

CCISS

Critical Energy Infrastructure Protection Policy Research Series

Oil Platform Security: Is Canada Doing All it Should?

Peter Avis

No. 3 - 2006

This study is undertaken as part of the CCISS Critical Energy Infrastructure Protection Policy Research Project, supported by a Contribution Agreement with Natural Resources Canada, Energy Infrastructure Protection Division

MARCH 2006

CCISS
Critical Energy Infrastructure Protection
Policy Research Studies
No. 3 – 2006

**Oil Platform Security:
Is Canada Doing All it Should?**

Peter Avis*

Canadian Centre of Intelligence and Security Studies
The Norman Paterson School of International Affairs
Carleton University, Ottawa
March 2006

Oil Platform Security: Is Canada doing all it Should?

Peter Avis

Canadians have been forced to learn a great deal about National Security in the four years since 9/11. However, it is only since the London bombings in 2005 and the more recent murder of a Canadian diplomat, with the wounding of three Canadian soldiers, by a Taliban suicide-bomber in Afghanistan in early 2006, that we have collectively (and reluctantly) ventured into the macabre risk-management equation of security against global militant Jihadist terrorism.

We have learned that the terrorist changed the battlespace and that the sea matters. Moreover, there is evidence that only the perception of a direct threat on National Security will provide the impetus to adopt preventive and pro-active approaches to security.¹ Once this perception is strongly held, integrated government, intelligence and information sharing, and interoperability are some key tools that nations utilize to remedy vulnerability gaps in their national security apparatus.

As we study the security landscape of western nations, it is apparent that energy is a critical resource that drives the economic engine of modern society. And oil and gas sit at the top of the importance list of available energy sources. Certainly, maritime transportation shipping of petroleum across the seas in oil tankers represents an economic lifeline that many countries, even the most powerful, need to survive. Petroleum-based energy is so important that the United States, the world's thirstiest energy consumer, is altering legislation this spring to allow drilling for oil and natural gas in new areas of the Outer Continental Shelf that have been protected until now.² Furthermore, the vulnerability of oil production fields, port storage facilities, as well as offshore drilling platforms, the very source of the petroleum products, can be seen as inter-connected critical infrastructure nodes that make the petroleum flow to nations hungry for energy.

This article analyzes the measures that several countries have taken to bolster their maritime security stance against the modern terrorist threat to offshore oil platforms. It then treats the security approach taken in Canada with a view to assessing if the present security stance concerning offshore platforms is adequate.

Global Militant Jihadist Terrorism – Threat to Energy Infrastructure

In late 2004, al-Qaeda “openly proclaimed a strategy of harming Western economies by disrupting oil supplies and causing prices to soar.”³ Martin Rudner, in his

* Captain (N) Peter Avis is Director-General Requirements, Strategic Joint Staff, Department of National Defence. The opinions expressed in this Study are those of the author personally, and do not necessarily reflect the viewpoints of the Government of Canada, its departments or agencies. This study is based on an original presentation to the CCISS Conference on *Critical Energy Infrastructure Protection Policy: Assessing Threats, Vulnerabilities and Responses*, Ottawa, 3 March 2006.

upcoming article *Protecting North America's Energy Infrastructure Against Terrorism*, brings our attention to this focus on the interruption of the world's crude oil supply as a main piece of a seven-stage, twenty-year grand strategy of the modern jihadist movement.⁴ If the terrorist "movement" follows this grand strategy, all energy infrastructure in western countries, particularly oil energy infrastructure, will be at risk.⁵ As we have already seen in Iraq, where the first stage of aggressive terrorist insurgency has taken place against the oil industry, this assault includes attacks on oil pipelines, trunk lines, refineries, oil wells, storage tanks, oil company workers, loading terminals, and offshore oil platforms. It is this final area of critical energy infrastructure that we want to focus on.

