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VIEWPOINT

Climate Activism Comes for EU Gas Projects

Climate activism is becoming a bigger issue for the oil and gas industry in Europe and farther afield. The newest target includes the EU's plans to reduce its reliance on Russian gas imports by funding new gas infrastructure projects or reviving mothballed ones, including LNG import terminals. Critics argue that these plans could potentially lock EU countries into more gas consumption for longer than otherwise planned.

Last week, four environmental NGOs said they are taking legal action against the European Commission over 30 EU-backed gas projects on the Projects of Common Interest (PCI) list. They argue that Brussels has breached its own climate and energy laws by approving the list as it did not consider the projects' greenhouse gas emissions. The PCI list makes energy projects eligible for EU funds and fast-track permitting. It includes gas investments worth roughly €30 billion ($32 billion), such as the controversial Cyprus-Greece EastMed offshore pipeline.

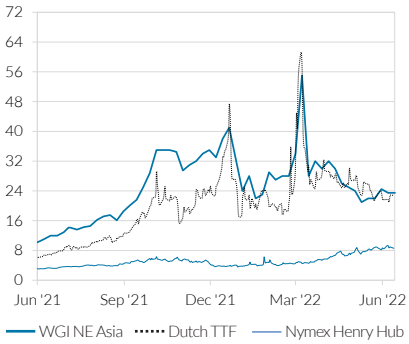
ClientEarth's Anne Friel, one of the lawyers behind the case, tells Energy Intelligence the NGOs were using "a request for internal review," an avenue available through article 10 of the Aarhus Convention, an international environmental treaty. Since October 2021, this gives environmental NGOs the right to ask EU institutions to review their own decisions on the basis that they contravene EU law related to the environment. As the provision is relatively new, there are no legal precedents for energy issues, Friel says. The tool has been used in the recent past for issues concerning genetically modified organisms and chemicals.

Brussels has up to 22 weeks to reply and address the case. If it fails to provide satisfactory answers, the grievances can be taken to the European Court of Justice. If the ECJ sides with the NGOs, the commission would have to amend the PCI list to comply with the judgement, Friel says. As methane, the main component of natural gas, is a far more potent greenhouse gas than CO2, if Brussels hasn't accounted for these emissions in its evaluation of the PCI list, the claimants could have a case.

ClientEarth has been fighting since 2008 to get the EU to comply with the Aarhus Convention, which allows greater legal access and action for individuals and concerned groups to question the EU's decisions on environmental grounds. Since October, the group has used the provision to request "internal reviews" on non-energy subjects such as ruling out bioplastics and bioenergy as sustainable investments and on over-fishing.

More climate scrutiny is gathering steam. Recently some 70 NGOs, climate lawyers and activists formed a "carbon bomb" defusal network dubbed Lingo, which identifies and supports campaigns against new fossil fuel projects around the world. And a Carbon Action Tracker report launched last week argued that governments should avoid building new gas import infrastructure as it increases reliance on fossil fuels. New infrastructure would lock in carbon intensive energy supplies for another decade, which increases the risk of stranded assets since these projects "will need to be retired before the end of its economic lifetime to align with the climate goals defined in the Paris Agreement," the report said.

GLOBAL GAS PRICING ($/MMBtu)



LNG PROJECTS

Qatar Picks Total First for LNG Expansion

QatarEnergy has selected TotalEnergies to become the first partner in its highly anticipated $28.75 billion North Field East (NFE) LNG megaexpansion. After a lengthy tender process, the other stakeholders will be revealed in stages over the coming weeks. But it gives an idea of the size and structure of the partnership the Qataris have drawn up over the past three years.

Under the structure of the deal, Total will hold a 25% interest in a new joint venture (JV) alongside QatarEnergy at 75%. The JV in turn will hold a 25% interest in the overall 32 million ton per year NFE project. This will give Total a 6.25% stake in the total NFE production capacity, equivalent to 2 million tons per year of LNG. Having a stake in the NFE project's total capacity means that risks are spread out over all four rather than just one of the 8 million ton/yr trains, crucial in case of planned or unplanned outages at one of the units. "We have unified all the elements of the North Field East expansion — the production, the maintenance, the delivery," QatarEnergy CEO Saad al-Kaabi, who is also Qatar's energy minister, said at a Jun. 12 Doha press conference.

Details on what exactly Total was willing to offer for its participation remain scarce. But the French major has in the past pushed aggressively to secure positions in the region's upstream. In Abu Dhabi in 2018, for example, it was first to accept paying a $2.2 billion signing bonus to secure a 10% stake in the emirate's onshore oil concession that other bidders subsequently had to match. What's clear is that Qatar still sees value in bringing in international partners even though al-Kaabi had stressed repeatedly that the Gulf state was ready to go solo on the expansion.

Cheapest, Greenest LNG

The NFE project is not only the biggest investment project of the year, but also probably the most attractive. Qatar has touted the expansion as both the cheapest and greenest new LNG on the planet. This is probably not an idle boast, thanks to the range of carbon mitigation technologies — including carbon capture and storage, gas flaring reduction and solarization of facilities' utilities — to be deployed. Given the project's attractiveness, there was never a doubt that al-Kaabi would rigorously fight to secure the best possible deal for Qatar. Total CEO Patrick Pouyanne alluded to it at the same event, saying to al-Kaabi that his team were "very good defenders" of Qatar's interests during the tender process.

What's in it for Total? Pouyanne referred to Qatar's massive resources, with low-cost production in shallow water that's "easy to produce" and which takes advantage of existing and scalable infrastructure in Ras Laffan. "The fundamentals of these projects are strong," he noted.

The NFE scheme represents the first phase of Qatar's $50 billion LNG expansion program, with a second phase — known as North Field South expansion — set to increase Qatar's total liquefaction capacity by another 16 million tons/yr to around 126 million tons/yr by 2027. First LNG from Phase 1 — which involves developing the southeastern area of the North Field with eight platforms, 80 wells and gas pipelines to the onshore plant — is expected to start by 2026.

It is not clear whether the same deal structure as Total's will apply to the other partners. However, the selection process has been completed and each train will have at least one foreign equity partner, the next of which will be announced Sunday. Al-Kaabi said no firm would be given a larger share than 25% in a single train. Apart from Total, Qatar had also short-listed Exxon Mobil, Shell and ConocoPhillips, which are existing LNG investors in Qatar, and newcomers Eni and Chevron to bid for the NFE development.

Asian Interest

Qatar's first award comes four months after Russia's invasion of Ukraine added fresh momentum to the global LNG contracting market, which saw buyers busy closing deals with yet-to-be-sanctioned US LNG projects. A rush by Europe to replace Russian pipeline gas and volatile high-priced spot market have left buyers in Europe and Asia scrambling to secure long-term LNG supply deals. Global buyers have signed some 21 deals for US LNG since January, totaling 30 million tons/yr.

