prices will only deepen the pain. A period of sustained tightness in the world's oil market would devastate large portions of the U.S. economy in ways that would weaken the country's international standing and reverberate around the world.

Looking Forward, Looking Back

A good way to peek at what may be coming is to look clearly at what happened during one week in July 2008. With oil up nearly 50 percent on the year and hovering around $140 per barrel, there were signs of real strain across the globe:

- In South Korea, high petrol prices helped fan mass antigovernment protests.
- In Britain, calls built for the government to slash its petrol taxes, a key component in every European state budget.
- An aviation industry group announced that 25 airlines around the world have declared bankruptcy or gone out of business since January.
- Pakistan said its total oil stocks dwindled to 16 days of supply.
- In Mexico, officials announced that one of the world's largest oil fields, the famous Cantarell oil complex, has seen its production plunge by a third in just a year. Fuel subsidies in Mexico were expected to cost the government $20 billion this year.
- Protestors in Malaysia packed into a stadium to rally against the government's 40 percent increase in petrol prices. The leaders of Malaysia and Indonesia said that soaring food and oil prices pose "grave threats" to the world economy.
- Militants in Nigeria stepped up their attacks on the country's oil infrastructure, driving Nigerian oil exports to new lows.

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- Two days of missile tests in Iran reinforced fears of major supply disruptions through the Strait of Hormuz, conduit for 40 percent of the world's tanker-carried crude.
- Hotel and rental car companies in the United States saw their shares fall amid a sharp slowdown in travel. In Washington, House Speaker Nancy Pelosi called on President Bush to release oil from the country's strategic reserve, which holds 710 million barrels, in a bid to drive down prices. Senator John Warner soon after proposed that the United States begin to debate

whether it makes sense to re-impose the 55-mile-an-hour national speed limit. And a dozen of the largest U.S. airline companies launched an unprecedented lobbying front to push Congress for legislation cracking down on "speculators."

But to understand better how this crisis is strikingly different from all previous ones, let's look even farther back. The world's last true energy shock came in the late 1970s and early 1980s, when the Iranian Revolution and the Iran-Iraq war sent a panic through the oil market, driving prices up to record highs in the first half of 1981.

The crisis reinvigorated cries for change in the United States. In July 1979, President Carter gave an extraordinary televised speech. He lamented the country's "intolerable dependence on foreign oil," which he said "threatens our economic independence and the very security of our nation." That dependence, he said, posed "a clear and present danger to our nation."

Then look at what happened next. That same year, Alaska's Prudhoe Bay hits its peak production of 1.5 million barrels a day. Mexico's huge Cantarell field came on stream, almost doubling Mexican production between 1979 and 1983. Britain's share of the fertile North Sea roared into action, sending British production up by 1 million barrels per day from 1980 to 1985, when the United Kingdom almost equaled Saudi Arabia in crude output.

U.S. consumption also fell sharply during those years, so that by 1985, the world was again awash in cheap oil. In a blink, the clear and present danger was neither clear nor present. The American oil thirst shot back to its pre-crisis levels, and then grew apace for the next two decades. This time, if there are any Prudhoe Bays, Cantarells, and North Seas coming on stream, it's not going to happen for years. And while the United States and Europe may crimp, there is no sign yet of a significant decline in demand in the Middle East or Asia.

Perhaps one of the most remarkable features of the energy bind the world now faces is how few saw it coming, and how its manifold ramifications have barely begun to reverberate through the U.S. national-security establishment, much less within the U.S. government.

Under Pressure: Global Trade

The recent price spike has already begun to shake up trading patterns that have evolved over decades—illustrating how the very concept of globalization is founded on cheap oil, and how much the global system could teeter if and when oil grows scarcer.

At $140 a barrel, containers of T-shirts or running shoes coming all the way from China suddenly weren't so cheap anymore. CIBC World Markets chief economist Jeffrey Rubin recently found that it cost $3,000 to ship a 40-foot container from Shanghai to New York in 2000, when oil averaged around $32 a barrel. As of this summer, the same container cost closer to $8,000 to ship.

