

LNG Unlimited

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Papua New Guinea PM says ready for LNG and resource sectors boom

The 16th PNG Mining and Petroleum Investment Conference held in Sydney
LNG News Editor

Papua New Guinea Prime Minister James Marape urged Australian LNG and mining sector investors to “take my people with you” in an address to a mining and petroleum conference in Sydney on future development projects in his Oceania nation.

PM Marape outlined his wishes at the 16th PNG Mining and Petroleum Investment Conference held in Australia’s largest city.

Delegation

He was accompanied by Petroleum Minister Kerenga Kua, Mining Minister Sir Ano Pala and International Trade and Investment Minister Richard Maru at the PNG-focused conference which was being held for the first time since 2018 because of Covid-19 travel risks.

Australian energy company Santos is one of the major shareholders in the PNG LNG plant where US major ExxonMobil is the operator of the facility at Caution Bay, northwest of the PNG capital Port Moresby.

ExxonMobil holds a 33.2 percent interest in PNG LNG, though Santos became the majority shareholder with its 2021 takeover of PNG-based energy company Oil Search.

The expansion project called Papua LNG is led by French major TotalEnergies and involves others companies including Santos.

The existing PNG plant has capacity of over 9 million tonnes per annum and the Papua project proposal is for an additional two liquefaction Trains at the PNG plant site to more than double current production to about 20 MTPA.



PNG PM James Marape (centre left) and colleagues in Sydney

The Prime Minister’s speech also mentioned major mining projects and the fact that his country did not wish to miss out on the benefits that could emanate from the current global boom in demand for energy and mined commodities.

“You must show some progress, I don’t want warehousing of licences,” stated Marape.

The biggest undeveloped mining resource in the Pacific nation is the Wafi-Golpu copper-gold project, owned by Australia’s Newcrest Mining and South Africa’s Harmony Gold Mining.

The project has long been stuck on the drawing board, partly due to a battle with the government over how big a share of the project’s gold output would go to the PNG government.

“We understand you are not a charity but please take my people with you,” Marape told the energy and mining executives who were present.

Marape has been pressing for PNG to receive a bigger share of the benefits from LNG, oil and mining since he first became the PM in 2019.

He has made clear that his priorities are jobs and the economic upliftment of PNG citizens with world-scale and environmentally-friendly projects instead of being

held back by the paternalism offered by well-off Western and regional green radicals.

A statement from the PNG government said that in addition to his speech, he was meeting in Sydney with senior executives of Santos and ExxonMobil as well as mining company executives from Newcrest and others.

Assurances

“I give an assurance to developers of projects like the Porgera re-opening, the Wafi-Golpu project, Papua LNG and P’nyang LNG feed gas that negotiations are close to completion,” stated Marape.

The Prime Minister highlighted in his speech the country’s ability to sell commodities such as LNG shipped from PNG to Asia.

“Last year when I visited China I was able to sell 3 million tonnes of gas. Papua New Guinea is using its bilateral network and multilateral networks to trade and can find markets,” he told the conference.

The P’nyang Gas Agreement was signed between the licence joint venture partners and the Government of PNG at the end of February 2022.

The agreement provided a framework for the future development of the P’nyang project which is now expected to become a priority.

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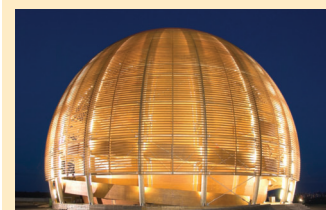
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Australian energy engineering firm Clough collapses leaving Waitsia LNG unfinished

LNG News Editor

Clough Group, the Australian energy and civil construction company whose projects include the Waitsia LNG joint venture in Western Australia, has collapsed after a takeover deal fell through.

The Waitsia gas field, the largest onshore gas field in Western Australia, was expected to produce an initial 1.5 million tonnes per annum of LNG.

Wound up

The firm has gone into voluntary administration after an acquisition deal with Italian contractor WeBuild was called off.

Clough's South African owners, Murray and Roberts, had sold the indebted firm to Webuild in November for \$350 million.

However, Webuild said in a statement that the companies had agreed there was "no reasonable prospect of that acquisition proceeding" to a successful completion.