Several traditional Asian buyers and traders of Qatari LNG are known to have expressed interest in participating in the expansion. Like Total, Japanese trading houses Mitsui and Marubeni lost their 7.5% equity stakes in Qatargas-1 in 2021 after the 25-year partnership expired. Chinese firms are the most closely watched potential Asian investors in Qatar. China National Offshore Oil Corp., which signed a 15-year, 3.5 million ton/yr offtake deal with QatarEnergy last year, previously stated its interest in a Qatari investment. Sinopec signed its first LNG term supply deal with Qatar also in 2021.

Korea Gas (Kogas) is understood to have been holding talks with QatarEnergy but the major LNG buyer is not ready yet to commit to new LNG volumes, according to a source familiar with Kogas'

thinking. The state-backed firm has not received any mandate from the South Korean government to buy additional volumes as local power generation firms are also seeking to import LNG by themselves, the source said, causing demand uncertainties for the wholesaler.

Oliver Klaus, Dubai, Clara Tan, Singapore

MARKET DYNAMICS

Tough Summer Expected for Europe's US LNG Imports

Europe's record intake of US LNG could start to face headwinds for the summer months due to planned and unplanned outages on both sides of the Atlantic and a potential recovery of competition from Asian buyers. The massive influx of US cargoes into Europe this year has been in part possible due to subdued Asian demand, which could re-emerge this summer in China and South Asia.

A record wave of US LNG imports so far this year has been key to help Europe wean itself off depending on Russian gas. US LNG exports to Europe in the year-to-date 2022 totaled 25.4 million tons, according to data from commodities data provider Kpler. This has surpassed Europe's previous US LNG import record and has in less than six months exceeded the full-year 2021 imports of 24.1 million tons.

But the trend is subsiding: the percentage of US LNG going to Europe peaked at 75.3% in March but has since dropped to 60.9% in May. In the month to date, the percentage is at 57.8%.

Several obstacles might exacerbate this downward tendency. The 15 million ton per year Freeport LNG liquefaction plant is offline following an explosion and fire last week and is targeting a partial restart in 90 days. Full operations are not expected until late 2022, cutting off a crucial bulk of US LNG supply. Traders fear that the outage could be extended longer than anticipated, recalling the almost two-year shutdown of Norway's 4.2 million ton/yr Hammerfest LNG plant, which came on line earlier this month. Freeport LNG, located on Quintana Island, Texas, sent over 80% of its exports to Europe in March and April, equivalent to 1.3 million and 0.8 million tons, respectively.

On top of this, France's 9.6 million ton/yr Dunkirk LNG import terminal will also be out for scheduled maintenance for most of June. The import terminal was Europe's leading US LNG importer so far this year, followed by Gate in the Netherlands and South Hook and Grain in the UK, Kpler data shows.

Europe's largest LNG importer Spain has imported enough US LNG to meet the seasonal rise in gas-fired power demand used for cooling during the hot summer months, which market sources say should keep regional prices in check through the next three months. Spain received 4.76 million tons of US LNG to date this year, the most LNG the country has imported from the US on record, Kpler data shows. Other countries in the Mediterranean region could follow suit: year-to-date Greek imports of US LNG have jumped almost 55% year on year and around 11% for Italian US LNG imports.

Floating Storage

Elsewhere, Northwest European terminals have been running at or near full capacity in the last few months. This has increased the number of vessels currently acting as floating storage as terminals have struggled to keep receiving cargoes at the recent rate. At least eight LNG vessels are acting as floating storage currently across Europe, according to Kpler's ship-tracking data. "There's loaded ships offshore waiting until they can make a profit," a Spanish LNG source said.

But with Asian spot LNG prices moving back to a premium over Europe, some of these price-dependent flexible US LNG cargoes may start diverting toward the Pacific Basin during the summer and beyond. Northeast Asian spot LNG prices held a $3.70 per million Btu premium over Southwest Europe spot LNG prices on Jun. 13, according to *World Gas Intelligence* data.

Whether Asian consumption attracts spot US LNG cargoes will depend on top LNG importer China's return to the market after strict Covid-19 measures were lifted in major consuming areas. Buyers in South Asia are also expected to intensify spot procurement despite the extremely high prices.

Daniel Stemler, Madrid, Michael Sultan, Washington

DEMAND

Central Europe Jumps Into the LNG Rush

Several Central European countries are turning to negotiating term LNG supply contracts to replace part of their piped natural gas imports from Russia following Europe's quest to diversify supplies. Slovakia has already imported a second LNG cargo from the US in May. Slovenia and the Czech Republic are set to follow, targeting deals with exporters in the Middle East. But bringing these cargoes in will be challenging — both Slovakia and the Czechs are landlocked and Slovenia lacks LNG infrastructure. This means that the countries will have to compete for spare regasification capacity in existing regional terminals at a time when delivery slots are hard to come by.

Out of the three countries, Slovakia seems to be the most advanced in terms of obtaining supplies. Economy Minister

Richard Sulik said last month that state-run gas importer SPP has signed LNG supply contracts covering 34% of the country's consumption. The minister did not specify who will be SPP's supplier. But based on previous cargo deliveries, it is possible these will be of US origin. Cargoes through these supply contracts could be delivered to terminals in Croatia, Italy, Belgium and the UK, with plans to bring in two cargoes per month, Sulik said. Slovakia will also have access to Poland's 3.7 million ton per year (5 billion cubic meter per year) Swinoujscie import terminal once the Poland-Slovakia pipeline interconnector starts operations by the end of the year. Slovakian officials were also pushing the region to participate in the EU's voluntary joint procurement platform to avoid import bottlenecks and counter tight LNG availability.

Meanwhile, Slovenia and the Czech Republic are looking to the Middle East for LNG supplies. Slovenia's Infrastructure Minister Jernej Vrtovec held talks in March with Qatari Energy Minister and QatarEnergy CEO Saad al-Kaabi over a potential LNG supply deal. As Slovenia does not have an LNG terminal, it is seeking to book regasification capacity in Italy or Croatia, from where the volumes can be transported by pipeline into the Slovenian grid. Regasification capacity at Croatia's Krk LNG import terminal has been fully booked until 2027. But as the terminal's operator is planning to increase the facility's capacity by 300 million cubic meters this year to 2.9 Bcm/yr, this potentially allows Slovenian trader Geoplin to secure this additional capacity.

