THE NATIONAL BUREAU *of* ASIAN RESEARCH

NBR SPECIAL REPORT #81 | OCTOBER 2019

REVOLUTIONIZING LNG AND NATURAL GAS IN THE INDO-PACIFIC

By Jeanne Choi, Mikkal E. Herberg, Leslie Palti-Guzman, Riley Smith, and Nikos Tsafos

THE NATIONAL BUREAU *of* ASIAN RESEARCH
NBR SPECIAL REPORT #81 | OCTOBER 2019

REVOLUTIONIZING LNG AND NATURAL GAS IN THE INDO-PACIFIC

Jeanne Choi, Mikkal E. Herberg, Leslie Palti-Guzman, Riley Smith, and Nikos Tsafos

THE NATIONAL BUREAU *of* ASIAN RESEARCH

The NBR *Special Report* provides access to current research on special topics conducted by the world's leading experts in Asian affairs. The views expressed in these reports are those of the authors and do not necessarily reflect the views of other NBR research associates or institutions that support NBR.

The National Bureau of Asian Research is a nonprofit, nonpartisan research institution dedicated to informing and strengthening policy. NBR conducts advanced independent research on strategic, political, economic, globalization, health, and energy issues affecting U.S. relations with Asia. Drawing upon an extensive network of the world's leading specialists and leveraging the latest technology, NBR bridges the academic, business, and policy arenas. The institution disseminates its research through briefings, publications, conferences, Congressional testimony, and email forums, and by collaborating with leading institutions worldwide. NBR also provides exceptional internship opportunities to graduate and undergraduate students for the purpose of attracting and training the next generation of Asia specialists. NBR was started in 1989 with a major grant from the Henry M. Jackson Foundation.

Funding for NBR's research and publications comes from foundations, corporations, individuals, the U.S. government, and from NBR itself. NBR does not conduct proprietary or classified research. The organization undertakes contract work for government and private-sector organizations only when NBR can maintain the right to publish findings from such work.

To download issues of the NBR *Special Report*, please visit the NBR website http://www.nbr.org.

This is the eighty-first NBR *Special Report*.

NBR is a tax-exempt, nonprofit corporation under I.R.C. Sec. 501(c)(3), qualified to receive tax-exempt contributions.

Front cover: LNG tanker at the gas terminal - sunrise over the ship and port
© Wojciech Wrzesien / shutterstock.

For further information about NBR, contact:

The National Bureau of Asian Research
1414 NE 42nd Street, Suite 300
Seattle, Washington 98105

206-632-7370 Phone
206-632-7487 Fax
nbr@nbr.org E-mail
http://www.nbr.org

REVOLUTIONIZING LNG AND NATURAL GAS IN THE INDO-PACIFIC

TABLE OF CONTENTS

v Introduction
Mikkal E. Herberg

1 The Role of LNG in the United States' Indo-Pacific Strategy
Nikos Tsafos

9 Developing Free and Open Markets:
Gas Market Reform in Japan and South Korea
Jeanne Choi

21 Advancing Gas Market Reforms in the Indo-Pacific:
Key Issues for Southeast Asia
Riley Smith

33 Will U.S. LNG Have an Edge in the Indo-Pacific?
Leslie Palti-Guzman

INTRODUCTION

The Trump administration's new "free and open Indo-Pacific" strategy is an evolution and expansion of the Obama administration's earlier "rebalance" of the United States' strategic focus toward the Asia-Pacific. At its core, the strategy is a response to the expanding power and influence of China across the region as it rolls out its Belt and Road Initiative (BRI), which is focused on building energy infrastructure and transportation links across Southeast Asia, South Asia, and the Eurasian continent. The concept of the Indo-Pacific developed in the Trump administration's 2017 National Security Strategy is an ambitious expansion of U.S. strategic and economic interests in the Asia-Pacific to a broader region running all the way from the Strait of Hormuz around to Northeast Asia and the Russian Far East.[1]

From one perspective, the free and open Indo-Pacific strategy is an effort to reshape the U.S. approach to economic statecraft to promote private-sector investment and financing in developing regional economies as a strong alternative to the state-directed approach of China. As Nadège Rolland and others have detailed extensively in their analyses for the National Bureau of Asian Research (NBR), China's approach often has strings attached and subordinates the economic interests of recipient states to Beijing's broader strategic and economic interests in an effort to create what some have dubbed an "Indo-Pacific with Chinese characteristics."[2] In many ways the U.S. free and open Indo-Pacific strategy is also a mercantilist strategy, aimed at better integrating economic, trade, energy, and investment objectives in order to strengthen Western power and influence to counter China's own deeply mercantilist approach to the region.

Along with important strategic and diplomatic dimensions, a third plank of the Trump administration's Indo-Pacific strategy envisions a major expansion of trade, economic ties, and in particular energy infrastructure investment to counter BRI's tidal wave of investment and financing. Energy is a key priority in this strategy. Asia's demand for energy, and natural gas in particular, will continue to grow dramatically in line with national goals for the fuel to play an important role in bolstering energy security and meeting environmental priorities, especially for improving air quality. The Trump administration believes that large-scale exports of U.S. liquefied natural gas (LNG) and oil to Asia could help diversify the region's energy mix, reduce reliance on imports from the Middle East, strengthen energy security, and help balance growing Chinese economic and diplomatic influence. The administration thus hopes to use energy as a central instrument in defending U.S. economic and diplomatic influence in the region.

Japan is a key partner and sees even more clearly than the United States the need to expand trade, infrastructure investment, and financing in order to match growing Chinese power and influence across the Indo-Pacific. The free and open Indo-Pacific strategy aligns with Japan's traditional emphasis on supporting economic development as a central tool of diplomacy and soft power. Japan has been by far the largest provider of infrastructure and energy investment and financing in the region and the largest source of development assistance, especially in Southeast Asia. With strong financial and diplomatic support from the government, Japanese companies

[1] White House, *National Security Strategy of the United States of America* (Washington, D.C., December 2017), 45–47.

[2] Nadège Rolland, ed., "Securing the Belt and Road Initiative: China's Evolving Military Engagement Along the Silk Roads," NBR, NBR Special Report, no. 80, September 2019; and Rory Medcalf, "Indo-Pacific Visions: Giving Solidarity a Chance," *Asia Policy* 14, no. 3 (2019): 85.

have been investing in large infrastructure and energy projects throughout Southeast Asia for decades. These parallel interests of the United States and Japan have been formalized in the recent signing of the Japan-U.S. Energy Partnership aimed at expanding new Western investment in energy and LNG infrastructure across the Indo-Pacific region.

The central economic and energy dimensions of the free and open Indo-Pacific strategy focus on what Japan has termed "quality infrastructure." Japan was able to get endorsement of this concept at the G-20 finance ministers meeting in June 2019, which supported the "G-20 Principals for Quality Infrastructure Investment as our common strategic direction and high aspiration," as well as in the latest G-20 communiqué in September 2019. The concept denotes projects that are more transparent, with a competitive bidding process, lower interest rates, and a mix of private and public financing that is sustainable in terms of debt loads and burdens. This approach is intended to contrast with BRI, which features opaque projects with little public scrutiny that are dominated by subsidized Chinese state companies and financed by Chinese state funding, often with high interest rates and leading to unsustainable debt burdens.

However, while the United States has begun to put the Indo-Pacific at the center of its foreign policy, the administration is still grappling with how to best develop and then ultimately deploy the necessary tools for implementing this vision, particularly the energy strategy. Among the key components now in place is the Better Utilization of Investments Leading to Development (BUILD) Act, which would more than double the capacity of the U.S. government to $60 billion to support overseas strategic private investment. Other government efforts, such as the administration's Asia Enhancing Development and Growth through Energy (EDGE) initiative, focus on increasing U.S. LNG exports to the Indo-Pacific by promoting public-private partnerships, fostering relationships between U.S. and Asian businesses, and assisting partner governments with establishing market-based energy policies. But to date, several of the initiative's envisioned constituencies—within both Asia and the United States—have raised questions and expressed their own uncertainties about what a robust and comprehensive execution of the initiative will look like, particularly given the many agencies involved that will need to wrestle with their capabilities and coordination. Thus, a natural question is whether the U.S. government can get its act together quickly enough to present any real challenge to China's growing economic and infrastructure expansion in the Indo-Pacific.

Three other key challenges loom over the success of U.S. and Japanese efforts to promote growing U.S. LNG exports to and necessary infrastructure in the region. First, the ability of Asia's gas markets to actually absorb the huge volume of new LNG supplies will in many countries depend greatly on reforming and opening up their domestic gas markets. Many gas markets are monopolized by state-owned enterprises, while others have introduced greater competition and open access to infrastructure. Although some Asian markets have moved toward greater deregulation and liberalization, potential reforms face significant barriers in the form of political opposition from powerful state enterprises and domestic vested interests, bureaucratic resistance, and potential domestic social backlash over increases in gas and electricity prices. There are enormous challenges to boosting gas demand, bringing gas infrastructure to scale, and effectively mobilizing financing, especially in Southeast Asia. How can stakeholders across the region work together to accelerate the pace of capacity building and market reform? While the Indo-Pacific strategy is designed to operationalize U.S. commitments to play a more direct and substantial role in strengthening regional energy security, its success will depend heavily on the pace of gas market

reforms in Asia. What do the examples of Japan and South Korea suggest for the region? What are the tools and policies available to U.S. policymakers to promote a huge expansion in gas use?

A second key challenge is whether U.S. LNG will be competitive and affordable in developing countries. For many newly emerging markets, especially in Southeast Asia, the long-term affordability of LNG is highly uncertain. Regional policymakers are planning for the possibility that it may continue to be a premium-priced fuel, especially relative to cheap, abundant coal supplies where necessary infrastructure for coal-fired power is already in place or costs less to stand up. In some areas, wind and solar costs have fallen rapidly and are competitive with or cheaper than the cost of new natural gas. Is it reasonable to expect U.S. LNG to be both affordable and sustainable, and if so, under what conditions? If not, what are the implications for the United States' Indo-Pacific energy strategy?

A third key challenge will be building on the successful template and foundation suggested by the Japan-U.S. Energy Partnership in ways that effectively integrate other regional partners into a strategy for energy and environmental security that spans the entire Indo-Pacific. As NBR previously found in a major study of the shale revolution's implications for Asian energy security, joint U.S.-Japan leadership has (and will continue to play) an important role in strengthening regional approaches to bolstering energy security.[3] Yet to be truly successful, a region-wide energy strategy—and particularly one that envisions having LNG at its core—needs to fully engage a broad spectrum of major gas consumers and producers. This includes not only working with stakeholders in established markets such as South Korea, Singapore, and Australia but also finding ways to better engage with emerging market stakeholders in South and Southeast Asia—and doing so in ways that advance shared ambitions for more secure, open, and effective gas markets. Who are the natural and necessary partners of a successful Indo-Pacific energy security strategy, and how can we further deepen collaboration in ways that bring in a range of critical actors in government, the private sector, and civil society? And what specifically is the distinctive and desired enabling role of the U.S. government as a stakeholder in this process?

Given the important questions that remain about the actual implementation and potential for success of the energy dimension of the United States' Indo-Pacific strategy, the theme of NBR's 2019 Energy Security Program is "Revolutionizing LNG and Natural Gas in the Indo-Pacific." For fifteen years this program has provided an assessment of a major development in Asian energy markets and geopolitics to assist policymakers in better understanding and responding to the implications for energy and environmental security in the region. The 2019 program focused on a range of critical issues, including how LNG and energy fit into the free and open Indo-Pacific strategy, whether the region's emerging energy markets are likely to be able to absorb large new gas and LNG supplies, and the prospects for U.S. LNG to be affordable and sustainable in the face of competition from other energy supplies such as coal and renewables.

NBR commissioned essays by four scholars with expertise on these issues. The preliminary results were discussed at a workshop in Washington, D.C., on May 29, 2019, which NBR was pleased to once again co-host with the Woodrow Wilson International Center for Scholars. Participation in the meeting came from senior representatives from the U.S. government and foreign policymaking communities as well as leading industry and geopolitical experts. The authors have drawn on feedback they received at the workshop to strengthen their research and findings.

---

[3] Mikkal E. Herberg, "U.S., Japanese, and Asian Energy Security in a New Energy Era," NBR, NBR Special Report, no. 51, April 2015.

In the opening essay, Nikos Tsafos from the Center for Strategic and International Studies (CSIS) situates the role of LNG in U.S. foreign policy, discusses how this role has evolved under the Trump administration and the new Indo-Pacific strategy, and offers some sage advice about the limits of LNG as a diplomatic tool in the region. He argues that under the Trump administration LNG has been elevated to a key role in the U.S. geoeconomic strategy. This fits the administration's preference for a transactional approach to foreign policy, desire to promote U.S. exports and private industry, and focus on competing directly with China's BRI. More overtly political is the administration's use of language promoting LNG exports to "punish bad actors," no doubt referring to Russia's use of energy and gas for geopolitical purposes. New policy tools such as the BUILD Act and Asia EDGE are likely to provide an important toolkit to help support LNG exports and facilitate investment in gas and LNG infrastructure. Yet it is also important to recognize that the private sector and markets will largely dictate how much LNG the United States will produce and where it will go. Finally, Tsafos cautions against overly politicizing LNG, which risks reducing confidence in the market and perversely may lead some countries to limit rather than expand their reliance on U.S. LNG.

In the second essay, Jeanne Choi from NBR considers Japan's and South Korea's experience with gas market reform to illustrate the imposing political challenges of reform and liberalization that many developing countries in the Indo-Pacific are facing as they pursue market reform. She focuses on critical issues in the liberalization process, including the privatization of state-owned companies, the dismantling of monopolistic market sectors, unbundling and open-access regimes, and the roles played by the national pipeline network, labor movements, and U.S. diplomatic pressure. Choi finds that overcoming resistance from existing monopolistic state-owned energy companies is a key hurdle to the necessary privatization of the industry, which is often opposed by labor unions and powerful political interest groups as well. The reform process also crucially requires sustained political commitment over many years. Public opinion can be critical in either supporting market reform or coalescing major opposition to further liberalization. Given the potential for higher energy prices, especially for electricity, to provoke opposition, policymakers must commit to the process or risk being derailed. Open-access regimes for infrastructure are likewise crucial to increasing market competition, bringing in new entrants, and dismantling inefficient and unreliable monopolistic market systems.

The third essay by Riley Smith from the US-ASEAN Business Council explains the challenges of gas market reform and the potential for growth in LNG use in Southeast Asia by examining the cases of Vietnam, Indonesia, and the Philippines. Three important factors in expanding LNG use are accelerating the buildout of natural gas infrastructure, incentivizing new exploration and development of domestic natural gas supplies, and building the political will to overcome resistance to market reforms. Smith finds that new floating LNG import terminals are key to scaling up gas demand by sharply reducing LNG import and operating costs. Mechanisms that improve currency convertibility for very large gas and infrastructure projects can enhance their attractiveness to investors. There is thus an urgent need for more standardized contractual frameworks to accelerate the necessary infrastructure buildout. As the United States proceeds to try to refine and implement the Asia EDGE initiative, a key pillar of its energy strategy, it should work with Southeast Asian countries to address these obstacles to gas market reform.

The fourth essay by Leslie Palti-Guzman from GasVista assesses the prospects for the competitiveness of U.S. LNG in developing Asian markets and the potential role of the Asia

EDGE initiative. She argues that U.S. LNG has specific competitive advantages in these markets, but cautions that there are no guarantees. U.S. LNG will face intense competition from rival suppliers, such as Australia, Qatar, and Russia, that are closer geographically and can offer more attractive pricing. Accessing smaller emerging markets in South and Southeast Asia will be especially challenging for various reasons, including their poor credit ratings, lack of infrastructure, and relatively small, fragmented markets. Palti-Guzman suggests that the goal of Asia EDGE to spur greater private investment in gas infrastructure across the region is especially timely and could bring real results through tools like public-private partnerships, government guarantees, and flexibility of capital. The Asia EDGE initiative will be a critical component of the U.S. government's push under the Indo-Pacific strategy to open new LNG demand centers in Asia through commercial advocacy and energy diplomacy. However, this initiative remains in its infancy, and the U.S. government will need to rapidly clarify its concrete plans for implementation and capacity building, with Palti-Guzman offering several potential paths forward here.

Collectively, these essays paint a much clearer and revealing portrait of the United States' free and open Indo-Pacific energy strategy, its vision, its goals, its challenges, and its prospects for success, with respect to LNG in particular. But their analysis also suggests that there is much more work to be done if the Indo-Pacific strategy is to move from offering a broad vision for the region's future to providing a specific and executable roadmap that can effectively engage critical stakeholders in government, the private sector, and civil society. Meanwhile, U.S. and Asian policymakers will also need to act while grappling with the inherent complexity and often uncertainty that continues to characterize Asian energy demand and market outlooks. As essays in this report note, there are serious challenges looming in trying to promote more open, efficient natural gas and LNG markets and build out gas infrastructure in the developing economies in the region.

Meanwhile, as delegates noted in the program's workshop, the ability of U.S. LNG to compete over the longer term with other, often cheaper fuels such as coal and increasingly renewables will also be a challenge and require innovative LNG contracts, transportation technologies, and import infrastructure. Ultimately, for the Indo-Pacific strategy's vision for energy security to be effectively executed, U.S., Japanese, and other like-minded government partners, along with industry and multilateral partners, will need to get their act together quickly to offer an alternative to China's enormous tidal wave of capital and regional engagement. But doing so will also require decision-makers to make difficult choices, including when and how to expend limited resources and political capital. And even well-resourced efforts in individual countries may nonetheless struggle to be effective if not matched by extensive, multilateral coordination.

The 2019 program would not be possible without the tremendous support, guidance, and dedication of a number of organizations and individuals whose efforts are particularly worthy of recognition. First, we are grateful to Chevron and ConocoPhillips for their ongoing sponsorship of this initiative; their contributions make the program's activities and research possible. Second, over the past several months we have received comments from numerous U.S. and Japanese government officials on how they are framing their own policy priorities on LNG in the Indo-Pacific, including Assistant Secretary of State Francis Fannon of the U.S. State Department; Takeshi Soda of Japan's Ministry of Economy, Trade and Industry; and Jeff Phillips of the U.S. Trade and Development Agency. We were pleased to host these officials in our formal programming, in addition to meeting throughout the year with representatives of the U.S. Departments of Energy and State,

Congress, and foreign governments to hear their perspectives. Behind the scenes, Ashley Johnson, Jeanne Choi, Audrey Mossberger, and Nicholas Hunnewell of NBR worked tirelessly to further strengthen the program and refine the policy discussions, as did Michael Kugelman and the team at the Wilson Center in support of the May workshop. This report is the product of their hard work, as well as the efforts of numerous others. We hope that you enjoy it as much as we enjoyed working on it.

Mikkal E. Herberg
Senior Advisor, NBR
Senior Lecturer, University of California–San Diego

THE NATIONAL BUREAU *of* ASIAN RESEARCH

NBR SPECIAL REPORT #81 | OCTOBER 2019

The Role of LNG in the United States' Indo-Pacific Strategy

Nikos Tsafos

NIKOS TSAFOS is a Senior Fellow with the Energy and National Security Program at the Center for Strategic and International Studies (CSIS). He can be reached at <ntsafos@csis.org>.

EXECUTIVE SUMMARY

This essay explores the origins, goals, and limits of the Trump administration's strategic decision to put liquefied natural gas (LNG) at the center of the U.S. Indo-Pacific strategy.

MAIN ARGUMENT

With the U.S. emerging as a major LNG supplier, and the Indo-Pacific as the main market for LNG, there is an underlying commercial logic bringing the two together. The Trump administration wants to leverage this mutually beneficial relationship to advance its broader strategy in the region. In some ways, this approach builds on general trends that have been progressing in both the region and the industry, but there is also a possibility of additional investment flowing in response to new policy instruments being created to facilitate gas projects. There are risks, however, in a strategy that relies too much on LNG to further policy objectives. First, the trade in LNG is driven by commercial factors, so there is only so much that the U.S. government can do to have an impact on investment and other decisions. Second, LNG is usually too small to affect a broad and complicated bilateral relationship. Third, overly politicizing a commodity could undermine U.S. strategic interests by reducing confidence in the market and leading countries to take measures that lessen their reliance on LNG more broadly or U.S. LNG more specifically.

