

GAMBLING ON GAS

RISKS GROW FOR JAPAN'S \$20 BILLION LNG FINANCING SPREE

In the era of cheap renewables, climate imperatives, and energy market turmoil, Japan's multi-billion dollar support for liquefied natural gas infrastructure no longer makes sense

Greig Aitken and Ted Nace





**Global
Energy
Monitor**

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Global Energy Monitor is a network of researchers developing

collaborative informational resources on fossil fuels and alternatives. Current projects include:

- Global Coal Plant Tracker
- Global Fossil Infrastructure Tracker
- Global Coal Mine Tracker
- Global Steel Plant Tracker
- Global Coal Public Finance Tracker
- Europe Gas Tracker
- CoalWire newsletter
- [GEM.wiki](https://gem.wiki) energy wiki.

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The Global Fossil Infrastructure Tracker is an online database that identifies, maps, describes, and categorizes oil and gas pipelines, liquified natural gas (LNG) terminals, and oil terminals. Developed by Global Energy Monitor, the tracker uses footnoted wiki pages to document each plant. For further details see <http://ggon.org/fossil-tracker/>

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METHODOLOGY

For a list of LNG projects covered by this report, see “Gambling on Gas technical notes” at

<https://bit.ly/37FuArm>.

FURTHER RESOURCES

For additional information on proposed and existing pipelines and terminals, see Summary Data at <http://ggon.org/fossil-tracker/>, which provides over 35 tables compiled from the Global Fossil Infrastructure Tracker (GFIT), broken down by nation, region, and owner. To obtain primary data from the GFIT, contact Ted Nace (ted@tednace.com).

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SUMMARY

Global Energy Monitor has completed the first comprehensive project-level survey of liquefied natural gas (LNG) infrastructure projects supported internationally by Japanese public monies and private banks, as well as a review of the policy rationales underlying these outlays. According to the survey, between January 2017 and June 2020 Japan's public agencies, commercial banks and general trading companies provided at least US\$23.4 billion of financing in 10 countries supporting more than 20 LNG terminals, tankers and associated pipelines. A further 14 LNG terminals in 11 countries are reported to be in line for Japanese financial support.

Set into motion to enhance Japan's energy security in the wake of the 2011 Fukushima nuclear disaster, Japan's overseas LNG policy has attracted little scrutiny while gathering momentum, including two US\$10 billion commitments in the past three years aimed at developing a network of LNG infrastructure on a global scale. Yet the original rationale for the program—enhanced energy security—appears now to be fundamentally flawed, as the simultaneous shocks of the COVID-19 pandemic and the 2020 oil price crash reveal the vulnerability of global LNG supply chains. As one official at Japan's Ministry of Economy, Trade and Industry said in April this year: "It is highly unbalanced to depend for close to half of our energy on LNG alone." An official at a major Japanese trading house

pointed to the acute vulnerability of LNG shipments to disruption: "A single infected person onboard a ship means that the entire crew needs to be tested and the ship needs to be sterilised, and it's even possible that the ship will be barred from docking at an LNG terminal."

Other rationales for the policy appear similarly deficient. From a climate perspective, contrary to industry's promotion of gas as a climate friendly energy source, scientific research has steadily shifted toward a recognition that the global warming footprint of gas is significantly larger than once presumed; supply-chain leakage of methane reduces or negates any emissions advantage gas may have over coal. From an economic perspective, rapidly declining costs of wind, solar, and battery power have rendered renewable energy with battery support a cheaper and more reliable source of power than imported gas. In a November 2019 report the International Energy Agency projected that by 2040 offshore wind power alone has the potential to meet Japan's total power demand by over ninefold. Finally, in terms of fiscal prudence, Japan's capital support for massive LNG projects appears highly questionable now, with tens of billions of dollars in projects delayed and at risk of being scrapped altogether, the victims of recession and oversupply in global gas markets.

THE SCALE OF JAPANESE FINANCING FOR LNG INFRASTRUCTURE

As shown in Table 1, total Japanese public and private financial support for LNG infrastructure from January 2017 through June 2020 totaled at least US\$23.4 billion. That support included US\$5.0 billion from public institutions and US\$18.4 billion from private institutions, as shown in Tables 1–3. The lack of full public accounting suggests that the actual total, particularly for projects supported by the private sector, is higher.

Japan's support for LNG is publicly led by the nation's Ministry of Economy, Trade and Industry (METI), whose former minister, Isshu Sugawara, has articulated the goal as being not only to ensure supply but also to spur demand; in short, to secure for LNG a greater share of overall energy use.¹ That public

leadership has been supported in the main by private funds. As shown in Tables 1–3, Japanese private financiers dominated the support for LNG over the research period. These institutions' contributions, comprising project finance, equity finance, general corporate loans and bond issues, made up 79% of the support. On their own, Japan's big three multinational commercial banks Mitsubishi UFJ Financial Group (MUFG), Mizuho and Sumitomo Mitsui Banking Corporation (SMBC) accounted for 65.7% of all public and private funding during the 2017–2020 period. Three additional private institutions—Nomura, Norinchukin Bank and Mitsui & Co.—accounted for 12.8% of the support, and the four public institutions in Table 2 accounted for the remaining 21.5% of support.

Table 1. Overall Japanese financial support for LNG infrastructure, January 2017–June 2020

Type of Infrastructure	Private	Public	Total
LNG Terminals	\$16,520,630,000	\$4,820,520,000	\$21,341,150,000
LNG Tankers	\$323,570,000	\$201,800,000	\$525,370,000
Pipelines associated with LNG terminals	\$1,528,460,000	\$0	\$1,528,460,000
Total	\$18,372,660,000	\$5,022,320,000	\$23,394,980,000

Source: Global Energy Monitor, "Global Fossil Infrastructure Tracker," June 2020. Details at <https://bit.ly/37FuArm>.

