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LNG NEWS WEEKLY 10TH FEBRUARY '24

QATAR PLACES $3.45BN ORDER FOR 15 LNG CARRIERS

Contract is the largest single deal that the South Korean shipyard has ever received. South Korea's Samsung Heavy Industries has received its biggest order in its 50-year history — a KRW 4.57trn ($3.45bn) contract to build 15 LNG carriers. While the Koje-based shipyard would only disclose that the customer is a Middle Eastern shipowner, multiple shipbuilding sources named LNG producer QatarEnergy as the counterparty. TradeWinds first reported details of QatarEnergy's plans to order 15 carriers of 174,000 cbm each in January. Based on SHI's announcement, the company is paying $230m per ship. The order is part of the second phase of QatarEnergy's wider 100-plus ship acquisition programme. The company needs the haul of new LNG carriers to support LNG production capacity from the North Field LNG expansion and Golden Pass LNG export projects, as well as its long-term fleet replacement requirements. QatarEnergy kicked off the first ship acquisition project with orders for 60 LNG carriers at shipyards in South Korea and China. The second phase launched last year with orders for 17 LNG carrier newbuildings at HD Hyundai Heavy Industries. With the latest 15-ship deal at SHI, QatarEnergy has a total of 92 LNG carriers on order. The contract also puts SHI in the lead on LNG carriers among Asian shipbuilders, with a total of 86 in its orderbook, according to Clarksons' Shipping Intelligence Network. HHI is in second place with 69 orders, while Hanwha Ocean follows with 66 orders. HHI's sister company Hyundai Samho Heavy Industries has 43 orders for LNG carriers. The largest order SHI received before this was inked in July when Taiwan's Evergreen Marine signed up for 16 methanol dual-fuel 16,000-teu neo-panamax container ships. That contract was valued at between $2.88bn and $3.34bn. source : www.tradewindsnews.com

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MISC TOUTS TWO ELDERLY MIDSIZE CARRIERS FOR SALE AS CHARTERS END

Steam turbine duo expected to attract demolition prices. A pair of midsize steam turbine LNG carriers controlled by Malaysia's MISC is being offered for sale in a somewhat gloomy market. Brokers said MISC is seeking offers on the 65,000-cbm Portovenere (built 1997) and sister ship Lerici (built 1998). At 27 and 26 years old, the pair rank among the top 40 oldest LNG carriers in the world fleet. Kpler data shows the Portovenere as idled off Greece, while the Lerici is off Malta and does not appear to have lifted a cargo in the past 12 months. The vessels are being offered for sale through a tender process. Brokers estimate the LNG carriers are worth close to their scrap values, which due to their small size would likely be in the region of $9m to $10m each. One said he would not rule out the possibility of a trading buyer if an interested party could see a specific use for this size of vessel, either for storage, conversion or a niche trade. He raised the question of where the vessels, which have been trading in Europe, would be sent for scrap if they ended up being sold to cash buyers for demolition. He pointed out that if they were sold for scrapping in Turkey they would likely achieve half the price of what they might achieve in Asia. The Portovenere and Lerici were what one industry player dubbed the "original Medmax" LNG vessels in that they were built to ship cargoes across the Mediterranean into Italy's then-only LNG import terminal in Panigaglia. The two vessels were originally commissioned by Snam Italy with Eni setting up LNG Shipping in 2001 to control them and another pair of smaller 41,000-cbm LNG carriers, which were sold for demolition in 2011. One of the ships had a brief career as a breakbulk vessel taking on ship-to-ship cargoes in South East Asia and shipping these into draught-challenged Chinese ports. But in their latter years, the two vessels underwent extensive cargo tank upgrading and repair work when it was found that impurities had got into the inert gas used in the tanks when they were laid up, causing corrosion in the primary barriers of the ships' NO 96 tank linings. In 2018, Eni opted to put them up for sale and at the time was said to be hoping to achieve about $40m on each ship, although brokers were slapping $25m maximum price tags on the vessels. Later that year, MISC bought the duo with five-year charters on each vessel worth a combined $133m back to Eni. With these charters due to expire, MISC has opted to offer both ships for sale. LNG carrier sale-and-purchase action fell away in mid-2023 after a particularly active period for the sector, with the second half of last year and the first month of this proving quiet on deals. Brokers still reference ships that are being pushed around in the market. But in the current low-rate environment, prices on these ships are largely seen as unrealistic. Full-size steam turbine vessels — which tend to be in the 120,000-cbm to 140,000-cbm range and significantly smaller and less efficient than their 174,000-cbm modern cousins — have seen their spot charter rates pegged in the low-$30,000-per-day range. source : www.tradewindsnews.com

DEMOLITION PRESSURE RISING ON STEAMSHIPS IN 2024

Will 2024 see the start of a big clear-out of elderly vessels for the sector? Scrapping activity tailed off for LNG carriers in 2023 — after a brisk start to the year hinted that the long-expected weed-out of older tonnage was finally underway — but some market players anticipate that demolition numbers will rise this year.

Six LNG vessels were sent to the breakers in 2023.

This was a jump on the single ship that was sent for demolition in 2022 but down on the seven scrapped in the bumper year of 2021. The six vessels sold in 2023 were all aged 30 years or over with the oldest being 46. Their combined ages were 222 years. They all had steam turbine propulsion systems. Their number also included the first floating storage and regasification unit — albeit one of the initial two LNG carrier-to-FSRU conversions. Of the six vessels scrapped, one came to the end of its charter and looked set to be without employment. The owner cited factors such as its older age, steam turbine propulsion systems and smaller size, which rendered it less efficient and constrained its competitiveness in the charter market. Four were laid up and while the final ship had been reactivated from lay-up in the last few years, it was idle. All but two of the six ships were sold for green recycling, with the companies noting their adherence to the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships during the scrapping process. LNG carriers often attract higher scrap prices due to their high aluminium content. Older LNG carriers are set to come under increasing scrutiny this year as the Carbon Intensity Indicator gradings — under which vessels are given an annual rating based on their

operational parameters and the carbon intensity emissions of their vessels — emerge from the second quarter. This is juxtaposed with what are due to be two record years for LNG newbuilding deliveries with at least 67 vessels scheduled for handover in 2024 and a similar number the following year. Shipbrokers said that steamships are increasingly being seen as the last choice for charterers. Broker SSY said in an annual review and forecast for 2024 that steam turbine tonnage has begun to slow down, with engine performance limitation systems now commonplace. Current estimates put spot rates for steam turbine vessels at around the $30,000-per-day mark although privately charter market players said they were seeing levels in the teens being offered. One broker said that while there are technically about 80 older LNG carriers that could "disappear" from the market shortly, many could trade on, albeit increasingly on regional trades and at rates close to operating expenses. source：www.tradewindsnews.com

JERA, PLN TO DEVELOP LNG VALUE CHAIN IN INDONESIA

Japanese joint venture Jera on February 9 announced the signing of a memorandum of understanding (MoU) with Indonesia's state power company, PLN, to develop the LNG value chain in the southeast Asian nation. Under the terms of the MoU, Jera will join forces with PLN Energi Primer Indonesia, a subsidiary of PLN specialising in fuel procurement and transportation. "Collaboration to establish a value chain for LNG, which plays an important role as an energy transition fuel, is expected to help Indonesia achieve both a stable supply of electricity and energy transition, as well as to contribute to achieving net zero emissions by 2060," Jera said. The collaboration will focus on areas such as LNG procurement, optimisation processes, and the development and operation of LNG receiving terminals in Indonesia. The partners intend to specifically tailor the LNG value chain to the power segment in Indonesia, acknowledging the crucial role LNG plays in meeting the country's growing energy demands. In addition to the LNG initiatives, the collaboration will explore the feasibility of transitioning towards a hydrogen and ammonia value chain. In December last year, Jera signed an MoU with another state-owned Indonesian company, Pertamina, to develop LNG and hydrogen/ammonia value chains.Indonesia has set a goal of achieving net-zero emissions by 2060. source：www.naturalgasworld.com

CEO:TOTALENERGIES HOPES TO RESUME MOZAMBIQUE LNG CONSTRUCTION BY MID-2024

French energy giant TotalEnergies hopes to resume construction on its giant Mozambique LNG project by the middle of 2024, according to Patrick Pouyanne, CEO of TotalEnergies. TotalEnergies declared force majeure on the Mozambique LNG project in April 2021 and withdrew all personnel from the site due to new attacks. 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. The project's EPC contractor is CCS JV, a venture between Saipem, McDermott, and Chiyoda. Last year, Pouyanne said the company was "not in a hurry" to resume 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 the province of Cabo Delgado. The CEO entrusted Jean-Christophe Rufin, an expert in humanitarian action and human rights, with an independent mission to assess the humanitarian situation in the province. In May 2023, TotalEnergies released the report regarding the humanitarian situation. Pouyanne said in September that TotalEnergies is still working to restart the project. The CEO at the time the last condition for the company and its partners to resume the project is that the "contractors stick to their EPC contracts and not inflate the costs, otherwise we can wait longer." Pouyanne said on Wendesday in London during a presentation of the company's 2023 results and 2024 objectives that TotalEnergies is now "remobilizing the contractors". "And I think we are not far from having everything set with them," he said. Pouyanne also said that TotalEnergies is relaunching detailed engineering, and remobilizing project financing. "We are reactivating with all these financial institutions around the world, this project financing and when all that will be done, we will start again the project," he said. "They have listened to our messages" Answering a question about Mozambique LNG, Pouyanne said that he hopes that construction "will come back by middle of the year. We monitor that." "Again, what I don't want to do is to take a decision to bring back people to be obliged to get out again, because that would be too complex," he said. "But again, today, the discussions.. we have progressed a lot with the suppliers, I mean the different contractors, in a good way. I

mean including on the costs, we had some debates. They have listened to our messages," he said. "They want to reactivate it," Pouyanne said. "We are working on it. It should come in the coming months," the CEO said. source : www.lngprime.com

EIG'S MIDOCEAN BUYS PERU LNG STAKE FROM SK

MidOcean Energy, the LNG unit of US-based energy investor EIG, has purchased a stake in LNG terminal operator Peru LNG from a unit of South Korean conglomerate SK. SK Earthon, a unit of SK Innovation, said in a statement on Thursday it has agreed to sell its share in Peru LNG to MidOcean for about $256.5 million. The firm said it will use the proceeds to fund future growth businesses. SK Innovation holds a 20 percent stake in Peru LNG, the same as LNG giant Shell that also offtakes all of the volumes from the 4.4 mtpa LNG plant at Pampa Melchorita. US-based Hunt Oil holds a 50 percent operating stake in the LNG plant, while Japan's Marubeni has a 10 percent stake in Peru LNG. Peru LNG has increased its exports last year compared to the year before, and it also expects to boost the number of shipments in 2024. The terminal loaded 55 vessels in 2023, compared to 51 vessels in 2022. Peru LNG said that the main destinations in 2023 were United Kingdom and South Korea, and also Japan, China, Spain, France, Netherlands, and Canada.

