

LNG North America

Includes:
Market Tracker Data

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October 2020

Supply outages at Cameron and Gorgon LNG depress freight rates

Strong seasonal rise in freight rates is unlikely to happen this autumn, as sustained outages at Sempra Energy's Cameron LNG terminal in Louisiana and at Gorgon LNG Train-2 have caused a length in tonnage. Supply outages at the 13.5 mtpa Cameron facility free up an estimated 17 to 34 vessels per month, keeping freight rates subdued, and analysts expect full output to only return by the end of October.

Sempra Energy CEO Jeff Martin confirmed Cameron LNG may well be offline through October owing to continued challenges in restoring electricity supply. "We took a big hit from the hurricane," he said, stressing the company is working to have Cameron LNG back in operation within the next six weeks. The liquefaction terminal in Hackberry, south of Lake Charles, is powered by Entergy whose power lines were badly hit by Hurricane Laura.

Cheniere Energy's Sabine Pass terminal, in contrast, produces all electricity it needs on site which has allowed it to get back opera-

tional more quickly. The 30 mtpa liquefaction plant resumed full production on September 9.

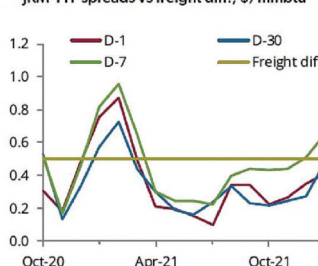
Should Cameron LNG stay idle until early November, an estimated 1 billion cubic feet per day (Bcf/d) of feedgas would be not be needed in October, sending a bearish signal to U.S. gas prices. Henry Hub prices were last seen trading on October 2 at [to be filled tomorrow], up/down from \$1.63 per MMBtu the day before.

Supply disruptions, combined with weak gas demand in the early autumn in Northeast Asia, are keeping a lid on freight rates.

Though analysts at Energy Aspects



JKM-TTF spreads vs freight diff., \$/mmbtu

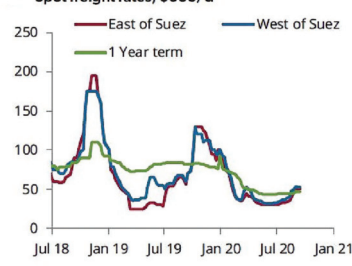


Source: CME, Fearnleys, Energy Aspects
*the freight differential is the difference in shipping costs for US spot cargoes going to Northeast Asia versus Europe

still see scope for a most rise over the coming weeks, a strong seasonal rise in rates is deemed unlikely this year.

Weak freight rates mean the Japan Korea Marker (JKM) needs to

Spot freight rates, \$000/d



Source: Fearnleys, Energy Aspects

have less of a price premium, compared to European gas trading hubs, to attract incremental Atlantic basin cargoes to Northeast Asia.

The JKM was thought to need a premium of around \$0.71 per

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Warren Buffet to take over of Cove Point LNG by November

US billionaire investor Warren Buffett is expected to take control of Dominion Energy's Cove Point LNG export plant in Maryland around November 1, 2020. In return, Dominion will receive about \$2.7 billion in cash and transfer \$5.3 billion of existing Dominion Energy Gas Holdings related indebtedness to the buyer – Buffett's Berkshire Hathaway Energy.

The Cove Point liquefaction plant produces around 5.2 mtpa from a single Train and has tolling agreements with Gas Authority of India (GAIL) as well as Sumitomo and Tokyo Gas of Japan.

Dominion is also hoping to close another part of the sale, involving Questar Pipelines, upon receipt of anti-trust clearance on in early 2021. For that transaction, Dominion would receive around \$1.3 billion in cash and transfer around \$430 million of existing Questar Pipelines indebtedness to Berkshire Hathaway.

"This mutually agreed dual-phase closing is the re-



sult of updated timing expectations for receipt of the HSR clearance from the Federal Trade Commission related exclusively to the sale of Questar Pipeline and Overthrust Pipeline," explained Dominion. "Given all closing conditions have been met (...), Dominion Energy and Berkshire Hathaway Energy have opted to

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MMBtu to the Dutch TTF in order to draw US spot supply this winter, but analysts say prevailing rates would only require a premium of \$0.50 per MMBtu.

Maximum freight rate for the fourth quarter are now estimated substantially lower by Energy Aspects, in a range of \$60,000 to \$80,000 per day. Though this is above the current spot rates of \$50,000/d provided by shipbrokers, it is still well short of the maximum rates of \$140,000/d reached in winter 2019/20 and a staggering \$200,000/d seen in the previous winter.

Mitsui and Mitsubishi, the main off-takers at two of Cameron's three trains, are understood to have resold some of their contracted supply to other clients in Northeast Asia. The outage has triggered at least one sub-charter, analysts noted, with increased available tonnage weighing on spot freight rates.

Tonnage demand to surge in November

Should Cameron LNG return, as indicated by Sempa, by the end of October, this would spark a sharp rise in shipping tonnage demand

starting from November. Optimistic off-takers from the facility even expect the first export by October 10, as dredging work on the Calcasieu Ship Channel is due completed on October 8.

By mid-November, Dominion's 5.6 mtpa Cove Point LNG plant will return from a three week maintenance that started on September 21, while Freeport's 15 mtpa facility is swiftly recovering from a power fault and is currently restoring feedgas flows.

Shipping US LNG to Northeast Asia requires double the tonnage relative to sending cargoes to Europe.

Depending on whether most US voyages would be made to Northeast Asia or Europe, the associated vessel demand would be 29 to 55. Hence, the shipping market could be tight if many Atlantic basin cargoes were headed to Asia.

However, analysts do not see much of a pull for US cargoes to Asia given that gas storages in Japan and South Korea have little space left for spot supply in the fourth quarter. Similarly, Chinese LNG buyers are also winding down on storage-build and any boost in buying activity could only be caused by unseasonably cold weather. ■

Spread narrows between Henry Hub and regional U.S. gas hubs

Spot price differentials between regional U.S. gas trading hub and the benchmark Henry Hub have narrowed in the first half of 2020 amid lower production and a Covid-19-related plunge in demand. Basis prices are set to stay narrow at most hubs, with Winter 2020/21 forward basis swaps for SoCal Citygate and Waha Hub averaging \$1.11 per MMBtu and -\$0.47 per MMBtu.

Gas prices in producing areas, like at the Waha Hub in West Texas and the Dominion South Hub in southwestern Pennsylvania, typically trade at a discount to Henry Hub. In the first half of 2020, crude oil and associated gas production declined substantially as demand fell off a cliff following lockdowns to contain the Covid-19 outbreak.

