

The Gulf States, Asia and the Indian Ocean

Ensuring the Security of the Sea Lanes

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Securing Energy from the Gulf amid Geopolitical Strife: Japan, South Korea and the GCC

June Park and Emma Ashford

1. Introduction

In 1980, fearful that the Soviet Union was about to engage in a campaign to dominate the Gulf, President Jimmy Carter announced an increase in military spending in the region. Such was America's dependence on Gulf oil that Carter told Congress: "An attempt by any outside force to gain control of the Persian Gulf ... will be repelled by any means necessary, including military force." Today, thanks to factors such as the growth of shale oil production, the United States is largely free of its former dependence on Gulf oil. Instead, the Gulf is increasingly exporting its resources to other countries, most notably key East Asian states like China, Japan and South Korea. Yet while the geopolitical obstacles may be different, these states face comparable energy security concerns to those that drove Carter to make his stark declaration.

Most attention to this phenomenon has focused on China, Asia's rising great power. While around two-thirds of Chinese energy consumption is currently met by coal, it imports around 50% of its oil, primarily from the Persian Gulf. Indeed, much of the literature on Asian energy security focuses almost exclusively on Chinese energy security concerns, from China's naval buildup to its attempts to seek pipeline alternatives to regional choke points. This attention is certainly warranted: China will be the world's largest consumer of oil by the year 2030. The potential for conflict exists between the United States and China over key transit routes in the Indian Ocean and South China Sea. Meanwhile, authors speculate about the reach of '*China, Inc.*' as Chinese National Oil Companies (NOCs) seek investments in oil producing states in Africa and elsewhere.

Yet in many ways, the energy security problems facing other major East Asian states may be even more challenging. Both Japan and South Korea are heavily

dependent on sea-based imports of oil and liquefied natural gas (LNG); one only has to look at Japan's history to see the substantive impact that energy import shortfalls can produce, from Pearl Harbor, to Japan's WWII surrender, to the oil embargo-linked recessions of the 1970s. Unlike China, neither Japan nor South Korea has any substantial domestic sources of energy production other than nuclear power and some renewables. For Japan, even this problem has lately become more acute; Japan's population may be shrinking, but its post-Fukushima turn away from nuclear power will serve to increase its dependence on fossil fuels over the coming years.

For all three states – China, Japan and the Republic of Korea (ROK) – there are two central elements to their energy security concerns: the search for partners and new sources of energy, and the geopolitical concerns associated with transit of these resources. Supply diversification is likely an effective response to reducing market-based risks of supply shortage. The geopolitical and security concerns are much less likely to occur – being only relevant in time of open conflict – but are far more problematic to resolve. And while all three states have some energy security concerns in common – Middle East instability or concerns about piracy and terrorism, for example – other problems are distinctly Japanese or South Korean, a fact often overlooked in the literature advocating 'multilateral' solutions to Asian energy security. Indeed, despite broader regional need for progress on energy security, Chinese concerns have often placed them at odds with other regional actors in finding solutions, one reason why joint ventures on sea-lanes and energy security have typically failed in Asia. As one author notes, energy security in East Asia "is highly competitive and almost always zero-sum."

China has the upper hand in the search for market diversification, and Chinese companies have been active in the search for natural resource investments abroad, with strong government support. Since 1993, China's national oil companies (NOCs) have made major investments in exploration and production in at least 30 countries, aided by their willingness to work with all states, including states with substantial human rights issues (e.g. Myanmar, Sudan), and with states under US sanctions regimes (e.g. Iran). Japan and South Korea, in contrast, are more constrained by security ties to the United States, as well as by domestic political pressure to uphold the US alliance. Even with the lifting of nuclear sanctions, Japanese companies remain wary of investment in Iran, and have often found themselves engaged in a bidding war against Chinese investors for the same oil investments elsewhere. The current era of abundance in global oil markets has reduced this competition, but it is likely to return when today's shortfall in upstream production becomes acute.

Geopolitical concerns – notably transit routes – pose a more difficult problem for Japan and South Korea. Again, substantial attention has been given to Chinese concerns over Indian Ocean chokepoints in the Straits of Hormuz and of Malacca. Many analysts attribute China's growing naval buildup to fears that the United States

might seek to blockade energy supplies in the event of conflict. Indeed, the closure of either strait would have a substantial impact on global oil markets, requiring new pipelines and forcing ships to sail substantially further to reach Chinese ports. For Japan and South Korea, however, this concern is twofold: Can the United States continue to be relied upon to protect international shipping through these straits from terrorism and piracy? Moreover, what can be done if China decides to harass or prevent shipping through these routes in future? These concerns also extend into the South China Sea, where a variety of territorial disputes – as well as the risk of a future China-Taiwan conflict – offer additional hazards for energy transportation. Though such scenarios are less likely than supply-based disruption, they carry major security concerns.

This chapter examines the energy ties between Japan, South Korea and the Gulf States – which now supply over 90% of South Korea's and over 75% of Japan's oil – and explores the ways in which these two states seek to ensure their energy security, focusing on the impact of geopolitical constraints and US alliance ties. The chapter first lays out in depth the energy portfolios of each state and their attempts to build stronger energy investment ties, in both the Gulf and elsewhere. Next, it assesses the geography of East Asian supply, focusing on Indian Ocean Sea Lanes of Communication (SLOCs), political instability, potential choke points, and other vulnerabilities of energy imports. The chapter concludes with an examination of alternative routes for oil and natural gas supply, along with policy recommendations for policymakers in Japan and South Korea on ways in which energy security vulnerabilities can be minimized.