It expects to load 60 vessels in 2024.

MidOcean building LNG portfolio, EIG also confirmed later on Thursday in a separate statement that MidOcean has entered into a definitive agreement with SK Earthon to acquire SK's 20 percent interest in Peru LNG. The transaction remains subject to customary closing conditions. "We're excited about this acquisition as it reflects another notable step in MidOcean's strategy to create a global, diversified, and resilient LNG portfolio," De la Rey Venter, MidOcean CEO, said. "PLNG is an asset we know and admire, with sound long-term fundamentals, a strong management team and reliable operations," he said. MidOcean is working to significantly expand its business and last year energy behemoth Saudi Aramco agreed to buy a minority stake in the firm. Back in 2022, MidOcean entered into a definitive agreement with Japan's Tokyo Gas to buy the latter's interests in a portfolio of four Australian integrated LNG projects. These include Chevron's Gorgon LNG, the Inpex-led Ichthys LNG, Woodside's Pluto LNG, and Shell's Queensland Curtis LNG project. Inpex recently said it has exercised its preemptive rights to acquire Tokyo Gas's participating interest in Ichthys LNG. EIG said in the statement that MidOcean is in the process of completing its acquisition of Tokyo Gas' interests in four Australian LNG projects, which is targeted to close at the end of February. Besides this deal, shareholders of Australia's Origin rejected in December a takeover bid by a consortium consisting of Canada's Brookfield Asset Management and MidOcean. Under this deal, MidOcean would have owned Origin's integrated gas segment including its upstream gas interests and the 27.5 percent stake in Australia Pacific LNG (APLNG). source : www.lngprime.com

TMS CARDIFF GAS HANDS SEATRIUM CONTRACT FOR 17 LNG CARRIER UPGRADES

The two companies will jointly work towards achieving sustainable targets in QHSE, cost efficiency and timely deliveries, which are key indicators of high-quality LNG refit maintenance. TMS Cardiff Gas deputy chief operating officer Alexandros Politis-Kalenteris said, "The selection of Seatrium as our partner in Singapore aligns with our strategy to grow our LNG business in Asia. We have worked successfully with Seatrium on three LNG refits and we see Seatrium as the right long-term partner who understands the stringent requirements of our company. Moreover, Seatrium boosts a very strong track record in the specialised field of LNG carrier repairs and upgrades." Seatrium executive vice president, repairs and upgrades, Alvin Gan said, "We are thrilled to partner with TMS Cardiff Gas on this project which supports our shared commitment to sustainability. Seatrium is dedicated to delivering high-quality, eco-friendly services with a strong focus on QHSE standards while also reducing our environmental footprint." Last week, the yard delivered Brassavola, a dedicated LNG bunker vessel destined for refuelling operations for the growing number of LNG-powered vessels stopping in Singapore's busy port. Dubbed 'Singapore's first membrane LNG bunker vessel', Brassavola will work for Pavilion Energy on charter from Mitsui OSK Line's subsidiary Indah Singa Maritime. source : www.rivieramm.com

SHI LANDS 'LARGEST', US$3.4BN, 15-LNG-CARRIER DEAL

SHI reported its KRW4.57Tn (US$3.44Bn) contract to build 15 liquefied natural gas carriers and press reports have linked the deal, officially with an unnamed "Middle East Asia region buyer", as being tied to the second phase of Qatar's giant LNG project. According to the Korean press, the deal is the largest single contract received by Samsung Heavy Industries, to date. Qatar Energy has not commented on the deal despite announcing a 20-year, 7.5M tonne per year (mta) sale and purchase agreement with India's Petronet LNG. Rumours about Qatar Energy's newbuilding slot reservations have been circulating, with as many as 40 reservations thought to be in place across multiple shipyards. In late January, marine engine group WinGD said QatarEnergy will soon make decisions on the specifications for the remaining vessels to be ordered. Qatar Energy signalled the start of its second round of newbuilding orders by signing a deal with South Korea's Hyundai Heavy Industries in September 2023 for 17 LNG carriers, worth US$3.9Bn. Together with the more than 60 ships contracted in phase one, the agreement brought the estimated total number of confirmed LNG vessels set for delivery to QatarEnergy and its affiliates to around 80 or more. QatarEnergy's LNG shipbuilding programme will support its expanding LNG production capacity from the North Field LNG expansion in the Middle East and Golden Pass LNG export projects in the US as well as its long-term fleet replacement requirements. Some 49 mta of new capacity is considered likely to come online during 2027 and 2028, increasing Qatar's liquefaction volume from 77 mta to 126 mta, and requiring more than 90 LNG carriers holding an average of 170,000-m^3 of cargo capacity to transport. QatarEnergy also plans to offtake 70% of the capacity from the US' Golden Pass LNG project, with the remaining 30% to be marketed by ExxonMobil. In total, Qatar reserved 151 newbuilding slots across Asian shipyards to meet its upcoming cargo transport needs. source : www.rivieramm.com

HÖEGH LNG SAYS IT HAS SETTLED ARBITRATION OVER PGN FSRU LAMPUNG

Höegh LNG said it was "pleased to announce the parties have entered into an amicable settlement" over disputes and pending arbitrations with the charterer of PGN FSRU Lampung. Indonesia's PT Perusahaan Gas Negara (PGN), the charterer of PGN FSRU Lampung, served a notice of arbitration declaring the lease and maintenance agreement (LOM) for the vessel null and void, seeking to terminate the agreement and seek damages at the end of Q3 2021. Höegh LNG served a reply refuting the claims as baseless and without legal merit. Both parties would continue to perform their respective obligations under the LOM, the partnership said at the time. After the intervening two-plus years, the companies eventually agreed to "finally and irrevocably settle all of the disputes, claims and counterclaims between the parties that gave rise to the said arbitration proceedings and agreed to terminate the arbitrations with immediate effect".The charter contract for PGN FSRU Lampung remains in full force and effect and each party will cover its own costs in relation to the terminated arbitrations, Höegh LNG said. source : www.rivieramm.com

REPSOL, CENTRICA SEAL LNG SUPPLY DEAL

UK-based energy firm Centrica has signed a deal with Spain's Repsol to buy liquefied natural gas (LNG) from the latter. According to a statement, the deal will see Centrica buy 1 million tonnes of LNG shipments between 2025 and 2027. All of these cargoes are expected to be delivered to National Grid's Grain LNG import terminal in Kent. Centrica did not provide further information regarding the deal. The firm has capacity rights at UK's Grain LNG terminal that recently announced new deals with US LNG exporter Venture Global LNG and Algeria's Sonatrach. Centrica said the new deal marks an additional move by the firm to build "further resilience in the UK's energy security". It follows a 15-year, $8 billion LNG deal with Delfin Midstream, the US developer of a floating LNG export project in the Gulf of Mexico, in July 2023.Also, the deal follows a three-year supply agreement with Norway's Equinor that will heat UK homes through to 2024 and the reopening and expansion of the Rough gas storage facility in October 2022 and June 2023 respectively. According to Centrica, Rough now provides half of the UK's total gas storage capacity with the potential to store over 50 billion cubic feet of gas, enough to heat almost 10 percent of UK homes throughout winter. source : www.lngprime.com

FLEX LNG'S 2023 REVENUE CLIMBS, NET INCOME DOWN

Norwegian shipping firm Flex LNG, the owner of 13 liquefied natural gas carriers, reported higher revenue and lower net income in 2023. The shipping firm controlled by billionaire John Fredriksen said on Wednesday that vessel operating revenues were $371 million for the January-December period, a rise of $23.1 million compared to $347.9 million in 2022. Vessel operating revenues of $97.2 million for the fourth quarter of 2023 were almost flat compared to $97.9 million in the same quarter in 2022, while they rose compared to $94.6 million in the prior quarter. On the other hand, the company's 2023 net income of $120 million dropped $68 million compared to $188 million in 2022, while net incomed dropped to $19.4 million in the fourth quarter compared to $41.4 million in the same quarter last year and $45.1 million in the previous quarter. Flex LNG noted it had higher expenses in the fourth quarter due to engine maintenance on its 2018 and 2019-built vessels, and recorded a net loss on derivatives of $11.6 million. Average time charter equivalent (TCE) rate was $81,114 per day in the fourth quarter of 2023, and compares to $79,207 per day for the third quarter and $81,669 per day in the fourth quarter in 2022. In 2023, the average rate was $79,500 per day.

Flex LNG a declared a dividend for the fourth quarter of $0.75 per share.

"Challenging" freight market

Flex LNG has 12 LNG carriers on fixed hire time charters, including to US LNG exporter Cheniere, and one ship, Flex Artemis, on a variable time charter. Last month, Flex LNG secured a charter extension for its 2020-built 173,400-cbm LNG carrier, Flex Resolute. The firm also said that the 2019-built 173,400-cbm, Flex Constellation, will be available for charter later this year after a trading house decided not to utilize its extension option. Flex LNG's backlog for its time charters is for an aggregate of 50 years, which may increase to 71 years with declaration of charterer's options, it said. "Over the next two years, we do see a somewhat more challenging freight market as there are more ships for delivery compared to the expected new export volumes," CEO Øystein Kalleklev said. "Hence, we think Flex LNG is very well positioned as we have 94 percent charter coverage for 2024 and 50 years minimum firm charter backlog," he said. Additionally, Flex LNG's fleet consists entirely of large LNG carriers fitted with the most modern two-stroke propulsion system resulting in "significant" fuel savings compared to older generation tonnage, he said. "Reduced fuel consumption is also good for the environment and with EU Emission Trading System coming into force from 2024, this further enhances the premium which our ships can achieve in the market given the costs associated with such carbon emissions," the CEO said. "Lastly, we have a very strong balance sheet where all the LNG carriers are financed with attractive long-term debt while our cash balance at year-end was a comfortable $411 million, giving us a high degree of financial flexibility," Kalleklev said. source : www.lngprime.com

