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SINOKOR SWOOPS FOR FINAL 'LEGACY' CARRIER IN TOTALENERGIES FLEET

Deal on 16-year-old vessel held in partnership with NYK includes short charterback to energy major. Sinokor Merchant Marine has agreed to buy a 16-year-old LNG carrier from TotalEnergies and NYK Line. Brokers said the South Korean shipowner is set to pay a strong price of around $68m for the 154,472-cbm LNG Alliance (ex-Gaselys, built 2007).

TotalEnergies shifts into sales talks on last of its 'legacy' LNG carriers

The deal is said to include a charterback to TotalEnergies for a period of around 15 months, with delivery scheduled for June. The LNG Alliance is the last owned LNG carrier in TotalEnergies' fleet. The French energy major has previously referred to this ship and two other LNG carriers, which it has already sold, as its "legacy assets" and said it would look for the right opportunities to divest them. TradeWinds reported in February that Sinokor had been in talks with TotalEnergies on the ship, which is jointly owned with Japan's NYK Line. Negotiations have been held over the past few weeks, but sources following the ship said they have now reached a firm agreement. The LNG Alliance is one of several LNG carriers that TotalEnergies acquired when it bought the upstream assets of Engie in mid-2018. The vessel and its 154,472-cbm sister

ship LNG Unity (ex-Provalys), along with a 74,130-cbm Medmax, Global Energy (both built 2006), were built with GTT's now discontinued CS1 cargo containment system, which suffered de-bonding issues resulting in long-running legal action and tank repairs to all three ships. The LNG Alliance, the last of the three to be built, is believed to have undergone less work. But the LNG Unity, which was bought a year ago by Turkey's Karpowership for around $40m, is understood to be operating with only three cargo tanks.

Sinokor finally sends 40-year-old LNG carrier for demolition

The membrane-type LNG carrier buy would appear to be something of a new direction for Sinokor, which has previously confined its secondhand LNG purchases to older ships, many of which were laid up. The buy would give the camera-shy shipowner exposure to a charter with an energy major. Sinokor is expected to take delivery of an LNG carrier newbuilding from Samsung Heavy Industries in early 2024. It is one of four ordered by the shipowner in February 2019 at a reported price of $193m each. The first vessel was originally due for delivery in 2021. Last year, talk rumbled around the market about whether the company would be prepared to sell the vessel, as buyers searched for early-delivering ships in a tight shipbuilding market.

Secondhand LNG carrier sales action makes brisk start to 2023 with $500m deals on table

As newbuilding prices climbed to the $250m mark last year, Sinokor was said to be countering offers with quotes of $270m for the ship. Sales of secondhand LNG carriers were brisk in the first quarter of 2023. Deals on nine ships were agreed and three vessels were sent for demolition. Discussions are said to be continuing on several other ships seeking trading or conversion buys."The cargo sizes that charterers are considering going forward is also a challenge as it's moving beyond the loading capacity of vintage vessels." But the broker said vessels are still being inspected and interest is "good" for some of the units. Source : www.tradewindsnews.com

NYK LINE TIPPED AS WINNER OF $1BN ENBW TENDER

Another four 2026-to-2027 delivering berths set to get snapped up at South Korean shipyard, further slimming the pool of spare slots. NYK Line is being touted as the winner of a tender by German utility EnBW to secure four LNG carrier newbuildings worth more than $1bn. Several brokers referenced the conclusion of a tender for vessels for a European utility with a lone shipowner in their reports amid a mass of talk in the market.

Germany's EnBW scours market for owners to book LNG carrier quartet

Some indicated that this referred to EnBW selecting NYK for the four berths reserved for this business at Hyundai Heavy Industries in South Korea. TradeWinds has been told the Japanese owner has secured charter deals on the four 174,000-cbm vessels that will run for periods of between 12 and 20 years. Charter rates in the $90,000-per-day region are being

quoted on the newbuildings, with a variety of estimates given. The quartet is said to be scheduled for handover in 2026 and 2027. NYK has been asked for confirmation and comment on the reports. The apparent finalising of this latest LNG newbuilding tender is set to soak up more berths in a market where slots for LNG carriers delivering in 2026 are almost non-existent and those for 2027 are in increasingly short supply. TradeWinds reported in March that EnBW, working with a major shipbroker, had secured the HHI berths at pre-negotiated prices of around $257m each and gone out to shipowners for offers.Owners also had the option of submitting bids based on their own negotiated newbuilding berths. But with these in short supply and prices rising, it was unclear if many would have access to yard space.

LNG newbuildings set to top 100 this year, Research says

Offers, which were requested to remain valid for two weeks, were due on 23 March and the business is expected to be wrapped up towards the end of this week.EnBW, which has previously declined to comment on its shipping requirement, has been growing its LNG supply while also making an effort to switch to renewables. In June 2022, it signed a sale-and-purchase agreement for 2 million tonnes per annum of LNG with growing US producer Venture Global LNG. They extended this to 2.5 mtpa in October last year. The volumes will be sourced from Venture Global's Plaquemines LNG and CP2 LNG projects. source : www.tradewindsnews.com

INDIA'S GAS CONSUMPTION DOWN 6% IN FY22-23

India's natural gas consumption in the year to March 31, 2023 (FY22-23) was down 6% year/year, according to the latest oil ministry data.The south Asian nation consumed 60.31bn m3 of natural gas in FY22-23 compared with 64.15bn m3 in the previous year. India consumed 5.12bn m3 of natural gas in March 2023, down 5.9% yr/yr, the data showed. The production of natural gas in FY22-23 was 34.45bn m3, up 1.3% yr/yr. In March 2023, India produced 2.95bn m3 of gas, up 2.4% yr/yr. India meets almost half of its gas demand through LNG imports. In FY22-23, the country imported 26.65bn m3 of LNG, down 14.1% yr/yr. source : www.naturalgasworld.com

TOTALENERGIES CEO: MOZAMBIQUE LNG CONTRACTORS NEED TO BE "REASONABLE" REGARDING COSTS

Patrick Pouyanne, CEO of TotalEnergies, said on Thursday that some of the contractors of its giant $20 billion Mozambique LNG project need to be "reasonable" regarding the cost terms of their contracts, as the company and its partners work to restart the project. The French energy giant declared force majeure on the LNG project in April 2021 and withdrew all personnel from the site due to new attacks. In February, Pouyanne said the company was "not in a hurry" to restart the project, pointing out that security, human rights, and maintaining costs are the main three elements to make the decision to return to the Afungi site in Cabo Delgado province. The CEO also entrusted Jean-Christophe Rufin, an expert in humanitarian action and human rights, with an independent mission to assess the humanitarian situation in the province. The