POLICY IMPLICATIONS

- LNG is increasingly interwoven into U.S. grand strategy. In some areas LNG can help advance U.S. interests, but it is all too often a limited tool for resolving bilateral or regional disputes.
- Although the private sector will largely dictate the major decisions on how much LNG the U.S. will produce and where it will go, the U.S. government has a clear interest in supporting exports and, to that end, is fine-tuning a toolkit to facilitate investment in gas and LNG infrastructure. At the margins, this toolkit can play an important role.
- U.S. policy often blurs the line between advertising U.S. LNG, nudging countries to buy it, and suggesting that U.S. LNG could solve other political problems in a bilateral relationship. Carrots are fine, but sticks will backfire—at least eventually.

Liquefied natural gas (LNG) has emerged as a core pillar of the Trump administration's Indo-Pacific strategy. The recognition that U.S. LNG could serve geopolitical objectives has always existed of course and was a motivating factor for supporting LNG exports in the early 2010s. But LNG has now been elevated in importance. In an administration that appears conflicted on many strategic issues, promoting this option enjoys nearly unanimous support—no matter what the dilemma.

There is a logic to this strategy of emphasizing LNG. Economic competition has risen to the top of the strategic agenda, and the United States wants to promote domestic industries where it has an advantage. The economic case for a close trade relationship with countries in the Indo-Pacific predates the Trump administration, given that Asia is the largest importer of LNG and the United States has emerged as a key supplier of LNG to the world.

Nonetheless, there are limits on how much the U.S. government can accelerate or add to what companies were planning to do anyway. There are risks as well, including the risk of overreaching or using a single instrument to solve complex problems. LNG has a role to play in the U.S. strategy in the Indo-Pacific, but on its own, it can only do so much.

This essay explores the origins, goals, and limits of the Trump administration's strategic decision to put LNG at the center of the U.S. strategy toward the Indo-Pacific. It first outlines key tenets of U.S. policy pertaining to LNG exports in the Obama and Trump administrations. It then assesses commercial realities affecting the implementation and outcomes of U.S. policy decisions and outlines barriers and opportunities moving forward.

U.S. LNG, Foreign Policy, and the Indo-Pacific

When the Department of Energy (DOE) granted its first long-term authorization to export LNG from the United States in 2011, it was primarily concerned about the impact on domestic supplies and prices and on U.S. energy security more broadly. But the DOE noted several added benefits from exports: it saw that exports would expand the market for a commodity that the United States had in abundance; encourage countries to switch from coal and oil to gas, thus advancing the climate agenda; promote energy security, diversity of supply, and a better-functioning global gas market; and help gas prices decouple from oil, thus making gas more affordable.[1]

For the Obama administration, U.S. LNG exports served two foreign energy policy objectives: to help Europe lessen its reliance on Russia, and to advance energy security in Asia by developing a more liquid, transparent, and interconnected gas market. Energy was part of a global economic agenda, and offering unhindered access to U.S. LNG was one of the benefits of completing a free trade agreement with the United States, even though in practice such access was already guaranteed. And for an administration that made action on climate change a centerpiece of its foreign policy, increasing the supply of a lower-carbon fossil fuel was important.

Despite this important role, U.S. LNG never achieved a central place in relations between the United States and major allies. When President Barack Obama laid out a vision for renewed engagement with Asia in November 2011, he spoke largely in security and military terms, although

[1] "Conditionally Granting Long-Term Authorization to Export LNG from Sabine Pass LNG Terminal to Non–Free Trade Agreement Nations," U.S. Department of Energy, May 20, 2011.

he emphasized the economic basis of prosperity in the region.[2] In part, U.S. LNG exports were a novel idea then. But even as export projects advanced, and even after exports first started, they were mostly hailed as a success story in domestic ingenuity and private industry rather than U.S. policy.

The Trump administration, in contrast, has elevated the role of U.S. LNG while also using sharper rhetoric. In strategic terms, President Donald Trump's vision for the Indo-Pacific is not dissimilar to President Obama's (or even earlier presidents), although President Trump has elevated economic fairness as the centerpiece of his approach toward the region. In a speech in Vietnam in November 2017, he said:

> At the core of this partnership, we seek robust trade relationships rooted in the principles of fairness and reciprocity. When the United States enters into a trading relationship with other countries or other peoples, we will, from now on, expect that our partners will faithfully follow the rules just like we do. We expect that markets will be open to an equal degree on both sides, and that private industry, not government planners, will direct investment.[3]

The shift in language and tone was clear. For one, the U.S. view on China has evolved. President Obama stated in 2011 that "the United States will continue our effort to build a cooperative relationship with China."[4] By contrast, the Trump administration's National Defense Strategy began with the premise that "China is a strategic competitor using predatory economics to intimidate its neighbors while militarizing features in the South China Sea."[5] The grievances against China, especially in trade, have captured a central role in the bilateral relationship. And more generally, with China's Belt and Road Initiative and Made in China 2025, geoeconomics and industrial competition have been elevated to a central role in international affairs.

A focus on LNG fits several changes that have occurred in the broader geopolitical environment as well as in U.S. policy. LNG transactions are more conducive to bilateral rather than multilateral arrangements, which fits the preferences of the Trump administration. This focus reinforces a transactional approach to relations, rather than an institutional one, and is more easily used as leverage during trade and other negotiations. And it reflects a mercantilist desire to promote exports, to celebrate American ingenuity and private industry, and to compete head-on with China by offering a counterweight to the Belt and Road Initiative.

This push to increase LNG exports has been accompanied by new rhetoric that straddles a fine line between celebration and bellicosity. Secretary of State Mike Pompeo articulated the basic contours of "energy dominance" during a speech in March 2019:

> We're not just exporting American energy, we're exporting our commercial value system to our friends and to our partners. The more we can spread the United States model of free enterprise, of the rule of law, of diversity and

---

[2] Barack Obama (remarks to the Australian Parliament, Canberra, November 17, 2011), https://obamawhitehouse.archives.gov/the-press-office/2011/11/17/remarks-president-obama-australian-parliament. See also Mark E. Manyin et al., "Pivot to the Pacific? The Obama Administration's 'Rebalancing' toward Asia," Congressional Research Service, CRS Report for Congress, R42448, March 28, 2012, https://fas.org/sgp/crs/natsec/R42448.pdf.

[3] Donald Trump (remarks at the APEC CEO Summit, Da Nang, Vietnam, November 10, 2017), https://www.whitehouse.gov/briefings-statements/remarks-president-trump-apec-ceo-summit-da-nang-vietnam.

[4] "Remarks by President Obama to the Australian Parliament."

[5] U.S. Department of Defense, "Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge," January 19, 2018, https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

> stability, of transparency and transactions, the more successful the United States will be and the more successful and secure the American people will be.[6]

Secretary Pompeo identified three basic pillars of U.S. energy policy overseas. The first goal was to facilitate investment—both foreign investment in the United States and investment by U.S. firms in the Indo-Pacific. The second was to encourage companies and countries to partner with the United States. His pitch was clear: "Our deals come with no hidden strings attached, our contracts are clear, our motives unambiguous."[7] The third pillar is punishing countries that use energy as a weapon—in his words, "pushing bad actors…off the target."[8]

Elements of that grand strategy have clear policy dimensions. In punishing bad actors, for instance, the United States has deployed an extensive toolkit of economic warfare against Iran, Venezuela, and Russia. Other strategic aims have fewer policy pillars. The Trump administration has put forward two initiatives that might support that energy agenda. The most concrete and well-articulated is the Better Utilization of Investments Leading to Development (BUILD) Act, which established the U.S. International Development Finance Corporation. The other is Asia Enhancing Development and Growth through Energy (EDGE). Together with the Export-Import Bank of the United States, which regained its quorum in May 2019, this is a broad toolkit that could support the Trump administration's Indo-Pacific strategy.

The BUILD Act introduces a series of modernizations that might eventually help U.S. LNG exports in the Indo-Pacific. The most relevant provisions include a doubling in the exposure limit from $29 billion to $60 billion; the ability to take equity in projects; the option to lend money in foreign currencies; the opportunity to participate in some projects with looser U.S. connections; the opening to contribute to feasibility studies and technical assistance, thus spearheading new projects; and the focus on lower-income countries while allowing participation in other countries, provided that projects serve a clear U.S. economic or foreign policy objective.[9]

Asia EDGE is more amorphous at this point. Its strategic aims consist of four propositions: "strengthening the energy security of allies and partners; creating open, efficient, rule-based, and transparent energy markets; improving free, fair, and reciprocal energy trading relationships; expanding access to affordable, reliable energy."[10] Over time, as more details become clear, and as the Trump administration sharpens its approach, Asia EDGE might emerge as a Power Africa–like initiative, where the money comes largely from established institutions (such as the Overseas Private Investment Corporation and the U.S. Export-Import Bank), but where there is a coordinated effort to ensure that the interface between a project and the U.S. government remains smooth and enables investments to move forward.

---

[6] Michael R. Pompeo, "U.S. Foreign Policy in the New Age of Discovery" (keynote address at CERAWeek, Houston, March 12, 2019), https://www.state.gov/keynote-address-at-ceraweek.

[7] Ibid.

[8] Ibid.

[9] "BUILD Act: Frequently Asked Questions about the New U.S. International Development Finance Corporation," Congressional Research Service, CRS Report for Congress, R45461, January 15, 2019, https://fas.org/sgp/crs/misc/R45461.pdf.

[10] "Asia EDGE—Enhancing Development and Growth through Energy," U.S. Department of State, Bureau of Energy Resources, April 12, 2019, https://www.state.gov/wp-content/uploads/2019/04/2019-04-12-AsiaEDGE-One-Pager-Reformatted.pdf.

U.S. LNG and the Indo-Pacific: The Commercial Realities

To properly assess the role that these initiatives will have on U.S. LNG exports and on U.S. policy toward the region, it is important to establish a baseline of where relations and trade stood before these initiatives were introduced and what underlying forces already existed that attracted or repelled the relationship between U.S. LNG and the region. Asia has always been the heartland of the global LNG industry. Hence, U.S. LNG export projects have always kept, in one way or another, an eye on the Asian market.

In 2018, Asia imported 76% of the world's LNG. This share has remained relatively flat in recent years, averaging 73% from 2012 to 2017.[11] Between 2012 and 2018, Asia accounted for 92% of the incremental growth in LNG demand. China made up 50% of the growth in imports from 2012 to 2018, and the top five incremental consumers were all in Asia (China, India, South Korea, Pakistan, and Thailand). The top four overall LNG importers in the world were all in Asia as well and imported almost two-thirds of the world's LNG in 2018 (in order: Japan, China, Korea, and India). In short, Asia is the driving force in global LNG growth.

From the start, Asian companies, and the Asian market overall, were key enablers for U.S. LNG exports, going all the way back to the LNG project on the Kenai Peninsula in Alaska, which went online in 1969. The first export project to be sanctioned from the contiguous United States, Sabine Pass, had two long-term contracts with Asian buyers—the Korea Gas Corporation and the Gas Authority of India Limited (GAIL).[12] Two-thirds of the output from the Cameron LNG project was contracted to Asian buyers (Mitsubishi and Mitsui). The Cove Point project sold exclusively to Asian customers (Sumitomo and GAIL). Although Freeport LNG had a more diverse customer base, Asian buyers were prominent (including Osaka Gas, Chubu Electric, Toshiba, and SK E&S). Pertamina agreed to buy LNG from Cheniere Energy's Corpus Christi project. Asian customers also have been important for the second wave of U.S. LNG projects: PetroChina, the Chinese Petroleum Corporation in Taiwan, and PETRONAS signed contracts with Cheniere Energy; Sumitomo committed to buy gas from an expansion at Freeport; Mitsui and Tokyo Gas signed up for volumes from Sempra's Energía Costa Azul in Western Mexico; and several other deals are in the works (or have been announced but not yet finalized).

The relationship has also transcended mere transactions to buy and sell LNG. Mitsui and Mitsubishi/NYK both acquired an equity stake in the Cameron LNG project, while Osaka Gas and JERA are equity partners in Freeport LNG (Train 1). Asian commercial banks and the Japan Bank of International Cooperation (JBIC) helped finance the Cameron LNG project, while Nippon Export and Investment Insurance (NEXI) provided insurance coverage. Freeport LNG had a similar structure with Japanese commercial banks, JBIC, and NEXI all participating. Chiyoda was one of the engineering, procurement, and construction contractors for both Cameron and Freeport; IHI E&C was a contractor for Cove Point and the contractor for Elba Island LNG. In short, Asian companies not only signed up to buy U.S. LNG; they invested in projects, lent money and guaranteed loans, and even designed and built some of the facilities.

The importance of the Asian market has been evident since U.S. LNG exports from the contiguous United States started in 2016. Over half of the exports went to Asia in 2018, and South

[11] International Gas Union, "IGU World LNG Report 2019," 2019, https://www.igu.org/publications-page.

[12] The information in this paragraph comes largely from company press releases.

Korea alone took in almost a quarter of all exports from the United States (23.3%).[13] Of the top five destinations for U.S. LNG in 2018, only Mexico was outside Asia. Even so, the United States was still a small supplier to Asia: less than 5% of the region's imports came from the United States, in part because U.S. LNG exports have just started and are still ramping up to their full volumes. Over time, the United States will become a major supplier for the region, although contract flexibility means that U.S. LNG is likely to shift direction depending on market conditions. Europe, for example, was the primary destination for U.S. LNG in the first quarter of 2019.

Conclusion: What U.S. LNG Can and Cannot Do

U.S. LNG will make an important contribution to Asian energy security—this much is clear. The United States will become the world's third-largest LNG supplier this year, and by the mid-2020s, it could rival Qatar and Australia as the world's largest LNG exporter. No matter where this gas goes, it will add to global supplies and hence security. By virtue of certain commercial features—destination flexibility, ability to not lift cargoes when prices are low, and relatively transparent pricing that offers some hedging options—U.S. LNG packs more energy-security punch in each cargo. All this is good for the region.

At the same time, this trade is driven by commercial realities. There is only so much the U.S. government can do to facilitate it. Companies and market fundamentals dictate how much is invested, when and where, and how much LNG goes to the Indo-Pacific region versus the Americas, the Middle East, or Europe. Any Indo-Pacific strategy must start and end with a basic recognition of how this market operates.

This does not mean that the U.S. government has no role to play in facilitating projects and trade. Reassuring allies that the United States will be a reliable supplier was a key component in getting projects off the ground in the early 2010s—especially for companies worried that the United States might curtail exports under some circumstances. That reassurance is not felt in Beijing, the one country in the region that remains relatively distant from U.S. LNG projects. The mature markets of Asia can make their own decisions on how much U.S. LNG to purchase and under what terms, but newer markets often need help to build infrastructure, draft rules, and create space for gas in their energy mix. In recent years, the International Finance Corporation has emerged as a major funder of LNG import projects, in part because those investments have been undertaken by private companies. The U.S. government, which has played an instrumental role in facilitating export projects in Asia, now can do the same for imports, provided that the toolkit offered by the U.S. Export-Import Bank and U.S. International Development Finance Corporation can meet the market's needs (perhaps coordinated through Asia EDGE).

An equally important role for the United States is restraint, however.[14] The lines between advertising U.S. LNG exports, strongly nudging countries to buy U.S. LNG, and suggesting that other problems would go away if a country were to purchase it are being blurred. Carrots are fine, but using LNG as a stick will eventually backfire. In the case of China, it also seems somewhat naïve to imagine that the purchase of U.S. LNG could really be a solution in a relationship so

[13] "LNG Annual Report—2018," U.S. Department of Energy, Office of Fossil Energy, 2018, https://www.energy.gov/sites/prod/files/2019/03/f61/LNG%20Annual%20Report%20-%202018_1.pdf.

[14] Nikos Tsafos, "A Global Gas Strategy for the United States," Center for Strategic and International Studies, Commentary, May 9, 2019, https://www.csis.org/analysis/global-gas-strategy-united-states.

fraught and complicated. U.S. policymakers travel around the world to advertise U.S. LNG as being free from politics, but it hardly feels that way. More than ever, U.S. LNG seems intimately connected with everything else, including strained relations with China, Russia, and Europe. On the margin, it can lubricate political relations and help the United States advance its grand strategy. But often selling LNG feels like the grand strategy itself, with the commercial deal superseding or divorced from a grand design.

It would thus behoove the United States to take a long view on gas and LNG and to recognize that for the fuel to grow further, buyers must believe in its reliability and trust that it comes with no strings attached. At a minimum, this means restraint from politicizing the commodity and interweaving LNG into other bilateral and multilateral disputes. More fundamentally, it requires a strategic view toward nurturing this market and building the institutions, rules, and tools that will ensure its prominence in the energy transition.

THE NATIONAL BUREAU *of* ASIAN RESEARCH

NBR SPECIAL REPORT #81 | OCTOBER 2019

Developing Free and Open Markets: Gas Market Reform in Japan and South Korea

Jeanne Choi

JEANNE CHOI is a Nonresident Fellow at the National Bureau of Asian Research and a PhD candidate in Northeast Asian Studies and Energy, Resources, and Environment at the Johns Hopkins University School of Advanced International Studies. She is also a Fellow with the National Asia Research Program. She can be reached at <jeannekchoi@gmail.com>.

EXECUTIVE SUMMARY

This essay examines the progress of gas market liberalization in Japan and South Korea and draws lessons from these two case studies that may provide a template for other countries in the Indo-Pacific.

MAIN ARGUMENT

Gas market reform is a complex legal, political, and economic process requiring careful planning and sustained commitment by policymakers. This essay provides an overview of the pre-reform gas market structures in Japan and South Korea and the liberalization process undertaken in each country, focusing on the privatization of state-owned companies, the dismantling of monopolistic market sectors, unbundling and open-access regimes, and the roles played by the national pipeline network, labor movements, and U.S. diplomatic pressure. Japan's relative success in reforming its already public sector–oriented market in order to introduce greater competition and South Korea's problems in privatizing its state-owned gas company suggest that market liberalization requires sustained commitment over a long period. This is especially the case when public sector–dominated monopolies are involved.

POLICY IMPLICATIONS

- The duration of market liberalization is related to the structural starting conditions. Markets that are dominated by monopolistic state-owned companies face the additional hurdle of privatization, which is often opposed by labor unions and other political interest groups.
- Market liberalization requires sustained political commitment over many years. Even in the case of Japan, where reform promoted unbundling and open-access regimes for gas infrastructure in an already relatively private sector–oriented market, full liberalization took over 22 years.
- Exogenous factors, such as crises or natural disasters, can have a significant effect in either increasing public support for market reform measures or rousing opposition to further liberalization. At these critical junctures, policymakers must recommit to the process in order to avoid derailment.
- Open-access regimes for infrastructure can increase market competition by introducing new entrants; they thus are a critical component to dismantling monopolistic market systems.

Under the Trump administration's Indo-Pacific strategy, the United States has emphasized market-based solutions as the basis for enhancing energy security in the region. Yet for many countries significant reform—for example, introducing competition to a market dominated by a state-owned energy company—will be needed to establish competitive and efficient markets. Perhaps nowhere is this need more acute than in the context of enabling greater gas utilization: accurate price signals are critical to establishing functioning supply and demand dynamics in order to efficiently allocate limited resources. With this in mind, crafting an effective, politically viable strategy for advancing market liberalization is a crucial objective for mature markets, but it can be a challenge for even the most committed governments.

