



## RESEARCH PAPER

### *Energy Security and NATO Policy*

Prepared for NATO Allied Command Transformation

For further information on this report:  
Dr Michael Williams, Head of Programme  
Transatlantic Security Issues  
+44 20 7747 2633  
[michaelw@rusi.org](mailto:michaelw@rusi.org)

The research described in this report was sponsored by NATO Allied Command Transformation under Purchase Order 701531, 30 Oct 07.

RUSI was founded in 1831, the oldest such institute in the world, at the initiative of the Duke of Wellington. Its original mission was to study naval and military science, what Clausewitz called the 'art of war'.

It still does so: developments in military doctrine, defence management and defence procurement remain central themes in the Institute's work. But RUSI has also broadened its remit to include all issues of defence and security encompassing policy-planning related security studies and homeland security and resilience issues.

RUSI is a British institution, but operates with an international perspective. RUSI's head quarters are located in Whitehall and the Institute also has officers in Washington D.C. and Doha, Qatar.

RUSI is a non-profit Institution, independent of government and non-partisan in nature that contributes to policy and decision making through rigorous research and analysis.

© RUSI 2008

No part of this work may reproduced in any forms by any means electronic or mechanical (including photo-copying, recording, or information storage and retrieval) without permission in writing from RUSI.

Reproduction rights are granted to NATO ACT.

Published 2008 by RUSI  
Royal United Services Institute for Defence and Security Studies  
61 Whitehall  
London SW1A 2ET  
United Kingdom  
[www.rusi.org](http://www.rusi.org)

## Introduction

The Golden Age of cheap energy has passed; recent headlines proclaiming the US\$100 barrel of oil make abundantly clear. It is now commonplace to hear discussions from politicians and economists of an energy crisis of unprecedented proportions as energy prices soar and demand continues to rise. Energy is once again centre stage in national and global politics and energy security, little heard a few years ago, is now a buzzword which is hard to avoid and one which topped the agenda for the G8 nations in 2006.

Despite the upsurge in discussion of energy security, the debate has progressed little. Definitions of energy security remain stale, failing to advance in the face of new threats and changing global circumstances. As a result, policy suggestions to increase energy security have centered on initiatives suited to an earlier era. Little wonder that a feeling of vulnerability has begun to pervade discussions of energy in the West. Energy security must be redefined. In so doing, the importance of NATO in energy security becomes clear and thereby opens a way to expand the range of options with which Transatlantic energy security can be improved.

### Current state of the global energy market

Extreme turbulence has marked the global energy market in recent years. Since 2005, energy prices on the world market have been rising sharply. Providing further evidence that a global energy crisis is in full swing, the price of oil hit a new record high of US\$100 per barrel in 2007. The dramatic nature of this increase is evident when one considers the price of crude oil was just US\$50 a barrel a few years ago, a price that was widely considered to be a temporary spike. The dramatic increase in energy prices was triggered by speculations on the world market which drew on a combination of economic and geopolitical events/processes.

The last decade has witnessed a substantial increase in the world's demand for oil, rising by 7 million barrels per day since 2000 which translated into a 'demand shock'; growth in petroleum consumption was more than double the annual average growth rates of the preceding decade.

The chief motor of this upsurge has been the best global economic performance in a decade and more specifically the dramatic economic development and industrialization in China and to a lesser extent India.

Self-sufficient in oil until 1993, China's GDP has tripled since then. As a result its demand for oil has more than doubled resulting in the import of three million barrels of oil per day (almost half of its total consumption). China is now the world's second-largest oil consumer. Though its share of the world oil market is just eight percent, its share of total growth in demand since 2000 has been 30 percent. Of the 7 million barrel per day increase since 2007, 2 million barrels each day have gone to China. Today, China accounts for 12% of the world's energy consumption, up from 9% only a decade ago. That is second only to the United States at 24%.

India's energy consumption is far less than China's, but the world's second most populous country is fast catching up now that it has embarked on a 'growth turnpike' and rapid development. Its oil consumption has grown by over 6% annually during the past decade, twice the world average growth. This has meant a drastic increase in oil imports, which represented 68% of total consumption. India is also the third largest gas consumer in Asia and began importing the resource in 2004. Continued growth will see India rise from its current position as the world's sixth largest energy consumer to the fourth-largest by 2010.

But demand was not the only reason for the current energy crisis. A rising clamour for energy was coupled with a 'supply shock'. The main supply constrictor has been output disruptions at the source of energy resources such as

in Venezuela, Nigeria, Iraq and the Gulf of Mexico. Unexpected natural disasters, geopolitical tensions and environmental imperatives have all added to the pressures on the global supply system resulting in spiking prices.

Supplies have also been strained by a lack of investment which has left the oil industry's infrastructure stretched thin. This has been particularly evident with the current shortage of tankers. With global oil demand surging and prices hitting record levels, the world's 1,500 oil tankers are all booked up. The shortage of tankers is a sign of how rising demand has not been matched with increases in infrastructure capacity. Russia and Iran for example, the two largest producers of natural gas have experienced difficulties in increasing production because of ageing infrastructure. Refining capacity is a major constraint on supply, because there is a significant mismatch between the product requirements of the world's consumers and refineries' capabilities. Although often presented solely as a U.S. problem, inadequate refining capacity is in fact a global phenomenon. The biggest growth in demand worldwide has been for what are known as 'middle distillates' such as diesel, jet fuel, and heating oil. Diesel is a favorite fuel of European motorists, and is increasingly used to power economic growth in Asia. But the global refining system does not have enough deep conversion capacity to create middle distillates.

In the near future supply is set to increase. Cambridge Energy Research Associates field-by-field analysis of projects and development plans indicates that net productive capacity could increase by as much as 20 to 25 percent over the next decade. Current pessimism over higher prices masks a natural consequence of sustained spikes in price; they fuel investment in the search for new supplies and turn marginal opportunities into commercially viable prospects. Moreover high prices moderate demand and stimulate the development of alternative fuels.

An increase in capacity which should alleviate the excesses of the current energy crisis is already underway. Exploitation of nontraditional supplies, ranging

from Canadian oil sands to deposits in ultra-deep water are now viable prospects. Conventional supplies will grow as well: Saudi Arabia is on track to increase its capacity by about 15 percent, to over 12 million barrels per day, by 2009.

Soaring demand will undercut any progress in supply however. In the 1970s, North America consumed twice as much oil as Asia. Recently, and for the first time ever, Asia's oil consumption exceeded North America's. Demand in China and India especially is set to accelerate exponentially in the years ahead. According to the Cambridge Energy Research Associates (CERA) it is estimated that half of the total growth in oil consumption in the next 15 years will come from Asia. One statistic demonstrates how: in the United States 868 out of 1000 people own their own car. In the EU the statistic is 680 people out of 1000. But in China and India it is still only 13 and 7 respectively. The impact on global energy security if both countries were to come close to that of the EU or the US over the next 20 years would be significant indeed. Sustained high demand from fast-developing countries will therefore increase significantly. Meanwhile countries in the developed global north are likely to seek ways to maintain their high levels of consumption to maintain living standards and economic wealth. Over the next thirty years world energy demand growth is likely to rise between 1.5 and 3.1% annually.

The 'elephant in the room' is the depletion of energy resources. A peak in oil output followed by a rapid decline in production is a commonly accepted model in the oil industry. Fears that the world is running out of oil have occurred before of course, but since the last time the world was supposedly running out of oil, in the 1970s, global output has actually increased by 60 percent. It would be foolish to think that the world can repeat this trick. By the most optimistic estimates, peak oil production will be reached in under thirty years time; the most pessimistic argue that it has already occurred. Not surprisingly the current tightness in the market has re-ignited the debate over alternative energy supplies such as bio-fuels or solar power not to mention a renewed interest in nuclear

power. Bio-fuels, however, currently make up only 1% of transport fuels and experts do not believe that this figure will increase beyond 5% in the next 20 years. Fossil fuels account for 90% of the energy demand world wide and it will take a revolution in energy production, source or efficiency and consumption to solve the problem. It is little surprise then that energy is increasingly on the agenda with President George W. Bush recently signing a wide-ranging energy bill, designed to increase fuel efficiency and reduce US dependence on foreign oil, into law.