Table 2. Financial commitments from Japanese public institutions, January 2017–June 2020

Institution	Terminals	Tankers	Total
Japan Bank for International Cooperation (JBIC)	\$3,739,000,000	\$201,800,000	\$3,940,800,000
Japan Oil, Gas and Metals National Corp. (JOGMEC)	\$1,000,000,000	\$0	\$1,000,000,000
Development Bank of Japan	\$58,300,000	\$0	\$58,300,000
Japan International Cooperation Agency (JICA)	\$23,220,000	\$0	\$23,220,000
Total	\$4,820,520,000	\$201,800,000	\$5,022,320,000

Source: Global Energy Monitor, "Global Fossil Infrastructure Tracker," June 2020. Details at <https://bit.ly/37FuArm>.

1. "Japan pledges ¥1 trillion to spur LNG demand and growth," *The Japan Times*, September 26, 2019

Table 3. Financial commitments from Japanese private institutions, January 2017–June 2020

Institution	Terminals	Pipelines	Tankers	Total
MUFG	\$3,978,460,000	\$537,050,000	\$44,840,000	\$4,560,350,000
Mitsui & Co	\$2,500,000,000	\$0	\$0	\$2,500,000,000
Mizuho	\$4,420,150,000	\$531,400,000	\$188,840,000	\$5,140,390,000
Nomura	\$445,000,000	\$0	\$0	\$445,000,000
Norinchukin Bank	\$50,000,000	\$0	\$0	\$50,000,000
SMBC	\$5,127,020,000	\$460,010,000	\$89,890,000	\$5,676,920,000
Total	\$16,520,630,000	\$1,528,460,000	\$323,570,000	\$18,372,660,000

Source: Global Energy Monitor, "Global Fossil Infrastructure Tracker," June 2020. Details at <https://bit.ly/37FuArm>.

Terminals comprised the bulk of funding from January 2017 to June 2020: 18 projects in ten countries, as shown in Table 4. As of this writing, an additional 14 projects in 11 countries are in line for support. The Train 7 expansion at the [Nigeria LNG Terminal](#) reached financial close in May 2020. It is counted

as 'In line for support' due to the fact that SMBC is one of the appointed financial advisors on the US\$3 billion deal and, therefore, participation from Japanese institutions is likely to have occurred but has not yet been disclosed at the time of writing.

Table 4. LNG terminals in 10 countries supported by Japanese finance from January 2017 to June 2020, and planned terminal developments in 11 countries where Japanese financial interest has been reported

Country	Supported	In line for support
Australia	2	1
Bangladesh	1	0
Brazil	1	0
Canada	0	1
France	1	0
Germany	0	1
Indonesia	1	1
Mexico	0	2
Mozambique	2	1
Nigeria	0	1
Panama	1	0
Papua New Guinea	0	1
Russia	1	2
Senegal	1	0
Sri Lanka	0	1
USA	7	2
Total	18	14

Source: Global Energy Monitor, "Global Fossil Infrastructure Tracker," June 2020. Details at <https://bit.ly/37FuArm>.

BACKGROUND: THE EVOLUTION OF JAPAN'S GLOBAL LNG STRATEGY

Since receiving its first shipment from Alaska at the Negishi import terminal in 1969, Japan has been the world's leading importer of LNG, with China now the second largest and South Korea the third largest.² Japan's dominant position was strengthened following the Fukushima nuclear power plant disaster in 2011. The resulting closure of Japan's other nuclear plants saw a surge in imports of LNG to record highs. The country's fourth Strategic Energy Policy, adopted in 2014, laid out the need for post-Fukushima Japan to establish a larger role for LNG in the national energy mix and for government support to be provided for overseas energy supply projects, particularly new U.S. LNG export capacity. In a 2014 edition of the *METI Journal*, the ministry acknowledged the ramping up of LNG imports because of the Great East Japan Earthquake, while expressing concern that this was resulting in "greatly increased" fuel import costs for the country.³ By 2017 LNG made up 40% of Japan's power generation, having stood, pre-Fukushima, at 28%.

In May 2016, METI launched its 'Strategy for LNG Market Development' at a G7 Energy Ministerial meeting in Japan.⁴ The aim of the commitment was ambitious: not just to develop projects to directly supply Japan's own gas consumption, but also to support increased LNG consumption in other countries. According to METI, via new regulatory and financial means laid out in the strategy, "Japan is expected to improve the environment in which LNG is stably procured at a reasonable price, thereby leading to the stabilization of the LNG supply-demand balance and the suppression and stabilization of the price in Japan."⁵

In support of that strategy, in October 2017, Trade Minister Hiroshige Seko announced a public-private commitment of US\$10 billion for upstream, mid-stream and downstream LNG projects, as well as for workforce training.⁶

Japan's first-time commitment to back new LNG infrastructure build-out overseas came as financial warning lights indicating overcapacity were beginning to flash. Spot prices for Asian LNG had dropped from US\$20.50 per million British thermal units (MMBtu) in February 2014 to below US\$10 per MMBtu by October 2017, i.e. at the time of the initial funding announcement.⁷ Significantly, two North American LNG terminal projects, both featuring Japanese stakeholders, were cancelled in 2017 on the grounds of unfavourable market conditions brought about by the global LNG supply overhang. One was the huge, US\$36 billion Pacific Northwest LNG Terminal in British Columbia, Canada, in which Japan Petroleum Exploration Company was a minority stakeholder.⁸ The other was the Alaska Japan LNG Terminal in the U.S., owned by the Japanese company Resources Energy Inc., which, prior to the cancellation, had been intent on receiving financial backing for the US\$1-2 billion project from JBIC.⁹