2. Japan and South Korea: Manoeuvres Toward Energy Security

There is no doubt that Asia has become the main clientele for Middle Eastern energy, particularly in the aftermath of the shale gas revolution. The petrodollar system – built upon a secret pact between the Saudi Arabian King Faisal and Henry Kissinger (on behalf of President Nixon) in 1976, through which the US wielded a significant amount of global economic power by linking the US dollar to oil in the international economy – is also being challenged by the rise of alternative currencies such as the euro and the yuan. The Iran Nuclear Deal, or the Joint Comprehensive Plan of Action (JCPOA), was a pivotal point that paved the way for China, Russia, and other European states to proceed with alternative currencies in petro transactions. With economic growth still a primary goal for the Chinese Communist Party, China is now the biggest consumer of Middle Eastern oil and will remain so in the coming decades. China has also been increasing its voice in Middle East political debates, e.g. supporting the establishment of an independent Palestinian state. Yet China's main priority is deepening economic ties with both the GCC states and Israel by

negotiating free trade agreements with them simultaneously, irrespective of the historical animosities that may exist among those states. China is also eyeing the strategic importance of the ports in the region, investing in ports along the Belt and Road Initiative (BRI) – e.g. the investment in the Suez Canal region in Egypt, the development of Gwadar Port on the coast of the Arabian Sea, and the establishment of a military support facility base in the port of Djibouti.

This expansion of Chinese interest in the region, accompanied by its surging demand for energy imports offers a challenge for Japan and South Korea as to whether they will be able to secure their portion of energy imports into the future. With Chinese military growth, particularly in the maritime routes related to the BRI and in the South China Sea, and in light of falling American reliance on Middle Eastern energy, a key question for Japan and South Korea is how the two countries will secure energy sources from the Middle East amidst the geoeconomic and geopolitical rise of China. The Chinese inclination to use market power as a foreign policy measure – as seen in the economic retaliatory measures to the Japanese government's decision to "nationalise" the Senkaku-Diaoyudao Islands in September 2012 and to South Korea's decision to deploy the Terminal High Altitude Area (THAAD) battery from the US in Seongju, a southern city in South Korea in 2016 – also pose a concern.

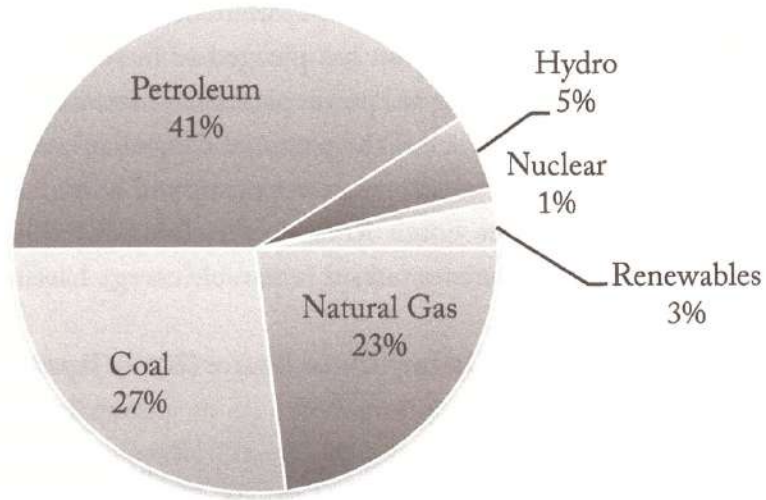
Yet the biggest obstacle to supply diversification for Japan and South Korea may be self-imposed. As US allies, both Japan and South Korea have been constraining and aligning their Middle East approaches with that of the US. Traditionally, Japan and South Korea have been dependent not only on the US nuclear umbrella, but also on America's guarantee of energy supplies, with the US military presence in the Middle East helping to ensure the free-flow of energy to its allies. While the asymmetric nature of these alliances – in which the US has held bargaining leverage in each bilateral relationship – holds even under the Trump administration, there are concerns that the era of energy security for Japan and South Korea provided by the US may be coming to an end.

2.1 Energy-scarce Japan and South Korea as the Main Clientele of Energy from Gulf States

The basic conditions for energy production and consumption in Japan and South Korea have not been vastly different from each other, based on their pre-existing endowments. Having led economic miracles in the post-war years without ample energy resources other than coal, the two export-oriented economies sought to resolve energy security issues through the establishment of a system of nuclear power generation. However, the Fukushima disaster of 2011 changed the energy dynamics in Japan significantly. Post-Fukushima, nuclear power generation in Japan was effectively closed down.

