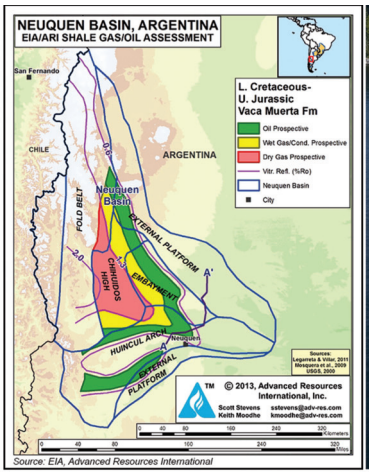
Includes LNG Unlimited Data

LNG North America

A MONTHLY LNG JOURNAL PUBLICATION October 2019

Argentina's seasonal LNG exports align with peak demand in north Asia

Rising national gas production in Argentina and peak potential LNG export during the summer months is coinciding with strong winter demand from utilities in the northern part of China and Japan. This seasonal dynamic is attracting Asian buyers amid very competitive shipping costs.



Source: EIA, Advanced Resources International

Argentinean LNG liquefaction plants, in fact, have lower shipping costs to reach Asian markets than US Gulf Coast facilities, not least because they can avoid potential Panama Canal congestions. For utility buyers in northern Asia, cargoes from Argentina are becoming an overall cheaper alternative to US LNG exports.

Falling breakeven costs

Supported by the Vaca Muerta, Argentina's production in the Neuquén basin will ramp up over the next few years to amount to 15% of the country's gas production by 2024. Upstream costs keep falling, analysts say, anticipating projects in the condensate and dry gas window with breakevens below $3 units (mmBtu) will enter into full development in the upcoming years.

A lack of underground gas storage facilities close to demand means that gas flow to LNG export terminals will be seasonal. Based on the new research, Wood Mackenzie anticipates that LNG volumes could potentially reach 6 million tonnes per annum (mtpa) in that year, which could then grow to 10 mtpa by 2030.

Despite other price challenges posed by the seasonal utilization of LNG plants, analysts estimate breakevens for Argentina LNG of $8/mmBtu at delivery ex. ship for Japan.

Asian players enter Argentinean shale

"Argentina's LNG could be interesting to players who want to diversify supply outside North America. The seasonality of its output could be also seen as a virtue for Asian utilities that are looking to contract just for their peaking demand months in the northern hemisphere," Mauro Chavez

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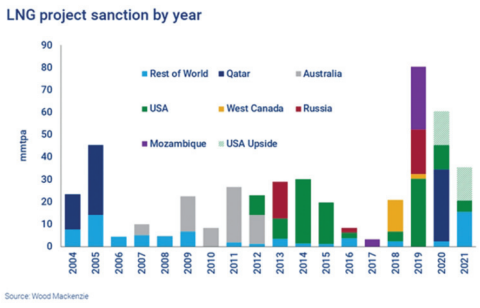
Record number of pre-FID LNG projects court utility buyers

European utilities are courted by more and more sellers marketing long-term LNG volumes from pre-FID LNG supply projects. To gain access to attractively-prices US LNG, however, European buyers need to turn their back on hub-pricing and open up to Henry Hub-indexation, instead.



Source: Wood Mackenzie

The European gas market is currently dominated by hub pricing, with most volumes being traded at the British National Balancing Point (NBP) or at the Dutch Title Transfer Facility (TTF).

In contrast, the first and second wave of US LNG export projects is selling cargoes priced through oil-indexation, or at Henry Hub.

"US LNG suppliers like the liquidity of Europe. But European utilities' appetite for Henry Hub price risk is limited - and likely to remain so. Resolving this impasse may be possible through more creative deals. If utilities don't find a way, they run the risk of losing significant market share to LNG portfolio players and commodity traders," Murray Douglas, from Wood Mackenzie's European gas research team said at Gastech 2019 in Houston.

"But equally, US LNG sellers

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AGENDA

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Rodriguez, principal analyst, Latin America Gas & LNG said at the Gastech conference in Houston.

Some Asian players are already active in the Argentinean shale. Petronas is participating with YPF in the joint venture of La Amarga Chica, while CNOOC participates indirectly through its subsidiary, Pan American Energy, in the Aguada Pichana Oeste. Meanwhile, Qatar Petroleum recently has shown interest in Argentina, buying a stake of ExxonMobil's business unit in that country, and also partnering for exploration offshore.

Exmar commissions Tango FLNG

Argentina's LNG export aspirations are becoming reality as Exmar, the Belgian shipping firm, commissioned the 16,100 cbm Tango floating liquefaction unit (FLNG) and loaded the first cargo in June this year. Tango FLNG is envisaged to export 500,000 tons of LNG per year with up to eight cargoes meant to be produced over the ten-year period starting from winter 2019.

The rival Excelerate/TDS project, in contrast, is still at an evaluation stage with the two project partner still studying the technical and commercial viability of liquefying and exporting excess shale gas during the summer season. If realized, the Excelerate/TDS liquefaction project is mean to be realized under a 25-year license.

Critics are skeptical of Argentina's energy policy goals. "The government wants to attract as much investment as possible and feels it has to move quickly and drum up interest as long as interest rates are low. YPF cannot do it alone, especially with the Peso being so weak and Argentina's credit history. Hence they are essentially copying the US model on shale oil and gas production," said LNG Unlimited analyst Alex Wilk.

"Ultra-low interest rates are vital for sustained tight hydrocarbon production," he stressed; "But investors likely want to see opportunities for monetization beyond the domestic market, where prices tend to be capped, and their banks presumably want a risk premium, hence the view to LNG exports." ■

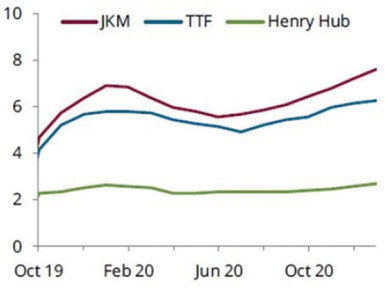
Low TTF prices make US LNG head to Asia

Near-curve gas prices at the Dutch Title Transfer Facility (TTF) have fallen as low as $3.86 per million British thermal units (mmBtu) in recent weeks, driving up demand for LNG shipping to higher-priced markets in Asia.

Energy Aspects says the TTF Oct-19 contract has already priced in much of the incremental demand from the power sector switching to gas from coal. Demand for Q4-19 cargo delivery to Europe keeps falling, given there is limited storage capacity left for injections in October.

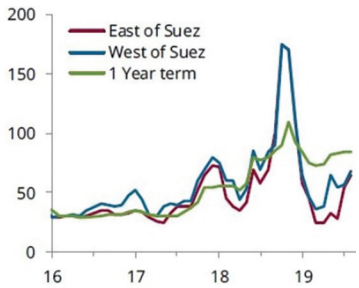
The Japan Korea Market (JKM) Nov-19 premium to the Dutch TTF has increased further above the additional shipping costs for sending US Gulf Coast cargoes to Northeast Asia compared with sending them to Northwest Europe.