Despite falling LNG prices and the project cancellations resulting from oversupply in global LNG markets, concerns that Japan's support for expanding supply-side infrastructure might intensify the global supply glut were allayed at official levels by projections from the International Energy Agency (IEA) of surging demand, especially in China. In its Gas 2018 report, the IEA projected that gas demand would grow

2. "[LNG demand to dip in Japan, China, South Korea: ICIS](#)," *Kallanish Energy*, April 8, 2020

3. "[The Road to Securing LNG](#)," *METI Journal*, 2014

4. [METI press release](#), May 2, 2016

5. [Strategy for LNG Market Development: Creating flexible LNG Market and Developing an LNG Trading Hub in Japan](#), METI, May 2, 2016

6. "[Japan to offer \\$10 billion to back Asia LNG infrastructure push](#)," Reuters, October 17, 2017

7. "[Global LNG markets to remain oversupplied into 2020s despite strong demand - IEA](#)," Reuters, October 23, 2017

8. [Pacific Northwest LNG Terminal](#), GEM.wiki

9. [Alaska Japan LNG Terminal](#), GEM.wiki

from 3,740 billion cubic meters in 2017 to 4,116 billion cubic meters in 2023, led by an increase of 59% in Chinese demand.¹⁰

In October 2018, then–Minister of Trade Hiroshige Seko said that US\$4 billion of the first commitment of Japanese financing had been spent in the previous year on LNG projects.¹¹ In September 2019 the Japanese government announced a second US\$10 billion pledge of public and private funding for LNG development.¹² It was a move, as explained by Japan’s trade minister Isshu Sugawara, designed to help spur demand for LNG.¹³ In the same month *Nikkei Asian Review* reported a statement by a METI official that the original US\$10 billion had been largely used up.¹⁴ This replenishment of support for LNG projects overseas with an additional US\$10 billion funding pledge, on top of the original US\$10 billion commitment made in 2017, demonstrated the government’s deepening commitment to its policy of expanding LNG supplies.

To date, full details on the allocation of the two US\$10 billion commitments of public and private financing

have yet to be provided by the Japanese government. Media reporting on projects supported by Japan’s finance initiative for LNG infrastructure has been limited in the main to a few stand-out investments, for example:

- [Cove Point LNG Terminal](#) in the U.S., operating since 2018 and the recipient of combined US\$750 million project debt financing from MUFG, Mizuho and SMBC.
- [LNG Canada Terminal](#), a Shell-led US\$31 billion project under construction and estimated to be operating by 2025. Mitsubishi Corporation has a 15% stake in LNG Canada, and Japanese financing is thought to be involved but has not been disclosed.
- [Arctic LNG 2 Terminal](#) in Russia, a US\$21.3 billion project under construction and estimated to be operating by 2023. In 2019 Japan Arctic LNG acquired a 10% stake in the project with the support of a US\$135 million loan from JBIC.

CURRYING FAVOR WITH THE TRUMP ADMINISTRATION

Beyond issues of energy security and economics, Japanese investments in U.S. LNG projects appear to have been motivated as well by Japan’s response to criticism by President Trump of Japan’s trade surplus and threats to take punitive action. Within two months of Trump taking office in 2017, Prime Minister Shinzo Abe traveled to Washington, D.C., with offers to increase Japan’s LNG purchases and to invest in American infrastructure.¹⁵ Japan’s US\$10 billion

funding commitment announced in October 2017 was hailed as “fantastic” by Dan Brouillette, the then U.S. Deputy Energy Secretary.¹⁶ In September 2018, formal cooperation on expanding LNG infrastructure was announced by President Trump as part of the Japan–United States Strategic Energy Partnership and the Asia EDGE (Enhancing Development and Growth through Energy) initiative.¹⁷ Japan’s goal of expanding the role of LNG in the global energy mix dovetailed

10. “[Gas 2018](#),” International Energy Agency, Table 1.1.

11. “[Japan has spent \\$4 billion to back global LNG infrastructure push: minister](#),” Reuters, October 21, 2018

12. “[Japan to Invest 10 billion in Global LNG Infrastructure Projects–Minister](#),” Reuters, September 25, 2019

13. “[Japan pledges ¥1 trillion to spur LNG demand and growth](#),” *The Japan Times*, September 26, 2019

14. “[Japan to pump \\$10bn into LNG as move away from Mideast oil](#),” *Nikkei Asian Review*, September 24, 2019

15. “[Exclusive: Japan considers buying more U.S. energy as Abe prepares to meet Trump](#),” Reuters, February 1, 2018

16. “[US looking to Japan for help in boosting LNG exports to Asia](#),” Associated Press, October 17, 2017

17. “[President Donald J. Trump and Prime Minister Shinzo Abe Are Working Together to Maintain a Free and Open Indo-Pacific](#),” The White House, September 28, 2018

with U.S. interest in expanding markets for increased U.S. production. The head of JBIC, Tadashi Maeda, acknowledged in an October 2018 media interview that his institution's efforts to promote LNG were designed to improve Japan's relations with the U.S.¹⁸

At the May 2019 dedication of the Cameron LNG terminal in Louisiana, built with loans of more than US\$5

billion from various Japanese financial institutions, President Trump said, "Cameron LNG will travel down the Gulf of Mexico, through the Panama Canal, and off to Asia to illuminate cities on the other side. We will have such illumination like you haven't believed. They're going to be illuminated like never before. They're talking about it. They're excited."¹⁹