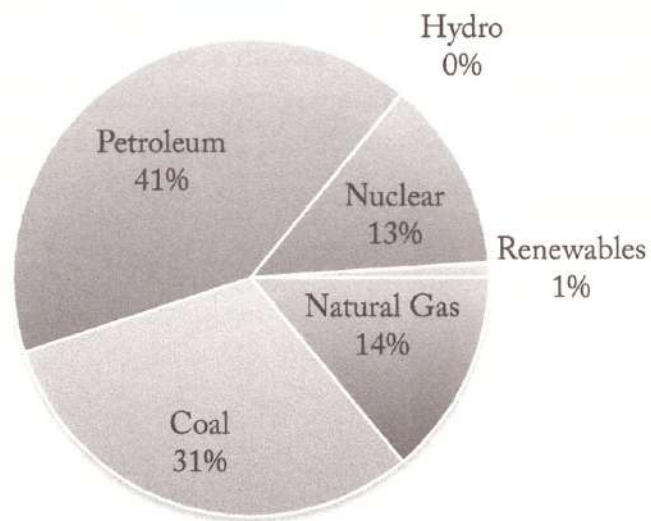
Japan's reliance on natural gas imports increased substantially to substitute for the lost nuclear energy.

Figure 1: Total Energy Consumption by Fuel Type (2015): Japan



Data from EIA International Energy Statistics and the BP Statistical Review of World Energy 2016.

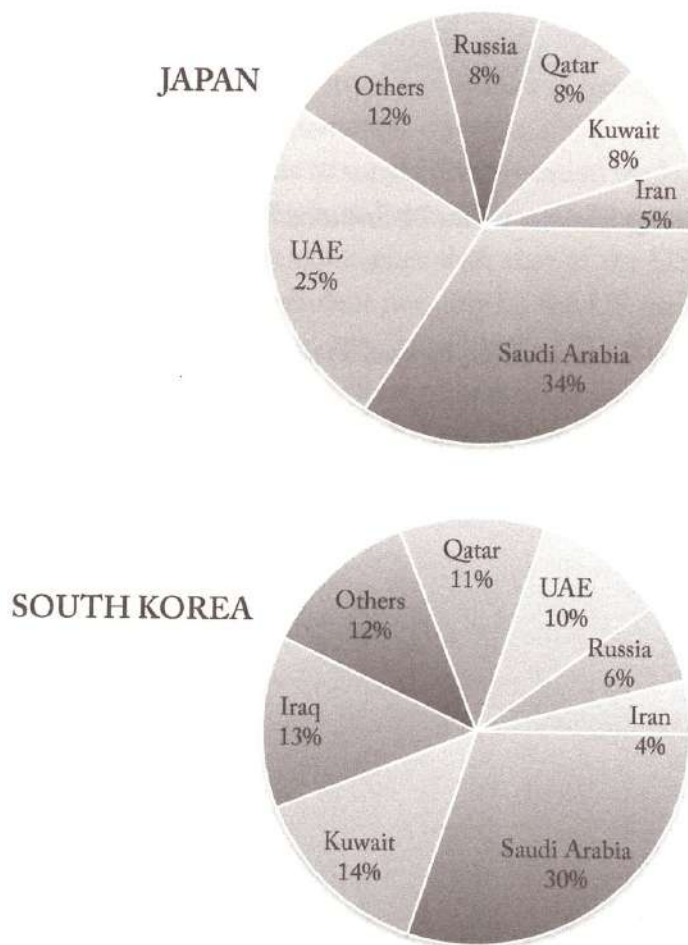
Figure 2: Total Energy Consumption by Fuel Type (2015): South Korea



Data from EIA International Energy Statistics and the BP Statistical Review of World Energy 2016.

Under the re-elected Japanese Prime Minister Shinzo Abe and newly-elected South Korean president Moon Jae-In – leaders who have considered ending their respective countries’ nuclear reliance – the search continues for an optimal energy mix. In Japan, a plan was put in place in 2015 to return to some reliance on nuclear energy for electricity but limiting it to 20-30% of total electricity generation in the period up to 2030. This would require about 30 nuclear reactors to be in operation by 2030. Japan has also been taking further steps toward developing renewable energy. In South Korea, the Moon administration has pledged to increase nuclear power generation, while simultaneously closing old power plants and increasing production of renewable energy. Though concerns about the potential dangers of nuclear power plants are on the rise in South Korea, additional power plants will be built as originally planned for future power generation. South Korea has traditionally relied on coal and oil more than Japan has, and its moves toward renewable energy have been occurring slowly.

Figure 3: Crude Oil Imports by Source (2015): Japan and South Korea



Data from US Energy Information Administration.

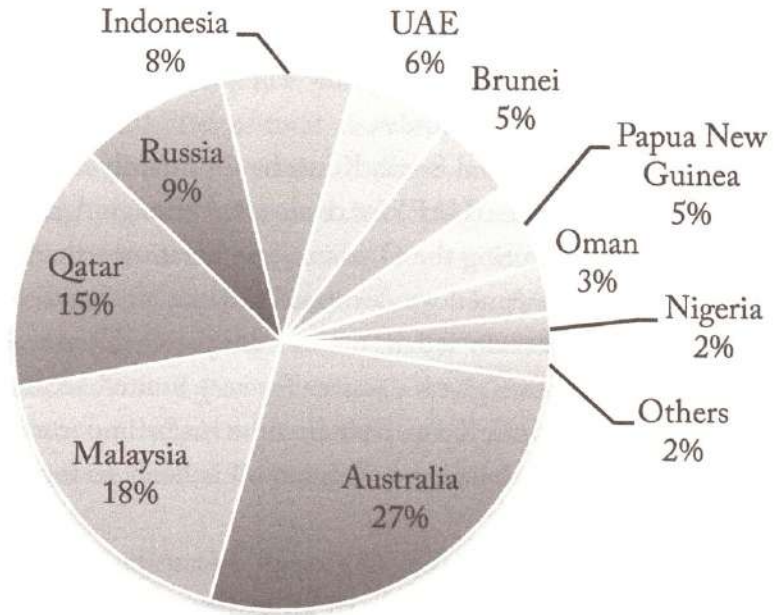
The hard truth for Japan and South Korea is that if they abandon nuclear power generation, self-sufficiency of energy sources is an impossible goal, at least in the near future, as raw energy sources other than coal are scarce, and renewables will take years to develop for widespread use. Thus, they will need to continue relying heavily on the Middle East in the coming decades.