Fall in gas production pushes up prices

Waha Hub is typically awash with natural gas, hence Waha prices reached nearly \$3.00 per MMBtu lower than Henry Hub prices in April 2019. In the first half of this year, however, the basis narrowed

substantially due to a 10 percent drop in gas production in the Permian, falling from January's 0.3 billion cubic feet per day (Bcf/d). Analysts explained completion of additional pipeline takeaway capacity during 2019 also helped support higher prices at Waha, narrowing the basis price.

At Dominion South, located in the Appalachian Basin, the basis price stayed relatively unchanged given that there is less oil-directed drilling in the Appalachian than in the Permian basin. The fall in oil prices has not affected fracking here and production fell by merely 1% since the beginning of 2020.

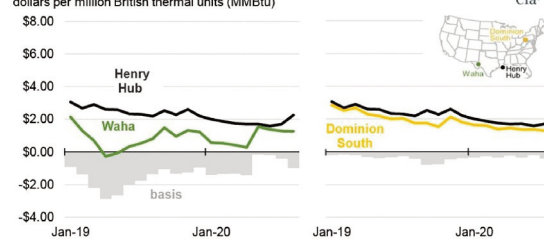
Bottlenecks constrain supply in California

Infrastructure constraints tend to limit gas flows into key demand regions, notably around SoCal Citygate and Algonquin Citygate, which leads to wider basis prices, U.S. government analysts explained. In contrast, basis prices stayed fairly narrow in Southern California between January and July 2020, despite constrained pipeline infrastructure.

But by mid-August 2020,

the basis price at SoCal Citygate briefly reached \$11.00 per MMBtu amid high demand for gas-fired power generation, driven by intense summer heat. The increase in power demand resulted in California Independent System Operator (CAISO) issuing rotating power outages. ■

Natural gas spot price and basis at select supply hubs (Jan 2019–Aug 2020)
dollars per million British thermal units (MMBtu)



Source: U.S. Energy Information Administration, based on Natural Gas Intelligence

continued from page 1

move forward with an expeditious initial closing to be followed with

a subsequent Questar Pipelines closing in early 2021."

Irrespective of the sale, Dominion said it still expects to have strong end-of-year performance with operating earnings per share, normalized for weather, to be in the top half of its \$3.37 to \$3.60 guidance range.

Cove Point LNG closed for maintenance

Dominion Energy's Cove Point LNG plant in Maryland has been closed for three weeks maintenance as US

investor Warren Buffett is waiting to take control. Berkshire Hathaway's energy unit has snapped up a 25 percent operating stake in the 5.2 mtpa Cove Point facility.

With the Cove Point deal, Buffett was concluding his first big acquisition since 2015. The Dominion-Berkshire Hathaway transaction is expected to close in the fourth quarter of 2020.

The US business tycoon and philanthropist Buffett earlier in 2020 made a move for an LNG and pipeline natural gas project

in Canada. But at the last minute he pulled out of the \$6.7 billion LNG project deal in Quebec over concerns about infrastructure challenges.

While Berkshire Hathaway will control Cove Point LNG, another 25 percent of the liquefaction and export plant is already owned by Brookfield Asset Management of Canada under a deal finalized in October 2019. After the November closing of the transaction Dominion will retain a 50 percent passive stake in Cove Point. ■

LNG North America

Publisher
Stuart Fryer

Editor
Anja Karl
Tel: +44 7733 684682
anja@lngjournal.com

Layout
Vivian Chee
Tel: +44 (0) 20 8995 5540
chee@btconnect.com

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Tellurian sees need for 100 mtpa of new-built capacity in 2021

Making new pitches to investors, Tellurian Inc. forecasts that 100 million tonnes per annum of additional construction is needed because of LNG capacity constraints by 2021 as demand increases. Market observers say Tellurian may be still keen to bring India's Petronet LNG on board.

Tellurian's model for investors is tailored-made for joint venture partners who own their share of the LNG at a cost of \$3.50 per MMBtu. This comes down to \$2.00 per MMBtu for gas delivery, \$0.75 of operating expenses and \$0.75 for debt service. This integrated model is meant to help avoid the effects of price volatility.

"Driftwood LNG will come at a lower cost and will have less price volatility than other LNG price indexes," Tellurian pointed.

As for feedgas, Haynesville shale gas production of 46 million cubic feet per day from Tellurian's current assets of 1.2 trillion cubic feet are said to enable Driftwood to supply LNG at a free-on-board (FOB) price of \$3.50 million tons per annum. "Haynesville gas can be supplied at a lower cost than Henry Hub at \$2.00 per MMBtu and delivered to the plant regardless of Henry Hub market index prices," said Tellurian in its latest report filed with the US Securities

Exchange Commission (SEC).

Driftwood LNG is designed to provide more than 27 mtpa of supply to meet new demand, particularly in China and India. In addition, emerging Asian markets like Bangladesh, Malaysia, Pakistan and Thailand are expected to see gas demand growth of around 41 mtpa by 2025 – equivalent to South Korea's current demand.

Loan stretched as talks continue

Struggling to obtain financing, Tellurian's latest financial manoeuvre has given it another four months of breathing room to pay back a sizable loan. In March, Tellurian managed to extend the maturity of an \$87.5 million loan due in May by 18 months. It now has time until November 23, 2021, to repay the debt.

Investors have sold Tellurian shares by the bulk. The stock consequently traded below \$1 for more than 30 consecutive days for



Render of Driftwood LNG near Lake Charles, Louisiana

which Tellurian received a de-listing notice from Nasdaq. The Houston-based company is hard pressed to secure sufficient funding to advance its Driftwood LNG project whose prospects remain uncertain.

Eager to free up cash, Tellurian has shed 38 percent of its staff and reduced the number of proposed pipelines from four to one.

Driftwood LNG 'shovel-ready'

Construction works for Driftwood LNG are progressing swiftly, not

least because EPC contractor Bechtel has also invested \$50 million in the project. Today, over 30 percent engineering has been completed and the project is said to be shovel-ready.

The heads behind the Driftwood project are chairman and co-founder Charif Souki, who launched Cheniere in 1996, and the current CEO Meg Gentle as well as chairman Martin Houston, BG Group's former head of LNG and Keith K Teague, COO and another recruit from Cheniere. ■

Hygo Energy IPO on hold as CEO named in Brazilian corruption probe

Plans for debut trading in Hygo Energy at the US stock exchange NASDAQ have been shelved amid corruption allegations against the company's CEO Eduardo Antonello. Hygo, a joint venture between Golar LNG and the U.S. private equity firm Stonepeak Infrastructure Partners, had plans to develop two LNG-to-Power projects in Brazil.

