

Canada's Asia-Pacific Energy Trade Prospects: A Maritime Perspective

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Introduction

Canada is both a maritime state and an energy trade dependent state and in both of these capacities, it is experiencing shifting tailwinds. In particular, the continental energy exports moved by pipeline south over land to the United States are being reassessed as Canada now looks across the Pacific Ocean for new export market opportunities. Canada is dependent on exports. Both import and exports account for 70% of Gross Domestic Product (GDP), of which energy exports are a significant proportion. Pipelines, railways and transmission lines are used to transport via land the vast majority of Canadian energy exports to the United States, the world's largest energy market. Canadian maritime exports to the major Indo-Pacific Basin countries totalled \$49 billion in 2011 mostly to states north of the Tropic of Cancer.¹

International energy trade is not static and has important geopolitical implications. It has particular importance for navies as a significant proportion of the world's energy exports is carried by marine tanker. The strongest driver of change is the geographic location of consumption. The International Energy Agency (IAE) reports in its 2011 "World Energy Outlook" that countries outside of the Organization for Economic Cooperation and Development (OECD) membership are increasingly determining the dynamics of energy markets. In the future, non-OECD countries will account for 90% of the population growth, 70% of the increase in economic output and 90% of energy demand growth by 2035. By this time China will have consolidated its position as the world's largest energy consumer, and will consume nearly 70% more energy than the United States, the second-largest consumer. The rates of growth in energy consumption in India and Indonesia are even faster than in China.²

This article will focus on Canada's growing energy exports to the Indo-Pacific Basin. This region is not only of growing economic importance, it is also an area in which there are tensions based on overlapping maritime claims which could affect sea lanes. This means that the Royal Canadian Navy (RCN) will undoubtedly see increasing service there, and sea power and a flexible approach will become increasingly important as Canada's energy exports increase in the region. The navy must adjust to new threats and dynamics caused by this economic activity. A maritime component must become an integral element of Canada's Asian energy policy. In the coming decades the

export of energy by marine transport from Canada to the Indo-Pacific region will have important implications for Canada's navy and these issues have not been adequately considered in the Canada First Defence Strategy. Nor have they been considered in the navy's strategic plan as outlined in *Leadmark* and subsequent documents such as *Securing Canada's Ocean Frontier*.



A view of Vancouver's waterfront, as seen from Harbour Centre Lookout.

Canadian Energy Trade

In this section we will briefly discuss the major Canadian energy exports – coal, natural gas, oil and uranium. We will begin with coal. Although some people may not realize this, coal is still an important source of energy. Coal has met almost half of the increase in global energy demand. China will account for 67% of growth in global coal consumption through to 2030, and India will account for 33% of the growth. Since both China and India face challenges meeting their needs with domestic production, their growing import requirements will drive further expansion and integration of the global coal trade in the Pacific.³

As a result of increased demand there are numerous mine expansion projects underway in Canada. In 2011, Canada exported 49% of its total coal production by dry bulk vessels. Of Canadian coal exports, 86% was coal used for metallurgical purposes (i.e., coal used in the iron and steel-making industries) and 14% was thermal coal (i.e., coal used to produce electricity).⁴

In Port Metro Vancouver \$164 million in marine terminal expansion projects have been undertaken in response to

the shift in global energy demand. Total export volume not only increased, but thermal coal exports started to rise in 2008 just before China became a net coal importer in 2009. By 2011 the leading export destinations for Canada's largest coal export terminal were Korea, Japan, Europe, China, South America and Taiwan.

The major coal markets for Ridley Terminals Inc (RTI) at the Port of Prince Rupert are Japan, China and South Korea. They account for 90% of RTI's export shipments. In early 2011 RTI completed negotiations to receive coal destined for export markets from customers in the United States, and in October 2011 RTI signed a long-term agreement to handle product from Canada's largest thermal coal export mine. In response to this increasing export demand RTI is investing up to \$200 million to increase the expected total marine terminal throughput capacity to 24-25 million tonnes by the end of 2014.⁵ At that time thermal coal exports from the RTI could rival Westshore's export volume.