As US allies, Japan and South Korea have primarily relied on Saudi Arabia and the United Arab Emirates (UAE) for crude oil. Although America's relationship with the Saudis was rocky during the Obama administration – thanks in part to the shale gas revolution and to America's decreased reliance on Saudi oil – both Japan and South Korea remain heavily reliant on oil from the Gulf states. Despite sanctions on Iran, both countries were given a waiver for very limited access to Iranian oil; post-JCPOA, Japan and South Korea have become major importers of Iranian oil, along with China and India. Reliance on Iranian oil is likely to increase for both states in the longer run.

South Korea has also taken steps toward securing Iraqi oil in recent years, and has been proactive in participating in oil exploration projects. To boost efforts on cooperation, the country has also participated in infrastructure development, based on the resumption of economic cooperation between the two countries. Yet like many states, regional political struggles can inhibit such economic cooperation as countries increase the level of their engagement. For instance, the Korea National Oil Corporation and SK Energy were excluded by the Iraqi Central Government in Baghdad in the 2008 bidding process for oil fields development, due to their previous involvement in oil liquefaction projects with the Kurdish Regional Government (KRG) in Iraq. With the current standoff between the KRG and the Baghdad government, it is not yet clear the extent to which South Korea's energy investment projects in Iraq will bear fruit.

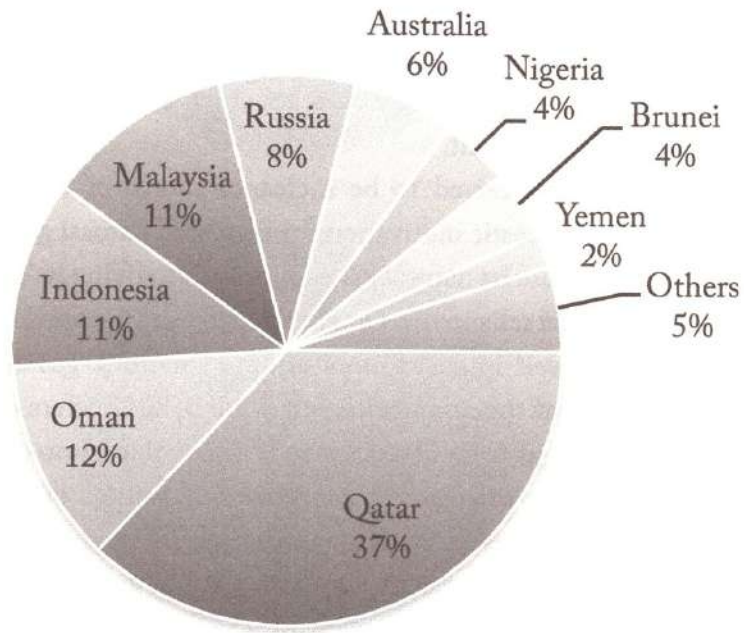
Natural gas is perceived to be a cleaner source of energy than coal or oil, providing a strong domestic motivation for increased natural gas consumption. Japan has struggled to increase its natural gas supplies, diversifying its imports of natural gas in an effort to decrease reliance on Qatar and increasing imports from Australia in the aftermath of Qatar's self-imposed moratorium on natural gas development in 2005. However, the lifting of the moratorium on April 3, 2017 offers new opportunities to import more natural gas from Qatar. Japan is also looking into diversification toward energy sources such as solar and hydro power, as well as other renewables. South Korea has similar patterns of LNG consumption as Japan, but has largely retained its reliance on Qatar as its primary source of natural gas. Meanwhile, in Africa, the Japan Gasoline Corporation (JGC) and KOGAS are engaged in a consortium that includes Eni, the Italian oil and gas company and the China National Petroleum Corporation (CNPC) to build a Floating Liquefied Natural Gas (FLNG) platform off the coast of Mozambique.

Figure 4: LNG Imports by Source (2015): Japan



Data from US Energy Information Administration

Figure 5: LNG Imports by Source (2015): South Korea



Data from US Energy Information Administration

2.2 Responses to Global Energy Shifts – Alternative Options for LNG

As both countries are entirely reliant on LNG imports through maritime shipment, the task of diversifying LNG import sources is crucial in ensuring delivery. Both Japan and South Korea have also explored the Russian option for securing natural gas supplies, with the potential construction of a pipeline to import gas via a Russia-North Korea-South Korea route. This option was discussed as early as 2008 by former South Korean president Lee Myung-bak and then Russian president Medvedev. Unfortunately, the attempted partnership between Korea Gas Corporation and Russia's Gazprom to connect gas pipelines – aiming to begin yearly imports of 7.5 million tons of LNG for 25 years from 2017 – failed. This failure was primarily due to Russia's price demands, which were higher than what South Korea had expected to pay. Yet South Korean tensions with North Korea also played a role. As a result, critics have argued that the Moon administration should pursue instead the development of an Arctic shipment route in cooperation with Russia, ensuring delivery of Piped Natural Gas (PNG) and stabilizing relations with North Korea.

