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The Global Energy Market:
Comprehensive Strategies to Meet
Geopolitical and Financial Risks



Militarization of Energy: Geopolitical Threats to the Global Energy System

Amy Myers Jaffe and Ronald Soligo



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THE GLOBAL ENERGY MARKET:
COMPREHENSIVE STRATEGIES TO MEET GEOPOLITICAL
AND FINANCIAL RISKS

THE G8, ENERGY SECURITY, AND GLOBAL CLIMATE ISSUES

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ABOUT THE GLOBAL ENERGY MARKET STUDY

The Global Energy Market: Comprehensive Strategies to Meet Geopolitical and Financial Risks—The G8, Energy Security, and Global Climate Issues examines a variety of scenarios for the future of global energy markets. Some of these scenarios evaluate factors that could trigger a regional or worldwide energy crisis. The study assesses the geopolitical risks currently facing international energy markets and the global financial system. It also investigates the consequences that such risks could pose to energy security, pricing, and supply, as well as to the transparent and smooth operation of the global market for oil and natural gas trade and investment. By analyzing these threats in depth, the study identifies a series of policy frameworks that can be used to fortify the current market system and ensure that it can respond flexibly to the array of threats that might be encountered in the coming years. The study also looks at the impact of emerging climate policy on the future of world energy markets.

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MILITARIZATION OF ENERGY –

GEOPOLITICAL THREATS TO THE GLOBAL ENERGY SYSTEM

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INTRODUCTION

The world economy has been undergoing a radical transformation over the past half century—from one based on significant government intervention in the form of regulation and planning to one based more and more on market forces. The oil market is one example of this trend, as it has moved away from contracts or government relationships between specific buyers and producers, to a global market system based on competitive bidding and price discovery through the commercial dealings of a wide number of players. The United States, as a world power and energy consumer, favors an open, transparent and competitive global market for oil in which no seller or group of sellers can dominate the market and thereby threaten the access by the United States or its allies to purchase the supplies of oil needed to conduct normal and everyday consumer, business and military operations.

The current global trading system that has emerged is one that is led, and to some extent enforced, by the United States. Since WW II, the United States has taken the lead in many rounds of international negotiations to reduce tariffs, open markets to unrestricted capital flows and establish rules for protecting investments and intellectual

property. At times, the United States has relied on multilateral negotiations, at others, when multilateral talks were not promising, on multi-track negotiations.¹ By and large, this system has worked well and is supported, albeit accompanied by various complaints at different times, by the international community. The United States, as the world's military superpower, backs up the operation of this global marketplace by policing the seas and international commerce from attack by hostile nations or non-governmental groups.

The broad-based support for a liberal international trading system among industrialized nations arises not only on the basis of philosophy and ideologies but also from experience. Many countries can point to higher growth rates that have resulted from integration into the global economy through better access to markets and increased foreign investment. Many countries benefit as well from a global economy with more players in each market and prices that are set more competitively. It is in the interests of resource-importing countries to have a diversity of supply sources and to have suppliers competing with one another.

However, resource exporters often complain that the trading system is biased against them in that, while the products they export are priced at highly competitive rates, the goods they import are typically sold in markets that are oligopolistic. The result is unfavorable terms of trade. Complaints have been the loudest from countries that are dependent on exports of one or two primary commodities, since commodity price volatility often translates into economic instability. As a result, primary goods exporters often distrust free and competitive international markets and seek ways in which they

¹ Robert Gilpin, *The Challenge of Global Capitalism*, (Princeton, NJ: Princeton University Press, 2000). Chapter 8.

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might cooperate to gain some market power in the export markets. This is especially the case when raw material prices are falling and exporters have to deal with the consequent declines in their economies.

One such period of falling raw material prices occurred in 1997-1998, when a financial crisis in Asia, combined with the return of Iraqi oil exports to the market and the market share struggle between Venezuela and Saudi Arabia, led oil prices to collapse below \$10. The collapse ushered in a plunge in the earnings of oil exporting countries, in some cases by almost 50 percent. The internal economic pain inside oil exporting countries was intense. Unable to provide basic services, governments lost authority and changes occurred, sometimes peacefully sometimes not, in Indonesia, Iran, Nigeria, Russia, and Venezuela. The changes came on the heels of subtle shifts in the dynamic of Saudi internal politics, which was facing a transition after King Fahd suffered a debilitating stroke in 1995.

The price collapse of 1998 drove home the need for collective action among major oil exporting countries, including the countries that are members of the oil cartel, the Organization of Petroleum Exporting Countries (OPEC). OPEC's commitment to protect revenues and increase oil prices gained momentum after the 1998 oil price collapse, with the survival of regimes at stake from falling revenues. Intensive diplomacy began, with Venezuela and Mexico actively working to pave the way for a major agreement among oil producers to trim output and propel oil prices back above \$22 a barrel.²

² Edward Morse and Amy Myers Jaffe, "OPEC in Confrontation with Globalization" *Energy and Security: Toward a New Foreign Policy Strategy*, ed. Jan H. Kalicki and David Goldwyn (Baltimore: John Hopkins University Press, 2005).

Table 1. OPEC Export Revenues, 1996-2003*Billion US Dollars (Nominal)*

	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>
Saudi Arabia	51.6	48.0	28.6	40.2	74.0	60.1	58.0	80.8
Iran	16.7	16.2	10.5	14.6	22.6	19.8	19.0	23.9
Kuwait	13.8	13.4	8.1	10.8	18.7	15.3	11.6	18.7
Iraq	1.1	4.9	6.9	12.9	20.2	15.9	12.4	9.6
UAE	16.8	17.6	12.2	15.7	25.5	21.2	18.7	23.7
Venezuela	18.3	17.7	11.5	14.9	25.0	20.6	19.7	20.6
Other Five	43.1	41.3	26.7	36.1	60.1	51.1	49.5	62.9
Total OPEC	171.5	166.0	104.4	145.3	246.0	204.1	188.9	240.2

Sources: U.S. DOE, independent estimates

The 1998 agreement stands as a recent turning point for OPEC. Since its 1998 agreement, which quickly lifted oil prices off their floor and back to a \$22 a barrel target price, OPEC has successfully orchestrated jointly-implemented production cuts to defend dramatically higher prices, first in the \$30 level, and then subsequently to \$50 and then to record levels of \$100 a barrel.

With globalization proceeding, OPEC became more concerned about its own economic performance, which lagged in the 1990s relative to other nations. By the end of the last decade, OPEC rejected the notion that low oil prices were good for everyone. For key nations inside OPEC where oil revenues were critical to fuel government budgets, the impact of falling oil prices on them was perceived as far greater than the impact of higher prices on most oil importing countries, whose oil import bill is only a fraction of their

total trade. Oil importing countries gained this advantage partly because of policies taken in the 1970s and 1980s to diversify to other fuels or to tax oil use to hold down demand growth for oil.

Key OPEC members began to resent the suffering they experienced during the low oil prices in 1997-1998, which appeared to be also providing a subsidy for growth for other countries. OPEC therefore decided to shift the burden of price adjustment back onto the oil importing community.

OPEC politics have continued to favor an appreciating nominal price path, with \$55 becoming a price floor instead of a price target by 2006. OPEC countries have been slow to respond to rising oil prices—even as prices reached \$100 a barrel—with high output or major new oil production investment programs in recent years. Underlying OPEC's apathetic response to a tightening market and projections of continued rises in demand is the view that the future is putting OPEC squarely in the driver's seat, with enhanced market power and ever-improving revenue streams. With more than 78 percent of the world's oil reserves under their control, OPEC countries have banked their future on a combination of growth in oil demand and a presumed "natural" limit to the growth of non-OPEC production. OPEC governments, responding to pressing social and economic pressures of rising populations and aging infrastructure, favor the realization of greater short-term revenue, which will be best achieved not by bringing on-line new oil production capacity, but rather by curtailing output.³

³ There is a rich literature on the subject of the trade-offs between volume and price with respect to OPEC revenue. The most recent contributions to these debates are found in Dermot Gately's pieces in the *Energy Journal*. See, "H.G. Huntington and Dermot Gately, "Crude oil prices and US economic performance: Where does the asymmetry reside?" *Energy Journal*, Vol. 19 No. 4, pp. 19-55 (2002); "How Plausible is the Current Consensus Projection of Oil Below \$25 and Persian Gulf Oil Capacity and Output Doubling by 2020?" *Energy Journal*, Vol. 22 No. 4, (2002), pp. 1-27; and "OPEC's Incentives for Faster Output Growth," *Energy Journal*, Vol. 24 No. 2 (2003)

While the current period is one of high and rising commodity prices, and commodity exporters are presently content, there is no reason to believe that the high volatility that characterizes these markets will not continue and that there will be a period of falling prices, economic hardship and renewed efforts of collusion to raise prices.

Enjoying increased market power and organizational success to implement higher prices, and thereby higher revenues, OPEC members have similarly and conscientiously been careful not to over-invest in new productive capacity. OPEC's total sustainable production capacity has not risen between 1998 and 2005, despite a rising call of demand for OPEC crude oil supply. Capacity gains made through added investments in Iran, Saudi Arabia, Kuwait, Algeria, Qatar and Libya have barely managed to offset the losses in Iraq, Venezuela and Indonesia.⁴ See table below.

⁴ Morse, Jaffe op cit

Table 2. Trends in OPEC’s Sustainable Capacity

(MILLION B/D)

	1998	2001	2003	2005
Saudi Arabia	9.8	9.9	10.15	10.3
Iran	3.7	3.8	3.8	4
Iraq	2.8	3.05	2.2	1.8
Kuwait	2.4	2.4	2.5	2.6
UAE	2.4	2.45	2.5	2.4
Qatar	0.72	0.75	0.75	0.82
Venezuela	3.3	3.1	2.5	2.5
Nigeria	2.05	2.3	2.3	2.3
Indonesia	1.35	1.3	1.15	0.9
Libya	1.45	1.45	1.45	1.6
Algeria	0.88	0.88	1.15	1.35
Total	30.85	31.38	30.45	30.57
Call on OPEC	25.85	28.23	29.2	29.87
Spare Capacity	5	3.15	1.25	0.7

OPEC’s rhetoric has matched its new focus and the producer group has noted that its aim is to attain a “fair” price for its oil. The debate highlighted the true nature of the geo-economic issues underlying OPEC’s relations with the rest of the world; at issue was an economic struggle for “rents” between oil producers who demand high revenues and major consumers whose economies can grow faster with low oil prices.

In its policy pronouncements, OPEC targets consumer governments within the Organization of Economic Cooperation and Development (OECD), who have been

capturing rents via high national Western energy taxes. “People always talk about the revenues of OPEC,” said OPEC president Chakib Khelil to the press following the March 16-17, 2001, OPEC meeting held in Vienna. “Before they point a finger at OPEC, they should probably reduce taxes in their own country.”⁵

OPEC has also warned in recent years that a shift to alternative energy inside major oil consuming economies will discourage its own investment in future oil supplies, potentially forcing oil prices “through the roof.” Speaking the day before a meeting of the G8 group of industrialized nations meeting in June 2007, OPEC secretary general Abdalla el-Badri said OPEC was considering cutting its investment in new oil production: “If we (OPEC) are unable to see security of demand... we may revisit investment in the long term.” He warned that the U.S. and European biofuels strategy would backfire because “You don’t get the incremental oil and you don’t get the ethanol,” alluding to the fact that a biofuels strategy might not prove successful.⁶

OPEC’s aggressive stance on price and capacity expansion and increasingly tight oil markets have renewed energy security concerns among the major oil importing countries. Western security analysts are increasingly turning their attention to the possibility of continued or even worsening scarcity of oil in the coming decades. Some commentators do not link the current tightness in oil markets to the geopolitics of OPEC policies; rather, they argue that oil resources are finite and that geologically, we are finding smaller and smaller deposits and that world oil production has either already peaked or will peak shortly.