The higher crude soars, the less sense it makes to source goods from China, Vietnam, or other manufacturing hubs whose distance from major markets was overshadowed by their huge cost advantage on the labor side. Mr. Rubin argues that oil at $200 a barrel would eliminate all the international tariff reductions gained since the 1960s, thus ushering in what he calls "a fundamental realignment in trade patterns."[2]

But that shift will be far from even, and will benefit some while harming others. China stands to be the hardest hit, as so much of its domestic economy is now built around shipping manufactured goods to Europe and the United States. So will many of the countries in South America and Asia that have ridden the wave of the global food trade. In

April alone, Chile sent $153 million worth of fresh grapes to the United States — a good chunk of the $718 million bill that month alone for fruit shipped to American supermarkets from 68 countries. Also in April, 31 countries shipped $28 million worth of water to finicky Americans. Two months before—Valentine's month—Colombia flew $69 million worth of roses and other flowers in cooled jumbo jets to American wholesale florists. Will all this make sense if oil crawls above $200 a barrel?

Just as countries and whole regions have reoriented their economies to pursue the enticements and allures of global trade, restrained oil supplies and soaring fuel prices could begin to unravel that system, spawning unrest in many of the world's least stable places. In Pakistan, to cite one striking example, much attention has been given to the encroachment of Taliban forces into the Northwest Frontier. But perhaps equally disturbing, and almost entirely unnoted, is how the country's dwindling fuel supplies have led to widespread blackouts, all but shuttering Pakistan's crucial textile industry.

And To A Few, Increasing Power

Even beyond a redrawn trade map, the tightening of global oil supplies is already leading to a redistribution of power and strategic leverage that will affect the world in manifold ways. Slumping production from Britain, Norway, Russia, and Mexico point to a much larger trend: that from here on out, it will be OPEC that will have to satisfy most of the world's growing thirst for crude.

In other words, we are fast returning to the scenario that President Carter found so alarming in 1979, except this time, oil is likely to be selling for $150 a barrel instead of $25 or $30, resulting in a far more significant and sustained transfer of wealth and clout.

In 1979, OPEC's members—among them Saudi Arabia, Kuwait, Iran, Iraq, and Venezuela—supplied 47 percent of the world's oil. The developed democracies of Europe and North America supplied another quarter. Today, OPEC's share has fallen closer to 40 percent, while the amount of oil coming from the developed democracies has ebbed to 23 percent. What's made up the difference, by and large, has been increased production in the former Soviet Union and West Africa.

But the days are almost certainly over when the world could count on countries outside of OPEC contributing significant new increments of oil. From the Gulf of Mexico to Siberia, many of the world's largest and oldest fields are now facing sharp decline rates. So to make up for that, companies have to squeeze oil from the sands of Canada or seek it in the deep waters off of Brazil.

Where the forecasters do see the majority of future growth are countries such as Saudi Arabia, Iraq, Iran and Venezuela—all members of the OPEC cartel. But a new mentality is taking hold in many OPEC countries that is likely to hike tensions in coming years if prices stay where they are now, or move higher. If your current production is already earning you billions of dollars a month, why invest tens of billions more to try to boost that production in two or three years, especially when it may be more economically prudent to leave that oil in the ground? Yes, big consuming countries like the United States might howl, but won't you be doing your grandchildren a favor? If the world has truly entered a supply-restrained era, or even passed its peak production, then surely prices aren't likely to fall. Saudi King Abdullah said as much earlier this year, noting that he had ordered the country's oil officials to leave some of the country's untapped fields in place for future generations.

Tight supplies strengthen the hand dramatically of anyone who is able to disrupt them; the tighter the supplies, the greater the leverage. Nigerian militants with a few machine guns, a speed boat,

and email access have repeatedly driven up the world price of crude. Libya, responsible for just two percent of world output, jarred markets earlier this year when it threatened to slash its output if the United States didn't block several lawsuits against Tripoli over the Lockerbie bombing. Venezuela's Hugo Chavez has also threatened to cut off oil shipments to the United States if ExxonMobil pre-

"The swift downturn in oil production in some countries threatens to rattle entire regions. Nowhere is this truer than Mexico."

vails in its bid to freeze Venezuelan assets as part of a legal dispute between the two sides.

During past crises, most recently after the Iraqi invasion of Kuwait in 1990, Saudi Arabia had plenty of spare capacity to make up for lost production. But its useable spare capacity now would barely make up half the difference if Iran were to go offstream. A concerted campaign by Iran and Venezuela to stop exports for even a few weeks would send oil prices soaring.