What is energy security?

Energy security is often defined from a single perspective, that of a developed, industrialised and wealthy state. For most EU and NATO countries, security means access to and abundant supplies of cheap energy; it is this which has become the essential bedrock of a functioning modern society and economy. This has two elements. The first is energy availability which involves the confirmed location and accessibility of energy reserves especially fossil fuels such as petroleum, natural gas, and coal required by an early twenty-first century nation to satisfy its economic demands. Affordability is the second element in energy security. Fuel must be available at an acceptable and stable cost. Energy security is therefore most often defined in economic terms; the assurance of adequate, reliable supplies of energy at reasonable prices. The corollary of this conceptualisation is that energy security is defined as a problem faced by energy consuming states and threatened by energy producers.

It should be obvious however that not all states are developed, industrialised and wealthy. More importantly, not all states are net energy importers. Different countries interpret the concept in different ways. Energy exporters perceive energy security quite differently from importers, concentrating on maintaining the 'security of demand' (in both quantity and the ability to pay) for their exports, which after all generate the overwhelming share of their government revenues. In spite of this broadening of energy security, what most definitions

have in common is the conceptualisation of energy security as soft security; the security of markets, prices and economic diplomacy.

Likewise the current energy security system is based solely on soft security. The basis of the system is the International Energy Agency which was created in response to the 1973 Arab oil embargo. It was designed to ensure coordination among the industrialized countries in the face of the new market power of OPEC. Its key elements include strategic stockpiles including the U.S. Strategic Petroleum Reserve, continued monitoring and analysis of energy markets and policies, and centers on producers and consumers informally coordinating oil supply and price management; in short the current system is more suited to the challenges of the 1970s than contemporary energy security,

### Global energy trends

Recent global energy trends suggest that this narrow definition of energy security is incompatible with the realities of the future. Vulnerabilities in energy security run much deeper than high prices. Four developments in particular stand out: the use of energy as a tool in geopolitics,

### Terrorism and Political Violence

The importance of energy as the motor of economic growth and day to day workings of society makes it a key target of political violence. There have also been several unsuccessful attempts by militant groups on the Arab Peninsula to interrupt the production of energy resources and a series of deadly bombings in Afghanistan left investors worrying about supply security in the wider Middle East.

The scale of the problem is indicated by an attack on 24 February 2006. Militants driving two vehicles packed with explosives attempted to enter the Abqaiq oil processing facility, Saudi Arabia's largest, which removes hydrogen sulfide from crude oil and reduces the vapor pressure from the liquid, making it safe for

transportation in tankers. The vehicles exploded, killing two militants and two guards but leaving the facility's operations unimpaired. Had the attack succeeded Saudi Arabia's export of and the world's supply of crude oil would have been seriously interrupted.

Terrorism is not confined to the Middle East, it is an omnipresent threat. Energy security is therefore not simply a matter of the vulnerability of producer countries; it also incorporates the vulnerability of transportation routes. *Al Qaeda* has issued explicit threats to carry out "economic *jihad*" against the 'hinges' of the world economy; pipelines, tankers and other pressure points of the energy industry. Attacks have already been carried out against a French tanker in the Persian Gulf and an oil pipeline in Yemen.

Natural gas is particularly susceptible. Globalisation of energy consumption and therefore transportation has led to the large scale, long-distance transport of gas by huge continent spanning pipelines. Terrorist incidents on gas installations are likely to cause great disruption because of the physical damage and the time needed to recommission gas networks.

Oil transportation is equally vulnerable thanks to its global spread and reliance on poorly protected, relatively slow tankers which present a soft target to terrorists. In October 2002 the capture of Abd al Rahman al Nashiri who organised the terrorist attack on the French supertanker *Limburg* led to the discovery of various plans to strike oil transportation. These included ramming, blowing up medium-sized ships near other vessels or at ports, attacking large vessels such as supertankers from the air by using explosive-laden small aircraft, and attacking vessels with underwater demolition teams using limpet mines or with suicide bombers.

The distribution of global oil supplies means that security is dependent on a number of 'choke points' in transport routes. They are scattered from the Panama Canal to the Bab el Mandeb Strait at the entrance to the Red Sea to

the island-scattered seas of South East Asia. Forty percent of global oil supplies now transit through the Strait of Hormuz in the Persian Gulf and experts calculate that this will increase to 60 percent in 20 years' time. It would be no surprise if al-Qaeda were to be planning to blow up a super tanker in the here or in another choke point such as the Straits of Malacca. A successful attack could cause economic panic, regional tension, an environmental catastrophe, and an increase in the price of fuel impossible to calculate.

Such terrorist activity against critical energy infrastructure is therefore a viable and severe danger to the world's energy security. No oil installation is attack-proof. Anne Korin estimates that the oil market loses over one million barrels per day due to politically motivated sabotage which exacts a high terrorist premium for each barrel we consume. But terrorist attacks do not have to be successful to have an impact. The repercussions of an attack not only lie in material damage, but also the atmosphere created. The sensationalist value of terrorist attacks magnifies their effect, damaging confidence, destabilising markets and raising the price of oil or gas. A comparably cheap militant operation can therefore create billions of dollars in economic damage.

The rising threat of terrorism therefore bodes ill for energy security as does the increase in globalised networks of energy supply and transportation. Today, the concept of energy security needs to be expanded to include the protection of the entire energy supply chain and infrastructure--an awesome task. None of the world's complex, integrated supply chains were built with security, defined in this broad way, in mind. The threat of terrorist attack has therefore stimulated a debate within the oil companies on the degree to which they can provide their own security or if it is necessary to turn instead to governments and international organisations assist them.

Energy as a political tool

Energy supplies are distributed unevenly in the international system.

Consequently since Churchill switched the fuel of the Royal Navy from Welsh coal to Middle Eastern oil, there has always been, to a greater or lesser degree, an important foreign policy dimension to energy security. There has always been the danger that energy would be used as a tool of foreign policy and a means to gain political leverage. On October 16 1973, the Organization of Arab Petroleum Exporting Countries (OAPEC) cut production of oil and placed an embargo on shipments of crude to the West, using oil for the first time as a coercive political instrument with a strategic aim.

For many years this has not been a major concern in the energy industry. Increasingly however, the use of energy as a tool of foreign policy and means to gain political leverage has concerned the United States and its European allies and with good reason. The quantity of energy traded globally, and therefore crossing political and cultural borders, continues to grow in both volume and diversity as long-distance transportation networks proliferate. Most European countries, for example, are already heavily reliant upon imported energy. At present, EU countries as a whole import fifty percent of their energy needs, a figure expected to rise to seventy percent by 2030. Crude oil has long been traded internationally, but gas is now an important component of the global energy industry and the volume of internationally-traded coal continues to grow as well.

This rise in the quantity of energy imports is coupled with a growth in exporters re-nationalising their energy industries and placing their energy assets at the heart of their foreign policy. Russia for example has re-nationalised one third of its production since 2000, a significant figure considering Russia's oil output has accounted for forty percent of the increase in global supplies in recent years. Eighty percent of global oil assets are now state owned and only four percent of identified oil reserves are controlled by the leading multinational oil companies such as Exxon, Shell or BP.