project's EPC contractor is CCS JV, a venture between Saipem, McDermott, and Chiyoda. Saipem said in February that it is expecting to restart work on the Mozambique LNG project in July this year, while Mozambique President Filipe Nyusi reportedly said this week that it is safe for TotalEnergies to continue work on the project. Pouyanne told analysts on Thursday during the company's first-quarter results call that the cost terms are the last step before restarting the project. "I commented recently that we need the contractors to be reasonable. Some of them are not. So we will repeat some of the packages because there is no way for us to accept some undue costs," he said. "We have paid what we had to pay because we stopped the project and we have to restart the project that had an impact, obviously. We don't see why we should pay more than that," Pouyanne said. He told the analysts that it is "premature" to provide more information as the project team is working with the contractors "with a view to be able to announce the project, but under the conditions that the costs are controlled. That's fundamental to us," Pouyanne said. Buyers remain committed to Mozambique LNG Mozambique LNG includes the development of offshore gas fields in Mozambique's Area 1 and a 12.8 mtpa liquefaction plant at the Afungi complex. Besides TotalEnergies, other partners in the project are Japan's Mitsui, Mozambique's ENH, Thailand's PTT, and Indian firms ONGC, Bharat Petroleum, and Oil India. TotalEnergies previously said that almost 90 production of the Mozambique LNG project is sold through long-term contracts with key LNG buyers in Asia and in Europe. The firm previously planned to start shipping cargoes in 2024. Despite the delay, all of the LNG buyers remain committed to their offtake contracts, according to Pouyanne. "The buyers did not exercise any contract clause with the project," he said. He said that TotalEnergies also booked about 0.7 million tonnes per year from the project. "If some buyers prefer to withdraw, we are ready to take more, so we are open to that, but some Japanese buyers are also ready to take more," he said, adding that Mitsui is among them. He said there is "some appetite in the market" as Mozambique LNG has huge reserves and the project is "well located" directly on the Indian Ocean. source : www.lngprime.com

NIGERIA'S NNPC TEAMS UP WITH GOLAR ON FLOATING LNG PROJECT

State-run Nigerian National Petroleum Corp is joining forces with Golar LNG to install a floating LNG production unit in Nigeria. NNPC said via social media on Wednesday that its CEO Mele Kyari signed a memorandum of understanding with Golar's chief Karl Staubo during a brief ceremony in Abuja. The Nigerian firm said the deal is part of its efforts to deepen Nigeria's domestic gas utilization and enhance gas export, but it did not provide any additional information regarding the project. Nigeria currently exports LNG via the 22 mtpa Bonny Island LNG plant, which is being upgraded with a seventh train with a capacity of 8 mtpa. Nigeria LNG is a venture compromising of NNPC (49 percent), Shell (25.6 percent), TotalEnergies (15 percent), and Eni (10.4 percent). The country has no floating LNG production projects, but Nigeria's UTM Offshore is working to install Nigeria's first floating LNG producer. NNPC is collaborating with UTM Offshore on this project as well.

Golar's FLNG plans

Golar said in February it secured an option to acquire a 148,000-cbm Moss-type LNG carrier which it aims to convert to a floating LNG producer. Prior to that, the LNG firm led by Tor Olav Trøim said in November last year it ordered long-lead items worth about $300 million for its third FLNG conversion project on the back of a growing opportunity set for new FLNG growth projects. Golar placed orders for items targeted for a 3.5 mtpa Mark II FLNG, that can also be interchangeably used on its other two FLNG designs. The company owns the 2.4 mtpa Hilli FLNG located in Cameroon and the 2.5 mtpa Gimi FLNG currently under conversion at Singapore's Keppel Shipyard. Gimi is expected to start serving BP's Tortue FLNG project offshore Mauritania and Senegal under a 20-year charter deal in the fourth quarter of 2023. source : www.lngprime.com

VENTURE GLOBAL SEALS LNG SPA WITH JAPAN'S JERA

US LNG exporter Venture Global LNG has signed a long-term liquefied natural gas supply deal with Japan's LNG trading giant and power firm, Jera. Under the sales and purchase agreement, Jera will buy 1 million tonnes of LNG per year for a period of 20 years from Venture Global's proposed CP2 LNG terminal from the start of commercial operations. "LNG procurement competition has been intensifying and thus, stable procurement of LNG in a timely manner in line with the domestic electricity supply-demand situation is needed to secure a stable supply of energy in Japan," Jera said in a statement on Friday. Jera said this is a destination free FOB contract, which enables the firm to secure LNG in a "high flexible manner". The firm expects this deal will help with its capability to respond to volatility in the domestic electricity supply and demand.

CP2 LNG construction to start later this year

Venture Global announced in December 2021 that it plans to invest more than $10 billion in the CP2 LNG terminal, which would be located next to its existing Calcasieu Pass liquefaction plant in Louisiana. CP2 LNG includes a terminal with a nameplate liquefaction capacity of 20 mtpa. The plant would have 18 liquefaction blocks, each with a capacity of about 1.1 mtpa of LNG, but also four 200,000-cbm full containment LNG storage tanks. Venture Global said in a separate statement that it expects to start construction on its third LNG export plant later this year as the CP2 LNG project continues progressing through federal permitting process. To date, the company has announced SPAs for over a third of the 20 mtpa nameplate facility with active discussions ongoing for the remainder of its capacity, it said. Venture Global noted that this deal follows Jera Global Markets' purchase of the inaugural commissioning cargo of LNG exported from Venture Global's first project, Calcasieu Pass, on March 1, 2022. Since then, the Calcasieu Pass plant shipped more than 128 LNG cargoes, while Venture Global took FIDs for both of the phases of its Plaquemines LNG export project. source : www.lngprime.com

GASLOG PARTNERS, SHELL EXTEND LNG CARRIER CHARTER DEAL

NYSE-listed LNG shipping firm GasLog Partners has extended a charter deal for one of its vessels with LNG giant Shell, as it works to complete the previously announced merger deal with GasLog. GasLog Partners, which recently entered into the merger deal with Peter Livanos-led GasLog, revealed this charter deal in its first-quarter earnings report. Under the deal, a unit of Shell exercised its option to extend the contract for the 174,000-cbm GasLog Geneva for another five years. With this move, Shell will use this 2016-buit TFDE carrier to ship LNG until September 2028. The firm has another option to extend the deal for three more years. Prior to this, Shell also exercised its five-year option for the 170,000-cbm Methane Becki Anne.

GasLog Sydney

GasLog Partners confirmed it completed the sale and lease-back of the 2013-built 155,000-cbm, GasLog Sydney, with China Development Bank Financial Leasing (CDB Leasing). The firm said that the deal worth $140 million with a unit of CDB Leasing has no repurchase option or obligation. Also, the completion of the transaction resulted in the recognition of an impairment loss of $0.1 million and a loss on disposal of $1 million in the three months ended March 31, 2023, GasLog Partners said.

