



# Nationalized Oil and Gas: Security Implications

Peter Johnston  
Directorate of Strategic Analysis

DRDC CORA TM 2006–30

September 2006

**Defence R&D Canada**  
Centre for Operational Research and Analysis

Directorate of Strategic Analysis  
Assistant Deputy Minister (Policy)



# **Nationalized Oil and Gas: Security Implications**

Peter Johnston  
Directorate of Strategic Analysis

The reported results, their interpretation, and any opinions expressed herein, remain those of the author and do not represent, or otherwise reflect, any official opinion of DND of the government of Canada.

## **Centre for Operational Research and Analysis**

Technical Memorandum

TM 2006-30

September 2006

Author

---

Peter Johnston

Approved by

---

R.G. Dickinson

Director Operational Research (Joint)

Approved for release by

---

J.E.J Tremblay

Chief Scientist

The information contained herein has been derived and determined through best practice and adherence to the highest levels of ethical, scientific and engineering investigative principles. The reported results, their interpretation, and any opinions expressed therein, remain those of the authors and do not represent, or otherwise reflect, any official opinion or position of DND or the Government of Canada.

© Her Majesty the Queen as represented by the Minister of National Defence, 2006

© Sa majesté la reine, représentée par le ministre de la Défense nationale, 2006

## Abstract

---

This Technical Memorandum examines the energy security implications of nationalized oil and gas companies. While there is a perception that the threat to oil import dependent states posed by the countries that nationalize these resources is an embargo, the likelihood of this occurring is overstated. Moreover, the impact of an embargo, particularly an oil embargo such as the OPEC embargo of the United States in 1973-1974, is not likely to be as detrimental as many analysts think. Yet, nationalization of oil and gas assets does negatively impact international security by contributing to existing political tensions in some countries, by limiting the scope for the international community to positively influence the behaviour of some states, and by funding destabilizing arms programs, terrorists, and insurgents.

## Résumé

---

Ce document technique traite de ce que signifie la nationalisation d'entreprises pétrolières et gazières du point de vue de la sécurité de l'approvisionnement en énergie. Bien que la nationalisation des ressources pétrolières évoque une menace d'embargo dans l'esprit des pays qui dépendent de l'importation du pétrole, il est très peu probable que des embargos soient imposés. En outre, l'incidence d'un embargo, en particulier celui décrété par l'OPEP sur les exportations de pétrole aux États-Unis en 1973-1974, ne serait vraisemblablement pas aussi nuisible que ne le pensent de nombreux analystes. Néanmoins, la nationalisation du pétrole et du gaz met effectivement en danger la sécurité internationale parce qu'elle contribue à accentuer les tensions politiques qui existent déjà dans certains pays, parce qu'elle réduit la capacité de la communauté internationale d'exercer une influence positive sur la conduite de certains États et parce qu'elle sert à financer des programmes d'armements, des terroristes et des insurgés ayant un effet déstabilisateur.

This page intentionally left blank.

## Executive Summary

---

Recent concern over the availability of oil and gas supplies has been exacerbated by an increase in the number of countries that nationalize their energy industries. This trend is a cyclical one attributable to a sustained period of high prices. During such periods, some countries decide to increase their profits from existing oil and gas industries, either by nationalizing them or by unilaterally altering contractual arrangements to charge higher taxes and royalties to the energy industry operators. While decisions to nationalize extractive industries are primarily motivated by a desire to increase government revenue, the impact is often felt in the realm of international security.

In light of the current tightness of the oil market, many observers are alarmed about nationalizations because they fear that oil, or gas, supply may be used by those states that have nationalized them as a strategic tool in an embargo. However, while this is a possibility, it is less likely than commonly perceived. The oil market, and to a lesser degree the gas market, have substantial redundancy to the extent that it would be very difficult for an oil exporter, even a major one, to effectively embargo any country. This is largely due to improvements in technology that have opened up many oil and gas fields that were once considered non-exploitable. Moreover, the member states of the Organization of Economic and Commercial Development reacted to the 1974 Organization of Petroleum Exporting Countries (OPEC) embargo by creating the International Energy Agency (IEA). Under the terms of the agency agreement, oil import dependent members must develop strategic oil reserves. These changes reduce the potential effectiveness of an embargo.

Another factor that militates against future oil and gas embargoes is the economic situation in many petro-states. Countries reliant on lucrative extractive industries often suffer the effects of a condition termed the “Dutch Disease,” wherein the development of the resource sector results in a rise in currency value and focuses investment away from other sectors of the economy. Thus, governments in these states can become dependent on their resource industries for revenue to a disproportionate extent. This can lead to a vicious cycle of rising unemployment that obliges the government to placate or suppress dissatisfied citizens. In these circumstances, petro-states undertake a substantial risk due to a loss in revenue if they embargo their clients. In the current market context, an embargo can do more damage to the country that initiates it than it does to the country targeted.

Even though embargo is less likely than is sometimes assumed, the nationalization of oil and gas industries threatens international security in numerous ways. Governments that choose to nationalize extractive industries tend to be undemocratic and are generally not transparent in terms of their expenditure of revenue. This can lead to a perception that resource revenues are not being shared equitably. When this occurs, the public, or segments of the public not favoured by the ruling elite, become increasingly dissatisfied with the government, sometimes to the point of political violence and revolt. The government, in some cases, resorts to increasingly oppressive measures to quell the opposition but these tactics can further intensify the conflict instead. These internal conflicts can spread across borders thereby destabilizing regional security. This pattern has been evident, in varying degrees, in Sudan, Angola, and Chad in recent years.



Another propensity exhibited by petro-states is the use of revenue from nationalized industry for destabilizing programs. These states often embark upon the development of sophisticated arms programs, either conventional or weapons of mass destruction, that would otherwise be beyond their financial means were it not for the energy industry. These programs often cause other states, either regional or extra-regional, to fear for their security and engage in arms programs to counter the perceived threat. Oil and gas revenue is also used to fund terrorism or insurgencies that create security problems in many parts of the world. Iran's support for Hezbollah in Lebanon is a contemporary example of how detrimental to international security this activity can be.

Overseas activity by nationalized oil and gas companies can also cause security problems. China, India, and Malaysia all possess significant overseas holdings obtained through their nationalized oil and gas companies. As noted, many states that employ nationalized companies are not democratic or transparent. China is particularly active acquiring and developing overseas oil and gas fields. While development is not necessarily a destabilizing activity, Beijing does not concern itself with the behaviour of its host country so long as its oil or gas interests are not threatened. Consequently, the international community loses the leverage of development investments since the Chinese are willing to move into countries that are otherwise unable to acquire funds to develop their resources. If these countries had to rely on investment by free market companies, as opposed to nationalized producers, to develop their extractable resources industries, they might be more willing to moderate their behaviour. The ongoing crisis in Sudan is an example of this. Without Chinese support for the Sudanese oil industry the regime in Khartoum might have been persuaded to accede to international pressure for moderation in order to develop its oil fields. Ironically, China was able to purchase its oil interests from Western firms that were pressured out of the country by protests from rights groups and by sanctions imposed by the United States governments against American companies. Had these companies continued to operate, the West might have more leverage with Khartoum than it currently does.

The security challenges posed by nationalization of oil and gas industries are difficult to overcome. Policies that reduce dependence on these resources will limit the revenues available to those states, such as China, Iran, Iraq under Hussein, Saudi Arabia, or Venezuela, that use them in destabilizing ways. Influencing or bringing about change in the ruling regimes may also assist to neutralize the challenges posed. These options are extremely challenging and will take a significant amount of time and effort to enact.

## Sommaire

Récemment, les préoccupations au sujet de l'approvisionnement en pétrole et en gaz se sont intensifiées en conséquence de la nationalisation par un plus grand nombre de pays de leurs industries énergétiques. Il s'agit d'un phénomène cyclique qui se manifeste lorsque les prix sont élevés durant une longue période. Dans ces circonstances, certains pays décident de tirer un plus grand profit de leurs industries du pétrole et du gaz, par la nationalisation ou par la modification unilatérale des contrats, de manière à percevoir des taxes et redevances plus élevées auprès des exploitants d'entreprises du secteur de l'énergie. Bien que la décision de nationaliser les industries extractives soit motivée surtout par la volonté des gouvernements d'accroître leurs recettes, cette décision a souvent une incidence sur la sécurité internationale.