The Czech Republic is also seeing the EU's drive to diversify away from Russian gas as an opportunity to "strengthen mutual cooperation" with countries in the Middle East and North Africa region, according to Czech Industry and Trade Minister Jozef Sikela. "We are already negotiating with some of them," Sikela said at the Mena Europe Future Energy Dialogue Conference held in Amman, Jordan last week. While private companies will be the buyers of the gas, the government can "facilitate" these deals on their behalf, which a ministry spokesman says they are trying to do with Qatar. There was no official recognition that Prague was in talks with other exporters. But Czech business news outlet Seznam Zpravy said the trade ministry was mediating negotiations between Oman LNG and Czech energy companies CEZ and Prazska plynarenska.

Cargo Swaps

Some of the LNG intended to be imported into these countries will be swapped to save transportation and tariff costs, raising concerns over how these volumes will realistically contribute to the region's security of supply. "You are seeing lots of Central [European] countries importing LNG to distant locations and then swapping," a trader active on the regional markets says. "Is this really helping security of supply when they swap the volume for likely a Russian source?"

For SPP, delivering cargoes to Croatia, Italy or Poland makes sense as these are close markets to Slovakia, the trader says. But shipping cargoes to the UK and Belgium is unlikely to help with the supply security of Slovakia. Energy Intelligence understands that SPP's latest US cargo, which was delivered to Krk in the beginning of May, was swapped to the Austrian VTP gas hub after regasification and was not physically delivered to Slovakia.

Daniel Stemler, Madrid

RISK

East Med Gas Faces New Challenges

As the East Mediterranean emerges as a potential alternative for Europe to Russian piped gas, the region could find itself the focus of more intensive green lobbying. Recent legal action by a group of European NGOs targeting 30 EU-backed natural gas projects, including a potential East Med pipeline, is the latest example of such climate action, even though it is unlikely to be a major threat to regional export plans.

Friends of the Earth Europe, ClientEarth, Food & Water Action Europe and CEE Bankwatch Network began a litigation campaign this month against the EU's Projects of Common Interest (PCI) list, arguing that Brussels' support contradicts the EU's climate commitments. The NGOs have made a request for internal review, using a new legal mechanism implemented last year making it easier for NGOs and the public to contest EU decisions. The gas projects included in the latest PCI list includes the proposed East Mediterranean gas pipeline planned to link Cypriot and Israeli gas fields operated by US Chevron to Cyprus, Crete and the Greek mainland and the offshore Poseidon gas pipe connecting Greece to Italy.

Egyptian LNG plants still appear to be the best hope for any East Med gas export to Europe or beyond. The European Commission signed a memorandum of understanding this year with Egypt and Israel over future LNG supply. Commission officials are taking an interest in regional gas prospects since the start of the war in Ukraine in February, an Israeli diplomat noted. Italian major Eni and state-owned Egyptian Natural Gas Holding Co. signed a framework agreement in April to "maximize gas production and LNG exports" and to promote Egyptian exports to Europe and specifically to Italy. Egypt's own LNG exports to Europe have ramped up since last December and outpaced exports to Asia in some months. Egypt's twin terminals of Idku and Damietta shipped about 80% of their LNG exports, or 600,000 tons, in March, according to data provider Kpler. The volume has fluctuated to 48% in April and 74% in May.

But East Mediterranean LNG hopes rest on a decision by Chevron on which monetization option to pursue. Industry sources and institutional investors in Europe have long favored the use of

brownfield Egyptian LNG plants to achieve economies of scale. Chevron has insisted all options remain on the table including floating LNG.

Pipeline Plans

Industry sources have been skeptical of any proposals for an East Med pipeline to send gas to Europe due to the EU's long-term climate commitments. They have argued that any regional pipe project might find there was no market to supply if it is ever built. "I don't think it was ever going to materialize, it was a purely political project," the director of the PRIO Cyprus Centre Harry Tzimitras, says. In January, the US embassy in Greece had already showed itself lukewarm on the pipe, saying it was shifting its focus to "electricity interconnectors" that can support gas and renewables.

Nonetheless, the EU has funded a study for a potential pipeline project connecting Chevron's 4 trillion cubic foot Aphrodite field offshore Cyprus and Israel's 22 Tcf Leviathan field to Cyprus, Crete and then to the Greek mainland and ending in Italy. Demetris Fessas, acting head of state-owned Cyprus Hydrocarbons Co., said in a recent interview with newsletter MEES that the EU study would be completed by year's end and is still listed as a PCI.

More immediate challenges face East Med gas. A niggling dispute over reservoir delineation between the Aphrodite field and the smaller Ishai field offshore Israel waters has seen both Israeli and Cypriot governments intervene to hammer out a solution — with time-consuming arbitration a possibility. Also, escalating rhetoric between Israel and Lebanon could see regional infrastructure targeted by Shiite group Hezbollah as the US seeks to mediate a disputed maritime border. Hezbollah has threatened to prevent Israel extracting gas from the Karish gas field.

Tom Pepper, London

INTERVIEW

South Korea's Kogas CEO Sets Out Transition Plans

As South Korea's largest LNG importer and sole gas wholesaler, Kogas has to grapple with defending its domestic market share while plotting a decarbonization strategy. Kogas' outgoing CEO Hee-Bong Chae talked to Energy Intelligence about the way the company is dealing with LNG market volatility and its plans to go greener on the sidelines of the recent World Gas Conference in South Korea.

Q: How is Kogas coping with LNG prices that look likely to stay high for the next few years? Will you focus on signing new long-term supply deals? What is Kogas' preference for contract duration and price indexation?

A: Due to the Russia-Ukraine war, high LNG spot prices will likely continue. Kogas will respond flexibly to the market situation by securing additional, competitively priced LNG from existing long-term procurement sources.

Kogas has constantly striven to diversify contract durations and price indexes, in order to secure stable LNG supply and to mitigate risks. However, Kogas does not have a preference on specific contract duration or price index. Kogas aims to secure the most competitive, stable and flexible LNG supply source.

Q: Given strong competition for LNG from Europe, would Kogas consider buying new LNG supplies jointly with other Asian buyers?

A: Current LNG spot prices are unacceptably high for buyers. If the situation persists for a long time, it will lead to demand destruction, especially affecting buyers in emerging markets. Accordingly, it is crucial to ensure cooperation between market participants in order to stabilize gas prices. Also, stable gas prices will be one of the prerequisites for a smooth energy transition using natural gas as a bridge fuel. Kogas will seek to cooperate with market players in the form of cargo swaps and optimized trading in order to strengthen energy security.

Q: As an existing Qatari LNG buyer, does Kogas stand a good chance of becoming a partner in Qatar's megaexpansion?

A: Kogas has maintained a strong partnership with Qatargas, which includes a new long-term LNG SPA [sales and purchase agreement] signed in 2021. In addition, Kogas will endeavor to widen partnerships with various players in the global market.