Revenues up

GasLog Partners said its revenues reached $99.1 million for the first quarter, compared to $85.5 million for the same period in 2022. It attributed the increase of $13.6 million mainly to a net increase in revenues from its vessels operating in the spot and short-term markets in the first quarter of 2023, under time charters that were executed in 2022. This net increase was partially offset by a decrease in revenues due to the off-charter days of the scheduled dry-docking of GasLog Shanghai and also the sale of Methane Shirley Elisabeth in the third quarter of 2022, it said. Profit reached $36.4 million, compared to $35 million for the same period in 2022. GasLog Partners attributed the increase in profit of $1.4 million mainly to the increase in revenues and the decrease in vessel operating costs of $2.7 million.

GasLog Partners capitalized on the "strong" LNG market

CEO Paolo Enoizi said the merger deal with GasLog is a "transformative transaction for the partnership that will enable its unitholders to take advantage of a significant premium to the unit trading price." Subject to the affirmative vote of the majority of the common unitholders, the company expects the transaction to close in the third quarter of this year. "Overall, the term fixtures executed so far have enabled the execution of our capital allocation strategy, helping us make meaningful progress towards our leverage targets and strengthening our balance sheet with the repurchase of $49.2 million in preference units in the past year, or approximately $68 million since inception of the repurchase plan in August 2021, which is also improving the partnership's all-in break-even levels in our fleet," he said. Enoizi added that the firm has capitalized on the "strong LNG market through profitable fixtures, exercised charterers' options, and sale and lease-backs." source : www.lngprime.com

JERA INKS BANGLADESH LNG PACT WITH SUMMIT POWER

Japan's LNG trading giant and power firm, Jera, has signed a memorandum of understanding with a unit of Bangladesh's Summit Power to collaborate on the development of LNG supply, storage, and regasification. Jera agreed to buy 22 percent of Summit Power's outstanding shares in October 2019, and the two firms also signed a memorandum of understanding in April last year to collaborate on the development of a decarbonization roadmap for Summit Power. According to Jera, it signed the new deal with Summit Corporation on Thursday in Tokyo. Moreover, Jera noted that in line with increasing gas demand and declining in domestic gas production, Bangladesh needs the development of stable LNG supply. The memorandum indicates that Jera and Summit will collaborate in LNG storage and regasification, as well as the long-term supply of LNG to Bangladesh, it said. Summit Power is the largest independent power producer in Bangladesh and operates under the umbrella of Bangladesh's leading infrastructure conglomerate Summit Group. The firm operates the FSRU-based LNG import terminal located offshore Moheshkhali Island in the Bay of Bengal with a daily regasification capacity of 500 million cubic feet. Bangladesh currently imports LNG via Bangladesh's first LNG import facility, Moheshkhali Floating LNG or MLNG, operated by Petrobangla, and via Summit Group's FSRU-based terminal. Both of these facilities feature Excelerate Energy's FSRUs. source : www.lngprime.com

SHOULD LNG REMAIN ON THE MENU OF FUTURE FUELS FOR MARITIME?

TradeWinds digs into the carbon reduction debate about using the fuel. When the first LNG-fuelled container ship slid into the water in San Diego eight years ago, emissions were the key reason shipping was adopting the fuel. But it was not the greenhouse gas emissions that are the focus of discussions today. "It was all about SO_x and NO," said SEA-LNG chairman Peter Keller, who was executive vice president of TOTE at the time the 3,100-teu Isla Bella (built 2015) was launched amid fireworks. "We anticipated more regulation on particulate matter, which really hasn't happened. As you will recall, in those days… decarbonisation was not an issue and only really came to the fore well after the engines were ordered and the ships were starting to be built." He told TradeWinds it was fortuitous that the fuel ended up having another benefit: lower CO_2 emissions. But today, touting carbon reductions as a benefit of using the fuel is facing growing criticism from environmental groups about methane emissions, the flip side of natural gas. Shipyards are cranking out LNG-fuelled vessels, which shipbroker estimates make up 60% of the global orderbook. Green groups are increasingly urging shipping to stay away from LNG because methane is its main ingredient and has a way of leaking into the atmosphere, both from ships and upstream in the supply chain.

TradeWinds recently reported that Say No to LNG, a campaign by a coalition of environmental groups, contends that extolling the virtues of the fuel as a way to cut carbon CO_2 is a form of greenwashing, because methane emissions have a more damaging climate impact in the near term.The group acknowledges that LNG reduces CO_2 and emissions of other gases but says that on a 20-year timescale, methane has 80 to 90 times the climate impact.

New campaign aims to highlight 'greenwashing' of LNG as fuel Elissama Menezes, campaign director for Say No to LNG, pointed to reports by the Intergovernmental Panel on Climate Change about the near-term climate of methane emissions. And she told TradeWinds that reducing the use of LNG is a low-hanging fruit of decarbonisation efforts and that upstream natural gas production has negative impacts on vulnerable communities that go beyond climate change. She highlighted growing attention to methane by governments, including an emissions reductions pledge by several countries during the COP27 climate conference. With methane emissions getting more attention in what had previously been a carbon-centric approach to climate change, she believes more regulation will follow. "We see that the growing regulatory attention to methane will lead to advancement in climate regulations to tackle methane that perhaps will then end up in an early liability or premature liability of LNG infrastructure because they will no longer be aligned with those regulations," she said. "So there are many reasons why it's not a solution for shipping's decarbonisation. In fact, it's not a solution for any decarbonisation scenario." After the recent launch of the Say No to LNG campaign, SEA-LNG fired back. As TradeWinds reported, the group said the anti-LNG campaign is based on a false contention that shipping is looking to hide the issue of methane emissions. And it said Say No to LNG is rehashing old data.

