

Testimony of Robert McNally, President of the Rapidan Group, on Changing Energy Markets and US National Security

House Committee on Foreign Affairs, Subcommittee on Terrorism, Nonproliferation and Trade

December 16, 2011

Chairman Royce and Ranking Member Sherman, thank you for the opportunity to testify here today. I commend you on calling this hearing on the crucial topic of changing energy markets and US national security, and I am honored that you have asked me to share my perspective and views.

I approach this subject with twenty years of professional experience analyzing and participating in energy markets and policymaking. With the exception of two and a half years' service on the White House staff during President George W. Bush's first term, my responsibilities have entailed mainly helping investors and companies outside the Beltway understand energy markets and policymaking. The bulk of my career and current role is as an independent analyst. I do not represent any entity and the views expressed here are entirely my own.

Changing Energy Markets and U.S. National Security

Global energy markets have been undergoing tumultuous change in recent years and will likely continue to do so. These changes pose large and enduring risks and opportunities for U.S. energy security and foreign policy.

Some of these changes are positive and are getting much more attention. Specifically, Canadian oil sands, US tight oil and shale gas, and Brazilian deepwater offshore finds have dramatically increased current and prospective volumes of oil and natural gas supply. In the United States, the most promising development has been the enormous increase in production and reserves from the application of hydraulic fracturing and multi-stage, horizontal well drilling to shale gas, tight oil, and tight gas reservoirs. These "unconventional" energy sources are distinguished by the characteristic that they are located in impermeable, low-porosity rock, limestone, or shale formations and require stimulation and advanced completion techniques to commercially produce.

The Energy Information Administration (EIA) estimates US shale gas production has increased twelve-fold over the last decade, now amounting to 25% of total production. EIA projects shale gas will rise to 47% of total production by 2035. Whereas a few years ago we faced the prospect of importing increasing amounts of liquefied natural gas (LNG), we are now permitting export facilities. This new supply holds the potential to revitalize our chemical industry and economically depressed regions of our country, use more natural gas in electricity generation, and possibly fuel natural gas vehicles (though the cost of converting car and truck fleets and fueling infrastructure to natural gas would be very high and the transition would be long, making it impractical except in some centrally-fueled commercial fleets). If the "shale gas revolution" spreads at home and abroad, it could reduce the market and political clout of major gas exporters like Russia.

Oil is the only major energy commodity we import and lies at the center of our national security concerns. It will be the focus of my remarks. With oil prices high relative to natural gas, the drilling industry is shifting its focus to producing tight oil from shale deposits, particularly in the Texas/Eagle Ford and North Dakota/Bakken plays. The production surge in North Dakota has been especially remarkable. EIA reported North Dakota's oil production averaged over 460 thousand barrels per day (kb/d) in September 2011, more than four and one-half times its

September 2005 level. The state of North Dakota believes Bakken production will rise further to 750 kb/d by 2015.¹

In addition to rising oil production, biofuels have made large inroads into US liquids consumption in recent years. Ethanol accounts for about 10% of gasoline, and EIA projects all biofuels will rise from 4% of liquids supply in 2009 to 11% by 2035.

EIA projects our production will rise faster than our demand in the coming decades, causing US import dependence to fall from 50% of total supply in 2011 to 42% in 2035. We will import more oil from Canada and Brazil, and less from OPEC and the Persian Gulf.

Beyond lowered imports, higher US and hemispheric oil and gas production is great news for our economy and energy markets. If the investment and regulatory climate allows industry to realize the full supply potential, it will mean more jobs, improved resilience to supply disruptions, and a lower current account deficit. Our companies and workers will have opportunities to take advantage of these same techniques and technology to unlock unconventional oil and gas resources abroad.