Q: Kogas has a major contract with Oman LNG that is due to expire in 2024. Will it likely renew the contract? What changes would you like to see in a renewed contract?

A: Kogas will strive to secure competitively priced LNG based on a comprehensive procurement strategy reflecting energy transition policy, long-term LNG demand forecasts and market changes. About the extension of the Oman LNG contract, nothing has been decided yet.

Q:. Have high LNG prices slowed down or accelerated Kogas' energy transition plans? What will be the future role of LNG in Kogas' decarbonization strategy?

A: With the climate crisis and the energy security crisis triggered by military conflict between Ukraine and Russia, natural gas prices are skyrocketing to unprecedented levels. The high prices are attribut-

able to a number of structural factors, including post-Covid demand recovery; a reduction in gas inventories last winter; oil and gas project investment cuts or investment delays; frequent LNG supply disruptions; and declining renewable power generation.

A short-term rise in LNG prices can contribute to the competitiveness of low-carbon technologies and renewable energy, which can promote the transition of global companies, including Kogas, to eco-friendly energy. In addition, from the perspective of mid- to long-term energy security, the transition to clean energy, such as renewables and hydrogen, to replace fossil fuels associated with high geopolitical risks and price volatility is expected to accelerate. Therefore, Kogas will realize energy transition and carbon neutrality by diversifying its clean energy portfolio by establishing a clean hydrogen value chain overseas.

Q: New South Korean President Yoon Seok-chul has said he wants to drop plans to phase out nuclear power. Would this reduce South Korea's future LNG demand as it pursues its 2050 carbon-neutrality goal?

A: The energy mix is expected to be formed in a way that will overcome the current energy security crisis and achieve national carbon-neutrality goals. To promote the sustainable future growth of Korea's energy industry, Kogas will continue efforts to supply LNG and green hydrogen economically and stably.

Q: How much LNG did Kogas import in 2021? Will third-party LNG trading become more important to the company?

A: In 2021, Kogas imported most of Korea's LNG demand, which amounted to approximately 40 million tons. In 2019, spot volumes accounted for about 40% of LNG traded across the world. This shows that the global LNG market is changing into a commodity market, moving away from a long-term contract-centered market. Market players will therefore become more active in LNG trading as the importance of LNG trading grows significantly.

Q: As more domestic power generation firms are allowed to import LNG themselves, what is Kogas doing to protect its domestic market share?

A: Since the introduction of the Individual Gas Tariff (IGT) system for independent power producers in 2020, Kogas has successfully expanded the IGT system by signing gas sales agreements that amount to a total of 2 million tons per year with seven power plants. To secure new customers, Kogas has been actively marketing the IGT that accommodates customers' needs by highlighting Kogas' merits such as high credit ratings, strong financial soundness, networking and buying power in the LNG industry.

Q: Can you provide an update on Kogas' plans for new import terminals in Korea?

A: Kogas currently operates five LNG terminals in Pyeongtaek, Incheon, Tongyeong, Samcheok and Jeju. Additionally, the Dangjin LNG terminal is under construction on the west coast as part of Kogas' efforts to expand its LNG storage infrastructure. The Dangjin terminal is scheduled to be completed in a phased manner by 2031.

Q: What is Kogas doing in the hydrogen space? I understand the company has identified blue hydrogen in its carbon-neutrality plan. But would high LNG prices make blue hydrogen even less competitive? Would Kogas consider investing in green hydrogen on an earlier timeline?

A: The current Kogas target is to develop and import 1 million tons per year of green hydrogen by 2030. To help achieve the Korean government's [international climate commitments] and secure sustainable energy, Kogas is focusing on the development and import of overseas green hydrogen.

In order to develop and import competitive green hydrogen, Kogas is seeking a strong candidate country in terms of 1) renewable energy, 2) levelized cost of energy, and 3) strategic partnership.

To create domestic hydrogen demand, Kogas' priority is blending hydrogen into existing gas pipelines. By providing both LNG and hydrogen to current LNG customers, domestic hydrogen demand can be created. This unique strategy can be implemented only by Kogas as it is the only company in Korea that solely manages the country's entire gas pipeline system.

Q: Has Kogas decided on the most feasible and effective means to transport hydrogen? Would it be in liquefied hydrogen form, ammonia or methylcyclohexane [MCH]?

A: Regarding the transportation of hydrogen, Kogas is reviewing all available options such as liquefied hydrogen, ammonia, and MCH, etc. However, in line with the strategic values of Kogas as an eco-friendly energy company, we will build an economical value chain of hydrogen businesses similar to the LNG value chain by utilizing existing natural gas infrastructure — i.e., LNG receiving terminals and pipelines. As part of such endeavors, Kogas is looking to import hydrogen in liquefied form using vessels as a top priority. Currently, Kogas is closely cooperating with Korean shipbuilders and other related organizations to increase the feasibility of the liquefied hydrogen value chain.

Q: Kogas is developing two LNG-to-power projects in Vietnam — Hai Lang in Quang Tri and Mui Ke Ga in Binh Thuan province. Can you provide an update on Kogas' business in Vietnam? Of the two LNG-to-power projects, which will be prioritized?

A: Kogas is developing a [gas-to-power] project in Vietnam jointly with the Vietnamese government. Once the Vietnamese government announces a Power Development Plan (PDP8), Kogas will carry out the follow-up work required for the business development, such as a project feasibility study and environmental impact assessment.

Kogas plans to carry out two projects as per their respective schedules, and both projects are equally important to Kogas. One of the

projects has already obtained an IRC [investment registration certification] from the Vietnamese authorities and is awaiting final announcement of the PDP8. Kogas will proceed with the development of the two projects after the announcement of the PDP8.

Q: Do you expect high LNG prices to hurt demand in emerging Asian economies such as Vietnam, which may pursue renewables more aggressively?

A: Emerging countries may become hesitant to increase LNG imports or start LNG imports due to the current market situation. However, more flexible energy sources are needed to support the expansion of renewable energy. At the moment, gas-fired power generation is the only realistic option to address the intermittency issue of renewables while minimizing environmental impacts.

In addition, the Vietnamese government is implementing policies to reduce the share of coal-fired generation in baseload power. Accordingly, LNG is expected to play an increasingly important role in emerging countries going forward.

Clara Tan, Singapore

MARKET INSIGHT

Indian LNG Buyers Expect Intense Summer Market

India's price-sensitive LNG buyers are preparing for hectic spot buying during the peak summer and winter seasons after demand has shot up following a prolonged coal shortage. An intense heatwave has significantly boosted power and cooling needs in South Asia in conjunction with more gas consumption from fertilizer producers prompting Indian buyers to secure cargoes.