'Rehashing existing flawed analysis': SEA-LNG slams new anti-LNG group

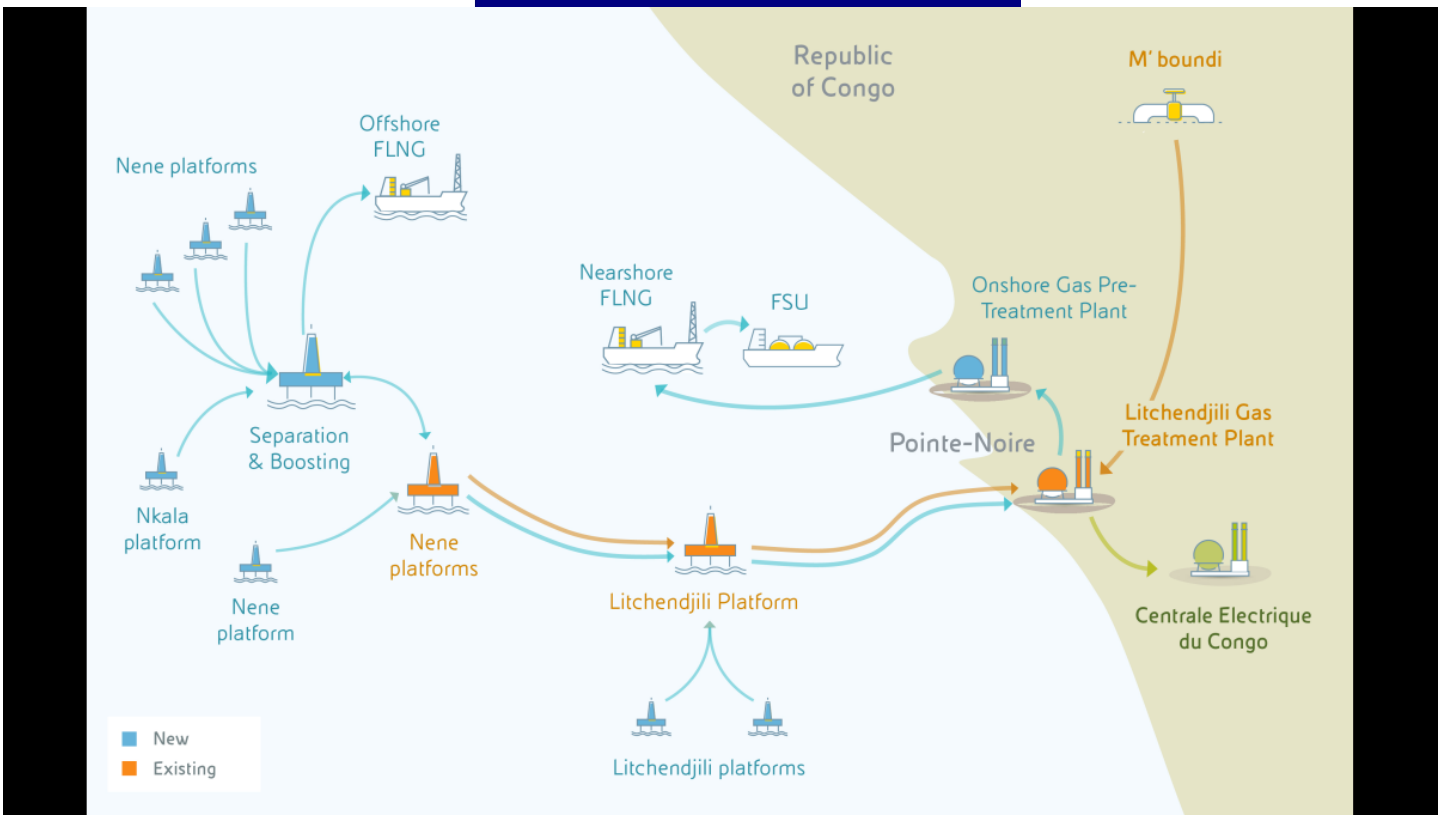
SEA-LNG's leaders said methane slip on vessels has been reduced by a factor of four since LNG-fuelled engines were first introduced in the early 2000s. And they pointed to data from classification society DNV that shows that most LNG-fuelled vessels that are being constructed today are using new engine technologies that have negligible methane slip. And SEA-LNG's Peter Keller told TradeWinds that his group focuses on current science and current data — not to mention realism. LNG is available as a fuel today, and cleaner alternatives for shipping's decarbonisation are not in significant quantities. "Let's not continue to pull out 2018 data and 2020 data. Let's use current information. Let's really look at what's going on. At Sea-LNG, we've always said that there will be a basket of fuels, just as there's a basket of fuels today," he said. "And if we are going to look at information appropriately, we would know that today, the only way to reduce carbon in the maritime sector is with LNG, because there is no such thing as green ammonia, there is no such thing as green methanol, there is no such thing as hydrogen that's available." And he said those green fuels might not be available in any sustainable context for a decade or more because they need to be produced from renewables. SEA-LNG chief operating officer Steve Esau told TradeWinds the high-pressure diesel engines that have the lowest methane slip when using LNG as a fuel can cut well-to-wake greenhouse gas emissions by 23% on the 100-year timescale that is traditionally used in carbon accounting. Other engines do not perform as well, but he said work is being done to improve that. On a 20-year basis, he said the high-pressure engines still do well. "But [it's] very important to recognise that for the high-pressure engines, which make up the

majority of the LNG-fuelled orderbook, if you look at those engines on a 20-year basis, they deliver an improvement over the current use of [conventional] marine fuels," he said. "So the technologies are there, whether you look at them on a 100-year basis or a 20-year basis, that deliver greenhouse gas improvements." Asked about SEA-LNG's complaints about the Say No to LNG campaign, Menezes said research by the International Council on Clean Transportation showed that low-methane slip engines represented just 11% of LNG consumption by shipping in a European Union database in 2019. And the study projected that ships with high-methane slip engines would account for 54% of LNG consumption by 2030. SEA-LNG has criticised this study as based on old data as well. "What's delaying decarbonisation in the shipping sector isn't fact-based, life-cycle, community-oriented research and engagement from groups like ours," she said. "It's the continued promotion and greenwashing of investment in LNG instead of truly zero-emission solutions. SEA-LNG focuses its communication on the life-cycle greenhouse gas savings of the lowest methane slip engine technology and calculates those savings based on methane's 100-year global warming potential, completely ignoring methane's near-term warming potential." What does Say No to LNG believe shipping should be doing to decarbonise? "We want investment this decade in energy efficiency and operational measures to start reducing greenhouse gas emissions," Menezes said. "While we recognise that fuel transition will be critical to get the shipping sector to zero emissions in the mid and long term, in the short term energy efficiency improvements across the existing fleet will achieve alignment with the 1.5C pathway." There are efforts underway to address methane slip in ships' engines. Panos Mitrou, global gas director at classification society Lloyd's Register and chairman of the Methane Abatement in Maritime Innovation Initiative (MAMII), said the members of the coalition, made up of major shipowners and LNG suppliers, see the problem of methane emissions, and they want to look at it in a holistic way. That means looking at the full LNG value chain from well to wake, although shipping has more impact on what is happening on board vessels. And while he does not want to seem overly optimistic, there are positive developments so far in the effort, which started in September 2022. That includes the well-to-tank part of the life-cycle emissions equation. Regulations and industry standards are moving towards cleaner methods of producing LNG, he said. And satellite surveillance, metering and certification are leading to more tools to understand the full scope of methane emissions during production. When it comes to what is happening on board ships, MAMII sees optimistic signs as well. High-pressure engines already stand as one solution to reducing methane slip on board, bringing emissions down to 0.2 grams per kilowatt hour of energy. "We have seen an enormous improvement in other engines as well," he said. Those developments make 1 gram per kWh a reality, he added. When the four-stroke LNG engines first came out, methane slip was not even on the radar, and methane emissions were in the range of 4 grams per kWh. Mitros said that about two years ago, that was ratcheted down to 2 grams. So while recent improvements in those engines could bring their methane slip to half that, there may be more ahead, including developments that have been tested in labs but not yet implemented on board ships. And he said regulators are increasingly focusing on methane emissions from shipping, which is also positive because it boosts incentives

to tackle the problem. Mitrou told TradeWinds that MAMII wants the four-stroke engines with higher methane slip today to have a footprint that is similar to the high-pressure engines. "That technology is already out there. So you cannot claim that there is no way out," he said. Source : www.tradewindsnews.com

