

LNG Unlimited

LNG JOURNAL PUBLICATION

11 June 2024

LNG and oil import nation South Korea starts offshore energy move

Asia's third-largest LNG importer now turns to large-scale oil and gas development
LNG News Editor

President Yoon Suk Yeol of South Korea, one of Asia's main LNG and crude oil importers, has announced that surveys have shown that the nation had potentially very large offshore oil and natural gas reserves of its own and that an exploration and production campaign would begin later in 2024.

Yoon declared at a news conference that the reserves were located offshore Pohang, the largest city in North Gyeongsang Province.

The area of interest is offshore Yeongil Bay, about 260 kilometres southeast of Seoul, and the President said that the reserves could amount to an initial 14 billion barrels of oil and gas equivalent, an amount that could meet South Korea's natural demands for 29 years and oil supplies for four years.

South Korea currently relies on imports to meet almost 98 percent of its oil and gas consumption as a result of limited domestic resources suggested by previous surveys.

The South Koreans are Asia's third-largest LNG importers with seven terminals and an eighth under development to handle around 45 million tonnes per annum of deliveries.

LNG reliance

The latest LNG terminal is proposed for the southwestern city of Yeosu in South Jeolla Province.

The oldest Korean LNG terminal was completed in 1986 at Pyeong-Taek, followed by an expanded network around the coast-



President Yoon talking about plans for domestic oil and gas

line comprising Incheon (1996), Tong-Yeong (2002), Gwangyang (2005), Samcheok (2014), Boryeong (2016) and Jeju (2019).

President Yoon cited a latest geophysical study conducted by an unidentified overseas seismic research company as the reason behind the forthcoming E&P campaign.

"The recent results indicate a very high possibility of deposits amounting to 14 billion barrels of oil and gas, and these findings have been verified by leading research institutions and experts," said Yoon during a media briefing at the presidential office.

The Korean declaration of forthcoming oil and gas activity offshore came as many Asian nations are asserting their offshore rights in the face of claims by China to extended offshore areas traditionally claimed by other countries.

The Ministry of Trade, Industry and Energy has approved the exploration drilling plan with preliminary results expected by the first half of 2025.

The Government added that it had discovered the "high likelihood of additional oil and gas fields" around the gas field in the East Sea in February 2023 and a leading deep-sea technology eval-

uation company was commissioned to conduct an in-depth geophysical survey.

Drilling timetable

South Korean Industry Minister Ahn Duck-Geun said that preparations for commercial drilling are expected to begin once the in-place resources are fully confirmed.

"We anticipate commercial development to start around 2035, but it is difficult to specify an exact timeline until the deposits are confirmed," Ahn explained during the presidential briefing.

Ahn explained the maximum potential oil and gas resources of 14 billion barrels were worth the equivalent to five times the market value of Samsung Electronics Co., South Korea's most valuable company.

As of June 3, Samsung Electronics had a market capitalisation of 451.9 trillion South Korean won (\$328.2 billion).

Energy mix

South Korea is the eighth-largest consumer of petroleum and has over 3.3 million barrels per day of crude oil refining capacity, the fifth-largest refining capacity in the world.

UNLIMITED AGENDA

MARKETS

Germany's Trading Hub Europe launches market-maker tender with June 17 deadline

2

PROJECTS



QatarEnergy signs accords with CPC of Taiwan for NFE expansion venture

3

INVESTMENT

Italian grid operator progresses with the South-North natural gas pipelines upgrade

5

ACQUISITIONS

Dominion closes sale to Enbridge Inc. for \$4.3Bln of gas assets Questar and Wexpro

6

SHIPPING

Australian LNG fuel project emerges for iron-ore trade from Pilbara to Asia

7

FUELLING

Clean Energy Fuels opens two more stations as new gas engine launched

9

Germany's Trading Hub Europe GmbH puts tender in place until June 17 market makers

LNG News Editor

Trading Hub Europe (THE) GmbH, the virtual trading point for Germany's natural gas market that includes LNG deliveries from nations such as the United States, has opened a tender until June 17 for market-maker services.

The tender is for the provision of market-maker services at the German Hub's VTP in the period from July 1, 2024, at 6 am until July 1, 2025, at 6 am.