LNG consumption in the power sector increased by 23% in April compared with March due to the ongoing coal shortage. India's Central Electricity Authority recorded 24.28 million tons of coal stocks, or 36% of the required stocks, on Jun. 11 at the 173 power plants it monitors. Gail and Gujarat State Petroleum Corp. (GSPC) have had to procure cargoes at $20-$24 per million Btu in comparison to the $8-$10/MMBtu price tag previously considered high before 2022. Buyers don't expect the market to fall any time soon and have "factored in the high prices," an Indian trader says. But it will get "tougher" if Chinese buying reactivates, he added.

The speed of Chinese demand recovery is still uncertain. The Covid-19 lockdown imposed on Shanghai since March has been lifted but strict measures are still in place which could limit the upside. Still, limited global coal supplies, rising temperatures and early winter restocking could prompt significant price volatility. "Buyers are securing winter cargoes to avoid any risk," an Indian source says. "Buyers have now a firm view that prices are going to increase during winter, hence the sudden flurry of tenders from GSPC, IOC and BPCL [Bharat Petroleum Corp.]."

South Asian buyers are hoping demand for coal- and gas-fired power generation will decrease on the back of a boost in hydropower generation from the monsoon rains that should also lower temperatures over the coming weeks. But if LNG needs remain high, buying cheaper cargoes from Russia "could be an option," taking a page from India's strong procurement of Russian crude oil, a trader says. Gail already has a 2.5 million ton per year contract with Gazprom. However, another source says buying Russian LNG does not make sense for India as import logistics are challenging. "Gail's deal with Gazprom is a portfolio deal and Gazprom has been supplying it from other parts of the world," he says.

Northeast Asian Imports Fall Again

Northeast Asian LNG imports continue to drop, with May data showing a 9% year-on-year drop to 15.6 million tons, according to data provider Kpler. Customs data for April show an 8% year-on-year drop to 14.8 million tons, an 18% fall on month.

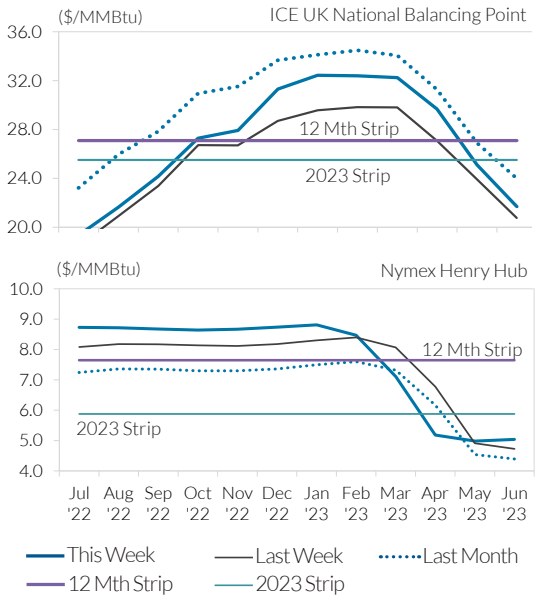
Japan remained the top LNG buyer in April, making it the main regional and global buyer so far this year. Japanese imports averaged 5.5 million tons in April, up 12% on year, while volumes to China fell by 35% on year to 4.3 million tons, customs data show.

South Korean imports dropped 21% year on year in April to 3.4 million tons, a 31% decrease on month, according to customs data. Volumes to Taiwan averaged 1.4 million tons in April, a 6% year-on-year fall and 28% decrease from the previous month.

In Southeast Asia, imports rose 55% to 540,000 tons in April. In Thailand, imports fell by almost 36% from the previous year to 463,000 tons.

Marc Roussot, Singapore, Yousra Samaha, Dubai, Rakesh Sharma, Delhi

NATURAL GAS FUTURES



SPOT LNG

Spot LNG Prices Ignore Freeport, Prelude Outages

Spot LNG prices in Northeast Asia and Southwest Europe were both unchanged week on week at $23.50 per million Btu and $19.80/MMBtu, respectively, amid stable European gas hub prices and tepid Asian demand, according to *World Gas Intelligence* assessments for deliveries four to eight weeks ahead. The UK National Balancing Point day-ahead price was assessed $1.71 higher at $17.28/MMBtu, while the July front-month ICE contract fell 23¢ to $18.65/MMBtu. Netbacks for Mideast sellers in Asia were about $3.63/MMBtu higher than in Southwest Europe, while UK/Belgian netbacks were 6.33/MMBtu lower than in Asia.

Spot prices remain steady despite concerns over supplies after two major outages at the 15 million ton per year Freeport LNG plant and Shell's 3.6 million ton/yr Prelude floating LNG plant in Australia.

Freeport plans to restart partial operations in 90 days after a fire struck last week. Prelude has been hit by a 19-day industrial action, expected to end Jun. 28.

In Indonesia, the 3.8 million ton/yr Tangguh Train 1 restarted on Jun. 12 following a full week of repair to fix cracks that had been found.

Some buying demand for summer cargoes has been reported from Japan, despite high LNG inventories of 2.13 million tons as of Jun. 5, surpassing five-year averages and over the 2.04 million tons recorded in end-June 2021. Persistent market talk about Japanese end-users seeking for winter cargoes has yet to materialize in tenders.

Japan's Tohoku Electric issued a limited participation buy tender for an Aug. 1-15 delivery cargo while Inpex is seeking an Aug. 1-5 delivery cargo to Naoetsu LNG terminal.

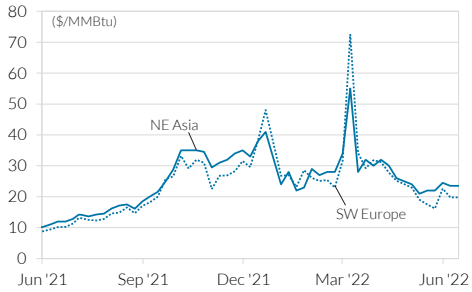
In India, Gail bought a Jun. 15-22 cargo at $22.40-$22.450/MMBtu while it is understood GSPC did not award its buy tender for an Oct. 1-15 cargo to Mundra.

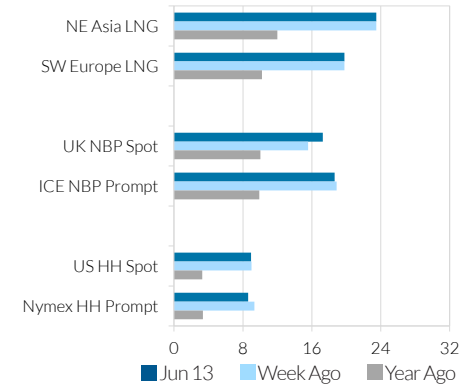
INDICATIVE NATURAL GAS PRICES

($/MMBtu)	Jun 13	Week Ago	Year Ago
NE Asia LNG	23.50	23.50	12.00
SW Europe LNG	19.80	19.80	10.20
UK NBP Spot	17.28	15.57	10.02
ICE NBP Prompt	18.65	18.88	9.91
US HH Spot	8.95	8.99	3.28
Nymex HH Prompt	8.61	9.32	3.35

Source: WGI assessments of spot prices for LNG in NE Asia and SW Europe and for day-ahead gas in the UK. NGW spot assessment for US. All prices are for Mon Jun 13. Note: Dates may vary due to public holidays and availability.