CAPITAL ORDERS LNG-POWERED VLCCS IN CHINA

Greece's Capital Maritime, led by Evangelos Marinakis, has ordered four LNG-powered very large crude carriers at China's Dalian Shipbuilding Industry (DSIC), according to shipbuilding sources. CSSC's DSIC said in a statement on Wednesday it has signed orders for 4+2 LNG dual-fuel powered VLCCs and also for 6+2 conventional fuel VLCCs with two "well-known European shipowners". The shipbuilder did not reveal the names of the owners but shipbuilding sources told LNG-Prime that Marinakis-led Capital is behind the order for the LNG-fueled VLCCs while John Fredriksen-led Seatankers ordered the other ships. According to DSIC, the LNG dual-fuel VLCCs will feature ME-Gi propulsion and two type C LNG tanks. China Shipbuilding Industry Corporation (CSIC) said in a separate statement that the contracts for all of the VLCCs are worth in total about $1.8 billion. CSIC said the deliveries of the VLCCs will start from the end of 2026. Marinakis said in November last year during a conference in Athens that Capital is looking to order LNG dual-fuel vessels, including VLCCs. In June 2023, Capital Ship Management signed a deal with China's New Times Shipbuilding in Jiangsu for the construction of up to six LNG-powered tankers. Last year, Capital Ship Management took delivery of the sixth LNG-ready chemical/product MR tanker from Hyundai Vietnam. Prior to that, it welcomed in its fleet two ammonia and LNG-ready VLCCs, the 300,000-dwt Alterego and Amore Mio. According to Capital Ship's website, the firm has a fleet of 36 tankers, including 11 VLCCs, 11 Aframaxes, 7 MR/handy product tankers, and 1 small

tanker. Out of these, eight LNG dual-fuel crude oil tankers are on order at NTS and scheduled for delivery during 2025-2027. Capital Ship also has four LNG dual-fuel tankers in operation, delivered in 2018 and 2019, the data shows.source：www.lngprime.com

TOTALENERGIES REPORTS LOWER LNG EARNINGS, SALES

France's TotalEnergies said on Wednesday that the company's integrated LNG business logged a decline in its adjusted net operating income in the fourth quarter of 2023 due to lower prices. The company's integrated LNG adjusted net income reached about $1.46 billion in the fourth quarter, a drop of 40 percent compared to the fourth quarter in 2022. Compared to $1.34 billion in the previous quarter, integrated LNG adjusted net income rose 8 percent, reflecting the evolution of prices and production volumes, TotalEnergies said. For full-year 2023, integrated LNG adjusted net operating income was $6.2 billion, down 37 percent year-on-year, excluding Novatek, mainly due to the "exceptional environment in 2022 linked to the energy crisis in Europe resulting from the Russia-Ukraine conflict," the firm said. Cash flow from operations excluding working capital for integrated LNG was $1.76 billion in the fourth quarter 2023, up 7 percent quarter-to-quarter, reflecting the evolution of prices and production volumes. Integrated LNG CFFO was down 25 percent year-on-year, mainly due to lower LNG prices that were partially offset by high margins captured in 2022 on LNG cargoes delivered in 2023, TotalEnergies said. Last month, TotalEnergies said its average price for LNG equity sales in the fourth quarter was $10.28/MMBtu, up by 7 percent compared to $9.56/MMBtu in the previous quarter.However, the price declined 31 percent compared to $14.83/MMBtu in the fourth quarter of 2022, when European demand was high as European countries worked to replace pipeline gas supplies with LNG.

"Uncertain environment"

Overall, TotalEnergies reported adjusted net income of $5.2 billion in the fourth quarter. This compares to $6.45 billion in the prior quarter and $7.56 billion in the same quarter in 2022. "In an uncertain environment, TotalEnergies' balanced transition strategy, which combines growth in oil & gas, in particular in LNG, and integrated power, delivered strong results in 2023, in line with its objectives. During the fourth quarter, TotalEnergies generated adjusted net income of $5.2 billion and cash flow of $8.5 billion. IFRS net income was $5.1 billion," chief executive **Patrick Pouyanne**, said. He said that in 2023 TotalEnergies reported adjusted net income of $23.2 billion and cash flow of $35.9 billion. 2023 IFRS net income was $21.4 billion, up 4 percent year-on-year. "This year the company once again achieved top tier 20 percent return on equity and 19 percent return on average capital employed. TotalEnergies invested $16.8 billion, including 35 percent for low-carbon energies mainly in power," Pouyanne said. In the oil & gas business, fourth quarter production was 2.46 Mboe/d, which benefited from 7 percent LNG production growth quarter-to-quarter. Moreover, full-year 2023 total production increased 2 percent year-on-year, excluding Novatek, driven by strong LNG production growth of 9 percent, he said. Pouyanne said integrated LNG results "remain robust" and they rose compared to the previous quarter driven by higher production and strengthening prices. "For full year 2023, integrated LNG generated annual adjusted net operating income of $6.2 billion and cash flow of $7.3 billion, which is lower than the exceptional results in 2022 but higher than 2021 thanks to growth in its portfolio," the CEO added.

LNG sales down

During the fourth quarter, TotalEnergies sold 11.8 million tonnes of LNG, down 7 percent compared to 12.7 million tonnes in the same period last year, and a rise compared to 10.5 million tonnes in the prior quarter. In the fourth quarter, LNG sales increased 13 percent quarter-to-quarter, mainly due to higher production and higher spot volumes. The company's LNG sales decreased 8 percent year-on-year to 44.3 million tonnes in 2023. TotalEnergies said LNG sales were down mainly due to lower spot volumes related to lower demand in Europe as a result of a milder winter weather and high inventories. Hydrocarbon production for LNG, excluding Novatek, was up 7 percent quarter-to-quarter to 464 kboe/d, reflecting lower unplanned shutdowns. For full-year 2023, hydrocarbon production for LNG, excluding Novatek, was up 9 percent to compared to 2022 due to increased supply to NLNG in Nigeria and higher availability of Ichthys LNG in Australia and Snovhit in Norway, TotalEnergies said. LNG markets "should remain in tension" Looking ahead, TotalEnergies said LNG markets "should remain in tension due to very limited LNG capacity additions expected in 2024 (2 percent) and growing demand thanks to lower LNG prices."

TotalEnergies expects LNG sales above 40 Mt over the year.

"Given the evolution of oil and gas prices in recent months and the lag effect on price formulas, TotalEnergies anticipates that its average LNG selling price should be stable around $10/Mbtu in the first quarter 2024," it said. "Despite entering the winter period with high natural gas inventories in Europe, in a tense market, gas prices remain very reactive to production disruptions," TotalEnergies said. TotalEnergies expects hydrocarbon production to be above 2.4 Mboe/d in the first quarter of this year due to the start-up of Mero 2 in Brazil and the disposals of Canadian upstream assets, effective during fourth quarter 2023. In 2024, the company expects net investments of $17-18 billion, of which $5 billion dedicated to integrated power. source : www.lngprime.com

COOLCO SECURES NEW LNG CARRIER CHARTER DEAL

LNG carrier operator Cool Company (CoolCo) has entered into a new time charter agreement for one of its TFDE vessels**.** According to a statement by CoolCo, the 12-month time charter is with Santos Shipping Singapore and is scheduled to start in the first quarter of 2024. CoolCo did not provide further information regarding the charterer or the name of the vessel. Santos Shipping Singapore has been registered last year and is probably a new unit of Australian LNG player Santos. In the third quarter of 2024, the chartered LNG vessel is expected to undergo its scheduled drydock, at which time CoolCo also intends to upgrade the vessel to LNGe specifications. LNGe specification upgrades include the addition of reliquefaction capability via sub-coolers, as well as air lubrication systems and a range of optimizations and upgrades intended to enhance efficiency and reduce emissions. In line with the anticipated enhanced performance profile of the vessel following the LNGe specification upgrades, the charter includes an "innovative commercial mechanism to reward both the charterer and CoolCo," the firm said.

Fleet fully employed until end of Q2

CoolCo has seven TFDE LNG carriers it acquired from Golar LNG and the four LNG carriers it purchased from its largest shareholder EPS. Last year, it exercised its option with affiliates of EPS Ventures in June to acquire newbuild contracts for two 2-stroke LNG carriers scheduled to deliver in second half of 2024. The company also manages 16 vessels, including LNG carriers and FSRUs, according to its website. The Santos charter takes CoolCo's fleet utilization to 100 percent until its next vessel becomes available, not before the end of the second quarter, it said. This enables CoolCo management to extend its total operating revenue guidance to $88-89 million for the first quarter of 2024 ($99 million in Q1 2023) and $84-85 million for the second quarter of 2024 ($90 million in q2 2023), subject to no technical off-hire. CoolCo said the anticipated lower expected revenue range in the second quarter of 2024 is primarily related to off-hire during a scheduled drydock of another vessel that is expected to be completed within the same quarter. The Q1 2023 comparison period includes a contribution from the Seal, a vessel that was sold in q1 2023, the firm said. "We are delighted with this innovative agreement that provides and aligns incentives between the owner and the charterer, which is expected to enhance efficiency and minimize emissions on one of our modern TFDE vessels," said **Richard Tyrrell**, CEO of CoolCo. "This groundbreaking charter is the first to incorporate our LNGe upgrade and our first with Santos. It serves as a model for joint participation in the benefits of our investment in upgrading existing vessels," he said. source : www.lngprime.com

AUSTRALIAN LNG PLAYERS WOODSIDE AND SANTOS END MERGER TALKS

Australian LNG players Woodside and Santos have ceased talks regarding a potential merger. The two firms confirmed in December 2023 that they were in discussions regarding the merger saying there was no certainty that the discussions would lead to a transaction. The combination of the two firms would have created a merged energy and LNG giant with a market value of about A$80 billion ($52.3 billion). Woodside CEO Meg O'Neill said in a statement that for every opportunity Woodside assesses, "it conducts thorough due diligence, and will only pursue a transaction that is value accretive for its shareholders." "We continue to be disciplined in our approach to mergers and acquisitions and capital management to create and deliver value for shareholders. While the discussions with Santos did not result in a transaction, Woodside considers that the global LNG sector provides

significant potential for value creation," she said. Santos also released a separate statement regarding the end of merger talks. "Following an initial exchange of information, sufficient combination benefits were not identified to support a merger that would be in the best interests of Santos shareholders," the firm said. Moreover, Santos has a "clear strategy to deliver long-term shareholder value." "We have a strong balance sheet and continue to review options to unlock value for shareholders," the company said. source : www.lngprime.com