"Offers can be submitted to Trading Hub Europe until June 17, 2024, 12 noon," said a Hub statement.

"Corresponding market-maker services have already been contracted in the past," it explained.

"The main aim of the tender is to increase liquidity in the derivatives market on Trading Hub Europe VTP," the company stated.

Results

The Hub firm said it would provide information on the results on its website once the tender has been completed.



LNG FSRU at German port of Wilhelmshaven

The high-pressure pipeline system in Trading Hub Europe's nationwide market area has a total length of 40,000 kilometres (24,854 miles) and connects more than 700 downstream networks.

The German gas market has now been underpinned by LNG imports as well.

There are now LNG import facilities at the coastal locations of the North Sea port of Wilhelmshaven, at Brunsbüttel on the Elbe and at the Baltic ports of Lubmin and Mukran.

Since 1 October 2021, the trading hub has been the market area manager for the entire German

gas market. The Hub emerged from the merger of the two predecessor companies Gaspool Balancing Service GmbH and NetConnect Germany GmbH & Co.

Until then, these two companies had each been active in the German gas market for more than 10 years as market area managers.

In its capacity as market area manager, Trading Hub Europe's duties include concluding balancing group contracts with balancing group managers, managing balancing groups, sub-balancing accounts and network accounts and procuring system balancing tools for the system.

Management changes

The German Hub will also make changes to its senior management effective July 1, 2024.

Dr. Thomas Becker and Jörg Ehmke will step down from the Hub's management team.

Becker will become part of the management of the Hub shareholder Thyssengas.

Jörg Ehmke will be leaving to collaborate with the consulting firm BET as an advisor in the energy sector.

Torsten Frank and Dr. Sebastian Kemper will continue their roles as managing directors of the Hub.

The founding members of Trading Hub Europe GmbH in 2021 were the following 11 network companies: bayernets GmbH, Fluxys TENP GmbH, GASCADE Gastransport GmbH, Gastransport Nord GmbH, Gasunie Deutschland Transport Services GmbH, GRTgaz Deutschland GmbH, Nowega GmbH, ONTRAS Gastransport GmbH, Open Grid Europe GmbH, terranets bw GmbH and Thyssengas GmbH.

Denmark learns to adapt to gas policies of the EU executive with 22 percent plunge in usage

Denmark, the European Union nation with LNG, pipeline gas and renewables power trading players in Copenhagen, said it had officially exited the gas crisis caused by the Russian invasion of Ukraine by persuading citizens to use less gas.

The Danish Energy Agency has notified the European Commission, the EU executive based in Brussels and which now oversees the energy policies of Denmark and the other 26 nations of the European Union, that Denmark had cancelled the previous "crisis declaration" for the Danish gas market.

"The decision is justified by a significantly improved supply situation," said the Agency.

The Agency stated that Danish gas consumption had been reduced

by 22 percent from August 2022 to March 2024 compared with the previous five years.

"Denmark's production of biogas has increased and now accounts for around 37 percent of gas consumption in the past 12 months. Biogas is helping to displace fossil gas," the agency claimed.

Gas reserves

"Denmark's gas storage reserves were 56 percent filled in mid-May 2024, which is significantly above the required level," the report added.

"The Baltic Pipe gas pipeline has been in full operation since the winter of 2022-2023 and makes it possible to supply Denmark and

a number of neighbouring countries with pipeline gas from Norway," explained the report.

The report noted that the re-opening of the Tyra gas field in the Danish part of the North Sea will soon make it possible for Denmark to become a net exporter of gas as output from the field would exceed Danish gas consumption.

"The Energy Agency declared the gas warning approximately two years ago because Denmark was in a serious situation at the time," said Kristoffer Böttzauw, director of the Danish Energy Agency.

Crisis level lowered

"The lowering of the crisis level reflects that we are in a much

better place today," added Böttzauw.

It was uncertainty about gas deliveries from Russia to the European market that led Denmark in line with a number of other EU countries to declare a "gas warning" in 2022.

The report noted that Russia had just reduced gas deliveries via the Nord Stream 1 pipeline to Germany by 60 percent, and it created great uncertainty and very high gas prices.