⁵ For an even more full statement, see his opening statement to that OPEC meeting, available at www.opec.org, press release no. 3/2001.

⁶ Javier Blas and Ed Crooks, “Drive on Biofuels Risks Oil Price Surge,” *Financial Times*, June 5, 2007.

PEAK OIL THEORY EXPLAINED

Peak Oil Theory, first introduced by Marion King Hubbert in 1956, theorizes that oil production follows a bell-shaped production/time curve, rising rapidly as a field, basin or region has its first major oil discovery, hitting a peak rate of output after a certain period of exploration and exploitation, and then declining sharply and terminally as field pressure drops until no more oil can be recovered. Hubbert correctly predicted that U.S. oil production would peak in the early 1970s. Around 1995, several analysts began applying Hubbert's method to world oil production, and concluded that global oil production would peak relatively soon.⁷ These analysts argue that the majority of the world's oil production is concentrated in mature, aging fields from which the extraction of additional supplies will be increasingly costly as mechanical or chemical aids are used to induce artificial (as opposed to natural) lift. As each older field peaks and produces a dwindling amount of oil, world production, according to Peak Oil Theory, will drop to a point where it will no longer be economical to use oil.

GEOPOLITICAL INTERPRETATIONS OF FUTURE OIL SHORTAGES

Another camp exists that does not argue that the world is running out of oil. Rather, this other school of thought, which includes the authors of this paper, argues that geopolitics, not geology, remains the major challenge to future oil supply. Typical forecasts suggest that global oil demand is expected to rise at a rate of roughly 1.6 percent per annum over the next two decades from about 76.4 million barrels a day (b/d) in 2001 to 90.4 million b/d in 2010 and 106.7 million b/d by 2020.⁸ Almost three quarters

⁷ Kenneth Deffeyes, *Hubbert's Peak: The Impending World Oil Shortage*, (Princeton, NJ: Princeton University Press, 2001). Deffeyes, Colin Campbell, and others are on the record as predicting world oil production would peak as early as 2005. World oil production rates continue to rise.

⁸ *World Energy Outlook 2004*, International Energy Agency, Paris.

of this increase in demand will come from the transport sector, where renewable energy and nuclear energy are not expected to play a significant role—barring a major technological breakthrough.

Under a base case “business as usual” scenario, much of this increased demand for oil—roughly about 60 percent—will have to be supplied by rising production from OPEC over the next 25 years.⁹ The reality of conventional oil and gas geology is that approximately 62 percent of remaining proven resources lie in only five countries. In the case of oil, the five largest resource holders are all Middle Eastern countries. Russia is sixth. In projecting future supply potential (for example, based on the widely accepted forecast by the International Energy Agency [IEA]), more than half of that volume is projected to come from just three countries: Iraq, Iran, and Saudi Arabia—forecasts that might prove unrealistic given the political and economic conditions in those countries.

Indeed, the internal stability of many of these large oil producing countries looks a lot shakier now than it did in the 1980s and into the 1990s. In fact, the list of oil exporting countries whose production (despite ample reserves) has been stagnant or falling in recent years due to civil unrest, terrorism, inefficiency, government mismanagement, or corruption is long and diverse. Projections that OPEC will increase capacity by an additional 10 to 20 million b/d in the next 20 years or so to meet the rising demand discussed above run counter to historical experience. OPEC’s capacity has fallen, not increased, over the past 25 years, from 38.76 million b/d in 1979 to roughly 31 million b/d currently.

⁹ International Energy Agency, *World Energy Outlook 2005*, Paris, 2005.

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Many factors have contributed to OPEC's inability to expand its sustainable oil production capacity. In the late 1980s, OPEC had planned to increase its oil field production capacity to 32.95 million b/d by the mid-1990s. Instead, OPEC production capacity stagnated at 29 million b/d for most of the decade, only creeping higher in recent years due to large capacity expansion programs in Saudi Arabia. Iran, Libya, and Iraq all failed to achieve production targets due to international sanctions. Venezuela's planned expansions were thwarted by a change of government, related civil unrest and a redirecting of funds away from the oil sector to social welfare programs, and the country's oil potential has been slipping in recent years. Regional and ethnic conflict and civil unrest also plagued Nigeria's efforts to expand production while domestic politics have blocked oil field investment in Kuwait.

Unlike past decades when private, publicly traded oil companies played a major role in the worldwide oil exploration business, national oil companies (NOCs) will be responsible for a lion's share of the increase in oil output and investment in the next 20 years. State-owned NOCs represent the top oil reserve holders internationally. In 2005, global proved oil reserves were 1,148 billion barrels, with NOCs that allow no equity participation by foreign oil companies in control of 77 percent of the total (886 billion barrels), and partially- or fully-privatized Russian oil companies in control of another six percent (an additional 69 billion barrels). By comparison, Western international oil companies (IOCs) that once dominated the oil scene in the 20th Century now control less than 10 percent of the world's oil and gas resource base.

NOCs will overwhelmingly dominate world oil investment, production and pricing in the coming decades. As the world becomes more dependent on NOCs for

future oil supplies, major oil consuming countries are questioning the ability of these firms to bring on line new oil in a timely manner in the volumes that will be needed, stimulating new debate about long-term energy security. The list of NOCs whose oil production has been falling or stagnant in recent years due to civil unrest, government interference, corruption and inefficiency, and the diversion of corporate NOC capital to social welfare, is long and includes a wide range of oil-rich countries, such as Indonesia, Iran, Iraq, Mexico, Russia, and Venezuela. To the extent that NOCs must meet national socio-economic obligations such as income redistribution, over-employment, fuel price subsidization, and industrial development, NOCs have fewer incentives or resources for reinvestment, reserve replacement, and sustained exploration and production activity. This raises the question of whether timely development of the vast resources under the control of NOCs can take place, given the constraints imposed by domestic political influences and geopolitical factors.

The tendency of NOCs to focus on socio-economic activities other than oil field maintenance and expansion is partly responsible for the slow pace of resource development relative to the rapid rise in global demand and could mean that new production will not materialize to meet rising oil requirements in the future, leaving major oil consuming nations with a scarcity of fuel.¹⁰

WILL SCARCITY LEAD TO CONFLICT?

Accompanying both Peak Oil Theory and the geopolitical risk argument, there runs a strong theme through emerging energy security literature arguing that scarcity of

¹⁰ For a detailed assessment on the role of national oil companies on international energy markets, see the Baker Institute study at www.rice.edu/energy/

future oil supplies is a danger to the global international system and could trigger so-called “resource wars.”

The concept, first introduced by Michael Klare in his book *Resource Wars*, theorizes that “diminishing supplies of vital materials” will raise the risk of conflict across the globe and “introduce new stresses into the international system.”¹¹ Klare notes in his book: “No highly industrialized society can survive at present without substantial supplies of oil, and so any significant threat to the continued availability of this resource will prove a cause of crisis, and, in extreme cases, provoke the use of military force.” Nader Elhefnawy takes the argument a step farther, asserting that since the U.S. economy is the most oil dependent among world powers, “the United States could ultimately lose its position as a world power...just as the UK’s position declined along with the age of coal and steam that it (the UK) pioneered.”¹²

Authors Mary Kaldor, Terry Lynn Karl and Yahia Said try to define the mechanism for how oil scarcity might lead to conflict in the volume *Oil Wars*. They ask the question: “To what extent does oil cause, exacerbate or mitigate conflict, and what are the specific mechanisms through which this occurs?”¹³ Kaldor and her co-editors contend that the nature of war has changed and with it, the nature of conflicts over oil. Referring to the two world wars and the Cold War, the authors note: “In these wars, oil was considered a key strategic commodity and security of oil supplies could be achieved only through the direct military control of territory or the exercise of influence over the generally authoritarian rulers of exporting countries.”¹⁴ They suggest that new wars are

¹¹Michael Klare, *Resource Wars* (New York: Henry Holt and Company, 2001).

¹²Nader Elhefnawy, “The Impending Oil Shock,” *Survival*, June 2008.

¹³Mary Kaldor, Terry Lynn Karl, and Yahia Said, *Oil Wars* (London: Pluto Press, 2007).

¹⁴Ibid, p. 2.

“associated with weak and sometimes ungovernable states...” where “the monopoly of organized violence is being eroded” and the “massive rents from petroleum are used in myriad ways to finance violence.”

New wars are fought by networks of state and non-state actors and violence is directed against civilians or symbols of order rather than as a battle between state-controlled armed forces over territory. The presumption is that these “new wars” may have a debilitating impact on world oil supply, as sub-national groups compete for control of oil rents, blowing up each other and oil production facilities in hopes of getting the upper hand. Examples of such violence spilling over to curtail oil production abound, from insurgents attacking Iraqi oil facilities to political activists rioting in the Niger Delta and blocking oil production there.

But in each of the cases of “resource wars” described by various authors, the question of causation seems cloudy at best; and in the many cases of violence cited, none actually involves an oil-thirsty industrial country attacking a weak oil producing country to solve a looming problem of resource scarcity. Vietnam and China did not—in the end—go to war over a disputed border field in the South China Sea (a field, it might be added, that has yet to prove to hold major oil and gas resources). Even Iraq’s 1990 invasion of Kuwait was more complex in its roots. Iraq did not “need” Kuwait’s oil because supplies were scarce; the oil market was oversupplied at the time, and Iraq was angry with Kuwait for overproducing and thereby causing oil markets to weaken. But Baghdad was also concerned about its regional power and the fact that its Gulf Arab neighbors had refused to forgive its financial arrears from the eight-year Iraq-Iran war, arrears considered as “loans” in the Gulf, but as a gift in exchange for protection by Iraqi

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strongman Saddam Hussein. It is unclear whether Saddam was interested in controlling Kuwait's oil or whether he had an equal or larger concern to teach Kuwait a lesson about who was powerful. As David Victor notes, "To be sure, resource money can magnify and prolong some conflicts, but the root causes of those hostilities usually lie elsewhere...When conflicts do arise, the weak link isn't a dearth in resources but a dearth in governance."

To analyze the kind of resource war that might threaten the global system, it is important first to define the kinds of conflicts that are being used as examples of "resource wars" and then to determine which, if any, could threaten the global system and what other alternative avenues countries would have to solve the same problems without recourse to war. Much of the literature on resource wars jumps from various examples of conflict regions in which oil happens to exist, ignoring differences in the driving forces to those conflicts and oil's role in them.