The risk of political manipulation of energy to further geopolitical strategy has

therefore become a greater risk. Venezuela's 'cold feud' with the United States is indicative. President Chavez's closure of the 'apertura petrolera' policy which opened its upstream oil sector to private investment was not simply a domestic initiative, but rather part of a wider strategy to oppose what he sees as U.S. imperialism in South America. Chávez stated that Venezuela has "a strong oil card to play on the geopolitical stage...a card that we are going to play with toughness against the toughest country in the world, the United States." Preference to other South American states as oil customers is one way for Venezuela to create 'solidarity' within the continent and further Chavez's Bolivarian-socialist ideology regionally.

Russia is at the centre of European and American concerns. Estimated to have 1,690 trillion cubic feet of natural gas, Russia is the world's largest source of this important fuel. Currently, it is the most significant supplier of natural gas on the regional European gas market; Germany imports 32% of its energy from the country while Poland imports two-thirds of its natural gas needs and 97% of its oil from its largest neighbour. In total, EU countries import 25% of their energy needs from Russia and it is estimated that by 2030 40% of their gas needs will come from this source as well. Gas can only be transported in large quantities via pipelines which run through the former Soviet republics of Eastern Europe, many of which are owned by Russia and its energy companies. Almost all of those countries the pipes run through are consuming a considerable amount of gas from them. Russia is therefore Europe's energy superpower, vital to the continent's energy needs and future.

Vulnerable to political pressure by the Kremlin and Russia's state-owned gas giant, Gazprom, it is not surprising that NATO and EU countries are disturbed by certain trends in Russia's energy export policies in this direction. A dispute between Russia and Ukraine in late 2005 ostensibly over the price of natural gas is widely believed to have been an act of political retaliation for moving out of Russia's sphere of influence and pro-Western policies following the Orange Revolution. Supplies to the country were cut on New Year's Eve 2006, driving up

gas prices in Europe and leading to supply decreases of up to 27 percent of the EU's total consumption. Though some have argued against the definition of political motivation it is difficult to regard market considerations as the basis for Gazprom's action since its behavior is economically inconsistent. Other countries such as Belarus receive preferential deals and it is alleged that Moldova's main power station is not charged at all. Gazprom's behaviour correlates more with the political relationship of Russia with the purchaser; the price of stable, cheap supplies appears to be subordination to Russia. To confirm western doubts, in October 2007 Russia threatened to cut gas supplies to Ukraine once more. Gazprom, the state-controlled monopoly, said it would reduce supplies to Ukraine unless it settled a bill of more than £6.6bn. The timing of the announcement, following the narrow victory of pro-western parties in Ukraine's general election, was highly suspicious.

The scenario of another crisis between the Russian energy giants and the politically weak non-EU countries in Eastern Europe cannot be dismissed. This is likely to threaten the stability of these countries and the energy security of the wider EU by leading to price spikes on the European energy market. Some politicians and interest groups have repeatedly warned that Russia could use its resource power to push its political agenda in Europe. If military might and nuclear weapons formed the core of Soviet cold war power, Russian elites view its energy resources as the basis of its power now. In 2003, Putin himself said that Gazprom is a "powerful political and economic lever of influence over the rest of the world". Moreover, the military and energy sectors in Russia are deeply linked and not just in the petrodollar financing of Russian military modernisation. Much of the Russian energy sector is dominated by the so-called *siloviki*, former intelligence officers with a similar background to that of President Putin.

The most alarmist experts have voiced concern that Russia could directly use the 'energy weapon' against Europe. The use of energy in this way is not a theoretical threat of the future, it is happening now. Iran has repeatedly threatened to cut off oil exports to selected nations and unleash an oil crisis if

economic sanctions are imposed against it for its nuclear enrichment program. Conventional warfare may no longer be the weapon of choice for energy rich states. It may seem to be a less lethal weapon than military force, but a natural gas shutdown to a European country could cause enormous economic loss and disruption to society. In the middle of winter such actions could even cause death on the scale of a military attack. Moreover, in such circumstances, nations would become desperate, increasing the chances of armed conflict.

However, the scenario of energy weapons should not be exaggerated. Russia's economy is heavily dependent on the European market to sell its natural gas. Substituting the European market is rather difficult for Russia, as the existing pipeline infrastructure is oriented toward Europe and no connection exists between the resource-rich northwest of the country and the emerging markets in the Far East as yet. In order to reach the wider world market with its natural gas, Russia must either build pipelines into the Far East or develop a considerable capacity to liquefy natural gas, neither of which is likely to happen in the coming years.

#### Energy Wars and return of the 'Great Game'

Relentless global population growth coupled with rising development and living standards of the developing world has intensified competition for energy resources. Estimates posit demand for energy will grow by more than half again by 2035, with fossil fuels having to meet more than 80% of this increase. However, the prospect, real or apparent, of peak oil production followed by supplies running dry within a twenty to thirty year timeframe exacerbates an already tense future. Consequently, the availability and flow of energy will be a critical issue that could engender increasingly fractious international relations.

According to John Gray, we are witnessing the return of the nineteenth century Great Game, as the major powers are drawn into regions competing for the Earth's depleting energy resources. Energy is already a cause of diplomatic

friction over territory and sovereignty. China currently has a dispute with Japan over natural gas deposits in the East China seabed and with the claimants such as Vietnam to South China Sea territories. Beijing and Tokyo recently concluded their fourth round of talks about the East China Sea dispute, still without reaching a settlement. Both sides remain intransigent, insisting on a broad interpretation of sovereignty in the area. Similar conflicts remain unresolved in regions such as Africa and South America.

As the scramble for resources becomes desperate the potential for dispute over territory and exploration rights is likely to strengthen. Nowhere is this more evident than the new energy frontier of the Arctic. The US Geological Survey estimates that around 25% of the remaining global oil and gas reserves (some 10 billion tons of deposits) are likely to be located there. As the temperature in the northern polar region increases and these energy resources become more accessible, the geopolitical temperature will also rise. The situation intensified dramatically and much earlier than expected in 2007. Russia staked its claim in August of that year, planting a small flag on the seafloor of the North Pole and subsequently declaring its intention to annex a 460,000-square mile portion of ice-covered Arctic in which the majority of energy resources are located. The claim has little legitimate basis, but other countries with interests in the arctic are taking the threat seriously. The development has galvanized other Arctic nations into action. With Denmark, the United States and Norway filing similar claims in the region the prospect for bitter territorial disputes has been raised. Canada subsequently announced plans to modernize its naval fleet in order to protect its interests in the region. Extracting resources from this region will therefore be not only difficult physically and economically, but also politically.

The twenty-first century jostle for resources is different from its nineteenth century predecessor in one important respect. It is now truly global, drawing European, American and Asian countries into the competition. Central Asia for example is witnessing renewed focus from the great powers. On the shores and bed of the Caspian Sea lies one of the world's biggest untapped fossil fuel resources.

Estimates range from 110 to 243bn barrels of crude, worth up to \$4 trillion. According to the US department of energy, Azerbaijan and Kazakhstan alone could sit on more than 130bn barrels, more than three times the US's reserves. Unsurprisingly, the Bush administration has identified Central Asia as a promising alternative to the volatile Middle East as a source for oil and natural gas. As American officials pursue a policy of encouraging energy exports that bypass Russia, they are also trying to pry open Central Asia to Western oil investment. The Russians, who still view themselves as imperial overlords here have countered by raising its investment in Central Asian fields and pipelines to try and maintain their majority control of oil export routes from the region. Meanwhile China is steadily increasing its reach into Central Asia as demonstrated by the purchase of the PetroKazakhstan oil company and the signing of several significant pipeline agreements to challenge Russia's monopoly on gas shipments and to thwart Moscow's hopes of controlling a bigger share of the region's oil. Along with these three players are new regional powers such as Iran, Turkey and Pakistan who have entered the arena.