"We have succeeded well in finding new supply routes, and at the same time the savings efforts have resulted in a significant drop in gas consumption," said Böttzauw.

CNOOC of BP puts FPSO in place off Senegal

UK major BP said the floating production storage and offloading (FPSO) vessel, a key component of the floating LNG development on the maritime border of Senegal and Mauritania in West Africa, has arrived at its final location.

The FPSO unit is being moored at the site 40 kilometres (25 miles) offshore in a water depth of 120 metres as part of the Greater Tortue Ahmeyim (GTA) Phase 1 natural gas and FLNG project.

BP is the operator and the joint venture also comprises Dallas, Texas-based Kosmos Energy and the national oil and gas companies of the two African nations, Senegal's Petrosen and Mauritania's Société Mauritanienne des Hydrocarbures (SMH).

The project will produce gas from reservoirs in deep water and delivered through a subsea system.

Following completion of its construction at the COSCO Qidong Shipyard in China, the FPSO had travelled more than 12,000 nautical miles to the project site.

The "Gimi FLNG" production hull, supplied by Golar LNG, is also now stationed at a nearshore hub located on the Mauritania and Senegal maritime border.

The "Gimi FLNG" was converted from a 1975-built Moss-type LNG carrier with a storage capacity of 125,000 cubic metres and has liquefaction capacity of around 2.7 million tonnes per annum.

The FPSO is expected to process over 500 million standard cubic feet of gas per day.

It will remove water, condensate and impurities from the gas before transferring it via a pipeline to the "Gimi FLNG" at the Hub Terminal located 10km offshore.

QatarEnergy signs accords with CPC Corp. of Taiwan for NFE

LNG News Editor

QatarEnergy signed definitive agreements with CPC Corp. of Taiwan covering the long-term supply of cargoes and a partnership in the North Field East LNG expansion project in the Arabian Gulf.

The two parties signed an LNG Sales and Purchase Agreement (SPA) for the delivery of 4 million tonnes per annum of LNG from the NFE project to CPC over a period of 27 years.

The two sides also signed a share sale and purchase agreement pursuant to which QatarEnergy would transfer to CPC a 5 percent interest in the equivalent of one NFE Train with a capacity of 8 MTPA.

Multiple expansions

"This transfer will see CPC become a partner in the NFE project without affecting the participating interests of any of the other shareholders in the project," a statement said.

The agreements were signed by Saad Sherida Al-Kaabi, the President and Chief Executive of



CPC's Shun-Chin Lee and Saad Sherida Al-Kaabi sign deal

QatarEnergy, and Shun-Chin Lee, the Chairman of CPC, during a ceremony at QatarEnergy's headquarters in Doha also involving senior executives from both companies.

"We look forward to further enhancing our relationship with CPC, which extends for over three decades, and to further demonstrate our unwavering commitment to our customers and partners around the world," said Al-Kaabi.

The NFE project is part of the overall North Field LNG expansion that also includes the North Field South and the North Field West projects, which together will raise Qatar's LNG production capacity from the current 77 MTPA

to 142 MTPA in 2030.

"QatarEnergy, the world's leading LNG player, has been playing an important role in ensuring Taiwan's domestic gas market over the past decades," said CPC's Shun-Chin Lee.

"CPC's acquired equity in the NFE project and this new LNG SPA will further strengthen the cooperative relationship between our two companies," he added.

Three phases

The current NFE ramp-up of QatarEnergy's liquefaction capacity will take production from 77 MTPA to 110 MTPA by 2027.

JERA agrees to sell part of stake in US Freeport plant for \$380M

JERA Co. Inc., Japan's biggest liquefied natural gas importer and utility company, has approved a deal to sell part of its stake in the Freeport LNG export plant in Texas to another Japanese company.

JERA through its subsidiary JERA Americas Inc., has a 25.7 percent interest in Freeport LNG Development, which operates the US facility in Quintana Island on the Texas Gulf Coast.

JERA has approved a proposed agreement with Japan Petroleum Exploration (Japex) to sell 15 percent of its interest in the Freeport project for around \$380 million.

"JERA decided to sell part of its interest as a result of a careful

assessment for optimizing JERA's asset portfolio," said the Tokyo-based company.