The competition for resources in the Caspian Basin is a much cited example of the hot spot that could lead to conflict over resources. In this case, "resource war" theory would argue that large, powerful consuming countries like the United States and China would become increasingly concerned about access to oil supplies, vie for resources in the same geographical area and through this competition, wind up in military conflict with each other.¹⁵ This is the "ultimate" resource war that would emerge from supply scarcity. But, so far, while such diplomatic and commercial jockeying in the Caspian and other regions has taken place between the United States and China and India, and in some cases, it has been accompanied by military assistance or troop build up by some party in a geographic oil-rich area, these events have yet to produce big power confrontations.

¹⁵ Klare argues this line in his book *Resource Wars*.

China has not challenged the buildup of U.S. troops in the Caspian region, which arguably has more to do with the “war on terror” and failed states than any purposeful policy to control oil supply in the region. China’s response to the increased U.S. military presence has been diplomatic, through its sponsorship of the Shanghai Cooperation Council meetings, and economic, through Chinese investment in domestic energy infrastructure in the region. China has not responded to the U.S. military presence by building up its own forces on the ground in or around the Caspian.

In Africa, in the aftermath of its increased involvement in Sudan’s oil industry, China has built a quasi-military presence in Sudan, and the Chinese assistance to the Sudanese government has made it difficult to resolve the violent conflict in Darfur. But again, the United States has not responded to the issues militarily. Instead, the United States has sought a solution through diplomacy, seeking U.N. involvement to get peacekeeping troops to Darfur and pressing China through quiet diplomacy to cooperate.

Thus, while it is impossible to rule out that if supplies of oil tighten over time, competition for oil among large, powerful consuming countries might intensify and lead to conflict; in the immediate term, there is no geopolitical behavior on the horizon that signals a start to this pattern of international conflict. Moreover, for larger industrializing countries that are net energy importers (e.g. India, China), an aggressive resource strategy would be less likely because of their integration into the world trading system. The potential of trade sanctions serves as an effective deterrent as these countries need access to Western markets for their manufactured goods.

Another category of “resource war” that is predicted to emerge due to the impending scarcity of supply is an act of war by a large consuming country against a

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smaller, weaker oil rich country to take over its oil. The U.S. invasion of Iraq is frequently referred to as an example of this kind of “resource war.” In fact, the U.S. invasion of Iraq had a larger and more complex set of motivations. The United States has not in practice or intention “taken over control” of Iraq’s oil. If anything, the Bush administration bent over backwards to say that the Iraqi government would be in charge of all administration related to the oil, and the constitution drafted by Iraqi politicians and backed by the United States specifically states that the oil is the property of the Iraqi people for the benefit of the whole country. Iraqi oil is not being shipped back to the United States. Rather, it is sold on the open market by Iraq’s tattered, state-owned oil industry.

In addition, there is no case of China or India sending their military to take over oil supplies and in fact, in recent years, the only invasions of oil rich places by another country have involved countries that had their own oil, again driven by more complex issues not related to grabbing resource supplies per se (Iraq-Iran, Iraq-Kuwait, Russia-Chechnya, Russia-Dagestan).

An offshoot of this kind of resource war would be if a large consuming country were to attack a neighboring country to take over the oil territory and get the oil for itself. While one cannot rule out this kind of conflict, it is hard to think of an example in recent history. Historical examples do exist from World War I and World War II, but it is unclear whether international relations would return to this kind of extreme event. It is hard to imagine the circumstances under which China or India would attack a border country and take over an oil region. It is very hard to picture the circumstances under which the United States would invade Mexico or Canada for oil, or Europe would invade

North Africa or former Soviet territory. Thus, again, it is difficult to conceive how territorial conflict over oil fields in a neighboring state would be initiated by large consuming countries under today's geopolitical trends.

Another favorite conflict cited in the resource wars literature is the dispute between China and Vietnam over the resources in a contested area of the South China Sea.¹⁶ But in point of fact, China and Vietnam have not gone to war over these resources, which some industry analysts claim are not all that large. There have been other simmering resource border disputes in the Persian Gulf between Qatar and Iran and Kuwait and Iran and they remain sources of tension.¹⁷ But so far, there have been diplomatic efforts to resolve border resource issues in the Persian Gulf and elsewhere. The U.S. military presence in the Persian Gulf is presumed to be a deterrent to Iranian aggression on border resource issues and it is unclear whether Iran would incite a military confrontation with the United States and Arab world motivated by the actual border resources alone.

Alternatively, an oil exporter may want to gain control of another oil exporter in order to secure the resource rents from producing that oil, to gain more market power in the oil market by reducing the number of independent suppliers or to pursue political/strategic ambitions. Iraq's invasion of Kuwait in 1991 in part reflected these motives. But as the response to the invasion of Kuwait suggests, such actions, at least by smaller countries, would be unlikely to succeed and expand into a global crisis of confidence so long as the United States remains the overwhelmingly dominant military power and is willing to use its power to enforce the global system.

¹⁶ Both Klare and Elhefnawy mention this example.

¹⁷ See *Geopolitics of Natural Gas*, Editors: David Victor, Mark Hayes and Amy Myers Jaffe, Cambridge University Press, 2006 and a related working paper on Iran as part of this study.

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Beyond these kinds of state-to-state wars, there is a rich literature emerging about how the internal intra-state competition among sub-national groups/militias inside oil producing countries has led to violence and civil war, with internal attacks motivated by parties wishing to get control of resource rents. The examples of such conflict involve many oil states, such as Columbia, Nigeria, Indonesia, Iraq, and Angola.¹⁸ But these conflicts also have other underlying causes related to ethnic unrest, religious divisions, failed institutions of government, social inequality, criminality, and lawlessness. It is hard to say that internal resource wars inside failed or failing states are indeed driven by scarcity of oil, nor do they by necessity involve oil consuming nations, except maybe in a positive way by driving the urge to diplomatic or peacekeeping initiatives by the international community in hopes of avoiding having supplies cut off. Tighter oil markets may have created a greater incentive for subnational groups to gain international attention by attacking energy facilities, though maybe more as a tool to achieve wider political aims, rather than only to control the oil. Internal civil war or conflict over resource rents will undoubtedly be an emerging challenge to global oil supply, as has already been seen with temporary supply cutoffs from Indonesia and Nigeria.

This kind of localized conflict will be an increasing problem for large consuming nations but may not be prevalent enough to create a challenge to the international system or the globalized market for oil. The international community responded to violence in Indonesia with peacekeeping troops and diplomatic efforts. The Nigeria conflict wages on but is considered an internal matter that would be hard to resolve with the help of outside parties.

¹⁸ See Kaldor et al Oil Wars for a good overview of the literature and studies of individual conflicts.

The last kind of resource war that is being bandied about among commentators is the risk that an oil rich country might try to blackmail a powerful industrialized country or a group of powerful industrialized countries by withholding oil supply, causing a conflict that brews over into a war. Such an event would indeed be a challenge for the international system and one that is getting increased attention from security analysts in many countries around the world.

It could be argued that tightening markets could raise the benefits and possible chances of success for an energy exporting country, alone or in combination with others, to try to leverage control of energy supplies to wrest political concessions by threatening to cut off needed energy supplies. However, it is instructive to note that when OPEC cut off oil supplies in 1973, consuming countries did not respond with military force. To be sure the OPEC embargo occurred during the Cold War and when the United States was bogged down in Vietnam—factors that constrained a more forceful response. Times have changed, and the reaction of consuming countries to an embargo today might be very different.

The threat of an oil or energy weapon has emerged into international discourse in recent years, though no prolonged cutoff has ensued as of yet. Two oil producers, Venezuela and Iran, have specifically made public statements threatening to cut off oil supplies as a matter of state policy as a defensive and retaliatory response to political or commercial conflicts. In the case of Venezuela, President Hugo Chavez in February 2008 threatened to cut off oil exports to the United States if ExxonMobil pursued its legal battle to attach Venezuelan assets in the West as collateral payment for upstream oil field

stakes nationalized in Venezuela by Caracas last year.¹⁹ Similarly, Iran said it would cut its oil exports to the West if a U.S.-led coalition imposed sanctions on it in response to its alleged plans to develop nuclear weapons. Iranian Supreme Leader Ayatollah Ali Khamenei in June 2006 warned the United States that Washington “should know that the slightest misbehavior on your part would endanger the entire region’s energy security...You are not capable of guaranteeing energy security in the region.”²⁰ Saudi Arabia responded to this rhetoric by increasing its investments in upstream oil production capability to be able to replace any lost Iranian exports.²¹

But it has been the specter of Russia wielding an energy weapon that has gained the most attention in energy security circles and prompted a re-evaluation of energy strategies in Europe. Russia has not actually threatened such a scenario. Rather, its policies towards neighboring states who had previously received subsidized energy supplies has opened debate about Russia’s foreign policy goals and whether it might use an energy supply lever to achieve political ends and enhance its regional or global power.

THE SPECIAL CASE OF RUSSIA

While Russia is also engaged in extensive trading with Western Europe, recent events make it reasonable to raise the question whether there are scenarios under which Russia might act aggressively to challenge the existing global energy trading system. Russia possesses a high proportion of global energy resources and dominates the sales to a particular energy consuming region (Europe). It has already shown a proclivity to use

¹⁹ “Hello President. If you wind up freezing and hurt us, we will hurt you,” Chavez said in his weekly television and radio address. “Do you know how? We are not going to send oil to the United States.” CNN website, Feb, 10, 2008, <http://www.cnn.com/2008/WORLD/americas/02/10/venez.exxon/index.html>

²⁰ “Iran Warns U.S. on oil shipments.” CNN website. June 4, 2006. <http://www.cnn.com/2006/WORLD/meast/06/04us.iran/>

²¹ See Saudi Aramco: National Flagship with International Responsibilities, at www.rice.edu/energy

its empowered energy position to either grab more resource rents from its immediate neighbors or to wrest geopolitical or political benefits using energy as a lever. It is also in a position to enhance its power by cooperating with other powers such as China in influencing Central Asian energy suppliers or Iran in pressuring Saudi Arabia and other Gulf producers. However, as discussed below, it is unclear whether Russia—either alone or with potential allies—would have to resort to military means to reap such political or economic gains from energy, or whether non-military opportunities already exist for Russia to achieve gains through the manipulation of its export supplies and geographic domination of major transportation routes and existing export infrastructure for the Former Soviet Union (FSU) states.

In his classic volume on foreign trade as an instrument of national power, Hirschman points out that under some circumstances a country, say country A, can extract advantages—military, political, economic—from its trading partners. These circumstances occur when “it is extremely difficult and onerous” for trading partners “to dispense entirely with the trade they conduct with A or to replace A as a market and as a source of supply with other countries.”²² To a large extent these conditions are satisfied in the case of Russia’s energy exports—especially to Eastern and Western Europe.

Russia’s status as a current and future energy producer is close to unrivaled. It holds the eighth-largest proven oil reserves in the world, but ranks a close second in oil production to Saudi Arabia (at 9.3 million b/d), far ahead of most other world suppliers and well ahead of the United States (at 5.1 million b/d) and Mexico (3.4 million b/d). In fact, when both oil and natural gas exports are considered, Russia exports more

²² Albert O. Hirschman, *National Power and the Structure of Foreign Trade* (University of California Press, 1945), 17.

hydrocarbons than Saudi Arabia. Thus, Russia's position as a major energy supplier has great significance not only for its foreign policy but for its relationships with major energy consuming countries.