Étant donné le resserrement actuel de l'offre sur le marché du pétrole, de nombreux observateurs s'inquiètent vivement de ces nationalisations parce qu'ils craignent que les États ayant opéré celles-ci n'utilisent l'approvisionnement en pétrole et en gaz comme un mesure stratégique sous forme d'embargo. Même si cette mesure est possible, elle est moins vraisemblable qu'il n'y paraît généralement. Le marché du pétrole, et celui du gaz dans une moindre mesure, comporte de telles possibilités du remplacement qu'il serait très difficile pour un pays exportateur de pétrole, si important soit-il, d'imposer effectivement un embargo contre un pays. Cela tient en grande partie aux progrès technologiques qui ont permis la mise en valeur de nombreux champs de pétrole et de gaz auparavant jugés inexploitable. En outre, les États membres de l'Organisation de coopération et de développement économiques ont réagi à l'embargo imposé en 1974 par l'Organisation des pays producteurs de pétrole (OPEP) en créant l'Agence internationale de l'énergie (AIE). Suivant l'Accord ayant institué l'Agence, les pays membres qui dépendent de l'importation du pétrole doivent constituer des réserves stratégiques de pétrole, ce qui a pour effet de réduire l'efficacité d'un éventuel embargo.

Un autre facteur qui milite contre l'imposition éventuelle d'un embargo sur les exportations de pétrole et de gaz est la situation économique de bon nombre des pétro-États. Les pays tributaires de l'exploitation lucrative d'industries extractives subissent souvent les effets de ce qu'il est convenu d'appeler le « syndrome hollandais », lequel désigne la situation dans laquelle l'exploitation dans le secteur des ressources mène à une appréciation de la valeur de la monnaie et à la concentration de l'investissement dans un secteur au détriment des autres branches de l'activité économique. Partant, ces États deviennent démesurément dépendants des revenus tirés de leurs industries extractives, ce qui peut occasionner un cycle infernal de hausse du chômage qui oblige le gouvernement à apaiser les citoyens mécontents ou à recourir à la répression. Dans de telles conditions, les États pétroliers courent un gros risque de perte de recettes s'ils imposent un embargo contre leurs clients. Dans la conjoncture actuelle, un embargo peut être plus néfaste pour le pays qui l'impose que pour le pays visé.

La probabilité d'un embargo est moins grande qu'on ne le présume parfois, mais la nationalisation des industries du pétrole et du gaz menace néanmoins la sécurité internationale à de nombreux égards. Les gouvernements qui choisissent de nationaliser leurs industries extractives ne sont généralement pas démocratiques et leurs dépenses ne sont généralement pas transparentes. Il peut en résulter la perception d'un partage non équitable des recettes tirées de l'exploitation des ressources. Le cas échéant, les citoyens ou des groupes qui ne sont pas favorisés par les pouvoirs publics peuvent devenir de plus en plus mécontents, au point de recourir à la violence ou à la révolte politiques. Le gouvernement peut parfois être amené à prendre des mesures de plus en plus répressives pour étouffer l'opposition, mais ces mesures

peuvent avoir pour effet contraire d'exacerber la révolte. Les troubles internes peuvent se propager au-delà des frontières et menacer la sécurité dans la région. Ces dernières années, le phénomène a été observé, à divers degrés, au Soudan, en Angola et au Tchad.

Les pétro-États ont aussi une propension à utiliser les recettes qu'ils retirent des industries nationalisées pour mettre en œuvre des programmes ayant un effet déstabilisateur. Ces États se lancent souvent dans la mise sur pied de programmes d'armements sophistiqués (classiques ou de destruction massive) qui seraient trop coûteux pour eux si ce n'était des recettes tirées de l'énergie. En conséquence, d'autres pays, dans la région ou à l'extérieur, en viennent à craindre pour leur sécurité et à mettre en œuvre leurs propres programmes d'armements pour lutter contre la menace. Les recettes tirées de l'exploitation pétrolière et gazière sont aussi utilisées pour financer des actes de terrorisme ou de révolte qui créent des problèmes de sécurité dans de nombreuses régions du monde. L'appui du Hezbollah par l'Iran au Liban est un exemple actuel de l'effet néfaste de ce soutien du point de vue de la sécurité internationale.

Les activités exercées à l'étranger par des entreprises pétrolières et gazières nationalisées peuvent aussi menacer la sécurité internationale. La Chine, l'Inde et la Malaisie ont toutes des avoirs à l'étranger acquis par leurs entreprises pétrolières et gazières nationales. Comme nous l'avons signalé, de nombreux États qui ont recours à la nationalisation ne sont ni démocratiques, ni transparents dans leurs activités. La Chine se livre de manière particulièrement intense à l'acquisition et à l'exploitation de champs de pétrole et de gaz à l'étranger. Les activités d'exploitation elles-mêmes n'ont pas nécessairement un effet déstabilisateur, mais les autorités à Beijing ne se préoccupent pas de la conduite du pays hôte dans la mesure où les intérêts de la Chine en matière de pétrole et de gaz ne sont pas menacés. Partant, la communauté internationale perd le moyen de pression qu'offrent les investissements dans l'exploitation, étant donné que la Chine est disposée à investir dans des pays qui sont autrement incapables d'acquérir des fonds pour exploiter leurs ressources. Si ces pays devaient dépendre des investissements d'entreprises en régime d'économie de marché, plutôt que de producteurs nationalisés, pour exploiter les ressources énergétiques, ils seraient peut-être plus disposés à adopter une conduite modérée. La crise qui se poursuit au Soudan en est un exemple. Faute de l'investissement chinois dans l'industrie pétrolière soudanaise, le gouvernement de Khartoum aurait pu être persuadé de céder aux pressions de la communauté internationale l'incitant à la modération, afin de pouvoir exploiter ses champs de pétrole. Fait ironique, la Chine a acquis des intérêts dans le secteur pétrolier soudanais auprès d'entreprises occidentales qui ont dû quitter le pays en raison des protestations de groupes de défense des droits et de sanctions imposées par le gouvernement des États-Unis contre les entreprises américaines. Si ces entreprises avaient continué d'exercer leurs activités, l'Occident aurait pu avoir plus de moyens de pression sur le gouvernement à Khartoum qu'il n'en a actuellement.

La menace pour la sécurité que présente la nationalisation des industries du pétrole et du gaz est difficile à écarter. Les mesures réduisant la dépendance à l'égard de ces ressources limitent les recettes d'États, comme la Chine, l'Iran, l'Iraq sous Hussein, l'Arabie saoudite et le Venezuela, qui les utilisent à des fins ayant un effet déstabilisateur. Les pressions exercées sur de tels régimes ou les moyens utilisés pour les inciter à changer leur conduite peuvent contribuer à écarter la menace. Les solutions sont très complexes et il faudra beaucoup de temps et d'énergie pour les mettre en œuvre.

## Table of contents

---

Abstract.....	i
Résumé .....	ii
Executive Summary.....	iv
Sommaire.....	vi
Table of contents .....	viii
List of figures .....	ix
Issue.....	1
Discussion.....	2
The Nationalization of Assets.....	2
Oil and Gas Embargoes .....	6
The Cost of Oil and Gas Production.....	9
Oil, Gas, and Instability.....	11
The Future .....	12
Conclusion.....	13
References .....	14

## List of figures

---

Figure 1: Top 20 Oil Producers 2004.....	3
Figure 2: Key Crude Oil Spot Prices.....	9

This page intentionally left blank.

# Issue

---

The high price of oil and gas in recent years has focussed the attention of many people and governments on the issue of energy security. Much of the discussion has concerned perceptions of the pending end of the oil age as well as capacity shortfalls in the global oil and gas supply chain.<sup>1</sup> Perceived tightness in the oil and gas market has raised concern over the ownership of these assets by Nationalized Oil Companies (NOCs). This unease has been intensified by recent nationalizations and cases where governments renege on contracts with International Oil Companies (IOCs) and insist on taking a higher cut of the profits by raising taxes or other royalty streams. Additionally, existing NOCs, particularly Chinese and Indian ones, have increased their overseas activities in recent years increasing energy security apprehension.