"JERA will continue to contribute to the stable operation of the Freeport LNG project through its continued participation as a shareholder," added JERA.

The Japex board confirmed the deal with JERA and was pleased to acquire a stake in US LNG.

Japex noted that in addition to operating three existing Trains with nameplate capacity of 15.45 million tonnes per annum, the Texas plant will also develop a new LNG business comprising the construction of a fourth liquefaction Train.

Japex added that its Freeport

transaction was part of the management plan to acquire interests in overseas LNG supply infrastructure projects.

"Through Japex's participation in the project, Japex intend to secure long-term stable cash flow in the USA, where country risk is low and to further expand our earnings through future facility expansion," explained Japex.

Japex LNG terminals

The company operates two LNG import terminals in Japan, the Soma facility and the Yufutsu terminal and also owns the Fukushima gas-fired power plant.

OFFSHORE LNG



Advancing Offshore LNG Projects to Meet Rising Demand

11 September 2024 | Singapore EXPO

Key Themes:



TECH UPGRADE

Infrastructure
for Offshore
LNG Bunkering



SUSTAINABILITY

LNG Transportation,
Safety &
Sustainability



EFFICIENCY BOOST

Investments in
LNG Projects
Development

LEARN MORE



NEWS BRIEFS

Algeria-Mozambique talks

Long-standing LNG exporter Algeria has held talks with one of the newest LNG nations Mozambique on future cooperation. Mozambique's Minister of Economy and Finance, Ernesto Max Tonela, met in Algiers with Algerian Energy Minister Mohamed Arkab and both countries have agreed to cooperate on natural gas exploration and production issues and on LNG markets. "Algeria offered to share its experience in terms of the natural gas sector in addition to the development of gas fields and the production and transportation of LNG," said Arkab. "Algeria also wishes to provide support to Mozambique from state energy company Sonatrach through training in the hydrocarbon professions as well as the transfer of Sonatrach's know-how in international energy trading markets," the Algerian minister added.

Equinor gas field opening

Equinor, the Norwegian LNG and pipeline natural gas supplier to Europe, said it was investing 12 billion crowns (\$1.12Bln) to further develop the infrastructure underpinning the Troll West gas province on the Norwegian Continental Shelf. "This project will secure high gas production from the Troll field. The partnership's decision is important in order for us to fully utilise the capacity of existing infrastructure. We've chosen to use solid, familiar suppliers, most of whom already have framework agreements with us," said Geir Tunesvik, Equinor's executive vice president for Projects, Drilling and Procurement. The new infrastructure will accelerate production from the reservoir equivalent to about 55 billion standard cubic metres of natural gas.

Italian grid operator and LNG terminals owner progresses with South-North natural gas pipelines upgrade and financing programme

LNG News Editor

SNAM, the Italian gas grid operator and liquefied natural gas import terminals owner, is progressing with the replacement and financing of natural gas pipelines to strengthen South-North infrastructure.

This main line is scheduled to be renovated by 2026, while the secondary lines are scheduled to be renovated by the end of 2027.

The whole Ravenna-Chieti gas pipeline consists of 292 kilometres (182 miles) of main pipeline and 133km of secondary lines and ensures natural gas transportation to the areas along the Adriatic coastline, from the province of Ravenna to the province of Chieti, affecting Emilia-Romagna, Marche and Abruzzo.

SNAM said the use of trenchless technologies combined with environmental restoration activities at the end of the project, will preserve the surrounding environment and vegetation and enable the complete reconstruction of the area's original natural and landscape conditions.

Distribution networks

The pipeline directly serves 130 delivery points to the distribution networks, two connection points with other transportation networks, 64 industrial users, three power generation plants, and 59 natural gas stations for motor vehicles, for a total volume of approximately 1.6 billion cubic metres per year.

The pipeline also collects production from nine small Italian natural gas fields with a total annual volume of around 0.9 Bcm.

"The project will strengthen the infrastructure dedicated to transporting natural gas from southern to northern Italy and will also allow for hydrogen transportation," SNAM explained.