Stakes are high for Golar, which together with Stonepeak, has invested more than \$500 million in Hygo Energy. The Initial Public Offering (IPO) of Hygo shares was



Eduardo Antonello has taken leave from office.

meant to raise up to \$485 million.

Mr Antonello is a former executive of offshore oil rig company Seadrill Ltd and he is named in a bribery investigation in a court filing by Brazilian federal prosecutors. Hygo was quick to point out that the allegations against Mr. Antonello "involve conduct that predates and does not, in any way, implicate his current work."

Golar might be excluded from Petrobras tender

Though no formal charges have been made against Mr Antonello, the Brazilian oil and gas major Petrobras is considering withdrawing Hygo's right to participate in a tender for a floating storage and

regasification unit (FSRU) at Salvador in Bahia.

Petrobras' three FSRUs, the second situated at Guanabara Bay and the third at Pecem, are significantly underutilised and are hence being opened for third party access. However, Petrobras is now reviewing the integrity of Hygo.

Casting doubt over Golar Power's participation in the tender for the FRSU, Petrobras states that a review of this supplier's integrity analysis is in progress.

"Any change in the perception of integrity risk to which Petrobras may be exposed when dealing with the companies of the Golar Power Group will be communi-

cated in a timely manner to its legal representatives. "In the case of the bidding process for the lease of the Bahia Regasification Terminal (TR-BA), the notice prevents the participation of any company or consortium with a high Degree of Integrity Risk," explained Petrobras.

The review also impacts Golar's future participation in the LNG fuel market of northeast Brazil with a Petrobras fuel affiliate BR Distribuidora. Petrobras confirmed it has asked BR Distribuidora to clarify its partnership with Golar Power in light of the issues revealed by 'Operation Car Wash' - Brazil's far-reaching corruption scandal. ■



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Brazil passes law to open up gas market to private investors

The Brazilian lower house of the National Congress has approved a bill to further open up the natural gas and LNG terminal market to private competition and break the monopoly held by state-controlled energy company Petróleo Brasileiro, known as Petrobras.

The bill passed in early September by 351 votes for to 101 against will now go to the Senate for expected final authorization. The new legal framework changes natural gas distribution from a regime of concessions by the government to one of authorizations by the country's oil and gas regulator, Agência Nacional de Petróleo, Gás Natural e Biocombustíveis (ANP).

Analysts said the first result would be to reduce regulatory obstacles to building new LNG terminals, natural gas pipelines and other infrastructure needed by the South American nation. Petrobras was supposed to have lost the monopoly in the oil and gas sector by a law passed more than 20 years ago, though in practice kept a virtual monopoly in the natural gas industry.

High hopes for US\$7bn in private investment

Brazilian congressmen argued that the new natural gas law would attract more than US\$7 billion in private sector initial investments and generate millions of jobs.

Petrobras has gradually been scaling back control of Brazil's energy industry by selling assets, including thousands of miles of pipelines. The state-owned oil and gas major began the binding phase in the sale process in July 2020 of its 10 percent remaining stake in gas pipeline firm Nova Transportadora do Sudeste (NTS) at the same time as reviving the possibility of floating LNG production from some of its prolific offshore oil and gas basins.

NTS provides natural gas transportation in a network of 2,048 kilometres located in the nation's southeast and connecting Rio de Janeiro, São Paulo and Minas Gerais. The NTS system is also connected to the Bolivia-Brazil pipeline to the west and natural gas terminals to the east and south.

A group led by Canada's Brookfield Asset Management Inc., which in October 2019 bought a stake in the Cove Point LNG plant in Maryland, purchased 90 percent of NTS from Petrobras in 2016 for \$5.2 billion.

Ahead of the law being passed

Brazil began the process to lease its LNG regasification terminal and associated facilities located in the northeast state of Bahia, a floating storage and regasification unit and the busiest in Brazil.

The Bahia terminal in Salvador is one of three controlled by Petrobras in Brazil. The two others are situated at Pecem in the northeast state of Ceara and at Guanabara in the state of Rio de Janeiro and which has been idle since 2018.

Opening up terminals for third party access

While Brazil's three terminals have been significantly under-utilized, the government is now opening the way for third-party access. The natural gas reforms and the reduction in the market power of Petrobras began back in 2015 when the company finalised the sale of 49 percent of Gaspetro, the natural gas distribution firm.

Renewables other than hydro power are also expected to grow along with LNG-to-power projects led by companies such as Golar Power, a joint venture partnership comprising Golar LNG and US equity fund, Stonepeak Infrastructure Partners. Its activities are centred on northeast Brazil, including a project in Sergipe, the smallest Brazilian state. Golar Power has also signed an accord with the Brazilian state government of Pernambuco to

develop an LNG import terminal in the Port of Suape.

The road to liberalisation has been long-winded and bumpy, analysts commented, but in the last 4 months the impetus for reform has taken hold. A new gas law will likely be enacted before December, effectively setting rules for a competitive gas market.

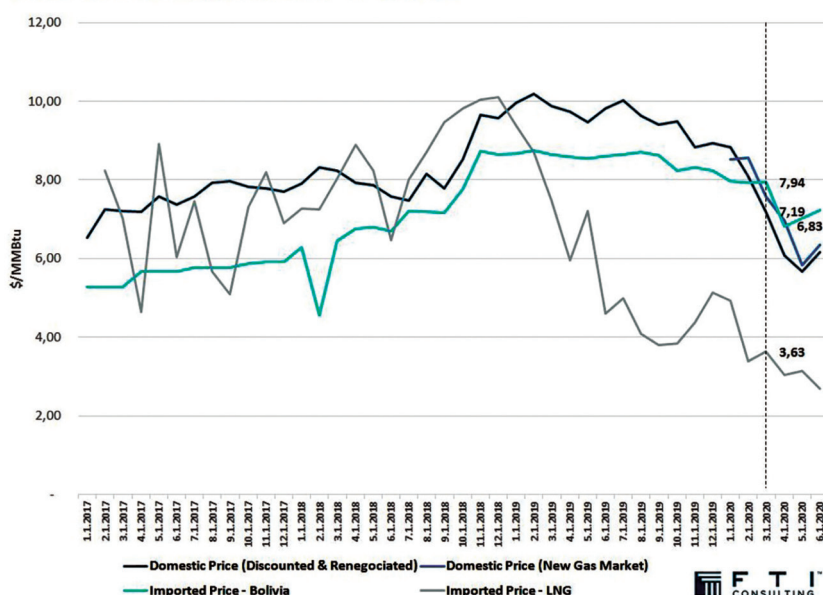
Today, the Brazilian gas market is small compared to its vast resource base and demand potential. It is also highly concentrated mainly due to the overreliance on Petrobras to develop and coordinate the gas market. Put in this prime position, Petrobras soon became the incumbent supplier by spreading out across each segment of the value chain, effectively crowding out competition.