GLADSTONE LNG EXPORTS CLIMB IN JANUARY

Liquefied natural gas (LNG) exports from the Gladstone port in Australia's Queensland rose in January compared to the same month last year, according to the monthly data by Gladstone Ports Corporation. Curtis Island is home to the Santos-operated GLNG plant, the ConocoPhillips-led APLNG terminal, and Shell's QCLNG facility. These are the only LNG export facilities on Australia's east coast. Last month, about 2 million tonnes of LNG or 30 cargoes left the three Gladstone terminals on Curtis Island. This compares to about 1.8 million tonnes of LNG or 28 cargoes in January 2023, the data shows. January LNG exports rose some 11.4 percent year-on-year but they dropped about 10.8 percent compared to the previous month when LNG exports reached some 2.25 million tonnes of LNG or 34 cargoes. Moreover, most of January LNG exports (1.04 million tonnes) landed in China, marking a rise of 7.3 percent compared to 976,398 tonnes last year. Volumes to South Korea rose to 451,943 tonnes from 410,533 tonnes last year, while volumes to Malaysia increased to 306,526 tonnes last month from 243,443 tonnes last year. GPC also reported that 201,443 tonnes of LNG were sent to Japan in January, up from 125,611 tonnes in the same month in 2023. The three terminals shipped about 22.97 million tonnes of LNG or 350 cargoes in 2023. This compares to about 22.64 million tonnes of LNG or 354 cargoes in 2022, source : www.lngprime.com

TELLURIAN LOOKING TO SELL ITS UPSTREAM ASSETS

US LNG terminal developer Tellurian is exploring the sale of its Haynesville upstream assets as it works on securing financing for the first phase of its Driftwood LNG project worth about $14.5 billion. The company said in a statement on Tuesday it has asked its financial advisor, Lazard, to explore opportunities for the sale of its upstream business. Tellurian produced 19.5 billion cubic feet (Bcf) of natural gas for the quarter ended September 30, 2023. The company's natural gas assets include 31,149 net acres, interests in 159 producing wells and over 400 drilling locations. Tellurian recently appointed Lazar as a financial adviser to assist with shaping commercial structures as well as balance sheet management. Tellurian's co-founder Martin Houston and new chairman of the board revealed more details on this move in a letter sent to shareholders on January 29. In December, the company appointed Houston as the chairman replacing Charif Souki, who has left the Driftwood LNG terminal developer. "As we commercialize Driftwood LNG, Tellurian has been reviewing its strategy, including the dynamics of the US natural gas market in the context of global LNG demand," CEO Octavio Simoes said. "We have concluded that there are alternative gas supply strategies available to us from various basins and our ownership of upstream assets is not necessary at this stage of Tellurian's development. We have a substantial number of drilling locations that we believe will be highly attractive to oil and gas producers that can develop them more quickly than we would," he said. "By unlocking the full value of these high-quality assets, we aim to substantially reduce our debt, further reduce our general and administrative expenses, and provide additional cash, enabling us to develop Driftwood LNG. Currently, this approach is more attractive than issuing equity to fund our 2024 development activities and working capital needs," Simoes added.

Driftwood LNG

As per the Driftwood project, Tellurian issued a limited notice to proceed to compatriot engineering and construction giant Bechtel in March 2022 and it said in August last year that Bechtel completed piling work for the first plant and also concrete pouring for all plant one compressor foundations. Tellurian also recently released the December construction report. Under the first phase, Tellurian aims to build two LNG plants near Lake Charles with an export capacity of up to 11 mtpa. However, the company is still working to secure financing for the project. Tellurian previously said it expects the first phase to cost about $14.5 billion with about $6 billion equity investment. source : www.lngprime.com

FRANCE'S DUNKIRK LNG TERMINAL OFFERS REGAS CAPACITY

France's Dunkerque LNG, the operator of the Dunkirk LNG facility led by Belgium's Fluxys, is offering regasification capacity for 2026 and 2027. The firm said in an announcement it is organizing a call for market interest, offering the opportunity to book 1.5 billion cubic meters per year of regasification capacity in 2026 and up to 3.5 bcm per year of regasification capacity in 2027. Dunkerque LNG said the qualification phase of the call for market interest process had started on February 1 and will close on February 23, 2024. The firm noted that European LNG imports have witnessed a "strong demand" in recent years and are expected to continue to rise as LNG is now a "fundamental element" of the Europe's security of supply. Dunkerque LNG owners include two groups with the first consortium led by Fluxys holding a 61 percent stake. Commissioned in January 2017, the LNG terminal has an annual regasification capacity of 13 billion cubic meters of natural gas. Previous shareholders EDF and TotalEnergies are the main customers of the LNG terminal through 20-year contracts. According to Dunkerque LNG, the LNG terminal received 121 carriers in 2023, or about 18.8 million cbm. This compares to record 141 carriers, or around 22 million cbm of LNG, in 2022. In 2023, Dunkirk reloaded six ships, or about 46,063 cbm of LNG. For its customers, the terminal fed more than 10.6 bcm of natural gas into the network, the equivalent of 30 percent of the gas consumption of France in 2022. Dunkirk LNG is the fourth onshore LNG terminal in France, and the three other terminals are Elengy's Fos Tonkin, Fos Cavaou, and Montoir-de-Bretagne LNG terminals. France now also has the FSRU-based LNG import terminal in Le Havre, operated by TotalEnergies. source : www.lngprime.com

NEPTUNE LINES ORDERS TWO MORE LNG-POWERED PCTCS IN CHINA

Greece's Neptune Lines has ordered two more LNG-fueled pure car and truck carriers at China's Fujian Mawei Shipbuilding. Neptune Lines said in a statement issued this week that the LNG dual-fuel vessels with a capacity of 4,200 ceu boost its total newbuilding orders to four vessels through the "Genesis Project". Last year, the firm ordered its first two LNG-powered PCTCs at the same year and with delivery scheduled in 2026. The Chinese shipbuilder will deliver the two new ships specially designed for its short sea trades in 2027. Neptune Lines did not reveal the price tag of the deal.

The first two vessels were said to be each worth about $75 million. Continuing the collaboration established with the first two vessels, Neptune Lines reaffirmed its partnership with Finland-based designer Deltamarin, a part of China Merchants Group, for the co-design of the two additional vessels.

The vessels will have hybrid energy systems, including a battery installation to supply peak power, and a dual-fuel high pressure 2-stroke engine, enabling them to utilize LNG or VLSFO as fuel for reduced greenhouse gas emissions. source : www.lngprime.com

CHENIERE'S CORPUS CHRISTI LNG EXPANSION PROJECT MORE THAN 51 COMPLETE

US LNG exporter Cheniere and compatriot Bechtel have completed more than half of the work on the expansion phase at the Corpus Christi LNG export plant in Texas. Cheniere's Corpus Christi liquefaction plant now has three operational trains with each having a capacity of about 5 mtpa. In June 2022, Cheniere took a final investment decision on the Corpus Christi Stage 3 expansion project worth about $8 billion and Bechtel officially started construction on the project in October the same year. The project was 48.1 percent complete in November last year. It includes building seven midscale trains, each with an expected liquefaction capacity of about 1.49 mtpa. Cheniere's unit Corpus Christi Liquefaction said in the December construction report filed with the US FERC this week that overall project completion for the Stage 3 project is 51.4 percent. Stage 3 engineering and procurement are 83.7 percent and 72.2 percent complete, respectively, while subcontract and direct hire construction work are 66.9 percent and 11.1 percent complete, respectively, it said.

First train concrete work "significantly" complete

During December, CCL's contractor Bechtel continued piling activities, road improvements, drainage work, and mobilization of temporary facilities, equipment, and personnel. Piling and soil stabilization teams are making progress in trains 5, 6, and 7, while concrete work in train 1 is "significantly" complete, the firm said. Concrete pouring is also underway in train 2 and train 3, and loading of aboveground piping spools is progressing in train 1. Several large pieces of equipment have been installed including train 1 refrigeration compressors, train 1 liquefaction substation, train 2 cold boxes, the GIS substation, and train 2 utility substation, it said. In August last year, first cold boxes arrived at the site. US equipment manufacturer Chart Industries received in 2022 full notice to proceed for the expansion project from Bechtel for its IPMSR process and equipment activities.

First LNG production by end of 2024

Cheniere previously said that LNG deliveries from the expansion project will begin in 2025 with full production in 2027. However, Cheniere's CEO Jack Fusco said in August last year that the company is expecting to complete the expansion phase ahead of schedule. He said in November that construction on Corpus Christi Stage 3 "continues to progress ahead of plan, and I am optimistic first LNG production from train 1 will occur by the end of 2024."

source : www.lngprime.com

DNV SAYS 10 LNG-POWERED VESSELS ORDERED IN JANUARY

Classification society DNV has added 10 LNG-powered ships and 23 methanol-fueled vessels to its Alternative Fuels Insight platform in January. DNV reported orders for 18 LNG-powered ships in December and 130 LNG-powered vessels in 2023, down from 222 in 2022. As per January orders for LNG-powered vessels, car carriers and tankers made up the bulk of these ten orders, followed by RoPax, according to DNV. Moreover, 24 LNG ships were delivered in January, representing a record number for the segment, which has grown rapidly in recent years, it said. There are now 493 LNG-fueled ships in operation globally, representing growth of over 100 percent compared to 2021, DNV said. "Strong new order activity continues to demonstrate a promising trajectory in the uptake of alternative fuel vessels. As the data shows, the orderbook for methanol-fueled ships continues to grow rapidly. There are now 228 confirmed methanol-fueled ships on order, which will significantly expand the current global fleet of 29 over the coming years," Martin Wold, principal consultant in DNV's maritime advisory business, said. "Meanwhile, the LNG fleet has expanded to the point where we now observe a doubling of the number of LNG-fueled ships in operation between 2021 and 2024, bolstered by a record number of deliveries in January. Interest in ammonia is also on the rise, with two orders confirmed in January, and we expect this to continue to grow in the months and years ahead," he said.

523 LNG-fueled vessels on order

Besides 493 LNG-powered ships in operation, there are 523 LNG-fueled vessels on order, DNV's platform shows. There are 77 LNG-powered crude oil tankers and 77 containerships in operation, followed by 53 oil/chemical tankers, and 48 bulk carriers. As per vessels on order, LNG-powered containerships account for a big part of the orders with 195 units. Shipping firms also ordered 149 car carriers, 48 oil and chemical tankers, 33 crude oil tankers, and 25 bulk carriers. These statistics do not include smaller inland vessels or dual-fuel LNG carriers. 53 LNG bunkering vessels and 218 LPG-powered ships Besides LNG-powered vessels, there are 53 LNG bunkering vessels in operation and 14 on order, the platform shows. In addition to 1016 confirmed LNG-powered ships, the fleet powered by alternative fuels also includes 257 methanol-fueled vessels, 218 LPG-powered ships, 30 hydrogen-fueled vessels, and 13 ammonia-fueled vessels, according to the platform. source : www.lngprime.com

POLAND'S GAZ-SYSTEM PICKS MOL TO PROVIDE GDANSK FSRU

Poland's Gaz-System has selected Japan's MOL as the preferred shipowner to time charter out a floating storage and regasification unit (FSRU) for the planned LNG import terminal in Gdansk. Gaz-System said in a statement that it will continue negotiations of the terms of the FSRU time charter agreement with MOL. Moreover, the company needs to secure all necessary corporate approvals from the its management bodies to sign the agreement with MOL. In November 2023, state-owned Gaz-System revealed that MOL and Oslo-based BW LNG, a unit of Singapore's BW, have been shortlisted to provide the FSRU. Also, Gaz-System said at the time it would conclude the charter deal with one of the two firms for a period of 15 years. The firm said in the new statement that MOL has 140 years of history in the international shipping industry and operates one of the world's largest merchant fleets consisting of nearly 800 vessels. MOL's LNG fleet is the world's largest with almost 120 vessels including 7 FSRU units, it said.