The Italian development bank, Cassa Depositi e Prestiti (CDP), has granted SNAM a loan linked to the achievement of sustainable tar-



Pipeline also collects production from small Italian gas fields

gets for an overall amount of €200 million (\$216M) to renovate the Ravenna-Chieti section of the natural gas pipeline.

SNAM is scheduled to deploy a floating storage and regasification unit for LNG imports to Ravenna on the East Coast in addition to the FSRU "Golar Tundra" which has been operational on Italy's West Coast port of Piombino in Tuscany since July 2023.

SNAM also operates the onshore Panigaglia LNG facility on the north-west coast near Genoa and which has been in service since 1969.

The grid operator additionally has a controlling stake in the "FSRU Toscana" currently in docks for major maintenance.

The FSRU is expected back on station in October 2024 off the West Coast Italian port of Livorno.

Adriatic Backbone

SNAM noted that it had already been granted a €300M loan for pipelines from the CDP a year ago for the "Adriatic Backbone" project, the new gas pipeline currently under construction which aims to increase the transportation capacity of entry points located in southern Italy and backed by European Union investment.

The Ravenna-Chieti pipeline will be connected to this infrastructure.

"The SNAM pipelines are an example of crucial infrastructure which once completed will strengthen the national gas network, also with regards to the energy transition," said Carlo Lamari

at the CDP.

In an additional development Edison SpA of Italy, another prominent energy company in the gas and electricity supply markets, confirmed talks were taking place to sell its natural gas storage facilities to SNAM.

Edison said it was negotiating for SNAM to purchase the Edison storage subsidiary Edison Stoccaggio.

Successful completion of the talks would give SNAM control of gas storage facilities located in Cellino (Teramo), Collalto (Treviso) and San Potito e Cotignola (Ravenna), with a total storage capacity of about 1 billion cubic metres per annum. Edison itself is part of France's EDF group.

SNAM has additionally signed a new sustainability-linked credit line for a total amount of €1 billion, which is compliant with the new group's Sustainable Finance Framework published in February 2024.

"The credit line is structured as a committed and revolving facility linked to sustainability targets, with the applicable margin dependent on the achievement of these targets and a maturity of three years," said SNAM.

The credit line was granted by leading French and Italian banking groups including BNL BNP Paribas, Banco BPM, Crédit Agricole Corporate and Investment Bank, Intesa Sanpaolo (IMI CIB Division) and UniCredit acting as joint mandated lead arrangers and bookrunners.

Dominion Energy closes sale to Enbridge for \$4.3Bln of gas assets Questar and Wexpro

LNG News Editor

Dominion Energy has closed the \$4.3 billion sale of its Salt Lake City, Utah-based natural gas utility Questar Gas Company and its gas supply company Wexpro to North American pipelines operator Enbridge Inc. of Canada.

Dominion said the sale price included assumed indebtedness and was adjusted for customary closing items.

Richmond, Virginia-based Dominion is moving towards being a renewables provider with more wind energy, though still supplies more than 4.5 million customers in 13 states with natural gas as well as electricity.

Asset gains

The Questar Gas Company now owned by Enbridge has more than 1.2 million customers in Utah, Wyoming, and Idaho.

Enbridge stated that it also expected to close on the sale of Dominion's gas distribution company headquartered in Gastonia, North Carolina in a separate transaction later in 2024.

Enbridge, which is based in



Michele Harradence, Enbridge President of Gas Distribution and Storage welcomes purchase of strong utility

Calgary in the Canadian province of Alberta, said the Questar Gas portfolio includes over 21,000 miles (33,500km) of natural gas distribution and transmission pipelines.

The assets additionally include other infrastructure like an LNG storage facility that enhances system reliability with peak shaving and interconnections to multiple interstate natural gas pipelines.

"We are excited to welcome another strong gas utility to Enbridge," said Michele Harradence, Enbridge Executive Vice President and President of Gas Distribution

and Storage. "Questar Gas and Wexpro enhance the scale and breadth of our existing low risk utility business model and support our long-term dividend growth profile by providing stable, predictable cash flows," explained Harradence.

Expansion

"We welcome Questar Gas and Wexpro employees into the Enbridge family of companies and look forward to building long term productive relationships with all of their stakeholders in Utah, Wyoming and Idaho," she stated.