It is not just Iraq that is feeling the threat to energy infrastructure. A recent maritime threat assessment from the Australian government stated that al-Qaeda and its associated groups, Abu Sayyaf in the Philippines and Jemaah Islamiah in Indonesia, "are known to have a capacity to conduct significant terrorist attacks, including against maritime interests."⁶ Alexey Muraviev, an Australian security expert, has stated that terrorists have the operational capabilities to mount a terrorist attack at sea. He notes that these capabilities could be on a variety of targets including coastal and offshore infrastructure – specifically offshore oil platforms.⁷ These findings and other assessments by Australian intelligence agencies have convinced the Australian government to invest significant resources in the form of a series of linked initiatives to form an integrated approach focused on the security of offshore oil and gas platforms. The energy is deemed so important to Australian economic well-being and the threat is perceived as direct enough to provoke major resource expenditure to mitigate risk against the threat of terrorist attacks against these facilities.

In a more global perspective, it should be noted that President Vladimir Putin will make energy security the theme for the G-8 Meeting in St. Petersburg. After concerns over Saudi Arabia, Iraq, and Iran, experts are starting to focus on Nigeria, who pumps over 2 million barrels of oil a day, and who has recently experienced three rebel militant attacks against offshore oil rigs in the Gulf of Guinea. As Harlan Ullman of the Washington Times states "with a population of about 130 million, half of whom are Muslim, and a tragic history of civil war and violence and endemic corruption, it would be foolish to think that jihadists somewhere do not have an eye on Nigeria."⁸

The case can be made that the lonely offshore platform is perhaps one of the easiest infrastructure targets of all. There are thousands of oil platforms around the world; the U.S. alone operates over 4000 oil platforms spread along the U.S. coastline. While they form a technical network, from a security perspective they are lone targets that can be attacked by terrorists simultaneously from the surface, the air, and from under the water's surface. Access control to the platforms is often lax or non-existent. Thus, a well-placed explosive on a supply boat or ocean tug which carries supplies to the oil rig, or a guided missile from any sort of passing vessel or aircraft could instantly produce a huge fire, loss of life, technical destruction, environmental hazard, and economic losses that could cause market upheaval.

Gaps in protection against these threats to offshore energy infrastructure represent important vulnerabilities in a nation's national security fabric. In the Critical Energy Infrastructure Protection Vulnerability Matrix that Dr. Rudner presents in his upcoming paper, the indicators of threat and vulnerability emphasize the relatively high level of terrorism risk accorded to offshore platforms as well as other key energy infrastructure such as trunk pipelines, the electric grid, and control facilities.⁹ In this matrix, the criticality of an attack on offshore platforms is assessed as High. This means that the impact resulting from such an attack would be significant to a country's well-being. Moreover, Dr. Rudner points out that criticality to energy infrastructure extends far beyond purely economic concerns. "The consequential effects of a terror attack on North American energy infrastructure would likely reverberate on public confidence in the ability of government to protect core national interests, and on neighbouring countries' willingness to depend on partners for national security generally, and for energy sourcing in particular."¹⁰ In the context of criticality for Canada, the worst case scenario would be the destabilization of the sustainability of North American energy integration. Therefore, high risk due to ongoing vulnerability could have the effect of convincing other friendly governments, especially the United States, to tighten controls on cross-border movements of goods such as oil and other energy products and to seek more dependable sources elsewhere. Inaction, in the case of improvements to security to critical energy infrastructure – including offshore oil platforms, is very risky business indeed.

Offshore Platform Security – What are Canada's Allies Doing?