Prior to the breakup of the Soviet Union, energy trade was a key lever used by Moscow to achieve political acquiescence in the Warsaw Pact. "The Soviet energy grid is a tangible manifestation of Soviet energy diplomacy, which found its roots in the Brezhnev doctrine of restricted sovereignty," writes Dr. Kevin Rosner.²³ Eastern and Central European states were highly dependent on subsidized Soviet energy supplies under the central control of Moscow, linking their economies in a manner difficult to alter.

After the collapse of the Soviet Union, economic reform in Eastern and Central Europe opened the way for more competition in the energy space, leaving many assets on the block for privatization. But Russian firms, including state energy behemoth Gazprom, were quick to see the advantages of scooping up ownership control of such assets. Thus, the process of reintegration quickly ensued.

While privatizations and other reforms were characteristic of the Russian oil sector in the 1990s, President Vladimir Putin, in his second term, initiated a retrenchment back towards fuller state control and centralization of investment and export policy in Russia's energy sector. A reorganization of ownership of key assets, through corporate prosecutions, forced asset sales or fiat, has left the Kremlin more firmly in command of the country's energy resource development and exports. Once this reengineered control started to reach critical mass, the Kremlin began to reconstitute its old Brezhnevian

²³ Kevin Rosner, "Gazprom and the Russian State," Global Market Briefing, Institute for the Analysis of Global Security, (London U.K., GMB publishing, 2006).

strategies, utilizing energy as a lever to regain its status as a superpower and extend its influence in the FSU.

Russia's current energy strategy appears to have two drivers. One is to build up the assets, size and strength of the major Russian state energy entities such as Gazprom and Rosneft, protecting their potential contribution to the Russian economy and their power against foreign competitors.

Secondly, Russia has positioned itself to utilize its comparative advantage in energy resources for political and economic ends. A recent poll taken in Russia as part of an academic study on energy and environmental issues by the Russian Academy of Science shows that 38 percent of Russians surveyed believe that keeping the status of superpower for Russia best meets their individual and family interests more than strengthening democracy and freedom of speech (12 percent), with only economic growth mattering more to average Russians than enhancing Russia's status on the world stage. Less than 10 percent of those surveyed thought continued privatization was important, while at least a third favored state regulation and support of basic industries. More than 68 percent felt foreign investment in the oil and gas sector was "not acceptable at all." Thus, the Kremlin's policies of dismantling Yukos and suspending competitive market principals had broad public support as did using energy to assert its international position.

Putin's primary focus in his second term was domestic, not only on consolidating the power of the Russian state to protect the Kremlin from politically-motivated businessmen but also on guaranteeing Moscow's firm grip on Russian energy development and supply routes. With the Gazprom takeover of major Russian oil firm

Sibneft, Russian government-controlled and -owned companies became responsible for about one-third of the country's total oil output.

In January 2004, months ahead of the Russian presidential elections, the Russian government announced that it wanted more than \$1 billion for a license to explore and develop one of the three Sakhalin-3 parcels, the prime Khirinsky block, the rights to which would be won through a tender process. This decision countermanded the results of a 1993 tender, in which ExxonMobil and Chevron had received the same exploration rights. Foreign investors' interests were to be considered only after the Russian state's ability to protect national interests in the energy sector was affirmed.²⁴ By 2006, Russia announced new plans to tighten restrictions on foreign companies and to increase the number of oil and gas fields that the Russian government deemed as "strategic." Russian officials said the policy was designed to protect Russia's national interests.²⁵

In the beginning of his second term, President Putin also moved quickly to end speculation that private investors might be permitted to own independent pipelines. Both the president and his then prime minister, Mikhail Fradkov, stressed that state control over the nation's oil and natural gas pipelines will remain a cornerstone of government energy policy and be a key tool for containing the economic and political influence of Russia's powerful and rich private oil and gas producers for years to come.

Unlike many prominent reformers who were influential during the administration of former Russian President Boris Yeltsin, Putin began to move his policies away from relying on global market forces to provide the economic opportunities to make a

²⁴ Martha Olcott, "Vladimir Putin and the Politics of Oil" Baker Institute Working paper, available at <http://www.rice.edu/energy/publications/russiangularstrategy.html>

²⁵ "Russia to place further limits on foreign oil groups," Arkady Ostrovsky, *Financial Times*, June 13, 2006.

successful transition to a modern, European-style economy and political system. Instead, he frequently emphasized during the 2004 electoral campaign that he believes that premature globalization of the Russian economy will lead to greater hardship for the majority of Russian people and that it will lead to the concentration of vast wealth by a relatively limited number of people who have little or no incentive to reinvest in the Russian economy.

Evidence that Putin believes in the pre-eminent role of the state in natural resources development is found in a candidate of science dissertation he authored on the topic of “Mineral Raw Materials in the Strategy for Development of the Russian Economy” at St. Petersburg’s prestigious State Mining Institute. The treatise focuses on questions of developmental economics and how to introduce Western management style into Russia’s raw material sector.²⁶

In an article summarizing his dissertation, Putin argues that Russia’s natural resource base will not only secure the country’s economic development but will also serve as the guarantor of the country’s international position. Moreover, he states this quite strongly, in a language that should have served as ample warning for the owners and managers of Russia’s privately held oil companies, that under a Putin administration, the state would set the priorities in the oil industry.

In his treatise, Putin says rather clearly: “The state has the right to regulate the process of the acquisition and the use of natural resources, and particularly mineral resources, independent of on whose property they are located; in this regard the state acts in the interests of society as a whole, as well as in the interests of private owners whose

²⁶ Olcott, Op cit

interests conflict and who need the help of the state organs of power to achieve a compromise.”²⁷

The conviction and imprisonment of former Yukos chairman Mikhail Khodorkovsky and his business partner Planton Lebedev and the subsequent hemorrhaging within the Yukos empire signaled a significant move by Putin to assert this concept that the state must control the energy sector and easily persuaded other Russian business magnates from confronting the Kremlin head-on, especially given the ways in which Putin has strengthened the power of the presidency since beginning his second term in 2004.

When Putin first came to power, he lacked the vital informal networks without which rule in Moscow is impossible. Facing entrenched networks or “clans”, Putin began recruiting people one-on-one, KGB style, and quickly repossessed the two most important television networks that broadcast country-wide. He then moved on to neutralize or decapitate the clan networks and began creating a *clientelism* that entailed setting up clients in the oil business—including Aleksei Miller at Gazprom and Igor Sechin at Rosneft. Since early 2004, he has been appointing those who share this view to key positions in the cabinet, the presidential administration and in the state-run sectors of the oil and gas industry. Like Putin, many of these men have a background that includes service in the state security organs, the so-called *siloviki*. Putin continues to juggle the politics of Russia’s central elite between the liberal reformers and the *siloviki*. In recent years, the balance of influence has shifted in favor of the *siloviki*, who continue to entrench themselves profitably into the reins of the oil and gas sector and who generally have supported the movement towards anti-democratic domestic policies and favored

²⁷ Olcott Op cit.

more hegemonic interactions with Russia's neighbors.²⁸ Without control over oil and natural gas production and export routes, the Kremlin could see its foreign policy begin to go askew, with independent producers and even Western firms negotiating deals that might have gone against the federal government's policy goals.

High oil prices freed Putin's hand to consolidate power by ensuring a basis for a strengthening economy and emboldened the Kremlin's confidence. Putin consolidated the Kremlin's power by moving Russia towards a federalist system that has weakened the powerbase of the country's governors and judiciary, again giving the Kremlin more say in the development of oil and gas assets and export routes in far-flung regions. The Kremlin also grabbed the prerogative for judicial supervision out of the profession's hands, giving the Kremlin another means to control politics in the regions.

In tandem with internal political consolidation in the energy sector, Putin's administration has also signaled the influence of its energy policies towards relations with neighbors and trading partners.

The most productive area in which energy trade can be used to extract political and economic advantages is Western and Eastern Europe, which are the primary destinations of Russian oil and gas exports. Some countries such as Germany are particularly dependent, with Russia supplying 40 percent and 20 percent respectively of gas and oil usage. Eastern European and Baltic countries as well as Ukraine and Belarus are even more dependent on Russian energy supplies—a legacy of the Communist era.

By dominating the European energy scene now and more substantially in the future, Russia wields an implicit threat of an “energy weapon.” This weapon does not

²⁸ Stephen Kotkin, “It's Gogol, Again,” Baker Institute working paper available at <http://www.rice.edu/energy/publications/russiangularstrategy.html>

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need to manifest itself in “militarization” strategies. Rather, Russian energy supply can become a *quid pro quo* for other ends, such as the reorganization of political coalitions in neighboring countries that might better suit the Russian than pro-Western parties. Indeed, Russian energy “diplomacy” has already been effective in slowing if not stopping the eastward expansion of the North Atlantic Treaty Organization (NATO). In Ukraine, the power of the pro-Western government has been constrained by the most recent parliamentary elections, in which pro-Russian parties have made significant gains.

European governments have expressed concern over the extent to which Russia will use energy policy—especially the threat of supply disruptions to further its political and strategic aims. There are already three concrete examples where Russia has used cutoffs in what many believe were politically motivated attempts to alter behavior of its neighbors: Ukraine, Lithuania and Georgia. Cutoffs of oil to loyal Russian ally, Belarus, in 2007 were more likely primarily a commercial dispute over gas prices but, nonetheless, even this supply disruption has sent a clear message that Russia is willing to play hardball and is willing to cut off energy supplies to achieve its objectives.

In the case of Ukraine, Gazprom reduced its flow of gas by 125 million cubic meters (MMCM) on January 1, 2006, ostensibly over a pricing dispute. Gazprom wanted to increase the price that Kiev paid for its gas from \$50 to \$230 per 1,000 cubic meters to be in line with international market pricing. However, Ukraine rejected such an abrupt four-fold increase and pressed that any changes in the price to be phased in over several years. Since the Ukraine and Gazprom have had pricing disputes for decades and these disputes never previously resulted in Russia cutting gas exports to Kiev, the move was widely interpreted as Moscow’s punishment of the pro-Western stance of a newly-elected

government of Ukrainian President Viktor Yushchenko. It was generally believed that Yushchenko's push to bring his country into NATO and the European Union was ill-received in Russia, which was accused of trying to rig the election against Yushchenko and attempting to poison him. But one of Kiev's responses to the Russian ultimatum to cut off volumes was the threat of a sharp increase in the transit fees it charged Gazprom for shipping large amounts of gas through Ukraine to Western Europe and this threat also contributed to escalation of the conflict. The Ukrainian-Russian gas dealings, in turn, contributed to the undoing of Yushchenko by prompting a vote of no-confidence in the Ukrainian parliament. The dispute led to a reorganization of the Ukrainian government under a coalition in which Yushchenko and his party lost its ruling status in favor of a more pro-Russian grouping. At the time of the crisis, the economic ministers of Austria, France, Germany and Italy both cautioned Ukraine that its relations with the European Union might be affected if Kiev failed to deliver the full quantity of gas meant for European destinations. E.U. Energy Commissioner Andris Piebalgs warned Moscow not to make the European Union "a hostage" to Russia's dealings with Ukraine. Shortly after the incident, while traveling in Central Asia, U.S. Vice President Dick Cheney warned Russia not to use its energy supplies as "tools for intimidation and blackmail." The entire affair has led to speculation that Russia is willing to use its gas exports as a lever to influence elections in countries along its borders.