The closing of the purchase of the Public Service Company of North Carolina (PSNC) is expected to occur following the receipt of required regulatory approvals for that acquisition.

The combined contributions from Questar and the previously closed acquisition of The East Ohio Gas Company (now doing business as Enbridge Gas Ohio) are expected to contribute about 80 percent of the total annualised gross earnings from the three gas utilities Enbridge agreed to acquire from Dominion.

Enbridge confirmed that the acquisition of PSNC was on track to close in 2024.

NEWS BRIEFS

South Korean expansion

South Korean project company GS Engineering and Construction is advancing with plans to build an LNG import terminal in the southwestern city of Yeosu in South Jeolla Province, which would be Korea's eighth import facility. GS Engineering estimates the terminal will cost around 600 billion South Korean won (\$440M) and will have two LNG storage tanks, each with a capacity of 200,000 cubic metres as well as auxiliary facilities and port infrastructure. The company added that once completed by around 2028, the terminal would supply regasified LNG to industrial companies and power plants at the national industrial complex at Yeosu. The oldest Korean terminal was completed in 1986 at Pyeong-Taek, followed by an expanded network comprising Incheon (1996), Tong-Yeong (2002), Gwangyang (2005), Samcheok (2014), Boryeong (2016) and Jeju (2019).

LNG Journal Subscription Package

Your LNG Journal subscription includes broad coverage of LNG across the globe - from trade and shipments through to LNG prices, plus in-depth technical coverage. With over 20 years of LNG reporting experience, we remain the market leading source of information for decision makers in the LNG industry.

Subscription Contacts

For new subscriptions or general subscription queries contact:
Stephan Venter
venter@lngjournal.com
+44 207 017 3407

To renew an existing subscription or to upgrade your package, contact:
Gabi Weck
gabi@lngjournal.com

Sign up now for an Online Subscription at only
US\$1190; €920 or £830

Discount options are available for multi-users

Contact us for more information or to arrange a free trial

LNG Daily News
Delivered to your inbox and online



LNG Journal
The flagship LNG monthly



LNG Unlimited
Your weekly summary of LNG news



LNG Market Tracker
Weekly empirical insight into the LNG market



LNG North America
Bi-monthly report on LNG in the US, Canada



LNG Fuelling
In-depth look at LNG as a fuel



LNG Shipping News
Bi-weekly coverage of LNG shipping



LNG China
Bi-monthly review of LNG in China



LNG Monthly Markets
Key developments in LNG markets



Gas to Power Journal
Peakload Power and Energy Storage



Morocco prepares FSRU tender

Morocco is moving ahead with plans for a floating storage and regasification unit (FSRU) and several more FSRUs in the future as part of an expansion in natural gas imports amid hopes of more production of gas from discoveries onshore and offshore the North African kingdom.

The Moroccan Ministry of Energy Transition and Sustainable Development is launching a tender within the next six weeks for an FSRU to be deployed at the port of Nador.

The Ministry said that the completion of construction of associated infrastructure and a commercial start-up of the floating LNG terminal was expected by 2026.

The FSRU will connect to an existing pipeline currently used to import 500 million cubic metres of LNG per annum from regasification terminals located across the West Mediterranean in Spain.

The Ministry forecasts a surge in Morocco's natural gas needs to meet gas-fired power expansion for the requirements of domestic consumers and industry.

Morocco also hopes to position itself as a link in LNG storage and distribution market in the Western Mediterranean region.

The Government has said it was planning the development of natural gas to underpin intermittent renewables across the kingdom.

Four public agencies are involved in the proposals including the National Ports Agency (ANP), the National Office of Electricity and Drinking Water (ONEE), the National Office of Hydrocarbons and Mines (ONHYM) and the National Highway Company of Morocco (ADM) as well as the West Med Nador port FSRU development company.

Australian LNG fuel project emerges for clean Pilbara-to-Asia iron-ore trade

LNG News Editor

Australian liquefied natural gas bunkering company Pilbara Clean Fuels (PCF) has completed a study for the development of an electric-driven and small-scale liquefaction plant at Port Hedland in Western Australia as part of a joint venture to fuel iron-ore carriers with LNG for voyages to Asia.

