



ENERGY SECURITY  
PROGRAM



# GROWING NORTH AMERICA–ASIA ENERGY TIES

## Outlook and Implications

A REPORT BY LYNANN BUTKIEWICZ AND ERIK FAGLEY  
THE NATIONAL BUREAU OF ASIAN RESEARCH

North America is experiencing an energy boom due to higher levels of unconventional oil and natural gas production from dense shale rock and oil sands. Rising production levels have the potential to transform the United States and Canada from key energy importers to major energy exporters.

Asia's increasing energy demand and desire to diversify imports places it in a position to look toward North America. Yet in order to strengthen their energy trade, North America and Asia first need to address several issues, including infrastructure development in both regions and outdated policy frameworks.

The National Bureau of Asian Research (NBR) gathered policymakers, industry leaders, and experts for a roundtable on "Growing North America–Asia Energy Ties" to discuss these topics. Mikkal Herberg and Toshikazu Okuya were the featured speakers. Herberg is Research Director of NBR's Energy Security Program and has over twenty years of experience in the oil industry in strategic planning roles for ARCO. Okuya is Special Advisor to Japan's Ministry of Economy, Trade and Industry (METI) and covers a range of energy topics, including energy security, geopolitical architecture, and technology innovation. Participants highlighted the following questions:

- How have the shale oil and gas revolutions in North America affected the supply outlook for these unconventional fuels? To what extent have these developments reshaped the dynamics of global energy trade?
- How do existing investment and pricing frameworks enable or restrict trade potential? Is the implementation of a sustainable pricing mechanism achievable?
- Can energy partnerships between North America and Asia be realized in light of the political and strategic challenges?

### ROUNDTABLE

September 19, 2012  
Washington, D.C.

### FEATURED EXPERTS

#### Mikkal Herberg

Senior Advisor, The  
National Bureau of  
Asian Research

#### Toshikazu Okuya

Special Advisor to the  
Ministry of Economy,  
Trade and Industry  
(METI), Japan

## *The U.S. Energy Revolution and Future Prospects*

The shale oil and gas revolution in the United States has had a dramatic impact on energy supplies, with new technology making it easier to extract natural gas from dense shale rock formations. Gas production in the United States has increased from 50 billion cubic feet (bcf) to 65 bcf over the last five years, while oil production has increased from 6.7 million barrels per day (mpd) to 7.8 mpd over a three year span from 2008 to 2011. Due to this increase in production, U.S. import dependence has decreased from 65% in 2008 to about 45% today, and this percentage is expected to further decline to around 30% by 2020. “The Western hemisphere is probably not going to need any oil from the Eastern hemisphere in the near future,” said Herberg. Moreover, the boom in natural gas production suggests that the United States and Canada have legitimate and large liquefied natural gas (LNG) export potential.

The increase in supply has invigorated discussion in Washington over export potential, and Herberg notes that this boom could reshape U.S. diplomacy. In particular, growing demand in Asia for LNG has sparked the interest of both private industry and the U.S. government, who view this region as a lucrative market. In the United States, the increase in supply has caused gas prices to plummet to approximately \$3 per thousand cubic feet, compared with \$16 per thousand cubic feet in Asia. With Asia struggling to meet its growing energy demand, countries such as China, South Korea, and Japan are thus looking toward North America to help diversify their energy imports.

## *Canada’s Growing Strategic Importance to Asia*

Canada’s largest energy export market is currently the United States. According to the EIA, Canada accounts for almost 90% of U.S. natural gas imports, most of which come from western provinces. In 2011, the United States imported 3.1 trillion cubic feet of natural gas

from Canada. Also in that year, Canada accounted for approximately 25% of U.S. crude oil imports. However, the U.S. energy revolution and the development of shale plays—including the Bakken, Eagle Ford, Permian, and Niobrara—are affecting Canadian exports and the price of Canadian heavy oil, which is now trading 15% lower than Western Texas Intermediate (WTI). Canada’s natural gas exports to the United States are not expected to fare much better. In its 2012 Annual Energy Outlook, the Department of Energy forecasted a 62% drop in Canadian gas imports by 2035 due in large part to the U.S. shale gas boom.<sup>1</sup>

To compensate for discounted pricing and delivery constraints, Canada’s energy strategy is shifting. This shift, according to Herberg, is reshaping Canada’s energy policy to now focus on alternative markets in Asia for its production.

To meet export potential, Canada must develop an energy policy that tackles investment policy questions, LNG pricing issues, and pipeline infrastructure investment to move oil and gas to the West Coast.