Georgia is another country that has elected a pro-Western government interested in joining the eastern expansion of NATO and the European Union. Georgia is also a transit country for the Baku-Tbilisi-Ceyhan (BTC) pipeline, which was sponsored by the United States in a policy of promoting competition and energy security through "multiple

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pipelines” for Caspian energy resources. At present, only Azeri oil and gas is being transported in the pipeline but there has been considerable discussion of extending the pipeline either around or under the Caspian Sea to tap into Kazakh supplies. At present Kazakh—and other Central Asian energy resources—are channeled through Russia.

The BTC pipeline was routed through Georgia because the shorter route through Armenia was not possible given the state of tension between Armenia and Azerbaijan over the disputed territory of Nagorno-Karabakh. But Georgia itself is also vulnerable to Russian pressure via its own “frozen” domestic conflicts. Two areas, Abkhazia to the northwest and Ossetia to the north, are regions not fully under the control of the Georgian government. Residents of those enclaves can travel on Russian passports and have expressed interest in separating from Georgia. The population of Ossetia recently voted in a referendum to form an independent state. Georgians suspect that Russia has ambitions to absorb both rebellious regions. Russian–Georgian relations have been tense since independence and these tensions have worsened since the election of Mikheil Saakashvili as Georgia’s president. Recently, when Georgia arrested several Russians for spying, Russia banned all Georgian exports to Russia and mobilized its troops on the Georgian border. And, interestingly, Russia also used the energy weapon. In January 2006, Russia cut the supply of gas to Georgia, forcing it to scramble to find alternative sources.²⁹

Lithuania was occupied and then absorbed into the Soviet Union at the beginning of the Second World War. Its public, along with those of the other Baltic states, retained a strong anti-Soviet, anti-Russian sentiment throughout the 50-year period of Soviet rule.

²⁹ Johan Lembke and Sever Voinescu, “The Black Sea Region in the Twenty-first Century: Energy, Security and the Euro-Atlantic Community,” Occasional Paper, European Union Center of Excellence, Texas A&M University, October 2006.

It was the first Soviet republic to gain its independence upon the collapse of the Soviet Union, despite an effort by the Soviet military to prevent secession. In 2004, Lithuania joined NATO and the European Union.

In July 2006, Russia shut an oil pipeline to Lithuania's sole oil refinery after the Lithuanian government signed an agreement in June to sell the refinery to a Polish company, PKN Orlen, for a higher sum than was being offered by Russian entities. Russia maintained the shutdown was necessitated to repair a leak in the pipeline. Lithuania accused Russia of cutting off the oil shipments to force it to reconsider the sale.³⁰

Belarus is one of the former Soviet republics that has remained most loyal to Russia. Its pro-Russian president since 1994, Alexander Lukashenko, has held negotiations to unify his country with Russia. In January 2007, Russia interrupted oil flows on the Druzhba pipeline that carries oil to Western Europe through Belarus in response to a dispute with Minsk over the price that Belarus should pay for its imports of Russian gas. Belarus had been receiving a substantial subsidy from Russia in the form of below-market prices for its gas, paying only \$46 per thousand cubic meters of gas as compared with the prevailing market price of roughly \$260. The dispute arose when Russia demanded a price of \$105 per thousand cubic meters and Minsk countered with a demand for higher transit fees for Russian oil. The Russian offer still would leave Belarus with the lowest-priced gas from Russia of any of the FSU countries. By contrast, Ukraine agreed to pay \$135, while Georgia with its more pro-Western government is being charged \$235.

³⁰ Steven Lee Myers, "Russian Gas Company Plans Steep Price Increase for Georgia," *The New York Times*, Nov 3, 2006. International section, online (U.S.) edition.

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While the origin of this confrontation did not have the political subtext of others, the fact that prices of Russian gas are negatively correlated with the degree of pro-Western orientation of the government reinforces the belief that Russia is using its energy resources as an instrument of its foreign policy. This episode has also reinforced European awareness of its vulnerability in terms of energy security.

Russia has used its control of regional pipeline routes to trap Caspian energy supply and capture the rents from these resources for its own benefit. Russia buys Caspian gas at prices sharply discounted from international levels and then uses these supplies internally to supplement its own gas to permit higher, lucrative export sales to Europe. If Russia's own gas industry is not reformed, allowing for increased production and investment in natural gas assets by independents, Gazprom may have great difficulty maintaining, much less expanding, its sales to Western Europe unless it can protect its access to higher volumes of cheap gas from the Caspian countries. Cheap Turkmen gas, for example, is locked into the Russian economy at depressed prices of \$150 per thousand cubic meters, allowing Russia to export its own natural gas supplies at over \$230 per thousand cubic meters to high-paying Western European customers. Were the Central Asian states to find an outlet for their gas independent of Russian control, say through the proposed trans-Caspian Sea pipeline to Turkey and Europe or via pipeline routes directly to China, it would greatly reduce Gazprom's flexibility to meet European demand through increased purchases of cheaply-priced Central Asian supplies.

Ironically then, European gas supplies are dependent on Russia's relationship to these Central Asian countries and hence, as pointed out by Peter Zihan: "Suddenly

Europe has a vested, if reluctant, interest in ensuring that Moscow is satisfied with its level of influence in the bulk of the largest former Soviet territories.”³¹

Edward Morse and Adam Robinson argue that Russia is pursuing a strategy of using reliable access to energy to drive a wedge between Europe and the United States.³² In the classic case outlined by Hirschman, Europe is dependent on Russian supplies and therefore is amenable to pressure over political issues. It should be noted that European vulnerability is not inevitable but rather a reflection of the historical development of energy demand and supply patterns, existing pipeline infrastructure as well as the costs of transporting gas.

Looking ahead, Europe can reduce potential Russian leverage by diversifying its gas supplies. As pointed out by Jaffe and Soligo,³³ there are many sources of gas that are now economically available—given the technological changes in the liquefied natural gas (LNG) industry that have significantly lowered transport costs. Importing more LNG would require substantial investments in terminal and gasification infrastructure, but the cost of these should be viewed as the cost of enhancing energy security and maintaining more independence in formulating economic and foreign policies. A relative shift from Russian gas to LNG will also strengthen U.S.-E.U. ties and common interests in that both would be competing for some of the same LNG supplies. Any increase in gas prices due to an increase in European demand for LNG stemming from a Russian cutoff of its

³¹ Peter Zeihan, "Russia's Gas Strategy: Turning Up the Heat on Ukraine." (Stratfor Forecasting, Inc. 4 Jan. 2006). Accessible at http://www.stratfor.com/products/premium/read_article.php?id=260392.

³² Edward L. Morse and Adam J. Robinson, "Growing pains: Russia's new muscle," *Aspenia*, (Issue 32-33-34, February 2007). 110-119. www.aspeninstitute.it.

³³ Amy Myers Jaffe and Ronald Soligo, "Market Structure in the New Gas Economy: Is Cartelization Possible?" in *Natural Gas and Geopolitics: From 1970 to 2030* (Oxford University Press 2006).

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supplies will be shared with U.S. users—as is the case with oil today. This would align U.S. with E.U. interests and counter any Russian attempt to drive a wedge between them.

Other policies that Europe could adopt to deal with possible Russian interruptions in deliveries would be to develop a unified strategy to deal with energy imports and build sufficient capacity in energy infrastructure, whether pipelines or electricity grids, that interconnects member countries, so that supply reductions from Russia (and increased imports from abroad) would be shared area-wide rather than by specific countries.

In the long run, Russia and Iran will be the primary sources of gas as supplies from other sources are depleted. But this development is at least several decades away.

It is useful to think of the Russian threat in terms of both short-term supply interruptions and the longer-term threat of diverting supplies to other markets. European vulnerability to short-term disruptions is a reflection of the fact that it is dependent on pipeline supplies and does not have sufficient capacity to store large quantities of gas or to substantially increase imports of LNG in the event of a cutoff of Russian supplies.

On the other hand, it is important to note that supply disruptions would be costly for Russia. Since it does not sell seaborne cargoes of natural gas in the form of LNG, Russia has little flexibility to suddenly change the flow of its gas exports that are wedded to European markets by pipe. Its only option would be to forego gas exports altogether. The larger risk may well be that Russia cannot meet European needs due to its inability to mobilize the managerial skills and financing needed to undertake the investment in supplies required to meet its export goals, even without any interference of intimidation strategies.

The longer-run threat to shift supplies to the Asian market is less credible. Russia is building pipelines to the East, where it will market its energy output from East Siberia. Those pipeline routes reflect the transportation economics for resources that are located closer to Asian markets. It is unlikely that Russia would build pipelines to shift supplies from Western Siberia, that are closer to the European market, to Asia unless Asian prices were sufficiently higher to pay for the extra cost to do so.

With respect to the Asian market, China is also interested in Central Asian energy resources as a means of reducing its dependence on sea-borne supplies, primarily from the Middle East. At present, China and Russia therefore have conflicting interests in the Caspian region.

But both countries are members of the Shanghai Cooperation Organization (SCO), which was originally created to deal with security issues and resolve regional border disputes. The members have stated that they would “not allow their territories to be used to undermine the sovereignty, security or territorial integrity of other member states”—a statement interpreted by some in the United States as a reference to U.S. bases and military activities in the region.³⁴ The members of the SCO are China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. At a one-day summit held in Shanghai in June 2007, Iran attended the meeting as an observer. Iran’s president, Mahmoud Ahmadinejad, said Iran was ready to host a meeting of the energy ministers of the SCO to build cooperation on energy issues. Thus, it is conceivable that the organization could evolve to deal with energy issues as well.

China and Russia could well collaborate to share the benefits of cheap central Asian energy supplies, and Russia could, should it wish to, build ties with Beijing by

³⁴ “Iran Offers Energy Cooperation at Asia Summit,” *Financial Times*, (June 16, 2006).

becoming a larger energy supplier to the energy-thirsty country. In early November 2007, China and Russia signed a series of trade and investment deals totaling \$800 million, but the deals fell short of Chinese hopes for an agreement on a Caspian oil pipeline.

While it would take Russia years of expensive massive infrastructure development to increase energy supply sales to China, a strengthening political relationship between Russia and China could be problematic for the United States and its allies over time. Under the most extreme scenario, an armed conflict between the West and a combined Russian-Chinese alliance—perhaps over territorial or other non-energy related issues—could provide impetus for Moscow to use its energy sales to Europe as a threat, raising the stakes of such a conflict.

Russia could also enhance its geo-strategic power through collaboration or collusion with Iran. Moscow is supplying Iran with military equipment and nuclear technology and has been one of the major players blocking U.N. sanctions against Iran over its nuclear activities. While Iran and Russia are natural competitors over access to European gas markets, the possibility of energy collusion between the two could represent a potentially serious challenge to the current global system for energy trading and exports.

Iran has traditionally been a strong advocate for higher oil prices and is considered a pivotal price hawk leader inside OPEC. This high-price oil policy has been relatively consistent since the early days of the Islamic revolution. Iran's supply to world oil markets is relatively small at 3.7 million b/d or four percent of world oil production. But the country could have significant influence over oil supplies through its strategic location as a bordering country to the Strait of Hormuz, a chokepoint which is the main

passageway for 15 to 16 million b/d of oil, roughly two-thirds of total world oil trade by tanker and 20 percent of total world daily oil demand. Oil and petroleum products from Iraq, Iran, Kuwait, Saudi Arabia, Qatar and the United Arab Emirates transit the Strait of Hormuz. Large quantities of LNG are also exported from Qatar through the Strait. Qatar's plans include the export of over nine million tons a year of LNG, and Iran is also building LNG export capacity.