Oceania Marine Energy (Oceania) is also part of the venture and would operate a marine fuel bunkering business using LNG refuelling vessels to be chartered from Kanfer Shipping of Norway.

The third member of the development study is Registro Italiano Navale (RINA), the Italian maritime classification society, which has developed an concept for an LNG-fuelled 209,000 deadweight ton (DWT) Newcastlemax dry bulk carrier design.

In November 2023 PCF, Oceania and RINA had signed a memorandum of understanding to collaborate on studies to define the commercial and emissions reduction benefits their combined concepts could deliver to ship owners and charterers



Port Hedland in Western Australia is iron-ore shipping hub

for the Pilbara-to-Asia dry-bulk minerals export trade route.

Study findings

The joint study has now been completed and the findings show that an accessible and achievable pathway is there for LNG fuel use on a well-to-wake basis for international shipping on this trade route.

"The study presents a flexible and commercially attractive IMO-compliant marine fuel strategy to ship owners, operators and charterers amidst competing alternative fuel," said a statement.

It proposes a "Green Corridor"

marine fuels solution for the Western Australia-to-China bulk minerals export trade route.

Western Australia is the largest producer of iron ore in the world, with current production of over 850 million tonnes per annum, the majority of which is exported from the Pilbara region.

"The joint study addresses a set of factors which together constitute a pathway to achieving net-zero emissions for this trade route, and for the international shipping industry in general," a statement explained.

Italian 'FSRU Toscana' is moved to Marseille shipyard to finish overhaul

Italian floating LNG terminal company, OLT Offshore LNG Toscana controlled by Italian natural gas grid and LNG terminals operator Societa Nazionale Metanodotti (SNAM), said the "FSRU Toscana" has completed the first phase of maintenance at a shipyard in Italy's northwest port of Genoa.

OLT Offshore said the first phase had been carried out on schedule at the San Giorgio del Porto SpA (SGdP) yard, which had won the contract tender.

It added that the "FSRU Toscana" terminal's maintenance phase in Genoa was completed on scheduled and the second phase was starting at SGdP's shipyard at

the French port of Marseille.

The vessel had been in Genoa since April 2024 and had now been towed by three tugs to Marseille for the work to be completed.

The main part of the maintenance operation is aimed at replacing the bearing of the anchoring system, a system designed and built to ensure the proper rotation of the FSRU terminal around the geostationary turret permanently anchored to the seabed.

"The 'FSRU Toscana' will remain at Chantier Naval de Marseille of San Giorgio del Porto S.p.A. until the completion of the special maintenance expected by mid-September 2024," said OLT Offshore.

The company added that this would be followed by operations to re-install the "FSRU Toscana" at its site offshore the port of Livorno in Tuscany and it would then be expected to resume LNG importation operations by the end of October 2024.

The ship is connected to the Italian gas grid through a 36.5-kilometres pipeline from the shore.

SNAM acquired 49 percent of the share capital of OLT in 2020 from Italian utility company, the Iren Group, and has joint control of the terminal along with Igneo Infrastructure Partners.



LNG infrastructure for harsh weather conditions

Crown LNG's vision is to enhance energy security & support a responsible green energy transition.



The Crown LNG value chain



To find out more visit www.crownlng.com

Clean Energy Fuels opens two more stations in California as natural gas-powered engine launches

LNG News Editor

Clean Energy Fuels Corp., the US producer of natural gas made from waste and a supplier of LNG fuel at over 600 filling stations around North America, has expanded its network near its base in Southern California.

Clean Energy, which is listed on the Nasdaq global exchange, said it had increased its renewable natural gas (RNG) fuelling footprint in Southern California with the opening of two additional stations in San Bernadino and Perris.

"These stations give heavy-duty trucks and other fleet vehicles convenient access to RNG, a low carbon-intensity transportation fuel made entirely of organic waste which dramatically reduces greenhouse-gas emissions," said the company.

Customers

Clean Energy, which is based in Newport Beach, California, has a customer base including some of the largest logistics operators.



Clean Energy now has over 600 filling stations in region

These include UPS and Amazon, many transit agencies including those in New York City and Los Angeles, and dozens of US waste companies including WM, Republic Services and Waste Connections.