INDICATIVE LNG PRICES





Thailand's Egat is seeking at least one Jul. 7-10 or Jul. 9-12 cargo while PTT is understood to have secured at least two cargoes for $24-$25/MMBtu out of the five July cargoes it is seeking for Jul. 1-2, Jul. 14-15, Jul. 16-17, Jul. 20-21 and Jul. 29-30.

Singapore LNG secured a Jul. 1-Aug. 31 delivery cargo at about $24/MMBtu.

On the sell side, Australia's Darwin LNG plant sold a Jun. 30-Jul. 2 f.o.b. cargo at a Japan Korea Marker linked price.

Spot LNG prices in Southwest Europe for July delivery remained slightly below $20/MMBtu, with the continued influx of cargoes keeping a lid on prices.

Information has yet to emerge on Turkey's Botas buy tender, which the company issued at the beginning of the month seeking a total of 39 cargoes for both winter and summer delivery in the coming three years. Several market sources suggested that the Turkish firm is most likely testing LNG price sentiment on the market in order to compare it with pipeline gas prices.

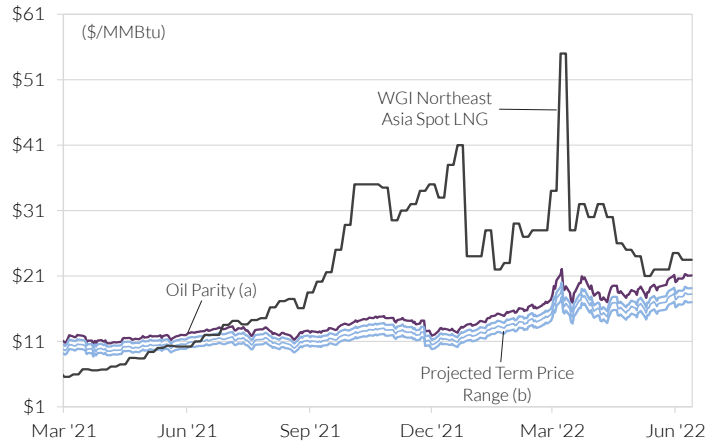
LNG vessel charter rates have fallen following the Freeport outage as it has increased ship availability in the Atlantic Basin. A shipbroker said rates for a 160,000 cubic meter vessel in the Atlantic was around $95,000 per day before the Freeport shutdown. Following the outage, rates have likely fallen below $90,000/d, he added.

Marc Roussot, Singapore, Daniel Stemler, Madrid

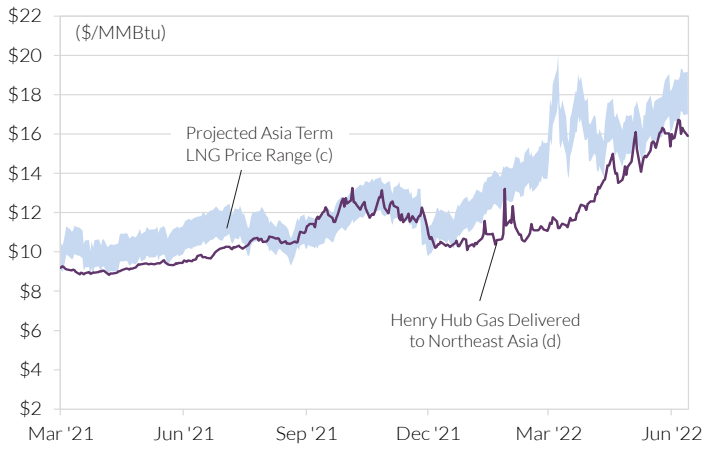
WORLD GAS INTELLIGENCE LNG ANALYTICS

The following graphs provide weekly comparative insights into key LNG market relationships over the previous 12 months, with particular emphasis on the price of competing supplies in Asia and key inter-market price spreads.

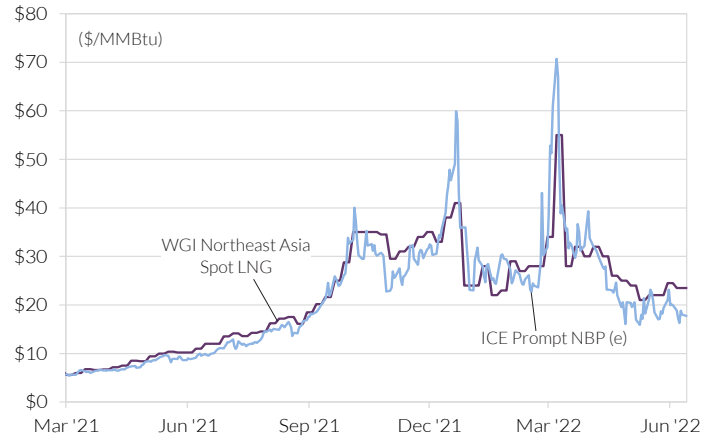
NORTHEAST ASIA SPOT LNG VERSUS ASIA TERM LNG