The significance of the Strait of Hormuz has become enhanced in recent years because virtually all of the world's excess spare production capacity that can be brought on line quickly to defend against the adverse effects of a sudden oil supply crisis or disruption is located in Saudi Arabia, Kuwait and the United Arab Emirates and thereby could be cut off if the Strait could be closed.

Iran's strategic location, as well as its important role in the supply of oil and potential as a major gas supplier, gives it leverage to assert itself in oil markets in the future. And Russia, aligned with Iran, could gain tremendous leverage over the energy assets of the Gulf and the flow of oil and gas to world markets. Russia could pursue an additional wedge policy in the Gulf region—challenging U.S. dominance in the region by exacerbating tensions between the United States and Gulf states. From a purely economic perspective, coordination of energy policies and production quotas between Russian and OPEC producers would be in Russia's interest—additionally so if Russia were able to persuade Gulf producers to cut back on output and capacity expansion relative to Russia.

It is unclear whether military actions would be necessary to assert this influence or if non-military means would be sufficient to gain economic or political goals. Russia through an Iranian proxy can put enormous pressure on regional producers like Saudi

Arabia. Threats would not necessarily have to take the form of armed military campaigns or even organized terrorist attacks on Arab oil facilities. The potential to foment political unrest in oil-producing regions inhabited by Shi'a populations that would destabilize regimes may be sufficient for those regimes to take Russian and Iranian interests into account in their own policy decisions. Between 250,000 to 500,000 Shi'as reside in Saudi Arabia's Eastern Province, home to the vast majority of its oil production. Saudi Shi'as represent about a third of the population of the Eastern Province and roughly 75 percent of Saudi Aramco's workforce there. Iranian influence is also strong in southern Iraq, which is dominated by Shi'a militias with strong ties to Tehran.

TOWARDS A NEW DEFINITION OF ENERGY SECURITY

The term "energy security" has evolved over time as the energy supply challenges met by the United States have changed. In the 1950s, energy security was used to justify protection for U.S. domestic oil production in order to ensure that adequate supplies would be available in times of war. Energy security, in great measure at that time, was conceived in reference to military preparedness.

In the 1970s, in the aftermath of the 1973 Arab oil embargo, energy security was aimed to protect the U.S. national interest against any group of oil producers that might use the "oil weapon" to blackmail the United States to adjust its foreign policy in a manner that would be inconsistent with a freely-pursued American national interest. Energy security evolved to mean independence from foreign oil. A 1976 *New York Times* article posits a view on the Ford administration's use of the term energy security in a statement that, "The Administration's policy for achieving energy security is to decrease United States dependence on foreign oil. This would be done chiefly by increasing

domestic energy sources, by energy conservation, and by coordinating our energy planning with other industrialized countries.”³⁵ A 1979 *Foreign Affairs* article on energy security by Daniel Yergin and Robert Stobaugh focused on various options for eliminating U.S. dependence on foreign energy sources.³⁶ President Jimmy Carter took up this mantle, calling on America in a 1979 speech to commit to reducing foreign oil demand through alternative energy:

“To give us energy security, I am asking for the most massive peacetime commitment of funds and resources in our nation’s history to develop America’s own alternative sources of fuel -- from coal, from oil shale, from plant products for gasohol, from unconventional gas, from the sun.

I propose the creation of an energy security corporation to lead this effort to replace two and a half million barrels of imported oil per day by 1990. The corporation will issue up to five billion dollars in energy bonds, and I especially want them to be in small denominations so average Americans can invest directly in America’s energy security.”³⁷

By the 1980s and 1990s, the focus on energy security became more economic in nature, directed at protecting the U.S. economy and other major importing countries against the negative effects of supply interruptions and oil price shocks on the economic performance of the U.S. and global economy. In the early 1980s, these economic

³⁵ James W. Howe, “Energy Dependability,” *New York Times (1857-Current file)*; Jun 7, 1976; ProQuest Historical Newspapers The New York Times (1851 - 2004), pg. 29

³⁶ Robert Stobaugh and Daniel Yergin, “After the Second Shock: Pragmatic Energy Strategies,” *Foreign Affairs*, Spring 79, Vol. 57 Issue 4, 836-871.

³⁷ “Jimmy Carter: Energy and the National Goals - A Crisis of Confidence,” 15 July 1979. <http://www.americanrhetoric.com/speeches/jimmycartercrisisofconfidence.htm>

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concerns were discussed with an almost histrionic tone. For example, in 1982, noted historian and oil policy expert Daniel Yergin wrote that the energy question was “a question about the future of Western society,” noting that “stagnation and unemployment and depression tested democratic systems in the years between World War I and World War II” and asserting that if there wasn’t sufficient oil to drive economic growth, the “possibilities are unpleasant to contemplate.”³⁸

By the 1990s, economists were more sanguine, understanding that chances were, economies would be resilient and adjust to oil shocks with some damage but not necessarily catastrophic consequences. In their book, “The Economics of Energy Security” published in 1996, Douglas Bohi and Michael Toman more dispassionately set out to “sort through the substance of the energy security argument to determine which elements stand up to economic logic as a potential government intervention and, if some elements do, to determine their empirical importance as a basis for designing energy policy.”³⁹ They defined energy security, in a manner typical in the late 1980s and through the 1990s, as “the loss of economic welfare that might occur as a result of a change in the price or availability of energy...”⁴⁰

In the aftermath of the September 11, 2001 terrorist attacks in the United States, discussion of energy security turned back to the costs of dependence on oil regimes whose interests might be inimical to the United States or its allies. This dependence raised two issues for American policymakers. First: whether oil dependence could result in future constraints on the United States’ freedom to maneuver in international relations.

³⁸ Daniel Yergin and Martin Hillenbrand, *Global Insecurity* (Boston: Houghton Mifflin Company, 1982).

³⁹ Douglas H. Bohi and Michael A. Toman, *The Economics of Energy Security*, (Boston: Kluwer Academic Publishers, 1996).

⁴⁰ *Ibid.*

Post September 11, examples such as terrorist financing, human rights, political reform in the Middle East and the status of women were raised as policy areas where oil dependence was limiting U.S. freedom of movement to press for its national interests. In addition, neoconservatives and other politicians raised concerns about the transfer of large oil payments to unstable or unfriendly oil regimes, who could potentially use the money to fund terrorist activities against Western or U.S. citizens or infrastructure.

Summing up the dangers of heavy reliance on Middle East oil, former CIA director R. James Woolsey wrote in “Defeating the Oil Weapon” in *Commentary* in September 2002,

“We had a working partnership with the Saudis for much of the cold war, offering them protection against the Soviets (and Soviet clients states) in exchange for a reliable supply of cheap oil. But in light of the direction taken by the Saudis for nearly a quarter-century now (accommodating extremist Wahhabi views) it is also imperative that we take steps to reduce their hold over us...The wealth produced by oil is what underlies, almost exclusively, the strength of three major groups in the Middle East—Islamists, both Shiite and Sunni, and Baathists—that have chosen to be at war with us. Our own dependence on that oil, and the effect this has had on our conduct over the past quarter-century, have helped encourage each of these groups to believe that we are vulnerable.”

Woolsey’s thesis was echoed by a wide spectrum of political opinion, including prominent U.S. neoconservatives, more mainstream Democratic party politicians and

American left-wing, green activist groups. As reflected in *Foreign Affairs*, prominent U.S. thought leaders Timothy E. Wirth, C. Boyden Gray, and John D. Podesta wrote:

“The flow of funds to certain oil producing states has financed widespread corruption, perpetuated repressive regimes, funded radical anti-American fundamentalism, and fed hatreds that derive from rigid rule and stark contrasts between rich and poor. Terrorism and aggression are byproducts of these realities. Iraq tried to use its oil wealth to buy weapons of mass destruction. In the future, some oil-producing states may seek to swap assured access to oil for the weapons themselves. It is also increasingly clear that the riches from oil trickle down to those who would do harm to America and its friends. If this situation remains unchanged, the United States will find itself sending soldiers into battle again and again, adding the lives of American men and women in uniform to the already high cost of oil.”⁴¹

More recently, in light of Russia’s sudden, brief cutoff of natural gas supplies to the Ukraine in January 2006 and threats of oil supply cutoffs by Iran during the geopolitical standoff over its nuclear program, energy security is taking on a greater policy salience, as national security analysts think through the consequences of important oil producers using access to their vast energy supplies as a lever to gain political ends. This concern over the relative power of nations is fostering a new concept of energy security—one where oil consuming countries wish to minimize the chances that a key oil supplier could use the threat of a cutoff of supplies to gain geopolitical advantage or

⁴¹ Timothy E. Wirth, C. Boyden Gray, and John D. Podesta, in “The Future of Energy Policy,” *Foreign Affairs*, July/August 2003.

even, in the case of Russia, to impose political conditions inside the oil importing country.

The Council on Foreign Relations, in its Task Force report, “National Security Consequences of U.S. Oil Dependency,” notes that “the issues at stake affect U.S. foreign policy, as well as the strength of the American economy and the state of the global environment.”⁴² The treatise begins by noting that:

“The lack of sustained attention to energy issues is undercutting U.S. foreign policy and U.S. national security. Major energy suppliers—from Russia to Iran to Venezuela—have been increasingly able and willing to use their energy resources to pursue their strategic and political objectives. Major energy consumers—notably the United States, but other countries as well—are finding that their growing dependence on imported energy increases their strategic vulnerability and constrains their ability to pursue a broad range of foreign policy and national security objectives. Dependence also puts the United States into increasing competition with other importing countries, notable with today’s rapidly growing economies of China and India. At best, these trends will challenge U.S. foreign policy; at worst, they will seriously strain relations between the United States and these countries.”⁴³

In the context of these new concerns about the rising geopolitical power of energy suppliers, new definitions of energy security are emerging. In the introductory chapter of their book volume, “Energy and Security: Toward a New Foreign Policy Strategy,”

⁴² “National Security Consequences of U.S. Oil Dependency,” John Deutch and James R. Schlesinger, chairs, Council On Foreign Relations, 2006.

⁴³ *Ibid*, 3.

volume editors Jan H. Kalicki and David Goldwyn define energy security for the United States as “assurance of the ability to access the energy resources required for the continued development of national power.”⁴⁴

In this new setting, where oil suppliers might be more inclined to use oil as a lever to political ends, energy security could be redefined as reducing the vulnerability of the economy to the reduction or cut off of oil supplies from any given supplier or group of suppliers or to sudden large increases in prices of specific energy commodities such as oil and natural gas. To do so, the consuming country must increase flexibility of energy using industries or transport vehicles to shift amongst alternative fuels and by both lowering the oil intensity of its economy and increasing the diversity of alternative oil suppliers and the shares of alternative fuels and energy sources in its mix of primary energy use.