Likewise, Japan has repeatedly considered the Russian PNG option, but has achieved little. Initial discussions began when Japan suggested constructing a seabed gas pipeline in the East Sea, connecting Sakhalin and Hokkaido. The construction cost of such a pipeline is estimated at \$3.5 billion. Despite the high price, such an alternative route would not only diversify supply, but also bring down the costs of LNG for Japanese consumers; in 2014, while the European region paying for Russian PNG at \$350-380 USD per ton, Japan was paying \$788 per ton. Unfortunately obstacles remain, including the fact that the area is situated in a seismic zone. And while Russia's Gazprom has not commented on the Japanese proposal, Russia's National Energy Security Fund has publicly noted that Japan's gas supply system is far from uniform, a factor which could stand as a hurdle to PNG delivery to Japan. Political dynamics also come into play, given that Japan's expanded engagement with Russia could serve to alienate existing suppliers Australia and Qatar.

Energy diversification is not always zero sum, even in Asia. Indeed, Japan and South Korea are today cooperating with Chinese firms in a new spot market arrangement, hoping to alter LNG market dynamics. Japan's Energy for a New Era (JERA), a consortium of Tokyo Electric Power Group, the Chubu Electric Power Group, and South Korea's Korea Gas Corporation (KOGAS) all signed a memorandum of understanding (MOU) with China National Offshore Oil Corporation (CNOOC) in March 2017 to exchange information and cooperate in the joint procurement of LNG. As Japan and South Korea together constitute as much as one third of global LNG consumption, the agreement should help in securing LNG at a more competitive price. This is the first step towards the two countries seeking to cooperate with the world's largest energy consumer, China. It is

expected that each country will work towards signing new contracts with modified clauses that were considered unfavorable from a buyer's perspective: i.e., long-term 20-year contracts could be shortened, states could avoid clauses on compulsory consumption of surplus, and it could also enable the export of leftover amounts of LNG to third countries. Although working together towards the common goal of acquiring the lowest price for LNG should increase the bargaining leverage for the three states, skepticism remains as to what extent the MOU could serve as a full-fledged, spot market establishment for information sharing – i.e., whether it could truly turn the current market into a buyer's market.

2.3 Japan and South Korea's Nuclear Energy Partnerships in the Region

Cooperation between the Northeast Asian states and the Gulf states exists at a variety of levels, with nuclear energy rapidly pursued by countries in the Middle East that seek diversification of their energy sources. In December 2009, for example the Korea Electric Power Corporation (KEPCO) signed an \$18.6 billion contract with the Emirates Nuclear Energy Corporation (ENEC) to build nuclear powerplants in the UAE. The project entails building four 1,400 MW reactors by 2020, with the first unit to be completed in 2018. As part of the project, overseas training of UAE engineers has also been undertaken in South Korea.

South Korea is also seeking opportunities to build full-fledged nuclear power plants in Jordan, which has close links to the Gulf region. The basis for such a project would be the construction of a research-oriented reactor (5MW) in Irbid, Jordan, by the consortium of Daewoo Engineering & Construction, the Korea Atomic Energy Research Institute (KAERI) and the Jordan Research and Training Reactor (JRTR). Thus far, however, the UAE project is the only nuclear power plant project for which South Korea has won a bid. Competition between Asian states remains a key factor; Japan and China are competing with South Korea not only in regional nuclear energy bids, but also in infrastructure and the construction of high speed railways. China's bids are bolstered by the BRI, while Japan benefits from sales diplomacy supported by its technology for bullet trains.

Despite the Fukushima incident, Japan successfully won a bid to build Turkey's second nuclear power plant. The \$22 billion project entails building four pressurised water reactors, with a total capacity of about 4,500 MW in the city of Sinop along the coast of the Black Sea. The plants are intended to enter operation in 2023. Turkish president Erdogan was quoted as saying, 'Japan has experience and know how in dealing with earthquakes', another reason why the country, susceptible to frequent earthquakes, favored Japan's bid over South Korea's. Japan is also making headway in nuclear sales in the Gulf, having signed MOUs with the UAE. It is currently bidding against South Korea, China, and France for a project in Saudi

Arabia, which would entail the building of 16 power plants with a total capacity of 17,000 MW. With Saudi Arabia's steady population increase and rising consumption of electricity, both solar energy and nuclear energy will be increasingly necessary if the country wishes to continue exporting oil while producing power for domestic consumption at lower costs.

China is also engaging in fierce competition in nuclear power plant sales. It sealed an MOU with Egypt in 2015, won the bid for building five nuclear power plants in Pakistan, and has been in consultation with South Africa since 2014 with regard to nuclear power plant building. The ongoing China boom in the region is not only in nuclear energy but covers industries including infrastructure, transportation, energy consumption and production, telecommunications, and electronic payment. In all these fields China will continue to provide competition for Japanese and South Korean projects.