Both Japan and South Korea embarked on the process of market liberalization over two decades ago, and their experiences to date in translating theory into policy can outline best practices and offer lessons for countries seeking similar reform. For the broader Indo-Pacific, the processes of gas market reform in these two countries can help identify the potential hurdles for liberalization in other countries and thus may have important implications for the future growth of liquefied natural gas (LNG) markets in the region.

This essay examines the progress of gas market liberalization in Japan and South Korea and draws lessons from these two case studies that may provide a template for other countries in the Indo-Pacific. It first provides an overview of the structures of the pre-reform gas markets in Japan and South Korea. It then analyzes the liberalization process undertaken in each country, focusing on the dismantling of monopolistic market sectors, the institution of unbundling and open-access regimes, and the privatization of South Kora's state-owned gas company, among other factors. Last, it outlines key lessons learned from Japan's and South Korea's experiences that can then be used as a model for other countries in the Indo-Pacific seeking to reform gas markets.

What Liberalization Is and Is Not

Generally speaking, when U.S. policymakers and regional energy specialists debate recommendations for how to stimulate energy market reform in the Indo-Pacific, one of their presumed end goals is a liberalized energy market. When applied to Asia in particular, an overly simplified vision for such reform would involve restructuring monopolistic, state-dominated markets into competitive, open-market systems that can allow for an efficient pricing mechanism to emerge. A basic checklist for whether a country's gas market should be considered liberalized would include four key attributes:

- *Unbundling (or de-verticalization)*. One attribute is the separation of the competitive sectors of the gas industry (usually production, imports, wholesale, and retail sale) from the natural monopoly sectors (such as transmission, storage, and distribution).[1]
- *Third-party access (TPA) or open access*. A second feature is the opening of transmission or distribution networks, LNG import and regasification terminals, LNG storage facilities, and other related infrastructure to third parties.
- *Lowered barriers to market entry*. A third component is removing or easing the regulations that limit new entrants from competing in the market in order to encourage competition.

[1] Alberto Cavaliere, "The Liberalization of Natural Gas Markets: Regulatory Reform and Competition Failures in Italy," Oxford Institute for Energy Studies, May 2007, 6, https://pdfs.semanticscholar.org/a742/d09808b521253a84855eecba3d7375aaf631.pdf.

- *Deregulation of pricing*. The fourth feature is the removal of state regulation as the mechanism to set prices for retail customers.

A fifth attribute, privatization—the transfer of ownership of corporations from public to private shareholders—may also be a prerequisite for market reform in some countries. This was the case in South Korea, where it was thought that the monopoly of the state-owned gas company was best dismantled through the process of privatization. However, in some cases, such as Norway, it is possible for countries to pursue market liberalization without privatization.

All five attributes function to limit state interference in energy markets and introduce competition in order to establish a liberalized market in which the gas trade is based on market fundamentals of supply and demand. It is important to note, however, that gas utilization does not necessarily increase in a liberalized market. Indeed, when prices are set by market dynamics rather than government regulation, natural gas may be edged out by other cost-competitive fuels.

As suggested by several of the items on this checklist, one of the underlying tensions in the liberalization process can be how to engage with a range of existing government, quasi-government, and private-sector stakeholders. Typically, pre-liberalization wholesale markets are commanded by one or just a few importers that are state-owned or granted monopoly power within a country or region. In Japan and South Korea, monopoly utilities such as Tokyo Gas and Korea Electric Power Corporation (KEPCO) were guaranteed buyers of LNG from overseas projects developed by Japanese companies like Mitsubishi and by the Korean state-owned company Korea Gas Corporation (KOGAS). Consequently, Japanese and Korean importers were able to take on the role of foundational buyers in new upstream LNG projects because the financial guarantee of having such buyers would be enough to ensure the project's success and allow for a final investment decision to be reached.

This old regulated model of gas markets is based on the traditional LNG supply chain, which featured bilateral contracts of twenty or more years between a producer country and customer with oil-indexed pricing. The strict contract terms between the buyer and seller locked in the buyer to offtake a minimum amount of LNG annually. The long-term contract became such a central component to the international LNG trade due to the significant risks associated with the production chain. This traditional contract required guaranteed downstream buyers in order to ensure the financial viability of a project.[2]

Yet because of this relationship among overseas producers, importers, and the monopolistic utilities, it was difficult for new entrants to break into either country's gas market. Government intervention consequently became a needed catalyst for market reform in both Japan and South Korea. The following sections explore how each country went about this process and what obstacles emerged in each case.

Japan: Liberalization Realized?

The Pre-liberalization Domestic Gas Market

The foundational law concerning the establishment and regulation of the gas industry in Japan is the Gas Business Act of 1954. Under this law, the domestic gas industry in effect was

[2] Michael D. Tusiani and Gordon Shearer, *LNG: Fuel for a Changing World—A Nontechnical Guide*, 2nd ed. (Tulsa: PennWell, 2016), 29–30.

established as a natural monopoly, and franchised businesses with each city gas company were given almost exclusive authority to sell gas within their home regions through a regional pipeline network developed for specific service areas. LNG imports and the gas industry generally were dominated by large, vertically integrated, privately owned companies. The "big four"—Osaka Gas, Saibu Gas, Toho Gas, and Tokyo Gas—together served approximately two-thirds of customers and were responsible for 75% of total gas sales in Japan in 2001.[3] With the exception of domestic and overseas production, these four companies participated in all aspects of the gas market as they were vertically integrated in the LNG import, transport, storage, regasification, and transmission sectors.

Smaller city gas companies were mainly involved in gas distribution and retail and bought gas from the larger LNG importers. In contrast to South Korea, the domestic gas industry in Japan at its establishment and throughout its history has been characterized by the existence of a large number of distribution companies.[4] Each of the more than 240 city gas companies held a de facto monopoly in its respective franchised service area and distributed gas through the local pipeline network that it had developed, owned, and operated.[5] Because the pipeline distribution networks were constructed to meet regional demands, there were few interconnections between pipeline networks.

A Recommitment to Liberalization: Market Inefficiencies and the Fukushima Nuclear Crisis

Gas market reform in Japan focused primarily on liberalizing the retail segment by breaking up the regional monopolies and introducing greater competition to the sector. Although the liberalization of the electricity market had already been initiated by the Japanese government, the Great East Japan Earthquake in March 2011 provided a wake-up call to fully commit to broad market reform. The crisis at the Fukushima Daiichi Nuclear Power Plant altered public attitudes as well as views within the government toward the gas and electricity sectors. After taking nearly all nuclear reactors in the country offline, Japan was forced to buy LNG at high prices in a tight global gas market. The crisis revealed inefficiencies in the gas and electricity markets and prompted policymakers to recommit to market reform as a means to ensure energy supply and price security in the future.[6]

Full liberalization of the entire retail market was officially established in April 2017. Large- and small-scale industrial and household consumers were then able to freely select their suppliers. Additionally, the licensing system for city gas utilities was abolished, thus removing regional restrictions on city gas companies. In its stead, a regulatory regime for issuing business licenses by function was introduced. Provisions for third-party use of LNG import and regasification terminals were included to encourage further competition. In addition to the retail sector,

---

[3] U.S. International Trade Commission (USITC), "Natural Gas Services: Recent Reforms in Selected Markets," October 2001, https://www.usitc.gov/publications/332/pub3458.pdf.

[4] Hideo Taki, "The Gas Industry in Japan," Center on Japanese Economy and Business, Columbia Business School, Working Paper, June 1996, 8, https://academiccommons.columbia.edu/download/fedora_content/download/ac:98931/content/WP_117.pdf.

[5] USITC, "Natural Gas Services," 85. In 2001, nearly 35% of these small city gas companies were municipally owned, while the rest were privately owned companies.

[6] S&P Global Platts, "Japanese Market Liberalization to Impact LNG Trade," Special Report, April 2017, https://www.platts.com/IM.Platts.Content/InsightAnalysis/IndustrySolutionPapers/SR-japan-market-liberalization-lng-trade-042017.pdf.

liberalization of the distribution segment of the gas market is planned for April 2022, when the legal unbundling of the pipeline sector is set to occur.[7]

To encourage greater competition in the retail gas market, Japan enacted unbundling policies as well as an open-access scheme. The 1995 amendment to the Gas Business Act initiated service unbundling—the separation of pipelines from other supply services—in a gradual approach from the largest customers to successively smaller ones. Open access for the transportation sector was introduced in March 2000 in the Guidelines for Proper Gas Trade. Each city gas company was required to provide nondiscriminatory open-access service to pipelines, and LNG import terminal operators could no longer refuse service to third parties.[8] Companies were also required to make the terms of TPA contracts public in an effort to increase transparency.[9]

New Entrants into the Retail Market

The liberalization policies enacted by the Japanese government have introduced new entrants into the retail market, which was formerly dominated by the big four and other smaller city gas companies operating monopolistically within their own regions. Currently, there are 69 companies that have registered with the Japanese Ministry of Economy, Trade and Industry (METI). These new entrants include electricity utilities, general trading companies, renewable energy, and liquefied petroleum gas (LPG) and other gas-related companies.[10] The limited interregional national pipeline network is one of the reasons many of the new entrants are mainly business operators that already own production facilities or LNG terminals.[11]

New entrants have introduced greater competition that has contributed to better prices and service for retail customers. Prior to liberalization, gas prices in the retail sector required METI approval and were calculated under a cost-plus method. The 1995 amendment to the Gas Business Act deregulated gas prices for customers, who were previously not allowed to negotiate rates directly with suppliers. The 1999 amendment further deregulated prices by allowing general gas suppliers to offer competitive rates without obtaining METI approval in advance. Although incumbent city gas companies in "designated transitional supply franchise areas" are required to maintain regulated pricing arrangements to protect customers, approximately one million customers have switched from regulated to deregulated pricing as of March 2018. This suggests that companies are offering new pricing and better services due to competition.[12]

---

[7] To oversee the process of liberalization, the Electricity and Gas Market Surveillance Commission was established in September 2015. Directly reporting to the Japanese Ministry of Economy, Trade and Industry (METI), it regulates transactions and makes recommendations on gas and electricity market policy and further regulations. See Masakazu Toyoda, "Electricity Market Reform and Its Impact on Energy Market in Japan," Institute of Energy Economics, Japan (IEEJ), March 2016, https://eneken.ieej.or.jp/data/6606.pdf.

[8] However, in practice, no actual third-party use of an LNG import terminal based on this LNG Terminal Third-Party Use regulation has happened yet. See METI (Japan), Agency for Natural Resources and Energy, "Jisshi kara ichinen, nani ga kawatta? Gasu kaikaku no yoten to miete kita henka" [In the First Year since Implementation, What Has Changed? The Changes That Have Become the Key Points of Gas Reform], February 15, 2018, https://www.enecho.meti.go.jp/about/special/tokushu/denryokugaskaikaku/gaskaikaku.html.

[9] Art. 22(5) of the Gas Utility Act.

[10] While many are existing gas companies that now supply areas outside their original monopoly region, new entrants include oil-related companies, including INPEX and JAPEX; electricity utilities, including Kansai Electric, Tokyo Electric Power Company (TEPCO), and Chubu Electric; gas-related companies, including former LPG businesses like Taiyo Nissan Energy Corporation and Tobu Liquefied Petroleum; trading companies, including Mitsubishi and Mitsui; renewable energy companies, such as Joetsu Energy Service and Progressive Energy; and other companies, like Nippon Steel, Mitsubishi Chemical, and Sumitomo Metal Corporation. The full list is available from the METI website at https://www.enecho.meti.go.jp/category/electricity_and_gas/gas/liberalization/retailers_list.

[11] Toyoda, "Electricity Market Reform and Its Impact on Energy Market in Japan."

[12] Hiroshi Hashimoto, Yosuke Kunimatsu, and Gen Hosokawa, "Japan's City-Gas Market—Full Retail Competition and Partnership," IEEJ, September 2018, 8, https://eneken.ieej.or.jp/data/8070.pdf.

Customers have also switched providers as a result of the liberalization of the retail market. Although the rate has been slower in the gas market than in the electricity market, through June 2018, 1,118,705 retail customers had switched providers, or around 4% of the total market. Most of these customers switched from their incumbent city gas company to the local electric power company. As local electricity utilities already owned LNG-related infrastructure prior to liberalization, competition now is primarily between incumbent city gas companies and electricity utilities in each region.[13] Thus, it is unclear whether liberalization measures will lead to competition beyond that between incumbent regional gas and electricity giants.

Although liberalization was ostensibly fully realized in Japan in 2017, it is still uncertain how successful the policies will be in achieving the objective of developing a free and open gas market. Liberalization usually results in greater competition due to an increase in the number of market participants. In the case of Japan, however, because of consolidation and the advantages held by incumbent city gas companies, the expectation is that the number of suppliers will shrink to only a few giant companies selling both gas and electricity.[14] As domestic gas demand decreases over time as Japan's population shrinks, nuclear reactors come back online, and the structure of the economy changes, there has been an increase in partnerships between gas and electricity companies in order to capture more parts of the LNG value chain.[15]

However, if one of the goals of gas market reform was to dismantle the regional monopolies and introduce lower prices for consumers, then it already has been partially successful. Competition between electricity utilities and gas companies has already resulted in more favorable pricing and service packages for retail customers. This is one positive outcome of market reform, as long as a gas cartel that engages in oligopolistic price fixing does not emerge. Additionally, a smaller group of large, powerful players in the LNG market may strengthen Japanese energy security because they would have a stronger negotiating position in global gas markets.

Another objective of gas market reform—the establishment of a wholesale market in which a domestic pricing benchmark could emerge—has not yet been realized. The lack of an open-access, national pipeline network may be a major impediment to the creation of a free and open wholesale market akin to the system in place in the United States in which the Henry Hub price acts as a benchmark based on market signals. Unlike the electricity market, which in Japan developed under the direct guidance of the central government and therefore resulted in a national grid that covers the entire country, the gas market grew based on regional demand and is therefore still largely fragmented. City gas pipelines only cover around 6% of the country, are restricted mostly to urban areas, and are not interconnected between regions.[16]

---

[13] Hashimoto et al., "Japan's City-Gas Market," 5.

[14] S&P Global Platts, "Japanese Market Liberalization to Impact LNG Trade," Special Report, April 2017.

[15] For example, a joint-venture between TEPCO Fuel and Power and Chubu Electric has resulted in JERA, the largest buyer of LNG in the world. JERA participates in every stage of the LNG supply chain, from upstream production and gas procurement to domestic LNG terminals and storage to power generation.

[16] METI (Japan), Agency for Natural Resources and Energy, "Genyu no kakaku hendo risuku ni sonaeru tame no LNG ichiba-to no kochiku" [Construction of the LNG Market to Prepare for Price Fluctuation Risk of Crude Oil], 2016, https://www.enecho.meti.go.jp/about/whitepaper/2016html/1-1-3.html.

South Korea: Reform Interrupted

The Pre-liberalization Domestic Gas Market

The December 1982 Korea Gas Corporation Act, in addition to structuring the domestic gas market, established and empowered KOGAS to "contribute to promoting convenience in the lives of citizens and improving public welfare by incorporating the Korea Gas Corporation and by laying the groundwork for the stable long-term supply of gas" and to make natural gas a national fuel.[17] The central government of South Korea was the majority shareholder in the initial ownership structure of KOGAS, with a 50.2% stake. KEPCO held a 35.5% share, and local governments held the remaining 14.3%.[18] KOGAS was created to be a vehicle for implementing policy rather than to advance corporate or shareholder interests.[19]

In order to fulfill its purpose as South Korea's national gas company and its responsibility to import adequate supplies of LNG to meet the country's demand, KOGAS was granted the sole right to construct, manage, and operate LNG receiving terminals, storage facilities, and the national gas supply network. KOGAS began importing LNG from overseas and selling it directly to KEPCO, POSCO, private power plants, and city gas companies. In the retail market, city gas companies were given the responsibility of supplying gas to retail companies for residential and commercial use. The ownership and operation of the local distribution pipeline networks also fell under the purview of the city gas companies. While the wholesale sector was managed by KOGAS, most of these local monopolies with retail distribution rights were private-sector companies.[20]

While the KOGAS Act established the structure of the industry and the division of responsibilities between the wholesale and retail sectors, the City Gas Business Act of 1983 instituted the domestic framework for the city gas industry.[21] The policy authorized the domestic city gas companies to buy natural gas from KOGAS and distribute gas to retail customers. The act also created licensing systems for gas supply and the construction of gas facilities, as well as establishing safety regulations for the industry.[22]

Catalysts for and Impediments to Liberalization

As in Japan, a crisis played a significant role in the market reform process in South Korea. The Asian financial crisis of 1997 highlighted many of the inefficiencies that resulted from an economy in which strong state-owned companies dominated certain industries and industrial policy encouraged a boom-and-bust cycle that could not be sustained. The liberalization process in South Korea emphasized reforming the inefficient domestic gas market by focusing on the privatization of KOGAS and introducing competition to the wholesale sector.

In 1997 the Korean government announced its privatization initiative—the Act on the Improvement of Managerial Structure and Privatization of Public Enterprises—to sell off its shares

---

17 Article 1 of the Korea Gas Corporation Act (1982). The full text of the legislation is available at http://elaw.klri.re.kr/eng_mobile/ganadaDetail.do?hseq=42766&type=abc&key=KOREA%20GAS%20CORPORATION%20ACT&param=K.

18 Il Chong Nam, "Recent Developments in the Public-Enterprise Sector of Korea," in *Governance, Regulation, and Privatization in the Asia-Pacific Region*, ed. Takatoshi Ito and Anne O. Krueger (Chicago: University of Chicago Press, 2004), 120, https://www.nber.org/chapters/c10186.pdf.

19 Author's interview with KOGAS procurement team, Daegu, South Korea, April 26, 2018.

20 SK, LG, Daesung, and Samchully combined have a share of over 80% of the retail gas market.

21 This is also known as the Urban Gas Business Act. The text of the legislation is available at http://extwprlegs1.fao.org/docs/pdf/kor163829.pdf.

22 At the time of the creation of the retail gas market under the City Gas Business Act, there were 32 regional city gas companies, 4 of which used LPG and 30 of which used LNG procured by KOGAS. See USITC, "Natural Gas Services," 99.

of six publicly owned companies, including KOGAS.[23] It concurrently launched a campaign to deregulate and liberalize the gas market that would remove entry barriers to the wholesale sector. KOGAS's import, wholesale, and equipment sectors were to be divided into three companies, two of which would be privatized by 2002. The third company would retain operation of the company's LNG terminals and pipeline network and was expected to eventually be privatized. KOGAS would lose its exclusive right to import LNG, thereby introducing competition into the import and wholesale sectors. The final stage of the plan would address the restructuring of the retail sector.[24]

In November 1999 the first phase of the privatization of KOGAS commenced when the government sold 43% of its equity to private investors in an initial public offering (IPO).[25] In August 2001 the Ministry of Commerce, Industry and Energy announced that it would divide KOGAS's import and wholesale business into three subsidiaries starting in March 2002 when it would launch the detailed privatization plan.

However, apart from this IPO, the privatization plan did not go very far. In early 2002 the KOGAS labor union went on strike to oppose privatization out of concern that it would result in widespread layoffs. While at first the central government took a hard line and refused to slow down the process or alter the plan, the election in December 2002 of President Roh Moo-hyun, whose liberal Millennium Democratic Party was sympathetic to labor, gave the union a powerful ally in the executive branch. Resistance to privatization was additionally strengthened in the early 2000s when a coincidental series of gas supply crises increased public awareness of energy security. The new Roh administration was wary of continuing reform due to uncertainty regarding how existing KOGAS contracts would be handled in order to maintain supply security. To address public concerns, the central government announced that KOGAS would remain majority state-owned and that the company's LNG receiving terminals, storage facilities, and pipeline network would not be included in any privatization plans. The restructuring plan was revised to focus on introducing competition in the import and wholesale segments by overhauling import restrictions and introducing TPA to KOGAS's receiving terminals, storage facilities, and pipelines.[26]

New Entrants into the Gas Market

The 1998 and 1999 amendments to the Urban Gas Business Act of 1983 allowed new entrants to import LNG after applying for and obtaining approval from the Ministry of Commerce, Industry and Energy. TPA to KOGAS infrastructure was also introduced for large companies importing LNG for their own use, while the resale of gas to other companies by any company other than KOGAS was still prohibited. After building its LNG terminal and two storage facilities in Gwangyang, POSCO became the second LNG importer in South Korea. The company sourced its LNG from Indonesia's Tangguh LNG project after signing a twenty-year contract that included

---

23 The full text of the law is available at https://elaw.klri.re.kr/eng_mobile/viewer.do?hseq=29489&type=sogan&key=5.

24 Anton Ming-Zhi Gao, *Regulating Gas Liberalization: A Comparative Study on Unbundling and Open Access Regimes in the U.S., Europe, Japan, South Korea, and Taiwan* (Alphen aan den Rijn: Kluwer Law International, 2010), 238–39.