Friction will not only emerge from the direct competition over resources but over conflicting interests which will emerge within the context of the search for energy resources. Sub-Saharan Africa is one potential flashpoint. Chinese oil and natural-gas companies have over the past several years signed agreements with a number of African regimes ostracized by the West. Chief among these is the Sudanese government. China National Petroleum Company (CNPC), turning a blind eye to the atrocities in Darfur, dominates a consortium of Asian companies drilling Sudan's fields under license by Khartoum. Through a subsidiary, CNPC also took a lead role in building a 1,500-kilometer-long pipeline from the main oilfields to the Red Sea and built a refinery near Khartoum with a 2.5 million-ton processing capacity. U.S. officials Deputy Secretary of State Robert Zoellick and the State Department's former chief China official Randall Schriver warned in September 2005 that China and the U.S. are on a 'collision course' over the ties Beijing is forging in its search for energy security.

There is an increasing military aspect to these operations as the major powers position military forces and bases. The island nation of Sao Tome and Principe off the West African coast now hosts a U.S. naval base to protect its oil interests. Russia has expanded its military presence in Central Asia. Meanwhile China is busily establishing a "string of pearls" - forward deployments of surveillance stations, naval facilities and airstrips - to safeguard the petroleum-transport route from the Persian Gulf to the South China Sea and considering a 'blue water' navy to protect the sea routes to the Middle East. This has fostered suspicion of Indian modernisation of its facilities on the Andaman and Nicobar Islands.

The threat of increasing resource competition raising the stakes of conflict is not a distant consideration. In 2005 China deployed warships near one of the gas fields in the disputed area of the East Asia sea. The deployment of these military forces may therefore not be to secure transport routes but could in future be used to gain control over valuable supplies in a possible emergency. The preparedness to go to war over petroleum is certainly not a new phenomenon. The war in the Indonesian region of Aceh was partly driven by oil. The Indonesian government did not want to lose control of an oil-rich region. Similarly, oil was also an issue in the fight over East Timor. Tellingly, on the first day of independence the new state concluded a deal with Australia regarding its oil-rich offshore claims. It should also not be forgotten that the last big war of the twentieth century was triggered by the threat posed to western oil supplies.

Although an open conflict over such resource-rich areas remains unlikely over the next few years, it seems increasingly likely that as energy needs become more acute, energy prices continue to rise, and exploration increases the chance of territorial friction, the nexus between energy and war will become ever more intertwined. This will impinge on energy security in numerous ways, not simply in the traditional sense that energy security is national security, but also in the sense that wars in energy resource areas are likely to prevent exploration, hinder extraction or stop transportation, thereby leading to energy shortages and shortages at a time when they are desperately needed. This could

exacerbate future energy crises and drive up prices globally. It could also trigger a further militarization of energy security as supplier countries fear the safety of their energy resources.

However, resource competition may drive both conflict and *cooperation*. A forceful counterargument to the theory of a 'collision course' between the major powers is that newcomers to the great game are in fact helping to bring much-needed oil and gas into the world market by investing in 'no-go' countries such as Sudan and Burma. Indeed, from the viewpoint of consumers in North America, Europe, and Japan, Chinese and Indian investment in the development of new energy supplies around the world is not a threat but something to be desired, because it means there will be more energy available for everyone in the years ahead as India's and China's demand grows. There are also many examples collaboration. For instance, China Gas Holdings has established an alliance with India's largest energy conglomerate and the two countries are collaborating in places like Russia and Iran to feed their respective energy requirements.

This 'complementary course' even extends to the military component of the great game. It would be little surprise if, in the future, Chinese aircraft carriers patrolled the Straits of Hormuz protecting their oil routes. As one of the major chokepoints of the global energy market this could be interpreted as a positive development for all energy consumers. As such, fears of the great game should not be exaggerated. Indeed, persistent elaboration of future "energy wars" may reinforce prejudices in the fast developing world that aggressive foreign policies are necessary, thereby increasing energy security all round.

#### Political instability

Political instability can have a major effect on energy security. Certain countries have a disproportionate role in supplying oil and gas to the global market. This makes their internal developments of overall importance to energy security worldwide. For example, there has been recent instability in the oil rich but rebel

infested and crime-ridden Nigerian Delta. Scattered attacks on oil facilities there have reduced exports from Nigeria (a major supplier to the United States) by a quarter and groups have siphoned off nearly \$1 billion in crude from pipelines. Current projections show that after 2010 the major growth in supplies will come from fewer countries than it comes from today, which could accentuate the security implications of political instability.

The Middle East is the most important geographical region for energy. With 66 percent of today's known oil reserves and the largest number of undeveloped oil fields it will continue to be so for the foreseeable future. By 2030 EU countries will import 45% of their oil from the Middle East. The energy security of the EU and thus the majority of NATO countries are therefore heavily dependent on the future stability of this region. Unfortunately the Middle East is notoriously volatile. The International Energy Agency calculates that over the past 30 years there have been 17 disruptions in oil supplies involving more than half a million barrels a day in lost production, fourteen of which were in the Middle East.

It is widely expected that political instability in the region will not decrease significantly in the near future. Over the coming decades a number of factors will mitigate against rising stability. High on the list is the continuation of the Palestine/Israel conflict. The Middle East is also the focus of concerns over the scarcity of water and the potential for conflict over this precious resource. Meir Ben Meir, Israel's former Water Commissioner painted a gloomy picture of possible conflict over water between Israel, the Palestinians, Jordan and Syria, predicting scarcity in five years and a high likelihood of war. Exacerbating these problems, the region will face a demographic explosion in the next two decades. The populations of the Gulf States are amongst the youngest and fastest growing and will double in numbers in twenty years threatening fears of a 'youth bulge' which has proven links to extremism and instability. Another area of concern is Iraq. Although Saddam's regime did not torch oil facilities during the 2003 war, the large postwar surge in Iraqi output that many expected has not occurred. Investment required to bring the industry's output back up to its 1978

peak of 3 to 5 million barrels per day has not been forthcoming because of continuing insecurity, attacks on the country's infrastructure and uncertainty concerning Iraq's political and legal structures. As a result, Iraqi oil output is stuck around 2m barrels a day and a third of production capacity is unavailable for export. A worst case scenario holds that widening strife in Iraq if and when the United States leaves, and a subsequent regional armed conflict could compromise the production and transport of fossil fuels around the Persian Gulf for many years. International tension over Iran's nuclear program will likewise cast a long shadow over the oil market for many months or years to come.

Increasing economic, social and political linkages between states means that events in one part of the globe can and most likely will reverberate globally, affecting almost all energy consumer states. Venezuela for example, is not a major supplier to China, exporting just 150,000 barrels per day in 2006. However, in 2002, the Venezuelan economy experienced a significant downturn caused by a failed military coup to overthrow President Hugo Chavez followed by a two-month strike by the state-run oil company PDVSA. This shut down oil production in Venezuela, which had been among the most reliable of oil exporters since World War II. The loss of oil to the world market from the strikes was significant, greater than the impact of the war in Iraq on supplies. Indeed the current era of high oil prices which has threatened energy security worldwide (even in China which is not a major importer of Venezuelan oil) really began in late 2002 and early 2003, just before the start of the Iraq war. Venezuela's output has never fully recovered, and it is currently running about 500,000 barrels per day below the pre-strike level. What the case demonstrates is that failed states in areas such as Africa and political instability in South America are not simply local issues, they have a profound impact on energy security and the economies, militaries and societies of consumer countries. The problem of energy security is not confined to the issue of resource scarcity. In the more immediate term the real problem is the concentration of easy-to-reach supplies in politically-difficult areas.