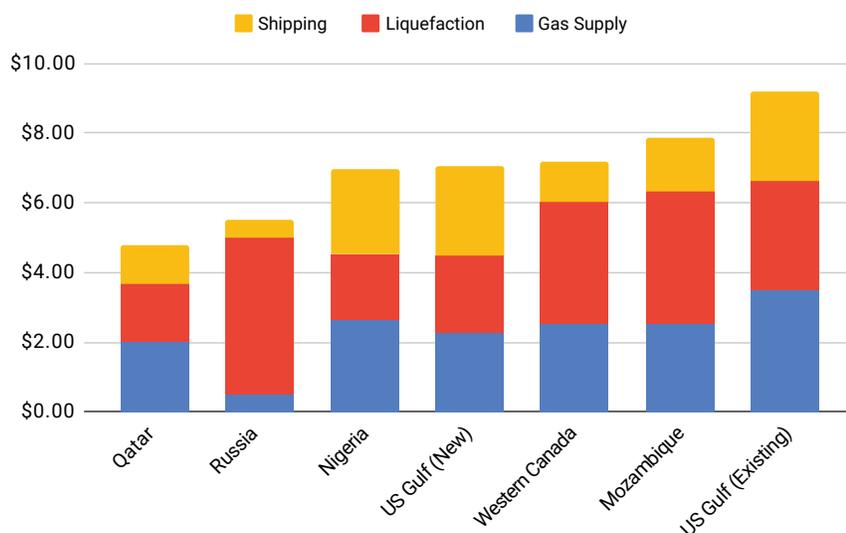
THE CRISIS OF 2020

Despite the record levels of global LNG exports achieved throughout 2019, by the end of the year concerns had mounted over pending headwinds for the sector due to weakened demand and strong competition.²⁰ Into 2020, these concerns intensified following the continuing flood of new LNG supplies and weak winter demand. By the end of January, with the Asian spot price for LNG standing at below US\$4 per MMBtu for the first time in ten years, a *Standard & Poor's* analyst was moved to write: "But expectations of a supply

glut and low prices could add to challenges for LNG terminal developers trying to secure enough commercial support to advance new projects to construction."²¹

Depending on the region, companies building terminals require a given LNG price level to break even in order to be able to operate. An investor note from analysts at Sanford C. Bernstein points out: "At spot prices below \$4/MMBtu, U.S. LNG plants are operating at cash costs, and below that level, shut-ins should

Figure 1. LNG Project Costs (US\$/mmBtu) for East Asian Markets



Source: EIA, ICIS Global LNG Markets, Forward Curves CME Group, SyEnergy estimates, July 2019

18. "INTERVIEW: JBIC to Help Construct LNG Facilities in Asia," Nippon.com, October 30, 2018

19. "Remarks by President Trump on Promoting Energy Infrastructure and Economic Growth, Hackberry, LA," The White House, May 14, 2019

20. "U.S. LNG exports soar in 2019 but supply glut may await in 2020," Reuters, December 29, 2019

21. "Concern builds over possible shut-in of LNG plants as oversupply sinks prices," S&P Global, January 29, 2020

be expected.”²² A ‘shut-in’ is a restriction in supply. As Figure 1 shows (via the Oxford Institute for Energy Studies, August 2019), LNG projects in various geographies require between US\$5 and US\$9 per MMBtu to make economic sense for project promoters selling to Asian markets.²³

In March 2020, the Platts Japan Korea Marker—the benchmark price for spot-traded LNG in Northeast Asia—had spot prices of ~US\$3 per MMBtu out to November 2020, beyond which time prices rise above US\$4 per MMBtu before falling back under this level by April 2021.²⁴ Such pricing does not bode well for companies looking to sanction new LNG investments in the short-term at least. Moreover, LNG prices are likely to be volatile going forward owing to the gradual break-up underway of the traditional LNG pricing model of long-term contracts between two defined parties (as is the case at the Cove Point LNG Terminal noted above) in favour of spot sales where LNG from a terminal facility is sold to the highest bidder.

The overall situation has now been exacerbated, as witnessed by plunging Asian spot prices for LNG, by the combination of the global COVID-19 pandemic and the oil price crash, initially set in motion by the ramping up of oil production by Russia and Saudi Arabia following disagreements between OPEC countries and Russia in early March. By the end of April spot

LNG prices for delivery to North Asia slipped to the lowest on record at US\$1.95 per MMBtu, the first time they have closed below the US\$2 mark.²⁵ In mid-May, data released by METI showed that spot prices for LNG cargoes into Japan itself fell in April 2020 to US\$2.40 per MMBtu, the lowest since the trade ministry started compiling data in 2015 and down from US\$3.40 per MMBtu in March.²⁶ Despite a price rally in mid-May to mid-US\$2 per MMBtu,²⁷ continuing fragile demand saw Asian spot prices decline again one week later below US\$2 per MMBtu.²⁸

Amidst the global markets rout hitting heavily leveraged exploration and production companies in the oil and gas sectors, there have been various indicators of the extreme vulnerabilities now encircling the LNG sector which will weigh negatively on Japanese investment plans. If new LNG projects were not already bordering on being unviable and un-bankable before the global health crisis struck, major new projects—particularly in North America—are now being delayed, with some at risk of being scrapped altogether. For more details, including on 12 U.S. terminal projects which have experienced delayed investment decisions, acute financial difficulties and COVID-19 related construction disruption in the first two quarters of 2020, see this dedicated GEM.wiki page: [“Delays in LNG Projects in 2020.”](#)

22. Ibid

23. [“Outlook for competitive LNG supply,”](#) *Petroleum Review*, July 2019

24. [“LNG Japan/Korea Marker \(Platts\) Futures Quotes,”](#) CME Group

25. [“Asian LNG prices take bigger coronavirus hit than Brent crude,”](#) Reuters, April 27, 2020