Mexico's Slide: An Early Warning

It is still impossible to say if the world has hit an all-time production ceiling. Even if it has, that fact wouldn't be clear for years. What's much easier to see are the individual peaks, and where their downward ridges point. The United States hit its peak in 1970, when it produced 11.2 million barrels a day, or almost a quarter of the world's supply at the time. It has fallen steadily ever since, to almost half that rate now.

The swift downturn in oil production in some countries threatens to rattle entire regions. Nowhere is this truer than Mexico. The country has relied heavily on oil revenues since it nationalized the oil industry in 1938. Production grew dramatically until it hit 3.8 million barrels per day in 2004. It has fallen steadily since then, dipping below 2.7 million barrels per day in May 2008. The Cantarell oil complex is depleting so fast that Mexico's legislature is at last debating whether to tweak the country's longstanding prohibition against contracting with foreign oil companies.

The gloomiest forecasters say the country could become a net oil importer within five years. Even if the country threw open its doors tomorrow to foreign operators, it would take most of a decade to make any real difference. Offshore rigs are in such demand that lease-fees for some deepwater drilling ships have now jumped to over $700,000 a day; the wait to secure one is years long. The industry is also suffering from a serious labor shortage.

Mexico's slumping oil industry is bad news for both Mexico and the United States. Mexico's government relies on its national oil company, Pemex, for nearly 40 percent of its budget. The evaporation of that revenue would clearly damage the economy, sending still more workers north in search of jobs—a potent mix if a struggling U.S. economy has also jacked up the U.S. unemployment rate. A depleted federal budget would also hobble the government's escalating battle against the growing power of the Mexican drug cartels, with wide-ranging consequences on both sides of the border.

Mexico is also the third largest supplier of crude to U.S. refiners, after Canada and Saudi Arabia. Whole refineries along the U.S. Gulf Coast are designed to handle Mexico's heavier crude, which is also just days away by ship. Oil from the Middle

East, by comparison, requires weeks to get to Texas or Louisiana. The disappearance of Mexico's supply—now about 8 percent of the U.S. market—would put a serious squeeze on the U.S. energy sector. It would also increase the country's reliance on far less reliable suppliers in West Africa and the Persian Gulf—to say nothing of Venezuela. But here again, the U.S. government has barely begun to take notice of what is happening south of the Rio Grande.

At the Pentagon, A Belated Awakening

Not all corners of Washington are deaf to the looming challenges of a potential crimp in global oil supplies. The periodic howls for the United States to kick its "foreign oil addiction" are now taking on more urgency but also more nuance and range, animated in part by the sense that the world could be in for a jolt.

This is particularly so within the Department of Defense. There is now an intellectual ferment on energy issues within the Pentagon that may be unrivalled anywhere else in the government, including the Department of Energy. The main prod is simple: the military's own growing sense of vulnerability. The U.S. military chugs down 300,000 barrels of oil a day—a thirst equal to that of Portugal. In Iraq alone it consumes around 40,000 barrels a day—about the same as the state of Rhode Island.

Military hardware, particularly American tanks, fighter jets, and ships, have never been built for efficiency. In a superb recent piece on the subject, "The Fuel Gauge of National Security," published in May 2008 in Armed Forces Journal, Commander Jeffrey Eggers of the Joint Staff dissects what he calls "oil's grip on our military." The M1 tank, he notes, is the only tank in the world powered by a gas turbine jet engine—"yet our flying main battle tank has such poor gas mileage that is has to be trucked to the front lines."[3] Aerial refueling tankers routinely dump excess jet fuel prior to landing.

The cost of the U.S. military's profound dependence on diesel, gasoline, and jet fuel will approach $10 billion this year. But many of the costs can't be measured in dollars. Many U.S. soldiers and hired contractors have been killed hauling fuel into Iraq.

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The energy footprint of the U.S. soldier in Iraq, Commander Eggers notes, is 16 times higher than his compatriot during World War II, when severe shortages of diesel stalled Patton's push toward Berlin. This heavy reliance on diesel at remote forward operating bases in both Iraq and Afghanistan has prompted a number of efforts to find new ways to generate electricity in the field.