ENI LAUNCHES CONGO FLNG PROJECT TO TARGET EUROPEAN DEMAND

The Italian-headquartered oil and gas major announced the project's launch in the Republic of Congo with the nation's president and the company's chief executive on hand for a cornerstone laying ceremony at the site of the country's first natural gas liquefaction facility. When operational, Congo LNG will exploit the extensive gas volumes located in the Marine XII block using two floating LNG facilities offshore Congo. According to Eni, the gas coming from the field will serve domestic energy generation supply needs and turn the Republic of Congo into a natural gas exporter. The project has two stages centred around the FLNGs. In the first stage, the *Tango* FLNG Eni acquired from Exmar in August 2022 is undergoing conversion. Once operational, the FLNG will have a capacity to produce 0.6M tonnes per year (mta). Eni said production is set to begin in 2023, and the company has secured a floating storage unit from Exmar on 10-year charter, which will be based on a converted LNG carrier. Built in 2017, the barge-like *Tango* FLNG has a storage capacity of 16,100 m^3 and liquefaction capacity of up to 0.6 mta. The value of the transaction will range between US$572M and US$694M, depending on the performance of *Tango* FLNG during its first six months of operation offshore Congo. In the first phase, Eni targets nearshore development positioning *Tango* FLNG, the gas pretreatment plant, installing an additional platform and drilling 12 wells.



A map of plans for Eni's LNG production in Congo (source: Eni)

The second phase of the project's offshore development will position the second FLNG, install eight additional platforms and drill 29 wells. This phase will incorporate the second FLNG plant, a newbuild which will provide an additional 2.4 mta in gas production, bringing the total production capacity for the project to 3 mta. Eni awarded the building contract for the unit to Wison (Nantong) Heavy Industry shipyard. The newbuild 2.4-mta floating FLNG vessel will come online in 2025, according to Eni, and will have an overall length of 380 m, beam of 60 m and depth of 35 m. It will be moored using a submerged swivel yoke system in about 40 m water in the Nene Marine Field area, about 50 km offshore from Congo's port city Pointe Noire. It will be able to store more than 180,000 m^3 of LNG and 45,000 m^3 of LPG. "Congo LNG will exploit the huge gas resources of Marine XII, fulfilling the country's power generation needs while also fuelling LNG exports, supplying new volumes of gas to international markets focusing on Europe. The project, made though an accelerated development schedule and a zero-flaring approach, will see the installation of two FLNGs at the Nenè and Litchendjili fields – already in production – and at fields yet to be developed," Eni said. Algeria, Cameroon, Egypt, Equatorial Guinea and Nigeria are already exporters of LNG to Europe and Asia, but more LNG will be needed by the mid-2020s to meet global demand, according to oil major Shell's *LNG Outlook 2022*. The forecast expects global LNG demand to climb to 700 mta by 2040 – a 90% increase on demand in 2021. While much of this demand growth will come from Asia, Shell emphasises that Europe needs to take a strategic approach to securing "reliable and flexible gas supply in future to avoid exposure to price spikes." The

energy major forecasts an LNG supply-demand gap will emerge in the mid-2020s and warns more investment will be needed "to increase supply and meet rising LNG demand, especially in Asia." Source：www.rivieramm.com

SECOND FUELNG BUNKER SHIP NAMED

The company's first vessel and Singapore's first LNG bunker vessel, was 18,000-m^3 *FueLNG Bellina*. Shell Singapore chairman Aw Kah Peng said, "*FueLNG Venosa* will support a growing number of LNG-fuelled ships that call at the Singapore port, contributing to the country's ambition of becoming a regional hub for LNG bunkering. As an industry, we must work together towards reducing emissions from shipping, and LNG is a key enabler in this transition." The state-of-the-art ship was built at Hyundai Mipo Dockyard Co and chartered from Korea Line LNG Co. The vessel is designed to facilitate safe and quick turnaround of vessels carrying out simultaneous cargo handling and bunkering operations and is capable of bunkering different types of LNG fuel tanks. In addition to bunkering operations, *FueLNG Venosa* will provide gas-up and cool-down services to LNG carriers and LNG-fuelled vessels after drydocking in Singapore or en route to loading operations. FueLNG general manager Saunak Rai said, "We are thrilled to add *FueLNG Venosa* to our fleet, which will help us cater to the growing demand for LNG bunkering services in the Asia Pacific region." Shell and CMA CGM inked an LNG multi-year supply agreement last year. Shell will supply LNG to CMA CGM's 13,000-TEU container ships in the Port of Singapore. The port of Singapore is the world's largest bunkering hub for conventional heavy fuel and is preparing to secure its long-term pole position, expanding to handle LNG, biofuels, ammonia, hydrogen and methanol alongside traditional fuels. Source：www.rivieramm.com

EUROPE'S GAS SUPPLY BALANCE REMAINS PRECARIOUS

"**On a knife edge**" is how the Bruegel group appropriately describes Europe's summer gas supply and demand balance. It is a description which contrasts heavily with the feeling of relief accompanying the end of the Winter 2022/23 heating season. Europe has done extremely well to weather the storm of Russia's invasion of Ukraine. Gas inventories are far higher than anyone had a right to expect, which provides a solid base for rebuilding back to 90% by the start of the next heating season on October 1.Europe's previously spare LNG regasification capacity has been used to the full and new import capacity has been rolled out at extraordinary speed, a process which will continue over the course of 2023. In addition to the new floating storage and regasification unit (FSRU) at Eemshaven in the Netherlands, Germany has, in just 12 months, put three FSRUs in place at Wilhelmshaven, Lubmin and Brunsbuettel, respectively.

There are other reasons to be positive.

Last year, gas consumption for power generation was stable, rather than reduced, which might have been expected, given the high price of gas and the need to preserve stocks. This was because of low output from France's nuclear fleet, which typically provides electricity exports to a number of neighbouring

countries, and reduced hydro generation across Europe, following a very dry summer. Low nuclear and hydro generation meant gas plants had to run. French nuclear generation last year was the lowest since 1988. This year, however, it is expected to return to a target set by EDF at 300-330 TWh, up from 2022's 279 TWh.In addition, Europe continues to add renewable energy capacity. 19.1 GW of new wind was installed across the continent last year, 2.5 GW offshore. Industry association WindEurope expects Europe to build an additional 129 GW over the period 2023-2027. In addition, a record breaking 41.4 GW of solar was commissioned in Europe last year. A record three million heat pumps were also installed, presenting a growth rate of 38%, reducing demand for gas heating.

Yet complacency would be dangerous.