26. [“Japan spot LNG import prices hit record low amid coronavirus outbreak,”](#) Reuters, May 14, 2020

27. [“Asian LNG Rally Seen Fragile as Demand Weakness Persists,”](#) *Bloomberg*, May 14, 2020

28. [Tweet from Stephen Stapczynski,](#) *Bloomberg Energy Reporter*, May 22, 2020

LNG BUSINESS IMPACTING ON JAPANESE CORPORATE PROFITS EVEN BEFORE THE COVID-19 OUTBREAK

Further evidence of Japan's LNG vulnerability was provided in the Spring 2020 release of the annual financial reports of some of its top trading companies. These revealed the drag on the financial performance of five of these diversified companies which their varied LNG interests are having, namely:

- Itochu Corporation reported profits from LNG projects in 2020 of US\$51.2 million, down from US\$57.7 million in 2019. The company's profits forecast for its LNG business in 2021 is US\$25 million.²⁹
- The share of profits of associates and joint ventures in Marubeni's energy division decreased by US\$132 million year on year leaving the company with losses of US\$123 million due to an impairment loss, i.e. a permanent loss in an asset's value, affecting its LNG business in Papua New Guinea and elsewhere.³⁰
- Mitsubishi Corporation recorded a US\$150 million drop in earnings from its LNG business in the last financial year to US\$425 million.³¹
- Mitsui & Co. described a decrease in dividends from six LNG projects and an impairment of oil and gas development assets as the two contributory factors behind a fall in its energy division's profits from US\$892 million in 2019 to US\$556 million in 2020.³²
- Sojitz Corporation recorded a fall in profits at its subsidiary LNG Japan from US\$37 million in FY2019 to US\$36 million in FY2020.³³

Collectively, therefore, Itochu Corporation, Marubeni, Mitsubishi Corporation, Mitsui & Co. and Sojitz Corporation recorded a year-on-year drop in profits for their LNG-related businesses of US\$625 million. These results pertain to the financial year April 1, 2019–March 31, 2020, therefore chiefly reflect the downturn in LNG financials which had set in prior to the COVID-19 pandemic. Only one of the companies—Itochu Corporation—presented a profit forecast for the coming financial year: its projected 56% profit downgrade for 2021 is an indicator of the severe economic impacts pending for LNG as a result of COVID-19 impacts which are still to fully play out.

EXAMINING THE RATIONALES FOR JAPAN'S LNG SUPPORT

Japan's support for LNG infrastructure is fundamentally based on the country's need to ensure the security of its energy supplies in the wake of the 2011 Fukushima crisis, now nearly a decade in the past. As with any policy, that rationale should be periodically reviewed along with other rationales fundamental to energy policy. These include climate considerations, economics, and fiscal prudence.

Energy Security: The original underpinning for Japan's support for LNG was called into question in late April 2020 amidst reports that Japan only had a two-week stockpile of LNG remaining due to COVID-19 supply disruption. Moreover, tankers were revealed to create further vulnerability, with the *Nikkei Asian Review* quoting an official at a major trading house: "A single infected person onboard a ship means that

29. "Supplementary Information on FY2020 Business Results Summary and FY2021 Management Plan," Itochu Corporation, May 8, 2020

30. "Summary of Consolidated Financial Results For the Fiscal Year Ended March 31, 2020," Marubeni, May 7, 2020

31. "Supplementary Information for the Year Ended March 2020," Mitsubishi Corporation, May 8, 2020

32. "Financial Results for FY Ended March 2020 and Review of Medium-term Management Plan," Mitsui & Co., May 1, 2020

33. "Financial Results for the Year Ended March 31, 2020," Sojitz Corporation, April 30, 2020

the entire crew needs to be tested and the ship needs to be sterilised, and it's even possible that the ship will be barred from docking at an LNG terminal.”³⁴

With emergency measures being taken at Japanese LNG import ports to stave off the potential of supplies running dry, an unnamed official at METI was quoted in the *Nikkei Asian Review*: “It is highly unbalanced to depend for close to half of our energy on LNG alone.”³⁵ In its World Energy Outlook 2019 published last November, the IEA projected that by 2040 offshore wind power has the potential to provide nine times Japan's total power demand, which would end the need for both energy imports and native power generation from nuclear and coal. Currently total offshore wind capacity in Japan stands at around a mere 64 megawatts, though the Japan Wind Power Association estimates that 10 gigawatts of offshore wind capacity will be installed by 2030, the equivalent of about 10 nuclear reactors, with huge further potential available.³⁶ Standing in the way of this clean energy security are excessive regulatory hurdles for the sector, limited financing and—clearly—an enduring national policy devotion to importing a massive amount of fossil fuels.

Climate and Civil Society Opposition: As detailed in the sidebar ‘LNG and Climate Change,’ the depiction of LNG as a climate friendly source of power, or even as a bridge from coal to clean renewables, can no longer be justified in light of recent research findings. These findings have increasingly shown that the fugitive emissions of methane along the gas supply chain, as well as the energy expenditures incumbent in the liquefaction and transport of LNG, outweigh any benefit from the lower levels of carbon dioxide produced in the combustion of natural gas. In sum: building further LNG infrastructure will exacerbate rather than help solve the climate crisis. Moreover, expansion of natural gas infrastructure has increasingly come into

conflict with the land rights of Indigenous communities, who have mounted increasingly effective opposition through grassroots protest and legal action.