JKM, TTF, Henry Hub forwards, $/mmbtu



Source: ICE, Energy Aspects

Shipping rates, $000/d



Source: Fearnleys, Energy Aspects

Strong interest from Asian buyers

In the price-sensitive South Asia market, buying interest appears strong for October which supports Q4-19 prices in the region. Indian buyers have so far sought 13 cargoes through tender for October delivery, which would be well above spot demand in October 2018 and the highest for any month so far in 2019.

Northeast Asian spot prices are propped up by tenders from China's Guangzhou Gas for three LNG cargo deliveries over October-December. Chinese buyers will not offtake US cargoes —tariffs mean no US cargoes have been sent to China since March. But Chinese buying will support demand for other cargoes from the Atlantic basin.

"We expect a jump in Chinese LNG import demand in October to 7.4 million tons, from 6.3 Mt in October 2018, based on growth in recent months," analyst said, suggesting: "There is headroom in Chinese regasification capacity to support this y/y increase in October, although y/y rises later in the winter will be capped by regas capacity reaching maximum utilization." ■

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will be weary of significant LNG volumes being marketed by competing projects in Qatar, Russia and Mozambique," he added. Ultimately, the growing gas glut on global markets may make some US sellers willing to price LNG into European hubs.

Demand for natural gas keeps growing in Europe, although the continent is striving to transition to green energy sources. By 2030, Europe is forecast to import over 400 billion cubic metres (bcm) of gas per year, up from almost 310 billion cm in 2018.

"Only 12% of Europe's imports by 2030 will be piped from North Africa and through the southern corridor," Murry said, suggesting "this will leave a significant gap for Russian piped supply and LNG to fill."

Cheniere strikes LNG-indexed deal

New LNG pricing terms are heralded by Cheniere Energy which agreed to sell 140 million cubic feet per day (mmcfd) indexed to Platts Japan Korea Marker (JKM) to the Houston-based company EOG Resources. Under the agreements reached just prior to the Gastech conference, gas sales will start at 140 mmcfd and rise to 440 mmcfd. The remaining 300 mmcfd will be price indexed to Henry Hub.

The latest JKM-indexed gas sales agreement follows a similar deal in June, when Apache agreed to sell 140 mmcfd – equivalent to 0.85 million tonnes per annum (mtpa) of gas to Corpus Christi Stage-3.

Wood Mackenzie commented Cheniere's ability to structure long term gas sales agreements with US producers on an LNG price index leverages the strengths of its business. Cheniere is the largest buyer of natural gas in the United States, has a world-class track record for project execution and a dedicated marketing business, CMI, through which gas bought in the US on an LNG price index can be marketed globally. ■

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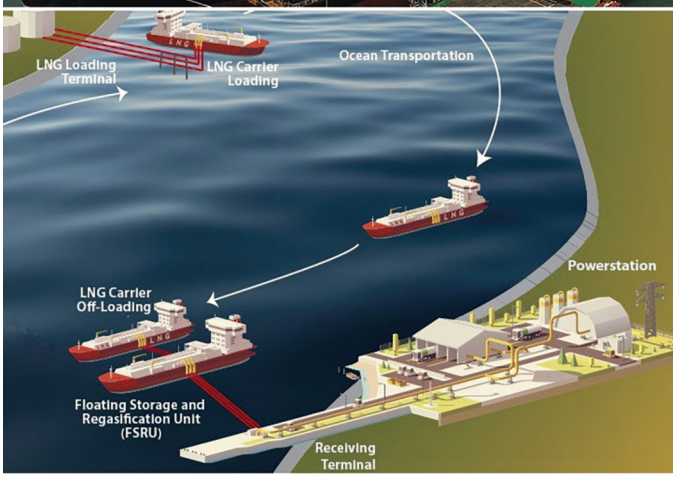
Subscription included with LNG Journal

FSRUs bought on spec to fast-track LNG-to-Power projects

Speculative orders for Floating Storage and Regas Units (FSRU) are on the rise as developers want to have the vessels ready for quick deployment once local regulators issue a permit for an LNG-to-Power project. There is a trend towards owing FSRUs rather than chartering the units, says Tor-Ivar Guttulsrød, Director FSRU & FLNG at ABS Global Gas Solution.

Exmar had ordered speculatively for a project in Bali rather than against specific order, but still secured long term charters. Meanwhile, several developers ready to take FID are awing local regulators to permit the use of floating power supply in national waters.



Project owners might charter tonnage while units are under construction but the longer term strategy is to maximize return on investment by owning the FSRU, he explained, suggesting this follows the trend set in the FPSO market.

Tenders for small-scale energy provision have been opened on more than one occasion in Indonesia, but many failed to materialize. As Asia's largest archipelago, Indonesia consists of over 7,000 islands that are in need of decentralized power supply.

Counting the unit costs

"LNG is the logical answer, being cheaper and cleaner than coal-fired alternatives, as well as offering greater versatility as it can also be used as a local transport fuel," Guttulsrød said. He warned, however, that the question of the unit cost of LNG delivery is not straightforward. Whether the supplier sells gas on an MMBtu or per tonne basis, the infrastructure and transport costs are not linear so it can be a challenged to achieve the necessary delivered price.

Operators of the FSRU and associated power plant also need to navigate local conditions since energy markets can be subject to regulation that may impact the ability to operate some types of vessels offshore. Stable offtake of both delivered LNG and the subsequently generated electricity is paramount, so developers need to secure a long-term government commitment before getting access to finance.

In technical terms, building a smaller-scale FSRU unit can be more complex that a full-scale unit. Ship yards capable to execute this tend to be situated in South Korea or China. Of current full scale FSRU projects, Mr. Guttulsrød revealed that ABS is classing a 170,000 cu m unit currently under construction for Turkish operator Botas at Hyundai Heavy Industries and Dynagas' FSRU under construction at Hudong-Zhonghua in China. ■

GasLog to provide FSU for Panama power project

GasLog has confirmed that one of its subsidiaries has signed a 10-year time charter with Sinolam LNG Terminal to provide a Floating Storage Unit (FSU) for a gas-fired power plant being developed in Panama. The vessel to be used is expected to be the 155,000 cu m 'GasLog Singapore', a tri-fuel diesel-electric (TFDE) LNGC built in 2010.

As well as being FSU ready, the vessel will still be able to trade as an LNG carrier following her conversion. The conversion project will take place in conjunction with the vessel's scheduled five-year special survey in the third quarter of 2020, enabling both time and cost synergies with the vessel's regular dry-docking period.

The charter will commence upon her delivery in Panama, which is scheduled for November, 2020 and the contract is for a fixed period, thereby delivering 100% utilization for the duration of the charter, GasLog said. The unit will also incur a lower Opex than if the vessel was trading as an LNGC.

GasLog further said that the charter will generate about $20 mill of EBITDA per annum over its 10-year life.