But the good news must be viewed in perspective. Our energy security is and will remain strongly linked to trends and developments in the global oil market, not just our import share. We are and will remain vulnerable to price shocks caused by tightening global supply-demand fundamentals and geopolitical disruptions anywhere in the global oil market. And the strategic importance of the Persian Gulf region and its enormous, low-cost hydrocarbon reserves is likely to grow in the coming decades as Asia taps them to fuel growth. Our geopolitical and homeland security interests will remain closely bound to the security of the Persian Gulf region, the sea-lanes to and from it, and the ability to prevent Gulf countries from spending their windfalls on threats to US and global security.

As leading oil expert Daniel Yergin wrote in a recent Washington Post editorial, “[t]here is only one world oil market, so the United States – like other countries – still will be vulnerable to disruptions, and the sheer size of the oil resources in the Persian Gulf will continue to make the region strategically important for the world economy.”²

From the global perspective, new supply *anywhere* is good news. However, it must not be overlooked that the world urgently needs new productions just to offset declining production in mature fields. The global oil industry needs to find an amount equal to two-thirds of existing conventional production, or 47 mb/d, in coming decades just to offset declines in mature fields. This is in addition to the new oil needed to meet demand growth in Asia and the Middle East. While higher US and hemispheric production can and should help fill the gap, OPEC and the Persian Gulf producers hold the bulk of the world’s low-cost, proved reserves (70% and 55%, respectively).

Based on current official projections, US production increases are substantial but far from a game changer. US liquids production will rise 32% by 2035, but our share of global supply will rise from only 11% to 12% by 2035. US crude oil imports from the Persian Gulf are projected to decline from 1.7 to 1.5 mb/d, but its share of total US crude imports will remain steady at around 15%. For historical comparison, the Persian Gulf represented 14% of US imports in 1973, when the first oil crisis struck.

It is certainly possible that current forecasts are too pessimistic about US and hemispheric production. But forecast revisions can go both ways. Forecasters may also be too optimistic about mature field decline rates, resource estimates, the future commercial viability of biofuels, and how welcoming the investment and regulatory climate will be in Canada, the United States, and

¹ <http://www.eia.gov/todayinenergy/detail.cfm?id=4010>

² Daniel Yergin, “Oil’s new world order,” *Washington Post*, October 28, 2011.

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Brazil. The recent federal decision to postpone on the Keystone XL pipeline could delay investment and has caused Canada to consider exporting its supply to Asia instead. In the US, industry faces uncertainty about how future federal air and water regulations could impact the profitability of tight oil and shale gas. Investors are also concerned that recent revisions to Brazilian oil investment laws could deter investment needed to produce Brazil's expensive and technologically challenging deepwater resources.

While hemispheric changes have been positive, foreign policy makers should take into account three global energy market changes that will pose large challenges to our energy and economic security.

The first is voracious growth in demand for energy, as well as for other natural resources, particularly from densely populated, fast-growing Asia, especially China and India. Achieving modern living standards in developing countries is impossible without consuming large amounts of dense, storable, reliable, and affordable energy. By these measures, fossil fuels are and will remain far superior to alternatives, especially in transportation. Unfortunately, no large scale, commercially viable alternatives to oil exist or are visible on the horizon. The US and other developed countries have made massive investments in oil fields, pipelines, terminals, refineries, tanks and dispensing stations in past decades. And rising Chinese, Indian and other Asian and Middle Eastern economies are starting to do the same.

EIA projects that total world energy demand will rise by 53% between 2008 and 2035, and world oil demand will increase by 26 mb/d or 63% by 2035. All of this increase will occur in the developing world. China will take over a third of world oil demand growth, and India will be next at 19%. Other Asian countries and the Middle East itself will take over 30% of global demand growth.

Second, China and India are going to become tremendously dependent on flows of oil from the Middle East. The International Energy Agency projects China's oil import dependence will rise from 54% in 2010 to 84% in 2035, and India's will rise from 73% to 92% over the same period.³ The lion's share of these imports will come from the Middle East, whose share of the global oil market will rise from 28% to 31% according to EIA. This is going to make China and India extremely concerned about protecting their access to Gulf supplies and sea-lanes, which is already a strategic concern for the United States.