A small group within the Pentagon is also pushing the civilian leadership and top brass to take fuel efficiencies more seriously, so that the true cost of fuel is weighed during the acquisition process. A

Pentagon study completed several years ago, when oil was far cheaper than it is now, found that jet fuel delivered by aerial tanker cost more than $42 a gallon, while diesel hauled into Iraq cost well over $8 a gallon, if one adds in the enormous cost of delivery.

There is a growing contingent of peak oil adherents within the U.S. Armed Forces that is in turn churning out an expanding body of work on the challenges the military may face in an energy-constrained future.

Others, though, worry less about the Army or Navy keeping their own fuel tanks full and more about how the military is being sucked increasingly into regions where the overriding strategic interest is oil. This tilt will only become more pronounced as the world's most productive pools of oil grow more finite. Retired Admiral Dennis Blair remembers how, as late as the 1970s, the U.S. military presence in the Persian Gulf consisted of a single admiral and an unarmed flagship with a couple of small destroyers. During his time in the 1990s as Pacific commander, based in Honolulu, he has a different memory: that of aircraft carriers steaming through the Pacific on their way to the Gulf.

Today, the country obviously has its most active—and onerous—military presence in the Persian Gulf, not just in Iraq but also in Bahrain, where the Navy has bulked up substantially to keep Iran in check and the Strait of Hormuz open to tanker traffic. The U.S. European Command has also been extending its reach far beyond its traditional region, creating a Caspian Guard to help the oil- and gas-rich countries of Azerbaijan and Kazakhstan guard their airspace and land and maritime borders. EUCOM has also been reaching out to the countries of West Africa, such as Nigeria, Angola, and Equatorial Guinea, which collectively supply more oil to the United States than the whole of the Middle East. Discussions about creating a new Africa Command remain up in the air, but the Navy recently sent a small flotilla on a several month port-to-port mission through the Gulf of Guinea to show U.S. military solidarity in the region. The creation of an Africa Command would be the first new U.S. regional command structure since President Reagan created the Middle East-focused Central Command in 1983.

Admiral Blair is one among many strategists, including a number within the U.S. military, who worry that tight oil supplies and sky-high fuel prices are already transforming the U.S. military into a global petroleum police force, to the detriment of its many other responsibilities in Asia, Africa, and South America. Commander Eggers hopes there is still time for the Defense Department to play a lead role in developing technologies to wean the United States —and its intensely oil-dependent military—off of hydrocarbons. "Oil's ascendancy to a strategic commodity was through the military," he wrote; "the military should also be the source of its demise."[4]

Next Up, Resource Wars?

In the United States, the prospect of diminished oil supplies and skyrocketing prices raises fears of recession, ebbing international status, and a transformation of the American way of life. In the big developing countries of Asia—above all China—the same prospect evokes images of mass unrest and the denial of potential superpower status.

No country has been more determined than China over the last decade to assure that its rapid rise isn't tripped up by a lack of energy. In Angola, Nigeria, Sudan, Iran, and across Central Asia, the Chinese government and Chinese state companies are going to extraordinary lengths to build infrastructure, create alliances, and sew up oil contracts. The ultimate aim is to lock in a number of long-term exclusive arrangements with suppliers in Africa, the Middle East, and Central Asia that would give China the assurance it seeks that no supply

disruption will derail its economic ambitions. China's quest to build a major deep-sea naval force, analysts say, is driven in part by its desire to protect critical sea lanes like the Strait of Malacca, through which all Asia-bound Middle East oil must pass.

The Defense Department, in its more recent report on the "Military Power of the People's Republic of China," said that beyond Beijing's usual fixation on Taiwan, an "analysis of China's military acquisitions and strategic thinking suggests Beijing is also developing capabilities for use in other contingencies, such as conflict over resources."[5]

The Bush administration has also cast an increasingly wary eye on Russia's myriad efforts to tighten its energy grip over Europe, particularly when it comes to Europe's increasing dependence on imported natural gas. Beyond its own abundant supply routes to Europe from its own territory, Russia's Gazprom is now busy working to lock down supply arrangements from the Caspian, Iran, and North Africa. The recent fighting in Georgia has highlighted Western Europe's vulnerabilities on the energy front. A key energy conduit, Georgia is home to the only oil pipeline outside of Russian control that can move the oil riches of the Caspian region to markets in the West. In the first week of its August war with Georgia, Russia dropped bombs within feet of the Baku-Tbilisi-Ceyhan pipeline and took down a railroad bridge that carried Kazak crude to the Georgian port of Poti.