Upon her delivery, the FSU will receive, store and send out LNG to a gas-fired power plant currently being developed near Colón, Panama, by Sinolam Smarter Energy LNG Power Company (Sinolam), a subsidiary of private Chinese investment group Shanghai Gorgeous Investment Development Company.

The power project has signed long-term power purchase agreements with leading Panamanian utility companies, as well as a 15-year LNG sale and purchase agreement with Royal Dutch Shell. ■

Gaslog FSU 'Santiago'

Petronet to import US LNG at near-fixed price

India's energy giant Petronet has signed a $7.5 billion agreement with Tellurian to take a stake in Driftwood LNG and import 5 million tons of gas per year. If supplies can be delivered at a close-to-fixed-price, analysts see it as "extremely attractive" for ensuring downstream sales to Indian power producers and industry.

Marketing LNG in India used to be difficult as end-customers in the power sectors are hesitant to lock in long-term offtake agreements when there is a risk of price volatility.

Equity stake in Driftwood LNG

To secure the US cargoes, Petronet signed a memorandum of understanding (MoU) to acquire an 18% equity stake in Tellurian's proposed Driftwood LNG facility in Louisiana. The deal is valued at over $7.5 billion, with $2.5 billion of the total designated for the equity stake.

"The Petronet-Tellurian MoU, if finalized, will be one of the largest deals completed in global LNG. It would also match the size of an existing 5 million tons deal that Petronet has with Qatar," Wood Mackenzie commented.

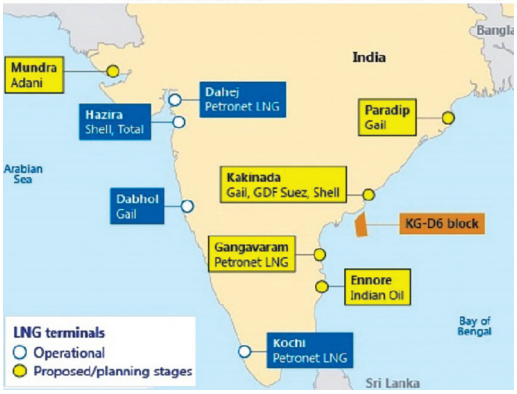
However, Petronet is no longer India's dominant LNG importer. Previously, it negotiated LNG contracts on behalf of shareholders. Now these shareholders such as GAIL and Indian Oil have their own LNG contracts. This reduces the market available to Petronet.

It remains to be seen how commercially viable the Tellurian deal will be for Indian consumers, given that the price of LNG imports from the Driftwood export terminal is still unknown. Today, the added cost of spot LNG at Indian shores is hovering around $5.5/mmBtu and long-term is around $9.5/mmBtu, according to Indian media reports.

Modi's vision for a 'gas economy'

Prime Minister Narenda Modi is pushing to turn India into a gas-based economy, aiming to boost the use of gas from 6.2% to 15% by 2030. To achieve this goal, the PM has set out measures to double city gas networks to 400 districts, set up an independent gas transmission system operator and a trading exchange to allow for transparent operations of pipelines and price discovery.

"Increasing natural gas use will enable India to fuel its impressive economic growth to achieve Prime Minister Modi's goal of a $5 trillion economy while contributing to a cleaner environment," said Tellurian president and CEO Meg Gentle. ■



KOGAS buys more US LNG to facilitate coal-to-gas switch

South Korea's state-run KOGAS has agreed with BP to buy 1.58 million tons of US LNG starting 2025. The deal is worth an estimated $9.61 billion over 18 years and will help facilitate a coal-to-gas switch in the Korean power sector.

BP will be shipping the LNG cargoes from Freeport LNG terminal or Calcasieu Pass all the way to KOGAS' import terminals along the coast of South Korea. The deal is understood to be expendable for three years at a seller's option and is estimated to be worth up to $9.61 billion for 18 years.

"KOGAS has issued tenders for long-term LNG to fill up its longer-term LNG supply requirement. It has one 4.9 mtpa contract with Qatar that expires in 2025", commented Wood Mackenzie research director Nicholas Browne.

Buy flexible, sell at fixed margin

BP has clearly on part of the KOGAS tender and will be following its well-proven strategy. The British oil and gas major is building market share by buying flexible LNG and then selling into markets on a long-term basis at a fixed margin.

"Even if the margin is relatively small, it expands BP's portfolio and enhances its ability to unlock value through the wider portfolio," Brown explained.

As the world's third largest LNG importer, South Korea typically buys between 35 and 40 million tonnes a year, predominantly sourced from Qatar and Australia. KOGAS' deal with BP heralds the start of US LNG imports.

Korea's tables green energy policy

Eager to curb air pollution, the South Korean government enacted policy measures to make power producers favor natural gas over thermal coal. To this end, import taxes on coal were raised by another 28% to US$40/t, while reducing taxes on LNG imports by 75%.

Korean coal imports are forecast to fall by almost 50% by 2040 under the International Energy Agency's (IEA) New Policies Scenario. Meanwhile, Bloomberg New Energy Finance forecasts the South Korean electricity generation mix will move from 72% coal and nuclear in 2017, to 71% gas and renewables by 2050. ■

Siemens barges to provide peakload power for New York

SeaFloat, Siemens-made power barges equipped with SGT-A65 gas turbines, will be installed at the Upper Bay of Brooklyn in New York City. Two SeaFloats, with a capacity of 300 MW each, will replace existing power barges at Gowanus Generating Station.

Retrofitting Gowanus with SGT-A65 gas turbines and generators will improve the plants' power generating efficiency by nearly 50% while reducing emissions, Siemens said.

SeaFloat power barges with four SGT-A65 gas turbines

Supporting NYC's renewable ambitions

Pursuing an ambitious green energy policy, New York City – with more than 8.5 million inhabitants – is moving to obtain 70% of its energy from renewable sources by 2030. At times when solar and wind power cannot meet the demand, quick start peaking power units like the Gowanus Generating Station will become important, especially in congested areas like Southwest Brooklyn.

The four-barge Gowanus Station (640 MW) was installed in the early 1970s and is approaching the end of its service life. Hence, Astoria Generating Company decided to retire the aging barges at Gowanus as well as at the Narrows Generating Station. Instead, Siemens will deliver eight SGT-A65 gas turbine generating sets – four on each barge – along with a control system. The turbines will run on natural gas as their primary fuel.

"As New York's energy market changes to rely on intermittent power sources like wind and solar, we need to ensure reliability. These state-of-the-art units will provide the quick-start energy production New Yorkers need while reducing potential emissions.

"And because they're on barges, they provide the needed climate adaptation, adjusting to sea-level rise and increased storm surges, and also can be moved if the power is needed elsewhere," said Mark Sudbey, CEO of Astoria Generating Company.

Near 42% simple-cycle efficiency

Each SGT-A65 (Industrial Trent 60) aero-derivative gas turbine will deliver up to 76 MW for the Astoria project in simple-cycle service at 41.8% efficiency. With its fast cold-start capability and high cyclic life, these engines can rapidly add power to the grid to compensate for fluctuating and variable renewable and other energy sources, making it an ideal solution for peaking markets.