Third, oil prices are going to gyrate more wildly than in the past as Saudi Arabia and OPEC's ability to prevent price spikes erodes due to reduced spare capacity. This transition is overlooked but just as important as the first two noted above. The world oil market is leaving the relatively stable OPEC era and entering a new "Swing Era" in which large price swings rather than cartel production changes will balance global oil supply and demand. The Swing Era portends much higher oil price volatility, investment uncertainty in conventional and alternative energy and transportation technologies, and lower consensus estimates of global GDP growth. Ironically, Western governments and investors will miss OPEC, or at least the relative price stability OPEC tried to provide.

Taken together, soaring Asian energy demand, sharply increasing Asian dependence on the Persian Gulf, and wild oil price gyrations pose major challenges to US energy security and foreign policy.

Please allow me to elaborate on some of these points below, while responding specifically to questions I understand to be of interest to the committee.

3. International Energy Agency, World Energy Outlook, 2011 WEO, p. 92.

What is the future role of OPEC? What happens to price stability?

The changing role of OPEC, with its implications for oil price stability, is the most important, and so far overlooked, feature of global energy markets. It will have enormous consequences for US economic and foreign policy, especially in our bilateral relations with Saudi Arabia, as noted further below. In short, soaring global demand and constrained supply growth is causing OPEC to lose its spare capacity cushion and therefore its ability to stabilize oil prices. While intuitively OPEC losing control may seem like a good thing, it actually means global oil prices, and therefore our pump prices, are going to swing much more wildly in the future, at times high enough to contribute to recessions as they did in 2008.

As a commodity, oil exhibits what economists call a very low price elasticity of demand. In plain English, this means supply and demand are very slow to respond to price shifts. Oil is a must-have commodity with no exact substitutes; when pump prices rise, most consumers have little choice in the near term but to pay more rather than buy less. And on the supply side, it takes years to develop new resources, even when the price incentive to do so rises sharply.

Since the beginning of the modern oil market, producers have tried to mitigate the tendency of oil prices to swing wildly. Standard Oil, the Texas Railroad Commission and the “Seven Sisters” (major western oil companies) succeeded at stabilizing prices by controlling supply, most importantly by holding spare production capacity back from the market and using it to balance swings in supply and demand. The 1967 Arab oil embargo did not lead to a major oil disruption or price spike, partly because the United States had spare capacity in reserve and increased production to make up for lost Arab producer exports. The 1973 Arab oil embargo did lead to an oil price spike, mainly because the year before – in March 1972 to be exact – the United States ran out of spare capacity.

OPEC took over control of the global oil market from the US and the Seven Sisters in the early 1970s. Since the mid-1980s, OPEC's main tool to stabilize prices has been holding and using spare production capacity. If demand jumped unexpectedly or if supplies were suddenly disrupted, OPEC producers with spare capacity, especially Saudi Arabia, would release more oil, reducing the need for prices to swing in order to balance supply and demand.

But the years 2005-2008 marked the first time spare capacity ran out in peacetime since 1972. As in 1972, the reason was demand was racing faster than production. But today, no new cartel waited in the wings to satisfy global crude appetites. In 2008, market balance was achieved by sharply rising oil prices along with the financial crisis. While many in Washington, Paris, Riyadh, and Beijing publicly blamed speculators, energy experts and economists pointed instead to strong demand for a price inelastic commodity running up against a finite supply.

Going forward, OPEC will still be able to influence how and when oil prices bottom. It can and will likely still take oil off the market to keep prices from falling or to raise them, as it did in late 2008 and 2009.