At the same time, many of the recent fulminations in Congress over Saudi Arabia's alleged unwillingness to boost its output illustrate that a strong sense of resource entitlement continues to live on within the U.S. political establishment. While Rep. Ros-Lehtinen demands heatedly that the Saudis pump more oil to help commuters in Miami, she also opposes calls to open Florida's Gulf coast to oil exploration.

Many commentators in the United States and abroad have begun to wrestle with the question of whether soaring oil prices and market volatility could spark an outright oil war between major powers—possibly ignited not by China or Russia, but by the United States. In a particularly pointed speech on the topic in May, James Russell of the Naval Postgraduate School in California addressed what he called the increasing militarization of international energy security. "Energy security is now deemed so central to 'national security' that threats to the former are liable to be reflexively interpreted as threats to the latter," he told a gathering at the James A. Baker Institute for Public Policy at Houston's Rice University.[6]

The possibility that a large-scale war could break out over access to dwindling energy resources, he wrote, "is one of the most alarming prospects facing the current world system."[7]

Mr. Russell figures among a growing pool of analysts who worry in particular about the psychological readiness of the United States to deal rationally with a sustained oil shock. Particularly troubling is the increasing perception within Congress that the financial side of the oil markets no longer functions rationally. It has either been taken over by speculators or is being manipulated, on the supply side, by producers who are holding back on pumping more oil in order to drive up the price. A breakdown in trust for the oil markets, these analysts fear, could spur calls for government action—even military intervention.

"The perceptive chasm in the United States between new [oil] market realities and their impact on the global distribution of power will one day close," Mr. Russell said. "And when it does, look out."[8]

The World at Peak: Taking the Dim View

For years, skeptics scoffed at predictions that the United States would hit its own domestic oil

production peak by sometime in the late 1960s. With its oil fields pumping full out, the U.S. in 1969 was providing an astonishing 25 percent of the world's oil supply—a role no other country has ever come close to matching. U.S. production then peaked in December 1970, and has fallen steadily ever since, a shift that has dramatically altered America's own sense of vulnerability and reordered its military priorities. During World War II, when its allies found their own oil supplies cut off by the war, the United States stepped in and made up the difference. Today it is able to meet less than a third of its own needs.

A similar peak in worldwide production would have far more sweeping consequences. It would, for one, spell the end of the world's unparalleled economic boom over the last century. It would also dramatically reorder the wobbly balance of power between nations as energy-challenged industrialized countries turn their sights on the oil-rich nations of the Middle East and Africa.

In a peak oil future, the small, flattened, globalized world that has awed recent commentators would become decidedly round and very vast again. Oceans will reemerge as a hindrance to trade, instead of the conduit they have been for so long.

An energy-born jolt to the world economy would leave no corner of the globe untouched. Unable to pay their own fuel bills, the tiny Marshall Islands this summer faced the possibility of going entirely without power. That is a reality that could sweep across many of the smallest and poorest countries in Africa, Asia, and Latin America, reversing many of the tentative gains in those regions and stirring deep social unrest. Large patches of the world rely almost entirely on diesel-powered generators for what skimpy electricity they now have. Those generators are the first to run empty as prices soar. A British parliamentary report released in June on "The Impact of Peak Oil on International Development" concluded that "the deepening energy crisis has the potential to make poverty a permanent state for a growing number of people, undoing the development efforts of a generation."[9]

We are seeing some of the consequences already in Pakistan – a country of huge strategic importance, with its own stash of nuclear weapons – that is now in the grips of a severe energy crisis. By crippling the country's economy, battering the stock market, and spurring mass protests, Pakistan's power shortages could end up giving the country's Islamic parties the leverage they have long needed to take power. It's not hard to imagine similar scenarios playing out in dozens of other developing countries.

Deepening economic unrest will put an enormous strain on the United Nations and other international aid agencies. Anyone who has ever visited a major UN relief hub knows that their fleets of Land Rovers, jumbo jets and prop planes have a military-size thirst for fuel. Aid agency budgets will come under unprecedented pressure just as the need for international aid skyrockets and donor countries themselves feel pressed for cash.