Problems also arise from the transport of these supplies through areas that are

equally difficult politically. The focus is not merely on the country with the resources and holes in the ground, but also the transit countries through which the gas flows, and the sea lanes through which the oil must be transported. Instability leading to interruption of supply in any transit country along these latter-day 'silk routes' is as damaging as it would be at source. China has recently contributed technical assistance, 450 workers, and 80 percent of funding for the construction of the Gwadar port in Baluchistan, Pakistan. PRC officials have expressed an interest in using Gwadar as a transit terminal for Iranian and African crude oil imports. This would require a pipeline from Gwadar to funnel crude imports to China's northwest Xinjiang region bordering Pakistan. The success of such a project depends heavily on stability in Baluchistan and Pakistan at large. Last May, three Chinese engineers were killed in a bomb attack at Gwadar. Their assassins are believed to be militant Baluchi nationalists who resent Islamabad's authority over the province.

#### Energy security redefined?

These developments suggest that energy security includes vulnerabilities which are not covered by the narrow definition of the concept which has dominated energy security thought. Placing energy security under the same rubric as national security, defence and 'hard' international politics, common in the 1970s, was largely neglected in the era of cheap energy that followed, when oil and gas issues were confined to the business pages of national newspapers. In an era of low energy prices, it was deemed no longer fashionable to consider energy in the same way one considered other issues directly shaping military rivalry and power. As the developments above show, this benign view of energy does not reflect current or future realities.

Cambridge University's Pierre Noël has recently argued that developments such as the increasing use of energy resources as political tools do not in fact justify a tough new paradigm for energy security policy as a free global market in energy would be the best line of defense. The point is highly arguable. What he is right in

cautioning against, however, is the wholesale redefinition of energy security; it remains an economic issue and assuring security will involve traditional measures. Four examples stand out. Firstly, diversity of resource and source, urged by Churchill more than 90 years ago are as essential today as they ever were. Multiplying one's supply sources reduces the impact of a disruption in supply from one source by providing alternatives, serving the interests of both consumers and producers, for whom stable markets are a prime concern. Secondly it is important to go from an energy security regime which includes the fast-growing energy economies of China and India. It is urgent to engage these two giants in the global network of trade and investment to prevent them shifting to a mercantilist bent. Thirdly, there should be renewed commitment to energy efficiency and conservation. Although often underrated, the impact of conservation on the economy has been enormous over the past several decades. Over the past 30 years, U.S. GDP has grown by 150 percent, while U.S. energy consumption has grown by only 25 percent. The final, and most important requirement for future energy security given the depletion of fossil fuels, is substantial and sustained investment in alternative energy and new technologies such as the biological engineering of energy supplies.

A hard security paradigm should therefore not replace wholesale, traditional conceptions of energy security. They remain relevant and essential. However the increasing relevance of a hard security paradigm to the issue of energy cannot be ignored. As the previous section shows energy is indeed a real security issue, not simply a soft security issue. Energy security needs to be redefined therefore from a narrow economic basis. It is more than ensuring cheap, diverse supplies of energy. The energy security system which was born of the 1973 crisis needs to be expanded to accommodate the developments and threats highlighted above. Terrorism, political instability and increasingly desperate geopolitical maneuvering to assure access to fossil fuels involve insecurity that stretches beyond economics; energy policy is high politics, energy security is hard security.

## A role for NATO

A re-conceptualisation of energy security which encompasses defence and high politics suggests there is a role for NATO in tackling this issue. Indeed, NATO exists to address the security concerns of its member states and energy is likely to be one of the most crucial security concerns in the future; there is direct link between energy and the stability/security of NATO member states.

Additional focus on energy security within policy circles has not been matched by clarity of thought concerning the roles different actors should play. In Europe especially, disparate organizations, including national governments, intergovernmental institutions, and private companies have all touted themselves as essential to the solution, leading to a confusion of roles and preventing the effective management of the issue. All the aforementioned actors are relevant; energy security requires a broad and multifaceted approach as discussed in the previous section.

NATO's role should not replicate any of these initiatives. Instead it should focus on value-added roles to complement the initiatives of other actors and organisations. Importantly for the alliance, the major gap within discussion of energy security in western policy circles concerns hard power. The European Union is a case in point. Key energy documents remain largely silent concerning the military dimension of securing energy needs. Europe's newly established external energy policy concentrates solely on soft power. The summit of EU leaders in the spring of 2007 adopted only diplomatic language about Europe's energy interests. Though it discussed partnerships with key supply and transit countries it advanced no initiatives to promote the security of energy infrastructure. Even the EU's European Program for Critical Infrastructure overlooks the critical role of energy infrastructure security.

Attempts to prevent the militarization of energy security are commendable and understandable within the context of troublesome relations between many

European/NATO states and energy superpowers like Russia. However, this should not equate to total avoidance of the obvious military dimension to energy security however, this would be dangerously myopic.

Even if the EU was to take a more realistic line with regard to energy security, it lacks the military capabilities to provide adequate energy security. The role for NATO is therefore clear; to underpin the soft power of other western organisations such as the EU and contribute its expertise as a military-political alliance to the issue of energy security.

#### Infrastructure protection

The most obvious way in which NATO can help assure energy security is infrastructure protection. Geopolitical instability, war and terrorist activity all pose a serious threat to energy infrastructure. This, more than anything else demonstrates the clear military defence dimension to energy security. NATO could bring both its expertise and capabilities as a military alliance to address these issues. The infrastructure of the global energy industry is too vast to be protected by individual countries, even the United States. The job must be shared and NATO, as a multilateral military institution could share the burden successfully.

Europe has relied heavily on the U.S. regarding the provision of hard power energy supply security. Estimates by the Washington DC based institute for the analysis of global security assume that the United States spend around fifty billion dollars per year to defend sea lanes of communication and to provide military assistance to oil supplying partner nations. The challenge of securing the marine infrastructure of the global energy industry will grow more urgent and more demanding in the future. Global trade in energy is set to grow substantially by 2020; by then it is estimated that 67 million barrels of oil and 460 million tons of natural gas will crisscross the oceans in tankers. To cope with this rising demand super-tankers are due to become not only more numerous but also much larger

over the next decade.

Individual states will retain responsibility for protecting their own territorial waters, but NATO can provide added value protecting maritime lines of communication outside of NATO states jurisdiction. This is a likely potential area for NATO as it can offer a well integrated naval capability to assist in the protection of traffic.

Exercises such as *Steadfast Jaguar* in June 2006, which were oriented to supply route safety from the point of origin to receiving countries, have already been successfully executed. More importantly, NATO has already undertaken a similar mission to the ones proposed. *Operation Active Endeavour* was a highly successful counter-terrorism operation designed to increase maritime security in the Mediterranean post-9/11, particularly for oil tankers. Since February 2003 alliance warships have also been escorting each tanker through the straits of Gibraltar. NATO forces would therefore be suitable in providing maritime and air support over gas and oil routes to protect against the threats of terrorism, piracy and hostile action.

Protecting entire ocean expanses on a permanent basis is unrealistic. There are many chokepoints along the transportation routes of seaborne oil and liquefied natural gas that create particular vulnerabilities: the Strait of Hormuz, the Suez Canal, the Bab el Mandeb strait, the Bosphorus strait, and the Strait of Malacca are the main areas of concern. Ships commandeered and scuttled, or targeted for terrorist attack in these strategic waterways could disrupt supply lines for extended periods, creating an atmosphere of panic and producing spikes in the price of fossil fuels. It is therefore more realistic for NATO to concentrate its energy in assisting the protection of these critical choke points. At present, there is an immediate need for such a mission in the Gulf of Guinea off the West African coast. Piracy and theft have combined to present a serious security problem and oil companies are spending more than a billion dollars a year on security in the region.