But OPEC's ability – really, Saudi Arabia's ability – to prevent damaging price spikes has eroded. Therefore a replay of 2005-2008 is more a question of when than if. Global GDP growth remains oil intensive. When it picks up (and there are many macroeconomic risks currently, so the timing is uncertain), net non-OPEC supply growth is not expected to rise fast enough to meet incremental demand, requiring OPEC producers to increase production. OPEC is not investing enough in total production capacity to meet demand growth and still maintain the 4-5 mb/d spare capacity buffer needed to assure market participants it can respond to disruptions or tighter than expected fundamentals by adding supply. Saudi Arabia, the main spare capacity holder, says it

will hold only 1.5 to 2.0 mb/d of spare capacity, and most other OPEC countries hold little if any back in spare.

As OPEC falters, the price mechanism will return to balance the market through demand destruction, enforcing the iron law that consumption cannot exceed production. Even if our import dependence declines, we will still be vulnerable to price gyrations that are very harmful for consumers and producers and will bedevil economic and foreign policymaking.⁴

What role do/should energy markets play in U.S. national security policy? In U.S. defense posturing?

Even if our import dependence falls, the US will still have a vital national security interest in the Persian Gulf region. Instability or disruptions in the Gulf will be felt quickly and directly at the pump in the US. Gulf producers will earn billions of dollars in revenue, and the US has an interest in seeing that those dollars do not finance terrorism or other threats to our security. And the US will need to ensure no country can use oil as a weapon or threaten vital trade routes and chokepoints.

While the US must find ways to share the costs, burdens, and responsibilities for protecting the global energy commons, our interest in preventing a regional or external hegemon from dominating the Persian Gulf will remain as vital in the next thirty years as it was in the past. The Carter Doctrine and its Reagan corollary must remain cornerstones of our energy security doctrines. The Carter Doctrine states: “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.” And its Reagan corollary extends the policy to include hegemonic threats to our Gulf allies by hostile regional powers, like Iran.

It will be especially important to repair and strengthen the fraying US relationship with Saudi Arabia. The relationship will likely loosen somewhat as Saudi Arabia and other Gulf producers see future sales growth and profits in Asia instead of the western hemisphere. But something bigger is at stake: The grand bargain whereby the US provides Saudi Arabia protection from regional and global adversaries in return for Riyadh ensuring stable oil supplies and prices. This grand bargain has served our national and economic interests, and mitigated occasional wars and disruptions in the region.

At present, each side is less certain the other can uphold his end of the bargain. If, as noted above, Saudi Arabia can no longer prevent oil price spikes from damaging the economy, it becomes less important in global affairs and US foreign policy. And if the US can no longer protect Saudi Arabia from a nuclear, belligerent Iran, then Riyadh’s interest in cooperating with us in many areas, including counter-terrorism and regional security, could decline.

Even if Riyadh will be less able to prevent future oil price spikes, it will continue to remain the world’s leading oil reserve holder, exporter, and an important Middle East power. And at times when the market is fundamentally soft, such as after recessions, as is the case now, Saudi Arabia will continue to have some amount of spare capacity and therefore ability to offset disruptions. Our countries' economic and political leaders share strong historical and commercial ties, and our governments have common security concerns. We will still have a strong interest in a robust bilateral defense as well as an economic and political relationship.

Vulnerability of current and future energy markets to terrorism

4. Michael Levi with Council on Foreign Relations and I elaborate on changing oil market and volatile oil prices and suggest policy responses in an essay in the July/August, 2011 issue of *Foreign Affairs* entitled “A Crude Predicament: The Era of Volatile Oil Prices.”

Energy markets operate through a vast network of physical exploration, production, transportation, and distribution infrastructure that is unavoidably vulnerable to terrorist attack, either through physical or cyber or electronic means. Setting aside cyber vulnerabilities including threats to the electricity grid, which are not my area of expertise, it is fortunate that much of the global oil infrastructure is broadly distributed, redundant, and quickly reparable.

Refineries, pipelines, and ports are numerous and the commodity market is global and fungible. Isolated attacks can cause temporary disruptions and local or even global price spikes, but they are usually quickly reversed. The market has weathered terrorist attacks on pipelines and refineries in Iraq, Yemen, Nigeria, Egypt, and Colombia.