A peaking of oil supplies could also hasten the impact of global climate change by dramatically driving up the use of coal for power generation in much of the world. A weakened world economy would also put in jeopardy the massively expensive projects, such as carbon capture and storage, that many experts look to for a reduction in industrial emissions. So on top of the strains caused by scarce fossil fuels, the world may also have to grapple with the destabilizing effects of more rapid desertification, dwindling fisheries, and strained food supplies.

An oil-constricted world will also stir perilous frictions between haves and have-nots. The vast majority of all the world's known oil reserves is now in the hands of national oil companies, largely in countries with corrupt and autocratic

governments. Many of these governments—Iran and Venezuela top the list—are now seen as antagonists of the United States. Tightened oil supplies will substantially boost these countries' political leverage, but that enhanced power will carry its own peril. Playing the oil card when nations are scrambling for every barrel will be a far more serious matter that at any time in the past.

The European continent could also undergo a profound shift as its needs—and sources of energy—diverge all the more from those of the United States. A conservation-oriented Europe (oil demand is on the decline in almost every EU country) will look all the more askance at what it sees as the gluttonous habits of the United States. At the same time, Europe's governments may have little choice but to shy from any political confrontations with its principal energy supplier, Russia.

An energy-restricted future will greatly enhance Russia's clout within settings like the UN Security Council but also in its dealings with both Europe and China. Abundant oil and gas have fueled Russia's return to power over the last decade, giving it renewed standing within the UN and increasing sway over European capitals.

The peak oil threat is already sending shivers through the big developing countries of China and India, whose propulsive growth (and own internal stability) requires massive doses of energy. For Beijing, running low on fuel spells economic chaos and internal strife, which in turn spawns images of insurrection and a breaking up of the continent-sized country.

Slumping oil supplies will automatically pit the two largest energy consumers—the United States and China—against one another in competition over supplies in South America, West Africa, the Middle East, and Central Asia. China is already taking this competition very seriously. It doesn't require much of a leap to imagine a Cold War-style scramble between Washington and Beijing—not for like-minded allies this time but simply for reliable and tested suppliers of oil.

One region that offers promise and peril in almost equal measure is the Artic, which many in the oil industry consider the last big basin of untapped hydrocarbon riches. But the Artic remains an ungoverned ocean whose legal status couldn't be less clear, especially so long as the United States continues to remain outside the international Law of the Sea Treaty. As the ices there recede, the risk increases that a scramble for assets in the Artic could turn nasty.

"No country will face more varied and far-reaching strains in an oil-constrained future than the United States."

No country, finally, will face more varied and far-reaching strains in an oil-constrained future than the United States. Its global military posture will have to shoulder even greater policing responsibilities, from the Gulf of Guinea to the Strait of Hormuz, just as it faces unprecedented challenges in keeping its own fuel tanks full. The United States will also see its very status as the world's lone superpower put into question as its oil-dependent economy faces rising unemployment, falling home values, and the reality of being ever deeper in hawk to countries halfway around the world. The gloomiest prognosticators envision a future in which America's entire postwar boom—with its massive interstates and suburban sprawl—is thrown violently into reverse.

A jolt of even a quarter that magnitude could still spark a period of angry victimization, when both the public and their elected officials seek out those who are to blame for the country's travails.

ENDNOTES

[1] See "Hess CEO Sees Oil Crisis in the Next 10 Years," *Reuters* (12 February 2008).

[2] See David Hughes, "Opposing Views Emerge on Liner Shipping; CIBC Economists Warn Higher Transport Fuel Costs May Put Globalisation into Reverse," *The Business Times Singapore* (11 June 2008).

[3] CMDR. Jeffrey Eggers, "The Fuel Gauge of National Security," ***Armed Forces Journal*** (May 2008), at http://www.afji.com/2008/05/3434573.

[4] Ibid.

[5] Department of Defense, "Military Power of the People's Republic of China," *Annual Report to Congress* (2006): I.

[6] James Russell, "Militarization of Energy Security," Speech Delivered the James A. Baker III Institute for Public Policy (21 May 2008).

[7] Ibid.

[8] Ibid.

[9] House of Commons All Party Parliamentary Group on Peak Oil and RESET, "The Impact of Peak Oil on International Development," (June 2008).

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