The protection of land based infrastructure is also set to become more difficult as

continent spanning pipelines and liquefied gas terminals are created to cope with rising demand. Terrorist attacks on these and other infrastructure such as storage and refining facilities could be devastating to the global economy. Geopolitical instability such as insurgency or civil war could also threaten supplies, for example by delaying the construction of essential transportation facilities. This is not to suggest NATO protection of all facilities. The scale of energy infrastructure would make this impossible. In the United States alone, there are more than 150 refineries, 4,000 offshore platforms, 160,000 miles of oil pipelines, facilities to handle 15 million barrels of oil a day of imports and exports, 10,400 power plants, 410 underground gas storage fields, and 1.4 million miles of natural gas pipelines. Moreover, jurisdiction naturally lies with national-civil authorities and energy companies of the state concerned. But there is room for NATO protection of the most crucial aspects of this vast web. Indeed a military-security dimension with regard to protecting infrastructure is absent from the EU's new cooperation agreements with Kazakhstan and the Caucus region. Additionally, an immediate priority for NATO officials according to the former Supreme Commander James Jones is the securing of pipelines bringing Russian oil and gas to Europe against terrorist attacks.

The protection of key facilities naturally raises the point that the lines of responsibility - and the sources of funding - for protecting critical infrastructures, such as energy, are far from clear. NATO must have the capability to engage with businesses and national governments on collaboration in this project. In the future, heads of industry, local authorities and national governments may need to discuss with NATO and each other, the best ways to secure the industrial base of the energy industry.

Intelligence gathering and assessment for instance, will be key. Energy infrastructure security depends on the provision of a comprehensive picture identifying domestic and international risks across the energy supply chain from supply and transit to consumption countries. This demands more and advanced intelligence sharing between civil and military agencies, and between them and

the energy sector.

### Interdiction operations

The protection of military infrastructure, both maritime and land based could involve not just monitoring and patrol mission but also interdiction operations. Energy security is directly threatened by geopolitical crises, instability and actual conflict. Interdiction missions would secure the supply of oil or gas during a time of heightened tension or outright conflict. Though not specifically a NATO operation, the example of *Operation Earnest Will* is indicative here and could provide the basis for future NATO operations. *Earnest Will* was an effort, primarily by NATO states, to protect tanker traffic in the Gulf during the Iran-Iraq War (1980-1988). Naval assets were deployed and Kuwaiti tankers reflagged after both Iraqi and Iranian forces began attacking them. A NATO interdiction operation could involve short-term maritime escort operations, protecting oil rigs and terminals, assisting national authorities to protect port loading/off-loading facilities and protection of refineries and storage sites.

This would require an intelligence-driven or threat-based responsive approach. It would also require a quick reaction time for the redeployment of NATO naval task forces. The role and positioning of NATO's current naval forces would have to be examined and altered in accordance if NATO was to undertake this role. Securing chokepoints will require augmented monitoring as well as the development of multilateral rapid-response capabilities. A multinational maritime Task Force (involving Partners where appropriate) could be created to deter attacks against important energy assets such as oil or LPG tankers.

A NATO role in interdiction operations may necessitate a joint campaign utilising air, naval and ground assets. Quick reaction forces which would be permanently on standby may therefore be required. As the majority of these interdiction missions will take place far removed from alliance territory NATO will need extensive expeditionary capabilities based on the NATO Response Force (NRF).

Forces will also need to be mobilised and deployed quickly. On this basis, the Alliance requires sufficient fully deployable and sustainable land forces. This must be backed up by appropriate air and maritime components including extensive transportation assets designed to enable the alliance to intervene militarily further and further outside its own borders. Capabilities such as airborne refuelling are crucial, but most important in this regard is strategic lift capability. NATO's sealift capability is more than adequate, but it lacks strategic airlift. As such operational planning for specific scenarios and also exercise planning for multi-national forces would be necessary.

#### Strategic relationships, support and training

NATO member states increasingly believe that the alliance must be a global player with global partners. This trend is evident in Afghanistan, for example, where Australia, New Zealand, and Japan are expending resources to bring stability through NATO's International Security Assistance Force, even though the three countries are not NATO members.

This framework of alliance and non-alliance cooperation should be extended to include energy security given the global nature of the issue.

In order to minimise the effects of a potential disruption in supply and increase energy security strong links should be formed with weak energy producing countries. Many of NATO's Partnership countries are important suppliers of fossil fuels or transit countries which have key roles to play in existing and future pipeline projects. Partnership for Peace countries, such as Kazakhstan and Azerbaijan, that are important energy producers often seek ways to associate themselves more closely with NATO. In so doing, they hope not only to diminish Russian influence, but also to develop reliable partners in unstable regions and therefore augment their own security and stability. Relations should therefore be strengthened with these (and other) countries. These good relations would reduce the current dependence of many consumer states on just one or two producers of oil or gas and could potentially diversify NATO and EU networks of

LPG terminals and pipelines. Proposals that energy security should be a topic for Euro-Atlantic Partnership Council Consultations (involving all 26 NATO members and 20 Partnership for Peace countries) should be adopted.

An effective energy strategy must include new strategic relationships with energy exporters. Alliance leaders should look to the Caucasus and Central Asia for new partnerships. These states are critically located and important sources of oil and natural gas. Georgia, for example, is host to crucial sections of the Baku-Tbilisi-Ceyhan oil pipeline as well as the Southern Caucasus natural gas pipeline. Substantial improvement is needed in their political stability and a closer relationship with NATO will promote these values and contribute to mutual security. The recent result of the Georgian referendum on joining NATO is particularly welcome.

NATO's Mediterranean Dialogue and Istanbul Cooperation Initiative (ICI) also include many partners who are among the world's leading suppliers of fossil fuels. The broader Middle East is the key area of energy security for the foreseeable future and the initiative already includes cooperation on related threats to energy security such as counter-terrorism. It makes sense therefore to expand the ICI to engage in cooperation concerning energy.

Beyond missions to directly secure energy security, NATO forces could undertake training and support to supply or transit countries it has close relations with. Through its Centres of Excellence in Defence against Terrorism and in Special Policing Units, it has the necessary capability to train host country gendarmerie-type forces to conduct energy security operations. NATO could also provide training and advice on infrastructure protection – especially given that a number of NATO states have experience in this, including Turkey. It is also notable that the United States is currently supplying radars to Azerbaijan and Kazakhstan to monitor security in the oil and gas-rich Caspian Sea. NATO could also provide similar equipment to states in key energy areas. All these measures would benefit both NATO and non-NATO countries in gaining further expertise and in order to

prepare for future challenges. The alliance would need to tread delicately in this area however. Belief is widespread in the Middle East that the Iraq War was a struggle for oil. Popular opposition to involve the Western alliance in the key resource of the region may prevent governments from accepting allied assistance. Russia is also a factor. Turkmenistan and Kazakhstan depend upon Russia as a transit country for their pipeline shipments to the west, and could be subject to Moscow's pressure to spurn NATO proposals of assistance.

The threat of terrorism to energy infrastructure suggests that NATO requires special operations forces which will need particular counter-terrorist specialisations, training and specific technologies such as precision airdrop. Improvements will also be necessary in procuring secure, modern communications and information systems. More importantly, terrorism cannot be tackled without improved intelligence capacities. Human intelligence will be of particular importance given the amorphous and networked threat of terrorism. Special emphasis should be placed on enhancements to capabilities for collecting, processing, and exploiting information. With terrorism now transnational, terrorist cells in one country may be planning attacks in another and procuring material from a third. Alliance members should develop more broadly and deeply arrangements for intelligence and information sharing.