However, there is no ground for complacency. Terrorists understand the vulnerability of energy infrastructure. The most alarming incident in recent years was an Al Qaeda attack on Saudi Arabia's Abqaiq processing facility in February 2006. The security of southern Iraqi oil facilities and terminals is also a concern as the US completes its withdrawal.

One consequence of low spare capacity is that any disruption, even of a relatively small size, can lead to an oil price spike. We saw this earlier this year in Libya, when the world lost about 1.7 mb/d of supply, equal to about half of total OPEC spare capacity. Prices jumped about \$15 per barrel, helping to push gasoline prices here up to \$4.00 per gallon and thereby hurting family budgets and economic growth.

As with the general threat terrorists pose to our national security and economy, the biggest threat comes from states that sponsor terrorist actions. State sponsors give terrorists increased intelligence, organizational, and execution capabilities that can make attacks more damaging.

From the perspective of both terrorism and our broader energy security challenges, there is no greater threat or more pressing issue before us than the Iranian regime's pursuit of nuclear weapons capability. Given the urgency and topicality of this issue, I would like to elaborate on the risk Iran poses to US energy security and respectfully suggest how it might be managed.

Iran's Nuclear Ambitions and Oil Market Risk

As policymakers consider diplomatic options to convince Tehran to freeze its nuclear program, they worry that disrupting Iran's oil exports could cause an oil price spike, the last thing a teetering global economy needs. These worries are legitimate and stem from a vexing policy dilemma: Only the interruption of Iran's oil exports is likely to convince the regime to change behavior on nuclear weapons, but that step will necessarily entail crimping global oil supplies, hurting major importers of Iranian oil like China and Japan, and risking an oil price spike that could damage the economy.

While Saudi Arabia could offset some of Iran's exports by raising production, its spare capacity would fall to near zero. And as discussed earlier, when spare capacity last ran out in the summer of 2008, oil prices peaked above \$140 per barrel. But fear should not cloud judgment: A hostile, nuclear-armed Iran poses much bigger and long-term risks of oil price spikes than tough sanctions aimed at preventing it.

It may be tempting to assume that after Iran obtained nuclear weapons, the region would settle into stable containment and mutual deterrence, with low risk of oil disruptions and price spikes. This is dangerous wishful thinking, for three reasons.

First, containment is no walk in the park: It requires harsh and dangerous policies to establish deterrence and impose penalties for breaches. The US and Soviet Union fought bloody proxy wars in Korea and Vietnam and went to the brink of nuclear war over Cuba. With a nuclear Iran, this risky and often violent process would play out mainly in the Persian Gulf, with all the attendant oil disruption and price spike risks.

Second, if Iran succeeds in obtaining nuclear weapons, rivals like Turkey, Saudi Arabia, and Egypt will also pursue them, and some will have them fast. Imagine how crude prices will react when Israel or Saudi Arabia test a nuclear weapon and declare its retaliatory doctrine, let alone when the next proxy or direct conflict breaks out.

Third, the Cold War containment paradigm probably will *not* work with Iran or in the Middle East. The Cold War involved a bilateral contest between ideologically hostile but domestically secure, rational, and risk-averse adversaries, each exercising unified control over its nuclear weapons, escalation dominance internally and over proxies, and restraint under the logic of mutually assured destruction. The insecure, divided, and reckless Iranian regime and a poly-nuclear Middle East differ in almost every respect.

The hard but unavoidable reality is that Iran's pursuit of nuclear weapons is increasing the risk of oil price spikes. A nuclear Tehran would be the worst outcome in terms of both the amount and duration of oil disruption risk. Instead of citing high oil prices as an excuse to avoid tough sanctions, the risk should be managed as part of maximally coercive diplomatic strategy.

As a second-to-last resort, officials should consider a quarantine-and-release strategy that halted Iran's oil exports while offsetting the supply loss with strategic stock releases and higher Saudi production. Quarantine-and-release may be the only remaining option to prevent the worst outcome, not only for regional security but also for oil prices and the economy.