A Clough team working on part of the Waitsia gas and LNG project near the town of Dongara, about 350km (217 miles) north of Perth and 65km south of Geraldton

Clough has 12 companies in the group and with about 1,250 employees in Australia and a similar number in the UK, the US and Papua New Guinea.

The LNG project affected, Waitsea LNG, is a joint venture in Western Australia between Japan's Mitsui & Co. and Australia's Beach Energy.

Clough was building the Waitsia project in the onshore Perth Basin to export LNG cargoes from the

North West Shelf plant at Karratha operated by Woodside Energy under a tolling agreement.

Beach Energy had said in October 2022 that the work programme was progressing on the Waitsia gas field and first LNG sales were expected in the second half of 2023.

BP buyer

UK major BP has purchased all the LNG from the Waitsia project for

five years. Beach Energy issued a statement to the Australian Securities Exchange about the Clough collapse and its effects on the Waitsia project.

"Beach notes the announcement that Clough Limited, the engineering, procurement and construction contractor for the Waitsia Stage 2 project, has been placed into voluntary administration with Deloitte appointed as administrator," said Beach Energy.

"Beach and Mitsui E&P Australia (Mitsui), its joint venture partner and Waitsia operator, will work closely with the administrator, contractors and stakeholders to ensure continued progress of the Waitsia Stage 2 gas plan," it added.

"Beach has been working with Mitsui in planning for various outcomes and will continue to work to deliver the best outcome for the project," stated the company. ■

National Grid advances sale of UK's gas transmission and metering to investment funds

National Grid plc, whose assets include an LNG import terminal southeast of London, said that all the conditions relating to the sale of a 60 percent equity interest worth around US\$7 billion in its UK gas transmission (NGG) and metering business to an Australian-Canadian consortium had been met.

The buyers of the stake are Macquarie Asset Management and British Columbia Investment Management Corporation and the full completion is now due at the end of January 2023.

Transaction

The terms of the transaction, first revealed in March 2022, imply an enterprise value for NGG of around £9.6 billion (US\$11.8Bln).

On completion in January, Na-

tional Grid will receive approximately £2.2Bln in cash.

Following the transaction, National Grid will also continue to own a 40 percent minority equity interest in NGG via a new holding company called "GasT TopCo".

In addition, National Grid will also receive a further £2.0Bln from additional debt financing at completion.

NGG's regulated asset value is estimated to be approximately £6.6Bln and its net debt is estimated to be around £3.8Bln.

The National Grid LNG terminal located on the Medway River in Kent in southeast England is not part of the deal.

The Grain LNG company is a subsidiary of National Grid Ventures, the competitive division of

National Grid plc. National Grid said that the Australia-Canada transaction forms part of National Grid's strategic pivot towards electricity and follows last year's acquisition of Western Power Distribution, the UK's largest electricity distribution business, and the announced sale of the Narragansett Electric Company in the US.

The proportion of National Grid Group's assets in electricity has now grown to about 70 percent and with 30 percent relating to gas.

The company NGG in which the 60 percent sale has been agreed, owns and operates the regulated gas National Transmission System (NTS) in Great Britain and also owns a regulated gas metering

business. As both the transmission owner and system operator, NGG owns, builds and operates the high-pressure NTS with day-to-day responsibility for balancing supply and demand in real time and facilitates the connection of assets to the transmission system.

The NGG transmission network comprises approximately 7,660 kilometres (4,763 miles) of high-pressure pipe and 23 compressor stations connecting to eight distribution networks and other third-party independent systems.

NGG also owns and operates an independent metering business, the largest owner of traditional gas meters in the UK with approximately 8.4 million domestic and commercial meters. ■

Sempra in deal with Engie for Texas LNG

Sempra Infrastructure, a subsidiary of California-based Sempra, has signed another long-term sale and purchase agreement, its third in recent weeks, and this time with French utility Engie.

The volumes will come from the first phase of development at the proposed Port Arthur facility in Jefferson County in Texas.

Engie has agreed to purchase about 875,000 tonnes per annum of LNG for 15 years.

The cargoes will be on a free-on-board basis whereby Engie lifts the volumes with its own chartered ships.

Sempra, which also operates the Cameron LNG plant in Louisiana, said that the agreement provided a framework as well to explore ways to lower the carbon intensity of LNG produced from the Port Arthur venture.

"Engie is a leader in Europe's energy transition and a great addition to our Port Arthur LNG customer portfolio," said Justin Bird, Chief Executive of Sempra Infrastructure.