25 "Energy Sector Restructuring in Korea," *International Financial Law Review*, October 10, 2002, https://www.iflr.com/Article/2027043/Energy-sector-restructuring-in-Korea.html?ArticleId=2027043.

26 Currently, public shares of KOGAS still total around 55%: the central government owns a little over 26%, KEPCO has around 20%, and local governments own just under 8%. Of the remaining 45% of shares, employees own 3%, domestic individuals and institutions—including the National Pension Service of Korea (8%)—have a 27% stake, and foreigners hold a 15% equity share. See Gao, *Regulating Gas Liberalization*, 248–49; and "Korea Gas Corp.," *Wall Street Journal*, https://quotes.wsj.com/KR/036460/company-people.

K-Power (now SK E&S).[27] In 2006, GS Energy became the third company to obtain a license to import LNG. In November 2016, GS and SK E&S opened a joint import terminal in Boryeong that commenced commercial operations in 2017.[28]

Conclusion

Lessons and Best Practices

To date, gas market liberalization in Japan has progressed further than in South Korea. By comparing the two cases, it is possible to understand what political and economic structural conditions and policies play a pivotal role in achieving the five key attributes of privatization. Although each of these conditions is manifest differently, assessing the divergences in outcomes in Japan and South Korea can offer lessons for other countries seeking to liberalize their own markets.

Conditions at the start of the reform process. Prior to the start of the reform process, Japan's import, wholesale, and retail sectors had far more private-sector participation than the Korean public sector–oriented import and wholesale sectors, which were completely dominated by a single state-owned company. Thus, the goal of the liberalization efforts in Japan was to introduce competition to the retail business, which was characterized by regional monopolistic incumbents. In South Korea, on the other hand, the focus was on the privatization of KOGAS and on introducing competition into the import and wholesale sectors of the market. In other words, South Korea had to first fulfill the prerequisite of liberalizing its wholesale market and breaking KOGAS's monopoly, in addition to completing retail market reform, while Japan immediately tackled the latter. This lesson is consistent with experiences from the liberalization process in European gas markets, where studies suggest that the more monopolistic the market structure and the higher the dependence on imports, the later full market opening took place.[29]

Open-access regime for LNG infrastructure. In addition to dismantling the regional monopolies of incumbent gas companies, both Japan and South Korea introduced measures granting open access in an effort to increase competition. In the case of South Korea, this was a necessary step to allow new entrants into the import and wholesale sectors as KOGAS was the sole owner and operator of the pipeline network as well as all of the country's LNG import and regasification terminals and storage facilities. Although companies may have since built their own facilities, before then new entrants needed third-party access to KOGAS infrastructure in order to participate in the import and wholesale businesses. In Japan, this was not as necessary. Most companies already had their own LNG facilities because ownership and operations were not restricted to a single state-owned company. This suggests that an open-access regime is more important for the liberalization of SOE-dominated markets.

Political commitment. Market reform is a complex legal, political, and economic process that requires a great deal of political commitment sustained over a long time, irrespective of crises and political turmoil. The privatization of KOGAS partially failed due to bad timing, having coincided

---

[27] International Group of LNG Importers (GIIGNL), "The LNG Industry: GIIGNL Annual Report 2018," 2018, https://giignl.org/sites/default/files/PUBLIC_AREA/About_LNG/5_LNG_Markets_And_Trade/giignl_2018_annual_report.pdf.

[28] GS, "Boryeong LNG Terminal," http://www.gs.co.kr/en/branch/boryeong-lng-terminal.

[29] Iweta Opolska and Michal Jakubczyk, "The Drivers Behind Gas Market Liberalization: Diversity of Gas Sources, Market Structure and Gas Prices," International Business Research 6, no. 7 (2013): 14–21, http://www.ccsenet.org/journal/index.php/ibr/article/view/28293.

with a period of gas supply crises and a change in presidential administrations. In contrast, in Japan, policy implementation is largely in the hands of a bureaucracy that is comparatively shielded from changes in political leadership and thus able to commit to a course of action over long periods of time. Both processes began in the mid-1990s, and even in the relatively successful case of Japan, liberalization was not realized until 2017.

Privatization and labor opposition. In many cases around the world, labor has proved to be a formidable opposition to privatization. In the case of South Korea, the powerful KOGAS labor union was a major obstacle in the process. The union's strike in 2002 brought the issue to the attention of policymakers and the public, raising serious concerns about the impact that the privatization of KOGAS would have on energy security. Those who are in favor of more extensive KOGAS privatization will need to convince the labor union that this would be in its interest. Job guarantees, compensation and retraining for laid-off workers, and employee share ownership schemes could be used to build labor union support for privatization.

Diplomatic pressure from the United States. In both Japan and South Korea, the U.S. government contributed to the decision to initiate gas market reform. Open access to LNG infrastructure became a diplomatic issue in 2002 when Washington first encouraged the Japanese government to implement a TPA scheme. Even after Japan complied with an amendment to the Gas Business Act in June 2003 to introduce open access, the United States was still dissatisfied with the extent of the unbundling. This continued to be an issue between the two countries in 2004 and again in 2005.[30] Japan was slow to adopt advanced measures due to opposition from the gas industry. The industry argued that, while pipelines are a natural monopoly and therefore open access should be granted to encourage competition, LNG storage and import facilities are exclusively and privately owned and should not be subject to the same open-access regime. Furthermore, there was concern that a more rigid open-access scheme would inhibit further investment in LNG infrastructure. Thus, the government chose to take a moderate approach.[31]

The creation of a national pipeline network. Under the direct guidance of the central government, KOGAS constructed a nationwide pipeline network early on. In contrast, the Japanese gas market developed on a fragmented regional basis and still lacks an interconnected national pipeline network. This lack of flexibility could be a significant impediment to the development of a dynamic wholesale gas market in Japan, and further investment likely will be needed to connect disparate regional pipeline systems. The creation of a national pipeline network is thus critical for the development of a national gas market.

Outlook

In the evolution of gas markets, liberalization through the development of market-based pricing mechanisms is often required to make markets more efficient and transparent. However, there are usually obstacles to such structural reform that need to be addressed and the whole process can take decades.

In Japan, the liberalization of the gas market was relatively successful and faced less opposition from vested domestic interest groups than this process did in South Korea. This was in large part due to the fact that the structure of the Japanese gas market was already oriented toward the private sector. By contrast, the case of South Korea shows that the privatization of a dominant state-owned

30 Gao, *Regulating Gas Liberalization*, 225.

31 Ibid., 232.

gas company requires more time and a greater political commitment than a liberalization process that begins with unbundling and deregulation.

Thus, for many markets in the Indo-Pacific, reform will not be an overnight process of simply enacting liberalization policies but instead will be a long-term undertaking. Many of the emerging gas markets of Southeast Asia—one of the fastest-growing regions for natural gas demand and the target for a lot of new investment by the United States and other regional actors—feature public sector–oriented, monopolistic market structures with a great deal of state intervention. Market liberalization in these countries will consequently need to address many of the obstacles faced earlier by Japan and South Korea, including establishing open-access regimes, building national pipeline grids, and addressing potential domestic opposition.

THE NATIONAL BUREAU *of* ASIAN RESEARCH

NBR SPECIAL REPORT #81 | OCTOBER 2019

Advancing Gas Market Reforms in the Indo-Pacific: Key Issues for Southeast Asia

Riley Smith

RILEY SMITH is Director for Mainland Southeast Asia, ASEAN, and Energy at the US-ASEAN Business Council. He can be reached at <rsmith@usasean.org>.

EXECUTIVE SUMMARY

This essay examines several obstacles to the development of liquefied natural gas (LNG) markets in Southeast Asia and proposes recommendations for addressing these challenges.

MAIN ARGUMENT

LNG demand in Southeast Asia is projected to be on an upward trend. In just over a decade, by 2030, demand in the countries composing the Association of Southeast Asian Nations (ASEAN) is expected to increase over 400%, reaching a level that is between approximately one-third and two-thirds of the demand in China by that time. A combination of three factors is crucial to Southeast Asia meeting this projected demand for LNG: accelerating the buildout of natural gas infrastructure, incentivizing new exploration and development of natural gas, and building the political will to overcome obstacles posed by the realities of the market. The experiences of Vietnam, Indonesia, and the Philippines, respectively, in developing their natural gas markets serve as examples for each of these three factors, with the first two representing obstacles to market development and the third presenting a possible template for fostering market development.

POLICY IMPLICATIONS

- An alternative to costly permanent LNG import terminals is the use of floating storage regasification units, the operational costs of which are only a fraction of the costs of LNG import terminals.
- Mechanisms that improve currency convertibility for large projects would improve these projects' bankability and increase their attractiveness to U.S. companies.
- Due to the urgent need for energy and power supply in Southeast Asia, a model project development structure with a standardized contractual framework would help accelerate the necessary infrastructure buildout. Discussions on the shared principles of such a model could start in the relevant energy-focused bodies of the ASEAN Secretariat.
- As the U.S. moves forward with refining and implementing the Asia Enhancing Development and Growth through Energy (EDGE) initiative, it should look for opportunities to work with Southeast Asian countries to address some of these obstacles to natural gas market development.

Liquefied natural gas (LNG) demand in Southeast Asia is projected to trend upward. By 2030, demand in the countries composing the Association of Southeast Asian Nations (ASEAN) is expected to increase over 400%, reaching a level that is between approximately one-third and two-thirds of LNG demand in China by that time. Meanwhile, along with this increase in demand, several countries across the region that have been important regional suppliers are projected to flip from being net natural gas exporters to being net importers, potentially by the early 2020s.[1] Probably the most well known of these countries is Indonesia, though Malaysia and Myanmar may also become net importers of natural gas by the mid-2020s.[2]

Thus, the ways in which many countries are looking to source their needs for natural gas are in transition, and the expectation is that increasingly these needs will likely be met via traded gas in the form of LNG. This scenario will play out, however, only if domestic markets and supply chains are strengthened in ways that allow LNG to be an affordable, accessible, and reliable replacement for existing gas sources, as well as competitive against other forms of energy. With this in mind, three factors are crucial for Southeast Asia to meet its projected demand for LNG in the next decade: accelerating infrastructure buildout, incentivizing new exploration and development, and building the political will to overcome obstacles posed by the realities of the market. Using this general framework, while each country in Southeast Asia is unique, it is helpful to look at three examples of what is being done (and what more could be done) to address each of these challenges. Specifically, this essay looks at three countries that are at different stages in the development of a natural gas market: Vietnam, Indonesia, and the Philippines. These three countries are also anticipated to account for roughly 60% of all LNG demand in Southeast Asia by 2030.[3]

In each country, policy planning will require sustained attention to readying or adapting the regulatory framework that underlies the natural gas industry. Moreover, in the case of the Philippines and Vietnam, it will be necessary to prepare LNG import facilities to come online. If U.S. policymakers aim to maximize the impact of the energy-focused pillar of the free and open Indo-Pacific vision—the Asia Enhancing Development and Growth through Energy (EDGE) initiative—they must understand the obstacles that these specific countries and the broader region face in developing natural gas markets. The Economic Research Institute for ASEAN and East Asia (ERIA) estimates that, in order to meet the projected growth in demand for natural gas, Southeast Asia will need to establish corresponding infrastructure for LNG utilization, with an aggregate cost of around $80 billion.[4]

This essay is divided into four parts. The first three sections provide case studies of Vietnam, Indonesia, and the Philippines in order to analyze two of the main obstacles to natural gas market development in the region and offer a positive example that other countries could emulate. The essay then concludes by considering several policy proposals aimed at addressing these obstacles.

---

[1] Haley Zaremba, "Southeast Asia Has a $2.7 Trillion Choice to Make," Oilprice, January 26, 2019, https://oilprice.com/Energy/Energy-General/Southeast-Asia-Has-A-27-Trillion-Choice-To-Make.html; and Dane Chamorro and Tom McNulty, "Seizing Opportunity in Southeast Asia's Energy Market," *Forbes*, August 20, 2018, https://www.forbes.com/sites/riskmap/2018/08/20/seizing-opportunity-in-southeast-asias-energy-market/#7a3441296a9c.

[2] Institute of Energy Economics, Japan (IEEJ) and Energy Policy Research Foundation, Inc. (EPRINC), "The Future of Asian LNG 2017: Challenges and Opportunities for Policy Makers," October 2017, https://eprinc.org/wp-content/uploads/2017/10/EPRINC-IEEJ-The-Future-of-Asian-LNG-1.pdf.

[3] Economic Research Institute for ASEAN and East Asia and IEEJ, "Final Report on Natural Gas Demand Potential in ASEAN" (presentation at ASEAN +3 Oil Market and Natural Gas Forum and Business Dialogue, Bangkok, March 27, 2018), https://energy.go.th/2015/wp-content/uploads/2018/03/S2_3_Natural_Gas_Study_ERIA_IEEJ_Mar2018.pdf.

[4] Yoshikazu Kobayashi and Yanfei Li, eds., "Liquefied Natural Gas Demand in Asia," Economic Research Institute for ASEAN and East Asia, Project Report, October 2018, http://www.eria.org/uploads/media/ERIA_RPR_2017_05.pdf.

The Case of Vietnam: Challenges in Financing Infrastructure Buildout

Since its inception almost 25 years ago, Vietnam's natural gas market has expanded rapidly, with annual output growing at around 5% each year over the last decade, hitting 9.8 billion cubic meters (bcm) in 2017. The power sector accounts for the largest share of natural gas demand in Vietnam, contributing approximately 80% of overall demand. The fertilizer and industrial sectors account for most of the remaining demand, splitting it almost evenly. This expansion of Vietnam's gas market is expected to continue under the country's Gas Master Plan (GMP), which forecasts that demand for gas will double between 2020 and 2025. The GMP estimates that overall demand will reach around 20 bcm per year before starting to plateau. Among the main drivers behind this increase in natural gas demand are plans to more than double gas-fired power-generation capacity—from 9 gigawatts (GW) in 2017 to 19 GW by 2030—as well as plans to use gas for petrochemical production.[5]

Yet despite over two decades of experience with gas, LNG is new to Vietnam. While new natural gas fields under development, such as the Ca Voi Xanh off the central coast, will meet a lot of the country's anticipated demand, the deeper water and more complex geology of these fields mean that developing them will be increasingly costly compared with relying on international markets for sourcing. Ultimately, Vietnam likely will need to start importing LNG in the early 2020s to make up for decreasing domestic natural gas production.[6] And as a new user of LNG, the main challenge that the country faces in developing its LNG market is the sheer cost of the associated infrastructure.

Financing Infrastructure: What Does It Cost, and Who Pays?

A significant increase in upstream and midstream investment (potentially up to $60 billion) will be needed to carry out the GMP's gas market expansion. To put this in perspective, over the last twenty years the Vietnamese government has invested nearly $19 billion in the development of upstream gas fields and midstream infrastructure, including the construction of the two gas-processing plants at Dinh Co and Ba Ria and three separate pipeline networks. This suggests that to meet the ambitious goals for expanding its gas market laid out in the GMP, Vietnam will need to significantly scale up investment in upstream and midstream infrastructure over the next two decades to as much as three times the investment that it needed in the previous twenty years.[7]

However, Vietnam has faced some difficulty recently in attracting investors for a variety of reasons. Domestic issues include highly regulated domestic gas prices, high costs associated with developing gas fields, and out-of-date regulations that have led to industry-wide capital constraints. These capital constraints are exacerbated by the fact that the global oil and gas sector is still recovering from the decline in oil prices from 2014 to 2016.[8]

---

[5] World Bank, "Vietnam: Maximizing Finance for Development in the Energy Sector," Working Paper, December 2018, http://documents.worldbank.org/curated/en/290361547820276005/Vietnam-Maximizing-Finance-for-Development-in-the-Energy-Sector.

[6] Kobayashi and Li, "Liquefied Natural Gas Demand in Asia."

[7] For example, according to a World Bank report, around $30 billion of upstream investment will be needed to develop the two new major gas fields at Ca Voi Xanh and Block B-O Mon so that they can provide a total additional supply of 14 bcm per year. Midstream infrastructure, including that needed to bring gas produced from both of these fields onshore, along with the construction of six LNG import terminals, could require up to an additional $30 billion—approximately $17–$21 billion for the midstream infrastructure and an additional $7–$9 billion in total for the six LNG import terminals. World Bank, "Vietnam." See also Kobayashi and Li, "Liquefied Natural Gas Demand in Asia."

[8] Kobayashi and Li, "Liquefied Natural Gas Demand in Asia."

Given such constraints, one alternative for Vietnam is a less capital-intensive approach to meeting its goals for gas market expansion. In place of onshore import terminals that could cost at least $1 billion each, the government could pay for the recurring lease and required fixed infrastructure for a floating storage regasification unit (FSRU), which would cost around $100 million, or one-tenth the cost of an onshore import terminal. The use of FSRUs in place of more expensive permanent infrastructure would also provide importers with greater financial flexibility, allowing LNG buyers to participate more in the spot market and negotiate short-term contracts. An increasing share of LNG is now being traded in this way at better terms than under more restrictive long-term contracts. While more permanent import infrastructure will be needed in the long term, the use of FSRUs could be a viable short-term solution.[9]

However, even with a less capital-intensive approach, Vietnam still must attract a significant amount of new investment. With this in mind, an additional constraint that several major U.S. oil and gas companies have cited as a reason for their concerns over making the decision to invest in Vietnam is currency convertibility. The Organisation for Economic Cooperation and Development (OECD) defines currency convertibility risk, also called transfer and convertibility risk, as the risk that a government will impose capital or exchange controls that prevent an entity from converting local currency into foreign currency or transferring funds to creditors located outside the country. Foreign investors continue to have concerns about the long-term availability of foreign exchange, despite the Vietnamese government's removal of controls on currency convertibility. In 2018, Vietnam's international reserves reached $63 billion, which would cover approximately three and a half months of imports. However, demand for foreign currency in the energy sector alone could shoot up to $23 billion per year by 2030.[10]

Mechanisms that improve currency convertibility for large projects would improve these projects' bankability and increase their attractiveness to U.S. companies. Aiming to temper concerns about the long-term availability of foreign exchange and currency convertibility, the Vietnamese government has issued convertibility guarantees for specific projects, primarily large-scale thermal generation projects. With the health of government finances in mind, the current policy is to limit how much these guarantees cover. For example, for past projects the government has set a convertibility ceiling of 30% of overall foreign exchange transactions. If it decides not to grant a guarantee, private investors have limited choices for covering currency risks through the market.