The company said that the two new filling stations were located near warehouse hubs and key commercial transportation corridors.

"Clean Energy now has an even more accessible and reliable fuelling network from the Ports of Long Beach and LA to the Inland Empire," said Chad Lindholm,

senior vice president at Clean Energy in reference to the metropolitan area inland from coastal Southern California including the cities of San Bernardino and Riverside and bordering Los Angeles County.

The San Bernadino station, located at 1110 E. Central Ave, San Bernadino, CA 92408, covers 6.4 acres near the 215 and I-10 freeways, and includes four fast-fill lanes.

The address of the Perris station is 19295 Harvill Ave, Perris,

CA 92570, which is located off the 215 freeway. It is equipped with two fast-fill lanes and the site covers three acres.

Tractor-trailer access

Of Clean Energy's over 600 filling stations about 200 have tractor-trailer access and are located in the most strategic locations.

"The addition of these stations comes at a pivotal time in the heavy-duty trucking industry as fleets seek solutions to reduce their carbon emissions and decarbonize their operations," said Clean Energy.

Clean Energy also noted that at the same time as it was expanding fuelling infrastructure around the country, engine-maker Cummins recently introduced its X15N engine, the first 15-litre engine powered by RNG to hit the market.

"The Cummins X15N has been road-tested by UPS, Walmart, Knight Swift, and other demanding heavy-duty truck fleets to positive reviews," said Clean Energy.

HAM of Spain and partner Limagas plan LNG fuel network for trucks on Pan-American Highway

HAM Group of Spain, the developer of an expanding European LNG filling station network, plans to provide natural gas fuel on the Pan-American Highway spanning South America starting in Peru.

HAM has set up a joint venture with Peruvian company Limagas called Energía de Valor Ambiental (EVA) to begin providing more LNG and compressed natural gas (CNG) for trucks and automobiles in the region.

HAM already has a network of more than 140 LNG, CNG and biomethane service stations in Europe, mostly on the main Spanish transportation routes.

The HAM-Limagas venture plans to provide LNG and CNG with proposals to open between 10 and

15 natural gas vehicle filling service stations before December 2025.

Supply points

"The first service stations that EVA will open will be located along the Pan-American Highway, a system that links almost all the countries of the American continent with its more than 17,800 kilometres (11,060 miles) of road," they said.

"These LNG supply points will be located in Mala, Nazca and Arequipa," they added, referring to major Peruvian cities near the coastal highway.

The Mala LNG service station will be operational first while it is expected that Nasca and Arequipa will be able to begin offering service during the second half of the year.

"With the creation of EVA (in English, Energy of Environmental Value), HAM Group and Limagas reinforce their presence in Peru, developing an important growth strategy and taking advantage of the possibilities that Peru can become a benchmark in the Latin American vehicle energy field," the companies stated.

Volvo trucks

HAM already has Peruvian operations. The Spanish company had earlier announced on May 7 2024 that advances had been made in its business in Peru with Volvo Peru delivering the first LNG tractors to HAM Criogénica Peru, the company's own trucking company.

These were also the first LNG-

fuelled trucks Volvo Peru had delivered on the South American continent.

These vehicles acquired by HAM Perú are characterized by having high pressure direct injection (HPDI), which plays an important role in sustainable solutions for the decarbonization of transportation.

HAM, which also has a widespread road haulage business in Spain, also recently expanded its Spanish network with a strategic filling station for transportation fleets travelling from Madrid to Barcelona.

HAM's new Torre-Serona Lleida LNG mobile service station is located on the A2 Northeast Highway at KP 463.



NEXUS OF CLEAN™

"Chart's vision is to be the global leader in the design, engineering and manufacturing of cryogenic process technologies and equipment for the Nexus of Clean™ — **clean power, clean water, clean food and clean industrials**, regardless of molecule."

A handwritten signature in black ink, likely belonging to Jill Evanko.

JILL EVANKO / CEO / CHART INDUSTRIES

CLEAN CLEAN CLEAN CLEAN

 CHART DELIVERS CLEAN SOLUTIONS FOR



Power



Water



Food



Industrials



Learn more at chartindustries.com