To tackle the challenge, the Bolsonaro administration enacted liberalisation guidelines in 2019 under an initiative branded as the New Gas Market (NGM), calling for unbundling gas supply from transport and distribution; non-discriminatory third-party access in essential infrastructure; and the harmonization of tax rules.

The National Confederation of Industry, the largest industry association, said it believes liberalisation can bring prices down by 50 percent and triple investment in the sector to reach US\$31 billion per year by 2030. For Economy Minister Paulo Guedes, the reform will bring a "shock of cheap energy" to the Brazilian industry, as government calculations suggested that a mere 10 percent reduction in the price of natural gas could increase industrial GDP by 2.1 percent.



Brazilian natural gas prices- wholesale



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Venture Global hails LNG as counter to China's new coal power projects

U.S. liquefaction plant developer Venture Global sees LNG-fuelled power generation as “a counter” to China's building spree of new coal power units. By turning to LNG, utilities can “regain control of the energy transition in the post-Covid-19 era,” Venture Global co-founder Michael Sabel told the Gastech Virtual Summit.

“China in the next five years is going to be turning on new coal production capacity equal to what all of Europe has today,” said Sabel in a panel discussion.

Venture Global sees itself a niche LNG supplier under long-term contracts and also aims to be a low-cost producer. “The lower we can make the cost of delivered LNG, the more customers around the world will decide to have the fuel,” Sabel noted.

Aiming to expand the scope of its LNG business to 60 million tonnes per annum (mtpa) of production, Venture Global has re-

cently fully contracted the Calcasieu Pass LNG terminal in Louisiana. It now works towards early completion of Plaquemines LNG, under development in Louisiana, stating these capacity expansions will likely suffice to meet additional customer demand.

Looking ahead, Venture Global's co-founder sees increasing demand for LNG in the next few years. “We think there's approximately 100 million tonnes of new production capacity required roughly in 2025 and by 2040 it's going to be 300 million tons to 400 million tons,” he said, adding:



“The growing energy needs are going to have to be bridged, hopefully, by a lot of gas and LNG.”

Risk of “short-term green-outs”

“If not, the market is going to be exposed to the short-term green-outs that we're seeing in California which are going to be very detrimental to the continued support of alternatives to fossil fuels.”

As of late, Californian utilities have been battling to come to terms with hard to contain wild-

fires, with up to 3 million residents in surrounding areas facing the risk of power outages. California Independent System Operator (CAISO) declared an emergency after a transmission line, carrying electricity from Oregon to California, went offline unexpectedly.

Pacific Gas & Electric, the state's largest utility, warned customers that it might cut power starting Tuesday because of expected high winds and heat that could create even greater fire danger.

Gas to dominate world's energy mix from 2025

Fossil fuels will make up 54 percent of the world's primary energy supply in 2025, and much of this supply will come from natural gas, as it becomes the world's largest energy source from the mid-2020. However, just 13% of that natural gas will be decarbonised in 2050.

Carbon emissions will remain “stubbornly high” for another 15 years, the Norwegian classification society DNV GL says and the oil & gas industry will still account for over 80% of energy-related emissions in 2050.

“Pressure is increasing on the oil and gas industry to decarbonise, and this is coming from all sides: from society and governments, from investors, and also from people within the oil and gas industry. We see the sector increasingly putting the energy transition at the centre of its agenda, but climate change and ambitions to reduce it are outpacing action. The industry needs to prepare for an energy system that does

not accept the release of carbon emissions,” said Liv A. Hovem, CEO, DNV GL - Oil & Gas.

The transformation to decarbonising gas will not scale for another 15 years, and only really gets going in the 2040s.

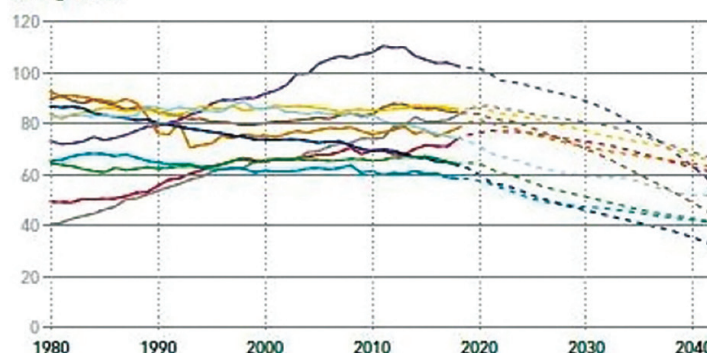
“The transition to renewables and efforts to cut carbon intensity will significantly reduce emissions, but they will not deeply decarbonise natural gas, which the world's energy system will depend upon for years to come,” said

Hovem. “It is only by removing the carbon from natural gas - before or after combustion - that the oil and gas industry can deeply decarbonise, reaching hard-to-abate sectors throughout the value chain,” she underlined.

FIGURE 0.2

Emission intensity of final energy demand by region

Units: gCO₂/MJ



*For more information about the world regions covered by our forecast, see Section 1.1

- **North America (NAM)** Canada and the US
- **Latin America (LAM)** all nations from Mexico to the southern tip of South America, and including the Caribbean
- **Europe (EUR)** all European countries including the Baltics. Excludes Russia, all former Soviet Union republics, and Turkey
- **Sub-Saharan Africa (SSA)** all African countries except Algeria, Egypt, Libya, Morocco, and Tunisia
- **Middle East and North Africa (MEA)** from Morocco to Iran. Includes Turkey and the Arabian Peninsula
- **North East Eurasia (NEE)** Russia and neighbouring countries, including all former Soviet Union states except the Baltics. Includes Mongolia and North Korea
- **Greater China (CHN)** Mainland China, Taiwan, Hong Kong and Macau
- **Indian Subcontinent (IND)** India, Pakistan, Bangladesh, Sri Lanka, Afghanistan, Nepal, Bhutan and the Maldives
- **South East Asia (SEA)** From Myanmar to Papua New Guinea. Includes many smaller island states in the Indian and Pacific Oceans



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Keppel to convert FSRU for LNG-to-Power project in El Salvador

Singapore-based Keppel Shipyard has been contracted to convert an LNG carrier to a floating storage and regasification unit (FSRU) for use at El Salvador's first LNG-to-power project. The FSRU will be installed in the second half of 2021, for the power plant to start operating before year-end.