#### Assistance to Allies

Though the threat to NATO territory from state based adversaries and conventional armed forces is low, it cannot be ruled out. Moreover, terrorist attack remains a potent threat. In such a case, security assistance would likely be required from NATO. Previous suggestions to NATO that include alliance preparations to deploy, under Article 4 of the treaty, specifically tailored 'Security Assistance Packages' in support of the ally or allies in need should be promoted as soon as possible. Such packages could assist national maritime and aerial patrols, reinforce national communication and intelligence networks or protect energy assets and infrastructure which fall under the national jurisdiction of the

alliance member in need. Command and Control arrangements could draw upon past security assistance missions such as NATO support to the Athens 2004 Olympics.

A more awkward question to answer is how should NATO act in the event that an energy supplier such as Russia maintains an embargo on a alliance member? It is this concern, perhaps more than any other which has featured prominently in European energy security debates since late 2005 and which lies behind the rise in calls for a NATO role in the European context.

Some member states have called for energy security to be upgraded to an Article 5 commitment. Poland has previously called for an energy NATO committing the alliance to act in concert “in the face of any energy threat provoked by either a cut or a diminution of supply sources that may occur because of natural disasters, disruption of wide distribution and supply systems, or political decisions by suppliers.” Warsaw would like to see such an alliance assist each other during an energy crisis just as they would during a military crisis, on an “all for one, one for all” principle.

The proposal, which would radically re-alter the alliance, should certainly be taken seriously; the health and security of our modern economies and societies depend on sufficient and available energy resources. It should be noted that Hungary is 80% dependent on Russia for its oil and gas. Little separates a member being forced to submit to foreign coercion because of an energy cut-off and a member facing a military blockade or other military demonstration on its borders.

The implications of such a move are often overstated. It would not mean attempts to manipulate energy for international political gain would require a NATO *military* response. Rather, it would commit the Alliance to preparing for and responding to energy insecurity of its members in a coordinated way. This would have a number of benefits.

In the case of attempts to use energy as a weapon against an alliance member a coordinated alliance response would act as a powerful symbol of unity deterring provocative action involving energy supplies. It would also mean NATO would be a reliable refuge for members against threats stemming from their energy insecurity. If this does not happen, the Alliance is likely to become badly divided as vulnerable members seek to placate their energy suppliers. U.S. leverage on Moscow could be an element for encouraging responsible Russian behaviour and deflecting any Russian attempt to divide the Europeans.

In the event energy flows were eventually disrupted NATO could play a role in building international political solidarity, coordinating policies among member states and with non-member partner governments to share resources and to bring an end to an energy disruption.

The most likely response would be a commitment to re-supply a NATO country. Logistically, such a response is complex and will require much planning. The energy threat is in many ways more difficult to prepare for than military action during which equipment and supplies can be moved relatively easily. Energy supplies do not enjoy the same freedom of movement. Mark Grossman, the former U.S. Under Secretary of State for Policy, has proposed reviving the REFORGER exercises of the Cold War. These exercises were carried out to prepare for the massive troop and equipment re-supply mission that would be required to thwart a Soviet attack. A new REFORGER should focus on how the Alliance would supply a beleaguered member with the energy resources needed to withstand geo-strategic blackmail.

Capabilities for a coordinated response to an energy crisis would involve NATO 'resilience capabilities'. Resilience would be provided through strategic reserves, backup supplies of equipment, adequate storage capacity along the supply chain, and the stockpiling of critical parts for electric power production and distribution, as well as carefully conceived plans for responding to disruptions that may affect large regions.

## Consequence management

Security can never be 100%. Energy security must therefore encompass ways to mitigate the after effects of disasters, both man-made and natural. In recent years the alliance has demonstrated an effective capacity to respond to emergencies such as the Pakistan earthquake of 2005. NATO could therefore become more actively engaged in the reactive side of energy security.

Global warming threatens to increase the frequency and severity of natural disasters. Hurricane Katrina demonstrated all too effectively the impact natural disasters can have on the energy industry; according to the United States Department of Commerce 30 oil platforms were damaged or destroyed, nine refineries were closed and oil production in the Gulf of Mexico, which provides 25% of U.S. crude oil was shut down. This strained global energy supplies when they were already stretched thin, subsequently the effect on prices was magnified.

Energy crises caused by natural disasters would first and foremost require measures from the traditional energy security system such as a coordinated emergency drawdown of strategic stockpiles (which has occurred only twice: on the eve of the Gulf War in 1991 and in the autumn of 2005 after Hurricane Katrina). NATO could complement these measures with direct assistance to the disaster response efforts. The alliances Civil Emergency Plan and Euro-Atlantic Disaster Response Coordination Centre mechanisms are uniquely placed to assist the national and civilian authorities. The latter is of particular use as it includes all forty-six members of the Euro Atlantic Partnership Council thereby reaching into vital regions for energy security such as the Caucasus and Central Asia.

Emergency and consequences management could benefit from military capabilities in the fields of heavy engineering, logistics, medical aid and even the use of military fuel storage capacity. In case energy infrastructure incidents

involve weapons of mass destruction, CBRNE capabilities could be needed as well. Assuring effective consequence management will require capabilities to coordinate on both an international and a national basis among companies and governments, including energy, environmental, military, law enforcement, and intelligence agencies.

## Intelligence

Many of the missions and roles suggested for NATO under the rubric of energy security entail intelligence which would could be a key role in itself.

NATO should increase its efforts to gather and share intelligence between alliance members on the subject of energy security and related threats. The alliance already has established intelligence sharing mechanisms that could help. Furthermore, it has been suggested that the mandate of the terrorist intelligence unit be broadened to include a focus on energy security. This is insufficient. Energy security is important enough for an Energy Security and Intelligence Analysis Cell to be an urgent requirement for the alliance. However, the links between energy security and other threats such as terrorism suggest a collaborative approach be adopted. Due to the broad nature of energy security it would also be useful to collaborate and share information between the alliance intelligence cell, allied governments, the IEA and the energy industry. Companies have important resources and information that they can bring to bear on these problems, but intelligence sharing and response planning between companies and national/international organisations rarely takes place.

In addition to sharing intelligence among Allies and other energy security organisations and actors, NATO should certainly increase its monitoring and assessment capabilities in this area. To sufficiently deal with the threat to maritime energy infrastructure, NATO's maritime operations could routinely monitor shipping lanes and establish an intelligence network to cover areas insufficiently monitored by national assets. This would identify risks and make

shipping lanes safer. It should be noted that NATO navies are still mostly configured for the Cold War. Maritime surveillance capability is therefore geared towards monitoring large Soviet maritime forces, clearly insufficient to the task of gathering intelligence on terrorists.

Momentum in the alliance towards greater involvement by partnership countries has also spread to the field of intelligence. In 2006 New Zealand Defence Minister Phil Goff, signed an agreement on the exchange of classified information with the NATO Secretary General. An information security agreement was also signed with Kuwait. Further development along this path is recommended. It is important that NATO develops associations with nations and regions that can contribute to countering the key threats to alliance energy security. Therefore, NATO members and interested parties should be encouraged to form such associations, especially with the Pacific region.

### Conclusion

Energy security is a relatively new and growing concern which will increasingly frame global economics and politics. Energy is fundamental to the security and stability of any modern state. Due to increasing global demand for energy and depleting fossil fuel resources future energy security appears fragile.

Developments such as transnational terrorism, the politicisation of energy supplies and an increasingly desperate annexation of remaining resources threaten the energy security of NATO countries just as much as exorbitant prices and a lack of diverse sources. The energy security system established in the seventies cannot hope to protect against twenty-first century realities. NATO can provide important assistance. Indeed the alliance was established to provide security to its members and energy will be a fundamental source of insecurity in the future. It should therefore be a strategic concern of the alliance.