## *Japan’s Search to Bridge Its Supply Gap*

Japan’s energy future is uncertain as public opposition has led policymakers to reduce nuclear energy production following the Fukushima Daiichi disaster. To achieve energy security without nuclear energy, Japan is taking the following three steps: (1) import energy from multiple producers, (2) diversify energy resources, and (3) build stable, long-term energy partnerships.

The primary concern among Japanese policymakers is how to address the energy supply gap if nuclear is taken offline. Prior to the Fukushima Daiichi disaster, nuclear energy generated approximately 30% of the country’s total electricity. In order to bridge the supply gap, Japan must increase fossil fuel imports and expand the use of intermittent renewable energy sources. Japan consumed an estimated 4.5 mpd of oil in 2011, making it the third-

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<sup>1</sup> Department of Energy, *Annual Energy Outlook 2012*, (Washington, D.C., 2012).

largest petroleum consumer in the world, behind only the United States and China. Japan also imports almost all of its natural gas and is the world's largest LNG importer, accounting for about 33% of the global market in 2011, according to the EIA. In other words, Japanese policymakers understand that the country's energy security agenda necessitates finding reliable supplies from a range of producers to bridge its supply gap at the lowest possible cost.

The second element to Japan's energy strategy is diversification of supply. Because of the Fukushima incident, the country must now rely heavily on oil and gas imports to power its economy, despite improvements in energy efficiency and investment in renewable and alternative energy. Japan is looking to expand its search for new energy partners, which include Russia, Qatar, and Turkmenistan, among others. As it moves to diversify its suppliers and energy resources, Japan views the United States and Canada as stable long-term energy partners; however, it acknowledges that political will is critical to building such energy partnerships. A Japanese participant observed that North America is poised to become a potential energy supplier to the Asia-Pacific region, but this should not discount the other competitors that could assume a leading role in supplying Japan and other Asian economies with LNG and other energy supplies. In other words, the supply side is evolving, and as Japan and other Asian economies seek to maximize this supply, the spectrum of energy exporters is also widening.

Japan seeks to secure long-term stable agreements. Its objective is to ensure that cheaper energy is delivered without disruption, a key component of any energy security agenda. However, natural gas trading in North America is structured on short-term and spot transactions. Reforming these short-term contracts would likely also require measures to provide investors and stakeholders with the type of reassurances and security needed to make LNG exports a reality in the long term. Herberg suggests adding more take-or-pay flexibility and no destination clauses could create a more flexible pricing system that also reduces the need for a full shift to volatile hub-based pricing.

## *LNG Pricing and the Investment Challenge*

North America's natural gas pricing system uses a market-based approach in which gas prices are set by competition. Natural gas is actively traded at different market centers or hubs across the continent, with Henry Hub in the United States having the highest trading volume. Because of its interconnectedness and high trading volume, the New York Mercantile Exchange (NYMEX) utilizes Henry Hub as a pricing point for natural gas futures trading in North America. Buying and selling natural gas is thus conducted based on supply and demand and market volatility.

Japan's approach to natural gas pricing is very different from the Henry Hub model. Natural gas pricing in Asia is linked to long-term oil contracts and, in turn, a volatile global oil market. Given their increasing natural gas consumption, Japan and other Asian economies have expressed interest in moving toward a Henry Hub-style pricing system to improve the efficiency of the market and potentially decrease LNG import prices. Discussions continue on how to effectively overhaul Asia's oil-linked pricing system, but it will be difficult to reach consensus in the short term, when the pricing gap between North America and Asia may be at its highest.

The second factor is investment in infrastructure, such as pipelines. North America will require massive infrastructure build-up to meet the demands of Asian markets. The type of infrastructure required—pipeline networks, LNG tankers, and terminals—is capital-intensive and will need significant investment from the private sector, including both domestic and foreign investment. To finance such projects, investors must understand the long-term risk and outlook for LNG. For investment and financing to work, a sustainable pricing mechanism needs to be established to justify the massive upfront costs of LNG infrastructure and provide long-term revenue streams for producers. With U.S. gas prices at \$3 per thousand cubic feet, the cost of producing natural gas is higher than what producers can sell it for, making current production levels economically unsustainable as long as prices in the United States remain low.