According to many analysts, the security of oil supplies is endangered by the nationalization of oil companies. NOCs can reduce or close access to oil and gas that would normally be available to IOCs on the open market. In some cases, such an act could have the effect of a state-imposed embargo. While the possibility of this happening cannot be discounted, its probability is rather low because many of the major oil and gas producing states are dependent on revenues from production. Another factor militating against embargoes is that the market, even though it is dominated by NOCs, is largely free and its resources are fungible, meaning that, unless all producers support an embargo, alternative supplies are usually available.

This is not to suggest that nationalization of energy resources is not a threat to security, rather, that the nature of its threat lies in other aspects. The probability of withholding supply may be less than perceived in some quarters, but the impact of market manipulation is not. This consists of the maintenance of unreasonably high prices that inflate government revenue and contribute to destabilizing weapons programs and, in some cases, the export of terrorism and other forms of radicalization. NOCs are not the singular cause of the pricing issues since IOCs and governments that tax consumers who use energy resources also benefit from high prices. Moreover, the prices are also affected by genuine supply and demand related considerations.

This Technical Memorandum examines the factors influencing nationalization of oil and gas assets and their impact on energy security in the short and long term. It is intended to encourage debate about existing policies to safeguard oil and gas supply and suggest others that might increase not only energy security but global stability as well.

## Discussion

---

### The Nationalization of Assets

Oil producing states have periodically used their energy assets strategically, with varying degrees of success. The primary means by which this has occurred has been to deprive import-dependent states of oil or gas, or to threaten to disrupt their energy supply. Historically, the most noteworthy examples of embargoes and major disruptions include the US embargo of Japan in 1941, the Organization of Petroleum Exporting Countries (OPEC) embargo of the US in the 1970s, and the dramatic reduction of Iranian oil exports beginning with the revolution in 1979. A recent example was Russia's decision to cut, briefly, natural gas supplies to the Ukraine. The loss of pipeline pressure caused unexpected interruptions throughout Eastern Europe, not just within the Ukraine. It seems that Russia was motivated by a desire to receive market price for its gas exports to the Ukraine. However, some analysts considered the motive to be strategic. Regardless of intent, this event reminded many European leaders that oil and gas can be used as a strategic weapon with significant impact on their security.

The oil and gas security objectives of states that run nationalized oil companies and states that opt for the free market approach tend to differ. For free-market states, such as the US, oil and gas security is characterized by access to resources and a stable pricing regime. States that operate NOCs attempt to achieve security by acquiring and developing reserves. In some countries such as Venezuela, these activities are wholly domestic whereas in others, such as China, India, and Malaysia, they are both domestic and international. Currently, the oil and gas produced by NOCs is consumed by the country which owns the company or is sold internationally. This has no negative impact on overall market supply. However, implicit in the acquisitive model of nationalized energy security is the ability to use the resources strategically by diverting supply to the home market in times of global shortages, or even to cut off supply to an adversary state. Despite their distinct approaches to energy security, both the US and China tend to deploy military forces to protect their principal supply regions.<sup>2</sup>

China has been especially active in its efforts to obtain and control overseas oil fields, although this is not a new phenomenon. Indeed, there have been other examples of states attempting to diversify and guarantee their supply through the creation of state-owned oil companies. Italy, France, Germany, Spain, and Japan, amongst others, have all created state-owned companies that controlled or developed properties overseas. These existed even prior to the creation of OPEC.<sup>3</sup>

While the NOCs may not pose an immediate threat of disruption to oil and gas supply, it is noteworthy that approximately 80% of the world's oil reserves are held by state-owned companies.<sup>4</sup> In contrast, the seven major independent international companies (Exxon, BP, Royal Dutch Shell, Total, Chevron, ConocoPhillips, and Eni) control less than 5% of total global reserves.<sup>5</sup> In terms of output, the top 20 oil producing states in 2004, listed in Figure 1, produced an average of 60.2 million barrels per day (mb/d), roughly 72.5% of world production (83.02 mb/d in 2004). Of that total, OPEC countries accounted for 24 mb/d or 28.9% of the world total. When these top 20 are divided into those countries that have a



nationalized system or those that are open to the free market the statistics for 2004 are more compelling. The non-nationalized countries on this list include only the US, the UK, and Canada, which produced 8.8 mb/d or 10.6% of the global daily total. The remaining 17 countries on the list have nationalized oil and gas industries that accounted for approximately 51.4 mb/d or 61.9% of the daily global production in 2004.<sup>6</sup> Clearly, countries with nationalized oil and gas industries accounted for a significant portion of oil production in 2004 and they continue to do so, although, it is important to remember that IOCs can and do operate in countries that have nationalized their resources, such as Nigeria, Venezuela, and Libya. However, they operate at risk of losing control of their revenue or equipment if the state in which they operate decides to change the terms of their agreements.

**Figure 1: Top 20 Oil Producers 2004<sup>7</sup>**

Country and 2004 Rank	Estimated Reserves (billions of barrels 2006)	2004 Production Includes Crude Oil, NGL, Condensate, Refinery Gain
1. Saudi Arabia	267	10.4 mb/d
2. Russia	60	9.3 mb/d
3. USA	21	8.7 mb/d (crude <5.2mb/d)
4. Iran	132	4.1 mb/d
5. Mexico	13	3.8 mb/d
6. China	18	3.6 mb/d
7. Norway	8	3.2 mb/d
8. Canada	179 (includes Tar Sands)	3.1 mb/d
9. Venezuela	79	2.9 mb/d
10. United Arab Emirates	98	2.8 mb/d
11. Kuwait	104 (Some sources claim 48 billion – a difference of 5% of global reserves)	2.5 mb/d
12. Nigeria	36	2.5 mb/d
13. United Kingdom	4	2.1 mb/d
14. Iraq	115	2.0 mb/d
15. Other FSU (mostly Kazakhstan and Azerbaijan)	47	1.9 mb/d
16. Algeria	12	1.7 mb/d
17. Brazil	11	1.5 mb/d
18. Libya	39	1.5 mb/d
19. Indonesia	4	1.1 mb/d
20. Angola	6	0.9 mb/d

Countries rich in oil and gas reserves often believe that their nationalization would bring about tremendous economic wealth. However, producing states tend to suffer negative economic effects because oil and gas production tends to distort their economies, such that non-energy sectors suffer. Typically, the discovery and development of a large oil and gas industry has led to a dramatic increase in the value of the country's currency. In turn, this renders non-oil and gas exports less competitive and can destroy other sectors of the economy. Even industries aimed at domestic consumption can suffer as the appreciating currency and increased revenue can lead to a flood of cheaper imported replacements for products that were previously produced domestically. This condition, known as Dutch Disease, is not limited to oil and gas but can occur from any development that spurs a large inflow of foreign currency. It is so-named because the Netherlands suffered these consequences in the 1960s after the discovery of large natural gas deposits in the North Sea.<sup>8</sup> The energy endowment can be a curse.

However, oil and gas industries need not be detrimental to their countries' economic well-being. Advanced democratic countries tend to effectively absorb the revenue from the industry and redirect it to other sectors and programs that benefit their economies. However, autocratic states or weak democratic states tend to operate through systems of patronage which necessitate the misappropriation of funds from the energy sector to pay patrons. Often living standards are propped up through the creation of over-staffed low capacity bureaucracies or through the protection of inefficient industries. Little money is saved for future contingencies. When oil and gas prices are high, these countries, such as Gabon and Nigeria, enjoy relative prosperity but often begin to live beyond their means. When the prices fall, revenue drops dramatically and these countries suffer the consequence. Further compounding the stress of this boom and bust cycle is the demographic challenge posed by a rising youth cohort in many parts of the world. Those countries that are already challenged in absorbing energy resource revenues will be particularly affected by the youth bulge. Existing unemployment problems can be exacerbated as the number of working-aged citizens grows. Stability in these cases will depend on the government's ability to keep this cohort occupied and satisfied.<sup>9</sup> It is significant that this trend exists in many Middle East countries. Unemployed and disillusioned youth will likely provide a willing pool of recruits for radicalized Jihadist terrorist groups.<sup>a</sup>