Mechanisms to Reduce Currency Convertibility Risk and Improve Project Bankability

While the revision of conditions for U.S. export credit agencies and insurance providers for political and nonperformance risks is already underway, more needs to be done.[11] One option proposed by U.S. companies is the establishment of a bilateral government-to-government mechanism, such as a currency convertibility fund, that could provide government guarantees on currency convertibility for large projects involving U.S. companies. Another option is to make the convertibility and transferability insurance products that certain multilateral financial institutions already provide more readily available and to lower premiums. A longer-term solution

---

9 Kobayashi and Li, "Liquefied Natural Gas Demand in Asia."

10 Ibid.

11 IEEJ and EPRINC, "The Future of Asian LNG 2018 (the Road to Nagoya)," October 2018, https://eprinc.org/wp-content/uploads/2018/10/Future-of-Asian-LNG-paper-FINAL-Oct-2018-.pdf.

that would also benefit Vietnam's financial market is the development of a currency-swap market. Such a market would allow foreign investors to hedge currency risk without needing a government guarantee. However, Vietnam's derivatives market is underdeveloped. One way to help kick-start further development would be to increase the use of cross-border derivative transactions between licensed banks or the local branches of foreign banks and offshore counterparts. Currently, these types of transactions must be approved on a case-by-case basis by the State Bank of Vietnam.[12]

As seen in Vietnam's case, the sheer cost of building the underlying infrastructure to support a natural gas market, especially an LNG market, can be a prohibitive first obstacle. Regardless of the projected demand that could support such a market, the upfront cost to develop the necessary infrastructure potentially poses too high a barrier for the developing countries in Southeast Asia, requiring mechanisms to help lessen this financial burden. However, ensuring that mechanisms are in place to help finance infrastructure is not the only challenge to creating a market for natural gas that is conducive to foreign investment. In order to sustain a healthy market, regulations and incentives must support the exploration and development of new reserves, as the case study of Indonesia illustrates in the next section.

The Case of Indonesia: Addressing Costs and Misaligned Production Incentives

Out of the three countries highlighted in this essay, Indonesia has the longest history and the most experience dealing with LNG. From the late 1980s until 2006, the country was the world's leading LNG supplier, at its peak accounting for nearly 40% of global LNG trade.[13] Indonesia remains an important gas producer, but the government aims to utilize a higher percentage of domestically produced natural gas to reduce reliance on costly fuel imports. For example, it has expressed a commitment to replacing diesel fuel with natural gas, to the greatest extent possible, in electricity generation and industrial production. It also aims to boost domestic fertilizer manufacturing using natural gas.[14]

A key element of fulfilling these goals, much like in the case of Vietnam, will involve the buildout of necessary infrastructure. New patterns of demand and the envisioned fuel supply would require more efficient delivery of natural gas from reserves in the eastern part of the archipelago to the main demand centers in the west. This includes the development of LNG terminals in particular. Overall, Indonesia has four LNG receiving terminals with a capacity of 9.5 million tons per annum (mtpa). Two of these terminals, Nusantara Regas Satu and PGN FSRU Lampung, are FSRUs, and one is the former export facility in the Arun gas field that was reconfigured in 2014 to become a receiving terminal. The last facility is a mini terminal consisting of a floating storage unit and a

[12] World Bank, "Vietnam."

[13] Less than ten years after having loaded its first LNG cargo in 1977, Indonesia overtook Algeria to become the world's leading LNG exporter. Even though LNG exports peaked in 1999 at 28.5 million tons per annum (mtpa), it was not until 2006 that Qatar replaced Indonesia as the world's leading LNG supplier. "Indonesia Delays LNG Import Commitments," Riviera Maritime Media, January 24, 2018, https://www.rivieramm.com/news-content-hub/indonesia-delays-lng-import-commitments-25912.

[14] Ibid.

floating regasification unit at Benoa.[15] Another LNG import terminal in East Java is expected to start operations before the end of this year.[16]

Yet even though the LNG infrastructure projects will expand Indonesia's capacity for natural gas imports, they do not address one of the main reasons that the country will increasingly need to rely on imports. The reason is that its current incentives regime and the type of production-sharing contract (PSC) that it is implementing encourage companies to undertake enhanced recovery operations rather than exploration of new reserves. Incentivizing enhanced recovery carries the risk of drawing focus and resources away from exploring and developing untapped reserves. In other words, Indonesia risks leaving untapped natural gas reserves orphaned while existing domestic reserves are depleted, worsening the country's overall energy security.

Setting Incentives: The Role of Production-Sharing Contracts

Up until January 2017, Indonesia utilized a type of PSC that used a rigid formula for determining revenue and cost sharing. However, the formula did not take into account aspects such as the age of a field or how difficult it may be to develop. Between 2011 and 2015, operator profit margins, which were already below levels that would be considered attractive for investment, saw a sharp decline. Some contractors and analysts have pointed to the rigidity of the PSCs as one of the main contributors to this observed decline, which saw operator margins drop from 10% to 5%. Over this same period, investment in exploration likewise declined by around 50%, from $2.54 billion per year in 2011 to $1.34 billion per year in 2015.[17] While it is difficult to unambiguously assign blame to the PSC structure as the sole reason for this drop in exploration investment—other reasons could include the diversion of investment to the shale gas revolution in the United States and an across-the-board drop in investment from the crash in oil prices—there is a good chance that the rigidity of PSCs contributed to the reduced attractiveness of exploration activities in Indonesia.

This decrease in investment in exploration is one of the reasons that production has been declining and has largely been relegated to maturing fields. Ultimately, the Indonesian government found itself in a negative feedback loop of sorts. The drop in exploration led to a drop in production, resulting in a decrease in government revenues from the oil and gas sector. With less revenue being generated, the cost-recovery model of the PSCs began to weigh increasingly on government finances.[18]

Third Try is a Charm? The Revised Gross Split PSC

To help spur more investment in the country's oil and gas industry, in January 2017 the Indonesian government introduced a new type of PSC—a gross split PSC—that was intended to relieve some of the strain that the cost-recovery model had put on government finances. Following a less than enthusiastic reception of the January 2017 version, the government and SKK Migas, the regulatory body that oversees the upstream oil and gas sector in Indonesia, issued a revised version—Regulation of the Minister of Energy and Mineral Resources No. 52 of 2017—in September of that same year that aims to improve the terms for the contractor. According to the

---

15 "Indonesia Delays LNG Import Commitments."

16 Wilda Asmarini and Fransiska Nangoy, "Indonesia Gas Utility Builds LNG Terminal for East Java Distribution," Reuters, March 29, 2019, https://af.reuters.com/article/commoditiesNews/idAFL3N21G1FH.

17 Alex Dolya et al., "Indonesia's $120 Billion Oil and Gas Opportunity," Boston Consulting Group, November 6, 2017, https://www.bcg.com/en-us/publications/2017/upstream-oil-gas-energy-environment-indonesia-billion.aspx.

18 Mike Cuthbertson, "Indonesia's New Gross Split PSC," ERCE, October 19, 2018, https://www.erce.energy/news/indonesias-new-gross-split-psc.

new PSC, the government and the contractor share gross production based on production splits, which are initially 52% for the government and 48% for the contractor.

The two main aims of the new gross split PSCs are to increase the contractor's share of oil and gas and to encourage more efficient operations on the part of contractors, primarily through lowering their operational costs. The increase in production allocation to contractors is meant to make up for the removal of the cost-recovery mechanism. Unlike the previous type of PSC, the 2017 version does not have a cost-recovery mechanism, nor is the contract as rigid. The split can be changed to account for a number of factors, including the difference between the actual economic value of a field and its anticipated value, challenging field conditions that contractors face (e.g., the location or depth of a field), fluctuations in gas prices, and cumulative production (e.g., decreases in the contractor's split if more oil or gas is produced than was originally covered by the PSC).[19]

However, this approach still leaves unaddressed two key challenges. First, such revisions can lead to issues with consistency across types of PSCs and contractors, given the case-by-case basis of the revisions that can be made. The likely results are less predictability and prolonged engagement with SKK Migas over not only the original PSC but also any subsequent revisions. It is also unclear what sort of appeal mechanism exists when severe disagreements arise between contractors and regulators.[20]

Second, it remains unclear whether the incentives are promising enough to attract investors. The government points to the number of blocks that have been successfully tendered since 2017—seventeen in total—as evidence that they are sufficient.[21] However, while an increase in the production allocation is intended to make up for the removal of the cost-recovery mechanism, whether it adequately does this is still unclear. It is also unclear whether the efforts to encourage more efficient operations will incentivize increased exploration. For example, under the new PSC, the contractor can deduct incurred production costs for income tax purposes, but the time limit to carry over tax losses is only five years. This incentive is by itself unlikely to encourage new exploration because a discovery is likely to take longer than five years to reach production. In addition, the lack of a cost-recovery mechanism increases project uncertainty, given that the amount of time it takes for contractors to recoup their investments is extended by default.[22]

These aspects of the new gross split PSC underscore the mismatch between the aim to reduce operational costs and Indonesia's need to incentivize exploration to reinvigorate its oil and gas sector. A study by Wood Mackenzie that looked at the January 2017 version of the gross split PSC showed that contractors had to reduce operating costs by 10%–20% to benefit more from the gross split scheme than the previous cost-recovery PSC. Given that oil and gas companies have already had to cut operating costs in response to the low oil price environment from 2014 to 2016, it is unclear whether an additional 10%–20% is achievable.[23]

---

19 Cuthbertson, "Indonesia's New Gross Split PSC."

20 Ibid.

21 "Indonesia Grants New Oil Blocks Contracts in Third Bidding Round," Hart Energy, December 27, 2018, https://www.hartenergy.com/news/indonesia-grants-new-oil-blocks-contracts-third-bidding-round-118950; Daniel Deha, "Indonesia Wins Two-Working Areas Auction US$116.7M," Insider Stories, May 7, 2019, https://theinsiderstories.com/indonesias-two-working-areas-auction-reached-us116-7m; and Norman Harsono, "Only One Oil Block Sold Off in May Oil Block Auction," *Jakarta Post*, August 27, 2019, https://www.thejakartapost.com/news/2019/08/27/only-one-oil-block-sold-off-in-may-oil-block-auction.html.

22 Cuthbertson, "Indonesia's New Gross Split PSC."

23 Ibid.

The Way Forward: Shifting Incentives to Encourage Exploration

To better incentivize exploration, Indonesia should consider more changes to the investment environment. One potential change is adjusting some of the aforementioned characteristics of the new gross split PSC. If, in addition to incentivizing exploration activity, the government wants to find ways to improve the industry's overall cost competitiveness, there are steps that it could take to help reduce production costs.

One potential fix that could help encourage more exploration is extending the number of years that tax losses can be carried forward. While it appears unlikely that the government will re-implement the previous cost-recovery mechanism, owing to the strain that it was putting on government coffers, finding ways to reduce operational costs within the industry could encourage more exploration.[24] For example, given the local content requirement for goods and services in oil and gas exploration, an industry-wide asset-sharing system could help contractors reduce production costs by optimizing the value of inventory and facilitating more efficient use of equipment and spare parts. Another way to streamline procurement and take advantage of economies of scale is through the use of joint sourcing programs.[25]

The Case of the Philippines: Bringing the Private Sector into the Conversation

The Importance of Keeping the Lights on in Luzon

While natural gas does not make up the largest share of the Philippines' electricity generation mix—that distinction belongs to coal—gas already plays an integral role in powering the island of Luzon, the country's economic center.[26] In addition to being the largest and most populous island in the Philippines, Luzon is home to the regions that accounted for the three largest percentages of the country's GDP in 2018—the National Capital Region, which encompasses Metropolitan Manila, at 36%; Calabarzon at 17%; and Central Luzon at just under 10%. These three regions also contributed the most to the Philippines' GDP growth rate that year. In short, powering Luzon powers the Philippine economy.

Given the undeniable importance of Luzon to the Philippines' economy and the expected increase in demand for power as it continues to grow, the government faces a relatively urgent need to ensure its gas security strategy. This means finding a replacement for the Malampaya gas field, which is still the only field that produces gas in the Philippines and one that is expected to be depleted in the next decade. Luzon generates 23% of its total electricity using gas from Malampaya.[27]

Unlike the previous two case studies, which focused on challenges confronting Vietnam and Indonesia, the case of the Philippines highlights what can be achieved when political will

---

[24] For example, under the previous cost-recovery PSC, contractors could recoup the costs of procuring assets and property for their projects. This was included because the government ultimately owned all assets and property that the contractor purchased, so it would reimburse the contractor for these assets. However, under the gross split PSC, the cost-recovery mechanism is removed. Thus, there is less incentive for contractors to outright purchase assets that the government owns and for which they will not be reimbursed. Instead, contractors are more likely to continue to lease equipment, which will not reduce operational costs in most cases.

[25] Dolya et al., "Indonesia's $120 Billion Oil and Gas Opportunity."

[26] *Philippines: Energy Sector Assessment, Strategy, and Roadmap* (Manila: Asian Development Bank, 2018), 14–15, https://www.adb.org/sites/default/files/publication/463306/philippines-energy-assessment-strategy-road-map.pdf.

[27] Adam Becis, "Time to Step on the Gas—Philippines LNG September 2018," ERCE, October 19, 2018, https://www.erce.energy/news/time-step-gas-philippines-lng-september-2018.

is built up in an attempt to address market realities. The decision to include the private sector in the deliberation process was central to what would become the Philippine Downstream Natural Gas Regulation (PDNGR) in November 2017. During the public comment period for the PDNGR, the Philippines Department of Energy encouraged the public "to engage in making the proposed policy more comprehensive by sending their comments and suggestions," including during a series of public consultations on various aspects of the regulation.[28] At the second consultation in November 2017, Undersecretary Donato Marcos stated that the aim was for the PDNGR to "serve as the regulatory framework in the promotion of the Philippines as an LNG emerging market characterized by a liberalized/competitive environment and market-based pricing."[29]

Keeping Industry in the Fold to Overcome Market Limitations

Before the PDNGR's development, the Indonesian Department of Energy released the Downstream Natural Gas Roadmap covering 2017–40, which is meant to serve as the basis for a sound regulatory regime to support the downstream natural gas market. One aspect of the roadmap that stands out is the importance of engaging the private sector, especially in building capacity and developing skills, over the medium (2019–22) and long term (2023–40). The roadmap explicitly states that the Department of Energy should "establish bilateral partnership with academe, international organization/institute and industries to map out technical, legal/regulatory and commercial capabilities," and "identify exchange program or on-the-job training for actual exposure of identified key regulator[s] to develop the long term skills program for natural gas."[30] Given that the Philippines had to begin from a very low base in developing a downstream natural gas market, the Department of Energy was aware that the necessary skills had not yet been cultivated to attract the amount of investment that would be needed.

In light of this challenge, the government sought to develop these skills and attract the necessary capital from a diverse set of companies so as not to become too reliant on FDI from any one country. It did this by ensuring that the private sector was included in the process and played a role in helping build this skills base. For this reason, the middle-term goals of the Downstream Natural Gas Roadmap include establishing bilateral partnerships with industry (as well as with universities and international organizations) to map out technical, regulatory, and commercial needs and capabilities and identifying exchange and on-the-job training programs for regulators to develop skills and insights for the natural gas industry.[31]

The Department of Energy followed up this roadmap with the PDNGR after soliciting input from industry and other stakeholders. As a consequence, the PDNGR includes guiding principles and provisions that positively reinforce private-sector involvement in the development of the Philippines' natural gas market. One such provision is third-party access to "available and uncommitted excess capacity of the LNG Terminal, the Transmission System, and Distribution System" and "other services offered by the Operator" in a transparent and nondiscriminatory manner. This provision also lays out guidelines on the conditions under which such access is granted. Potentially problematic is the process by which the amount of excess capacity offered

---

28 "DOE to Finalize Natural Gas Policy," Philippine Information Agency, November 8, 2017, https://pia.gov.ph/news/articles/1001662.

29 Ibid.

30 Department of Energy (Philippines), "Downstream Natural Gas Roadmap 2017–2040," 2019, https://www.doe.gov.ph/pep/downstream-natural-gas-roadmap-2017-2040.

31 Ibid.

to third parties is determined. This decision is subject to review by the Department of Energy and the newly formed Downstream Natural Gas Review and Evaluation Committee, though the determination is supposed to be based on criteria such as the party's creditworthiness, proposed contract price and terms, and access to an off-take facility. As bribery to receive a favorable determination is still a common concern, the added layer of bureaucracy challenges the success of these policy efforts. The provision also includes an infrastructure development exception, which is meant to "encourage initial capital investment in new infrastructure that is critical for developing a viable Downstream Natural Gas Industry."[32]

Another provision of the PDNGR aims to promote competition and natural gas retail pricing by largely deregulating the retail price of natural gas converted from LNG. The exception is for the operation of a facility that is considered a public utility. In addition, the PDNGR lays out clear mechanisms for negotiating contracts and granting permits.

Continued Industry Engagement Is Crucial to Market Development

Underscoring the continual engagement with industry and other stakeholders that is integral to educating industry about the new regulations and building up the necessary skill base among future regulators, the Department of Energy holds workshops on the development of the downstream natural gas market. These workshops are the product of the Gas Policy Development Project, a partnership between the Department of Energy's Oil Industry Management Bureau and the University of the Philippines Statistical Center Research Foundation. The project is also supported by the United States' Asia EDGE initiative. A recent workshop in March 2019 brought together representatives from the Philippines House of Representatives and Senate, the Department of Labor and Employment, the Maritime Industry Authority, and the Environmental Management Bureau, among other agencies, to engage with representatives from foreign LNG companies on topics including the LNG value chain and the technical assistance that the Gas Policy Development Project can provide in the implementation of the PDNGR.[33]

Taken together, the PDNGR and the continual engagement with industry on the implementation of the regulation provide foreign companies with confidence when considering investing in projects in the Philippines' downstream natural gas industry. In fact, in conversations with the US-ASEAN Business Council, several major U.S. oil and gas companies have said that they are pleased with the direction in which the Philippines is going with regard to downstream natural gas regulation, and that they believe that the process and positive provisions in the PDNGR should be replicated by other countries looking to draft or reform their downstream regulations. Nevertheless, it is important not to dismiss the role that the expected depletion of the Malampaya gas field has played in focusing political will to make the process of developing the country's downstream natural gas market inclusive of industry input, concerns, and insights.

The process that the Philippines continues to undertake to craft and implement the PDNGR can serve as a template for other countries in the region. Although not every aspect of the process is worth replicating,[34] there are aspects that could inform a fast-track tool for developing LNG and gas-to-power projects.

---

[32] Department of Energy (Philippines), "Rules and Regulations Governing the Philippine Downstream Natural Gas Industry," Circular, no. DC2017-11-0012, 2017, 12.

[33] "DOE Holds Basic LNG Training," Philippine Information Agency, March 30, 2019, https://pia.gov.ph/news/articles/1020920.

[34] For example, the bidding process for the LNG import terminal to replace the Malampaya gas field could have been more straightforward.

Conclusion: Ways Forward

To develop a healthy domestic natural gas market so as to improve energy security and meet projected significant increases in power demand in the coming decades, countries in Southeast Asia face a trio of challenges. These challenges are the imperatives to accelerate the infrastructure buildout, incentivize new exploration and development, and build political will to overcome obstacles posed by the realities of the market. In addition, the first two challenges tie into what are often prohibitively high financial costs that either reduce the competitiveness of the industry or slow down the infrastructure buildout.

Out of the three examples covered in this essay, the experiences of Vietnam and Indonesia in developing their gas markets highlight the challenges that countries in Southeast Asia face, while the Philippines provides a potential template that other countries can replicate. However, the experience of each of the three countries suggests in some way that the road forward is by no means easy, nor is it out of reach as long as it is matched with sound public policy.

Given the enormity of capital outlays as well as the political will required to sustain these efforts, collaboration with partners is imperative for helping Southeast Asia's emerging economies meet their acute and urgent power needs. As the United States moves forward with refining and implementing the Asia EDGE initiative, including through programs such as the recently announced Japan-U.S. Mekong Power Partnership, which aims to enhance regional power trade and interconnectivity between the countries of the Lower Mekong Subregion, it should look for opportunities to work with Southeast Asian countries to address some of the obstacles to developing natural gas markets that this essay has highlighted. The United States should also look to countries in the Indo-Pacific with more mature natural gas markets, such as Japan and South Korea, as partners whose insight and experience can amplify efforts to advance these reforms in Southeast Asia.