To date, more than 115 of the SGT-A65 gas turbines have been sold worldwide with more than 1.8 million fleet hours of experience.

Siemens and Astoria also signed a contract for a 20-year maintenance agreement that includes service on parts, repairs, field services, program management, and offerings from Siemens' Omnivise Digital Services portfolio, including remote monitoring and diagnostics. ■

MOL and Karpowership in first LNG-to-Powership project

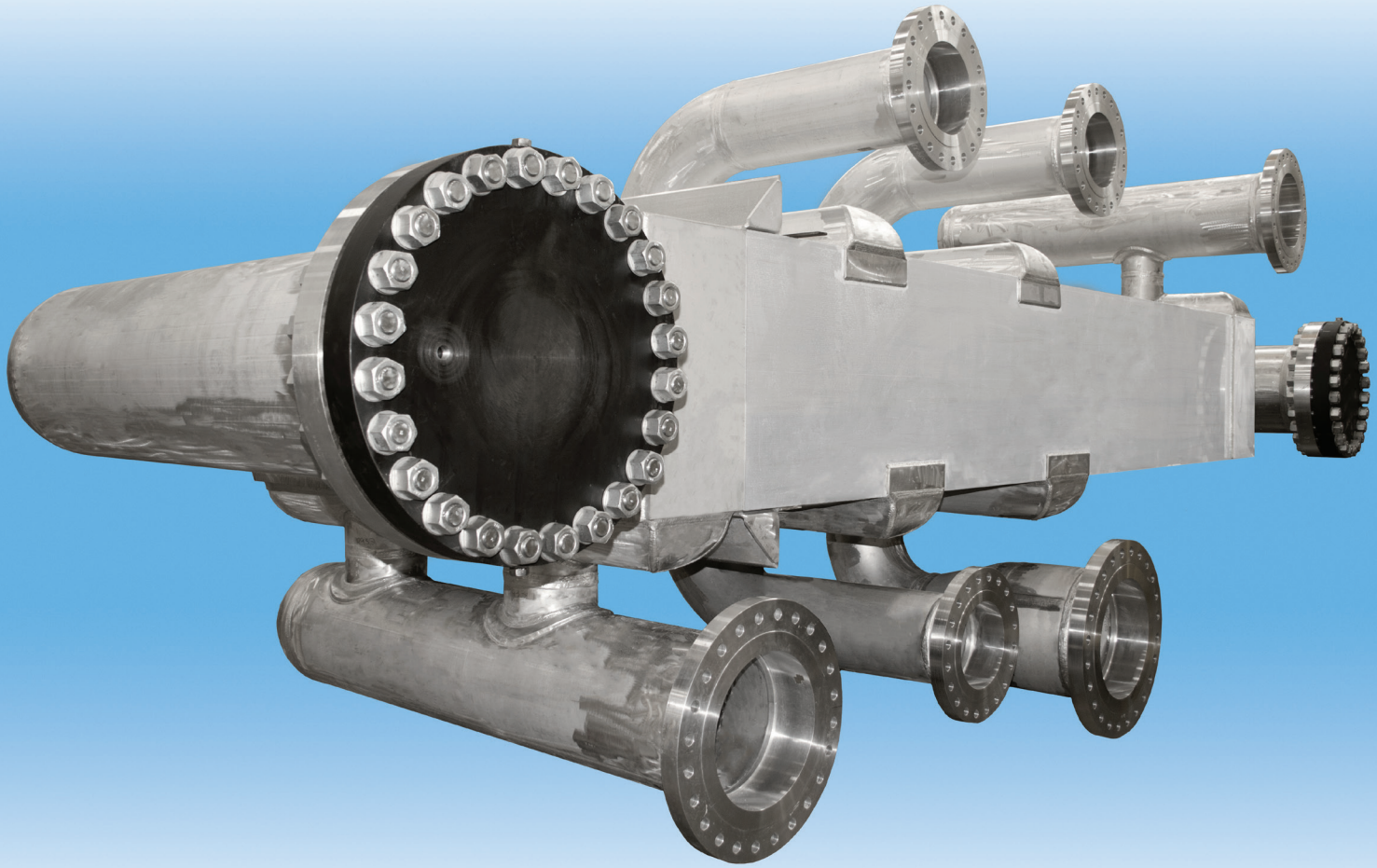
Mitsui OSK Lines (MOL) and Dutch-based Karpower International BV, a subsidiary of Turkey's Karadeniz Holdings, have signed an agreement to jointly carry out the first LNG-to-Powership project in Mozambique. Named KARMOL, the joint owners will operate an FSRU and a patented Powership.

MOL and Karpowership jointly made a presentation in TICAD (Tokyo International Conference on African Development) held last week, at which, the two companies introduced the concept of LNG-to-Powership solution and outlined the Mozambique Project.

This project involves an FSRU to deliver regasified LNG to the Powership to produce electricity, which is then sent to Electricidade de Moçambique (EDM), the Mozambican National Power Utility, through a connection and transmission facility.

As announced earlier this year, the FSRU is now being converted from an existing LNGC. The Powership is currently operating in Nacala, using heavy fuel oil, but under the previous EDM arrangement, it will switch to LNG operations after the FSRU is delivered. ■

At the Core of LNG



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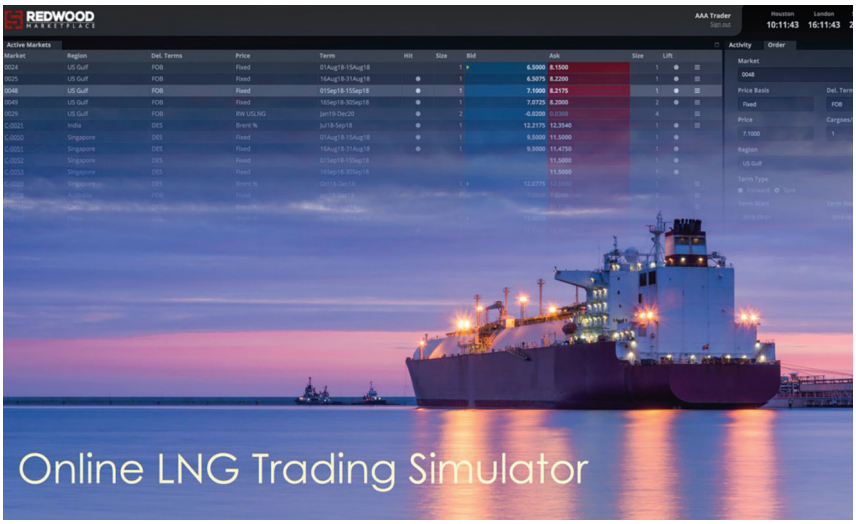
Freeport LNG launches trading window with Redwood

Freeport LNG, the latest US export plant to come on stream at Quintana Island in Texas, plans to launch its own LNG cargo sales windows with trading platform provider, Redwood Marketplace.