Economics: Since the origins of Japan's LNG support program following the 2011 Fukushima crisis, the relative economics of gas-fired generation versus generation based on optimized combinations of solar PV, wind power, and battery backup have shifted dramatically. For example, a 2019 study by Rocky Mountain Institute showed clean energy portfolios to be cheaper than 90 percent of the proposed gas-fired power capacity in the United States.³⁷ Similarly, an April 2020 study by Carbon Tracker Institute found new gas power to be currently uncompetitive with renewables in South Korea and existing gas to become uncompetitive with renewables as early as 2023. According to analysis from Wood Mackenzie in April 2020, the financial viability of developing big ticket fossil fuel infrastructure is receding. The global energy consultancy has forecast that, for yet-to-be-sanctioned oil and gas projects in the ‘new normal’ of US\$35 per barrel prices, rates of return on investment have plunged to 6%, putting these projects on a par with much lower risk renewable energy projects.³⁸ Taken collectively, these findings show the inexorable shift in economics away from gas as a power solution and point to the potential for significant reduction of gas use in coming years, particularly in the power sector.

Fiscal Prudence: The combination of deteriorating LNG economics relative to increasingly cost-competitive renewable energy and a growing supply glut place both existing and future investments in LNG infrastructure at risk of default and cancellation. The result of this confluence of factors is that the tens of billions of dollars in Japanese public and private commitments cannot be considered to be prudent, from a fiscal perspective. For the first two quarters of 2020, Global

34. “[Hidden threat: Japan has only 2-week stockpile of LNG](#),” *Nikkei Asian Review*, April 23, 2020

35. Ibid

36. “[With coal under fire, 2020 could be a big year for wind power in Japan](#),” *The Japan Times*, January 2, 2020

37. “[The Growing Market for Clean Energy Portfolios](#),” Rocky Mountain Institute, 2019.

38. “[Is coronavirus bad news for the climate?](#)” Wood Mackenzie, April 29, 2020

Energy Monitor research has identified only two closed financial deals for LNG involving Japanese institutions: US\$180 million in refinancing from MUFG, Mizuho and SMBC for Cheniere Energy's Sabine Pass LNG terminal in Louisiana, and JBIC's US\$3 billion loan for the Total and Mitsui & Co.-led Mozambique LNG Terminal.³⁹ Signed in June, the latter is a highly politicised and controversial project—on environmental, human rights and security grounds—which also involves major financial support from the Export-Import Bank of the United States.⁴⁰ The sanctioning of the project at a time of such low prices appears to confound orthodox LNG economics and it remains to be seen if further delays and spiralling costs will impact its development. JBIC's Mozambique commitment is all the more stunning following its pandemic-related emergency measure in April when it partially securitized its portfolio of North

American energy infrastructure assets, including the Cameron LNG project in the U.S. JBIC's reasoning was that this was due to an increase in demand for funds by energy and infrastructure projects.⁴¹ No other details have been made public, but such a move to diversify assets across loan holders denotes clear concern from JBIC about its assets defaulting in crisis times for the fossil fuels sector.

A further indication of the growing risks to infrastructure investments is the increasing leverage of LNG terminal projects, echoing similar financial dynamics in the U.S. fracking industry. The involvement of MUFG, Mizuho and SMBC in the refinancing of existing indebtedness for just six U.S. terminal projects—chiefly in 2018 and 2019—has totalled over US\$5.2 billion, as detailed in Table 5 below.

Table 5. Refinancing at six U.S. terminal projects, January 2017–June 2020

Terminal	Refinancing from Japanese sources (US\$)	Year	Banks
Cameron LNG	1.92 billion (out of 3 billion total package)	2019	Mizuho, MUFG, SMBC
Corpus Christi LNG	529 million (out of 6.1 billion total package)	2018	Mizuho, MUFG
Cove Point LNG	1.8 billion (out of 3 billion total package)	2019	Mizuho, MUFG, SMBC
Elba Island LNG	42 million	2019	Mizuho
Freeport LNG	116.66 million (out of 175 million total package)	2019	SMBC
Sabine Pass LNG	450 million (out of 1.5 billion total package)	2017	Mizuho, MUFG, SMBC
	173 million (out of 1.5 billion total package)	2019	Mizuho, MUFG, SMBC
	180 million (out of 1.2 billion total package)	2020	Mizuho, MUFG, SMBC

Source: Global Energy Monitor, "Global Fossil Infrastructure Tracker," May 2020

PENDING DECISIONS

While the crisis of 2020 has highlighted the increasingly shaky rationales for Japan's LNG support as well as the large sum of financing already exposed to loss, amounting to at least \$23.4 billion in sunken investments, numerous decisions still to be decided could vastly increase the fiscal exposure of Japan's banks

and public lending institutions. As shown in Table 6, over a dozen major LNG projects remain under development, amounting to approximately US\$190 billion in capital outlays at a conservative estimate. One slated project is the Phase 2 expansion of the Cameron LNG project in Louisiana which, according to IJGlobal,

39. "Total lands \$15 billion financing commitment for Mozambique LNG project," *World Oil*, May 20, 2020

40. "US EXIM bank amends Mozambique LNG loan," *Offshore Energy*, May 15, 2020

41. "JBIC securitizes North America energy loans," IJGlobal, April 15, 2020

is in the early stages of chasing US\$4 billion in debt financing.⁴² Phase 1 of the project saw JBIC commit US\$2.5 billion in 2014 alongside disbursements totalling US\$2.89 billion from seven Japanese private banks. In January 2020, the project promoter Sempra Energy requested a six-year extension from the

U.S. Federal Energy Regulatory Commission for the permits for trains 5 and 6, with the expansion project now requiring almost five years to complete. Sempra Energy expects a final investment decision to be made in the second quarter of 2021.⁴³

Table 6. Proposed or under-construction projects involving Japanese companies and/or where financial advisory services have been announced