Due to the urgent need for energy and power supply in Southeast Asia, countries across the Indo-Pacific should also look at ways to standardize best practices to the extent possible. This could include creating a model project development structure with a standardized contractual framework that would help accelerate the necessary infrastructure buildout. For a number of Southeast Asian countries, their experience with LNG imports or gas-to-power projects is limited at best. A model project development structure could serve as a reference for laws and regulations for LNG imports and utilization as well as help facilitate negotiations between country governments and contractors. Additionally, a standardized contractual framework that is internationally bankable would help ensure that issues are not negotiated on a project-by-project basis, which often leads to inconsistency in contractual terms, a red flag for foreign companies looking to invest in projects as large and expensive as LNG infrastructure. One mechanism to initiate this process would be a discussion of the shared principles that a model project development structure would include within the relevant energy-focused bodies of the ASEAN Secretariat, hopefully ending with endorsements by all ten energy ministers at the annual ASEAN Ministers on Energy Meeting. Ultimately, the development of such a framework could be a step toward addressing one of the issues that historically has hounded U.S. energy companies in the region, namely the development of an integrated, turnkey solution for energy infrastructure projects.

THE NATIONAL BUREAU *of* ASIAN RESEARCH

NBR SPECIAL REPORT #81 | OCTOBER 2019

Will U.S. LNG Have an Edge in the Indo-Pacific?

Leslie Palti-Guzman

LESLIE PALTI-GUZMAN is the President of GasVista. She can be reached at <leslie.paltiguzman@gasvista.com>.

EXECUTIVE SUMMARY

This essay explores the current and potential competitiveness of U.S. liquefied natural gas (LNG) in Asia, including the tools, statecraft, financial resources, and other measures that the Trump administration and U.S. Congress might consider to further boost the fuel's competitiveness.

MAIN ARGUMENT

There is no guarantee that Asia's most promising LNG consumers will be able to absorb U.S. LNG exports because several factors undermine U.S. LNG's economic advantage in Asia, including intense competition with rival suppliers that are closer to Asia geographically. But it would be too narrow to assess U.S. competitiveness solely on economic grounds. Politics and trade diplomacy also inform trade flow dynamics, and the importance of both factors will be further underscored in the execution of the Asia Enhancing Development and Growth through Energy (EDGE) initiative—the energy security component of the Indo-Pacific strategy.

POLICY IMPLICATIONS

- The Trump administration will continue to use LNG as leverage in its efforts to reduce trade imbalances and strengthen bilateral energy relations, including in trade negotiations with China, Japan, and India, to name just a few countries. This strategy will both help and hurt the prospects for U.S. LNG.
- Under the umbrella of Asia EDGE, the U.S. and its partners will play a greater role in energy infrastructure financing in South and Southeast Asia, both as a commercial tool (e.g., to create demand by helping with financing and establishing market rules) and as a soft diplomacy tool (e.g., to counterbalance China's Belt and Road Initiative and Russia's use of state coffers to advance geopolitical energy projects).
- As Asia EDGE gains traction, the U.S. government will have the opportunity to morph the various strategic energy partnerships, including with Japan and Australia, into a multilateral initiative with like-minded partners—though probably under a different administration.

Asia has been the world's largest regional importer of U.S. liquefied natural gas (LNG) since the United States started ramping up its shale-to-LNG exports. This is not a surprise given that Asia is the world's fastest-growing demand center and the region historically has been the highest-paying market, which is an attractive proposition for LNG exporters. Yet it is also worth noting the extent to which U.S. LNG exports have been particularly attractive to Asian buyers. U.S. LNG exports have diversified the pool of suppliers (by both country and company), lowered the share of suppliers that do not belong to the Organisation for Economic Co-operation and Development (OECD), changed the structure of commercial arrangements (e.g., through contract terms and pricing), and added a vast quantity of fuel to the market, which in turn put a ceiling on Asian spot LNG prices.

Based on current GasVista projections, both U.S. liquefaction capacity and export potential will continue to soar in the coming years. Another dozen export projects are fully permitted and are competing for customers and financing to reach a final investment decision (FID) in the next two years. Thus, perhaps not surprisingly, the U.S. government has expressed a desire to play a bigger role in opening up new LNG demand centers globally to make sure that there is a market for U.S. gas and to level the playing field with state-backed competitors. Market forces will predominantly dictate trade flows and determine whether private players sign commercial contracts. But governments have tools at their disposal, including offering financial assistance and facilitating matchmaking among buyers, sellers, and technology and service providers, which can accelerate investment decisions in regasification infrastructure that might otherwise languish in the planning or proposal stage. Moreover, it would be naïve to think that the well-functioning market that pundits discuss as an accessible goal for LNG markets will materialize without the intervention of governments. Although the United States has an LNG edge, it is competing to monetize its gas reserves with both friendly and rival powers, many of which are using state resources to advance their energy and foreign policy interests.

This essay explores the current and potential competitiveness of U.S. LNG in Asia, including the tools, statecraft, financial resources, and other measures that the Trump administration and U.S. Congress might consider to further boost the fuel's competitiveness. Section one examines the role of market forces in shaping LNG trade flows between the United States and Asia, while section two examines how the Trump administration's use of trade deals and bilateral diplomacy could affect these dynamics. The third section then explores the ways in which the Asia Enhancing Development and Growth through Energy (EDGE) initiative might evolve over the next six to twelve months and considers what issues the United States might need to address. The essay concludes with a discussion on the growing commoditization of the LNG markets, which means that U.S. LNG may not necessarily end up where governments put their money, but it still may serve broader U.S. interests.

Assessing the Market Competitiveness of U.S. LNG in Asia

Trade Flow Economics

U.S. LNG flows are driven primarily by market forces, specifically, demand, supply, shipping, and price dynamics.[1] (See **Figure 1** for a breakdown of global imports of U.S. LNG by region in 2018.) Meanwhile, Asia has suppliers that are geographically closer than the United States and can often deliver LNG at lower cost. But with Asia being the largest and fastest-growing center of demand for LNG, the region's main players will increasingly seek to diversify suppliers to avoid relying on one single price index or one single exporting region. The United States offers this double diversification, and Asia's large importers, notably Japan, South Korea, and India, have supported U.S. LNG from the start to achieve the following goals, among others:

- Increasing the global pool of LNG export capacity and new players that have offered business model diversification compared to traditional LNG portfolio players or state-owned companies
- Accelerating pricing diversification by purchasing Henry Hub–linked U.S. LNG
- Spearheading the restructuring of LNG contracts and erosion of destination clauses
- Reducing Japan's post-Fukushima trade deficit by lowering the cost of its LNG imports

The author agrees with the consensus that a portion of U.S. LNG will always find its way to Asia for some of the following reasons:

- During seasonal peaks in Asian demand (e.g., winter for Northeast Asia), U.S. LNG will flow to Asia to meet the region's unmet incremental needs. This is also when the pricing arbitrage between the United States and Asia is most attractive.
- U.S. LNG offtakers will maximize trade value by always looking for arbitrage opportunities. Whenever Asia is the highest-paying market, cargoes will flow to the continent.[2] And when there is not enough demand in the rest of the world to absorb all U.S. LNG capacity, U.S. LNG exporters will need the Asian market, even if that means selling at a loss or at very thin margins.

But Asia is not a homogenous market and should not be taken for granted as a primary destination for U.S. LNG. Beyond the large industrial Northeast Asian importers (namely, Japan, South Korea, and Taiwan) and large emerging economies (namely, China and India), several smaller emerging markets in South and Southeast Asia are collectively anticipated to be the main engines for demand growth. It is these markets, in particular, that are posing major challenges for LNG exporters, including competition with coal, political instability, absence of relevant regulatory frameworks, and lack of creditworthiness. These less creditworthy markets eventually will make meaningful additions to demand for gas and LNG, albeit not before 2023.

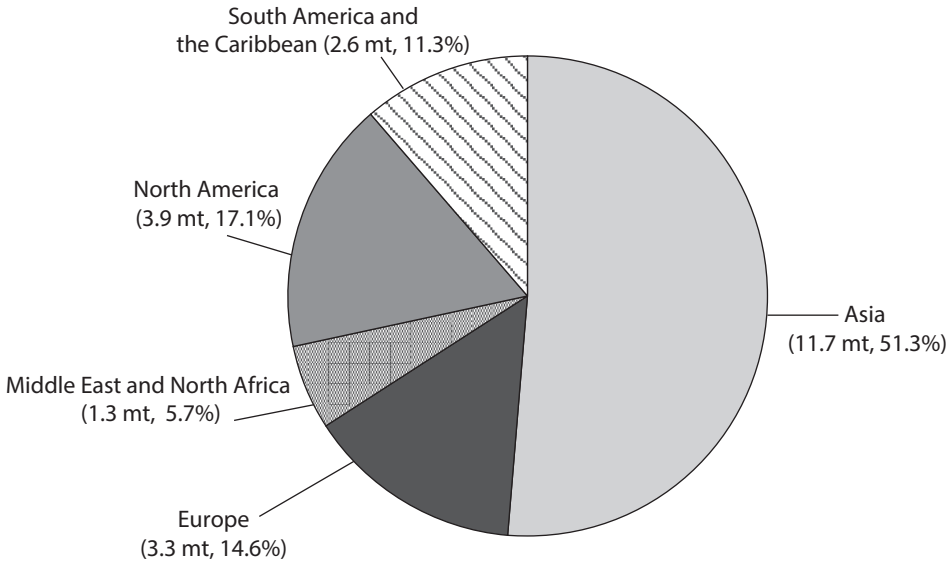
In addition, there is no guarantee that Asia's most promising LNG consumers will be able to absorb exports from the United States. Several factors undermine U.S. LNG's economic advantage in Asia, including intense competition with rival suppliers that are closer to Asia geographically.

---

[1] For example, it is worth noting that despite the general export trends described in the introduction, as well as the United States' "whole of government" emphasis on expanding ties with the Indo-Pacific, more U.S. LNG actually moved to Europe (43%) than Asia (38%) in the first quarter of 2019. This was due to a number of factors, including bearish spot LNG prices in Asia that made European buyers more attractive to U.S. suppliers. U.S. Energy Information Agency (EIA), "U.S. Natural Gas Exports and Re-exports by Country," August 30, 2019, https://www.eia.gov/dnav/ng/ng_move_expc_s1_m.htm.

[2] For example, the winter of 2017–18 saw Asian spot prices jump through the roof due to record Chinese demand following accelerated coal-to-gas switching. Henning Gloystein, "China Becomes World's No. 2 LNG Importer in 2017, Behind Japan," Reuters, December 25, 2017, https://www.reuters.com/article/us-china-lng/china-becomes-worlds-no-2-lng-importer-in-2017-behind-japan-idU.S.KBN1EK09C.

FIGURE 1 2018 imports of U.S. LNG by region in million tonnes (mt) and percent share



SOURCE: U.S. Energy Information Agency, 2019; and GasVista, 2019.

Cost Matters

In determining the ultimate scale of LNG trade flows between the United States and Asia, one thing is certain: cost matters. Asian LNG consumers—and especially those in the emerging markets in South and Southeast Asia—are very price sensitive. LNG will have to remain affordable (priced no higher than $7 per million British thermal unit, or mmbtu) to ensure that it is competitive with alternative fuels such as cheap coal and renewables. However, with governments facing growing pressure to ban coal financing and showing greater political will to reduce air pollution, LNG's reasonable prices during the current period of glut could mean that more countries are ready to pay a health premium to proceed with fuel switching.

Some exporters have used a two-fold strategy to make U.S. LNG competitive in Asia (and in most markets): (1) accepting the likelihood of incurring sunk costs, thin margins, or even losses when taking export decisions, and (2) finding trade partners to enter into swap arrangements and optimize their portfolios. The current market share war between gas/LNG suppliers means that exporters need to offer lower gas prices. In this context, the short-run marginal cost of U.S. LNG (in contrast with the full cost) to Asia has become a better indicator of U.S. LNG's competitiveness. In their cost-benefit analysis, U.S. LNG offtakers will not take into account their planned and programmed fixed costs (broadly defined as all expenses that they have already committed at the beginning of the year such as liquefaction fees, long-time charter, and regasification).

But this calculation raises the questions of shut-in or underutilization risks. The vast majority of U.S. LNG volumes will be lifted despite reduced or nonexistent profit margins because offtakers will prefer lower revenue to zero revenue in order to recover some of their fixed costs.

However, U.S. LNG offtakers are not a monolithic group but include various kinds of players (traders, utilities, and integrated international and state-owned companies), which makes it harder to define a uniform strategy. Each offtaker will make a different calculation. It is uncertain how long these players could sustain weak spot LNG prices (below $4–$5 mmbtu), as they will either not make money or make very little. The risk of U.S. LNG shut-ins should not be underestimated in the event that Asian spot prices are below the marginal cost of LNG production of $4 per mmbtu, which assumes Henry Hub prices at around $3 per mmbtu. If shipping and regasification are considered sunk costs, then U.S. LNG would not shut in before Asian prices reach around $3.50 per mmbtu.

Meanwhile, swap deals will contribute to portfolio optimization and help diversify destinations for U.S. LNG away from Asia and favor intraregional trade (e.g., U.S. LNG will remain in the Atlantic basin rather than flowing into the Pacific basin). Increasingly, U.S. LNG destination-free cargoes will be swapped, which means that more may end up being sent to Europe, the Americas, or the Middle East and North Africa. While Asian offtakers of U.S. LNG have entered into swaps and hedging to make sure their volumes find a home, this is not yet a moneymaking strategy.

Will U.S. LNG Be Competitive in Today's Market?

To be competitive in Asia, U.S. LNG must be cheaper than that of rival suppliers.[3] One key metric for this assessment is its competitiveness relative to oil prices. LNG import prices in Northeast Asia largely remain oil-indexed. Therefore, U.S. LNG must compete with oil-indexed Qatari, Russian, or Australian supplies.[4] If oil prices increase above $90–$100 per barrel, Henry Hub–linked U.S. LNG will flow to Northeast Asia through long-term and spot purchases. However, if oil prices drop below $65–$70 per barrel, it will be too expensive relative to rival oil-indexed supplies. At the time of writing, Asian spot LNG prices are around $5 per mmbtu. If U.S. LNG can deliver at that price, Asian offtakers will absorb U.S. shipments, displacing supply from oil-indexed competitors.

Excluding major geopolitical disruption, we will continue to see depressed Asian spot LNG prices in the range of $4–$5 per mmbtu in 2019–20, with some positive ramifications for U.S. LNG. In the first place, U.S. LNG suppliers will welcome the increased trade flow opportunities created by weak prices, as the unresolved trade war with China threatens their access to the Chinese market. The $5 per mmbtu range is the sweet spot for many price-sensitive importers in South Asia, including India, Pakistan, and Bangladesh. Importers are loading up on cheap spot LNG and taking the minimum contractually permissible quantity of their more expensive oil-indexed contracts. Singapore Sling, for example, fell to as low as $4.37 per mmbtu for October when assessed in the second half of August 2019.

Second, the growing disconnect between long-term oil-indexed and spot LNG prices will further encourage pricing index diversification, an area in which U.S. LNG developers are ahead of the curve.[5] This trend could encourage a new wave of long-term contract renegotiations to adopt lower oil-indexed slopes or change the pricing index altogether (via linkage to gas hub prices or

---

[3] Leslie Palti-Guzman, "Gas Under Pressure," *Foreign Affairs*, January 8, 2016, https://www.foreignaffairs.com/articles/united-states/2016-01-08/gas-under-pressure.

[4] Keith Johnson, "America's Looming Gas Revolution," *Foreign Policy*, January 22, 2016, https://foreignpolicy.com/2016/01/22/americas-looming-gas-revolution-lng-exports.

[5] Shell's oil-indexed contract with NextDecade is an exception. See "NextDecade and Shell Execute 2 MTPA, 20-Year LNG Sale and Purchase Agreement," Business Wire, April 1, 2019, https://www.businesswire.com/news/home/20190401005954/en/NextDecade-Shell-Execute-2-MTPA-20-Year-LNG.

consumer price indexes). The combination of a surge in LNG supply and increased volatility of oil prices will not bode well for the longevity of oil indexation.[6]

Increased price transparency and growth in Henry Hub–indexed LNG derivatives will enhance the attractiveness of U.S. LNG. And a greater number of platforms and new products (e.g., CME-Cheniere futures contract and ICE Gulf Coast Market LNG [Platts] futures) are quickly gaining traction. The CME and ICE products will protect and enhance the role of Henry Hub natural gas futures as a global benchmark. Participants will benefit from both heightened price transparency and the opportunity to hedge. Counterparty credit and volume risk will decline, encouraging greater and more aggressive participation in LNG markets. Some of these products will attract small, first-time buyers from developing economies looking for flexible volumes.

Nonetheless, it will be very hard to predict where future U.S. LNG flows will go and whether Asia will continue to absorb the lion's share for a multitude of reasons. First, the U.S. business model does not allow for a fixed destination but offers total flexibility in the contracting terms for U.S. LNG. This means that even if an Asian company has contracted U.S. LNG volumes, it can resell this LNG in any market. Second. U.S. LNG is diverse. There is neither one kind nor one state-owned producer, but several players are involved with different profiles. Companies of various types (e.g., portfolio players with a global footprint, large trading houses, and majors) and from various countries and regions (e.g., Japan, India, South Korea, and Europe) have contracted U.S. LNG and will export it overseas. Paradoxically, some U.S. majors might be more invested in the Australian or Qatari LNG projects than in those in the United States, while some European-based global LNG portfolio players are the largest offtakers of U.S. LNG. As the LNG market becomes more global and fungible, lines are getting blurred. For a government to help sell U.S. gas molecules, this may mean helping foreign companies sell it.

Trade Routes Matter

Geographic proximity to the destination market is one way for a country to make its LNG more competitive because this reduces transportation costs and delivery time. One option for shipping U.S. Gulf Coast LNG to Asia is through the expanded Panama Canal. However, this route includes a transit fee as well as occasional bottlenecks, especially during seasonal peak demand. Congestion in the Panama Canal will add incremental costs to this route to Asia and could impede growth in spontaneous LNG trade, last-minute swaps, and resale.

By contrast, a U.S. West Coast project would be a very competitive proposal for Asian players.[7] Several proposed west coast Canadian and Mexican projects are also competing with U.S. Gulf Coast facilities for the same Asian markets and offer competitive commercial advantages: lower shipping costs to Asia and zero risk of being delayed by bottlenecks in the Panama Canal. For example, British Columbia's LNG Canada project, which recently took its FID, uses a route that takes half the time, requiring only ten days for transit to Tokyo Bay. Shipping LNG to Asia from Mexico's west coast also takes significantly less time, while costing 35% less, than deliveries from the U.S. Gulf Coast. However, following the election of Andrés Manuel López Obrador as president in 2018, these proposed Mexican liquefaction plants face potential political uncertainties that could affect their feasibility.

---

[6] For further discussion, see Leslie Palti-Guzman, "The Future of Asia's Natural Gas Market: The Need for a Regional LNG Hub," *Asia Policy* 13, no. 3 (2018): 101–26.

[7] However, the odds of the proposed Jordan Cove LNG project in Oregon are bleak due to local environmental and regulatory opposition.

Beyond Market Forces: The Politics and Geopolitics of Trade

Assessing U.S. competitiveness solely on economic grounds would be too narrow a focus. Competitiveness is a vague notion. Some governments and state-owned energy companies consider U.S. LNG to be competitive because they include concepts of security, diversification, and optionality. Under the Trump administration, politics and trade economics are also key factors to consider.

Hence, although the bulk of U.S. LNG flows to Asia will be driven by market forces, my analysis finds that a nontrivial share of the flows will be driven by political and geopolitical considerations (e.g., tariffs, transactional bilateral relations, the use of LNG as a carrot or stick in trade negotiations, government-sponsored import infrastructure, or a desire to counterbalance China or Russia).[8] Moreover, while the economic competitiveness of U.S. LNG will be the primary driver of trade flows to Asia, the U.S. government can—and will—use policy instruments to level the playing field with state-backed competitors.