Poland's first FSRU

This is Poland's first FSRU and will add to the onshore Swinoujscie LNG terminal. Poland's Orlen previously booked entire 6.1 bcm per year of regasification capacity at Gaz-System's planned FSRU-based LNG import facility. Orlen is already in charge for all of the supplies coming to Gaz System's LNG import terminal in Swinoujscie, Poland's first such facility, via PGNiG. The FSRU is assumed to be berthed at a mooring platform about 3km from the shore, in the area of the Port of Gdansk between the mouths of the Vistula River branches: Smiala and Martwa. Besides the FSRU, the project includes a jetty, offshore and onshore pipelines, and other infrastructure. Gaz-System said commissioning of the complete project, backed by the EU, is planned in 2027/2028. However, the firm did not provide any other details regarding the FSRU. MOL also released a separate statement regarding the Gdansk FSRU but it did not provide any other details. The latest order for a newbuild FSRU was booked by US LNG firm Excelerate Energy at South Korea's HD Hyundai Heavy Industries in October 2022. This deal is worth about $332 million. source : www.lngprime.com

SPOT LNG FREIGHT RATES CONTINUE TO DROP, EUROPEAN PRICES RISE

Spot charter rates for the global liquefied natural gas (LNG) carrier fleet continued to decrease this week, while European prices increased for the second week in a row. Last week, spot charter rates fell for the eighth consecutive week with the Atlantic rate dropping to $53,250 per day and the Pacific rate dropping to $55,000 per day. "Freight rates continued to drop this week, with the Spark30S Atlantic decreasing by $500 (1 percent) to $52,750/day, whilst the Spark25S Pacific decreased by $1,750 (3 percent) to $53,250/day," Qasim Afghan, Spark's commercial analyst told LNG Prime on Friday. "This is the tenth consecutive week LNG freight rates in both basins have dropped, but the lowest week-on-week decrease for this entire period, signaling a gradual levelling out of freight rates as the market has found some support from the Suez canal issues and from improved economics to send US LNG cargos to Asia," he said.

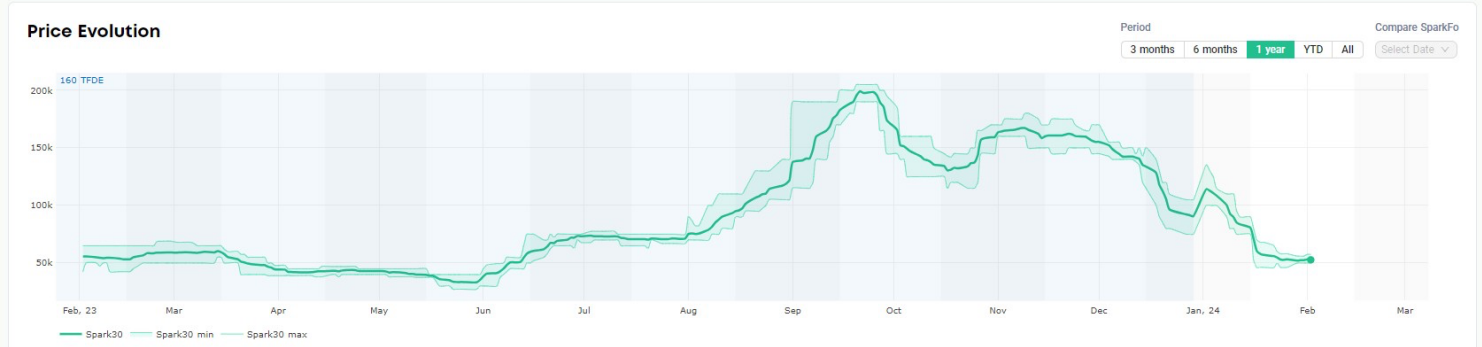


Image: Spark

LNG ships, including Qatari LNG shipments to Europe, are now favoring the Cape of Good Hope for safer passage. Kpler said in a report earlier this week that the Suez Canal has witnessed no LNG transits since January 17. "For an LNG carrier transiting from Qatar's 77 Mtpa Ras Laffan liquefaction facility to NW Europe on a round-trip basis, Kpler's latest model runs show there is a $0.2/MMBtu increase in freight cost via the Cape of Good Hope ($1.4/ MMBtu) compared to routing via the Suez Canal ($1.2/MMBtu)," the firm said. This can largely be attributed to additional fuel and charter hire costs. Vessels face an extra 21-day voyage time on a round-trip basis via the Cape of Good Hope as opposed to the Suez Canal, Kpler said. European prices In Europe, the SparkNWE DES LNG front month rose compared to the last week. The NWE DES LNG for February delivery was assessed last week at $8.199/MMBtu and at a $0.62/MMBtu discount to the TTF. "The SparkNWE DES LNG price for March delivery is assessed at $8.561/MMBtu and at a $0.64/MMBtu discount to the TTF," Afghan said. He said this is a $0.362/MMBtu increase in DES LNG price, marking the second consecutive week that SparkNWE has increased. "The last time SparkNWE experienced consecutive week-on-week price increases was in September 2023," Afghan said.

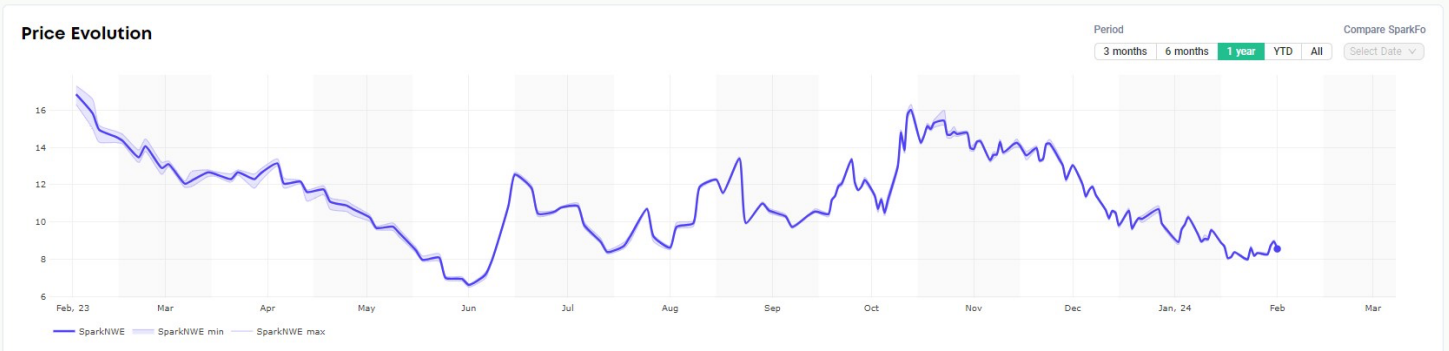


Image: Spark

Levels of gas in storages in Europe remain high for this time of the year due to mild weather. Data by Gas Infrastructure Europe (GIE) shows that gas storages in the EU were 70.17 percent full on January 31.

Asian demand

This week, JKM, the price for LNG cargoes delivered to Northeast Asia rose slightly when compared to the last week, according to Platts data.

JKM for March settled at $9.460/MMBtu on Thursday. Platts, part of S&P Global Commodity Insights, said in a report on Thursday that geopolitical risks leading to tightness in shipping availability and firm LNG and natural gas demand in South Asia are supporting prices of South Asian cargoes, prompting a narrower spread between JKM and West Indian Marker (WIM). Platts assessed the March WIM, the price for LNG cargoes delivered to West India ports, at $9.488/MMBtu on February 1, or at a 22.8 cents/MMBtu discount to the March JKM. The JKM/WIM spread had been in a persistently narrowing trend starting early January, as global LNG prices eased due to weak demand for LNG in the key consuming regions of Northeast Asia and Europe, Platts said. State-run Japan Organization for Metals and Energy Security (JOGMEC) said in a report earlier this week that demand remains weak across Asia, but some buyers purchased LNG cargoes due to low prices. "Demand remains weak with high inventory levels across Northeast Asia, although daily price declines have stimulated buying interest from China, India, Thailand, and other Asian countries," JOGMEC said.

source : www.lngprime.com

EASTERN PACIFIC SHIPPING IN 150TH LNG BUNKERING OP

Singapore's Eastern Pacific Shipping has completed its 150th LNG bunkering operation as the company's fleet of LNG-powered vessels continues to increase. The firm said in a social media post on Monday that the milestone LNG bunkering operation took place at Yangshan, Shanghai. EPS said that during the operation its managed 15,000 teu LNG dual-fuel vessel, CMA CGM Bali, received 9,498 cbm of LNG from the 20,000-cbm bunkering vessel, Hai Gang Wei Lai, owned by SIPG Energy Service (SSES). The 2021-built LNG-powered containership serves French shipping giant CMA

CGM under a charter deal. EPS completes its first LNG bunkering operations in November 2020, the 50th operation in September 2022, and the 100th operation in June 2023. "To date, we have cumulatively received 404,958MT of LNG over our fleet of DF vessels," it said. The firm has a large fleet of LNG-powered vessels, including containerships, tankers, bulkers, and pure car and truck carriers. EPS recently booked two more LNG-powered PCTCs at China Merchants Jinling Shipyard in Nanjing. EPS ordered in total 12 LNG-powered PCTS at CMJL (Nanjing), and it recently took delivery of the third vessel from the yard. source : www.lngprime.com

VENTURE GLOBAL BOOKS CAPACITY AT UK'S GRAIN LNG TERMINAL

US LNG exporter Venture Global LNG has booked long-term capacity at National Grid's Grain LNG import terminal in the United Kingdom. Under the binding terminal use agreement, Venture Global will have the ability to access 3 million tonnes per annum (mtpa) of LNG storage and regasification capacity at the Isle of Grain LNG receiving terminal for sixteen years beginning in 2029, Grain LNG said in a statement this is equivalent of up to 5 percent of average UK gas demand. It will enable the regasification and sale of LNG from all of Venture Global's LNG terminals in Louisiana, including CP2 LNG, subject to obtaining necessary federal permits. Also, this is the second agreement from Grain LNG's competitive auction process which was launched in September 2023. The successful outcome of the auction "further secures the future of Europe's largest LNG import terminal into the mid 2040s," it said. Prior to this, Grain LNG signed a ten-year deal with Algeria's LNG producer Sonatrach. The UK has recently seen a significant rise in LNG imports as Europe has diversified its LNG sources. Europe's largest LNG terminal welcomed 102 ships during the financial year which ended in March last year, breaking its previous record of 71 ships set in the financial year 2019 – 2020. Also, the LNG terminal has sent 102,589 GWh of gas into the grid over the twelve-month period ending May 31, the equivalent of almost 14 percent of total UK gas demand. Currently undergoing expansion, Grain LNG will soon have enough regasification capacity to service about one third of the UK's gas demand, serving as a gateway to the UK energy market as well as the broader European region, it said. Venture Global's first investment in LNG infrastructure outside of US. With volumes across its projects – Calcasieu Pass, Plaquemines LNG and CP2 LNG – this investment will bolster Venture Global's status as a "strategic supplier" to Europe, the statement said. Venture Global's existing Calcasieu Pass liquefaction plant is located in Louisiana, but it still has not declared commercial operations. The company is also building the Plaquemines LNG plant in Louisiana and is working on the first phase of its planned CP2 LNG terminal in Louisiana. "This flexibility and access to Venture Global's volumes will be critical to the UK and Europe's efforts to replace LNG volumes from other suppliers," the statement said. To date, Venture Global has exported about 75 percent of its cargoes to Europe, according to the statement.