United States

Shortly after the events of 2001, a discernable push from the United States on the international community took place to set international standards for increased security of maritime shipping and port infrastructure facilities around the world. This, of course, produced the International Shipping and Port Security Code (ISPS Code) which was brought into force on 1 July, 2004. Based on their status as the world's largest energy producer and consumer of commercial energy, the U.S. saw their energy infrastructure, including offshore platforms, directly threatened by terrorists in a serious way. As Neal Adams states in his essay "Terrorism and Oil," Americans hold the strong belief that given a "disruption of oil facilities and offshore oil including the infrastructure of gas ... even a minor dent in the supply line could cause an immediate job reduction of some 10 million Americans, not to mention that the economic disaster that would follow not only for the American people, but the majority of the world dependent on oil."¹¹

As Peter Tweed, a Californian offshore minerals management director, states, "On September 11, 2001, we all got a new safety issue to deal with – terrorism."¹² Thus, both the civilian and military portions of American society perceived a direct threat from terrorism on their energy infrastructure. With regard to offshore platform security, the ISPS Code regulations for platform security were invoked and existing regulatory and compliance programs were enhanced. Both military and civilian security forces were engaged. The American offshore oil and gas regulators and operators were starting from an existing foundation of anti-terrorism laws and regulations that dealt with evacuation, fire, explosion, and hazardous materials spills. These practices were already being exercised regularly in 2001. Improvements came in the form of prioritization of facility

importance, regional and local alert systems, increased Coast Guard presence and patrol, as well as collaboration with Northern Command's anti-terrorism "Red Teams" to establish risk management strategies to mitigate the effects of terrorist attacks on offshore facilities. Moreover, the U.S. military joined this national effort by improving intelligence analysis, increased interagency exercising with littoral combat ships and fighter aircraft, and the crucial integration of special forces teams.

In short, the U.S. assessed that their offshore energy infrastructure was a vulnerable terrorist target and they took strident action to increase security of these high-value assets – all 4194 of them. Regulations, agreements between government and private industry, and legislation at all levels – particularly in the Maritime Transportation Security Act of 2002 which provides for the creation of a National Maritime Transportation Antiterrorism Plan -- represented the understanding that prevention, mitigation, and preparedness was necessary in the new threat environment.

Australia

Countries such as the U.S. and Australia that feel a threat directly, particularly that of global militant Jihadist terrorism, are likely to heavily weigh their priorities in favour of cooperative and proactive approaches in the key activity areas of collaboration and domain awareness. "By enacting these preventative approaches, the countries so disposed seek actively to prevent major attacks on native soil and to neutralize the threat before it takes shape far beyond their borders."¹³

Ninety per-cent of Australian petroleum wealth is found offshore. Australia owns numerous mobile oil and gas platforms and tens of permanent platforms in several areas around the island continent.

Accordingly, the Australian government's approved approach "seeks to reduce the likelihood of a maritime based terrorist attack through integrated measures that aim to reduce both the level of threat to offshore assets and their vulnerability."¹⁴ The Australian strategy for the enhancement of offshore maritime security is based on the premise that the level of threat posed by terrorists can be reduced through deterrence and disruption.

A government Task Force on Offshore Maritime Security was established in July of 2004 and was led by the Department of the Prime Minister and Cabinet, a body similar in nature to our Canadian Privy Council Office. Their conclusion concerning jurisdictional responsibilities showed that police capability is simply not available for offshore maritime security, particularly where police intervention might be opposed by force. Consequently, the government's response was "to take direct responsibility for counter-terrorism prevention, interdiction, and response in all offshore areas of Australia."¹⁵ In what amounted to a fundamental change in Defence policy, the government decided that the Australian Defence Force would take direct responsibility for offshore counter-terrorism. This decision led to three major initiatives that are in the midst of being implemented:

- 1) The establishment of the military-led Joint Offshore Protection Command;
- 2) The implementation of the Australian Maritime Identification System; and

3) Augmented security patrols.¹⁶

Citing no need for a Coast Guard to perform these tasks, the Task Force recognized that excellent work accomplished by the Customs-led Coastwatch organization and directed that the Joint Offshore Protection Command would build on the existing civilian organization while linking it directly under the leadership of the operational command structure of the Defence Force. While backing off from an original idea of enforcing a 1000-mile security zone around Australia, the Task Force built on the ISPS Code arrangements to set up an “information system” instead of the security zone. Specific vessel and cargo information is required from all vessels 1000 nautical miles or 96 hours from the planned port of arrival. Once vessels enter the 200 nautical-mile economic zone, the aim is to identify and track all vessels other than daytime recreational craft. Augmented naval and Customs patrols of the major production areas in the Timor Sea and the North West Shelf are filling the requirement for deterrence and quick response to potential incidents.