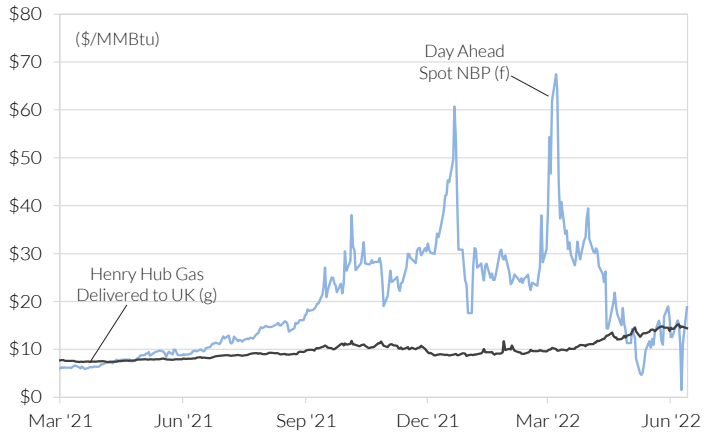
HENRY HUB NE ASIA VERSUS ASIA TERM LNG



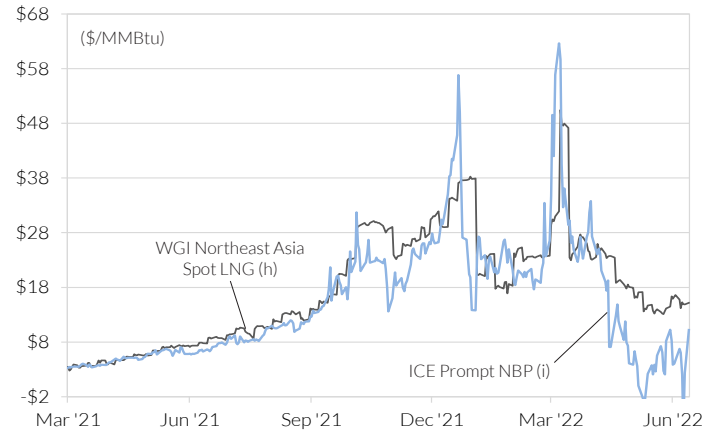
NBP VERSUS NORTHEAST ASIA SPOT LNG



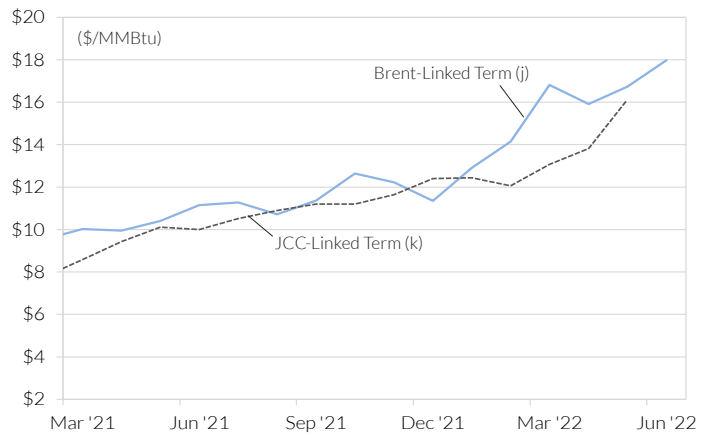
HENRY HUB GAS DELIVERED TO UK VERSUS NBP



REGIONAL PRICE DIFFERENTIALS TO NYMEX HENRY HUB PROMPT



TERM JCC VERSUS TERM BRENT



(a) Oil parity - 17.24% of Brent-Linked Asian Term. (b) Estimated low, middle, and high cases for contract terms: 13.5% of Brent+$0.50, 14.5% of Brent+$0.50, and 14.85% of Brent+$1.00, respectively. (c) Brent-Linked Asian Term LNG, high and low cases. (d) Per Cheniere formula: 115% Henry Hub plus $3.50 for liquefaction and $2.50 for shipping. (e) ICE prompt NBP converted from pence/therm to US$/MMBtu. (f) Thomson Reuters Day Ahead NBP converted from pence/therm to US$/MMBtu. (g) Per Cheniere formula: 115% of Henry Hub plus $3.50 for liquefaction and $1.00 for shipping (h) Northeast Asia Spot vs Nymex Henry Hub Prompt. (i) Day Ahead UK NBP vs Nymex Henry Hub Prompt. (j) Term prices based on current month average against mid-case formula for delivery 3 months later; (k) JCC is Monthly Japan Crude Cocktail Price reported by Japan's Ministry of Finance.

WORLD GAS INTELLIGENCE LNG ANALYTICS

ASIA LNG MARKETS (PRICES IN $/MMBTU, VOLUMES IN '000 TONS)

	Prices			Volume	
To Japan/From	**Apr'22**	**YTD**	**Apr'21**	**Apr'22**	**YTD**
Angola	-	13.41	-	-	62.34
Australia	14.17	14.37	7.76	2,396.40	10,492.38
Brunei	11.87	12.95	8.25	251.09	1,327.15
Egypt	-	16.99	-	-	53.21
Equatorial Guinea	-	19.49	-	-	64.18
France	-	-	-	-	-
Indonesia	31.11	20.18	8.31	329.18	1,283.25
Malaysia	11.59	12.38	7.03	917.31	3,853.57
Nigeria	6.20	10.91	-	61.03	183.49
Oman	9.26	12.75	8.23	193.53	1,026.63
Papua New Guinea	13.51	15.65	8.98	438.76	1,398.07
Peru	13.60	19.68	8.40	56.19	198.72
Qatar	29.31	18.21	7.50	129.79	1,098.32
Russia	11.03	13.24	6.81	395.51	2,538.22
Singapore	-	14.69	-	-	73.53
Thailand	-	-	-	-	-
Trinidad and Tobago	-	13.15	-	-	108.16
United Arab Emirates	11.50	17.60	-	61.16	616.44
United States	26.87	18.96	8.90	344.20	1,595.99
Avg./Total	15.21	14.73	7.74	5,574.14	25,973.65
To China/From					
Algeria	-	-	7.35	-	-
Angola	-	-	7.06	-	-
Australia	9.98	13.82	6.78	1,594.54	7,491.90
Belgium	-	41.49	-	-	73.43
Brunei	11.77	11.77	7.24	63.99	63.99
Cameroon	-	26.15	-	-	71.98
Canada	-	-	-	-	-
China	-	24.31	-	-	0.14
Egypt	13.64	12.83	8.49	58.06	120.27
Equatorial Guinea	-	19.70	6.32	-	149.95
Indonesia	11.80	15.78	6.76	259.19	1,241.71
Malaysia	17.55	18.36	6.69	670.60	3,026.16
Netherlands	9.12	9.12	-	58.09	58.09
Nigeria	-	10.66	6.66	-	117.03
Oman	-	24.81	5.92	-	396.48
Papua New Guinea	12.21	11.97	8.84	235.17	864.98
Peru	12.17	12.17	8.68	72.00	72.00
Philippines	-	-	-	-	-
Qatar	11.64	12.53	7.48	813.07	5,483.55
Russia	24.33	17.68	7.38	462.98	1,439.78
Singapore	-	24.91	-	-	61.73
Thailand	-	-	11.64	-	-
Trinidad and Tobago	11.84	11.00	-	62.28	214.84
United Arab Emirates	-	12.02	6.53	-	59.23
United States	-	25.17	7.28	-	583.37
Avg./Total	13.34	15.06	7.00	4,349.96	21,590.59
To Taiwan/From					
Australia	18.57	20.66	8.12	552.88	2,862.92
Belgium	-	-	-	-	-
Cameroon	-	-	-	-	-
Egypt	-	-	-	-	-
Equatorial Guinea	-	12.69	-	-	114.56
Indonesia	35.16	25.83	6.70	113.28	355.18
Malaysia	29.18	29.18	-	137.30	137.38
Nigeria	-	12.34	-	-	105.24
Oman	37.72	32.84	-	63.73	265.95
Papua New Guinea	12.58	22.21	7.40	78.65	529.79
Peru	-	19.84	-	-	111.89
Qatar	8.26	8.85	6.19	439.58	2,310.16
Russia	-	11.57	5.56	-	508.58
Trinidad and Tobago	-	-	-	-	-
United Arab Emirates	-	35.77	-	-	118.23
United States	10.24	11.32	8.80	102.90	952.43
Avg./Total	17.69	16.62	7.22	1,488.31	8,372.30