France's nuclear output, even if it hits the upper end of its target of 330 TWh, is low in comparison with previous years, excluding 2022. French nuclear generation in 2021 was 379 TWh. While France will require fewer power imports, it looks unlikely to resume exports at previous levels, and the target set could still be vulnerable to setbacks, if reactor restarts are delayed or other units have to come offline. France's nuclear fleet is old and increasingly creaky. The outlook for hydro generation is also uncertain. France has experienced its driest winter on record. Reservoir stocks in week 8 were 17% below last year's levels. The government has already introduced emergency water conservation measures. Some of France's nuclear plants are dependent on river water for cooling and low water levels can stop them operating. Gas-dependent Italy's reservoirs are 7% lower than last year, when they were already low. The River Po in February was more than 3 metres below its normal dry point in summer, an indication of the lack of precipitation in the Alps, which has impacted Austrian and Swiss reservoir recovery. In short, hydro power could well underperform this year in similar style to 2022.

Big hole to fill

There will also be a lot less Russian gas coming to Europe this year. The war in Ukraine started at the end of February last year, so Europe received normal volumes of Russian gas for at least two months of 2022. Moreover, volumes flowing through Poland and Ukraine were not cut off or reduced immediately. The upshot is that Europe, on current flow rates through Ukraine and the South Stream pipeline, is likely to receive more than 40bn m^3 less Russian gas this year, compared with 2022. About three-quarters of this will be offset by the high level of gas inventories with which Europe will end the winter 2022/23 heating season. But it still implies a combination of further cuts in consumption and increased LNG imports to reach the 90% full inventory levels now required by law before the start of winter 2023/24.

Gas conservation needs to continue

It is worth looking at just how Europe reduced its gas consumption last year. Industry played a huge role through a combination of reduced production, switching to different fuels, mainly oil, and improved efficiency. This totalled 25bn m^3 of the 55bn m^3 decline in gas use across the EU, according to International Energy Agency (IEA) data. Even if that effort can be continued and perhaps increased, it is by no means desirable. Production curtailments accounted for half of the decline in industrial gas consumption. The power sector saw no real savings because the low level of nuclear and hydro generation meant gas-fired power stations had to operate. The bulk of the remainder, 28bn m^3, came in the residential and commercial sectors, of which around 18bn m^3 is attributed to warmer-than-normal temperatures. Efficiency improvements accounted for 3bn m^3 and fuel switching and behavioural changes made up the rest. The weather-related savings could disappear altogether in the event of a hot summer and harsh winter, both of which push up gas and power demand. If that is the case – and assuming current levels of Russian gas imports continue – Europe would be looking for either much more LNG or even deeper and more painful cuts in industrial gas consumption. Scenarios in which Russia cuts its gas exports to Europe further, imply even more LNG and/or conservation.

Can the LNG market respond?

The answer in the short-term, unfortunately, is no. LNG import capacity is not the same as LNG supply and it takes time to bring new liquefaction plants on stream.Freeport LNG, it is hoped, will return to normal operation, but, as it was operating for the first half of last year, this will not represent a major gain year on year in terms of total supply. Reuters reported in early March that US LNG production was flat in February from January and 9% above year ago levels, including the partial restart at Freeport. US LNG plants ran hard last year and peak production levels cannot be sustained indefinitely.The only major new liquefaction capacity is expected to come from BP's Tangguh Train 3 and the Tortue-Ahmeyim Floating LNG project, which straddles Mauritanian and Senegalese waters. The latter is not expected to start operating until the end of the year and will in any case have a capacity of only 2.4mn mt/yr. Tangguh Train 3, which could start shipping as early as July, is also relatively small, being a plant expansion project. Train 3 will add 3.8mn mt/yr of capacity. These increases are, of course, very welcome, but relatively small when set against scenarios in which Europe needs more LNG than last year and Chinese buying also rises as its economy recovers from COVID-19 restrictions.They are sufficient, if Europe can continue its gas conservation efforts and Asian LNG demand remains muted. An expected increase in Chinese LNG demand could be offset by less consumption in South Korea and Japan as they rely more on other energy sources, including nuclear power. As a result, Europe appears to be enjoying

the calm of the eye of the storm. A certainty is that it will need high levels of LNG imports this year, although it is possible that they are lower than last year, if all goes well. It is equally possible that Europe needs more LNG to get to the point where it wants to be in terms of storage before next winter starts. And what if next winter is cold? In 2022, Europe did pretty much everything it could and it got lucky with the weather. In 2023, it needs to do more of the same, hope that there are no further major supply disruptions and that the weather Gods continue to look kindly on the continent. Source : www.naturalgasworld.com

QILAK LNG (GAS IN TRANSITION)

Getting its natural resources to market has always been a struggle for Alaska. Huge oil finds eventually necessitated construction of the 800-mile Trans-Alaskan Oil Pipeline, a major feat of engineering completed in 1977. The pipeline brings oil from the state's prolific North Slope to the ice-free Valdez Marine terminal for onward shipment. Oil production in the state peaked in 1988 at 2 mn b/d, but, by 2021, had declined to 437,000 b/d. Getting gas to market has been even more problematic, owing to its lower value and the distances involved. In fact, Alaska is a large gas producer. It had proved reserves of 37 trillion ft^3 at the start of 2021 and last year gross withdrawals totalled 3.5 trillion ft^3, close to record levels. Gas production has been on a gentle upward trend in recent years, as oil output falls. Yet less than a fifth of production reaches end-consumers. The majority, about 83%, is used in the oil and gas production process, in particular being used as reinjection gas to maintain reservoir pressure. Only a small amount is flared or vented - 0.17% in 2021, according to US Energy Administration Data. Nonetheless, natural gas is important to the Alaskan economy. It generates around 40% of the state's electricity, which accounts for about 6% of total gas production, while the residential, commercial and industrial sectors consume a further 11%. Almost half of all Alaskan homes use gas for heating. Even so, local demand is nowhere near the level of production. Plans to utilise Alaska's gas resources more fully are long-standing and the concept of LNG exports is by no means alien. The small-scale Kenai LNG plant on Cook Inlet exported LNG from 1969 through to the mid-2010s. However, Cook Inlet is far from the North Slope. Its own ageing oil and gas fields supply the Railbelt area, but are insufficient to sustain a large-scale LNG plant. A 1,300-km gas pipeline to bring gas to Valdez has also been much discussed, but it would be expensive and face considerable environmental opposition. Moreover, the advance of Arctic oil and gas technology has made other options

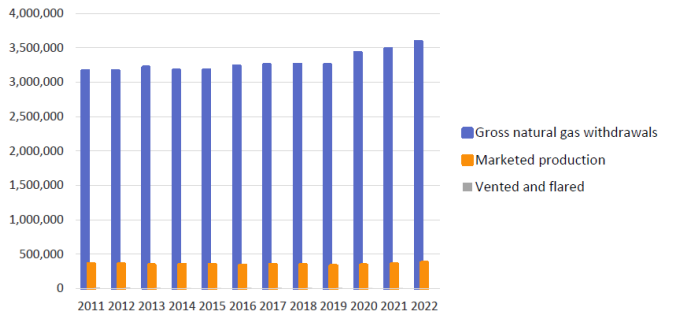
"Given the far western location of Qilak LNG, distances to northeast Asian LNG markets will be short in comparison with competitors, notably US facilities located in the Gulf of Mexico."

possible and it is this which the Qilak LNG project aims to capitalise on. Rather than transport gas hundreds of miles to an ice-free port by pipeline, LNG could be produced directly on the North Slope, taking advantage of Arctic temperatures to reduce energy inputs into the liquefaction process. The first phase of the project is planned at 4mn metric tons/year capacity. It would source gas from existing infrastructure, linked to 32.4 trillion ft^3 of proven reserves. Qilak LNG has already signed a memorandum of understanding with US oil major ExxonMobil for gas supply from the Point Thomson field for the first phase. An earlier stage agreement put the promised volumes at 560mn ft^3/d.