The contract was awarded by FSRU Development Pte, a joint venture company between BW Gas and Invenery Investment. The latter is a major investor in Energia del Pacifico (EDP), developer of the LNG-to-power project at Port of Acajutla.

Keppel said its two latest contract wins, for the FSRU and for a US hopper-dredger, were worth

around S\$200 million (US\$147m).

FSRU capacity pegged at 137,000 cbm

BW Group did not disclose which carrier Keppel will convert to an FSRU, but market observers expect the capacity will be around 137,000 cubic meters. The Norwegian ship-owner has five carriers with similar capacities that may

be used for the conversion.

For Keppel the conversion order is the fifth so far. It previously delivered *Hilli Episeyo*, the world's first floating LNG vessel and is currently converting *Gimi* for its second FLNG conversion and Singapore's first LNG bunkering vessel.

Lead time under 24 months

Financial close was reached in December 2019, in time for the integrated LNG regas and power project to be built, commissioned and ready for operational start within 24 months. The project brings approximately \$1 billion foreign direct investment for the Central American nation, making it the largest private investment ever in the country.

The FSRU for the Acajutla power plant will permanently moored offshore to convert a steady stream of LNG to natural gas as fuel for power generation. Once regasified, the gas fuel will be transported from the FSRU to the power plant through a sub-sea pipeline to be built by Boskalis.

The overall Acajutla LNG-to-Power project will consist of a 378 MW gas-fired power plant, the FSRU and a 44 kilometre electric transmission line that will link the plant with the Central American Electrical Interconnection System which links the grid of six countries.

Shell agreed to supply LNG for the power project under a long-term contract with EDP, El Salvador's incumbent energy company. ■



Siemens strives to get SeaFloat onstream in Dominican Republic by early 2021

Though travel restrictions are still in place in the Dominican Republic to contain the coronavirus, Siemens is striving to deliver a barge-mounted power plant, based on SGT-800 gas turbine, on time and on budget. The 145 MW *Estrella del Mar III* is due to start operations by spring 2021.

Siemens claims the SeaFloat barge-mounted power plant will supply the Dominican Republic with electricity at a lower cost than a land-based fossil power plant. Installed on behalf of Seaboard, an independent power producer (IPP), *Estrella del Mar III* will be moored offshore Santo Domingo.

SeaFloat cheaper than land-based plant

Once operational in spring 2021, the floating power plant will provide the Dominican Republic with "a quality proven power plant at a lower cost in comparison to a similar land-based power plant," the project partners stressed.

Due to site constraints with limited free land, the customer

selected a SCC-800 2x1 SeaFloat concept with two Siemens SGT-800 gas turbines and one SST-600 steam turbine. The turbine gensets are of single lift package design for floating applications, utilizing a frame-based design with a three-point mount. "This allows increasing the plant size in comparison to a land-based power plant," Siemens underlined.

Turnkey 'plug and play' concept

Siemens will realize the project under a turnkey 'plug and play' concept, whereby the German OEM will design and build the 145 MW combined-cycle power plant.

Singapore-based ST Engineering will be responsible for the en-

gineering design, procurement and construction (EPC) of the floating power barge, the balance of plant and the installation works. Fluence Energy, a JV company of Siemens and AES, will provide a 5MW/10 MWh battery that will be integrated in the power plant for frequency regulation control,

allowing it to operate at full capacity with highest fuel efficiency.

Siemens SeaFloat power plants are adaptable for various needs. While most market requests are for the SGT-800 gas turbine, further solutions are available based on the based on the SGT-A65 and SGT-8000H series. ■



Render of a SGT-800 SeaFloat power plant with adjacent LNG tanker

US LNG July - September

LNG Journal

- July - September exports totalling 6.95mmt on 30th September
- Significant month-on-month growth of 0.54mmt (24 pct) in September
- Total shipments down significantly over same three-month period last year
- Avg. US capacity utilisation at 54pct for July-September period

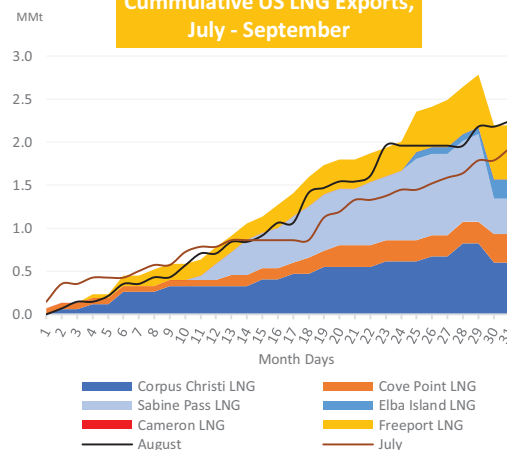
Exporters of US LNG have had a difficult summer. Faced with almost absent energy demand growth, increased competition from oil-linked LNG supply and a string of severe weather resulted in an uphill struggle. US LNG exports for the period covering July, August and September stood at 6.95mmt with a delivery horizon of 9 October at the time of writing. Meanwhile, average capacity utilisation for the period had retreated from 62pct in May-June to just 54pct for July-September. Accordingly, US LNG exports in July-September were down 3.19mmt (-31pct) on the period's preceding three months of April, May and June. This also means total US LNG exports for the period fell considerably below their year-on-year levels, shipping 1.95 mmt (-21pct) less in July-September this year than in 2019.

However, the aforementioned negative difference notwithstanding, US LNG supply has begun to slowly recover market share as shipments began to grow again in August. Nevertheless, US export growth that month remained modest as global LNG demand had just begun to recover in the Pacific, with some typical destinations for US LNG in Europe such as Italy still curtailing offtakes. Northeast Asian LNG demand as whole had not expanded as usual in the run up to summer as anti-COVID-19 measures reduced economic activity, thereby effecting the scope for growing US sales to other Pacific demand

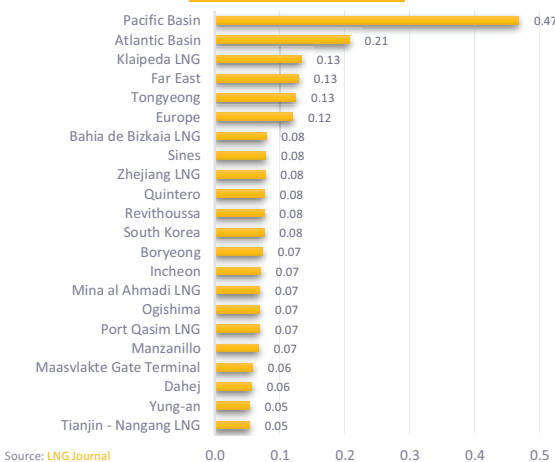
centres. Lacklustre energy demand also carried over into the oil market, thus weighed on prices of Brent-linked LNG over the summer and often increased its relative competitiveness over US LNG in an already oversupplied market. Severe weather towards the end of August and the middle of September - namely Hurricane Laura and Tropical Storm Beta, respectively - also held back US LNG shipments.