In the short term, the gap between open and closed access markets is likely to widen. This is because of the recent trend toward the nationalization of oil and gas resources or the retroactive increase in taxation rates, often above 50%, in countries including Russia, Ecuador, Venezuela, and, more recently, Bolivia. While some observers might view this development as a troubling sign for the future, it is not necessarily one that will be sustained. Nationalization of these and other, valuable resources tends to follow the price trends. During periods of low oil and gas prices, governments often encourage development by IOCs in order to earn revenue. During these periods, the terms that foreign companies negotiate are

---

<sup>a</sup> Marc Sageman, Understanding Terror Networks. (Philadelphia: University of Philadelphia Press, 2004) p. 94. "Although most of the mujahedin had strong occupational skills... few were employed full-time." According to Sageman, few of the individuals in his sample who came from the core Arab (ie Middle East especially Yemen and Saudi Arabia) had full-time jobs. See also: David Landes, The Wealth and Poverty of Nations. (London: Landis, 1998) p. 492. Landes argues that the disillusioned unemployed or underemployed cohort in the Middle East has sought comfort in religious fundamentalism.

generally favourable. However, when prices rise and remain high for a sustained period of time, the incentive for high output is diminished since the government can reap good revenue with lower exports. It is during these periods that rulers in these countries exhibit a propensity to unilaterally change contractual obligations in their favour, generally raising taxes or, in more extreme cases, nationalizing the developments and assets outright.<sup>10</sup> The world is currently experiencing a sustained cycle of high or rising prices but, like all economic cycles, this should be followed by a period of falling prices. When this occurs, there will likely be a reversal of some of the nationalization activities and a review of the terms of contracts to encourage continued operation of existing fields and the development of new ones.

Nationalization also occurs for political reasons when political leaders attempt to gain public support by appealing to xenophobic sentiments. This was one of the main motivators for Bolivia's President, Evo Morales, when he announced on May 1, 2006 that Bolivia would nationalize all foreign oil and gas developments.<sup>11</sup> Other politicians often follow suit, as Peru's ultra-nationalist presidential candidate Ollanta Humala promised to do while campaigning for the May 2006 run-off election.<sup>12</sup> Humala was unsuccessful in his bid for election; so, for the time-being, Peru's oil and gas industry remains open.

Nationalization of resource-based industries in Latin America reflects the underlying struggle between authoritarian populists and liberal democrats. The populists, led by such leaders as Chávez in Venezuela and Morales in Bolivia, purport to be helping the poor and battling longstanding injustices by seizing control of oil, gas, and other fungible resources.<sup>13</sup> Yet President Morales' decision to nationalize the oil and gas industry in Bolivia appears to have been motivated by other factors. Morales had only been in office for 100 days on May 1, 2006 when the announcement was made. During that short time in office he had already started to lose support amongst voters, with polls indicating that his popularity rating had fallen from 80% to 68%. Morales has already indicated his intention to enact constitutional changes that will give him more control over state institutions. In order to change the constitution he will need a 2/3 majority in the assembly, so Morales needs to fill it with his supporters. Nationalizing the fossil fuel industry provides him with the money he needs to buy this support. That this sounds eerily similar to the electoral manipulation orchestrated by Venezuela's Hugo Chávez should not come as a surprise since Morales is being advised on voter registration by Venezuelan and Cuban officials. Moreover, in the week prior to the nationalization announcement, Morales met with Chávez and Fidel Castro in Cuba, where they signed an agreement to create a trade alliance known as the Bolivarian Alternative for the Americas, or ALBA, which means "dawn" in Spanish. This group opposes the US-backed Free Trade Area of the Americas.<sup>14</sup> Chávez seems to be pursuing a plan to unify Latin America against the US and to damage the American economy through control of energy resources.

However, the impact of nationalization is generally negative for the very people political leaders claim to be helping. This is the case for several reasons. First, given their populist proclivities, programs are often funded with little thought about their short or long-term viability and implications, or without establishing measures of effectiveness. These governments, Chávez's in particular, spend money as fast as they can get it, generally wasting it in the process.<sup>15</sup> Worse still, their nationalization efforts, and their unilateral increases to the taxes owed by foreign resource-based companies, discourage the foreign direct investment that could help the development of other sectors of the economy.<sup>16</sup> Finally, NOCs are notoriously inefficient compared to their privately-owned peers. Whereas private sector firms,

particularly publicly-traded ones, generally reinvest in their businesses to please shareholders and ensure long-term profitability, government-run resource-based industries tend to be a source for ready cash for the government to meet its current needs; hence needed reinvestment by petro-states tends to be scarce.<sup>17</sup> Consider that Venezuela's production has fallen 46% since Chávez took power in 1998. Similarly, Iran's daily production has fallen from 7 million b/d before nationalization in 1979 to below 4 million b/d today.<sup>18</sup> While increased prices can compensate for losses due to reduced productivity, the economies of these countries are more vulnerable to falling prices when they occur. In some cases then, nationalization of energy industries can cause more harm than good to those countries which undertake it.

While it may seem that the overseas operations of NOCs are generally benign, there can be a negative impact on international security. In cases where the host country lacks the resources to develop its extractive industries and, for reasons such as risk or censure, IOCs are reluctant or forbidden to engage, NOCs often move in and develop the industry. This can limit the ability of the international community to influence the behaviour of the host states because they are not dependent on it for the development of their resource-based industry. A current example of this is Sudan where Western interests (including Canadian producer Talisman) sold out primarily to China's oil major, the Chinese National Overseas Oil Company (CNOOC), in the 1990s<sup>b</sup>. They did so due to pressure exerted on them by vocal humanitarian advocacy groups in the West, which argued that continued involvement by Western companies was supporting the Government of Sudan's brutal war effort. Ironically, now that China monopolizes the Sudanese oil industry, Khartoum's need to respond to international pressure over its human rights practices is negligible since the Chinese are willing to overlook Sudan's questionable behaviour, provided their energy requirements are being met.<sup>19</sup> Beijing has watered down virtually all UN Security Council resolutions related to the current crisis in Darfur permitting the bloodshed to continue largely unabated.<sup>20</sup>

## Oil and Gas Embargoes

The fundamental concern of most developed states regarding nationalization of oil or gas fields is that their access to fairly priced resources will be denied. Unfettered access through a free market is the sine qua non of energy security for most developed states. Countries that nationalize their oil and gas often exclude or restrict access by IOCs making it difficult for these companies to expand their resource base.<sup>21</sup> The concern is that access to oil and gas will be impeded, either through extremely high taxes and royalties or by outright denial, by the countries that have nationalized the resources. However, this is less likely than some analysts suggest.

Fear of the use of the oil weapon has driven strategic energy planning since the first half of the 20<sup>th</sup> century. Ironically, there has only been one historical case of an effective oil embargo. This occurred in 1941 when the US, supplier of 80% of Japan's oil at that time, ceased exporting oil to Japan to protest its invasion of China. This led Japan to calculate that it needed to defeat the US in 18 months or face economic collapse. However, this example was unique in that Japan's trade routes were vulnerable and the capacity for alternative sources of oil to replace the lost American supplies simply did not exist at that time. Strategic planners

---

<sup>b</sup> India and Malaysia also purchased holdings from the departing IOCs, although China is, by far, the major player in the Sudanese oil industry.

should have perceived the uniqueness of the Japanese case since earlier efforts by the League of Nations to impose an embargo on Italy in 1935-36 failed because third-country sellers did exist in that market and would have rendered the embargo nugatory.<sup>22</sup> Despite the existence of empirical evidence to the contrary, fear of the oil weapon continues to drive the energy security policy of most industrialized states.

Apprehension of embargo has also contributed to higher energy costs. Despite the availability of much cheaper oil in the Middle East and Venezuela, the US deliberately chose to limit imports in the late 1950s in order to keep their own higher-cost producers operating. US legislators considered cheap oil to be a trap that would lead to dependence and then susceptibility to denial of supply; hence they opted to keep domestic suppliers operating. The oil producers no doubt influenced the decision-making process through their lobbying activities, and many congress members would have felt the political necessity of protecting American jobs. Yet, a major factor in the decision to keep US oil producers operating was fear of embargo.<sup>23</sup>

While this concern continued throughout the Cold War era, there were no attempts to use the oil weapon again until the 1973-74 OPEC embargo against the US in retaliation for its support for Israel during the Yom Kippur War. Yet this embargo, while it did drive up world oil prices, did not have the desired affect of changing US policy. Washington was able to find alternate sources for its crude supply and rode out the storm. Similarly, the US and other oil importing states overcame a second supply disruption caused by Iran in 1978. While import-dependent countries did manage through these crises, the perception amongst the public and most politicians is that the embargo had worked and that the oil weapon is a potent one.