The direct protection of each offshore platform through the provision of appropriate on-site security measures is an industry responsibility. It represents the final element in the Government's integrated approach to enhanced offshore maritime security. To assist industry, the Maritime Transport Security Act 2003 (MTSA) will be extended to apply to offshore oil and gas facilities to provide the necessary advice and oversight in the implementation of any necessary additional security measures.

Australia has continued a clear strategy for maritime security for ten years and now has augmented its security capability for offshore concerns through fundamental legislation and policy changes concerning civil and military jurisdictional relationships on the water. Following an Australian Security Intelligence Organization (ASIO) assessment in 2004, John Howard's government took aggressive steps to ensure that security, not just safety and environment, was a central part of policy regarding offshore platforms.

The Netherlands

The approaches that the Dutch government has adopted to enhance maritime security stem from the compromises that the Netherlands has had to make given their strong support of multi-lateral institutions and their key strategic position as a trade hub for an enlarged Europe. As such, the Dutch must often abide by decisions that are compromises from the larger community and sometimes the lack of decisions by these bodies.

As the Netherlands' maritime domain awareness experience will attest, at a certain point, the complexity of vessel traffic passing by one's coasts becomes overwhelming -- thus decreasing the achievability of awareness as one opens from the coast. Complexity stemming from multiple partners in vessel traffic management as well as extremely dense traffic, makes domain awareness less attractive to invest in than other security activities which then take priority.

The Netherlands is Western Europe's largest natural gas producer with one-third, or 160, of its platforms offshore; it also has an expanding offshore oil industry.

The Dutch are strong supporters of the ISPS Code for port facility security. The on-site protection of each offshore platform through the provision of appropriate security measures is an industry responsibility. The focus of offshore platform protection is squarely in the areas of environment and internal safety. The Netherlands Coast Guard, which is part of the Navy, is organized to command and control the combating of pollution and safeguarding of the environment through safe navigation.

Counter-terrorism is directed by the Ministry of Justice and is supported through the law enforcement portion of the Coast Guard mandate. Therefore, systematic Coast Guard patrols are a measure used to increase presence and deter attacks on offshore platforms. However, the 7 Netherlands Special Boat Squadron, one of the Dutch Special Forces and Counter Terrorism units, has British-SAS trained maritime special forces experts who are capable of counter-terrorism operations to protect off shore oil platforms from terrorist attack. The unit is specifically trained in maritime counter-terrorism operations, particularly concerning Dutch offshore oil platforms.

The Dutch approach to terrorist threats against offshore platforms uses collaboration and responsiveness to deal with a perceived threat. Their legislation and policy has remained steadfast in focusing private security frameworks around anti-pollution and safety. Anti-terrorist action remains as part of the overall Ministry of Justice effort to bring law-enforcement into the prevention and mitigation game against a mounting terrorist presence.

Norway

After 9/11, countries like Norway started to perceive the terrorist threat to be generally indirect (that is, they concede the threat exists but believe it to be directed towards other countries). Thus, they are more inclined to weigh reactive activities the highest so they preserve their independence of policy selection and provide insurance for what they already possess.¹⁷ Since the Madrid bombings in 2004, Norway has increased its focus on the potential terrorist threat to their homeland, particularly on maritime transportation and offshore platform security.