Arctic class LNGCs

While producing the LNG on the North Slope avoids construction of a long pipeline, it will require ice-breaking LNG carriers (LNGCs). However, the Aker Arctic LNGC design (Arc7) has been tried and tested with Russian company Novak's Arctic Yamal LNG project. The vessels have a bow tailored for sailing in open waters and moderate ice conditions plus a heavy stern capable of ice breaking using three azimuth propulsion units. Plans are to load 3-5 Arc7 LNGCs per month. The Arc7 carriers designed for Novatek's Arctic LNG 2 project are even more powerful than those deployed for Yamal LNG. The vessels have a new hull design and 51 MW of power, almost as much as Russia's latest generation of nuclear-powered icebreakers of the Arktika class, in order to deal with the challenging conditions in the East Siberian Sea in the winter months. They are expected to be capable of navigating Russia's Northern Sea Route year round without icebreaker escorts. Arc7 LNGCs were ordered in 2020 for Novatek by Japan's MOL and Russia's Sovcomflot from Daewoo Shipbuilding & Marine Engineering at a reported $280mn each. Fast forward to October 2022 when shipping consultants Drewry put the cost of a newbuild non-Arctic class LNGC at $250mn plus, a rise of 25% over nine months with no shipyard slots available until 2026. A fleet of Arc7 LNGCs will therefore not come cheap.

FIGURE 1 | Alaska Natural Gas Vented and Flared (MMcf) | Source: EIA



Harsh environment liquefaction

The LNG plant itself will be a near-shore facility, hosting the liquefaction machinery, storage capacity and offloading arms to serve the Arctic-class LNGCs. It will be a gravity-based structure connected to the Point Thomson field by a six-mile pipeline. A gas conditioning plant will be located onshore at Point Thomson. The plan is to use modern gravity-based structures (GBSs), similar to those deployed by Novatek on its Arctic LNG 2 development. GBSs are also planned for Novatek's proposed Ob LNG. GBSs are by no means new. According to UK oil major Shell there are 42 GBS in the world. They were originally designed for the harsh conditions of North Sea oil production and consist of huge ferro-concrete legs capable of supporting heavy processing facilities offshore. At their base are storage cells. The Brent field, for example, has 64 storage cells in three giant GBS, each of which weighs 300,000 mt. They preceded development of a North Sea pipeline network, so that oil could be produced, stored and loaded onto tankers from isolated offshore processing facilities.

Competitive offering

Given the far western location of Qilak LNG, distances to northeast Asian LNG markets will be short in comparison with competitors, notably US facilities located in the Gulf of Mexico, which have the additional cost of traversing the Panama Canal to access the Pacific. Transits to northeast Asia are expected to take about 14 days, about twice as fast as from the US Gulf Coast. Qilak is also 2,000 nautical miles (3,700 km) closer to Asian markets than Yamal LNG. Although comparisons are usually drawn with Russia's Arctic LNG projects, being situated in Alaska arguably makes the under construction LNG Canada project Qilak's primary competitor. Yamal LNG is estimated to have cost $27 billion for 16.5mn mt/yr capacity. Costs for Arctic LNG 2, which used GBS for the first time in Russia, built by Italy's Saipem, have been put at about $21bn for 19.8mn mt/yr capacity. Qilak phase one is estimated at $5bn for 4mn mt/yr. On a $/mt capacity basis, this works out at Yamal $1,630/mt; Arctic 2 $1,060/mt; and Qilak $1,250/mt. However, the final costs for Arctic LNG 2 are uncertain, following the withdrawal of western investors and technology companies in the wake of Russia's invasion of Ukraine. Qilak is also being proposed after a period of rapidly rising raw materials costs, while Yamal and Arctic 2 were completed or started before this. In contrast, Canada LNG will have 14mn mt/yr capacity, but costs have skyrocketed to around $48bn, including the plant itself, annual budgets for drilling in the North Montney region and the seemingly ever rising costs of the Coastal GasLink pipeline, which are now put at

"If Qilak can deliver on its cost projections, it looks competitive and should benefit from relatively low operating costs."

$14.5bn alone. As such, if Qilak can deliver on its cost projections, it looks competitive and should benefit from relatively low operating costs. Higher investment in Arc7 LNG carriers should be offset by this and the short transits to market. Limiting the plant's greenhouse gas emissions may also prove difficult, as the option, as at LNG Canada, to use a high proportion of renewable energy for electrically-driven compressors doesn't exist. However, the North Slope's oil and gas fields should provide a nearby opportunity for carbon dioxide reinjection, either for permanent sequestration or to support oil field production. The project is being developed by Lloyds Energy, a company led by former Governor of Alaska Mead Treadwell. According to Treadwell, the company hopes to complete a feasibility study this year and front-end engineering design in 2024. A final investment decision, which will almost certainly depend on landing off-take agreements for the majority of the development's first phase output, could be taken in 2025 for commercial start-up in 2030. Source : www.naturalgasworld.com

ALGERIA SEEKS TO REVIVE GAS INDUSTRY, BANKING ON HIGHER EU DEMAND

Algeria has not done itself many favours in recent years. Its 2005 hydrocarbon law, tax-heavy and loaded with restrictions, drove investors away, depriving the oil and gas industry of investment and leaving it now in need of modernisation. Furthermore, the country's repressive political/economic system does little to encourage domestic local business and leaves its citizens dependent on the state. Nonetheless, Algeria proved vital for Europe following Russia's invasion of Ukraine, and this role seems likely to expand as the EU looks again at its relationship with Algiers. A visit to Algeria earlier this year by Italy's new prime minister, Giorgia Meloni, appears to have created a new energy industry bond between Algeria and Italy. Italian energy giant Eni has been active in Algeria and North Africa for decades, giving weight to Meloni's proposed 'Mattei Plan.' Named after Enrico Mattei, the founder of Eni who fostered energy relationships with North African countries in the wake of the Second World War, the plan is meant to work to the interests of both countries. Eni is making new investments in Algeria that should boost gas exports to Italy and perhaps eventually into the heart of Europe. For its part, Algeria needs the investment to revitalise its energy sector and lift its economy. In recent weeks, Eni has taken a number of steps to expand its activities in Algeria and other North African states such as Libya and Egypt. In late February,

"With the reforms, Algeria hopes to address the problems of ageing oil and gas wells, as well as outdated infrastructure, and move into exploration and development of new fields."

