

LNG Unlimited

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Panama Canal ship restrictions over drought felt in LNG market

Authorized drafts in Gatun Lake locks are being reduced through to July 19
LNG News Editor

The Panama Canal Authority has issued further restrictions for the maximum authorized draft in locks for the Neopanamax-sized and Panamax-sized vessels, including LNG carriers, as it faces drought conditions that are challenging the modernized Canal's capacity and draft allowances for larger ships now being constructed.

The ACP, as it is known from its Spanish name Autoridad del Canal de Panamá, has listed a series of additional steps that could see the maximum draft reduced by nearly a quarter in the Neopanamax locks as forecasters warned that the situation could worsen with the arrival of the weather phenomenon known as "El Niño".

The Panama Canal issue has led to a surge this week in spot LNG charter rates.

LNG shipping availability for cargo deliveries tightened in the past week with rates rising by over \$23,000 per day to \$75,000 per day for the Atlantic Basin market and by \$22,000 per day to \$73,000 per day for the Pacific Basin market, according to shipbrokers in London.

Levels

Having been at a peak level of 50-foot drafts until the Spring of 2023, the ACP reported the maximum authorized drafts in the Neopanamax locks were moved to 44 feet from June 19.

The ACP notice to shipping customers said that a further drop will be made on June 25 to 43.5 feet followed by another half a



LNG carriers in sail past on Gatun Lake in the Canal system

foot to 43 feet as of July 19.

Similarly, the original Panamax locks, which are used by the majority of the ships transiting the Canal, will see their maximum draft moved to 39 feet as of July 9 and 10 days later the drafts will be lowered another half a foot to 38.5 feet.

"This is an issue that the Panama Canal has been warning about and preparing for. However, we could not have predicted exactly when the water shortage would occur and to the degree that we are experiencing now," said Canal Administrator Ricaurte Vásquez Morales in a statement.

The Administrator has also suggested that if the drought continued, there could be a limit placed on the daily transits on the waterway from the current 36 vessels to 28 ships.

The ACP calculated that rainfall during the first five months of 2023 was 47 percent lower in the Canal area than the average historical levels.

The "El Niño" prevailing in the Pacific Ocean can restrict rainfall and cause the levels of dams and rivers to drop.

One of the El Niño effects is that surface water in the Equatorial Pacific becomes warmer than average and winds to bring rain to

South and Central America blow weaker.

Ships lifted

During the Atlantic Basin-Pacific Basin transits the ships are lifted from sea level in locks up to Panama's Gatun Lake where the water levels have dropped.

"The ACP will continue to monitor the level of Gatun Lake and announce future draft adjustments in a timely manner," stated the latest advisory.

The project to widen the Canal at a cost of \$5.5 billion was inaugurated seven years ago in June 2016 enabling the largest LNG carrier and containerships to transit the waterway.

While LNG from the US Gulf Coast has mostly pointed at an Atlantic crossing to Europe over the past year, Asia is still a key market through the Canal.

The Canal expansion work included two new lock complexes with a total of 16 gates, eight on the Pacific side and eight on the Atlantic side.

The ACP said it had taken many other steps to prepare for the current drought conditions, including conserving water usage where possible.

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Colombian LNG terminal enters crucial period for cargoes to cope with El Niño phenomenon

LNG News Editor

The South American nation of Colombia is making moves to import more liquefied natural gas at the floating LNG terminal at the port of Cartagena to supply the country's main thermal plants to deal with the El Niño weather phenomenon.

The terminal is a joint venture between Colombia's Promigas and Dutch global energy storage company Royal Dutch Vopak and is called SPEC LNG from its formal name, Sociedad Portuaria El Cayao (SPEC).

SPEC LNG has been importing more LNG shipments since May 2023 as power output increases from the gas-fired plants served by the terminal.

The Colombian floating storage and regasification unit (FSRU) was one of the original wave of FSRUs deployed in South America.

Cartagena port

Cartagena is in the far northeast of the country on the Caribbean Sea



The SPEC LNG terminal on Caribbean Sea coast of Colombia

coast and the terminal has been operational since December 2016.