Redwood Marketplace explained that Freeport LNG, as a host on the platform would be able to negotiate and match physical, bilateral LNG transactions with potential off-takers in a variety of online formats with multiple options for transparency.

"The advantage of the private storefront is to bring efficiency of online trading to the buyer or seller LNG requirements without losing the direct, private connection between the respective parties," it said. Once the trade is executed, the platform offers a communication channel between the buyer and seller through the loading, delivery and unloading of each cargo.



The first Freeport cargo was lifted on September 4 from the first of the planned four-Train plant and is currently being ramped up to produce 5 million tonnes per annum (mtpa). The current Freeport engineering contract includes three liquefaction Trains with a total of capacity of 15 mtpa, a second loading berth and a 165,000 cubic metres full containment LNG storage tank.

Freeport received regulatory approval in 2019 to build an additional Train 4 and permits from the US Department of Energy (DoE) for the export of Train 4 volumes to Non-Free Trade Agreement countries, opening the way for marketing.

The Redwood Marketplace is an online commodity trading platform that enables buyers and sellers of physical LNG to negotiate and confirm commercial terms while offering efficiency, standardization and price discovery.

Freeport CEO Hugh Urbantke said implementing a 'private storefront' at the liquefaction project will streamline interactions. "It will also allow us to efficiently and transparently provide counterparties direct access to Freeport LNG's spot cargoes." ■

Cameron LNG ships cargoes on schedule despite technical problems

Sempra-led Cameron LNG export plant is suffering some technical problems though said it was managing to stick to its cargo shipping schedule. The facility at Hackberry was rumored to have imposed "force majeure" because it couldn't meet its contract commitments.

The Cameron plant replied to an e-mailed message from the LNG Journal that it didn't comment on its commercial arrangements but admitted there was a small technical issue. "Cameron LNG continues to produce LNG from Train 1 and is loading cargos in accordance with the lifting schedules agreed with its customers," said the statement.

"Regarding recent media reports about technical issues at Cameron, Baker Hughes-GE working with our EPC contractor have determined that there is an issue related to an electrical component and the teams are working expeditiously to bring the matter to a resolution," explained Cameron LNG, referring to contractors McDermott and Japanese engineers Chiyoda.

"The schedules for Trains 2 and 3 have not changed," stated the company. Train 2 and Train 3 were expected to begin producing LNG in the first quarter 2020 and second quarter 2020 respectively.

The first cargo from Cameron LNG Train 1 was lifted by the 177,000 cubic metres capacity carrier "Marvel Crane" and it was delivered to France. Sempra said earlier that its projected share of full-year run-rate earnings from the first three Trains at Cameron could range between $400 million and $450 million annually.

The other shareholders in the Cameron plant in addition to Sempra, are French major Total, Japanese trading house Mitsui and Japan LNG Investment, a company jointly owned by Mitsubishi and shipping company NYK Line. ■

Magnolia LNG to supply cargoes to Vietnam

Cargoes of US LNG will head from Calcasieu Shipping Channel, near Lake Charles in Southwest Louisiana, all the way to Bac Lieu in Vietnam's Mekong Delta. There, the European-led Delta Offshore Energy is developping an LNG import terminal and a 3,200 MW power station for start up in 2023.

LNG Ltd's subsidiary Magnolia LNG just signed a supply and purchase agreement (SPA) to deliver 2 million tons per annum (mtpa) to Delta Offshore Energy on a free-on-board basis for a 20-year term. Delta will then regasify the landed LNG for use in its projected 3.2 GW combined-cycle power station.

The two gas supply deals are linked on back-to-back basis, allowing for an integrated LNG-to-power venture in Bac Lieu province.

"The Bac Lieu project addresses Vietnam's need for an LNG import terminal to provide access to growing the LNG industry as a feedstock for electricity generation," said Bobby Quintos, engineering managing director for Delta Offshore Energy.

"Our alliance with LNG Limited will allow the Government of Vietnam to have a stronger relationship with the U.S. market and the long-term stability of the Henry Hub Index, which fits perfectly with the Vietnamese National Power Development Plan," he added.

Australia-listed LNG Ltd, the developer of the Magnolia liquefaction project in Louisiana, hailed the SPA with Delta as "progress for [its] global commercial and marketing push toward a final investment decision."

Vietnam is planning to develop a second LNG import terminal and adjacent gas-fired power station in Ninh Thuan province south of Cam Ranh Bay. That venture is backed by Novatek, the owner and developer of two Russian Arctic region LNG export plants, the existing Yamal LNG plant in northern Siberia and the Arctic LNG II project. ■

Malay shipping line to co-own tankers for LNG Canada

MISC Berhad, the Malaysian shipping line with an LNG fleet of more than 30 vessels, has agreed with Nippon Yusen Kabushiki Kaisha (NYK) and Mitsubishi Corp to co-own two new-build LNG carriers that will mainly serve the LNG Canada project.

Both LNG carriers would have a capacity of 174,000 cubic metres and are currently being built by the Hyundai Samho Heavy Industries shipyard in South Korea. The carriers will serve Diamond Gas, an LNG marketing arm of Mitsubishi, under 18-year charter contracts.

MISC's main client for charters is Petronas, a shareholder in LNG Canada along with Mitsubishi.

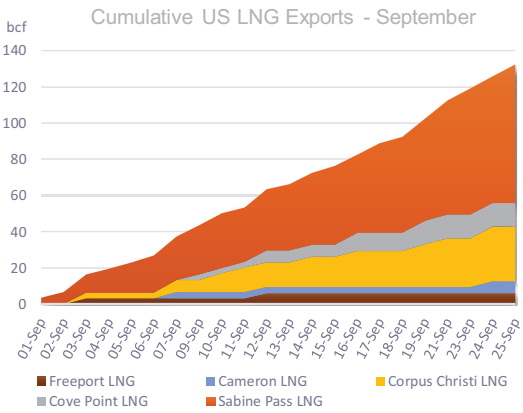
The LNG Canada project, led by Royal Dutch Shell, has an estimated cost of C$40 billion (US$31.2 billion), making it the biggest ever energy investment in Canada. The project engineering contractors are Fluor and JGC.