Eni completed its acquisition of BP's operations in Algeria, including the 45.9% share that BP held in the In Amenas gas field, and BP's 33.2% holding in In Salah, both of which are located in Algeria's southern desert. This acquisition, plus the recent start-up of oilfields in the Zemlet el Arbi concession in the Berkine North Basin, where output is around 10,000 barrels per day, will push Eni's production from Algerian assets to some 130,000 boepd during 2023. Eni CEO Claudio Descalzi accompanied Meloni to Algiers in late January and met with Sonatrach CEO, Toufik Hakkar. During the visit, the two sides signed agreements concerning greenhouse gas (GHG) reductions and an increase in Algerian energy exports to Italy by expanding the capacity of existing gas export pipelines and the construction of a new pipeline straight to Sardinia (the Galsi pipeline) and on to mainland Italy. Discussions included eventual production and export of hydrogen, and an electrical cable, via this route. Since the start of the Ukraine war and the stoppage of most Russian gas imports to Europe, Italy has managed to replace its Russian supply, which accounted for nearly half of the country's demand, in part with increased gas imports from Algeria. During a follow-on visit by Meloni and Decalzi to Libya, that country's National Oil Corporation (NOC) signed an $8bn agreement with Eni providing for increased gas output for domestic demand as well as boosting exports via the Green Stream gas pipeline to Italy. Eni's future plans with Algeria also cover security agreements, emissions reductions, and a new deal between Eni and infrastructure constructor Snam for the formation of a new company called SeaCorridor, which is expected to be involved in future pipeline infrastructure. Algeria sold about 100bn m3 of natural gas during 2022, about half of which went to meet local demand with the other half exported. Of that, about 22bn m3 was shipped to Italy via the Trans-Mediterranean pipeline through Tunisia and Sicily. Some 9bn m3 went to Spain via the Medgaz pipeline, and 13bn m3 went to Europe as LNG. Following a political fallout with Morocco and Spain over the Western Sahara issue, Algeria closed the Maghreb-Europe pipeline (known also as GEM), which runs through Morocco and across the Strait of Gibraltar, in late 2021. That closure stopped gas exports to Morocco. The Hassi R'Mel gas field, located in north-central Algeria, is the country's main gas producer, and from there gas is funnelled into the export pipelines and to the coastal cities of Arzew and Skikda where LNG export facilities are located.

Reformed hydrocarbon law

Stung by declining foreign investment in its hydrocarbon sector, Algeria in January 2020 changed its 2005 Hydrocarbon Law, reducing taxes on exploration and production activity and removing customs duties and taxes on imported upstream equipment, along with other changes that could bring modernisation. With the reforms, Algeria hopes to address the problems of ageing oil and gas wells, as well as outdated

infrastructure, and move into exploration and development of new fields in a country that is under-explored. Fluctuations in oil and gas prices in the midst of the last decade, coupled with a lack of investment, created economic hardships in Algeria, with the state having to tap into hard currency reserves to cover a running budget deficit. An official from the energy ministry recently said on Algerian radio that the country would increase its natural gas production by 10bn m3 beginning in 2024 thanks to agreements signed with foreign firms, among them Eni. This is expected to make around 110bn m3 available to markets, including domestic, where demand is growing. Miloud Mdjelled said contracts signed with foreign firms during 2022 amounted to $6bn, adding that the additional quantities of gas produced will allow Sonatrach to "meet demand, in particular, international contracts," according to ANSAmed. Crude oil production is slated to increase by 20mn metric tons to around 120mn mt, Mdjelled said. Algeria produced 130bn m3 of gas in 2022, of which 56bn m3 was exported, while 50bn m3 was consumed domestically. The remainder was used in enhanced oil recovery (EOR). Mdjelled added that $20-25bn would be invested in green hydrogen production by 2035 and that it would be transported to Europe via the new [Galsi] pipeline between Algeria and Italy. Billions of dollars of investment are needed in Algeria, and to sustain exploration and development, Sonatrach is hoping to arrange medium to long term contracts from gas buyers. Prior to the energy security crisis created by the Ukraine war, Europe was particularly keen to wind down its use of natural gas, resulting in a reluctance by companies to commit to 10-to-20-year supply and purchase agreements. Having had to scramble for gas supplies during 2022, that attitude is not now so strong within gas markets. Along with anticipating more upstream work and new infrastructure investment, Algeria has changed its mind on shale oil and gas exploration and development. The country is considered to have huge shale potential, but opposition to hydraulic fracturing (fracking) by locals prevented Algeria from moving into that field when that side of the industry was taking off. However, if Chevron's expected efforts in shale exploration in Algeria prove successful, shale gas could have a huge impact.

"In recent weeks, Eni has taken a number of steps to expand its activities in Algeria and other North African states such as Libya and Egypt."

Energy security

With security of supply now a bigger issue than ever due to the consequences brought about by the war in Ukraine, Algeria could wind up being an ever-larger contributor to the European market. Historically, it has been the number three source of gas to Europe after Russia and Norway. During a recent visit to

Algiers, EU representative for foreign affairs and security, Josep Borrell, described Algeria as a "major partner of the EU in the sector of energy." Borrell said that as Algeria is an energy reliable partner, it plays "a significant role in securing European energy supplies." The EU "wishes to strengthen and deepen this mutually beneficial partnership by working together to face the double challenge of energy security and the sustainability of energy resources," he said, adding that the country also has an excellent potential for renewable energy, which he said is under-utilised. Europe is ready to mobilise technology and capital to support renewable energy development in Algeria, he added. Borrell also called for Algeria to end its dispute with Spain over the Western Sahara and return to normal trade ties.

A Trans-Sahara pipeline?

Algeria claims the potential to become a gas hub through involvement with the building of a gas pipeline across the Sahara Desert from Nigeria. The 4,200-km pipeline would run north through Niger and then connect with Sonatrach's facilities in Hassi R'Mel. The project became a topic of discussion in 2009, but interest fell away and it has only resurfaced recently as a possibility. Algeria would benefit from the pipeline through transit fees and access to a new large volume of gas if it could manifest the infrastructure. Also under consideration is the Nigeria-Morocco Gas Pipeline (NMGP) a 6,000-km pipeline that would run from Nigeria through a number of West African countries, providing them with gas in the process and winding up in Morocco, from where gas could be piped to Europe through the Maghreb-Europe pipeline. But the EU continues to have its heart set on drastically cutting its use of natural gas by the end of this decade, and certainly by the middle of the next one. The war in Ukraine has been a hiccup in Europe's energy transition plan, and whether companies, governments and lending institutions would see the viability of another very long gas pipeline to Europe will likely remain unclear for some time. Source : www.naturalgasworld.com

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