This perception, while dubious, was useful in terms of energy security in that it lead Organization for Economic Cooperation and Development (OECD) member states to form the International Energy Agency (IEA) on November 15, 1974. The IEA's main role is to coordinate the response to oil supply emergencies, such as the 1973-74 embargo. Under the IEA agreement, the 26 member states<sup>24</sup> must develop and maintain a strategic reserve of oil supplies sufficient to allow their economies to function for up to 90 days with no net oil imports. For those members not reliant on oil imports, such as Canada, a stockpiling program is not required under the agreement. The act was a significant strategic energy security decision because it provided finite protection against further embargo activity. In short, member countries guarantee themselves 90 days of oil self-sufficiency and also undertake to help other members whose imports are interrupted.<sup>25</sup> The US strategic petroleum reserve has a capacity for 700 mb of oil. If the US were to lose 1 mb/d of imported oil due to an embargo or some other disruption, it could supply its oil needs for over a year and a half without having to reduce consumption.<sup>26</sup> With the introduction of strategic reserves, the major oil importers have insulated themselves against the impact of lengthy supply disruption. It seems likely that states dependent upon oil revenues — which most oil producing countries are — would suffer far more from an embargo than would their intended victims.

Perhaps more important than the development of strategic oil reserves are the changes that have occurred in the oil market since the 1970s. A significant one is that the number of suppliers has grown substantially, allowing consumers to diversify their energy sources as a strategic and economic choice. Also, technology has advanced to such a degree that formerly unprofitable sources of oil and gas are now more easily harvested. This has increased the available reserves substantially. Technology development has also simplified the transport and marketing of innovative products, such as liquefied natural gas or diesel produced from

coal, thereby increasing options for consumers worldwide. More efficient industrial processes have also lowered the energy consumption per US\$1 of GDP in most developed economies.<sup>27</sup> In short, most oil and gas importing states are less susceptible to embargoes than they have ever been.

This is not to suggest that the oil weapon is completely irrelevant in the contemporary security environment. Oil and gas markets are currently characterized by a narrow gap between supply and demand, resulting in limited capacity to withstand a major disruption for a lengthy period. In 2005, global oil demand was 83.6 mb/d while supply averaged 84.4 mb/d.<sup>28</sup> Current estimates suggest that there is just over 1 mb/d spare capacity so the loss of a major supplier's output, such as that of Iran, would create difficulties in global markets. It is possible, therefore, that a major producer could cause significant disruption in the short-term by cutting supply. Specifically, Iran may be pushing the nuclear issue now since it does have some leverage, thanks to its oil and gas production, under current market conditions.<sup>29</sup> Russia's cessation of gas supply to the Ukraine in January 2006 provides a current example of the continued utility of the energy weapon (gas in this case). However, this crisis was short-lived and likely motivated more by a business decision to sell gas at market value than it was by a Russian desire to flex its energy muscle. It is not clear that Russia could have afforded the political or economic costs of maintaining this embargo indefinitely.

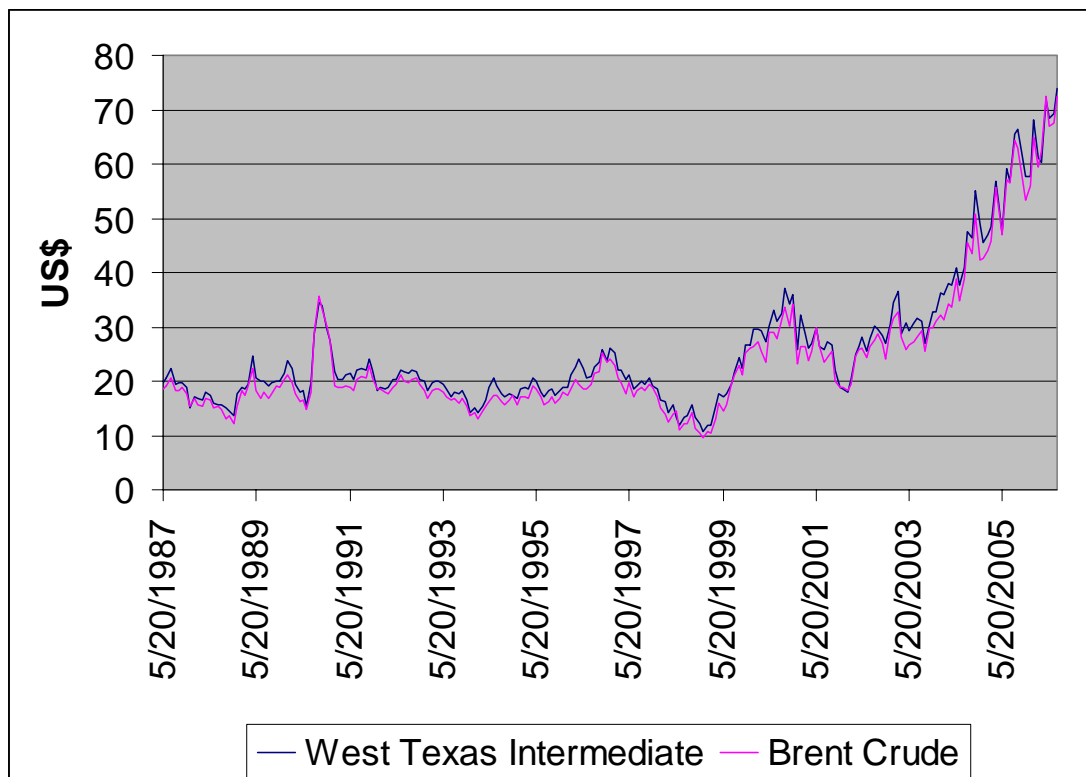
While 1 mb/d spare capacity may not seem extensive, it should be noted that this was the average per day throughout 2005, suggesting that over the course of the year a considerable amount was available for stockpiling. The narrow gap also reflects the time-lag between the decision to increase oil and gas infrastructure and the operation of the new equipment. Refineries, pipelines, processing facilities, wells, and other major infrastructure are time and resource intensive to construct. Companies and governments have reacted in recent years to the narrow margin between supply and demand and have invested in new infrastructure. These decisions have been made easier by the large profits attained through high oil and gas prices. High prices have dampened demand growth somewhat, also reducing the strain of the supply-demand challenge. The effects of the infrastructure investments will become apparent in the short term. Out to 2010 projected supply growth is considered more than adequate to meet demand, suggesting that oil costs may be reduced during that period.<sup>30</sup> Therefore, in the short- to mid-term, the possibility of oil-producing states effectively using the oil weapon should be considered unlikely.

Moreover, the market situation must be considered in light of recent experience. In the aftermath of Hurricane Katrina in 2005, approximately 15% of US oil production was temporarily shut down. Yet the US did not suffer significant shortages of oil or gas, as some analysts and the financial markets feared it would. The oil market adjusted and supply was maintained with a drawdown of 11 million barrels from the US strategic reserve.<sup>31</sup> In addition to the US contribution, other IEA members contributed 50.1 million barrels to the global market from their strategic reserves.<sup>32</sup> This implies that the market is more robust than many analysts suggest, so the loss of a major supplier, such as Iran, is not likely to have a severely detrimental impact. This is less true for gas since Liquefied Natural Gas is not yet predominant in the market. Thus, for countries still reliant on pipelines for natural gas, a greater vulnerability to supply interruptions exists. So, it seems that an oil and gas embargo has relatively limited application as a strategic tool. This begs the question, what then is the strategic value of these resources?

## The Cost of Oil and Gas Production

The price of a barrel of oil has risen significantly in recent years, as indicated in Figure 2.