September still saw more robust growth of 0.54mmt (24pct) month-on-month, but which was weighed down by the month-long market absence of Cameron LNG. The plant was disconnected from its power supply, which was only partially restored when Tropical Storm Beta hit the coast of the US Gulf of Mexico. In our view, the plant is unlikely to be operational in October. At the time of writing, our data indicated that the Marvel Crane scheduled arrival at Cameron had been pushed back by ten days to 27th October whilst the SCF La Perouse was redirected from an arrival at Freeport LNG to Cameron LNG but with the projected loading date pushed back into early November. Nevertheless, we expect monthly US LNG exports to continue to expand in October due to low 'base line' established by the last three months. Sabine Pass LNG in particular has shown robust month-on-month growth of 0.48mmt (79pct) in September.

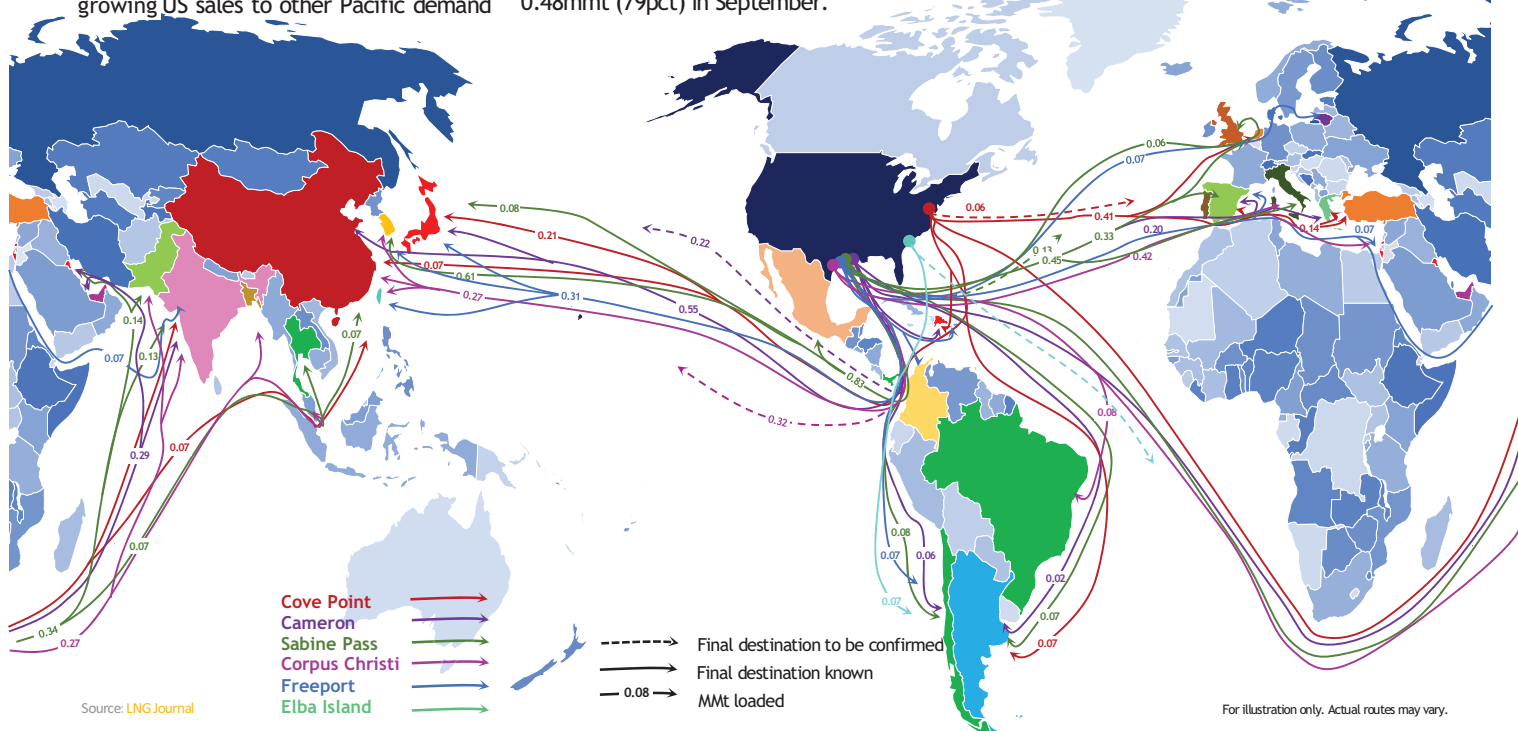
Cummulative US LNG Exports, July - September



In-transit LNG (mmt)



Source: LNG Journal



Source: LNG Journal

For illustration only. Actual routes may vary.

US LNG Still in Transit

At the time of writing, 37 cargoes (2.48mmt) shipped since mid-August remain in transit, with 15 (0.99mmt) still lacking confirmed destinations within the Pacific and Atlantic Basins. We are currently expecting c. 30% (0.75mmt) of in-transit US LNG exported since mid-August to arrive at

destinations throughout the Atlantic Basin and Europe. At the same time, with two Sabine Pass shipments totalling 0.14mmt aboard the *Rioja Knutsen* and the *Golar Ice* currently earmarked for the Middle East, the Pacific Basin is expecting the remaining 64% (1.59mmt) of in-transit

LNG, with 0.80mmt currently headed for the Far East. Our LNG Market Tracker indicates there are two US LNG shipments still to arrive in China via the *Diamond Gas Rose* and the *Bushu Maru*. We are anticipating their arrivals between 8th and 10th October.