Recently, environmental advocacy groups have begun to take notice of the increase in coal exports through Canadian marine terminals and have engaged in a protest to block a rail line leading from Washington State into British Columbia. If environmental protests have started to occur on land by those attempting to bring attention to the negative environmental impacts of coal, protests in the maritime realm are a distinct possibility. This is something security forces need to prepare for.

Canada is also blessed with significant natural gas resources, which it is increasingly exporting to the Asia-Pacific region. The IAE's 2011 "World Energy Outlook" reports that a structural shift in both supply and demand points to a bright future – a golden age – for natural gas.⁶ The BP "World Energy Outlook 2030" reports that non-OECD countries will account for 80% of growth in global gas demand and China will account for 23% of this increased demand. BP also reports that liquified natural gas (LNG) will represent a growing share of gas supply. LNG will contribute 25% of global supply growth 2010-30, compared to 19% for the period 1990-2010.⁷ In 2011 researchers from the Energy Studies Institute, National University of Singapore observed that at the present time North and South America are effectively "gas islands" isolated from the rest of the world, with few significant trans-pacific or trans-atlantic gas flows.⁸ However, these researchers concluded that recent developments in both gas demand and supply have led to a scenario in which



Westshore Terminal at Port Metro Vancouver.

Credit: Port Metro Vancouver

significant growth in LNG export from North America to Asia has become a distinct possibility.

The Port of Kitimat, British Columbia – and to a lesser extent Prince Rupert – appears to be at the epicentre of an emerging North American LNG export industry. Two projects, the \$500 million Kitimat LNG project and the Douglas Channel LNG/BC LNG Export Cooperative received the necessary National Energy Board (NEB) export permit approvals in October 2011 and February 2012 respectively. Petrin/Progress Energy and Royal Dutch Shell are all advancing LNG export projects. In October 2011, Royal Dutch Shell purchased from Cenovus Energy the marine dock facilities and the former Methanex plant in Kitimat that is presently used to import hydrocarbons by tanker. Shell has confirmed that it and Asian partners will be proceeding with a study to develop a 12-million tonne LNG export terminal. Imperial Oil is also considering joining a growing number of companies planning LNG plants on Canada's West Coast. In Prince Rupert, BG Group announced that the port was short-listed for an LNG facility.

From a Canadian maritime transport perspective it is important to note that experience to date with the shipping risks and policy issues associated with LNG tanker traffic has been limited to the relatively new Canaport LNG receiving and regasification terminal in Saint John, New Brunswick. The focus on natural gas exports from the West Coast is a new one, and reflects the changing strategic dynamic away from the Atlantic to the Pacific Ocean.

Because of media attention, when Canadians think of energy exports, they most likely think of oil. The expected increase in oil sands production will strain the existing



An aerial view of the Canaport liquid natural gas receiving and regasification terminal in Saint John, New Brunswick.

pipeline capability, and additional pipeline capacity is therefore required. Thus, a key commercial decision for Canadian oil producers is whether to export oil south into the United States or west to Asia. Currently Canada is almost entirely reliant on a single market – exports to the United States account for close to 98% of Canada’s overall oil exports.⁹ Many energy experts have noted that exporting oil to Asia would provide Canada with the benefits of diversification and reduce its reliance on a single market. There are also purely economic reasons favouring export of oil from Canada to Asia. The Singapore Energy Institute researchers noted that under present market conditions the costs of transporting oil to China, Japan, South Korea and Chinese Taipei (via pipeline and tanker) are lower than the costs of transporting oil to the United States (via pipeline).¹⁰