The first phase of the project will be built on a 400 hectares site in the industrial area of Kitimat, located about 650 kilometres north of Vancouver. It will comprise two LNG liquefaction Trains, each with 7 mtpa of output and two LNG storage tanks, each of 225,000 cubic metres capacity in addition to other facilities. The plant could be expanded at a later stage. ■

US LNG in September

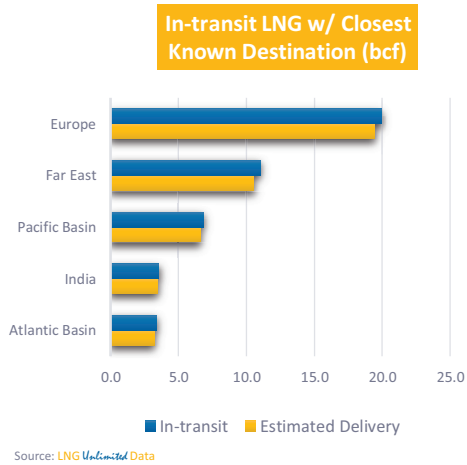
LNG Unlimited Data

- September exports at 2.92mmt (136.82 bcf) on 27 September
- Total shipments up by almost 25% m/m
- Average capacity utilisation at 74%

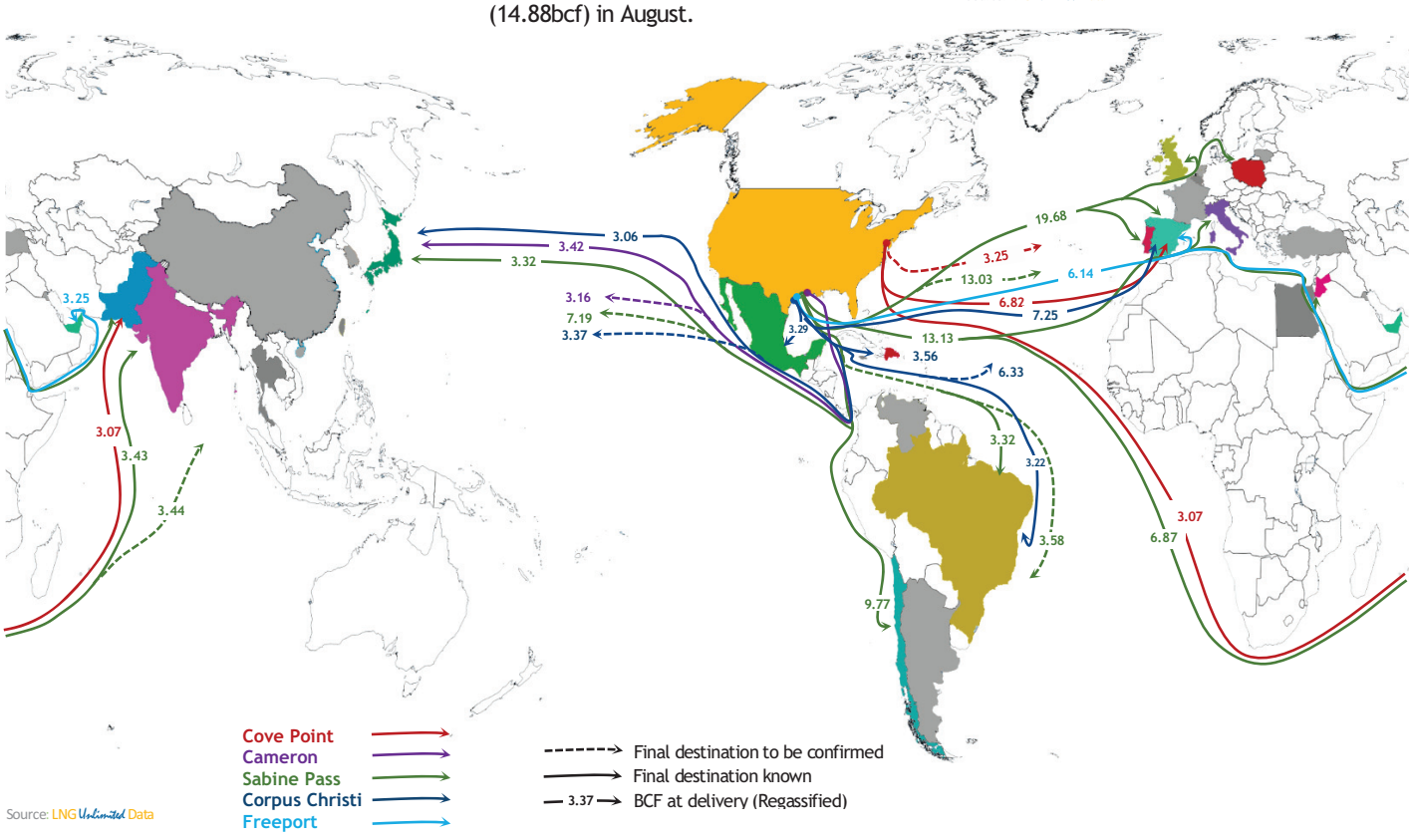


Source: LNG Unlimited

US LNG exports stood at 2.92mmt (136.82 bcf) as of 27 September and we are thus likely going to see a slight increase in month-on-month exports. Although overall September capacity utilisation has risen only slightly from 71% to 74% on average to date, this is due to the recent start-up of Freeport LNG. As this latest addition to US exporting capacity ramps up production, overall utilisation will rise accordingly. As all of September has not yet come in, we expect those performance figures to have improved by early October so that September is likely to have outperformed August. However, current market visibility suggests only around 6 additional LNG cargoes – including the Gaslog Warsaw's maiden cargo lifting at Corpus Christi – will leave the United States by the end of September. In contrast to August, where several exports were scheduled on the cusp to September and our LNG market tracker accordingly rightly highlighted a probable month-on-month drop of 0.4mmt (19.21bcf), the 6 cargoes in September mentioned above are not on the cusp. Concurrently, the nearest October liftings are scheduled several days into October, making it less likely they make it into September. The vessels concerned are still in the Caribbean, are approaching the Panama Canal or have just left a European terminal. We are therefore of the view that US LNG exports will continue on a relatively shallow month-on-month decline trajectory after their preliminary peak for the year in July. Nevertheless, as our year-on-year figures show, US LNG exports have grown dramatically by 65% year-on-year even on September's current preliminary figure of 2.92mmt (136.82 bcf). A significant shift in US LNG's month-on-month trade pattern has been towards the Atlantic Basin, where the current majority of US LNG cargoes currently at sea are headed. Accordingly, US exports with indicated destinations within the Atlantic Basin have increased by more than 55%, mainly driven by Sabine Pass LNG. Meanwhile, as indicated by the map below (greyed out countries for past destinations of US LNG that have not seen deliveries in September), the amount shipped by portfolio players via the long route to Asia around the Cape of Good Hope has remained broadly steady month-on-month at c. 0.34mmt (16.33bcf) compared to 0.31mmt (14.88bcf) in August.



Source: LNG Unlimited Data



Source: LNG Unlimited Data

LNG Unlimited Data

US LNG Still in Transit

Given the portfolio-based business model of US LNG in general, whereby portfolio players lease capacity under take or pay contracts, North American LNG cargoes are undertaking some of the longest voyages in the market. Notably, 32 of the 40 cargoes shipped so far in September are still in transit, with 13 still lacking confirmed destinations. As such, we anticipate around 2.19mmt* (105.29bcf) to arrive at their respective destinations by around 5 November, considering BOR during transit. We highlight at this point that the Oak Spirit's scheduled arrival for 5 November should be treated with caution and that the vessel may well arrive considerably earlier in October. Provided no cargoes are diverted, Enagas' Huelva terminal would then constitute the single largest recipient of US LNG's September production based on current destination visibility.