Venture Global is Grain LNG's first US customer.

Mike Sabel, CEO of Venture Global said in the statement that the company "is thrilled to announce our first investment in LNG infrastructure outside of the United States, bolstering our ability to supply LNG from all our projects." "The Grain LNG terminal is an important gateway to the broader European market, and we look forward to supplying the region through this new access point for years to come," he said. source : www.lngprime.com

GASLOG'S LNG CARRIERS LAUNCHED IN SOUTH KOREA

South Korea's Hanwha Ocean, previously known as DSME, has launched two liquefied natural gas (LNG) carriers it is building for Greece's GasLog. GasLog said in a social media post on Wednesday that the launching event of HN2532, to be named GasLog Italy, and HN2533, to be named Marvel Phoenix, was held at Hanwha Ocean's yard in Geoje. The vessels are scheduled for delivery in August and September of 2024 respectively, the LNG shipping firm said. Peter Livanos-led GasLog ordered these vessels and two other 174,000-cbm LNG carriers at Hanwha Ocean in December 2021. Hanwha Ocean kicked off construction on the first LNG carrier in this batch, GasLog Italy, in March last year and laid the keel in September. This vessel will go on charter to a "multinational oil and gas company" for a period of seven years and starting from the vessel's delivery, GasLog previously said. As per the second vessel, Hanwha Ocean started building this LNG carrier, Marvel Phoenix, in April last year. GasLog chartered this LNG carrier to Japan's Mitsui for a period of nine years. The last two LNG carriers in this batch, scheduled for delivery in the second half of 2025, will serve

Australia's Woodside under charter deals. All of the LNG carriers have ME-GI propulsion. ME-GI is short for M-type, electronically controlled, gas-injection propulsion. In addition, the vessels also feature a carbon capture and storage system. Source：www.lngprime.com

WUHU HANDS OVER LANGH SHIP'S SECOND LNG-POWERED VESSEL

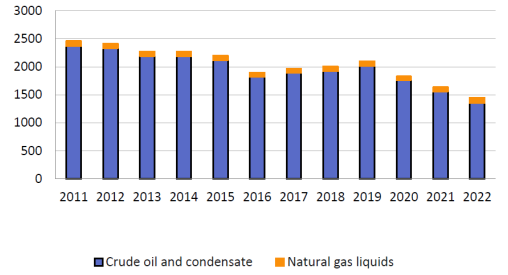
China's Wuhu Shipyard has handed over the second of three LNG-fueled multi-purpose vessels to Finnish shipping firm Langh Ship. Wuhu said in a statement on Tuesday it recently delivered the 7,800-dwt multi-purpose dry cargo vessel, Olivia. The naming ceremony for the vessel took place on January 22. This is the first ship Wuhu delivered in 2023 and the second it built for the Finnish firm. In November 2021, Wuhu announced this order for the three vessels with Finnish/Swedish 1A ice class. Classed by DNV and designed by SDARI, the LNG-powered vessels are 119.90 meters long and 16.50 meters wide. Each vessel features one 9L34 dual-fuel main engine from Finland's Wartsila, as well as FGSS from Korean maker Gas Entec. The shipbuilder delivered the first LNG-powered vessel in this batch, Lovisa, in November last year. Lang Ship recently said that Olivia's sister vessel, Lovisa, reached Europe in early January and has entered Outokumpu liner service between Finland and the Netherlands. Finland-based stainless steel producer Outokumpu chartered all three LNG-powered vessels from Langh Ship. The vessels are set to operate between Outokumpu's main port, Tornio, Finland, and its continental hub Terneuzen, the Netherlands. Moreover, they will transport semi-finished and finished steel products to customers and for further processing. Langh Ship will take delivery of the third ship in following months. Source：www.lngprime.com

LNG SOLE OPTION FOR NIGERIAN GAS EXPORTS

On January 16, Anglo-Dutch oil major Shell followed through on its plan to exit oil production in the Niger Delta by announcing that it had agreed to sell its Nigerian onshore subsidiary, Shell Petroleum Development Company of Nigeria (SPDC), to the Renaissance consortium for $1.3bn, with the entire deal valued at $2.8bn. Renaissance comprises four Nigerian upstream companies, ND Western, Aradel Energy, First E&P and Waltersmith, plus Africa-focused investor Petrolin. The deal must still be approved by Abuja. SPDC holds a 30% stake in the SPDC Joint Venture, alongside the state-owned Nigerian National Petroleum Corporation (NNPC) (55%), Total E&P Nigeria (10%) and Nigeria Agip Oil Company (5%). US oil major ExxonMobil, Norway's Equinor and Italy's Eni have all sold assets in the region in recent years. Shell said that it would continue to play a role in supporting SPDC in the development and production of natural gas for the supply of feedstock to Nigeria LNG (NLNG) and retain both its stake in NLNG and its Nigerian deepwater operations. It will also provide technical expertise to SPDC "to support gas production and oversee delivery of key gas development projects", it said.

FIGURE 1 Nigerian oil production decline limits gas feedstock options ('000 b/d)

Source: Energy Institute



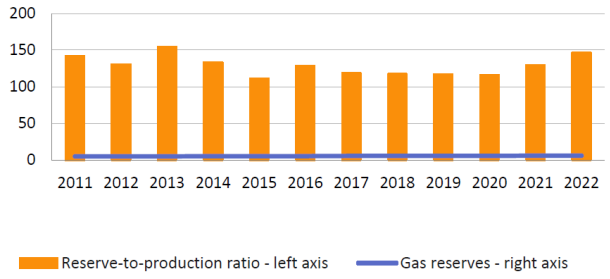
Enduring onshore insecurity

Nigeria has long struggled to make the most of its oil and gas reserves, owing to a combination of militant activity, pipeline sabotage and crude theft, which have led to chronic underinvestment. Oil production is currently half what it was in 2010 *(see figure 1)*. Shell has also faced a series of lawsuits relating to the impact of oil spills which the company blames on militant activity, but for which it has been heavily criticised by many environmental and human rights groups.

With 5.91 trillion m3 of proved gas reserves *(see figure 2)*, Nigeria has the potential to increase substantially domestic gas supply and exports of both piped gas and LNG. The poor security situation and low domestic gas prices deterred upstream companies from appraising discoveries that were considered to be mainly natural gas for many years, so Nigeria's actual gas reserves could be substantially larger than the official figure. Some militants have claimed that the international oil companies that previously dominated the country's hydrocarbon sector did not have the country's best interests at heart, calling instead for much greater Nigerian control of the industry. However, it seems unlikely that attacks on pipelines and other oil industry infrastructure will decline as a result of the SPDC deal, not least because many of the attacks are associated with oil theft rather than political aspirations. Nonetheless, Nigerian oil companies generally have few assets elsewhere and should be motivated to focus on increasing output. There have been reports in Nigeria that local companies, such as Heritage and Seplat, have been successful in boosting production from newly acquired assets.

FIGURE 2 Likely underestimated: Nigeria's proven gas reserves (trillion m3) and reserve-to-production ratio (years)

Source: NNPC

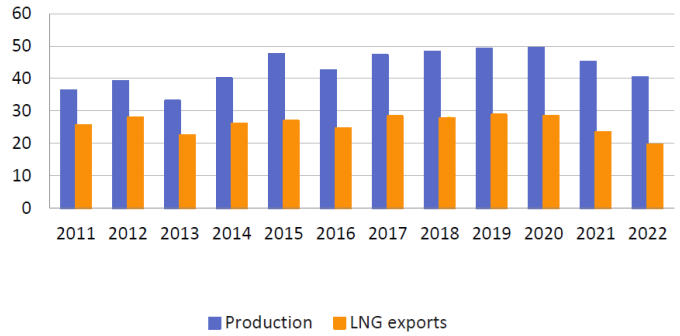


NLNG plant

Investment in gas production is badly needed to maintain supplies to the NLNG plant on Bonny Island *(see figure 3)*. The project has six trains with combined capacity of 22mn t/yr, but another 8mn t/yr will be added when Train 7 is completed by a consortium of South Korea's Daewoo Engineering & Construction, Italy's Saipem and Chiyoda of Japan. Work has been delayed by COVID-19 restrictions, disputes with local communities and gas supply problems. Statements by NLNG now suggest that the train could come on stream in 2027. The company should have little difficulty securing sale and purchase contracts for the new train given Europe's need to make up for the piped gas lost as a result of Russia's invasion of Ukraine. Nigeria's geographical location means that it is well placed to supply customers in both Europe and Asia along shipping routes unaffected by security threats in the approaches to the Red Sea *(see figure 4)*. NLNG accounted for 7% of European LNG supply in 2022. However, whether NLNG will be able to honour sales agreements is another matter. In October, NLNG Managing Director and CEO Philip Mshelbila said work on Train 7 was about 50% complete and that "NLNG was also looking to the future for further expansion with more trains, which would act as catalysts for the continued advancement of the gas sector". However, NLNG declared force majeure on its existing sales agreements in October 2022 following widespread flooding, leading to a shut-in of gas production. The company has maintained the force majeure since then, owing to a continued lack of feed gas. Production has continued, but at a significantly lower level. Although the final figure for 2023 has not yet been released, NLNG confirmed in November that the plant was operating at below 50% capacity. S&P Global reported that 12.5mn tonnes had been shipped by early November 2023. The company is seeking to source gas from new suppliers, but it is not clear if new pipelines are required to achieve this. With NLNG unable to source sufficient feed gas for its existing capacity, whether it will be able to operate a seventh train, let alone more, is an obvious concern.