Close to seventy per cent of Norwegian exports relate to maritime activity – Norway has been the world's third largest oil exporter for several years producing about 4.3% of the world's oil.¹⁸ The North Sea is spotted predominantly with Norwegian and British offshore oil platforms – an indicator of Norway's recent economic success in this sector. The offshore oil fields also have strategic importance in that Norway may adjust its output in coordination with OPEC production increases and decreases thereby playing an important role in the adjustment of world oil prices when demand fluctuates. However, some of the older North Sea oil fields are in decline so natural gas has recently become a focus for exploitation. Norway, along with the Netherlands, is now a key European supplier of natural gas from new fields that have come on line not just in the North Sea but in the Norwegian Sea and Barents Sea as well. A constant tension between

environmental concerns and petroleum exploitation keeps the Norwegian government balancing its future options.

Thus, oil and gas production is an extremely important strategic asset for Norway. While most countries seem to place priority on collaboration and domain awareness in maritime security, only Norway chose responsiveness as their top key activity. As such, the widespread use of the elite police response units factors as a best practice in a more reactive activity area. The combination of Delta Force (elite police team) with specially-trained police officers in all regions provides the round the clock capability to carry-out counter-terrorism tactics in all maritime venues across the country. Furthermore, the cross-training with the military special forces known as FSK ensures that tactical hand-offs to world-class operatives works smoothly in all counter-terrorism activities including vessel take-downs or oil platform assaults. As with other countries, the direct protection of each offshore platform through the provision of appropriate on-site security measures is an industry responsibility.

Canada's Offshore Platform Security

Canada's total oil production was 3.1 million barrels per day in 2004, making it the seventh-largest oil producer in the world.¹⁹ Canada sends over 99 percent of its crude oil exports to the U.S., and some 56 percent of Canada's natural gas production is exported to the U.S.²⁰ It is important to note that the U.S. and Canadian natural gas oil grids have become closely interconnected, with Canadian natural gas supplying an increasing share of the total U.S. demand. From the economic perspective, Newfoundland has undergone tremendous growth in its provincial economy due to developments in the offshore oil industry. There are considerable, proven offshore oil reserves which are primarily found in the Jeanne d'Arc Basin, east of St John's harbour. The three oilfields in this basin are the Hibernia field, the Terra Nova field, and the recently opened White Rose field. The British Columbian coast also contains significant reserve; however, due to a federal ban on offshore oil activities there has been no production to date.

There are also natural gas deposits on the Atlantic Coast. The Scotian Basin, off the coast of Nova Scotia, is the center of production with the Sable Island Offshore Energy Project at its heart. Offshore oil operators in Newfoundland predict that they could also produce sizable natural gas volumes from their reserves. Moreover, the Mackenzie Delta, which is in the Northwest Territories, boasts a significant arctic frontier natural gas deposit which will likely acquire offshore platforms within the next ten years.

Even though the oil and natural gas industry is thriving and represents a significant percentage of the nation's GDP, the legislation for operating offshore platforms has not been updated since the late 1980's at either the federal or provincial levels. Felix Kwamena of Natural Resources Canada (NRCAN) concedes that the focus of the federal legislation and the accords with Newfoundland and Nova Scotia are written for a different era, focusing primarily on safety and the environment – with no mention of security from the terrorist threat that now exists.²¹ Furthermore, neither the National Security Policy nor the existing position paper for the Critical Infrastructure Protection

Strategy even mention offshore platforms as a particular concern in the security environment.

There is, of course, the recently-promulgated International Shipping and Port Security (ISPS) Code that brings a standard security and risk-management formula to the maritime communities around the globe. This code lays out guidelines and methodologies to enhance security in ships as well as ports and their infrastructure installations and includes the possibility of terrorist attacks in its rationale. Importantly, offshore platforms are included as part of port infrastructure in the general sense. The problem is that the idiosyncrasies of offshore platforms, like their isolation and their integration into the continental shelf and its waters, are not taken into account when tailoring security needs.