Freeport LNG's only two cargoes to date are still at sea, with the *LNG Jurojin* due to arrive in Dubai on 28 September. The *Methane Heather Sally* is expected at the Enagas-operated Barcelona terminal in Spain next week. Meanwhile, roughly a third of Corpus Christi's shipped LNG has already reached its destination, leaving 0.42mmt (20.17bcf) still to be delivered to Europe, Brazil and the Far East. In contrast, all of Cove Point's cargoes are still at sea, including one aboard the *Gaslog Saratoga* en route to Pakistan's Port Qasim LNG via the long route around the Cape of Good Hope. Similarly, Cameron LNG has yet to see its two cargoes reach their destination as they are en route to the Far East.

For Sabine Pass, meanwhile, our LNGUnlimited market tracker indicates that the terminal currently has 0.82mmt (39.38bcf) at sea with destinations within the Atlantic Basin, thereby being primarily responsible for September trade shift mentioned above.

Previous Export Port	Vessel Name	IMO	Destination	Arrival	mmt	bcf
Freeport LNG	LNG Jurojin	9666998	Dubai FSRU	28-Sep-19	0.07	3.25
	Methane Heather Sally	9321744	Barcelona	08-Oct-19	0.06	2.89
Cameron LNG	Flex Endeavour	9762261	Futtsu	05-Oct-19	0.07	3.42
	LNG Saturn	9696149	Pacific Basin	15-Oct-19	0.07	3.16
Cove Point LNG	Gaslog Saratoga	9638903	Port Qasim LNG	07-Oct-19	0.06	3.07
	Golar Tundra	9655808	Huelva	05-Oct-19	0.07	3.22
	LNG Sakura	9774135	Sagunto	05-Oct-19	0.07	3.60
	Maran Gas Sparta	9650042	Europe	01-Oct-19	0.07	3.25
Corpus Christi LNG	Clean Ocean	9637492	Atlantic Basin	20-Oct-19	0.07	3.21
	Energy Atlantic	9649328	Negishi	09-Oct-19	0.06	3.06
	Flex Ranger	9709025	Huelva	02-Oct-19	0.07	3.56
	GasLog Santiago	9600530	Europe	30-Sep-19	0.07	3.12
	Maran Gas Alexandria	9650054	Bahia de Todos FSRU	05-Oct-19	0.07	3.22
	Oak Spirit	9681699	Far East	05-Nov-19	0.07	3.37
Sabine Pass LNG	Castillo De Villalba	9236418	Huelva	03-Oct-19	0.06	2.78
	Catalunya Spirit	9236420	Europe	30-Sep-19	0.06	2.77
	Cool Explorer	9640023	Mejillones LNG	09-Oct-19	0.07	3.23
	Gaslog Hong Kong	9748904	South America	02-Oct-19	0.07	3.58
	Gaslog Salem	9638915	Toscana Terminal	05-Oct-19	0.07	3.14
	GasLog Shanghai	9600528	Europe	15-Oct-19	0.06	3.11
	Hoegh Giant	9762962	Sines	02-Oct-19	0.07	3.37
	Hyundai Peacepia	9761853	Cartagena	30-Sep-19	0.07	3.56
	LNG Schneeweisschen	9771913	Far East	16-Oct-19	0.07	3.60
	Magellan Spirit	9342487	Bahia de Todos FSRU	04-Oct-19	0.07	3.32
	Maran Gas Chios	9753014	India	20-Oct-19	0.07	3.43
	Maran Gas Hector	9682605	Europe	05-Oct-19	0.07	3.54
	Maran Gas Roxana	9701229	Pacific Basin	13-Oct-19	0.07	3.44
	Marvel Hawk	9760770	Far East	02-Oct-19	0.07	3.59
	Marvel Kite	9760782	Europe	01-Oct-19	0.08	3.61
	Neo Energy	9324277	Quintero	26-Sep-19	0.06	3.03
	Patris	9766889	Swinoujscie LNG	19-Oct-19	0.07	3.44
	Rioja Knutsen	9721736	Futtsu	12-Oct-19	0.07	3.32
	Solaris	9634098	Port Qasim LNG	06-Oct-19	0.06	3.08
Grand Total	**32**				**2.19**	**105.29**

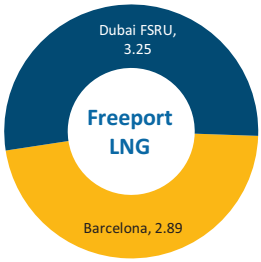
*Values are based on current journey time in accordance with in-transit BOR. A change in journey time may affect the eventual amount delivered.

LNG Unlimited Data

Monthly US LNG Exports as of 27 September

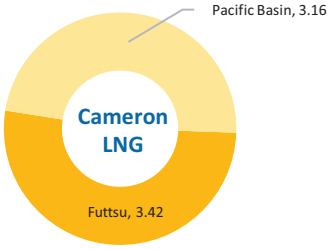
Freeport LNG

Freeport LNG loaded its maiden cargo aboard the *LNG Jurojin* on 3 September and its second cargo aboard the *Methane Heather Sally* the week after on 12 September. To date, the terminal has shipped 0.14mmt (6.14bcf), representing c. 33% of currently installed capacity. This relatively low figure is unsurprising given that the plant has only just started to ramp-up production. We are expecting the *Creole Spirit* to have lifted Freeport's third cargo before the end of September though, taking shipments to c. 0.21mmt (10.08bcf) and utilisation to a robust 50%.



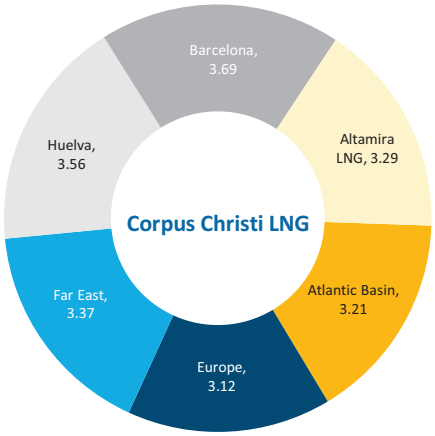
Cameron LNG

September production at Cameron LNG is likely to remain stable month-on-month as the terminal has so far shipped 2 cargoes (0.15mmt, 6.58bcf). Meanwhile, market visibility indicates the *Diamond Gas Orchid* will lift another cargo on 28 September, thus bringing the total to c. 0.22mmt (10.56bcf) and capacity utilisation to 52%. This implies Cameron's eventual performance in September will decreased only marginally by 0.01mmt with utilisation down by 3pp. Since its first commercial cargo in May, the plant has managed to increase exports by c. 0.9mmt (4.32bcf), with the current peak being 3 cargoes in August.