FIGURE 3 Nigerian gas production and LNG exports (bn m3)

Source: Energy Institute

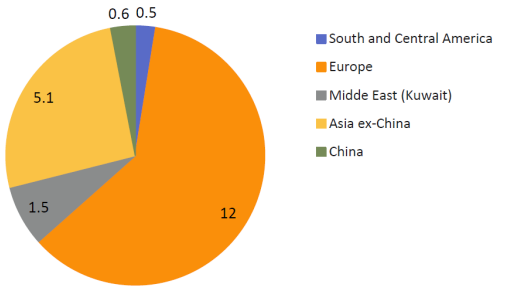


Government support for FLNG

Aside from NLNG, about a dozen other LNG projects have been proposed in Nigeria over the past 15 years, but none have been built, partly as a result of the level of finance needed by the smaller companies seeking to build them, but particularly because of the gas supply problems linked to pipeline attacks. Speaking at the Gastech conference in Singapore in September, Nigeria's Minister of State for Gas, Ekperikpe Ekpo, said that the country could produce 57bn m3/yr of natural gas by 2030. Successive governments of both main Nigerian parties have made similarly ambitious claims over the past 20 years to little effect. The country's gas output actually fell from 49bn m3 in 2020 to 40.4bn m3 in 2022. LNG exports dropped 16% to 19.6bn m3 over the same period. The position of President Bola Tinubu, who came to power in May 2023, is a little uncertain as he has promised both to phase out fossil fuels and support investment in the oil and gas sector. However, in July 2023, he offered to help the developers of Nigeria's first planned floating LNG (FLNG) project to overcome any bottlenecks to development. The project is to be built by Nigerian firm UTM Offshore with production capacity of 1.2mn t/yr of LNG for export and 300,000 t/yr of LPG for the domestic market. Engineering studies on the project are being undertaken by JGC, KBR and Technip Energies, with gas to be supplied from the offshore Yoho field on OML 104 block, which is currently operated by ExxonMobil. UTM hopes to take the final investment decision before the end of the first quarter 2024, with first production by the end of 2026. Trading house Vitol has been mooted as a likely customer. Following agreements last year, the project consortium now comprises UTM Offshore (72%), NNPC (20%) and the government of Delta State (8%). Delta state holds about 40% of Nigeria's proven gas reserves. Afreximbank has signed a preliminary deal with the developers to help finance the project, while a memorandum of understanding was signed with Golar in April 2023 to supply an FLNG vessel.

FIGURE 4 NLNG exports in 2022 by destination (bn m3)

Source: Energy Institute



No piped alternative

LNG appears to be Nigeria's best bet for increasing exports and monetising a larger portion of its gas reserves. The prospect of exporting gas to Europe by pipeline seems as far away as ever. The Trans-Saharan Gas Pipeline to transport gas 4,128 km from Warri in the Niger Delta through Nigeria and across desert areas of Niger to Hassi R'Mel in Algeria has been on the drawing board since 2002. However, insecurity in the Sahara, coupled with Nigeria's own militant activity and the scale of financing required have meant that it has never been developed. Interest in building it resurfaced following the war in Ukraine, with the governments involved signing a preliminary agreement to build a line with 30bn m3/yr capacity. However, a coup in Niger in July 2023, the imposition of sanctions on the new military government by the rest of the Economic Community of West African States (ECOWAS) and then Niger's decision to leave Ecowas at the end of January 2024, makes the project a non-starter for the foreseeable future. An alternative proposal involves extending the existing West Africa Gas Pipeline along the West African coast. However, this would be substantially longer, the capital cost consequently higher, and the pipeline would pass through 13 countries, making it much more difficult to negotiate, no matter how much gas Europe is prepared to buy. source : www.naturalgasworld.com

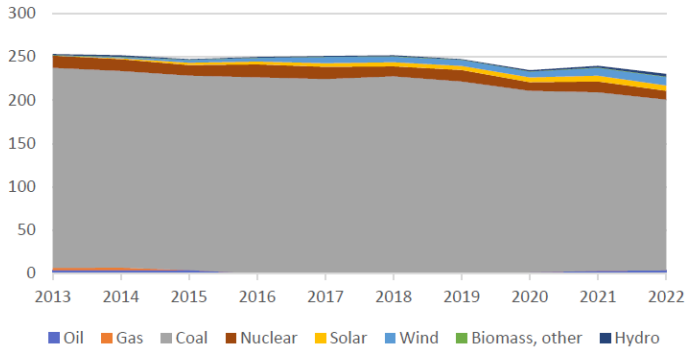
SOUTH AFRICA INCHES TOWARDS LNG IMPORTS

South Africa has long planned to shift its energy mix from coal to greater use of gas and renewable energy, but progress has been very slow. Coal still accounts for 85% of installed generating capacity, producing nearly 200 TWh of power out of a total of 235 TWh in 2022 *(see figure 1)*. Wind capacity stood at 3.1 GW and solar at 6.3 GW at the end of last year. State utility Eskom continues to dominate the power sector, despite deregulation. This, and a stagnating economy, have deterred investment by independent power producers. Eskom's large debts and the economy's fragility have limited Eskom's own capacity to invest. As a result, new generating capacity has been badly needed for two decades and periodic power rationing has become steadily more common *(see figure 2)*. Various strategies to address the shortages have come unstuck. For example, Eskom banked on the completion

of two huge 4.8-GW coal fired plants, Medupi and Kusile. Both were badly delayed and subject to big cost overruns, as well as failing to reflect the shift towards a lower emissions power mix. The utility also hoped to build new nuclear reactors in addition to the existing 1,840 MW Koeberg plant, but its enormous debts have been just one of the obstacles to their construction. Koeberg's existing two units, which came online in 1984 and 1985, also now require expensive upgrades. The government is under huge international pressure to avoid the construction of further new coal plants. At COP26 in 2021, it agreed to retire seven of its 15 coal-fired plants by 2030, but Eskom executives have suggested this will no longer be possible, owing to the growing severity of the country's power shortages. At the same time, Pretoria is reluctant to weaken coal demand because of the employment and revenue the sector generates.

FIGURE 1 South Africa's power generation still heavily dependent on coal (TWh)

Source: IEA

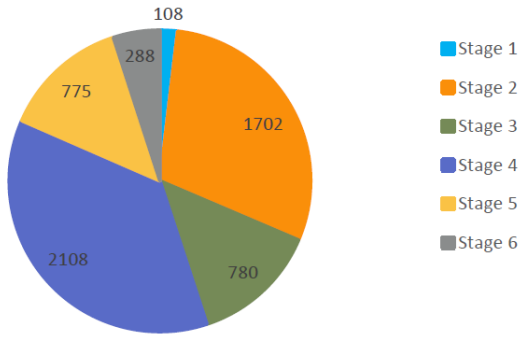


Gas supply and use in South Africa

All this has intensified pressure to develop gas-fired generation capacity. At present, Eskom's portfolio includes just 2.4 GW of gas/liquids-fired capacity for peaking purposes. In addition to domestic gas production, the country imports gas via the 865 km Rompco pipeline from the Pande and Temane fields in southern Mozambique, mainly for synthetic fuel production by South African firm Sasol. Much bigger gas reserves have been discovered in the Rovuma Basin in the far north of Mozambique, but the proposed 2,600 km African Renaissance Pipeline (ARP) from the Rovuma to South Africa now looks unlikely to progress. Sasol decided last year to focus on imported LNG, possibly from the Rovuma, instead of the pipeline project. Sasol CEO Fleetwood Grobler said the ARP would have to be operated for 30-40 years to justify construction, but Sasol intends to use gas only for 10-15 years as a bridging fuel on its road to net zero. South Africa consumed about 146bn ft3 of gas in 2022, according to Energy Institute data. The GlobalData Oil & Gas Intelligence Center says domestic production amounted to 32.5bn ft3 in 2022 down 5% on 2021, from five main domestic fields. As imports from the Pande and Temane fields are expected to fall from 2026, South Africa could be looking to fill a substantial gas deficit even before it considers increasing gas-fired generation both to meet existing power shortages and to reduce emissions by transitioning its power generation mix from coal to gas and renewables.

FIGURE 2 September 2022: South African load shedding hits record levels (GWh)

Source: Eskom

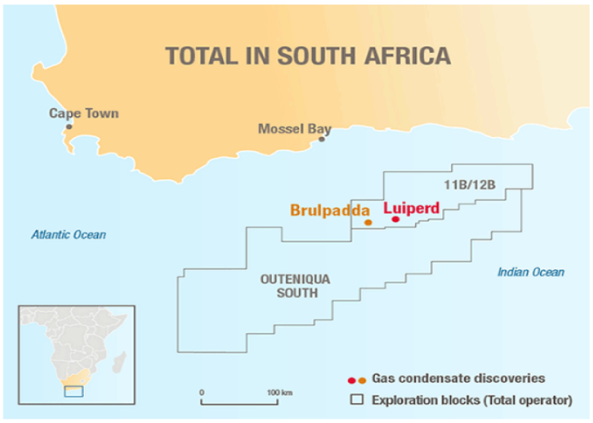


Offshore gas prospects look good

However, domestic production is expected to rise with the development of two major offshore gas and gas condensate fields discovered by France's TotalEnergies in 2019 and 2020. The Luiperd and Brulpadda fields are estimated to hold 2.1 trillion ft3 and 1.3 trillion ft3 of gas respectively in addition to nearly 200mn barrels of gas condensate combined *(see figure 3)*. The first phase of development is expected to consist of three gas production wells on the Luiperd field linked to the existing F-A gas production platform owned by PetroSA, allowing early gas to land at the company's Mossel Bay gas-to-liquids refinery. A second phase would see more production wells and construction of additional gas processing facilities. Key questions are how much gas the two fields will produce and when. TotalEnergies, which is still assessing the fields, has not said, but Phindile Masangane, chief executive of South Africa's Petroleum Agency has suggested 0.5bn ft3 over 15 years, which would mean 182.5bn ft3/yr. Other estimates suggest 100,000 boe/d, which implies 219bn ft3/yr. These figures are probably over-optimistic, and the gas will not all arrive at once, but there is no question that the fields are large. There is also a real possibility that the Paddavissie Fairway, located in Block 11B/12B, provides additional major discoveries. A final investment decision on the two fields had been expected in 2023, but seems to be slipping into 2024 – perhaps awaiting publication of the gas master plan and the conclusion of the COP28 conference in Dubai – which would imply limited first phase production in 2026, owing to the use of existing infrastructure. Over a ten-year time frame, it is possible that South Africa will start to meet a substantial proportion of its gas needs from offshore domestic production. The need for LNG is more immediate. This is particularly so because, in 2020, the government set out plans to secure 11,813 MW of new generating capacity by 2030, including 3 GW of gas-fired capacity. In November, the government said it aimed to fast-track the new gas fired generation. Pretoria announced in October that it had at last completed the gas master plan, but it is being considered by cabinet before its official release and the launch of the public consultation process. The plan is expected to include proposals to convert decommissioned coal-fired plants to run on gas and backing for LNG import terminals.