Discussion of the role NATO can play in energy security is a sensitive issue however, particularly in the wake of the Iraq invasion. A sizeable segment of the

Middle East and many people worldwide view the war as a western 'oil grab'. As a military alliance, too heavy a focus on energy security could send the wrong signal, particularly as the issue is an increasingly fraught topic with the potential for worldwide disruption. There is a danger of generating real concern about alliance intentions among energy suppliers such as Russia, particularly with talk of upgrading energy security to an Article 5 commitment. Energy *security* for alliance members may therefore heighten energy *insecurity* for those outside the alliance, an unintended consequence which could rebound negatively on the alliance.

An essential requirement for the formalisation of NATO's role in energy security is therefore that it is kept limited and well focused. NATO responsibilities should not exceed the recommendations laid down in this report. Clarity concerning NATO's role and the reasons behind it would be necessary to placate fears. A high-level "seminar" that includes NATO and EU representatives, Russia, and important transit and supply countries such as Ukraine, Uzbekistan, Kazakhstan, and Azerbaijan is one way to start off on the right foot. However, further clarity would need to be forthcoming and one way to achieve this is for energy security to become a regular topic for NATO Russia Council consultations

NATO's role within energy security must not only be well-defined and clear to all, it should also be integrated within the broader energy security system, particularly the IEA which in itself should be broadened to include important energy consumers such as India and China. This would not only placate fears that NATO's role in energy security was a threat to those outside the alliance, but is also a necessary step to combat a multidimensional threat that involves economics, politics and military affairs at a number of levels including the national, international and global. In so doing, NATO could make a positive contribution to the energy security of its members, and more globally.

## Bibliography

- Bahgat, G., 'Africa's oil: potential and implications', *OPEC Review*, Vol. 31, No. 2.
- Barysch, K., *Turkey's Role in European Energy Security*, Centre for European Reform Essay, accessed at [http://www.cer.org.uk/pdf/essay\\_turkey\\_energy\\_12dec07.pdf](http://www.cer.org.uk/pdf/essay_turkey_energy_12dec07.pdf)
- Bensahel, N., *The Future Security Environment in the Middle East*, (RAND/2004).
- Brown, M., *Grave New World: Security Challenges in the Twenty First Century*, (2003).
- Cohen, A., 'U.S. Interests and Central Asian Security', The Heritage Foundation report, (2006) accessed at <http://www.heritage.org/Research/RussiaandEurasia/bg1984.cfm>
- Dadwal S., 'Energy Security: India's Options', *Strategic Analysis*, Vol. 23, No. 4.
- Dempsey, J., 'U.S. senator urges use of NATO defense clause for energy', *International Herald Tribune*, (November 28<sup>th</sup>, 2006).
- Domjan, P., 'Securing European Critical Energy Infrastructure', *Contingency Today*, (January 2007).
- Downs, E., *Chinas' Quest for Energy Security*, (RAND/2000).
- Edmonds, M., *Future NATO Security: Addressing the Challenges of Evolving Security*, accessed at [http://books.google.co.uk/books?hl=en&lr=&id=QfHYBYL7zy8C&oi=fnd&pg=PP7&dq=nato+security&ots=KiiTR\\_rcdk&sig=ggAZXqwnG2LkzXDwZkiRRshRrKY#PPP4,M1](http://books.google.co.uk/books?hl=en&lr=&id=QfHYBYL7zy8C&oi=fnd&pg=PP7&dq=nato+security&ots=KiiTR_rcdk&sig=ggAZXqwnG2LkzXDwZkiRRshRrKY#PPP4,M1)
- *Energy Security*, House of Commons Research Paper 07/42, accessed at <http://www.parliament.uk/commons/lib/research/rp2007/rp07-042.pdf>
- Farrell, A., 'Energy Infrastructure and Security', *Annual Review of Environment and Resources*, Vol. 29.
- Forest, J., *Oil and Terrorism in the New Gulf*, (2006).

- Gallis, P., 'NATO and Energy Security' CRS Report for Congress, accessed at <http://italy.usembassy.gov/pdf/other/RS22409.pdf>
- Gray, J., *False Dawn*, (London/2002).
- Hill, F., 'Energy Empire: Oil, Gas and Russia's Revival', Foreign Policy Centre report, (September/2004).
- Hill, F., 'Russia: The Twenty First Century Energy Superpower?', Brookings Institution report, accessed at [http://www.brookings.edu/articles/2002/spring\\_russia\\_hill.aspx?p=1](http://www.brookings.edu/articles/2002/spring_russia_hill.aspx?p=1)
- Johnston, P. and Roi, M., *Future Security Environment 2025*, Canadian Vice Chief of Defence Staff report accessed at [http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/ord/fse2025/intro\\_e.asp](http://www.vcds.forces.gc.ca/dgsp/pubs/rep-pub/ord/fse2025/intro_e.asp)
- Kalicki, J., *Energy and Security*, (John Hopkins University Press/2005).
- Klare, M., *Resource Wars*, (2002).
- Kleveman, L., *The New Great Game: Blood and Oil in Central Asia*, (2003).
- Leung, A., 'Energy Security and Countering Climate Chaos China's Approach and Global Impact', accessed at [http://www.nottingham.ac.uk/china-policy-institute/china/documents/LEUNG\\_Energy\\_Security.pdf](http://www.nottingham.ac.uk/china-policy-institute/china/documents/LEUNG_Energy_Security.pdf)
- Liu, X., 'China's Energy Security and Its Grand Strategy', The Stanley Foundation Policy Analysis Brief (September 2006), accessed at <http://www.stanleyfoundation.org/publications/pab/pab06chinasenergy.pdf>
- Luft, G., and Korin, A., 'Terrorism Goes to Sea', *Foreign Affairs*, (November 2004).
- Luft, G., 'Pipeline Sabotage is Terrorist's Weapon of Choice', *Energy Security*, (March 2005).
- Mallaby, S., 'What Energy Security Really Means', *Washington Post*, (July 3<sup>rd</sup>, 2006), accessed at [http://www.washingtonpost.com/wp-dyn/content/article/2006/07/02/AR2006070200675\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2006/07/02/AR2006070200675_pf.html)

- Pearlstein, R., *Fatal Future? Transnational Terrorism and the New Global Disorder*, (University of Texas/2004).
- Saivetz, C., 'Russia: An Energy Superpower', accessed at <http://www.alternet.org/audits/75413/?page=entire>
- Stulberg, A., and Cosijn, H., 'Transatlantic Energy Security and the Caspian Basin: Moving Towards a Common Agenda', EastWest Institute Policy Brief, accessed at [http://www.ewi.info/pdf/volume1\\_issue6.pdf](http://www.ewi.info/pdf/volume1_issue6.pdf)
- Taylor, I., 'China's Oil Diplomacy in Africa' *International Affairs*, Vol. 82, No. 5.
- *The DCDC Global Strategic Trends Programme 2007-2036*, Ministry of Defence, accessed at [http://www.mod.uk/NR/rdonlyres/94A1F45E-A830-49DB-B319-DF68C28D561D/0/strat\\_trends\\_17mar07.pdf](http://www.mod.uk/NR/rdonlyres/94A1F45E-A830-49DB-B319-DF68C28D561D/0/strat_trends_17mar07.pdf)
- 'The List: The Five Top Global Chokepoints', *Foreign Policy*, May 8th 2006
- *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets* Washington: White House, 2003, [www.dhs.gov/interweb/assetlibrary/Physical\\_Strategy.pdf](http://www.dhs.gov/interweb/assetlibrary/Physical_Strategy.pdf)
- Xuetang, G., 'The Energy Security in Central Eurasia: the Geopolitical Implications to China's Energy Strategy', *China and Eurasia Forum Quarterly*, Vol. 4, No. 4.
- Yergin, D., 'Ensuring Energy Security', *Foreign Affairs*, (March 2006).