"We are excited to work with Engie to deliver reliable energy resources like LNG and contribute to the security of natural gas supply to their clients," he added.

Sempra Infrastructure also recently announced that it had finalized an engineering, procurement and construction contract with US engineering firm Bechtel Energy to build Port Arthur LNG.

Sempra has additionally entered into long-term agreements with US major ConocoPhillips and European chemicals company INEOS for the sale and purchase of about 5.0 MTPA and 1.4 MTPA of LNG respectively.

Cameron LNG plans to negotiate new terms with power firm Entergy

LNG News Editor

Cameron LNG, the US plant operated by Sempra, has signed an accord with power company Entergy Louisiana to negotiate the terms and conditions for a new electric service agreement (ESA) to reduce the liquefaction and export plant's Scope 2 emissions from the electricity it purchases from Entergy.

Entergy Louisiana is a subsidiary of Entergy Corp. and provides electric services to more than 1 million customers in 58 parishes in the US Gulf Coast state as well as natural gas services to more than 94,000 customers in Baton Rouge, Louisiana.

Critical partner

"Entergy Louisiana is a critical partner in our efforts to reduce our overall direct and indirect greenhouse-gas emissions," said Whit Fairbanks, President of Cameron LNG located in Hackberry, Louisiana.

"Cameron LNG strives to provide its customers with LNG that



Another liquefaction Train is planned with 6.75 MTPA output

has the lowest possible emissions intensity," explained Fairbanks.

"The memorandum of understanding we have signed allows us to memorialize an agreement to bring on enough renewable power to offset the emissions for our facility, including the Train 4 expansion, when all renewable generations phases are added to the supply portfolio," he added.

Cameron LNG has nameplate export capacity of 13.5 million tonnes per annum and is working with its

joint venture partners to develop a cost-effective and lower-emission potential expansion of the facility.

Cameron LNG is a joint venture between five companies with extensive energy market and shipping experience.

The partners are affiliates of Sempra Infrastructure, Japan's Mitsui & Co. and Mitsubishi Corp., France's TotalEnergies and the Japanese shipping company NYK Line.

Expressions of interest go in for Coatzacoalcos LNG in Mexico

CFEnergía SA, a subsidiary of the Mexican Federal Electricity Commission (CFE), closed a four-day window last week for pre-registration of expressions of interest from companies and investors to join an on-shore LNG export project planned for the port of Coatzacoalcos in the state of Veracruz on the southern coast of the Gulf of Mexico.

"We call on private companies and investors in the energy sector to express their interest in participating in the development of an on-shore terminal for the liquefaction of natural gas and commercialization of LNG in the Port of Coatzacoalcos," said the statement.

Capacity

CFEnergía noted that the Coatzacoalcos LNG export project aimed to produce 4.5 million tonnes per annum for sale to the international market.

"The project will contribute to the strengthening of the national energy sector and to optimizing the use of the transport capacity of the CFE contracted in various gas pipelines in Mexico and the United States," explained CFEnergía.

The company added that a tender was also being issued for the development and construction of the facilities and the storage of LNG as well as the transportation of natural gas to the plant amounting to around 600 million cubic feet per day.

A joint participation scheme is planned with investors and private

companies, who may participate individually or as a consortium.

CFEnergía said its part in the project would be the supply of natural gas by pipeline, providing the site for the development of the liquefaction infrastructure and assistance in obtaining the permits and authorizations.

"The selected company or consortium, in addition to covering the costs of transportation by gas by pipeline will grant CFEnergía a consideration associated with the profits derived from the commercialization of LNG and a possible participation in the ownership of the project upon completion of supply contracts," said the Mexican company.



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NewMed Energy expands from East Med to Moroccan Atlantic coast with offshore licence

LNG News Editor

NewMed Energy, the Israeli company considering a floating liquefied natural gas plant to further develop the Leviathan gas field in the East Mediterranean, has expanded its activities by signing agreements for an exploration licence targeting gas offshore Morocco in the Atlantic Ocean.

NewMed signed an accord with Adarco Energy Ltd and Morocco's National Office of Hydrocarbons and Mines for natural gas and/or oil exploration and production activity in the Boujdour Atlantique exploration licence.