Also, there has been some good work by the Department of National Defence in the standing up of the Maritime Section of Joint Task Force Two (JTF2) in the Special Operations Forces Command, as it is now called. This highly trained special forces section works on the water, practicing anti-terrorist tactics on merchant ships, port facilities, and offshore platforms. While there has been some coordination between authorities over utilization of this capability, there are challenges of distance, pre-placement of equipment, and frequency of training in the various venues of their mandate.

While the National Security Policy and the Position paper on Critical Infrastructure Protection Strategy mention energy security as a concern, jurisdiction over the energy industry is a shared responsibility between different levels of government and between the public and private sectors.²² Security, law enforcement, defence, administration, regulatory authority, and emergency preparedness are similarly spread across various departments and agencies. As a result, the road to change is a difficult one which will take top-down direction to coordinate.

It should be noted, however, that NRCAN has been collaborating with the federal departments, provinces, and private industry to bring legislation concerning offshore platforms up to date with regard to security -- particularly since the promulgation of the National Security Policy and the advent of the Security and Prosperity Partnership (SPP). A draft Memorandum to Cabinet that has been prepared has achieved consensus with the coastal provinces (but not the territories yet) and with private industry. It treats the challenge through the prism of all-hazards security and works out a system of security reports, alerts, and zones around the platforms. The problem here is that, try as they may, NRCAN cannot move the file on to the forward agenda of the Cabinet committees. The linkages to several Acts, including the Public Safety Act and the Marine Transportation Act, as well as current Public Health initiatives, have caused the file to be delayed and pushed aside from the priority flow of items that compete for Cabinet review. Unless situational awareness of federal decision-makers is raised, the offshore platform file could languish for several more years.

Conclusion

As Dr. Martin Rudner of Carleton University states, “Offshore production platforms may be vulnerable to assault from sea or air. . . . Alas, gaps in protection represent vulnerabilities to determined terrorists.”²³ Canada’s oil and natural gas platforms are isolated and distant from traditional law enforcement and even military security assistance. They are increasingly important to national and provincial economies and are highly interconnected with the superpower’s energy networks. It is quite clear that tanker ships that go to the offshore platforms in Canada with foreign crude do not have a high level of access control applied to them.²⁴ There are no security forces required on the platforms themselves and therefore they remain vulnerable to attack from above, on, and below the water’s surface. Furthermore, military assistance is far-away and not regularly exercised on the various platforms that Canada owns. Most importantly, legislation and policy at both federal and provincial levels is not up-to-date and does not lay complete ground rules for the protection of offshore platforms which necessarily must include the prevention and mitigation of terrorist attacks, the preparation of crews to be ready to react to attacks, a rapid-reaction, on-site response capability against attacks, and the organization for recovery from an attack in the energy network across the relevant coast.

This is an issue that calls out for debate. Other like-minded countries with offshore platforms have focused national efforts to create separate national strategies based on the protection and security of these precious assets. Even if proper threat assessments reveal that the actual threat to Canadian offshore platforms is low, it would seem to be in the national interest to have the debate and take steps to insure this very important and growing portion of our economy from a possible future threat.

Among its many priorities, Canada’s government should fast-track this issue so that the Canadian mindset, which is slowly adapting with regard to the threat of terrorism, can engage at the policy level to create the necessary change required by a new era. Finally, a follow-on document to the “security framework” provided in the National Security Policy should be undertaken to give Canada its first true national security strategy. Perhaps to be entitled the “Canadian Security Strategy” (to allow it to be different from the American National Security Strategy), this document would embrace a strategic approach across the pillars of society and would highlight, among other things, critical energy infrastructure protection as a significant concern. It would also set a more aggressive tone for the security and protection of offshore platforms against potential terrorist attacks on energy infrastructure targets off Canada’s coasts.

ENDNOTES

¹ Captain(N) Peter C. Avis, *Comparing National Security Approaches to Maritime Security in the Post-9/11 Era* (Halifax: Dalhousie University Press), 96.