Terminal	Estimated Cost (US\$)	Involvement of Japanese Institutions
Abadi LNG Terminal, Indonesia	20 billion	SMBC is Financial Advisor (FA)
Arctic LNG Terminal, Russia	21.3 billion	JBIC provided a US\$135 million loan which allowed Japan Arctic LNG to acquire a 10% stake, more financing may follow
Baltic LNG Terminal, Russia	26 billion	Itochu has a stake
Browse LNG Terminal, Australia	30 billion	Mitsubishi Corporation and Mitsui & Co. have stakes
Cameron LNG Terminal Phase 2, U.S.	Unknown, but planned 4 billion debt financing has been announced	Mitsui & Co. and Japan LNG Investment LLC have stakes; a range of Japanese banks financed Phase 1, including JBIC with \$2.5 billion
Colombo Floating Storage and Regasification Unit, Sri Lanka	Unknown	Mizuho and MUFG are FAs, and Sojitz has a stake
Commonwealth LNG Terminal, U.S.	4.8 billion	SMBC is FA
Costa Azul LNG export expansion, Mexico	Unknown	Mitsui & Co has a stake
Far East LNG Terminal, Russia	9 billion	Sakhalin Oil and Gas Development Company, owned by the Japanese government and private sector, has a stake
Kerwalapitiya LNG Terminal, Sri Lanka	0.25 billion	Mizuho and MUFG are FAs, and Sojitz has a stake
LNG Canada Terminal	31 billion	Mitsubishi Corporation has a 15% stake. Final investment decision reached in 2018, financial close has not been reached.
Mexico Pacific LNG Terminal	Unknown	MUFG is FA
Nigeria LNG Terminal	5.7 billion	SMBC is FA
PNG LNG Terminal expansion, Papua New Guinea	13 billion	JBIC provided a US\$1.8 billion loan for the terminal in 2010 and is reported to be interested in further financing.
Prosperidade LNG Terminal, Mozambique	25 billion	Mitsui & Co. has a 20% stake. JBIC and Nippon Export and Investment Insurance are reported to be considering support for the project.
Wilhelmshaven LNG Terminal, Germany	0.435–0.49 billion	Owner is Mitsui O.S.K. Lines, SMBC is FA

Source: Global Energy Monitor, "Global Fossil Infrastructure Tracker," May 2020

42. "Cameron LNG Phase II," IJGlobal, accessed June 2020

43. "Cameron LNG seeks more time to build second phase at Louisiana export plant," Reuters, January 27, 2020

LNG AND CLIMATE CHANGE

The promotion of gas as a ‘bridge fuel’ in the transition from coal-based power supply to low-carbon and renewable energy sources has been debunked in recent years. Gas power plants served by supplies of LNG may directly produce approximately 40% less carbon dioxide than is produced by coal power plants. However, a full life cycle comparison of both natural gas and coal requires also including the effect of leakages in natural gas production and transportation, since methane, the main component of natural gas, is a far more powerful global warming gas than carbon dioxide.⁴⁴

The UN’s Intergovernmental Panel on Climate Change (IPCC) has been one of the most prominent authorities to raise alarm about the destructive climate impacts of methane from gas. In 2016, IPCC scientists concluded that methane’s impact on global warming is about 25% higher than previously estimated. The IPCC’s subsequent ground-breaking ‘Global Warming of 1.5°C’ report of October 2018, a central plank of international efforts to contain global warming above pre-industrial levels to no more than 1.5°C, recommended that the use of gas in the global energy mix must decline 15% by 2030 and 43% by 2050, relative to 2020.

The extent of LNG’s detrimental climate impact in a single terminal project has been illustrated by research from Oil Change International (OCI) into the proposed Jordan Cove LNG terminal in the U.S. state of Oregon, a highly contested project which aims to ship gas drilled in Colorado and other Rocky Mountain states to Asia.⁴⁵ Based on a conservative estimate of supply chain methane leakage for the Jordan Cove terminal and the associated Pacific Connector Gas Pipeline, OCI estimates the total lifecycle emissions that would be caused by the project to be over 36.8 million metric tons of carbon dioxide equivalent per year, based on the 20-year warming potential of methane. This is equivalent to more than 15 times the 2016 emissions from Oregon’s only remaining coal plant, the Boardman coal plant, which is scheduled to close in 2020 due to climate and air pollution concerns.⁴⁶

Similarly, Rainforest Action Network has calculated that the cumulative annual emissions—from burning, liquefying and shipping, and gas leakage—which would result from the proposed Texas LNG, Annova LNG and Rio Grande LNG terminals in Texas equate to those of 61 coal plants.⁴⁷

Above all else, building more LNG infrastructure today risks locking in emissions from gas for decades to come due to the fact that major terminal and pipeline projects are predicated on turning revenues over long timespans. If further huge amounts of capital are sunk into LNG infrastructure by Japanese financial institutions this will undoubtedly make it more difficult to fully decarbonise by 2050, as the IPCC says we must.

Given the economic headwinds and market volatility now staring the LNG sector more squarely in the face than ever before, Japanese institutions should be weighing the price of not only betting against the climate but also betting with ever more risk against their own balance sheets if they continue to be corralled by government policy into supporting global LNG infrastructure. The big three private banks—MUFG, Mizuho and SMBC—are also signatories to the UN’s Principles for Responsible Banking (PRB), launched in September 2019. Under this framework, more than 130 international banks have committed to align their business strategies with the Paris Climate Agreement by 2023.⁴⁸ If they do not end or, at minimum, concertedly restrict their support for climate destructive LNG, then the big three will not be able to meet their PRB commitments.