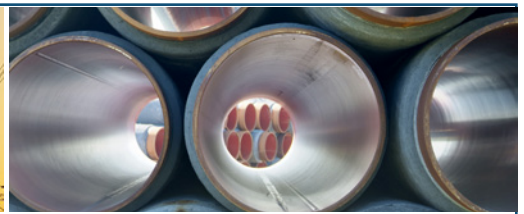
## *The Political Implications— A Waiting Game*

The potential for Asia to import more natural gas from the United States is tied up in domestic politics between gas users who want to keep supplies here and producers who seek new markets. Herberg argues that allowing U.S. LNG exports will create more investment in gas development. Therefore, LNG should not be viewed as a “zero-sum game [in which] either we get or they get the gas. This is a very dynamic market.”

Herberg argues that waiting for North America to sort out various political issues before agreeing to export LNG is deeply frustrating for the Japanese. For Japan, there is a sense of urgency to ensure that the gap between supply and demand is closed by finding multiple new suppliers. Given that the Asia-Pacific region depends on maritime trade, a Japanese participant argued that Japan cannot easily eliminate this gap in energy supply by constructing pipeline networks. Japan needs to find not only energy exporters to satisfy its energy demand but also suppliers who have ample LNG facilities and are willing to expand existing infrastructure to accommodate exports.

## *Conclusion*

Roundtable participants did not come to a clear conclusion on North American LNG export potential, but looked at several areas to consider. First, Japan will continue to seek to narrow the gap in energy supply through diversifying its energy imports, and the United States and Canada offer attractive markets. Participants also explored a new natural gas pricing mechanism for Asia but were not confident that the structure will change in the near term. Most agreed that investment in LNG infrastructure will be crucial for exports to take place. With infrastructure build-up being so capital-intensive, however, clarity on contracts, permitting, and licensing are critical to attracting much-needed foreign investment and public-private partnerships. In order for future energy partnerships to be forged and export markets to be created, there will have to be informed and honest dialogue among all parties involved. In the end, much will hinge on the political will of governments to help create a favorable climate for investors, stakeholders, and private industry.



## BACKGROUND ON NBR'S ENERGY SECURITY PROGRAM

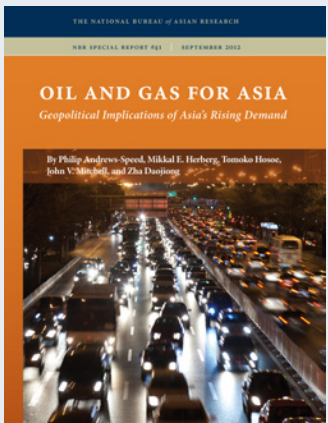
Now in its ninth year, NBR's Energy Security Program convenes top energy and geopolitical experts from industry, research, and policy for an assessment of the developments taking place in Asian energy markets and their implications for geopolitics. To inform and strengthen the public policy dialogue, experts share insights and recommendations through a number of channels, including an invitation-only spring workshop, NBR's annual Energy Security Report, and a public fall launch event.

### PROGRAM THEMES

- **“Oil and Gas for Asia: Geopolitical Implications of Asia’s Rising Demand”** (2012) explores how Asia’s rising energy demand, coupled with angst over prices and the reliability of future oil and LNG supplies, is shaping the strategic and economic agendas of Asia’s major powers.
- **“Asia’s Rising Energy and Resource Nationalism”** (2011) examined if there is a connection between energy insecurity and state efforts to control major sea lanes, the impact of Asia’s national oil companies on the global industry, and the emergence of rare earth elements as an arena for national competition.
- **“Pipeline Politics in Asia: The Intersection of Demand, Energy Markets, and Supply Routes”** (2010) analyzed the growth in overland pipelines in industrializing Asia and the resulting implications for Asian regional politics and energy security geopolitics.
- **“The New Energy Silk Road: The Growing Asia–Middle East Energy Nexus”** (2009) assessed the likely evolution of Asia’s involvement in Middle East oil and gas development, including how Asia may affect future oil and gas supply development and the implications for U.S. policy.
- **“Opportunities and Constraints: Prospects for Russian Oil and Gas Supply to Asia”** (2008) examined the role of energy in Russia’s strategic vision, regional perspectives on Russia as a reliable energy supplier, and implications for U.S. policy in the region.
- **“The Rise of Asia’s National Oil Companies”** (2007) assessed the strategic and competitive implications of the rise of Asia’s national oil companies (NOC), examining the internal structures of Asia’s NOCs, their relationships with home governments, and geopolitical impacts for the United States and the region.

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### 2012 ENERGY SECURITY REPORT



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