² Justin Blum, “Offshore Drilling Backers Smell Victory,” *The Washington Post*, 21 February 2006, D01.

³ Mordechai Abir, “The Al-Qaeda Threat to Saudi Arabia’s Oil Sector,” *Jerusalem Center for Public Affairs, Jerusalem Issue Brief*, Vol. 4, No. 13 (28 December 2004): <http://www.jcpa.org/brief/brief004-13.htm>.

-
- ⁴ Fouad Hussein, *Al-Zarqawi – al-Qaeda’s Second Generation* (Paris, 2005), in Arabic; quoted in Yassin Musharbash, “What al-Qaida Really Wants,” *Der Spiegel*, 12 August 2005; cited by Martin Rudner, “Protecting North America’s Energy Infrastructure Against Terrorism: Threats, Vulnerabilities, and Policy Responses,” in to be published article.
- ⁵ Tony Corn, “World War IV As Fourth-Generation Warfare.” Available from <http://www.policyreview.org/000/corn.html> (Cited 13 February 2006).
- ⁶ Australia, Attorney General. Statement issued by the Office of the Australian Attorney General to Cargo Security International on 30 April 2004. Available from <http://www.cargosecurityinternational.com/print.asp?id=2579> (Cited 15 September 2004).
- ⁷ Alex Muraviev, “Expert Issues Maritime Security Warning,” ABC Online website (29 March 2004). Interview with Alison Caldwell. Available from <http://www.abc.net.au/pm/content/2004/s1076558.htm> (Cited 15 September 2004).
- ⁸ Harlan Ullman, “Energy Security Questions,” *The Washington Times*, 15 February, 2006.
- ⁹ Martin Rudner, “Protecting North America’s Energy Infrastructure Against Terrorism: Threats, Vulnerabilities, and Policy Responses,” in a to-be-published article.
- ¹⁰ *Ibid.*
- ¹¹ Neal Adams, “Terrorism and Oil,” quoted in “Energy Security.” Available from <http://www.iags.org/es062603.html>. (Cited 14 February 2006).
- ¹² Peter Tweedt, Deputy Regional Director, Pacific Region, Minerals Management Service, “Meeting Terrorism through Regulation and Compliance.” Available from http://www.slc.ca.gov/Division_Pages/MFD.20Tweedt.PDF. (Cited 14 February 2006).
- ¹³ Avis, 94.
- ¹⁴ Robert Tonkin, Former Head Task Force on Offshore Maritime Security, “Security Pressures and Preferred options for Enhanced Offshore Maritime Security,” speech given at the Safeguarding Australia 2005 Conference in Canberra, 12 July 2005. Available from http://www.safeguardingaustraliaconference.org.au/2005/Conf_presentations/Tonkin.pdf (Cited 20 February 2006).
- ¹⁵ *Ibid.*
- ¹⁶ Russ Crane, Commander of the Australian Joint Offshore Protection Command, an interview for *Defence Magazine*, May 2005. Available from <http://www.defence.gov.au/defencemagazine/editions/20050501/groups/cjo.htm> (Cited 20 February 2006).
- ¹⁷ Avis, 94.
- ¹⁸ “North Sea Regional Country Analysis Brief,” *Energy Information Administration* website (August 2004). Available from <http://www.eia.doe.gov/emeu/cabs/northsea.html> (Cited 16 September 2004).
- ¹⁹ “Canada Country Analysis Brief,” 01 February 2005. Available at <http://www.eia.doe.gov/emeu/cabs/canada.html> (Cited 20 January 2006).
- ²⁰ Rudner, 5.
- ²¹ Felix Kwamena, Director, Critical Energy Infrastructure Protection Division, Natural Resources Canada, in an interview in Ottawa 14 February 2006.
- ²² Rudner, 10
- ²³ Rudner, 7.
- ²⁴ Kwamena interview.