44. See discussion in [“The New Gas Boom,”](#) Global Energy Monitor, June 2019

45. [Jordan Cove LNG Terminal](#), Gem.wiki

46. [“Jordan Cove LNG and Pacific Connector Pipeline: Greenhouse Gas Emissions Briefing,”](#) Oil Change International, January 2018

47. [“Rio Grande Valley: At Risk from Fracked-Gas Export Terminals,”](#) Rainforest Action Network, 2019

48. [“Principles for Responsible Banking: Key Steps to be Implemented by Signatories,”](#) UNEP Finance Initiative, accessed June 2020

CONCLUSION: THE URGENT NEED TO RECONSIDER JAPAN'S POLICY OF LNG SUPPORT

Japan's first US\$10 billion funding injection for overseas LNG infrastructure, pledged two and a half years ago, came off the back of METI's Strategy for LNG Market Development in 2016. Japan was to take on an "initiator role in creating a global LNG market", and this aim was described at the time by the Oxford Institute for Energy Studies as "an ambitious aspiration".⁴⁹ The beneficiary projects of Japan's LNG financial initiative have yet to bear much fruit, despite more than US\$23 billion and a lot of promotional backing having been sunk into them in various ways by Japanese institutions since 2017. Some now stand on the brink of becoming casualties of the financial and market upheaval currently gripping the oil and gas industry.

The additional US\$10 billion LNG funding pledge made by the Japanese government nine months ago now appears high risk and dubious due to the fact that—fundamentally—new export terminal build-out has become too risky at record low LNG price levels, which are set to continue. Japan has been prepared to plough huge financing into the LNG sector, with marginal positive strategic effect to date. Due to a variety of circumstances, it is faced with the situation of having taken a huge gamble on an energy source which is both high-risk and high-carbon, and which now offers increasingly low returns for investors whose eyes are being turned towards cost-competitive, sustainable—and low-risk—renewable energy projects.

Whatever the original rationale, Japan's LNG policy of coordinated public and private financial support for developing global LNG infrastructure, now nearly a decade old, can no longer be justified on any of the key pillars of sound energy policy: security, climate protection, economics, and fiscal prudence. It is time for that policy to be openly reviewed and for further support to be ended. In light of the severe economic headwinds now rocking the global LNG sector, which

is seeing a raft of project delays and will likely lead to a string of major, high cost LNG projects being cancelled, there is a compelling case for the Japanese government to rein in its public agencies and require them to pull back from further support for high-risk, high-carbon LNG infrastructure.

The IEA, whose bullish projections of global gas demand growth previously provided justification for expanding LNG infrastructure, is now urging governments and global financial leaders to reposition their investments to help accelerate the transition away from fossil fuels, including focusing COVID-19 stimulus measures on clean energy technologies. In March this year, the head of the IEA, Dr Fatih Birol, declared that political and financial leaders have "a historic opportunity" to usher in a new era for global climate action with economic stimulus packages to confront the coronavirus pandemic and volatile market conditions.⁵⁰ According to Birol, "Governments can make clean energy even more attractive to private investors by providing guarantees and contracts to reduce financial risks."

In this context, JBIC's US\$3 billion loan and political guarantee for the controversial Mozambique LNG project in June is highly regrettable. Rather than reducing financial risks, the state agency is deferring and storing them up given the worsening market outlook for LNG.

There are some emerging signs from within the Japanese financial sector that the danger of further oil and gas investments deserves recognition. In an April 2020 announcement on sustainability, SMBC indicated for the first time how it is cognisant of the encroaching financial risks for the oil and gas sector: "[A]s the transition to a low-carbon society progresses, it is important to consider the risk of stranded assets that will cause the value of the assets owned to decline in

49. "The new Japanese LNG strategy: a major step towards hub-based gas pricing in Asia", Oxford Institute for Energy Studies, June 2016

50. "Put clean energy at the heart of stimulus plans to counter the coronavirus crisis," International Energy Agency, March 14, 2020

the future”.⁵¹ At the same time, a Mizuho sustainability update on ‘Taking firm action toward a low-carbon society’ noted that “in light of the fact that oil, gas, and other fossil fuels contribute to emissions of greenhouse gases, we undertake engagement with clients to confirm their measures for addressing transition risk accompanying climate change.”⁵² These welcome sentiments should now be translated into ‘firm action’ by Japanese banks through the introduction of policy-based restrictions on financing to the sector.

The stakes for Japan of continuing the current LNG policy without a fundamental reexamination of its underpinnings are high, given the magnitude of the US\$23.4 billion LNG splurge which Japanese institutions have entered into in a little over three years, and the near-bottomless financial requirements and mounting risks of projects still in the pipeline. Beyond these fiscal considerations, other rationales also deserve to be weighed. In light of the major climate

risks of expanding gas consumption, the increasingly favorable economics of renewables, and the lack of security of heavy reliance on LNG imports, the time has come for Japan’s policy of supporting LNG to be brought to a close and replaced by a policy of actively supporting a transition to a more secure and climate friendly energy system.

Japanese state agencies should be instructed to stand down from the active promotion and bankrolling of LNG. A highly ambitious policy experiment, initiated more than five years ago, has run out of road, both on market/financial grounds and on climate change grounds. SMBC’s first-time flagging this year of the stranded assets risk now firmly associated with oil and gas financing will hopefully prove to be a bellwether moment for Japan’s private banks which have to date been very willing gamblers in the unsuccessful national bet on LNG.

METHODOLOGY

The data provided in this report relating to Japanese financial institution-backed LNG infrastructure—terminals, tankers and pipelines associated with LNG terminals—and covering the period January 2017 to June 2020 was identified by Global Energy Monitor via investigation of the institutions’ websites, research reports, IJGlobal’s subscription-based financial database, and media reports.

51. “[Consideration of ESG risks](#),” Sumitomo Mitsui Banking Corporation, April 16, 2000

52. “[Strengthening our sustainability initiatives: Taking firm action toward a low-carbon society](#),” Mizuho, April 15, 2020