	Prices			Volume	
To S.Korea/From	**Apr'22**	**YTD**	**Apr'21**	**Apr'22**	**YTD**
Angola	-	-	-	-	-
Australia	15.29	21.94	7.36	657.17	4,083.57
Belgium	9.94	9.63	-	65.17	194.43
Brunei	-	12.43	-	-	67.30
Cameroon	-	42.84	-	-	73.38
China	-	9.94	-	-	60.16
Egypt	9.94	17.36	-	71.06	209.49
Equatorial Guinea	-	33.41	-	-	10.79
Indonesia	9.74	18.89	4.97	175.25	809.01
Malaysia	12.92	18.17	6.82	480.89	2,033.38
Netherlands	-	-	-	-	-
Nigeria	-	16.02	-	-	249.24
Oman	16.15	18.80	7.65	488.63	1,867.28
Papua New Guinea	-	36.37	-	-	146.53
Peru	12.10	17.04	8.25	54.55	445.07
Qatar	13.29	14.02	7.66	940.75	3,543.48
Russia	10.92	14.82	7.37	190.60	1,018.92
United Arab Emirates	-	40.03	-	-	70.73
United States	11.09	18.25	7.88	325.21	2,040.14
Avg./Total	13.36	18.27	7.40	3,449.27	16,922.90
Total All Northeast Asia Buyers/From					
Algeria	-	-	7.35	-	-
Angola	-	13.41	7.06	-	62.34
Australia	13.49	16.17	7.29	5,200.99	24,930.77
Belgium	9.94	18.36	-	65.17	267.86
Brunei	11.85	12.87	7.91	315.08	1,458.44
Cameroon	-	34.58	-	-	145.36
Canada	-	-	-	-	-
China	-	9.97	-	-	60.30
Egypt	11.61	15.89	8.49	129.12	382.96
Equatorial Guinea	-	17.73	6.32	-	339.47
France	-	-	-	-	-
Indonesia	21.66	18.96	6.72	876.89	3,689.15
Malaysia	14.79	15.94	6.85	2,206.10	9,050.50
Netherlands	9.12	9.12	-	58.09	58.09
Nigeria	6.20	13.04	6.66	61.03	655.00
Oman	16.21	18.77	7.41	745.88	3,556.34
Papua New Guinea	13.01	16.78	8.70	752.57	2,939.36
Peru	12.59	17.63	8.44	182.74	827.67
Philippines	-	-	-	-	-
Qatar	12.65	12.77	7.24	2,323.19	12,435.51
Russia	16.88	14.54	6.93	1,049.08	5,505.50
Singapore	-	19.35	-	-	135.26
Thailand	-	-	11.64	-	-
Trinidad and Tobago	11.84	11.72	-	62.28	322.98
United Arab Emirates	11.50	21.54	6.53	61.16	864.64
United States	18.01	17.97	8.12	772.31	5,171.93
Avg./Total	14.48	15.87	7.32	14,861.68	72,859.43
To Singapore/From					
Angola	-	24.82	-	-	70.36
Australia	15.57	15.33	9.23	301.91	818.86
Belgium	-	38.25	-	-	73.31
Egypt	-	-	-	-	-
Equatorial Guinea	-	-	-	-	-
France	-	-	15.90	-	-
Malaysia	15.40	15.40	-	19.23	19.23
Nigeria	-	18.56	-	-	4.07
Oman	-	-	-	-	-
Philippines	-	-	-	-	-
Qatar	19.41	13.82	-	79.84	159.20
South Korea	24.20	22.15	17.91	0.11	0.48
United Arab Emirates	-	49.32	-	-	0.01
United States	26.51	26.51	6.12	139.71	139.71
Avg./Total	18.96	18.20	8.64	540.80	1,285.24

	Prices			Volume	
To Thailand/From	**Apr'22**	**YTD**	**Apr'21**	**Apr'22**	**YTD**
Angola	-	26.31	-	-	65.50
Australia	35.76	28.88	6.03	64.09	532.08
Brunei	36.56	32.60	-	67.78	127.95
Egypt	-	10.51	-	-	62.01
Equatorial Guinea	-	10.51	-	-	72.92
Indonesia	35.60	33.18	-	26.55	79.82
Malaysia	40.62	23.65	5.72	61.07	241.61
Nigeria	-	22.46	5.79	-	58.87
Oman	35.16	35.16	6.46	68.04	68.04
Qatar	12.78	16.71	7.45	93.34	789.72
Trinidad and Tobago	11.03	10.91	-	63.01	227.14
United States	32.25	31.24	-	19.61	155.56
Avg./Total	28.28	22.28	6.77	463.49	2,481.22
To India/From	**Mar22**	**YTD**	**Mar'21**	**Mar'22**	**YTD**
Angola	9.99	10.92	7.51	140.30	280.42
Australia	-	-	6.50	-	-
Cameroon	9.81	9.81	-	132.40	132.40
Egypt	-	-	6.27	-	-
Equatorial Guinea	-	-	6.02	-	-
France	-	-	-	-	-
Malaysia	11.21	11.21	-	65.08	65.08
Nigeria	25.46	23.25	6.36	132.17	530.25
Oman	12.46	14.28	7.12	61.11	197.12
Qatar	14.18	14.19	7.55	979.83	2,969.05
Spain	-	-	-	-	-
Trinidad and Tobago	-	-	-	-	-
United Arab Emirates	15.55	13.36	6.84	333.67	586.30
United States	10.63	11.93	12.42	145.93	346.51
Avg./Total	14.16	14.55	7.42	1,990.49	5,107.13
To Malaysia/From	**Apr'22**	**YTD**	**Apr'21**	**Apr'22**	**YTD**
Australia	12.44	12.47	7.56	174.77	202.09
Brunei	11.98	11.05	-	27.32	86.64
Indonesia	-	18.83	-	-	0.25
Nigeria	-	-	-	-	-
Avg./Total	12.37	12.05	7.56	202.09	288.98

Official statistics, companies. Both Japanese and Korean prices are c.i.f., before regasification. Yen exchange rate to the dollar was 126.41 for Apr 2022, 118.69 for Mar 2022, 115.21 for Feb 2022, 122.70 for 2022, and 109.78 for 2021