Previous Export Port	Vessel Name	IMO	Destination	Arrival	MMt*
Elba Island LNG	Gaslog Houston	9748899	Pacific Basin	25/10/2020	0.08
	Energy Innovator	9758832	Ogishima	10/10/2020	0.07
Cove Point LNG	Energy Liberty	9736092	Rotterdam	04/10/2020	0.06
	Bahrain Spirit	9771080	Europe	05/10/2020	0.06
Cameron LNG	Diamond Gas Rose	9779238	Tianjin - Nangang LNG	10/10/2020	0.05
	Bushu Maru	9796793	Zhejiang LNG	08/10/2020	0.08
Freeport LNG	Golar Crystal	9624926	Atlantic Basin	12/10/2020	0.06
	Arctic Aurora	9645970	Klaipeda LNG	07/10/2020	0.07
	Prism Brilliance	9810551	Boryeong	17/10/2020	0.07
	Gaslog Windsor	9819650	Bahia de Bizkaia LNG	11/10/2020	0.08
	GasLog Shanghai	9600528	Dahej	30/09/2020	0.06
	Magellan Spirit	9342487	Port Pecem FSRU	30/09/2020	0.06
	Arwa Spirit	9339260	Pacific Basin	26/10/2020	0.06
	Cool Runner	9636797	Far East	04/10/2020	0.07
	K. Mugungwha	9373010	Tongyeong	06/10/2020	0.06
	Maran Gas Vergina	9732369	Far East	21/10/2020	0.06
Corpus Christi LNG	Marvel Eagle	9759240	Pacific Basin	10/10/2020	0.06
	Pan Asia	9750220	Atlantic Basin	28/10/2020	0.08
	Singapore Energy	9238040	Yung-an	16/10/2020	0.05
	Golar Arctic	9253105	Pacific Basin	06/10/2020	0.06
	Global Energy (II)	9845013	Revithoussa	17/10/2020	0.08
	Traiano Knutsen	9854765	Sines	01/10/2020	0.08
	Energy Atlantic	9649328	Dahej	20/10/2020	0.06
	Gaslog Hong Kong	9748904	Oita	01/10/2020	0.07
Sabine Pass LNG	Hyundai Peacepia	9761853	South Korea	17/10/2020	0.08
	Oak Spirit	9681699	Pacific Basin	12/10/2020	0.08
	Rioja Knutsen	9721736	Mina al Ahmadi LNG	28/10/2020	0.07
	Excalibur	9230050	Pacific Basin	09/11/2020	0.06
	GasLog Sydney	9626273	Atlantic Basin	10/10/2020	0.07
	Golar Ice	9637325	Port Qasim LNG	12/10/2020	0.07
	Hyundai Princepia	9761841	Incheon	13/10/2020	0.07
	Maria Energy	9659725	Europe	04/10/2020	0.06
	SM Seahawk	9761839	Tongyeong	14/10/2020	0.06
	Trinity Glory	9350927	Manzanillo	03/10/2020	0.07
	Bonito LNG	9845788	Pacific Basin	07/11/2020	0.08
	Flex Artemis	9851634	Quintero	28/10/2020	0.08
	Fuji LNG	9275359	Pacific Basin	01/11/2020	0.06
Grand Total		37			2.48

*Values are based on journey time to date in accordance with draught at departure and in-transit BOR. Eventual journey times will thus affect the final amounts delivered.

Monthly US LNG Exports (MMt) as of 30th September

Elba Island LNG

Elba Island LNG has exported a rare cargo in late August, its first since January this year. The 0.07mmt cargo aboard the Maran Gas Hector arrived at Chile's Quintero terminal on 15th September. Elba Island suffered a temporary setback to start operations at full capacity due to a fire in mid-May.

Cameron LNG

Exports from Cameron LNG declined significantly between July and September, our data shows. Whereas July exports amounted to 0.63mmt (94pct utilisation), total shipments had decreased by 0.14mmt (-22pct) to 0.49mmt in August (74pct utilisation). We did not record any Cameron LNG exports in September. At the time of writing, the plant had only one cargo still in transit - a projected 0.05mmt delivery via the *Diamond Gas Rose* to Tianjin - Nangang LNG around 10th October.

Cove Point LNG

Cove Point LNG maintained shipped volumes in July/August at almost nameplate capacity but saw a significant decrease in exports in September. July shipments amounted to 0.43mmt (98pct utilisation) with their August equivalent coming in at 0.42mmt (96pct utilisation). However, September exports decreased by 0.17mmt to just 0.25mmt (-40pct). There are currently four Cove Point cargoes in transit - two headed for the Pacific and Ogishima in Japan and two to Rotterdam and Europe.

Freeport LNG

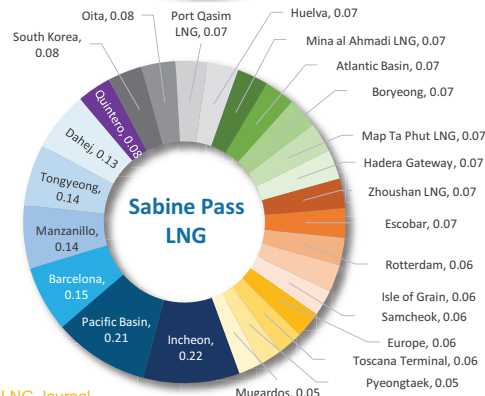
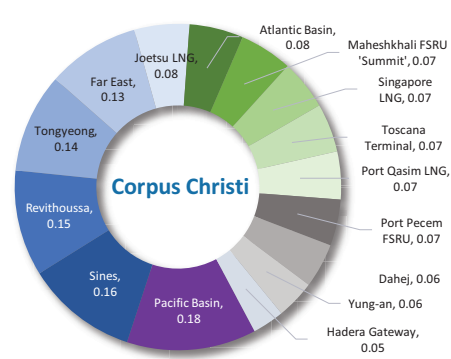
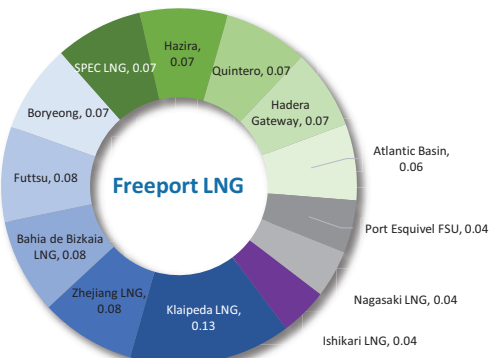
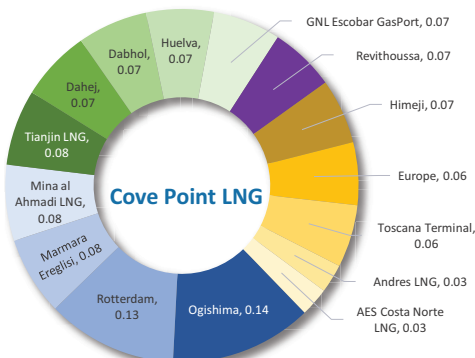
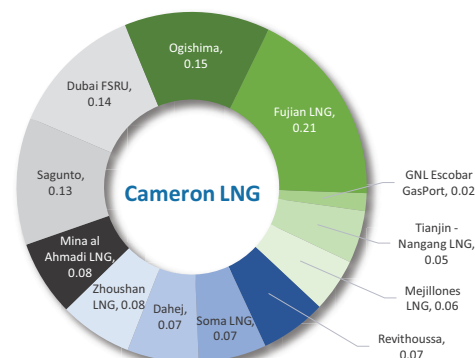
Freeport LNG slashed exports between March and July but recovered in August and September. Whilst July only saw one shipment via the *Castillo de Merida*, exports in August climbed to 0.23mmt (31pct utilisation) and reached 0.55mmt (74pct utilisation) September. The plant still had five cargoes amounting to 0.36mmt in transit at the end of September, 15mmt (42pct) of which are expected to arrive in China and South Korea whilst the remaining 0.21mmt (58pct) are due in Europe.