**Figure 2: Key Crude Oil Spot Prices<sup>33</sup>**



The prices recorded in Figure 2 are influenced by several factors. The first major spike, peaking in October 1990, was largely attributed to the first Gulf War. This rise in price was relatively short in duration as the market returned to the \$20 range in early 1991. Following this aberration the markets enjoyed a period of prices ranging between the mid-\$20 range and dropping as low as \$9.45 for Brent Crude in December 1998. From that low mark to the present day, the price has generally risen, with the exception of a brief downturn September 2000 to February 2002, to the mid-\$70 range. Increasing prices during this period have been attributed to myriad causes, although the primary one has been the perception that demand will outstrip supply. Concerns over supply have also been influenced by growing demand in China and India. Another pricing factor applied by traders is the “fear premium” due to war, terrorism, piracy and political instability in many of the world’s major oil and gas producing regions. Some analysts suggest that the fear of terrorists disrupting the global market raises the price of a barrel of oil by \$10-\$15 US.<sup>34</sup> Finally, disasters, such as hurricanes or earthquakes or shipping accidents, can disrupt or threaten to disrupt the global flow of fossil fuels. These developments have all interacted in recent years to reduce the

perception of energy security amongst most consumer states and market traders who determine prices through their transactions.<sup>35</sup> Historically petro-states and petroleum companies have taken steps to keep prices high. Their principal means to do this is to limit supply. Although, this custom is not an officially articulated policy and has evolved without any specific agreements, it has become a standard practice.<sup>36</sup> This is not to suggest that producers do not expand their operations, rather that they do so in a measured way to avoid flooding the market and driving prices down. With the high prices of the past few years, companies have indeed embarked upon a development period, establishing new wells, new refineries, and new pipelines to increase supply marginally. However, they have done so under price conditions favourable to their sustained profitability.

While the wave of new infrastructure development will increase supply over the mid- to long-term, it will also drive up prices by increasing present operating costs. The rapid rate of expansion of certain sectors, for example oil sands in Canada, places demands on labour and equipment required to develop new sites that are difficult to meet. This increases the cost of wages, supplies, and services. It also slows the rate of development since there are limits on the available labour and equipment pool.<sup>37</sup>

It is also noteworthy that the price increase trend evident in Figure 2 corresponds with a period of exponential investment in the energy markets by international hedge funds. These funds influence the trading of oil and gas futures and can drive up prices as a result. Hedge fund investment in the energy sector rose from \$3 billion in 2000 to \$90 billion in 2005. Some analysts suggest that this level of investment has lead oil prices to be overvalued by as much as 50%.<sup>38</sup>

There is no question that the world oil market capacity to supply demand is currently tight. However, even with this reality, the cost of producing a barrel of oil or 1000 m<sup>3</sup> of natural gas is still low relative to price. The cost varies depending largely on the location, type, and quality of the resource used. Some studies indicate that oil from the Middle East could be sold at under \$5.00 US per barrel and still provide the producing state with significant revenue.<sup>39</sup> A more global, and thus conservative, distillation suggests that fuel derived from conventional oil is profitable when oil is priced at \$20.00 US per barrel; from tar sands, Brazilian cane-based ethanol, Gas-to-liquids, and Coal-to-liquids at \$40.00 US per barrel; Shale oil at \$50 US per barrel, US corn-based ethanol at \$60.00 per barrel; and Bio-diesel at \$80.00 US per barrel.<sup>40</sup> Given that the market has been trading oil at over \$60 US per barrel for months, most production options are profitable, some at an extremely high rate of return. Indeed, the multi-billion dollar international oil companies' profits are public testimony to this. Harder to track is the profitability of the nationalized companies since they rarely report to the public or shareholders.

On the face of this analysis, it would seem as though all that is happening is consumers are paying more than they might otherwise pay for oil and gas. This is not a problem for energy security or global security unless it leads to significant economic distortions and declining productivity. However, it is important to consider who profits from the high prices and what they are doing with the revenue. Certainly privately-owned companies are making considerable profits but so too are the NOCs, and this money is being funnelled back to regimes that often use these funds in destabilizing ways.



## Oil, Gas, and Instability

It seems clear that the threat posed by the nationalization of oil and gas resides not in the ability to withhold or hinder its delivery, but with the use of the tremendous revenue it generates in destabilizing ways. Instability related to oil and gas generally occurs in one of two ways. First, instability is exacerbated within oil states that are already fragile, often due to the perception that resources are not shared equally. The second way is the use of energy revenue to export instability in order to achieve strategic objectives. Neither of these tendencies is restricted to oil states that have nationalized their oil supplies. However, in those states that are weak democracies or autocracies, their impact is generally more profound. This is largely because the regimes in these states are not accountable for the expenditure of government revenue and thus they are more likely to misuse these funds.

Examples of domestic instability linked to the oil and gas industry are numerous. Nigeria is perhaps the most identifiable case, with regular gun-battles, inter-communal strife, kidnappings, theft, and destruction of infrastructure all attributable to disagreement regarding the sharing of oil wealth and the impact of the industry on the environment. Chad, with its neophyte oil industry, is also experiencing some instability attributable to oil revenue sharing. The separatist rebels in Cabinda province of Angola have fought for a larger share of revenue from the oil industry. Sudan's regional conflicts are also motivated, to varying degrees, by a desire to benefit from oil revenue. In all these cases the oil money is used by the government to arm itself against the forces calling for equitable sharing of resources. Africa is not the only continent to have suffered from this problem.<sup>41</sup> Likewise, petro-states in the Middle East, Asia, and Latin America have frequently endured violence attributable to their oil industries, either due to dissatisfaction over revenue sharing or due to the deliberate targeting of energy infrastructure in support of other grievances.

Key amongst those states using oil money in a questionable manner is Saudi Arabia. Wahabbists in the Saudi government and Saudi citizens regularly donate money to mosques and madrassas overseas, which then often become the hotbeds of radical jihadist movements.<sup>42</sup> For example, a Saudi diplomat based in Germany, Muhammed Jaber Fakihi, is alleged to have personally funded and arranged donations of over US\$1 million in support of the Al-Nur Mosque in Berlin. According to German security investigators, the mosque was frequented by Mohamed Atta and other members of the Berlin cell that hijacked one of the planes crashed into the World Trade Center during the September 11, 2001 attack on the United States.<sup>43</sup> Similarly, it has been reported that Riyadh provided money to assist the formation of the Islamic Courts Union (ICU) in Somalia. The ICU is currently engaged in a struggle with the Transitional National Government for control of the country. This conflict threatens to spread regionally, possibly involving Ethiopia, Eritrea, and Kenya. The injection of Saudi money has contributed to the current strife in Somalia by introducing an element of radicalized Islamic jihadism.<sup>44</sup> Similar funding support has reduced security in other parts of the world.

Iran is another country accused of similar acts, such as its support for Hezbollah in Lebanon. More alarming is Iran's use of oil and gas revenue to support its conventional and weapons of mass destruction (WMD) programs. Until recently, Libya's leader, Moammar Qaddafi, used money generated by Libya's state-owned oil and gas industry to fund terrorist groups (including the Provisional IRA), provide arms to insurgencies throughout North Africa and parts of the Middle East, and also to develop his own biological and chemical arsenal, as well as attempt to develop a nuclear weapons capability. There are various current and

historical examples of oil-states paying for otherwise unaffordable conventional, or WMD programs with oil money. Without the cash available from their energy industries these countries, and others like them, would be unable to engage in these destabilizing programs.

## The Future

The proclivity of states to nationalize energy industries is likely to wane in the future. This is because infrastructure investment made in recent years will become operational within the next five years.<sup>45</sup> When this occurs supply will increase and the price of oil and gas should decline somewhat. This should influence some countries to open up their fields to development by IOCs under more favourable terms. As noted, NOCs are notoriously inefficient compared to their private sector counterparts so, when the profit margin declines, the more efficient IOCs become more attractive to petro-states. Lower prices will benefit global security not only because they will reduce the cost of economic development thereby facilitating productivity growth, they will also reduce the funds available to regimes that are engaged in destabilizing arms programs and that support terrorist networks and insurgents. Overall, lower prices should improve international security.