The Trans Mountain Pipeline System (TMPL), operated by Kinder Morgan, moves crude oil from Alberta to the Pacific coast. Since 1953 the 1,150 km pipeline has been transporting crude oil and refined products from Edmonton to marketing terminals and refineries in Puget Sound (Washington State), and to the Westridge Marine Terminal (WMT) in Port Metro Vancouver, which is the only facility on Canada’s West Coast that can ship crude oil by ocean-going vessel. In April 2012, Kinder Morgan announced a \$4.1 billion expansion of its TMPL that would more than double capacity on Canada’s oil artery to the west coast of North America and Asian markets. The planned TMPL expansion would boost pipeline capacity to 750,000 barrels per day. The project may create the need for a second berth at WMT to accommodate Suezmax-sized tankers (180,000 dwt). If this project obtains regu-

latory approval, tanker traffic at Port Metro Vancouver would increase from an average of five to 10 tankers per month, to between 25 and 30 per month.

Enbridge Pipelines is currently the major carrier of crude oil to eastern Canadian and US markets. However it has proposed the Northern Gateway project which would transport crude oil and refined products from Edmonton west to a marine marketing terminal at the Port of Kitimat. The Northern Gateway proposal represents both a cargo and market diversification opportunity for the port because it currently does not have a marine terminal that can ship crude oil by ocean-going vessel. The project would require that a new 30-inch crude oil pipeline, bulk liquid crude storage facility and marine terminal be built. During operations of the Northern Gateway pipeline it is expected that between 190 and 250 oil and condensate tankers would call on the Kitimat Terminal each year. The Northern Gateway pipeline project is presently before a joint *Canadian Environmental Assessment Act* and National Energy Board Review Panel.

Canada is a country rich in uranium resources and has a long history of uranium exploration and mining. Canada accounted for 18% of primary global uranium production in 2010, second only to Kazakhstan.¹¹ The markets for Canadian uranium output (yellowcake) are largely offshore – Japan, South Korea and Europe accounted for 55% of sales in 2008.¹² The yellowcake is transported by rail or truck to the marine container terminal where it is loaded on to a container vessel for transport.

Asia has been an important consumer of uranium for nuclear power plants. The International Atomic Energy

Agency (IAEA) reported that in 2010, China, Japan and South Korea had 88 nuclear reactors in operation, accounting for 20% of the total world nuclear electricity production. Led by China with 28 reactors under construction these same countries accounted for 52% of the world's new nuclear power reactor construction. The IAEA estimates that the Far Eastern countries on the Pacific will experience an average growth rate during the period 2010-2030 for nuclear energy of between 5.0 to 6.9%.¹³ This estimation was made before the earthquake and tsunami in Japan in 2011 that led to serious problems at Fukushima Daiichi nuclear facility. As of May 2012, all of Japan's 54 nuclear power plants were shut down. The shutdown may not be permanent, and indeed the Japanese government announced the re-opening of two facilities in June. With the public protests in Japan, however, it is possible that nuclear power generation will be reduced there for the foreseeable future. The market potential in South Korea and China does not appear to face the same level of demand uncertainty as Japan. In response to the generally positive trends, Canada's largest uranium producer planned to increase production to 40 million pounds by 2018, up from an output of 22.8 million pounds.¹⁴

This brief summary demonstrates that the wind of change in international energy trade has reached Canada's West Coast. Increased Canadian energy exports will mean more shipping traffic off the West Coast. Energy exports will bring an increase in liquid bulk crude carriers and new LNG vessel traffic, in addition to the traditional dry bulk carriers, general cargo ships and container ships that have frequented West Coast ports.

Strategic Considerations for Canadian Asia-Pacific Energy Trade

Finance Minister Jim Flaherty stated in his 2012 budget speech that the government was "undertaking the most ambitious trade expansion plan in Canadian history."¹⁵ Yet, from an energy trade perspective Canada's energy trade efforts may be lagging behind countries in the Asia-Pacific Basin such as Australia. For this reason we believe it is important to explore some of implications of where Canada's international energy trade and maritime policy may be headed. Increased energy exports travelling by sea to Asia have important implications for naval planners and the security of the sea lanes. It will mean that Canada's navy will be required to be highly adaptable and flexible. In the unveiling of the RCN memorial in Ottawa in May 2012 the Prime Minister stated "Canada is a maritime nation, a maritime nation with trade, commerce and interests around the world. Surrounded as we are by three oceans, it can truly be said, that Canada and its economy



A tanker under pilotage and receiving tug assistance at Port Metro Vancouver.