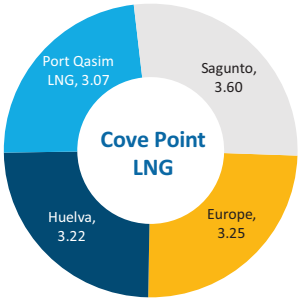
Corpus Christi LNG

As market visibility does not currently indicate an additional cargo lifting before the end of September, we are expecting exports from Corpus Christi LNG have kept exports steady month-on-month. Accordingly, terminal has so far sent out 0.65mmt (31.09bcf) in September, implying capacity utilisation of 89%. The plant shipped its first cargoes in December last year and has since pushed to grow output every month. Compared to December 2018, Corpus Christi grew exports by 0.05mmt (2.4bcf) each month, on average.



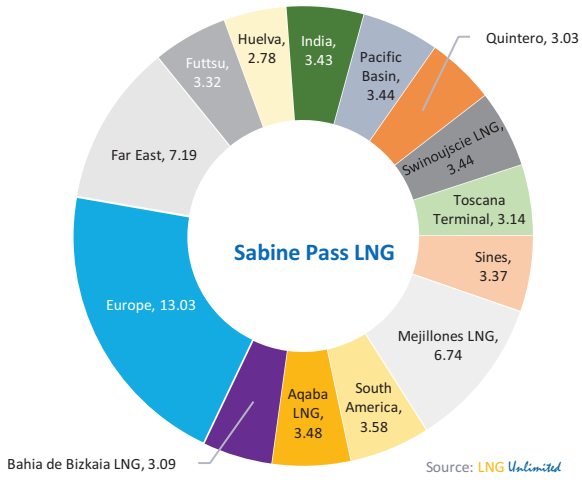
Cove Point LNG

Cove Point LNG had shipped 0.28mmt (13.57bcf) at the time of writing in September, which represents a fall in output by roughly one cargo (0.08mmt, 3.84bcf) and pegs capacity utilisation at 61%. Whilst this represents a month-on-month fall in output by almost 22%, the terminal's output is consistent with that of September last year. As our market tracker is not currently suggesting another cargo lifting at Cove Point before the end of the month, we do not anticipate a change to the above.



Sabine Pass LNG

Sabine Pass LNG's exports stood at 1.645mmt (78.99bcf) on 27 September, thus representing slightly higher output by 0.07mmt (3.43bcf) month-on-month and by 0.22mmt (10.57bcf) year-on-year. Concurrently, export capacity utilisation rose considerably by 12pp to 90%. The terminal's most significant recipients so far have been the Mejillones terminal in Chile, which took delivery of 0.073mmt (3.51bcf) via the BW Tulip on 20 September, and Jordan's Aqaba LNG with 0.072mmt (3.48bcf) via the *Maran Gas Ulysses* on 22 September. We are currently expecting at least three further Sabine cargoes to be lifted aboard the *Marvel Crane* (currently berthed), the *Methane Becki Anne* and the *SM Seahawk*, which would add c. 0.23mmt (11.04bcf) to the terminal's export balance by 30 September.



Source: LNG Unlimited

LNG Unlimited Data

US LNG Exports Year-on-Year (MMt)

To Country	2018				2019									Grand Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep (E)	
South Korea	0.52	0.64	0.37	0.63	0.37	0.38	0.38	0.18	0.30	0.43	0.69	0.29	-	5.17
Japan	0.36	0.07	0.52	0.29	0.37	0.22	0.15	0.36	0.15	0.31	0.45	0.37	0.22	3.85
Mexico	0.22	0.15	0.07	0.22	0.31	0.14	0.15	0.22	0.44	0.36	0.52	0.30	0.07	3.18
Spain	-	0.08	0.08	-	0.07	0.16	0.22	0.23	0.33	0.29	0.08	0.43	0.58	2.54
Chile	0.08	-	0.08	0.07	-	0.06	0.22	0.23	0.14	0.41	0.21	0.15	0.22	1.87
India	0.04	0.15	-	0.15	0.15	0.15	0.16	0.14	0.32	0.07	0.07	0.15	0.08	1.64
France	-	0.14	0.22	0.15	-	0.08	0.45	0.32	0.15	-	-	0.08	-	1.60
United Kingdom	0.08	0.15	0.44	0.30	0.22	0.08	0.08	-	-	-	-	0.01	0.08	1.42
Italy	0.14	0.07	-	0.13	0.22	0.07	0.15	-	0.14	0.08	0.22	0.13	0.07	1.41
Brazil	0.07	-	-	-	-	0.08	0.08	0.08	0.05	0.28	0.14	0.23	0.14	1.15
Portugal	0.08	-	0.08	0.07	0.23	0.08	-	0.07	-	0.15	0.15	0.15	0.07	1.13
Netherlands	0.06	0.06	0.06	-	-	0.06	0.22	0.29	0.23	0.07	0.07	-	-	1.12
Jordan	-	0.08	0.15	-	-	0.08	-	0.08	0.15	0.15	0.08	0.08	0.08	0.93
Argentina	-	-	-	-	-	-	-	0.09	0.23	0.23	0.33	-	-	0.89
Turkey	-	0.05	-	0.21	0.21	0.14	-	0.07	-	-	-	-	-	0.68
Poland	-	-	0.08	-	0.21	-	0.07	0.07	-	-	0.08	0.07	0.08	0.66
Singapore	-	-	-	0.08	-	0.15	0.14	0.03	0.07	0.07	0.08	-	-	0.63
Atlantic Basin	-	-	-	-	-	-	-	-	-	-	-	-	0.58	0.58
Pacific Basin	-	-	-	-	-	-	-	-	-	-	-	0.15	0.38	0.53
UAE	0.08	-	-	-	-	-	-	0.15	-	0.07	0.08	0.08	0.07	0.53
China	-	0.23	0.07	0.07	0.07	0.07	-	-	-	-	-	-	-	0.52
Taiwan	0.04	0.10	-	0.07	-	-	-	0.13	0.07	-	-	0.08	-	0.49
Pakistan	-	-	-	-	-	0.08	0.08	-	-	-	0.08	-	0.14	0.37
Greece	-	0.02	0.06	0.08	-	0.07	-	-	0.08	-	-	-	-	0.31
Panama	-	-	-	0.07	-	0.07	0.07	-	-	0.07	-	-	-	0.27
Jamaica	-	-	-	-	-	-	0.06	-	0.04	-	0.01	0.13	-	0.24
Kuwait	-	-	-	-	-	-	-	-	0.08	-	0.07	0.08	-	0.22
Dominican Republic	-	-	-	-	-	0.06	-	-	-	0.06	-	-	0.08	0.20
Colombia	-	-	-	-	0.06	-	0.06	-	-	-	-	0.07	-	0.19
Thailand	-	-	-	-	-	-	-	-	0.08	-	-	-	-	0.08
Belgium	-	-	-	-	-	-	0.07	-	-	-	-	-	-	0.07
Grand Total	1.76	1.98	2.28	2.59	2.49	2.28	2.80	2.77	3.04	3.11	3.41	3.01	2.92	**34.45**

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