The United States and its allies are finally reckoning with the fact that governments around the world have been using state money or state-owned companies to gain an edge in building infrastructure and directing trade flows. Western governments will play a greater role in energy infrastructure financing in emerging markets, both as a tool of soft diplomacy and as a counterbalance to China's Belt and Road Initiative and Russia's use of state coffers to advance geopolitical energy projects (which are not commercial). China continues to be a key player in financing LNG infrastructure in South Asia and Africa. While Chinese funding has provided much-needed financial support for infrastructure buildout in a host of developing countries, including regasification, liquefaction, and even shipping with ports, it has also sparked concerns about the economic and environmental impact of China's role in these projects.[9] The growing international backlash over the "Chinese debt trap" has created a window of opportunity for Western financiers to regain ground as backers of infrastructure in developing countries. Hence, OECD financing is becoming more flexible and generous in order to regain market share. Also, the partners involved in the Asia EDGE initiative are increasingly concerned about Chinese influence over infrastructure in South Asian ports and are determined to maintain a free and open maritime order in the Indo-Pacific region.

Meanwhile, the Russian government has politically and financially supported projects such as the expansion of Nord Stream 2 and the Arctic LNG projects. Tax breaks are key to these projects' realization. For example, the Yamal LNG project pays no royalties for twelve years, is exempt from extraction taxes and export duties, and uses state-funded nuclear-powered ice breakers.

With this in mind, one of the early ways that the Trump administration sought to increase LNG exports was through using LNG as leverage in its efforts to reduce trade imbalances, including in negotiations with China, Japan, South Korea, and India, to name just a few countries. This strategy will continue to both help and hurt the prospects for U.S. LNG. If Washington uses a carrot-and-stick approach, this means that its trade partners can do the same.

The United States' failure to reach a trade deal with China by 2020 would be the worst scenario for all players. China needs a well-stocked LNG market to ensure price competitiveness and security of supply, and the United States needs large markets like China to absorb its exports

---

[8] Robert Johnson and Leslie Palti-Guzman, "The Foreign Policy Uses of an Energy Bounty," *Wall Street Journal*, January 10, 2013.

[9] See, for example, "The Perils of China's 'Debt-Trap Diplomacy,'" *Economist*, September 6, 2018, https://www.economist.com/asia/2018/09/06/the-perils-of-chinas-debt-trap-diplomacy; and William Laurence, "The Dark Legacy of China's Drive for Global Resources," YaleEnvironment360, March 28, 2017, https://e360.yale.edu/features/the-dark-legacy-of-chinas-drive-for-global-resources.

and advance the administration's agenda for achieving "energy dominance."[10] But the new level of unpredictability in U.S. trade relations and foreign policy has elevated the political risk for potential buyers, notably China.[11] China has an even stronger incentive to diversify supply sources and will continue to support investments in non-U.S. export projects around the world. The current abundance of global LNG supply and intense competition between exporters both work in favor of China, which will soon become the world's largest LNG importer. A lengthy trade war will also give a geopolitical boost to Russia and Qatar, both of which are angling to dominate the global LNG market post-2025.

Whether or not the U.S.-China trade negotiations have a happy ending, the heightened politicization of U.S. LNG will have a lasting impact on exports, and not just vis-à-vis China. Other importers of U.S. LNG are watching the trade discussions and learning to use U.S. LNG as leverage in their bilateral negotiations or as a retaliatory measure. Perhaps most importantly, elevated geopolitical risk and unpredictability generate unease among all players, which negatively affects investment.

For the duration of U.S.-China trade tensions, U.S. LNG exporters will likely pursue two mitigation strategies. First, avoiding over-reliance on China and opening up new markets for U.S. LNG, especially emerging buyers, will be crucial in the coming months. Second, U.S. LNG suppliers will ensure that their pricing and contract terms remain competitive and also adapt their business models to lure new customers. The proposition of U.S. LNG is still very attractive to importers in search of supply and pricing diversification, as illustrated by Cheniere's deals with Poland and Taiwan in 2018. At the time of writing, the jury is still out on whether the U.S.-China trade war benefits or harms the sale of U.S. LNG, in terms of both its impact on direct sales to China and its potential ripple effects in realigning markets and supply chains. While LNG is only a small component of the larger conflagration, its importance to both sides has made LNG a highly visible tool in the conflict. At this stage, two scenarios are equally possible: one with a more bearish impact and the other with a more bullish impact.

A bearish scenario for U.S. LNG could play out as follows:

- *Immediate cuts to trade flows*. Short-term trade flows will remain exposed to trade negotiation uncertainty. Already, China has significantly reduced the amount of U.S. LNG it buys, with imports falling drastically since it imposed a 10% tariff in September 2018.[12] China imported only 8 U.S. LNG cargoes between September 2018 and September 2019, despite growth in overall Chinese imports and U.S. exports over that time period. China imported only 0.2 mt (million tonnes) of U.S. LNG in 2019 and 1.8 mt in 2018, compared to 2.1 mt in 2017. The increase to a 25% duty since June 1, 2019, adds further pressure and could push U.S. LNG deliveries to China to one or even zero cargo per month (as a range) in the fourth quarter of 2019 and the first half of 2020.
- *Supply diversification away from the United States*. U.S.-China trade tensions will continue to benefit rival LNG suppliers such as Qatar, Russia, Mozambique, and Canada, as the Chinese tariff on U.S. LNG imports has made trade with these countries more competitive. Yet while

[10] Tom DiChristopher, "Trump Wants America to Be 'Energy Dominant.' Here's What That Means," CNBC, July 1, 2017, https://www.cnbc.com/2017/06/28/trump-america-energy-dominant-policy.html.

[11] Jennifer A Dlouhy, "Oil and Gas Leaders Warn Trump He Risks Harming Their Industry," Bloomberg, March 15, 2018, https://www.bloomberg.com/news/articles/2018-03-15/oil-gas-leaders-to-warn-trump-he-risks-harming-their-industry.

[12] U.S. EIA, "U.S. Liquefied Natural Gas Exports to China," August 30, 2019, https://www.eia.gov/dnav/ng/hist/ngm_epg0_eng_nus-nch_mmcfm.htm.

benefitting U.S. LNG competitors in the short term, a global economic slowdown induced by the trade war would hurt everyone in the medium term.

- *Acceleration of investment decisions in non-U.S. projects*. The trade war is also accelerating non-U.S. projects. LNG Canada in British Columbia was the first project to take FID in the new environment of heavily politicized U.S. LNG. Canada is one of the United States' main competitors as a supplier to Asia's biggest LNG markets, including China. The 14 million tonnes per annum (mtpa) plant expects to deliver LNG to Tokyo at $8.50 per mmbtu and may add two trains in the future.[13] Mozambique and Russia are other winners following the investment decision on the Area 1 Mozambique LNG project and the launch of Russia's second Arctic project.

A bullish scenario for U.S. LNG could play out as follows:

- *Goodwill gestures*. In the event of an amicable resolution to the trade dispute, the odds of China signing new long-term contracts for U.S. LNG and increasing trade flows are very high. It is much easier for China to deliver on promises to buy more LNG than to meet U.S. demands for political and economic reforms to improve foreign access to the Chinese market or strengthen intellectual property protection.
- *Deal sweeteners*. Several countries have learned to use the United States' focus on expanding LNG exports to their advantage by offering LNG purchase commitments as deal sweeteners or in exchange for other benefits, such as sanctions waivers for trade with Iran. The anticipated announcement of another long-term LNG agreement with Cheniere showcases China's timely use of LNG as a sweetener in trade negotiations, despite its limited potential to fix the trade imbalance.[14]
- *Narrower trade imbalance*. Countries can use imports of U.S. LNG, provided the price is right, as an indication of their intent to address their trade imbalances with the United States. South Korea, for example, ramped up its imports of U.S. LNG during negotiations with the United States for a free trade agreement (FTA), as well as before receiving Iran sanctions waivers. The country became the largest importer of U.S. LNG in 2018 and in 2019.[15]

Trade deals can improve the economics of U.S. LNG. Although trade partners will not pay exorbitant prices, if the price is right, an accord may convince them to buy LNG from the United States rather than from Russia or another supplier. The following two sections explore U.S. LNG diplomacy and financing.

U.S. LNG Diplomacy

Asia EDGE—the energy security component of the administration's broader Indo-Pacific strategy—has emphasized the development of secure and transparent energy markets and predominantly focused on LNG and trade. A further key element has been addressing the demand

---

[13] "LNG Canada," Shell, https://www.shell.com/about-us/major-projects/lng-canada.html.

[14] The impact of this specific deal on the U.S.-China trade balance will be negligible for two main reasons. First, it will not be felt until 2023, and even then, its impact will be minimal. The U.S. goods trade deficit with China was a record $419.2 billion in 2018 alone. For context, the total value of U.S. LNG exports to China was in the neighborhood of $487 million, representing one-tenth of a percent of the deficit (and an even smaller share of total bilateral trade in goods). Second, even as U.S. LNG exports to China grow, Chinese firms will have the opportunity to trade and resell this LNG without bringing it back home. See "U.S. Trade Deficit Reached a Record High Last Year," CBS News, March 6, 2019, https://www.cbsnews.com/news/u-s-trade-deficit-reached-a-record-high-last-year; and U.S. EIA, "Natural Gas Prices," August 30, 2019, https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm.

[15] U.S. EIA, "U.S. Natural Gas Exports and Re-exports by Country."

and infrastructure side of the LNG chain. Creating demand via the buildout of LNG and gas infrastructure in South and Southeast Asia will accelerate energy access in the Indo-Pacific region, as well as advancing U.S. diplomatic and commercial interests. Yet the U.S. government has intentionally left the objectives and specific execution of these two aims within the initiative vague in order to cast a wide net among partners and allow flexibility in its approach.

To date, the Indo-Pacific strategy's focus on energy issues has emphasized a web of bilateral strategic energy partnerships. In many ways, it is easier to start by focusing on limited goals and specific projects within successful bilateral partnerships and later expand these goals and add partners. Asia EDGE could ultimately become a multilateral initiative, but for the initiative to be successful, the United States must also find ways to build on and further integrate these bilateral foundations. Post–Trans-Pacific Partnership, it is very important that the United States demonstrate its commitment in the region. The following subsections explore the bilateral partnerships that the United States has established to date and then highlight a few additional ones that could be considered.

Japan-U.S. Strategic Energy Partnership

While the broader Asia EDGE initiative does not mention any concrete projects, the Japan-U.S. Strategic Energy Partnership (JUSEP) could provide a starting point for expansion at a later stage.[16] Given that the Asia EDGE strategy cannot fulfill all of its goals at once, breaking it down into stages and starting small makes sense. JUSEP is a first step. The partnership intends "to facilitate high-standard investment in projects to supply LNG or build LNG infrastructure."[17] The LNG component will be a cornerstone of the strategic dialogue, given the importance of the fuel to Japan's economy and to the Trump administration's trade agenda. During the third JUSEP meeting on February 28, 2019, the two partners reaffirmed their goal to coordinate investments, work closely on LNG, and encourage business-to-business connections.[18]

The U.S.- and Japan-led strategy is mutually beneficial. Japanese companies' assistance with financing and building infrastructure in emerging countries seeking to import LNG will open up those markets to U.S. LNG, while enabling Japanese companies, which are overcommitted until 2022, to resell unwanted volumes to third-party countries. The United States and Japan also share the strategic goal of counterbalancing China's Belt and Road initiative by building energy infrastructure, notably in Asia and Africa.

Japan has a financial edge, while the United States has an advantage in advocacy. Japan has already committed $10 billion in public and private investment and capacity-building training to the Asia EDGE initiative. In contrast, the United States is still putting together its new financial arm, the U.S. International Development Finance Corporation (USIDFC), which will facilitate the buildout of new gas and LNG infrastructure around the world. For now, U.S. financial tools are still nascent, so U.S. companies that enter into joint ventures or consortia may be able to tap into capital from Japanese state financial institutions.

---

16 For the framework of the partnership, see "Japan–United States Strategic Energy Partnership (JUSEP)," Ministry of Economy, Trade and Industry (Japan), https://www.meti.go.jp/english/press/2017/pdf/1107_001a.pdf.

17 "U.S.-Japan Joint Statement on Advancing a Free and Open Indo-Pacific through Energy, Infrastructure and Digital Connectivity Cooperation," White House, Office of the Press Secretary, November 13, 2018, https://www.whitehouse.gov/briefings-statements/u-s-japan-joint-statement-advancing-free-open-indo-pacific-energy-infrastructure-digital-connectivity-cooperation.

18 "Joint Statement on Japan–United States Strategic Energy Partnership," U.S. Department of State, Media Note, https://www.state.gov/joint-statement-on-japan-united-states-strategic-energy-partnership.

Meanwhile, the U.S. government has more clout than Japan when it comes to advocating for commercial projects and promoting business transparency in Asia's emerging markets. By cooperating with the United States, Japanese companies will benefit from a more business-friendly environment and a consistent set of rules.

Australia-U.S. Strategic Partnership on Energy in the Indo-Pacific

The U.S. and Australia are rival LNG suppliers, but they will both benefit from promoting regional energy infrastructure, advancing energy security, and enhancing open and competitive markets. Both countries are interested in opening new markets for their exports, and their economic interests will be better protected if they team up to advocate for market-based principles, private-led development, and good economic governance. Their security and strategic goals for the region, including securing shipping routes and checking China's expansionist policies in the South China Sea, are also in close alignment. With these objectives in mind, the United States and Australia announced the Strategic Partnership on Energy in the Indo-Pacific in February 2018, followed by the first annual U.S.-Australia Energy Security Dialogue in October 2018.[19]

Australia can help foster global gas market transparency and open LNG trade in the Indo-Pacific. Following its east coast domestic gas crisis, which saw regional prices skyrocket to $22 per gigajoule in March 2017, the national government developed new reporting requirements to enhance gas market transparency, which could benefit Indo-Pacific allies.[20] Australian regulators are implementing measures to increase market transparency to better anticipate the impact of global dynamics on the country's domestic market. The Australian Competition and Consumer Commission is leading efforts by establishing reporting requirements to avoid a repeat of the gas crisis. The commission is also publishing an LNG netback price series on its website and will release an estimated price for the east coast gas market.[21] Publicly available gas market information, especially on pricing, is still limited in Australia. As LNG trade grows, so will its impact on local and domestic markets (including in the United States).

Expanding Asia EDGE to Include Other Partners

Enlarging Indo-Pacific cooperation to include other regional allies will require not only the identification of common economic and strategic interests that prevail over business competition but also friendly political relations between countries. The United States, Japan, and Australia can all see commercial benefits to opening new South and Southeast Asian markets to energy trade, as increasingly can other major consumers, such as South Korea and India. Further strengthening markets will offer more outlets for reselling LNG (including but not limited to U.S. LNG) and boost liquidity in the region, which is a prerequisite to establishing successful regional gas or LNG hubs.[22] More broadly, Indo-Pacific partners could also agree on supporting clean and sustainable infrastructure (e.g., gas and renewables rather than coal). This would further

---

19 "First Annual U.S.-Australia Energy Security Dialogue," U.S. Department of State, Media Note, October 2, 2018, https://www.state.gov/first-annual-u-s-australia-energy-security-dialogue.

20 Australian Competition and Consumer Commission, "Gas Inquiry 2017–2020," Interim Report, July 2018, https://www.accc.gov.au/system/files/Gas%20inquiry%20July%202018%20interim%20report.pdf.

21 Australian Competition and Consumer Commission, "Gas inquiry 2017–2020," September 16, 2019, https://www.accc.gov.au/regulated-infrastructure/energy/gas-inquiry-2017-2020/lng-netback-price-series.

22 Palti-Guzman, "The Future of Asia's Natural Gas Market."

differentiate Asia EDGE from China's Belt and Road Initiative. The following analysis highlights the case for expanding Asia EDGE to include South Korea, India, and Singapore.

South Korea. South Korea has become the largest destination for U.S. LNG, and it will likely maintain this position in 2019. During the Korea-U.S. FTA renegotiations, the South Korean government directed higher domestic consumption of U.S. LNG as a goodwill gesture. The country's gas-friendly energy and trade policies are anticipated to further boost demand for LNG.

Tensions between South Korea and Japan on various topics, including on security issues related to North Korea's denuclearization and the unification of the Korean Peninsula, will complicate any trilateral energy and investment dialogue with the United States.[23] In addition, South Korea is reluctant to choose between China's Belt and Road Initiative and the U.S. Indo-Pacific strategy for fear of being trapped in a great-power rivalry.[24]

That said, Japan and South Korea have mutual economic, energy, and investment interests, which may eventually prevail over these tensions. In the realm of infrastructure and energy, the Korea Gas Corporation is positioning itself to resell LNG in the Pacific region, using floating storage regasification units (FSRUs) to potentially open new markets in Australia, Lebanon, and Bangladesh. South Korean firms, which have an excellent track record in building large infrastructure projects such as power plants, can bring to the Asia EDGE initiative their experience in overseas development assistance.

Along these lines, Seoul and Washington have established an energy security partnership that could open the door to the formation of various consortia to promote gas infrastructure projects in South and Southeast Asia.[25] In contrast with the U.S.-Japan energy dialogue, the scope of the United States' bilateral energy security dialogue with South Korea remains very broad. At the last meeting, held in June 2018, the United States recognized South Korea as a "linchpin for security, stability and prosperity in the Indo-Pacific."[26]

India. India maintains good relations with both Japan and the United States and is considered a pillar in the Indo-Pacific strategy. Meanwhile, its recent energy planning strategies have signaled growing interest in LNG and in ensuring that the Indo-Pacific market is well functioning so that supplies are available when needed. For example, the country is serious about its city gas distribution agenda, having recently finalized a decision to require more imports in the medium term to realize gas penetration plans in the transportation and power sectors. On the heels of a high-level U.S.-India commercial dialogue to advance trade and investment, India's state-owned Petronet reached a preliminary agreement to invest in the 27.6 mtpa in the Tellurian Driftwood LNG project.[27] However, the main risk to this memorandum of understanding (MOU) is the

---

[23] Other areas of tension include historical and territorial issues. J. Berkshire Miller, "Japan and South Korea's History Wars Are about to Get Ugly," *Foreign Policy*, May 2, 2019, https://foreignpolicy.com/2019/05/02/japan-and-south-koreas-history-wars-are-about-to-get-ugly; and Tadashi Kimiya, "The Hanoi Summit and Japan–South Korea Relations," *Diplomat*, May 6, 2019, https://thediplomat.com/2019/05/the-hanoi-summit-and-japan-south-korea-relations.

[24] Cheol Hee Park, "South Korea Is a Hesitant, but Friendly, U.S. Ally in the Indo-Pacific," Atlantic Council, January 9, 2019, https://www.atlanticcouncil.org/blogs/new-atlanticist/south-korea-is-a-hesitant-but-friendly-us-ally-in-the-indo-pacific.

[25] Jeremy Maxie and Tatsuo Masuda, "Next Steps toward Allied Energy Security," National Bureau of Asian Research (NBR), NBR Commentary, December 20, 2017, https://www.nbr.org/publication/next-steps-toward-allied-energy-security.

[26] "U.S.–Republic of Korea Energy Security Dialogue," U.S. Department of State, Media Note, June 8, 2018, https://www.state.gov/u-s-republic-of-korea-energy-security-dialogue.