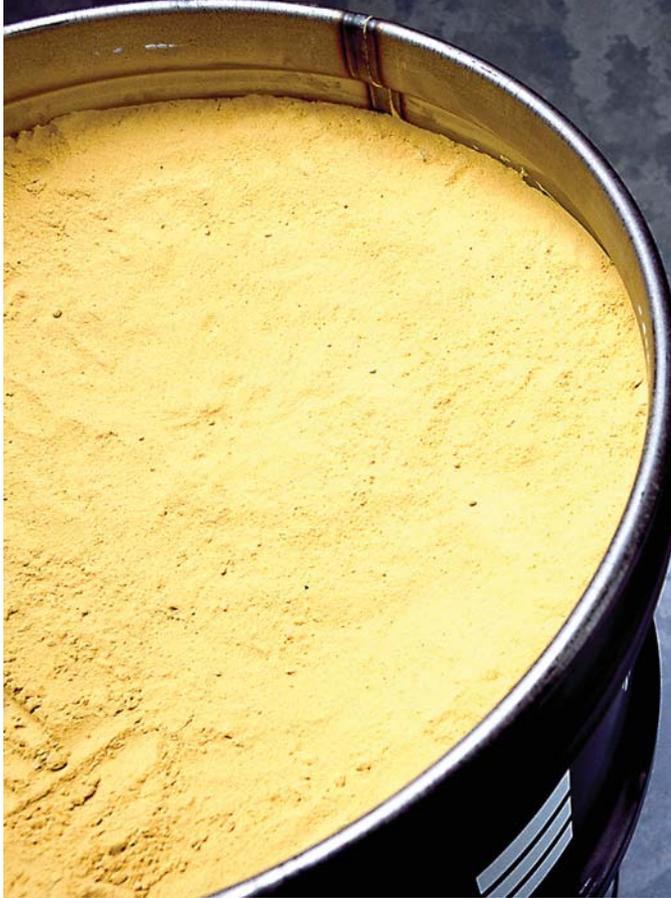
float on salt water."¹⁶ And energy exports will float on salt water.

Canada's policy on Asia has been evolving in recent years – from the Prime Minister's refusal to visit China to a much warmer embrace of the region. Trade both to and within the region has experienced significant growth in this century. In recognition of the importance of the region, Canada has indicated an interest in joining the negotiations for the Trans-Pacific Trade Partnership. As well, in February 2012 the Prime Minister led a trade mission to China during which he announced a number of initiatives intended to strengthen the Canada-China commercial relationship. These initiatives included the following:

- the renewal of the Canada-China Memorandum of Understanding (MOU) on Energy Cooperation, which provides a framework to engage China on energy issues. The agreement covers a broad range of energy activities, including energy policy, trade and investment, energy efficiency, oil and gas, nuclear energy, renewable energy, as well as energy research and development; and
- the successful completion of negotiations between Canada and China on an agreement that will facilitate increased exports of Canadian uranium to China.

What is being left out of the energy export policy debate is any substantive discussion of the maritime and national security dimensions. The loudest debates have been about the movement of energy over land. As a major energy exporting state, Canada needs to look more broadly and examine the maritime component of energy exports, including the geopolitical implications and the need for a strong robust navy. If we don't look at these issues on a sustained basis we could see our international trade subjected to threats and no Canadian naval capability to deal with them. As much as possible, Canada needs to stay ahead of the evolving geopolitical situation.