However, it is probable that these regimes, Iran's especially, are aware of the likely coming drop in prices. This bodes ill for the coming months. Some analysts suggest that Iran's brinksmanship over its nuclear program has been influenced by Tehran's recognition that fear of the oil weapon will decline when the market situation improves. The thinking is that the regime recognizes that its ability to influence the international community by threatening a drastic cut in oil production will wane with time. This may partially explain the behaviour Tehran has exhibited in recent months. It also suggests that Iran will push this issue to conclusion in the near term instead of taking a more patient approach that would see its leverage decrease.

To reduce the impact on security posed by nationalization of energy resources, developed states could change their behaviour in order to reduce the price of oil and gas. With reduced prices, income for the petro-states will decline leaving them less money to engage in destabilizing activity. There are many options open to influence a price decline. Research on alternative energy sources is a major one. If gasoline and diesel can be replaced by a non-fossil fuel, the global oil and gas market will decline in value significantly. This, in turn would reduce the revenue generated from these commodities. More importantly perhaps, alternative sources of energy will reduce the negative impact of the end of the oil age when it does occur.<sup>c</sup> It is also likely to have a positive impact on the environment provided the alternatives are cleaner than fossil fuels. Promoting transparency and democracy so that petro-states become more accountable in how they spend their profits could also help to reduce the negative impact of nationalized oil and gas industries. It is not clear if current efforts to promote democracy will succeed, so perhaps these efforts will have little impact on energy security.

---

<sup>c</sup> The end of oil is a topic of much debate. Some analysts suggest it may start within the decade, others suggest it may come later in this century, and still another (albeit much smaller) school posits that it will never occur since oil is being produced naturally in the earth's core. For more information see: Peter Johnston, [Oil Security Trends](#). DRDC ORD TM 2005-33, October 2005.

## Conclusion

The nationalization of oil and gas production has occurred throughout the oil age. While there have been a number of highly publicized cases recently, they are not a new phenomenon but reflect a cyclical trend. During sustained periods of high prices some governments, generally non-democratic ones, attempt to profit by seizing energy industry infrastructure or retroactively altering tax regulations to take a higher cut from the production of IOCs. When prices drop for lengthy periods, these same governments often reopen their oil and gas fields under favourable terms to private firms from abroad. In the current market, characterized by a sustained period of high prices, nationalization of assets may continue, although there are perhaps few countries left that will be so inclined. It is likely that oil and gas prices will start to fall within the coming five years as more refinery capacity comes online and a larger cushion between supply and demand develops. Following this development, there may be a slight retrenchment in nationalization and IOCs will gain access to currently closed fields. When the profit margin declines, the inefficient nationalized producers are less attractive to petro-states than more efficient private sector IOCs.

Nationalized oil and gas can reduce international security, although not in the manner many people seem to fear. The misperception persists that energy-rich states can successfully implement embargoes in order to achieve strategic aims. While it is possible that this activity will occur in the future, its impact is likely to be negligible. Embargo is more likely to hurt the country which cuts off its production than the country being targeted. The availability of alternative suppliers and the possession of strategic reserves in most developed net-importer countries significantly reduce the potential that an oil or gas embargo will be effective. As noted, gas supply is more susceptible to effective embargo under current transport constraints. However, as liquefied natural gas becomes more prevalent, even gas embargo will become less effective as a strategic tool.

The most significant threat posed by the nationalization of energy production is the use of revenue in destabilizing ways. In those states where democracy and transparency are the norm, the money tends to be used in productive ways. However, petro-states that are not transparent and democratic will likely continue to employ their energy revenues in ways that reduce security in many regions. Support for terrorism and insurgencies may continue to be funded by these countries. Destabilizing arms programs may also be sustained through oil and gas revenue, such as Venezuela now appears to be doing with its extensive program to manufacture Kalashnikov assault rifles. Moreover, in some cases perceptions of unequal wealth sharing will provoke instability.

The impact of these threats to security can possibly be reduced by developing energy alternatives thereby reducing the revenue streams flowing into the petro-states. Programs to promote democracy and transparency, if successful, may also help reduce the number of states that engage in these destabilizing behaviours. However, these efforts will take a significant amount of time so it is expected that instability attributable to nationalized oil and gas industries will continue to be a security challenge for the near term.

## References

---

- <sup>1</sup> These issues were examined in: Peter Johnston, Oil Security Trends. DRDC ORD TM 2005-33, October 2005.
- <sup>2</sup> Matthew Yeomans, "The United States, China, and the race for oil security," The Atlantic Monthly. Vol. 295, Issue 3, April 2005, p. 48.
- <sup>3</sup> F.R. Parra, Oil Politics: A Modern History of Petroleum. (I.B. Taurus, London: 2004) p 50-52.
- <sup>4</sup> Gabe Collins, "Nationalized oil resources, political instability drive gas prices higher," [www.petroleumworld.com/Ed022306.htm](http://www.petroleumworld.com/Ed022306.htm).
- <sup>5</sup> Jad Mouawad, "As Profits Surge, Oil Giants Find Hurdles Abroad," New York Times. May 6, 2006.
- <sup>6</sup> These figures were taken from the table on the Gibson Consulting webpage. Gibson Consulting compiled them from the Oil and Gas Journal, World Oil, and the EIA databases. [www.gravmag.com/oil.html](http://www.gravmag.com/oil.html).
- <sup>7</sup> Op Cit.
- <sup>8</sup> Christine Ebrahim-zadeh, "Back to Basics," Finance and Development. March 2003, Vol. 40, No. 1.
- <sup>9</sup> Benn Eifert, Alan Gelb, and Nils Borje Tallroth, "Managing Oil Wealth," Finance and Development. March 2003, Vol. 40, No. 1.
- <sup>10</sup> Jad Mouawad, "As Profits Surge, Oil Giants Find Hurdles Abroad," New York Times. May 6, 2006.
- <sup>11</sup> Annette Hester, "Playing the gas fields," Globe and Mail. May 4, 2006, p. A19.
- <sup>12</sup> "Bolivia's energy move: urgent regional summit," Mercosur. May 3, 2006.
- <sup>13</sup> "The battle for Latin America's soul," The Economist. May 20, 2006, p. 11.
- <sup>14</sup> "Now it's the people's gas," The Economist. May 6, 2006, p. 37-38.
- <sup>15</sup> Brian Ellsworth, "Energy crisis? Venezuela gas is cheaper than water." Reuters, Wednesday May 10, 2006. See also "Improving on the Latin rate of growth," The Economist. May 20, 2006, p. 41.
- <sup>16</sup> "Improving on the Latin rate of growth," The Economist. May 20, 2006, p. 40-41.
- <sup>17</sup> "Oil and hauser," The Economist. May 6, 2006, p. 14.
- <sup>18</sup> "Why You Should Worry About Big Oil," Business Week Online. May 15, 2006. The drop in Iranian production is also analyzed by Jad Mouawad, "Facing Global Sanctions, Iran Uses Oil Fields to Seek Alliances," The New York Times. April 19, 2005. Mouawad's figures differ slightly from a high of 6 mb/d to under 4 mb/d. Despite this difference, the finding that state-owned and operated oil industries in undemocratic countries suffer productivity drops remains valid.
- <sup>19</sup> "No questions asked," The Economist. January 21, 2006, p. 43-44.
- <sup>20</sup> Jasper Becker, "China fights UN sanctions on Sudan to safeguard oil," Sudan Tribune. Friday, October 15, 2004. Rainer Hennig, "UN Darfur vote turns scramble for Sudan's oil," Afrol News. September 10, 2005.
- <sup>21</sup> "Why You Should Worry About Big Oil," Business Week Online. May 15, 2006.
- <sup>22</sup> Roger Stern, "Oil market power and United States national security," PNAS. Vol. 102, No. 5, January 31, 2006. p. 1650.
- <sup>23</sup> Parra. Stern, p. 1650.