What role does energy play in China's foreign policy? What can be done to check China's energy development in the western hemisphere?

China's leaders are preoccupied with finding resources to supply its voracious growth, including energy resources. As its oil imports increase rapidly, China has followed an energy strategy similar to our policies over recent decades. As the US did forty years ago, China is reacting to the prospect of high and rising dependence on imports by building strategic stocks and implementing fuel economy and other efficiency standards. China is also fostering the growth of globally competitive energy companies and diversifying its sources of energy. And it is developing political relationships and strategic capabilities to protect its investment and supply lines.

China's increasing investment in overseas energy resources, including in the western hemisphere, does not pose a direct threat to our national security per se. China's energy investments are largely as a minority shareholder, and even majority ownership does not mean control. In a conflict, Beijing cannot transport oil from Venezuela or Texas without our blessing. And China's capital is being used to finance investment in resources our citizens and businesses are consuming.

China's energy security policies could pose major indirect threats to our national security if Beijing concludes it can and should ignore our national security interests when engaging with foreign producers. This is of concern with Sudan, Venezuela, and especially Iran.

Energy security must be firmly integrated into the broader set of economic, political, and military aspects of our engagement with a rising China. We should insist China live up to its free trade obligations, guard national security secrets and technology, and prevent and vigorously enforce commercial property statutes.

But we should not seek to contain China or shut it out of the global oil market. That will make Beijing more paranoid about supply security, and therefore more likely to act belligerently in the South China Sea and unhelpfully with producers like Iran. US companies and workers can and should benefit from Chinese investment, and by selling pollution control and energy services and equipment needed to develop their own resources. China should be invited to cooperate in

collective energy security institutions like the International Energy Agency strategic stocks system.

China's thirst for energy will not abate and is growing sharply. Secure energy is as vital for them as it is for us. US foreign policy should encourage China to compete fairly and transparently in the global energy market on commercial terms, not military or political ones.

Is eliminating U.S. dependence on Middle Eastern oil possible? What impediments exist?

Oil is a fungible global commodity. Eliminating imports from the Middle East, which would require prohibitive tariffs or sanctions on national security grounds similar to those currently in place with Iran, would force our importers to buy replacements from elsewhere without reducing global oil demand. Oil companies and competitors to Middle East suppliers such as Russia and Venezuela would realize a windfall as demand for their crude grades rose.

Many of our refineries are configured to run on Middle Eastern crude grades, and modifying them to run on different crudes would be costly and inefficient. US consumers would face higher pump prices, especially if Middle Eastern producers responded by reducing production. If Middle East producers did not respond by reducing their production, then Chinese motorists would receive a windfall as Middle Eastern exports were diverted to the Asian market.

I do not believe banning or otherwise eliminating Middle East imports would be desirable from an economic or national security standpoint. Oil trade flows would be rearranged as noted above, but the Persian Gulf would still remain the world's most important energy region. Terrorist-sponsoring exporters like Iran would still be able to use oil earnings to threaten global peace and our homeland. China and India's dependence on the flow of oil from the Gulf would still rise strongly. Eliminating imports from the Middle East would not meaningfully lessen our vital interest as a global superpower in the stability of the Persian Gulf and the protection of sea-lanes between it and consuming regions. A Middle East import ban would sour relations with our Gulf allies, making force projection and political relations much more costly and difficult.

What challenges do energy companies face in developed Western countries?

Energy companies face major challenges when investing in western countries. They include regulatory delays and uncertainty, denial of access to resources, and fiscal policy changes that make investment uneconomic. An emerging risk in the United States, directly linked to recent reserve and production increases in shale gas and tight oil, is uncertainty about how hydraulic fracturing will be regulated.

United States House of Representatives
Committee on Foreign Affairs

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Robert McNally	The Rapidan Group
3. Date of Committee hearing:	
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<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No*	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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