FIGURE 3 The Brulpadda and Luiperd gas field discoveries

Source: TotalEnergies



First LNG projects

US major ExxonMobil and Dutch firm Vopak jointly agreed to investigate LNG import options in South Africa in 2020, but nothing has been announced by the partners since then. However, TotalEnergies is due to take an FID by September 2024 on a planned floating storage and regasification unit (FSRU) at Matola, part of the Port of Maputo in the Mozambican capital. The gas will supply the 2-GW Beluluane power plant at Matola, which is due for completion in 2026. The plant will export most of its electricity to South Africa. In addition, a short spur pipeline will connect the terminal to the Rompco pipeline to transport gas to South Africa. The import terminal is to be developed in partnership with South Africa's Gigajoule, probably in conjunction with Mozambican investors. An investment figure of $500mn has been quoted in the regional press. Binding sales agreements have not yet been concluded.

Karpower

The government launched its Risk Mitigation Independent Power Producer Procurement Programme in 2021 to secure additional generation capacity quickly in response to power shortages. Under the programme, Turkey's Karpowership had three bids for a combined 1,220 MW of LNG-to-power projects accepted. The company is now assessing locations at three ports: Richards Bay in KwaZulu-Natal (450 MW), Ngqura in the Eastern Cape (450 MW) and Saldanha in the Western Cape (320 MW). Each bid includes an FSRU and two powerships – vessels housing gas-fired power generation. The locations of all three projects are distant from inland Mpumalanga Province, which hosts most of the country's coal-fired plants that provide the

lion's share of the country's electricity. Karpowership secured approval for its environmental impact assessment (EIA) on the first project, Richards Bay, at the end of October and now aims to bring the project online by the end of next year. EIAs for the other two projects could be approved soon.

The Turkish firm has set up a joint venture called Karmol with Japanese shipping line Mitsui OSK Lines that has bought four steam turbine LNG carriers from Australia's North West Shelf project. At least two of the vessels are to be converted into FSRUs for use in South Africa. They will supply the South African national grid under 20-year contracts, although with five and ten-year early exit clauses. As a result, South Africa's switch to gas in the short term looks almost certain to be based on imported LNG, which will gradually be capped by new domestic production from its recently-discovered offshore fields, depending on the speed and extent of their development. South Africa's LNG adventure may therefore mirror that of Egypt or Israel, but there is perhaps more scope, given the need for coal-to-gas switching in the power sector for long-term LNG imports.

Domestic LNG production

In August, Afro Energy, which is owned by Australia's Kinetiko Energy, signed a non-binding term sheet with Industrial Development Corporation of South Africa, a national development finance institution. The aim is to develop an onshore LNG project to supply 50 MW of energy equivalent within three years at a cost of A$138mn ($91mn), ramping up to 500 MW within a decade, with options for a further 1,000 MW energy equivalent. Afro Energy says that it has 2.1 trillion ft3 of gas in place to supply all 1,500 MW. Kinetiko aims to develop both conventional gas and coal bed methane (CBM) across Southern Africa in the longer term. There is also growing potential for LNG in the region's large logistics sector. South African firm Renergen completed its own small Virginia LNG project in Free State Province in 2022. Using local reserves, it is producing 50t/day of LNG in the first instance, rising to 680t/day in Phase 2, with all output distributed to haulage firms via filling stations, in order to displace diesel use. Phase 2 will also include the construction of a 60 MW gas-to-power plant to utilise the gas. Despite apparently plentiful CBM reserves in South Africa and neighbouring Botswana, little progress has been made on tapping them to date and domestic LNG production plans remain relatively small-scale. source : www.naturalgasworld.com

BIDEN'S LNG PAUSE IS A SHORT-TERM GAMBIT

Having moved into the number one spot as the world's largest LNG exporter, President Joe Biden has hit the pause button on new permits for LNG projects.It is a confidence knocker for the industry and for those many countries around the world pinning their hopes on LNG for improved energy security and greenhouse gas (GHG) emissions reductions via coal-to-gas switching. However, it is only a pause, one designed to play to environmentally-minded voters ahead of the presidential elections this November.

No major policy shift

Biden has not announced a policy shift. If he wins a second term, a decision on LNG permits will hang on the new economic and environmental analyses requested of the Department of Energy (DoE) regarding whether further LNG export capacity is in the public interest. In any case, the decision will not affect the next phase of expansion of the US LNG industry. According to the US Energy Information Administration, by 2027, US LNG capacity will grow 9.7bn ft3/d (76mn t/yr) from 14bn ft3/d currently, owing to the five major projects already under construction. Not only that, but there are a lot of projects in the pipeline which have already received the requisite permits for exports to non-Free Trade Agreement countries. According to the DoE, total export authorisations amount to 48bn ft3/d, more than three times current export capacity. However, many of these projects are slow moving and their permits are time limited. Project developers have seven years from receiving the permit to start exporting. An application for a permit extension will likely count as a 'pending decision' and therefore be subject to the temporary pause, causing delay and uncertainty.

DoE analyses need updating

Updating the DoE analyses is a legitimate concern and takes place regularly, it is the accompanying permitting pause that is new. US LNG exports have expanded rapidly, reaching 104.3bn m3 in 2022, up from next to nothing in 2015. They are set for another massive jump over the next five years. At the same time, there has been a surge in US exports to Mexico. New LNG capacity in Mexico will be fed by US gas, adding another major driver to the expansion of US-Mexican pipeline gas flows. Moreover, in 2022, US Henry Hub gas prices, at an average $6.45/mn Btu, were the

highest since 2008. However, the economic case for more US LNG exports should come out stronger than the one conducted in 2018. 2022 was, of course, unquestionably an exceptional year, owing to the conflict in Ukraine, but also one in which US gas prices stayed far lower than in Europe or spot LNG prices in Asia. In fact, from 2016-2022, the period of US LNG's rapid entry on to the world market, the average Henry Hub price was $3.33/mn Btu, lower than the preceding seven-year average of $3.67/mn Btu and less than half the $6.59/mn Btu average price from 2002-2008, pre-shale. Not only that, but US prices have been the fastest to normalise to pre-Ukraine invasion levels, falling back to less than $3/mn Btu in early 2023 and trading close to $2/mn Btu in early February 2024. Despite a COVID-induced dip in 2019/2020, US gas production has been on a steady upward trend since before 2010, coping well with increases in both domestic and export demand without domestic price inflation nor signs of reserve exhaustion. Such has been the expansion of US gas output, that imports of Canadian gas have been curtailed. Although it is developing its own LNG export capacity, Canadian gas reserves remain an important back stop to the US gas system. The record stands that the US gas industry has met increased demand remarkably well. The fact that both US and Canadian proved gas reserves are higher today than they were ten years ago suggests the US gas sector can continue its expansion without negative impacts on the wider economy as a result of higher domestic gas prices. Remember also that the 2018 report looked at LNG exports up to a huge 52.8bn ft3/d -- and concluded that in all scenarios such an expansion would result in higher overall GDP, household income and consumer welfare. If all pending decisions were approved, the US would have 62bn ft/d of LNG capacity, but it is highly unlikely that all of these projects will progress to construction.

Environmental conditions also supportive

The other main re-assessment to be undertaken is the environmental impact of increased US LNG production. Environmental organisations argue that LNG plants harm local communities and that the expansion of the gas industry goes against the US's environmental commitments. They see more gas production as locking in fossil fuels long term and adding to overall GHG emissions. On the other side, proponents argue that exported US LNG displaces coal use in other countries, reducing GHG emissions overall, as well as having a positive economic impact domestically and improving importing countries' security of energy supply. It is on the latter side that the DoE currently sits, and it is not clear why a re-assessment of the situation should change its position. The DoE uses the National Energy Technology Laboratory study entitled Life Cycle Greenhouse Gas Perspective on Exporting Natural Gas from the United States: 2019 update. This found that the lifecycle GHG emissions for exported US LNG used in the power sectors of Asia and Europe were lower than for regional coal use. It also said that for the natural gas scenarios, 34-45% of the life cycle emissions are from the natural gas supply chain prior to the power plant, compared with 2% for regional coal, on a 100-year basis, and that this share increases to 42-64% on a 20-year basis, owing to the increased importance of methane emissions over shorter time frames. This highlights that reducing the emissions intensity of US LNG exports is very much within the control of the US government and gas industry. It should also be noted that between 2019-2022, the emissions intensity of US LNG exports fell by almost 15%. The US introduced new methane emissions control regulation late last year and many of the new US LNG plants proposed will have much lower emission intensities than their predecessors, owing to the use of Carbon, Capture and Storage and electric drive trains combined with low carbon power. The pressure for this is not just domestic, but also comes from their customers, who want lower carbon LNG.

Coal-to-gas switching is the key

Biden has promised to cut climate pollution by half by 2030. This will be difficult as both US oil and gas production continue to grow. But don't forget coal. US coal consumption in 2022 was less than half the level in 2010 and that could not have happened without gas displacing coal in the power sector. In doing so, increased natural gas use became the principal contributor to reduced US GHG emissions. US carbon dioxide emissions have fallen because of the expansion of gas production. At the same time, while the US is using less coal, the rest of the world is using more - global coal consumption hit a record high in 2023. As a result, the export of more US LNG to countries which simply do not have sufficient domestic gas to displace their current level of coal use still makes environmental sense and will continue to do so for a long time. Retarding LNG supply, conversely, does not. Owing to the declining emissions intensity of US LNG and increases in coal use outside of the US, a reassessment of US LNG's environmental

impact could well show the fuel in an improved light. The problem is encapsulated best by China, now the largest national import market for LNG. It has more renewable energy capacity than any other country, but is also the world's biggest user of coal. It has limited domestic gas supplies; increased LNG imports will help it reduce coal use, while it builds low carbon energy capacity. But, as with other countries looking to use LNG to displace coal use and/or provide basic energy security, importers want certainty that LNG will be available and that it will be affordable. Biden's pause creates uncertainty and that is damaging for an industry with a long investment cycle on both the supply and demand sides. So go-ahead and reassess the situation by all means. Hopefully, once the presidential elections are out the way, permitting can revert to a more science-led approach. source : www.naturalgasworld.com

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