Stakes

According to the agreements, NewMed will hold 37.5 percent of the interests in the exploration licence. Adarco will own 37.5 percent and the remaining 25 percent has been granted to Morocco's ONHYM, the above body's name in French, Office National des Hydrocarbures et des Mines (ONHYM).

NewMed's East Med options include an FLNG facility or a pipeline connections to Egyptian



NewMed Energy CEO Yossi Abou (left) with Morocco's Minister of Energy Laila Ben Ali (Photo courtesy of NewMed)

liquefaction plants located east of Alexandria.

Among its assets, NewMed holds the rights to 45 percent of the Leviathan offshore gas field with the other major shareholder in the field being US major Chevron Corp. A smaller stake is held by Israel's Avner.

NewMed, which announced its name change from Delek Drilling in February 2022, also has its stake in the Aphrodite gas field in Cyprus's offshore economic zone waters, making it one of the biggest players in the East Med.

NewMed said that the North African kingdom had enormous geological and commercial potential.

The Boujdour Atlantique licence is in the south of Morocco's EEZ and will be issued for a total of eight years.

According to the work plan, 30 months from the date of the granting of the licence, a geological and geophysical analysis will be performed in the area of interest and an initial exploration drilling is planned after around 2.5 years.

A statement said that the

agreements were contingent on receipt of approval from Morocco's Ministry of Energy Transition and sustainable development and from the Ministry of Finance.

"From one day to the next we are expanding our international operations and becoming a global body in every respect," said Yossi Abu, Chief Executive of NewMed.

"We have long identified enormous potential in Morocco and the announcement is part of an extensive strategic move that will render NewMed Energy the leading energy body in the East Mediterranean region and North Africa," stated Abu.

Harry Murphy, Director of Adarco, said his company's principals have been active in the energy market for many years.

"We are delighted to be entering the Moroccan natural gas exploration sector in partnership with NewMed Energy, a leading energy company which has invested massively in the petroleum industry and has been involved in major discoveries over the past 30 years," Murphy declared.

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Repsol plans a second LNG bunker terminal

Spanish energy company Repsol said the first terminal in Spain to supply liquefied natural gas as marine fuel was growing its customer base and a second LNG bunkering facility in the same region was under development.

The first ship fuelling station came into operation in July 2022 in the northern Spanish port of Bilbao.

The terminal has a cryogenic tank with a storage capacity of 1,000 cubic metres.

A second terminal of the same capacity is already under construction in the neighbouring port city of Santander and it is scheduled to come into operation during the first half of 2023.

Both terminals are co-financed by the European Commission through the CEF-Connecting Europe Facilities Programme.

The LNG bunkering stations are part of the collaboration agreement that Repsol formalized in 2019 with Brittany Ferries, the French shipping line linking Spain, France and the UK for freight and passenger traffic.

Among the Brittany Ferries fleet is the LNG-powered vessel “Salamanca” which is refuelled at Bilbao. Another Brittany Ferries ship, the “Santoña”, is also covered by the contract for LNG.

“These LNG terminals are, thus, another example of the Repsol’s commitment to the decarbonization of transport with a multi-technological approach using all available solutions,” said Repsol.

“In the design of the terminal in Bilbao, operational flexibility has been a priority, which provides multiple advantages to customers,” it added.

DNV reports more LNG-fuelled orders even at high bunker price

LNG News Editor

European maritime classification society DNV said that there was still momentum in orders for LNG-powered vessels from ship owners in the month of November even at a time of very elevated LNG bunker prices in ports such as Rotterdam in the Netherlands.

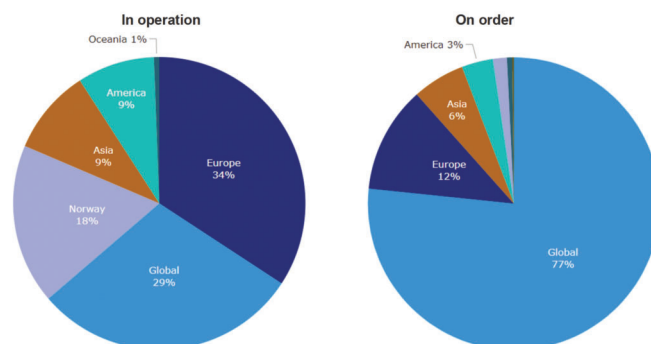
According to the latest figures from DNV’s Alternative Fuels Insight (AFI) platform, 17 LNG vessels were added in November with container vessels and car carriers constituting nearly two thirds of the orders.