In “The Impending Oil Shock,” Nader Elhefnawy asserts that energy scarcity will “have profound implications at the international level” by empowering energy producers, heightening the risk of state failures, and fueling armed conflicts. The stakes are high, he argues, because the United States, by virtue of the relatively energy inefficient nature of its economy and high oil dependence, “could ultimately lose its position as a world power...just as the UK’s position declined along with the age of coal and steam that it (the UK) pioneered.” He concludes that in the oil-scarce world, “a nation’s ability to sustain its economy and preserve its influence will depend less on military capability and more on an ability to insulate its economy from oil shocks...”⁴⁵

⁴⁴ Jan H. Kalicki and David Goldwyn, *Energy and Security: Toward a New Foreign Policy Strategy* (Baltimore, Johns Hopkins University Press, 2005).

⁴⁵ Nader Elhefnawy, *The Impending Oil Shock*, IISS Survival, forthcoming June 2008

That rising U.S. oil imports have strengthened the hand of oil producers is fairly clear. Soaring U.S. gasoline demand was a significant factor strengthening OPEC's monopoly power in international oil markets in the 1990s. U.S. net oil imports rose from 6.79 million b/d in 1991 to 10.2 million b/d in 2000 while global oil *trade* (that is oil that was exported across borders from one country to another) rose from 32.34 million b/d to 42.67 million b/d. In other words, the U.S. share of the increase in global oil trade over the period was a substantial 33 percent. In OPEC terms, the U.S. import market was even more significant—representing more than 50 percent of OPEC's output gains between 1991 and 2000.

Strong U.S. import demand not only enhances OPEC's monopoly power, it also has had a deleterious long-term impact on the U.S. economy. The U.S. oil import bill totaled \$327 billion in 2007 and is expected to top \$400 billion this year.⁴⁶ This represents an increase of 300 percent from 2002. The U.S. oil import bill accounted for as much as 40 percent of the overall U.S. trade deficit in 2006, compared to only 25 percent in 2002. This rising financial burden is stoking inflation and creating ongoing challenges for the U.S. economy.

Given the large scale of U.S. purchases, incremental U.S. acquisitions of oil affect the overall international market price of oil. Stated another way, the cost of each marginal barrel is higher than the price paid for that barrel since this additional purchase affects the costs of all oil consumed. From the perspective of the United States, this constitutes an externality.⁴⁷

⁴⁶ "U.S. Import Bill Set to Top \$400 Billion," *Petroleum Intelligence Weekly*, March 10, 2008.

⁴⁷ See study by D.R. Bohi and M.A. Toman., *The Economics of Energy Security* (Boston: Kluwer Academic Publishers, 1996), 14-15 and 44-45.

On the other hand, the fact that the United States faces a rising supply curve for oil gives it “monopsony” power. To the extent that the U.S.—or a group of consuming countries including the U.S. or of a comparable scale—takes concrete actions to reduce the size of its purchases, it can lower the market price of oil. This can happen by accident (such as has happened in the past through economic recessions) or by sound public policy.

ENERGY SECURITY: LESSONS LEARNED

The possibility of a sharp departure from the historical trend of oil prices is not solely hypothetical. In the 1970s and early 1980s, there was a significant change in price trends. In retrospect, the sharp price increases were a relatively short-term, temporary phenomenon. But, at the time, the price shocks were viewed as but the first round in a new trend of increasing scarcity, high prices and “limits to growth.” It is instructive to look at how those oil shocks were handled by the industrialized oil importers as well as some oil exporters.

While the costs of the oil shocks of the 1970s have been widely debated and varied country to country, there is no doubt that the impact of the oil shocks was severe, causing years of economic dislocation and stagnation. In the early 1980s, the costs of the oil shocks were estimated at \$1.2 trillion in lost economic growth for the seven largest industrial countries in the world.⁴⁸ In the aftermath of the oil shocks, the growth rate for the industrial world came to a halt, after witnessing a strong period of five percent per annum expansion in the 1960s.

⁴⁸ OECD Economic Outlook, July 1981; Robert Stobaugh and Daniel Yergin, *Energy Future: Report of the Energy Project at Harvard Business School* (New York: Ballantine, 1980).

In response to the 1970s oil price shocks, the industrialized oil importing countries undertook various domestic, bilateral as well as multilateral solutions. Some efforts worked; others were unsuccessful but notably, none involved the militarization of energy supplies.

Germany, for example, struck a natural gas pipeline deal with the Soviet Union despite the tensions this decision would create in U.S.-German relations. France and Japan pursued an ambitious nuclear power expansion program and imposed substantial taxes on gasoline consumption. France also joined Germany in purchasing natural gas from the Soviet Union.

The United States, under President Richard Nixon, began a program entitled “Project Independence,” which was designed to end the need for U.S. energy imports by 1980. Utilities which had previously been moving away from coal for environmental reasons were asked to resume coal burning. An Energy Research and Development Administration was created. In 1975, President Gerald Ford, picking up where Nixon left off, proposed a 10-year plan to build 200 nuclear power stations, add 150 coal-fired power stations and 20 major synthetic oil plants. In the end, not much of either plan materialized. Rather, the most substantial contributions were decisions by the U.S. Congress to endorse construction of an oil pipeline from Alaska and fuel efficiency standards for U.S. automobiles. Some research work had started on alternative fuels and technologies but most of this stopped when federal funding ceased.

By 1981, abandoning the hope of energy independence, President Ronald Reagan deregulated American oil prices and shifted emphasis to developing a military deterrent capability in the Arab Gulf. U.S. bilateral arms shipments and bilateral military support to

the region increased steadily. While Washington did not intervene militarily during the Iraq-Iran war, a U.S. Navy reflagging program protected shipping and oil exports from the Gulf during that conflict.⁴⁹

In the 1970s, France tried aggressive diplomatic efforts to garner bilateral benefits from Middle East producers. These included selling sensitive weapons systems to Iraq, including nuclear equipment. France tried the forceful promotion of a European-Arab dialogue, took a pro-Arab stance in deliberations on the Arab-Israeli conflict throughout the 1980s and even blocked a favorable European Economic Community (EEC) response to the Egypt-Israel Camp David Accords. Paris also provided temporary residence for Ayatollah Ruhollah Khomeini during his exile from Iran under generous terms.

Yet for all this diplomacy, France found itself no better off in terms of oil price, supply or standing in the Middle East than its industrial allies that had taken a pro-Israeli stance. Ayatollah Khomeini cancelled major French industrial contracts with Iran upon his ascension to power. In 1980, France, along with other customers, found itself on the receiving end of a major price increase for Algerian LNG. When France tried to resist this doubling of prices, it saw its supplies cut off. The European nation was also hit by oil supply disruptions from the Iraq-Iran war.⁵⁰

Another lesson was learned in 1979 when spot bidding on the Rotterdam cargo market to offset Iranian production losses, caused by domestic unrest and revolution,

⁴⁹ Nadia El-Sayyed El-Shazly, *The Gulf Tanker War: Iran and Iraq's Maritime Swordplay* (London: Macmillan Press, 1997); and Rosemarie Said Zahlan, "The Impact of US Policy on the Stability of the Gulf States: A Historian's View" in *Iran, Iraq and the Gulf Arab States*, ed. Joseph Kechichian (New York: Palgrave, 2001). For more on the U.S. role in the Gulf war: John Partin, History and Research Office, USSOCCOM, Special Operation Forces in Operation Earnest Will, Prime Chance I, April 1998, p. 5-7; Also, Hassan Hamdan Al-Alkim, "The Arabian Gulf at the New Millennium: Security Challenges" in *Iran, Iraq and the Gulf Arab States*, ed. Joseph Kechichian (New York: Palgrave, 2001).

⁵⁰ For a more detailed discussion of the EEC experience with energy issues and the Middle East, see Robert Lieber, "Cohesion and Disruption in the Western Alliance" in *Global Insecurity*, eds. Daniel Yergin and Martin Hillenbrand (Boston: Houghton Mifflin Co, 1982).

touched off a chain reaction. OPEC diverted contract oil, then priced at just over \$12, to the skyrocketing spot market, breaking existing contracts and sending large buyers into the spot market to outbid other oil consumers, further bidding up prices. While the actual shortfall in OPEC supply compared to demand was only four percent, prices rose precipitously to well over \$30 a barrel, mainly on added demand from countries or large entities buying panic oil for storage. Additions to world oil storage amounted to 1.2 million b/d over the course of 1979, at a time when one would have imagined oil inventories would have fallen.⁵¹

The experience was a lesson for the industrialized countries. While OPEC had actually increased production to take advantage of rising oil prices, thereby replacing most of the initial loss of Iranian supplies, hoarding or other panic buying activity brought even greater instability than the underlying event itself. Furthermore, the United States and its allies learned in the 1970s that bilateral sales agreements were less effective than multinational efforts of consumers because oil suppliers are likely to sell their oil to the highest bidder during a period of market crisis or a supply emergency. This was the case even where such bilateral relations extended to extensive arms shipments and other forms of military cooperation.

The lessons of the limits to national energy policy, bilateral diplomacy and bilateral military assistance created a more cooperative framework on international energy matters among the OECD countries. The United States took the lead, together with its allies in the OECD, to create an international emergency preparedness system for the oil market under the coordination of a new multinational institution, the IEA.

⁵¹ International Energy Agency, *Energy Policies and Programmes of the IEA countries: 1979 Review* (Paris, International Energy Agency, 1979).

The IEA opened its doors in 1977. The 26-member organization has as its current objectives: to maintain and improve systems for coping with oil supply disruptions; to promote rational energy policies in a global context through co-operative relations with non-member countries, industry and international organizations; to operate a permanent information system on the international oil market; to improve the world's energy supply and demand structure by developing alternative energy sources and increasing the efficiency of energy use; and to assist in the integration of environmental and energy policies.⁵²

OECD experience has shown that multinational initiatives that bring consumer nations together have produced the best results, especially where stockpiling and crisis management are concerned. Joint consultation and joint decision-making have helped calm market players, stifling panic buying and hoarding that can drive prices even higher during a crisis. The advent of futures and forward markets also assisted in reducing volatility in the 1980s and into the 1990s as more players were able to “hedge” away price risk and thereby did not need to respond by entering markets at times of shortfall.⁵³ The impact of the IEA emergency stocks program can be seen in the early days of the U.S. military campaign to remove Iraq from Kuwait in 1991. Although a major stock release was not activated immediately after Iraq's invasion in 1990, political coordination among IEA member countries, public announcements about the readiness of the IEA system and a “test” sale of the U.S. Strategic Petroleum Reserve all helped stabilize oil

⁵² International Energy Agency homepage, <http://www.iea.org>

⁵³ Barbara Ostdiek and Jeff Fleming, “The Impact of Energy Derivatives on the Crude Oil Market”, (Part of a study sponsored by the Center for Political Economy and the James A. Baker III Institute for Public Policy, 1998). Accessible at <http://bakerinstitute.org/Pubs/studies/caspian/iedcom/iedcom.html#Author%20Note>

^{vii} International Energy Agency, *World Energy Outlook 2006* (Paris, IEA, 2006) p 97.

markets in the early campaign of the U.S. military to oust Iraqi forces from Kuwait. While hard to quantify, the existence of the emergency system made an important contribution to the functioning of markets during that extended crisis. In fact, oil prices actually fell several dollars a barrel in the first few hours of U.S.-Iraqi battle in Kuwait as oil traders realized that shortages were unlikely to emerge.