3. The Geography of East Asian Supply

As the previous section highlighted, much of the attention of East Asian states has focused on the procurement of, and diversification of sources for, energy supplies. Yet transit remains a distinct problem, one with a much lower probability of catastrophic failure but much higher stakes. That transit is so problematic is partly the result of a lack of choices. Compared to many other regions, East Asia's energy supply routes are relatively uncomplicated: the vast majority of East Asia's oil and gas imports still come directly from the Middle East, shipped via the Indian Ocean. As much as two-thirds of all global oil shipments traverse Indian Ocean SLOCs on their way to the Pacific, and roughly half of global oil supply transits through the Malacca Strait between Malaysia and Indonesia. Gas transit routes are slightly more diversified; in addition to Middle Eastern supplies, for example, Japan receives shipments from Brunei, Malaysia and Australia. Yet the vast majority must still pass through the increasingly busy chokepoints around Indonesia, as well as disputed territories in the South and East China Seas.

Most new or proposed pipeline routes aim to resolve the so-called 'Malacca dilemma,' by allowing oil either to bypass the Straits (i.e., through pipelines in Myanmar and Pakistan) or to be imported directly from Central Asia. But while growing gridlock at the Malacca Strait has pushed states to consider such options, the available alternatives offer a relatively small contribution to the overall flow of energy in the region. Most new pipelines focus on Chinese needs, with one exception: the East Siberia-Pacific Oil (ESPO) pipeline, which carries Russian oil to Kuzmino for export to Japan. Even here, a recently built spur from Skovorodino to Daqing allows Russia to supply the Chinese market through this pipeline.

None of these pipelines makes a significant dent in the region's energy needs. Even the ESPO can only carry enough oil to supply around 4-8% of Chinese demand, and in practice a substantial fraction of the pipeline's capacity is already earmarked for the Japanese market. Some authors have pointed out that these pipelines may not actually be adding new oil supply for regional availability, but may simply be displacing older, more expensive and less efficient rail-borne supplies from Russia and Central Asia. As a result, East Asian states will continue to be highly dependent on the vulnerable SLOCs leading from the Gulf.

3.1 Energy Transit Routes: A Chain of Vulnerabilities

For East Asian states, energy transit security is thus a multifaceted problem; as oil and gas supplies transit the more than 7,000 nautical miles between Middle Eastern and East Asian ports, each stage of the journey is subject to distinct vulnerabilities. As Taneda notes, "traditionally, states in Asia have focused on the Malacca Strait as a strategic SLOC, but there is increasing recognition that the entire supply chain must be protected." Some transit vulnerabilities affect East Asia's energy importers in similar ways, while others are specific to Japan and South Korea. The first concern is broadly shared: the vulnerability of energy supplies transiting from the Persian Gulf into the Indian Ocean via the Straits of Hormuz. Indeed, this problem has already been widely explored by scholars in the context of historical US energy security. The debate largely centers around whether Iran truly possesses the ability to block the Strait, a move which could cut off more than 80% of regional oil exports. While some scholars argue that such an Iranian blockade is possible with the effective use of mines, air defence and anti-ship missiles, others argue that technical and operational difficulties – such as targeting challenges and the durability of modern tankers – would make it difficult for Iran to impede any more than one-third of traffic through the straits.

Yet as Joshua Rovner illustrates, most such assessments of Iranian capability assume that the United States will retain a military footprint in the Middle East to protect the Strait. The US presence is by no means assured, however, and various scholars have argued that US energy security no longer requires a substantial military presence in the Persian Gulf. Some politicians have echoed this claim; during his unorthodox electoral campaign, Donald Trump railed against the US commitment to defend states in the Middle East, stating: "I'm going to renegotiate some of our military costs because... we protect some of the wealthiest countries in the world, Saudi Arabia." Though he has dialed back on this rhetoric since inauguration, the prospect remains for an altered US military presence in the Gulf region, whether it is decreased (as suggested by Trump's campaign rhetoric) or increased (as suggested by his sabre rattling against Iran).

For East Asian states, there are both benefits and costs to the US's continued heavy involvement in the Middle East. Today, China, Japan and South Korea are effectively free-riding on America's security commitment to protect the Gulf and create public goods. While China may gain the ability to project power into the Gulf in coming decades, it lacks the military capacity to protect tanker traffic in the region as effectively as does today's US presence. Japan and South Korea would appear to lack any significant potential. Though Japan has recently increased its naval presence in Djibouti – reportedly in an attempt to 'counter Chinese influence' – it remains heavily dependent on American maritime security provision. The US's heavy military presence in the region has, it should be noted, also produced negative externalities. Interventions in Iraq and Libya have served to increase political instability in a number of Middle Eastern oil-producing states, and the Trump administration's stance towards Iran raises the risk of future regional conflict.

The next stage of the supply chain – the Indian Ocean itself – is the least problematic for energy transit security. The region "has remained relatively free of tensions caused by territorial and maritime disputes in recent years." Despite this, China has sought to hedge its bets by investing in infrastructure and developing a presence throughout the Indian Ocean, described by various observers as the 'string of pearls' approach. In response, Japan has sought to strengthen its diplomatic and security ties with India, with both states confirming their commitment to work together to ensure the stability of the existing order in the Indian Ocean. Nonetheless, a wide variety of routes is available to cross the Indian Ocean, reducing vulnerability.