- 
- <sup>24</sup> The original members at the IEA formation in November 1974 included: Austria, Belgium, Canada, Denmark, Germany, Ireland, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. Since that time Australia, the Czech Republic, Finland, France, Greece, Hungary, New Zealand, Norway, Portugal, and the Republic of Korea have joined expanding the number of member states to 26. Details pertaining to the establishment of the IEA were taken from the IEA website at [www.iea.org](http://www.iea.org).
- <sup>25</sup> “Agreement on an International Energy Program,” International Energy Agency. November 18, 1974.
- <sup>26</sup> Dr. Gal Luft, “Terrorist threats to energy security,” Testimony by Dr. Luft before the US Congress House Committee on International Relations Subcommittee on International Terrorism and Nonproliferation, July 27, 2005.
- <sup>27</sup> Max Singer, “Saudi Arabia’s Overrated Oil Weapon,” The Weekly Standard. Vol. 8, Issue 46, August 18, 2003.
- <sup>28</sup> “Oil Market Report,” International Energy Agency, July 12, 2006.
- <sup>29</sup> “Oil prices rise on renewed Iran nuclear concerns,” Associated Press. July 12, 2006.
- <sup>30</sup> “Medium-Term Oil Market Report,” International Energy Agency, July 2006.
- <sup>31</sup> “U.S. Strategic Petroleum Reserve Hurricane Katrina Drawdown and Sale Summary of Bids,” [http://www.fossil.energy.gov/programs/reserves/spr/SPRDrawdown2005\\_AwardSummary\\_All.pdf#search=%22US%20Strategic%20Reserves%20Katrina%22](http://www.fossil.energy.gov/programs/reserves/spr/SPRDrawdown2005_AwardSummary_All.pdf#search=%22US%20Strategic%20Reserves%20Katrina%22).
- <sup>32</sup> Yo Osumi, International Energy Agency. “Some Key Issues on Energy Security,” Presentation at the First ASEAN Seminar on Energy Security, Brussels, Belgium, October 5, 2006.
- <sup>33</sup> Data used to create this graph was taken from the Energy Information Agency website data base at [http://tonto.eia.doe.gov/dnav/pet/xls/pet\\_pri\\_spt\\_s1\\_d.xls](http://tonto.eia.doe.gov/dnav/pet/xls/pet_pri_spt_s1_d.xls)
- <sup>34</sup> Dr. Gal Luft, “Terrorist threats to energy security,” Testimony by Dr. Luft before the US Congress House Committee on International Relations Subcommittee on International Terrorism and Nonproliferation, July 27, 2005.
- <sup>35</sup> Peter Johnston, Oil Security Trends. DRDC ORD TM 2005-33, October 2005.
- <sup>36</sup> Parra.
- <sup>37</sup> “Oil that Glitters,” The Economist. July 22, 2006, p. 69.
- <sup>38</sup> “Oil that Glitters,” The Economist. July 22, 2006, p. 69-70.
- <sup>39</sup> Parra. Stern p.1652.
- <sup>40</sup> These figures are taken from “Steady as she goes,” The Economist. April 22, 2006, p.67. The International Energy Agency recently published figures that closely resemble those published in the Economist. See: “Medium-Term Oil Market Report,” International Energy Agency, July 2006, p. 26.
- <sup>41</sup> Peter Johnston, The Impact of Oil on Sub-Saharan African Security. D Strat A Research Note 2004/01, January 2004, p. 14-39.
- <sup>42</sup> “The Saudi Syndrome,” The New York Times. Monday, January 3, 2005. “Fueling Terror,” Institute for the Analysis of Global Security . ([www.iags.org/fueling\\_terror.html](http://www.iags.org/fueling_terror.html)) July 2005. Sonya Fatah, “Welcome to the ‘jihad factory,’” The Globe and Mail. August 19, 2006, p. F1. David E. Kaplan, “The Saudi Connection,” U.S. News and World Report. December 15, 2003.

---

<sup>43</sup> David Crawford, “How a Diplomat from Saudi Arabia Spread His Faith,” The Wall Street Journal. (online) September 10, 2003.

<sup>44</sup> Eben Kaplan, “Somalia’s High Stakes Power Struggle,” Council on Foreign Relations Backgrounder. August 7, 2006.

<sup>45</sup> “Medium-Term Oil Market Report,” International Energy Agency, July 2006.

## DOCUMENT CONTROL DATA

(Security classification of title, body of abstract and indexing annotation must be entered when the overall document is classified)

1. ORIGINATOR (the name and address of the organization preparing the document. Organizations for whom the document was prepared e.g. Establishment Sponsoring a contractor's report, or tasking agency, are entered in Section 8). <b>Centre for Operational Research Department of National Defence Ottawa, Ontario K1A 0K2</b>		2. SECURITY CLASSIFICATION (overall security classification of the document, including special warning terms if applicable)  UNCLASSIFIED	
3. TITLE (the complete document title as indicated on the title page. Its classification should be indicated by the appropriate abbreviation (S, C or U) in parentheses after the title) Nationalized Oil and Gas: Security Implications (U)			
4. AUTHORS (last name, first name, middle initial)  Johnston, Peter, F.			
5. DATE OF PUBLICATION (month Year of Publication of document)  September 2006		6a. NO OF PAGES (total containing information. Include Annexes, Appendices, etc.)  24	6b. NO OF REFS (total cited in document)  48
7. DESCRIPTIVE NOTES (the category of document, e.g. technical report, technical note or memorandum. If appropriate, enter the type of report e.g. interim, progress, summary, annual or final. Give the inclusive dates when a specific reporting period is covered.)  TECHNICAL MEMORANDUM			
8. SPONSORING ACTIVITY (the name of the department project office or laboratory sponsoring the research and development. Include the address). ASSISTANT DEPUTY MINISTER (POLICY) NATIONAL DEFENCE HEADQUARTERS 101 COLONEL BY DRIVE OTTAWA, CANADA K1A 0K2			
9a. PROJECT OR GRANT NO. (if appropriate, the applicable research and development project or grant number under which the document was written. Please specify whether project or grant.)  N/A		9b. CONTRACT NO. (if appropriate, the applicable number under which the document was written.)  N/A	
10a. ORIGINATOR's document number (the official document number by which the document is identified by the originating activity. This number must be unique to this document.)  TM2006-30		10b. OTHER DOCUMENT NOS. (Any other numbers which may be assigned this document either by the originator or by the sponsor.)  N/A	
11. DOCUMENT AVAILABILITY (any limitations on further dissemination of the document, other than those imposed by security classification.) <input checked="" type="checkbox"/> Unlimited distribution <input type="checkbox"/> Distribution limited to defence departments and defence contractors; further distribution only as approved <input type="checkbox"/> Distribution limited to defence departments and Canadian defence contractors; further distribution only as approved <input type="checkbox"/> Distribution limited to government departments and agencies; further distribution only as approved <input type="checkbox"/> Distribution limited to defence departments; further distribution only as approved <input type="checkbox"/> Other (please specify):			
12. DOCUMENT ANNOUNCEMENT (any limitation to the bibliographic announcement of this document. This will normally correspond to the Document Availability (11). However, where further distribution (beyond the audience specified in 11) is possible, a wider announcement audience may be selected.)  Unlimited			

13. ABSTRACT (a brief and factual summary of the document. It may also appear elsewhere in the body of the document itself. It is highly desirable that the abstract of classified documents be unclassified. Each paragraph of the abstract shall begin with an indication of the security classification of the information in the paragraph (unless the document itself is unclassified) represented as (S), (C), or (U). It is not necessary to include here abstracts in both official languages unless the text is bilingual).

This Technical Memorandum examines the energy security implications resulting from the preponderance of nationalized oil and gas companies. While there is a perception that the main threat from these companies is an embargo, the likelihood of this occurring is overstated. Moreover, the impact of an embargo, particularly an oil embargo, is not likely to be as detrimental as many analysts think. Yet, nationalization of oil and gas assets does have a negative impact on security by contributing to existing political tensions in some countries, by limiting the opportunity of the international community to influence the behaviour of some states, and by providing funds for destabilizing arms programs, terrorists, and insurgents.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS (technically meaningful terms or short phrases that characterize a document and could be helpful in cataloguing the document. They should be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location may also be included. If possible keywords should be selected from a published thesaurus, e.g. Thesaurus of Engineering and Scientific Terms (TEST) and that thesaurus-identified. If it is not possible to select indexing terms which are Unclassified, the classification of each should be indicated as with the title.)

Nationalized Oil Companies	Tar Sands
International Oil Companies	Middle East
IEA	Iran
OPEC	Latin America
OECD	ALBA
Oil	Peru
Gas	Strategic Reserves
Resources	
Embargo	
China	
Nigeria	
Venezuela	
Libya	
Ecuador	
Bolivia	