The mere existence of the IEA stockpiling system has also served as a restraining force in the deliberations of OPEC. During recent times of periodic market disruption, OPEC has on several occasions opted to make its own incremental supplies available. This policy reflects not only goodwill but also self-interest since any OPEC failure to put extra oil on the market following a sudden, unexpected supply shortfall might invite a release in IEA stocks, leaving consumer governments to profit from any extra oil sales rather than OPEC.

The crisis of the 1970s was an unexpected one, initially driven by the Arab boycott at a time when the United States was preoccupied with Vietnam and when oil was still traded on an inflexible, bilateral contractual basis. Yet, despite the more rigid structure of the market at the time and the backdrop of instability in the world system due to the Cold War and active wars in the Arab-Israeli conflict, consuming countries muddled through, slowly making adjustments to the new oil price reality. These adjustments included increased energy efficiency (in some cases induced by high energy taxes), increased output in non-OPEC areas, and consuming country collaboration to deal with unexpected price spikes in the future. The experience of the 1970s, while painful and experimental, suggests that countries will not necessarily resort to more aggressive military responses in a world where oil and gas markets are much more developed and

competitive and where consuming countries already anticipate a higher trend line for oil prices.

On the other hand, the 1970s were the time of a bipolar world when many countries were constrained in their behavior by one of the superpowers. Fear of Soviet expansion in the Middle East and the threat of Communism created an incentive for Middle East oil producers in the Gulf to seek U.S. security guarantees.⁵⁴ Today, the world is more fragmented and the superpowers hold less sway over other countries. The plurality of aims and interests of individual oil producing countries are not subjected as second order concerns to the threat of the Soviet Union. Instead, the United States faces a set of states with multiple, conflicting interests that are complicated to manage. In fact, in some cases of regionalized matters, weaker states might even join together to counterbalance U.S. policies. In the emerging unipolar world, the United States is perceived by some weaker states as a threat, rather than as a protector of the international order. There is a risk that this new reality might limit the applicability of the 1970s experience to the future in the face of an oil crisis.

POLICY IMPLICATIONS

It can be argued that under the current global economic order it is unlikely that countries would resort to serious military confrontations in order to secure energy supplies if faced with a situation where oil and gas prices were rising at historically high rates. As compared with the last episode of rapidly rising prices in the 1970s and early 1980s, there are now relatively few legal barriers to the movement of energy resources and fewer regulations that prevent prices and economic actors from adjusting to changes

⁵⁴ Rachel Bronson, *Thicker Than Oil: America's Uneasy Partnership with Saudi Arabia* (London: Oxford University Press, 2006).

in relative energy prices. Flexible, well-functioning markets will encourage both economy and innovation in the supply and demand for energy. Even if some players lose faith in the global system and attempt to pre-empt supplies through aggressive investment strategies in oil producing countries, those actions will have little effect on the overall global allocation of energy resources. In the end, no exporting country will voluntarily sell its resources without compensation, monetary or in other terms, that approximates international levels. Attempts to use military instruments to lock up supplies will not work—so long as the United States maintains overwhelming superiority in military and, in particular, naval power.

The threat of military conflict over tightening oil supplies seems less likely if global market systems are able to function smoothly. If, over time, demand growth outpaces supply, prices will rise to ration out the available supplies. As long as this is a smooth process of functioning markets, consumers will adapt by developing ways to conserve energy, and the energy industry will develop technologies to extract oil and gas from more costly frontiers as well as pursue alternative energy sources to conventional oil and gas. And governments might open for exploration areas that are now closed in response to environmental concerns. The reasons these steps are not being adopted in a widespread manner today is the high level of uncertainty about future price directions. But if governments, energy firms and investors were certain that oil prices would remain high for structural or geopolitical reasons (say, for example, if it was known that world conventional oil production had peaked; or that the Saudi Arabian government adopted a new policy to maintain high oil prices), the uncertainty that currently blocks massive investment in unconventional resources and alternative energy would be removed and

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markets and governments would respond dramatically and definitively to the new reality. Economic adjustments, while taking time, would no doubt come into play, obviating the need to react to scarcity of oil by military means.

Over time, nations would be able to mitigate any negative consequences to terms of trade in energy by diversifying fuels. In fact, many other energy resources—unconventional oil and gas, coal, biomass, and uranium—are distributed in a very different geographic pattern than conventional oil and gas. For example, the United States, China and India have substantial coal reserves. These reserves can be converted into liquid fuels or gasified for cleaner conversion to electricity at a cost below today's oil prices. Oil and gas exploration and extraction technologies have added to reserves by opening up deep-water deposits off the coasts of many countries, including, for example, the United States, Canada, and Brazil. Japan and the United States are making headway in understanding how to produce methane hydrates, which are more abundant than traditional natural gas resources. Technologies involving alternative energy sources such as wind and solar have been improved significantly since the 1970s and 80s in terms of costs and improved efficiency.

While the transport industry is still primarily reliant on oil, new technologies for hybrid vehicles or dual-fuel systems hold the promise for several possible substitutes, including biofuels, liquefied fuel from coal or natural gas, or electricity where the electricity is produced with coal, nuclear or renewable energy sources. The costs of liquefying coal, solar and wind energy and other alternative sources are such that they could, in fact, set a ceiling on oil prices. Investments in these alternatives have been modest to date because of the uncertainty about oil prices. Energy firms are reluctant to

commit huge sums (and many of these technologies are very capital intensive) to build alternative energy facilities that can compete with \$60 oil but not \$25 oil. (Indeed, one policy framework that would solve this chicken-egg problem for alternative energy would be for the U.S. government to use an adjustable oil tax to keep oil prices above some threshold level to eliminate the downside price risk facing these alternatives).

In the earlier part of this paper, we examined the role of Russia in the emerging energy reality where remaining oil and gas reserves are increasingly concentrated in relatively few geographical places, in particular Russia and the Middle East. Russia is in a strong position to use energy supply as a political lever in dealing with Europe. Russia need not use military means to exercise its influence over Europe. The potential for supply disruptions will of necessity lead European governments to be much more sensitive to Russian interests. In the Gulf, the threat of civil unrest and terrorism will have to be considered by those governments when making energy and foreign policy decisions. To lessen the chances that producers such as Russia or Iran could threaten an oil or natural gas supply cutoff as a lever to political ends, there are several policies that could be pursued to reduce vulnerability to a short-term supply cutoff and to increase the elasticity of demand.

In the European sphere, we suggest that Europe can take steps to reduce or at least delay growing Russian influence by diversifying sources of gas supplies and building additional storage capacity. While diversification implies that resource flows might deviate from the most efficient pattern, the additional cost involved in a more diversified energy supply system is offset to some extent by the increased security of energy supply and increased autonomy in formulating both domestic and foreign policy. Increased

storage capacity will serve both as a deterrent and provide gas in the event of a supply disruption. To strengthen common interests and present a stronger deterrent, the United States and Europe could form a LNG/gas strategic storage system for the Atlantic Basin coordinated through the IEA.

The United States can also play a greater leadership role in promoting diversity of supply and alternative energy among large energy consuming countries. The United States has not made cooperation with other consuming countries a high enough priority in its international diplomacy. Energy technology research and development and other forms of cooperation with fellow consuming nations will be an important part of increasing U.S. elasticity of demand.

The U.S.-China bilateral agenda is a crowded one, but certainly the Middle East and energy policy needs to be moved further up on the list of topics for high-level meetings. So far, U.S.-China energy cooperation is handled at a technical level. Political escalation of dialogue would have definite benefits. The United States should pursue a coordinated energy policy with the European Union, China, India and Japan, among other large consumers. One idea is to start with a U.S.-China dialogue led by the U.S. vice president, much the way Al Gore and Russian deputy prime minister of fuel and energy Viktor Chernomyrdin discussed U.S.-Russian energy cooperation in 2002, paving the way for U.S.-Russian joint investment in major energy projects. Another possibility is to appoint a senior U.S. diplomat with energy experience to serve in a new post as an energy diplomacy liaison to Beijing to jumpstart more pro-active and ongoing policy coordination and new energy initiatives between the two countries.

The U.S. Department of Energy should also work to expand its excellent programs on joint research on clean coal and energy efficiency technologies, and U.S. universities should look for similar opportunities for collaborations. The U.S. Department of Commerce should also consider organizing a major bilateral strategy conclave between U.S. and Chinese car makers to bring attention to the need in both countries for more efficient vehicle design.

Another solution is a healthy domestic American energy initiative in game-changing technologies, with an eye to sharing those developments with other consuming nations. The advent of nuclear power in the 1970s was an effective policy tool. So was the creation of strategic stockpiles of oil. In today's scene, an effective and broad-based American effort to reduce oil use by adopting more efficient transportation technologies or shifting to non-oil fuels would be extremely effective in limiting the monopoly power of any imaginable oil supplier or group of suppliers. A greater political effort domestically to create a more comprehensive domestic energy policy would have two key effects: the United States would benefit from this policy and it would enhance U.S. credibility on the world scene. Moreover, U.S. innovation in energy technology would create opportunities for economic leadership and growth as well as trade balance improvements.

Finally, it is in U.S. interests to promote best commercial practices for NOCs through existing and emerging bilateral and multilateral trade mechanisms such as the World Trade Organization (WTO), the Energy Charter, the North American Free Trade Agreement (NAFTA) and other similar international architecture. This would be an

important element in ensuring that these NOCs will be better equipped to make sufficient investment to meet global demand in the years and decades ahead.

The case of Norway's Statoil is instructive to this point. For Norway to join the European Economic Area (EEA), in which Norway would receive access to the common market, it was forced to follow common competition directives. Before EEA entered into force, Norwegian oil and gas companies constituted the lone sales organization that regulated marketing and sales of Norwegian gas into the continent. This meant that Statoil as the controlling party was able to exercise monopoly power in setting natural gas prices and customers for all long-term sales of gas from the Norwegian Continental Shelf. With entry into force of the EEA, this scenario changed as Norway had to mirror the European Commission in the "fields of competition, state aid and public procurement."

This affected Norwegian oil policy in two important respects; first, it meant that the state lost its ability to direct companies' investments and expenditures. Second, as this occurred in tandem with the first steps to liberalize European natural gas markets, it meant that Statoil had to give up its monopoly power of gas sales to the European Union. But in fact, the post-EEA fate of Statoil has not been to disband the company, because without its monopoly benefits, it can not serve its purpose to Norway. If anything, Statoil is likely to be able to continue to grow, providing higher returns and augmentation to the Norwegian government's remaining shareholding. The European Union's insistence that Norway join the club without making an exception for its national oil company ensured that Statoil promoted transparent and competitive practices, permitting the firm to make efficient investments in future production capacity.

The Norwegian example highlights an excellent opportunity that could be gained by using multinational mechanisms such as the WTO, the Energy Charter and free trade agreements to foster more transparent and competitive commercial practices inside major oil producing countries and enhancing more open access for investment in resources currently blocked by these countries' monopolistic, bureaucratic, and nationalistic internal trends.

In sum, a global approach to energy security will be most effective. But for the United States to lead such an effort, it must muster the political will to have an effective energy policy at home. A comprehensive American effort to reduce oil use by adopting more efficient transportation technologies and shifting to non-oil fuels would be extremely effective in contributing to a more positive global energy future.

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