[27] An official dialogue between the U.S. commerce secretary and India's commerce minister to ease trade tensions occurred in February 2019. Neha Dasgupta and Sanjeev Miglani, "U.S., India Hold Talks to Calm Trade Tensions," Reuters, February 14, 2019, https://www.reuters.com/article/us-usa-trade-india/u-s-india-hold-talks-to-calm-trade-tensions-ross-joins-by-video-idU.S.KCN1Q313F; and Nidhi Verma, "UPDATE: 1-India Petronet Signs Initial Deal to Invest, Buy LNG from Tellurian," Reuters, February 14, 2019, https://www.reuters.com/article/usa-trade-india-lng/update-1-india-petronet-signs-initial-deal-to-invest-buy-lng-from-tellurian-idUSL3N2094F1.

politicization of U.S. LNG trade, which could backfire. Petronet's MOU with U.S. LNG developer Tellurian highlights both the efficacy of the U.S. government's push to promote LNG exports and the potential backlash of using LNG as a diplomatic tool. Any escalation of U.S.-India tensions could prompt Indian policymakers and industry leaders to back away from closer collaboration with U.S. partners.

With these caveats in mind, the U.S.-India Strategic Energy Partnership, which was announced in June 2017, could serve as a building block to advance Asia EDGE. Some objectives of the bilateral pact have identical goals with the initiative, such as promoting "deeper and more meaningful engagements through government and industry channels."[28] In addition, gas is one of the pillars of the accord, and the two governments created the U.S.-India Gas Task Force to advance favorable policies, commercial investment, and strategic and economic interests and support a common vision for natural gas in India's economy.

The U.S., Japanese, and Indian governments held a meeting in April 2018 to discuss areas of mutual interest, including advancing infrastructure development and cooperation in the Indo-Pacific.[29] Although the trilateral plan of action remains vague, there are already some examples of private-sector groups working together in South and Southeast Asia. India and Japan have formed a consortium of India's Petronet and Japan's Mitsubishi and Sojitz to bid on the construction of a 2.7 mtpa FSRU for Sri Lankan LNG imports, which resulted in a government-to-government MOU.[30] Sri Lanka's plan for its first FSRU is also a telling case study of growing regional competition. The country signed a separate MOU for construction of an LNG plant at the Chinese-operated Hambantota port. The Indo-Japanese agreement has met with political backlash over its take-or-pay stipulation and the absence of competitive bidding for the FSRU project, while opponents of the deal with China fear that the facility could be used as a Chinese naval base.[31] India is increasingly concerned about China's infrastructure at South Asian ports and is determined to maintain a free and open maritime order in the region.

Singapore. The United States and Singapore are also strengthening bilateral cooperation to bolster energy security and resilience. Singapore's Energy Market Authority and the U.S. Federal Energy Regulatory Commission signed an MOU in April 2019 to define their cooperative framework. The agencies discussed potential collaboration in 2019 and 2020 on electricity and gas markets. Vice President Mike Pence and Prime Minister Lee Hsien Loong had previously agreed in November 2018 to explore ways for the USIDFC and Singapore's Infrastructure Asia to cooperate on "sustainable infrastructure development in the region."[32] The United States and Singapore signed an MOU to develop joint activities in areas such as infrastructure, energy, and

---

28 "India-U.S. Strategy Energy Partnership Joint Statement," Ministry of Petroleum and Natural Gas (India), Press Information Bureau, April 17, 2018, https://pib.gov.in/newsite/PrintRelease.aspx?relid=178727.

29 "Joint Statement on the U.S.-India-Japan Trilateral Meeting," U.S. State Department, Media Note, April 5, 2018, https://www.state.gov/joint-statement-on-the-u-s-india-japan-trilateral-meeting.

30 If approved, the Kerawalapitya floating storage regasification unit (Petronet, Mitsubishi, and Sojitz) could bring up to 2.7 mtpa of LNG import capacity to the new market by 2023. "Petronet, Japanese Company to Set Up $300 Million LNG Terminal in Sri Lanka," *Economic Times*, February 11, 2018, https://economictimes.indiatimes.com/industry/energy/oil-gas/petronet-japanese-company-to-set-up-300-million-lng-terminal-in-sri-lanka/articleshow/62871145.cms.

31 "Sri Lanka Gives Green Light for Chinese LNG Plant Near Hambantota Port," Reuters, May 5, 2018, available at https://www.scmp.com/news/china/diplomacy-defence/article/2144808/sri-lanka-gives-green-light-chinese-lng-plant-near. Sri Lanka's LNG plans could be slowed following the Easter Sunday terrorist bombings as the government refocuses its priorities and budget on combating terrorism. Investors may also pull back, wary of security risks.

32 "Advancing a Free and Open Indo-Pacific Region," U.S. Department of State, Fact Sheet, November 18, 2018, https://www.state.gov/advancing-a-free-and-open-indo-pacific-region.

smart cities. The partnership on smart cities, in particular, is an area where other countries can easily be added.[33]

Even if Singapore is a small LNG player, its unique geographic location and ecosystem make it a potentially valuable partner in the United States' Asia EDGE initiative. As a leading hub for trading other commodities in Asia (e.g., oil, coal, and iron), it has an existing network of bankers, traders, lawyers, shippers, and educated human capital. Singapore's other attributes include a reliable legal, regulatory, and tax framework inherited from the British; a friendly business environment; modern infrastructure; and a strategic location at the crossroads of trade flows between India, China, Australia, Qatar, Indonesia, Malaysia, Japan, and South Korea. Meanwhile, Singapore aims to strengthen its position to serve as an LNG hub in the coming years, taking advantage of the growing Asian LNG market and current oversupply.[34]

LNG Financing

As suggested in the above discussion, one of the main stumbling blocks to opening new markets in South and Southeast Asia remains securing financing for infrastructure, which is related to finding reliable LNG buyers. Increasingly, selling U.S. LNG requires having financing in place on the demand side (e.g., financing of new LNG-to-power projects in emerging markets). This is one area where government leadership can help the United States regain its competitive advantage. Another area where the U.S. government can make an impact is through engaging in commercial diplomacy and helping inexperienced governments implement regulatory frameworks.

Traditionally, U.S. companies have relied on U.S. government assistance to enter new markets where they were not familiar with the political risks and regulatory environment. Governments will increasingly offer some financial support and guarantees.

Development of Infrastructure in the Indo-Pacific to Create Market Share

Governments have a role to play in financing LNG import infrastructure, given that new markets in South and Southeast Asia have been slow to open. A combination of political instability, the absence of relevant regulatory frameworks, and the lack of creditworthiness is leading to delays and cancelations of many proposed LNG receiving terminals, stymying efforts to establish the infrastructure necessary to turn these countries into growing LNG markets. GasVista's projections for additional regasification capacity in South and Southeast Asia by 2025 have shrunk from 88 mt to 60 mt, which will likely be further reduced in coming months amid new delays and cancelations. The combined additional regasification capacity of the two regions, if all the proposed projects were to materialize, would total 24 mt by 2022 and 80 mt by 2025. One of the central objectives of the free and open Indo-Pacific strategy is to spur greater private investment in infrastructure across the region. This goal is timely and could yield tangible results thanks to old and new financial tools.

---

33 "Remarks by Vice President Pence at the 6th U.S.-ASEAN Summit," White Office, Office of the Press Secretary, November 14, 2018, https://www.whitehouse.gov/briefings-statements/remarks-vice-president-pence-6th-u-s-asean-summit.

34 Jessica Jaganathan, "Firms Set Up LNG Trading Desks in Singapore to Capture Asian, Growth," Reuters, December 10, 2018, https://af.reuters.com/article/commoditiesNews/idAFL3N1YF37W.

Political Retooling of Existing Financial Tools

Some of the financial instruments that the Indo-Pacific partners will use to build LNG infrastructure are new, while others will be repackaged to serve the purpose of the strategy. Together, Japan and the United States will dedicate several billion dollars of state financing to Indo-Pacific initiatives via the Better Utilization of Investments Leading to Development (BUILD) Act and the new financing arm USIDFC. Yet it remains unclear how this financing will be used and how much flexibility there will be in the conditions of use. Four financial instruments that governments jointly have at their disposal include the Indo-Pacific Transaction Advisory Fund, government and multilateral guarantees, governmental subventions, and private-public and private-private partnerships.

Indo-Pacific Transaction Advisory Fund. The United States and its Indo-Pacific partners have established the Indo-Pacific Transaction Advisory Fund to support infrastructure investment, which could include LNG receiving terminals. The fund will not only finance projects but also pay for legal, banking, and technical assistance. The idea is to introduce best practices in emerging countries that often lack the ability to evaluate loans. Given their concerns about falling into a Chinese debt trap, several South and Southeast Asian countries will welcome assistance in evaluating the scope of their loans and acquiring knowledge of standards (e.g., contract sanctity, market principles, and the rule of law).

Government and multilateral guarantees. Additional governmental guarantees would help. For players in the LNG industry (including sellers, traders, service providers, construction companies, shippers, and others), it is very hard to do business with less creditworthy countries, especially in South Asia. Some companies require that countries meet a credit rating threshold for any investment or financing. Multilateral organizations (e.g., the World Bank) increasingly provide guarantees to advance complex LNG-related infrastructure projects. These guarantee programs will enable the mobilization of private investment, facilitate public-private partnerships, and diversify financing beyond development funding.[35]

Governmental subventions. There is not an Asian organization comparable to the European Union that can grant financial assistance to projects of common interest. The EU has channeled 656 million euros to the construction of regasification terminals in Europe. Asia EDGE could adopt some of the EU's best practices when it comes to financial assistance and instruments.

Private-public and private-private partnerships. Japan is leading the pack in efforts to advance private-public partnerships, which will help build infrastructure in smaller emerging markets. Indo-Pacific partners can also facilitate private partnerships through matchmaking opportunities, joint bids, and financial assistance. Concrete examples are still hard to find, but the projects frequently mentioned by Japanese and U.S. policymakers include a $1.8 billion Jawa 1 LNG-to-power project in Indonesia, which the Japan Bank for International Cooperation (JBIC) and Nippon Export and Investment Insurance (NEXI) agreed to finance. The integrated project has been undertaken by a consortium composed of Indonesia's state energy company Pertamina and the Japanese private entities Marubeni and Sojitz. Contractors include Samsung, General Electric, and Meindo.[36] Additionally, the LNG-to-power project in Bangladesh is being coordinated by the Japanese and U.S. private sectors. NEXI is underwriting insurance for Mitsubishi's investment

[35] World Bank, "Guarantees Program," http://www.worldbank.org/en/programs/guarantees-program.

[36] "Jawa-1 Gas-Fired Power Project, West Java," NS Energy, https://www.nsenergybusiness.com/projects/jawa-1-gas-fired-power-project-west-java.

in this project, while Mitsubishi is partnering with other companies, including U.S. players. For example, Mitsubishi and General Electric are investing $3 billion in the power plant and related LNG and oil terminals.[37]

Next Steps

One trend that can be observed across all four instruments is that the joint deployment of Japanese and U.S. state financing (the latter via the USIDFC) will offer more flexible terms than were previously available and thereby facilitate the buildout of new gas and LNG infrastructure around the world. It remains unclear, however, whether there will be a domestic content rule for financing conditions. The concept of "energy security" is broad enough, for example, to allow JBIC to support projects in which Japanese companies are not directly involved. It could support infrastructure projects such as LNG receiving terminals that contribute to Japan's energy security, as opposed to the narrower requirement of benefiting Japanese businesses. JBIC has also expanded support to Japanese firms bringing LNG into other consuming countries rather than just into Japan.[38] This new flexibility will increase the free flow of LNG in the Indo-Pacific region.

Areas Left for Clarification

The Asia EDGE initiative still remains in its infancy. Going forward, the United States and its partners will need to clarify some concepts and areas. To begin with, the U.S. and Japanese governments need to define what they consider LNG infrastructure. Does it only include the receiving terminal or does it encompass all related LNG and gas facilities that will help create demand, including power plants and pipelines? Assisting with regasification infrastructure is not enough because it can remain vastly underutilized if there is no distribution grid or truck fleet to transport the gas to customers.

Second, it remains unclear what kind of environmental reviews of the BUILD Act investment in emerging Asian countries will be conducted. Who will monitor environmental standards of Asia EDGE infrastructure projects in South and Southeast Asia? What will the venture's policy be on coal? Given that it will take time for China to clean up its Belt and Road Initiative, Asia EDGE partners have an opportunity to advance gas infrastructure, which is a cleaner fossil fuel than coal.[39]

As with China's energy and other investments abroad that have generated environmental concerns globally and opposition locally, Asia EDGE could face backlash if sustainable standards are not developed early on. An investment policy that favors cleaner energy sources, such as renewables or natural gas at the expense of coal, would boost gas demand—for power generation and as a backup for renewables, as well as in the industrial and transportation sectors.

---

[37] "NEXI's First Insurance Cover for LNG Receiving Terminal Project," NEXI, Press Release, November 12, 2018, https://www.nexi.go.jp/en/topics/newsrelease/2018110501.html; and Serajul Quadir, "Bangladesh Unveils $5.8 Billion Energy Investment, Two JV's with General Electric," Reuters, July 11, 2018, https://www.reuters.com/article/us-bangladesh-energy-investment/bangladesh-unveils-5-8-billion-energy-investment-two-jvs-with-general-electric-idUSKBN1K11SI.

[38] Iori Kawate, "Japan Opens Door to Power Companies Buying into Overseas Projects," *Nikkei Asian Review*, April 10, 2018, https://asia.nikkei.com/Politics/Japan-opens-dooJapan opens door to power companies buying into overseas projects-to-power-companies-buying-into-overseas-projects.

[39] Although China is seeking to shed its reputation as a bad environmental actor in investments abroad by "greening" its Belt and Road Initiative, an immediate surge in new gas and renewables capacity is not expected. See Basten Gokkon, "Environmentalists Are Raising Concerns over China's Belt and Road Initiative," *Pacific Standard*, July 18, 2018, https://psmag.com/environment/environmental-concerns-over-chinese-infrastructure-projects.

Energy access is one of the highest priorities of Asia EDGE, as well as for regional countries that still suffer from regular electricity shortages, but it should not be pursued at any cost. The initiative will have to answer to environmental opposition claiming that investing in gas infrastructure will delay the emergence of renewables and create stranded assets. Thus, in the future, the United States and other partners may consider more directly supporting other forms of energy, including renewables.

Third, although counterbalancing China is not the explicit goal of Asia EDGE, it is clear that the initiative is a geopolitical and commercial response to the expansionist Belt and Road Initiative.[40] This is also a soft-power strategy to win back the hearts and minds of Asian countries by spreading the highest business and financial standards. What is less clear is whether partnerships between the United States and Indo-Pacific countries will prevail over other geopolitical alliances and business ventures. Some Southeast and South Asian nations will be uncomfortable picking sides between the United States and China. Some countries may also have similar partnerships with other nations and regions that overlap with the goal of the Indo-Pacific strategy. For instance, Japan and the EU concluded a trade deal that incorporates an energy chapter and follows an MOU signed in July 2017 to establish a liquid, flexible, and transparent LNG market.[41] This kind of partnership will be beneficial to the Asia EDGE initiative because they share common goals. Nonetheless, several U.S. allies also have close ties with China. Germany and China, for example, established a strategic energy partnership in 2006. Meanwhile, despite Australia's geopolitical concerns about China's aggressive behavior in the South China Sea and deteriorating relations since 2018, the Australia-China trade relationship is very strong and one of mutual dependence. LNG trade between the two countries is on the rise, and they have set up the Australia-China Natural Gas Technology Partnership Fund, which provides opportunities for training, research, and technology transfer between the countries in the natural gas and LNG industries.

The white elephant in the room is Russia. Japanese companies have traditionally supported Russian natural gas ventures (e.g., projects in Sakhalin and more recently Artic 2 LNG) due to the close regional proximity. If the United States has a strategic energy partnership with Japan, does that mean Japanese companies can no longer be involved in Russian LNG projects? Russian and Japanese companies have long sought to deepen their energy cooperation. For example, Novatek signed a heads of agreement with Japan's Saibu Gas, "under which the companies will consider potential cooperation in entering the end-consumer LNG market in Asia."[42] As discussed earlier, many portfolio LNG players have businesses in both Russia and the United States, and opening new demand centers in emerging markets will benefit Russia indirectly. Novatek's LNG growth spurt, with a second Arctic project, will be a competitive threat to U.S. LNG.

Finally, the Asia EDGE initiative may not always lead to direct business opportunities for U.S. companies, even when it provides a U.S. foreign policy edge. Making sure that there are opportunities for U.S. companies in each project may not be practical in all circumstances, given that rival U.S. brands compete both with one another and with other global brands. U.S. service

---

[40] Secretary of State Mike Pompeo clarified in a speech last year that the "Indo-Pacific vision excludes no nation. We seek to work with anyone to promote a free and open Indo-Pacific." "Sec. Pompeo Remarks on 'America's Indo-Pacific Economic Vision,'" U.S. Mission to ASEAN, July 30, 2018, https://asean.usmission.gov/sec-pompeo-remarks-on-americas-indo-pacific-economic-vision.

[41] "EU and Japan Boost Cooperation on Energy Security," European Commission, July 11, 2017, https://ec.europa.eu/energy/en/news/eu-and-japan-boost-cooperation-energy-security.

[42] Tsvetana Paraskova, "Japan to Boost Energy Cooperation with Russia," Oilprice, February 8, 2019, https://oilprice.com/Latest-Energy-News/World-News/Japan-To-Boost-Energy-Cooperation-With-Russia.html; and "Saibu Gas in LNG Partnership with Novatek," LNG World News, https://www.lngworldnews.com/saibu-gas-in-lng-partnership-with-novatek.

companies, for example, could compete with each other and with Japanese firms, which will themselves compete with one another. One option for minimizing such competition is the formation of joint bids or consortia under which each country specifies its areas of strength. Even so, the more partners that the Asia EDGE initiative adds (e.g., Australia or South Korea), the more competition there will be.

Conclusion

The United States wants to sell LNG and regards greater global LNG demand as better for U.S. interests. The Asia EDGE initiative's focus on South and Southeast Asia is crucial because these are some of the fastest-growing and most promising markets that will use natural gas to improve air quality and displace dirtier fuel such as coal. However, given the growing commoditization of the global LNG market, there is no guarantee that this is where U.S. LNG will end up. Opening up new markets will benefit all LNG suppliers, not just the United States. The U.S. government cannot guarantee that after it assists a country with regasification infrastructure, that country will exclusively receive U.S. LNG or for that matter LNG from any supplier. It might choose to import LNG from Qatar or Russia, and U.S. taxpayer money would then have served the interests of a commercial or geopolitical rival. But these new "opened" markets may buy more LNG overall—to the benefit of both the United States and global stakeholders—if markets are structured in ways that make natural gas accessible, affordable, and reliable. And the United States has more at stake than many of its competitors because its projected expansion is the largest.

The current U.S. administration will continue to use every policy tool at its disposal to make the U.S. LNG sector more competitive globally. This will include a number of new or improved initiatives, such as the Asia EDGE initiative, as well as tried-and-true export assistance, such as reverse trade missions, feasibility studies, loan guarantees, business-to-business energy meetings, and support for infrastructure in importing countries. Meanwhile, with awareness of and concerns about climate change on the rise globally, including in Asia's emerging markets, Asia EDGE partners will need to preempt reputational risks and reinforce their environmental standards. They will likely focus on the end use of gas and its integration with renewables in power generation as well as on the growing use of gas in the industrial and transportation sectors.

The U.S. government should institutionalize Asia EDGE to allow for bureaucratic continuity and longevity that can weather electoral cycles in both the United States and partner countries. Interestingly, the initiative already appears to be solidly anchored in various U.S. departments and agencies. Over the longer term, various strategic partnerships, such as those with Japan and Australia, could even morph into a multilateral initiative under a different administration. What started with strategic energy partnerships with several Asian allies could evolve into a multilateral system with like-minded partners.

NBR THE NATIONAL BUREAU *of* ASIAN RESEARCH

Seattle and Washington, D.C.

1414 NE 42ND STREET, SUITE 300
SEATTLE, WASHINGTON 98105 USA
PHONE 206-632-7370, FAX 206-632-7487

1819 L STREET NW, NINTH FLOOR
WASHINGTON, D.C. 20036 USA
PHONE 202-347-9767, FAX 202-347-9766

NBR@NBR.ORG, WWW.NBR.ORG