The latter routes "pale in significance next to the primary access and egress to the eastern Indian Ocean, the straits of Malacca and Singapore." The Malacca Strait is a key maritime chokepoint: used by over 50,000 ships annually, between them carrying as much as one-third of all global trade. Though some larger ships detour around Indonesia and through the Lombok Strait, there are few viable alternative routes between the Gulf and Asia. As a result, the straits are increasingly congested, raising the risks of accidents with the potential to cause supply disruptions. Piracy and terrorism remain major concerns, though piracy today largely targets cross-strait traffic, and the most worrisome terrorist groups – notably the Philippine group Abu Sayyaf – are in decline. Yet the waters around Indonesia still have the highest incidence of piracy in the world, and tankers in the narrow confines of the Malacca Strait still offer an attractive target for terrorist groups.

Despite various attempts to form multilateral arrangements to police the Malacca Strait, the littoral states (Indonesia, Malaysia and Singapore) have been largely unwilling to permit such ventures. Since 2004, these states have engaged in trilateral patrols (known as MALSINDO), aimed at piracy and counterterrorism. As a result, external powers have mostly focused on capacity and infrastructure assistance: the United States has provided coast guard training, while the group known as the

Five Power Defence Arrangement – comprising Britain, Australia, New Zealand, Singapore and Malaysia – have conducted multilateral naval counterterrorism exercises. East Asian actors have also contributed to these efforts. Indeed, Japan's energy security policies have long emphasized multilateral solutions to regional problems. Japan's 2014 *Strategic Energy Plan* notes: "to improve the stability of sea lanes, bolstering relations with countries and regions involved in sea lanes is important." The Japanese Coast Guard engages in training and assistance, and has spent over 15 billion yen since 1968 to upgrade safety systems, improve maps, and build infrastructure in the littoral states.

Yet while Japan (and indeed the United States) have pushed for greater multinational cooperation over security in the Malacca Strait, China in particular has been reluctant to buy into this framework of regional maritime security. In large part, this is because regional states differ sharply as to the level of threat they perceive from the US naval presence in the region. As Hughes and Long show, changes in the global oil market have reduced market-driven supply vulnerabilities. States may compete for supply, but the market tends to adjust well for short-falls, making coercion by oil-producing states far less likely than it used to be. Instead, Hughes and Long highlight the reality that, today, coercive power in the oil market lies largely at the point of transit, and that it is the United States which – thanks to its unmatched naval capacity – retains coercive power in the oil market. For Japan and South Korea, this is undoubtedly reassuring. For China, it is a clear, if unlikely threat.

In fact, many of the areas that are best suited to improve Asia's overall energy security have foundered because of nationalistic tensions in the past. Both Chinese and US military planners acknowledge that, in the case of war, the United States would necessarily seek to close the Strait to Chinese ships. This has not gone unnoticed by China's senior leadership. In 2003, Hu Jintao argued that the improvement of China's naval capabilities was essential, in order to "uphold our maritime rights and interests" against "certain major powers" trying to dominate the Malacca Strait. In recent years, Chinese defence planners have focused on acquiring improved 'blue water' naval capacity, arguing that energy security concerns make the case for a more effective 'far sea defense' (*yuanhai fangwei*).

Despite the Japanese focus on multinational approaches to maritime energy security, therefore, China's military growth and modernization – bringing with it the capacity to challenge US primacy in the Straits – raises concerns for both Japanese and South Korean policymakers. Chinese actions in the South and East China Seas add to these concerns. While disputes mostly relate to military vessels, there are also substantial concerns about the narrow way in which China interprets transit rights for energy shipments as well. In recent years, Japan has begun to build up its own naval capacity, and has participated regularly in the trilateral US-India-Japan MALABAR naval exercises. In recent years, MALABAR exercises have focused extensively on

maritime interdiction and anti-submarine warfare, both key components of any attempt to close the straits.

This tension among and between regional states, the US, and China comes into even sharper relief in the final segment of East Asia's energy supply chain in transit through the South and East China Seas. China's activities in this region in recent years – such as artificial reef building, naval build-up and attempts to expand the scope of its territorial waters – present in many ways an 'energy security dilemma' for other Asian states. These steps by Chinese policymakers may mitigate the energy security threat which they themselves feel from the US naval presence, but they unavoidably increase the energy security threat perceived by other states. Many policymakers have focused on the potential for conflict over the offshore oil and gas fields around the various disputed areas, such as the oil-rich Spratly islands. China's claimed 'nine-dash line' includes oil and gas rich areas disputed with Vietnam, Malaysia, Brunei, Indonesia and the Philippines. Yet by overall standards, the reserves in these areas are comparatively small: perhaps 11 billion barrels of oil, less than one year's regional supply.

Despite the focus on regional energy development, therefore, the SLOCs which run through the disputed zones remain a major concern. The narrow passages near the Spratly islands, for example, could easily form a chokepoint in the unlikely event of a conflict involving China. A more pressing concern for the transport of energy to South Korea may be the Bashi Strait, located near some of Taiwan's key military facilities. This could easily be blockaded in the event of a conflict over Taiwan. Indeed, China's military has interdicted energy shipments bound for Taiwan before. China's navy has also undertaken various military exercises in the Bashi Strait that focus on the blockade of energy in the event of a conflict over Taiwan.