EU changes

The total order figure for LNG-fuelled ships for the year to date has now reached 203 and the overall total is 857 ships operating or on order.

“With the preliminary agreement at the European Union last week that shipping would be included in the EU’s Emissions Trading System starting from 2024, all low-carbon options now makes even more sense,” said Martin

Area of operation for LNG fueled ships



November saw 17 LNG newbuild vessels added to the list

Wold, Principal Consultant in DNV’s Maritime Advisory business.

“Methane emissions will also be included, so methane slip from engines will come under even greater scrutiny,” added Wold.

The DNV data showed that the total number of LNG-powered ships in operation or on order at the end of November 2022 comprised in the largest sectors 42 containerships in operation and 176 on order, 10 car carriers operating and 106 on order, 46 crude oil tankers operating and 43 on order and 42 oil-chemical tankers operating and 46 on order.

There were also 68 bulk carriers using and planning to use LNG, 50 car and passenger ferries, 39 cruise liners, 38 tugs, 37 offshore supply vessels and 32 RoPax ships.

This data does not include smaller inland vessels and barges that are part of the Amsterdam, Rotterdam, Antwerp (ARA) refining hub transportation in northwest Europe.

Analysts note that LNG remained the preferred low-carbon solution despite current gas pricing which is expected to last into the near future.

Swiss marine propulsion firm WinGD gets diagnostics orders

Winterthur Gas & Diesel (WinGD), the leading Swiss developer of low-speed gas and diesel engines for marine propulsion, has received orders from two LNG carrier operators for its WinGD Integrated Digital Expert (WiDE) engine monitoring, diagnostics and remote support service.

Norwegian shipping company Knutsen OAS has ordered WiDE for seven vessels, which include a recently delivered LNG carrier and six under construction.

CoolCo-Golar

The LNG shipping joint venture CoolCo, formed in 2021 between Eastern Pacific Shipping and Golar LNG, said it would use the service

on two existing vessels. The latest orders will deliver diagnostics to a total of 17 WinGD X-DF dual-fuel engines.

“WiDE empowers the vessel’s operation team with the tools needed to increase insight into engine performance, manage their maintenance plan and troubleshoot any challenges in order to reduce operating costs,” explained Rudolf Holtbecker, the Director of Operations at WinGD.

WinGD maintains that among the advantages of its X-DF low-pressure dual-fuel engines are low maintenance costs and ultra-low air pollution, reaching IMO Tier III NOx limits without after-treatment.

WinGD’s X72DF engine has be-

come the standard for LNG carriers with 224 in service and more than 130 engines on order.

The WiDE product uses advanced data sensors, analysis and modelling to compare in-service operations of engines with their ideal reference performance for real-time conditions, identifying anomalies before they raise alarms and alerting crew to potential issues.

“This enables crews to avoid or dramatically reduce the time taken for troubleshooting, while fleet managers can optimise maintenance programmes based on detailed and up-to-date insight into component condition,” said the company.

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LNG firm Linde Engineering to supply equipment for one of coldest places on earth on Swiss border

LNG News Editor

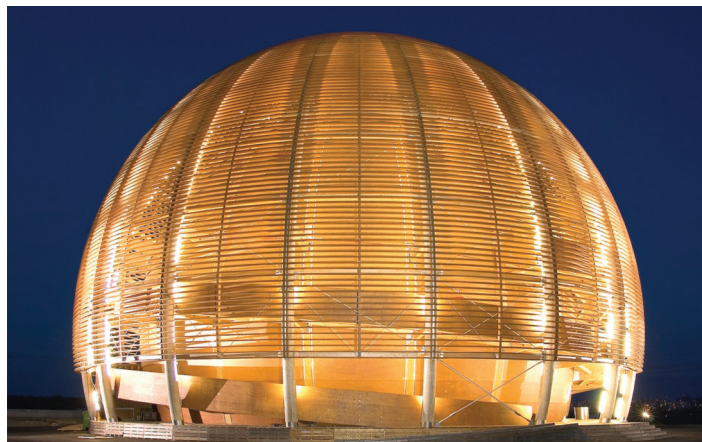
Linde Engineering, the German energy and industrial gas equipment supplier including for LNG, said its Linde Kryotechnik subsidiary had signed a contract to supply the CERN laboratory in Geneva, Switzerland, with two identical helium cryogenic refrigeration systems.