It is interesting that while Canada's trade with Asia is



Yellowcake uranium packaged for shipping at Cameco's uranium mining operation at Rabbit Lake, Saskatchewan.

increasing, Canada and the United States are also moving towards a more integrated approach to border security. This is seen in integration and cooperation in a commercial context. But what will be the consequences of Canada selling energy products to China? Oil is a strategic product, and depending on how American relations with China develop in the future, it could be problematic for Canada to sell strategic resources to a potential competitor of the United States. Canada and the United States have a long history of working together in the North Atlantic Treaty Organization (NATO) since its formation in 1949, and the North American Aerospace Defence Command (NORAD) since its creation in 1958. But these organizations have always focused on threats originating across the Arctic or the Atlantic Ocean. What happens if the focus shifts to the Indo-Pacific Ocean? What people fail to realize is that the Aleutian Islands chain – which is part of North America – extends almost to within sight of Asia. How would increased shipping affect North American perimeter security and the longstanding collaborative approach between Canada and the United States on defence and security?

Both a maritime and a national security lens are required in the Asia-Pacific energy export policy debate. In addition to American objections to selling energy resources to a possible strategic enemy, there is also potential for the United States to create barriers to the marine transport of Canadian energy exports to Asia based on geography or

concerns about environmental consequences. Any west-bound marine tankers on the North Pacific great circle route from the port of Vancouver or Kitimat to markets in Asia would cross through US waters in the Aleutian Islands. Presently at Unimak Pass, which is 10 nautical miles wide near Dutch Harbor, Alaska, the United States imposes no special shipping regime or requirements as it considers these waters in the nature of an international strait. That, however, could change, and this could see restrictions placed on the movement of very large crude carriers which are relatively infrequent travellers of these waters now. The same holds for LNG tankers. As was seen with the blocking of the Keystone XL pipeline within the United States local interests can have a large impact on US policy. The Alaskans have a vivid memory of the *Exxon Valdez* oil spill in Prince William Sound in 1989, and commercial vessels have grounded in these waters. The Commandant of the US Coast Guard, Admiral Robert J. Papp, has indicated these waters are a chokepoint and a strategic priority, and based on this the United States could restrict tanker traffic through the Unimak Pass.

It is interesting that a similar situation exists on the East Coast, but with roles reversed. In this case there was the potential of marine shipment of LNG through Canadian waters in Head Harbour Pass en route to Eastport, Maine. Canada filed a formal diplomatic protest with the United States objecting to the marine transportation of LNG through Canadian waters. The United States has taken the position that under international law the right of innocent



Container traffic at Port Metro Vancouver.



The freighter *Cape Brazil* approaching Lion's Gate in Vancouver's Burrard Inlet at sunset.

passage exists. Without a comprehensive analysis of policy, Canadian actions on the East Coast can come back to affect Canadian export of energy resources to Asia. Canada needs to develop a clear policy on these issues.

One more factor in the export of energy resources is important to note. Canada's trading partners in the Indo-Pacific Basin are among the world's largest ship-owning states, accounting for about 35% of the world's vessel fleet. Countries such as China, Hong Kong, South Korea, Russia, India, Singapore, Thailand and Malaysia all have substantial national flag fleets. The transport of energy products to these countries and aboard their vessels could give rise to port state control, national security and geopolitical considerations that may require a political, law enforcement, commercial shipping and naval intelligence perspective. Canada is not a major ship-owning state and exports have for many years been carried on foreign flag vessels. The increased export of uranium, for example, from Canada to China will raise both supply chain and port security issues.

To date, Canada has not had to consider the practical implications of these maritime transport issues. As it seeks to navigate beyond its continental shores over the horizon, however, Canada would be well served to develop a vigorous salty Asian policy now, rather than at the time of a specific incident or issue. Canada's increasing focus on the Indo-Pacific region needs to be examined in a broader context and it will be important to acknowledge that the navy will have an important role to play in helping to ensure freedom of the seas and naval diplomacy. Naval strategic documents need to consider the increased energy exports and their implications.

What is certain is that a robust and nimble Royal Canadian Navy will serve Canadian interests well in the Indo-Pacific region in this Asian century. 🇨🇦

Notes

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