The above analysis has focused on potential areas of transit vulnerability for Japanese and South Korean energy security, but little attention has been given to the likelihood or costs of such disruptions. As Cole notes, "Military threats to the Asian SLOCs are relatively slight. None of the regional states currently hold any apparent strategic objectives that would involve interdicting SLOCs, though China might do so.... should active military conflict develop over Taiwan's status." Yet this does not mean that worst case scenario-planning does not and should not impact regional states' energy security strategies. As Kelanic notes, oil coercion is rare, but largely because great powers and major states often seek to preempt such risks, whether in the diversification of supply, or the protection of key transit routes.

The most likely disruptions, moreover, carry the lowest costs. The potential for disruption either in the Hormuz Strait or the Malacca Strait – whether from terrorism, piracy or conflict – is small. Such a disruption would cause global oil prices to rise in the short-term, but is unlikely to have a longer-term impact, and can be mitigated with strategic reserves and alternate routings. A disruption in the South China or East China Seas is even less likely, but could be more costly, requiring ships to sail

substantially further, raising energy prices across Asia by a moderate amount. Again, such a disruption is likely to be short-lived. Finally, a major conflict in East Asia – pitting China against the United States – is highly unlikely, but the costs of such a disruption would be substantially higher. For Japan in particular, however, memory of the desperation induced by America's Second World War oil blockades serves as a reminder that such disruptions are possible.

4. Conclusion

Today, policymakers in Japan and South Korea thus face a similar energy security dilemma to that experienced by the United States during last few decades of the 20th century. These states are heavily dependent on imports of oil from the Gulf; though disruptions remain unlikely, they have the potential to be extremely costly. They are also dependent on gas shipments; as Cabalu illustrates, both Japan and the ROK are substantially more gas insecure than China. Unfortunately, for policymakers, there are few viable alternatives. Both states rank poorly in domestic energy production, with little potential for increases. Though Japan once filled much of this gap with nuclear power production – both cheaper and more energy secure than hydrocarbon imports – these policies have become a matter of public and political debate after the earthquake and disaster at the Fukushima nuclear plant. The impact of a Japanese move away from nuclear power can not be overstated; in the years following the disaster, Japan experienced an increase in its trade deficit of 25.2% (4.3 trillion yen), simply from the necessary increases in fossil fuel imports. By 2015, less than 1% of Japan's energy was produced by nuclear power. South Korea still relies more heavily on nuclear power – which made up around 13% of its energy mix in 2015 – but has also witnessed the opening of public debate on the question of nuclear power generation in the wake of Fukushima. In both countries, the energy security benefits of nuclear power often pale next to widespread public distrust and safety concerns.

Though competition exists in the search for diversification of energy sources, East Asian states have fairly effectively diversified their sources, and much like other states, have little to fear from small-scale disruptions of the global oil market. US ties have had a constraining effect on the search for diversified energy sources, driving Japan and South Korea to source energy from US-friendly regimes in the Middle East, and to avoid alternative but less friendly countries like Russia or Iran. Meanwhile, historical enmity between Japan and South Korea also makes it difficult for policymakers to cooperate with one another on pipeline and other energy security issues, though initial cooperation in the LNG market may hold promise for the future.

Transit vulnerability remains a more problematic concern, though its impacts are largely limited to worst-case, potentially conflictual scenarios. Pipelines offer

one alternative to Japanese and South Korean policymakers concerned about transit security. As one author states, importing more natural gas from Russia – particularly the proposed pipelines from oil and gas fields in Sakhalin – could be a win-win scenario for both Japanese policymakers and Russian leaders seeking increased Asian exports. Unfortunately, geographical obstacles, and the uneven regional distribution of oil and natural gas make it challenging to find cost-effective routes for pipeline transport that bypasses China. The ESPO pipeline to Kuzmino, for example, was around twice as expensive as the alternative: a pipeline directly to Daqing in China. Japanese policymakers were able to make the case to Russian decisionmakers that security benefits were worth the cost, but such trade-offs remain an obstacle to future China bypass pipelines. For South Korea, its northern neighbour creates similar pipeline problems; though the DPRK has indicated that it might accept compensation in order to allow pipelines to pass through its territory, this raises its own security problems.

Today, energy security is in many ways a less acute problem than in the past; the recent spate of low global oil prices has served to mitigate many of the nationalistic tensions present in Asia on the question of energy supplies. Yet, as several analysts have noted, the potential exists for a resurgence of tensions when the price of oil rebounds. As Halff notes, the long-term impact of cheap oil prices may make things worse rather than better for Asian states, particularly “the risks of a violent price reversal following years of underinvestment in production capacity and of increased dependence on imports from a small group of relatively low-cost but politically unstable producers.” Nor do low global oil prices serve to insulate East Asian states from geopolitical and potential conflict-based transit vulnerabilities like those discussed above. Ultimately, for policymakers in these states, energy security remains an challenging problem. For Japan and South Korea, it may simply not be possible to substantively improve energy security within existing political constraints; these states are likely to remain heavily dependent on Persian Gulf oil – and the vulnerable SLOCs which carry it to the region – for the foreseeable future.

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