The Pullach, Germany-based company has already supplied systems providing more than 50 per cent of the refrigeration capacity required for CERN's Large Hadron Collider (LHC).

Accelerator

The LHC is the most powerful particle accelerator ever built, allowing physicists to test the predictions of different theories of particle physics.

The accelerator sits in a tunnel 100 metres underground at CERN, the European Organization



The Swiss Confederation presented the Globe of Science and Innovation, the symbol in canton of Geneva of CERN

for Nuclear Research. "CERN's Large Hadron Collider is the largest cryogenic system in the world," explained Lars Blum, Managing Director of Linde Kryotechnik.

"We have been delivering sophisticated refrigeration systems to CERN since 1986. To be selected for the most significant upgrade of the LHC since its start-up in 2008

speaks to our track record in reliable and efficient solutions, even in the most complex research environments," stated Blum.

The Linde company explained that each refrigeration system will have a capacity of 3.25 kilowatts at 1.9 Kelvin (-271 °C), which is close to absolute zero. The plants are required for a High-Luminosity upgrade to the LHC.

The LHC collides tiny particles of matter (protons) at an energy of 13.6 TeV (Tera electron Volt) center of mass in order to study the fundamental components of matter and the forces that bind them together.

"The upgraded LHC will make it possible to study these in more detail, increasing the number of collisions by a factor of between five and seven," the company explained.

For each of the plants, Linde will deliver a compressor system, a surface cold box measuring 14 metres in length and 3.5 meters in diameter, an underground cold box with a length of seven metres and a diameter of 2.5 metres and a vacuum-insulated piping network to connect the two cold boxes.

The surface cold box will cool the helium to 4.5 Kelvin (-269 °C), and the second cold box about 90 metres underground will provide the required 1.9 Kelvin (-271 °C).

Intercontinental Exchange launched new LNG futures for Northwest and Southwest Europe

Intercontinental Exchange, a leading global provider of energy trading platforms for futures and options, launched two liquefied natural gas futures contracts last week for Northwest Europe and Southwest Europe and three supporting French, German and Italian natural gas futures.

"The contracts are designed to help market participants trade and hedge the difference in price between LNG for delivery in Northwest and Southwest Europe, versus natural gas provided by pipeline to Europe, as well as LNG across the rest of the world," explained a statement from Atlanta, Georgia-based ICE.

The contracts will be cash settled based on Spark Commodities' price assessments for LNG cargos and priced in US dollars per million British thermal units

in line with ICE's existing LNG contracts.

Price management

ICE said that the new contracts reflected the energy situation which exists within Europe today with customers needing a futures contract to price LNG imports into Europe and provide a means to manage the difference with the price of natural gas delivered via pipeline.

ICE noted that the price of natural gas in Europe remains high because of an imbalance between supply and demand, caused by the significant reduction in the supply of natural gas into Europe from Russia and the downstream impact of physical capacity constraints across the European natural gas network.

The firm pointed out that it already offered futures to cover risk for the European benchmark

Dutch Title Transfer Facility, the US Henry Hub, the Platts Japan-Korea Marker LNG spot cargo price, the UK National Balancing Point futures as well as the Platts West India Marker (WIM) and the Spark LNG Freight contracts.

Analysts said that futures markets are seen also as a key risk transfer mechanism to reduce exposure to spot markets and thus a critical avenue for energy firms to manage their risk so they can maintain a stable source of energy to European societies.

Additionally, ICE plans to launch three supporting French PEG, German THE and Italian PSV Natural Gas 1st Line contracts on December 5 as well.

ICE explained that these cash-settled contracts would trade and settle in US dollars per MMBtu and provide market participants with

additional flexibility to manage their LNG import exposure.

ICE already offers physically delivered PEG, THE and PSV futures which are priced in Euros per megawatt hour.

The US exchanges platform is already home to the natural gas benchmark TTF, a physically delivered contract which upon expiry results in natural gas being added to, or taken from, the TTF natural gas hub via title transfer.

TTF trading

"TTF trades from ICE in Amsterdam, producing a daily settlement price based on transactions of customers physically buying and selling natural gas, is the world's second most liquid natural gas contract after the US-based Henry Hub," said ICE.