Corpus Christi LNG

In line with most of its fellow exporting plants, the facility in Texas saw utilisation recover from 25pct in July to 110pct on 0.82mmt shipped in September. As in May-June, Corpus Christi continued to ship the majority of its LNG - 0.80mmt (56pct) - to destinations in the Pacific and the Far East. Only 0.44mmt (31pct) are earmarked for Brazil and Europe, which leaves 0.11mmt shipped to the Middle East.

Sabine Pass LNG

Sabine Pass LNG's exports stood at just 0.60mmt in July and 0.61mmt in August, pegging capacity utilisation at only 32pct over the two months. This contrasted starkly to the full utilisation seen in March-April. Although Sabine Pass's exports improved markedly by showing 0.48mmt (79pct) month-on-month growth to 1.09mmt in September, this still left the plant at only 58pct utilisation for the month. Sabine Pass exports were mainly headed to the Far East (36pct), with South Korea taking up the lion share of 0.61mmt.



Source: LNG Journal

US LNG Exports Past and Present (MMt)

To Country	2019							2020						Grand Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
South Korea	0.14	0.91	0.50	0.76	0.84	0.27	0.59	0.50	0.37	0.58	0.20	0.28	0.35	6.27
Japan	0.52	0.50	0.36	0.50	0.57	0.43	0.41	0.37	0.27	0.41	0.22	0.46	0.07	5.09
Spain	0.71	0.25	0.40	0.26	0.51	0.36	0.45	0.47	0.63	0.18	0.27	0.07	0.21	4.77
United Kingdom	0.07	0.46	0.85	0.56	0.69	0.57	0.42	-	-	-	0.06	-	-	3.68
France	0.12	0.28	0.47	0.32	0.11	0.41	0.46	0.31	0.06	-	-	-	-	2.55
India	0.28	0.17	0.13	0.14	0.07	-	0.36	0.36	0.21	0.19	0.15	0.22	0.12	2.40
Turkey	-	0.07	0.15	0.05	0.70	0.49	0.12	0.36	0.14	-	0.08	-	-	2.17
Netherlands	0.07	0.13	0.21	0.34	0.12	0.30	0.28	0.20	0.14	0.13	0.13	-	0.06	2.11
Italy	0.07	-	0.13	0.26	0.13	0.33	0.21	0.07	0.12	0.27	0.06	0.13	-	1.78
Chile	0.19	0.14	0.08	0.14	0.09	0.22	0.08	0.28	0.23	0.07	0.06	0.14	0.08	1.78
China	-	-	-	-	-	-	0.37	0.43	0.30	-	0.22	0.26	0.08	1.66
Mexico	0.20	0.14	0.06	0.20	0.14	0.07	0.15	-	-	-	-	0.07	0.07	1.10
Taiwan	-	0.07	0.07	0.07	0.19	0.14	0.12	-	0.14	0.06	-	-	0.06	0.92
Greece	-	-	-	0.12	0.21	-	0.19	0.07	-	0.04	0.13	-	0.15	0.90
Brazil	0.15	0.06	0.07	-	0.17	0.21	0.14	-	-	-	-	0.07	-	0.88
Belgium	0.07	-	0.06	0.12	0.11	0.20	0.08	0.06	0.11	-	-	-	-	0.82
Portugal	0.05	0.08	-	0.08	0.07	0.11	-	0.22	-	-	-	-	0.16	0.76
Poland	-	0.07	0.07	0.13	0.05	0.12	0.07	0.08	0.13	-	-	-	-	0.74
Pakistan	0.12	0.08	0.07	0.06	0.06	0.07	-	0.07	-	-	-	0.07	0.07	0.67
Pacific Basin	-	-	-	-	-	-	-	-	-	-	-	0.06	0.54	0.61
Thailand	0.05	-	-	-	-	-	0.08	0.15	0.22	-	0.07	-	-	0.57
Dominican	0.09	0.06	0.07	0.02	0.01	-	0.08	0.08	0.06	-	-	-	0.03	0.50
Lithuania	-	-	-	0.07	-	-	-	0.06	0.07	0.06	-	-	0.13	0.40
Singapore	-	0.05	-	0.05	-	-	0.22	-	-	-	0.07	-	-	0.39
Argentina	-	-	-	-	-	-	-	-	0.15	0.07	0.02	0.13	-	0.38
Atlantic Basin	-	-	-	-	-	-	-	-	-	-	-	-	0.33	0.33
Jamaica	-	-	-	0.02	-	0.05	-	0.13	0.05	-	-	-	0.04	0.30
Israel	-	-	-	-	-	-	0.06	-	-	0.06	0.05	0.07	0.07	0.30
Kuwait	-	-	-	-	-	-	-	0.07	-	-	-	0.15	0.07	0.29
Bangladesh	-	-	-	0.07	0.07	-	-	-	0.07	-	0.07	-	-	0.28
UAE	0.07	-	-	-	-	-	-	-	-	0.07	0.07	0.07	-	0.27
Panama	-	-	0.01	-	0.01	0.07	0.01	-	0.06	-	-	-	0.03	0.18
Jordan	0.07	-	-	-	-	-	-	-	0.07	-	-	-	-	0.14
Colombia	-	-	-	-	0.03	0.01	-	-	-	-	-	-	0.07	0.11
Malaysia	-	-	0.07	-	-	-	-	-	-	-	-	-	-	0.07
Malta	-	-	-	-	0.03	-	-	-	-	-	-	-	-	0.03
Puerto Rico	0.01	-	-	-	-	-	-	-	-	-	-	-	-	0.01
Grand Total	3.05	3.52	3.84	4.35	4.98	4.43	4.94	4.33	3.61	2.20	1.92	2.24	2.79	46.19

Source: LNG Journal

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