SPEC LNG said it was now aiming to import more cargoes of LNG from international markets to support the 2,000 megawatts of gas-fired power generation which is about 60 percent of Colombia's total gas-fired capacity.

"A total of three shipments of LNG will arrive in June at the regasification terminal of SPEC LNG," said the company.

"Our customers are stocking up on natural gas to support electric power generation during the upcoming dry spell," explained José María Castro, general man-

ager of SPEC LNG.

Castro said that the FSRU received a small-scale delivery in mid-May of about 16,000 cubic metres and a further 43,800 cubic metres arrived just afterwards and another 44,000 cubic metres was then scheduled.

He pointed out that more LNG was needed in Colombia during dry spells when hydro-electric power supplies dropped.

Crucial storage

"Our infrastructure has a storage capacity of 170,000 cubic metres of LNG and a regasification capacity available to our clients of 400

million cubic feet of natural gas per day," added Castro.

As a way of supporting the generation of electrical energy defined by the Energy and Gas Regulation Commission (CREG), the SPEC LNG terminal has the role of Infrastructure Agent and provides its services to three thermal generators in the country.

"The terminal is a key piece of the backup scheme that provides reliability to the Colombian electrical system, with strategic and flexible LNG storage, and allows the thermal plants to guarantee supply, not only in scenarios such as El Niño, but also in the face of other eventualities," stated Castro.

The company recalled that the regasification terminal was vital in 2020, when the levels of the dams and reservoirs for hydro-electricity were well down and the terminal regasified close to 13,000 million cubic feet of LNG for more than 200 days for the thermal plants and received 16 LNG carriers during that time.

Gazprom signs up Uzbekistan as first natural gas customer after cut-off of pipelines to EU

Russian natural gas company Gazprom has signed up the Central Asian republic of Uzbekistan as its newest customer after the cut-off in 2022 of European pipeline gas deliveries by the Nord Stream route to Germany after the Ukraine invasion.

Gazprom and the Government of Uzbekistan said that they had signed a detailed supply agreement at the St. Petersburg International Economic Forum, a regional meeting organized each year by the Russians.

"Current and future issues of gas industry cooperation were discussed. The parties signed a contract for Russian gas deliveries to Uzbekistan, as well as a strategy for preparing Uzbekistan's gas transmission system for accepting

and transporting Russian pipeline gas," said Gazprom.

Start date

"The projected start date for Russian natural gas deliveries to Uzbekistan via Kazakh territory is the fourth quarter of 2023," added Gazprom.

The search for new pipeline gas customers by Gazprom continues after Western sanctions on pipeline gas as well as LNG, though while affecting shareholdings, the sanctions on LNG had no impact on cargo deliveries.

The Gazprom-operated Sakhalin LNG plant in the Russian Far East lost Shell as a shareholder but Japanese shareholders remained on board as they rely on the more

than 9 million tonnes per annum of deliveries to Japanese terminals.

The Ministry of Energy of Kazakhstan also stated that Gazprom and Kazakhstan's state natural gas company QazaqGaz had signed an agreement on the transportation of Russian natural gas to customers in Uzbekistan.

The Minister of Energy of Kazakhstan, Almassadam Satkaliyev, and the Chief Executive of Gazprom, Alexey Miller, have just signed a transportation services agreements for the transit of the Russian natural gas.

Southern neighbours

Kazakhstan is the largest southern neighbour of Russia in Central Asia and Uzbekistan lies to the south of

Kazakhstan. There is also a Central Asian natural gas pipeline in the region that is connected to China.

The pipeline originates on the Turkmenistan-Uzbekistan border and passes through Kazakhstan on the 3,665 kilometres (2,277 miles) route to Horgos in the Xinjiang region of China.

The Russia Energy Ministry said that pipeline natural gas exports declined by 30.7 percent in 2022 to 170.6 billion cubic metres.

Gas production in the country dropped by 11.7 percent last year to 673.8 Bcm and in the first quarter of 2023 output fell by a further 8-10 percent below the forecast levels.

India's imports drop by a quarter

Indian liquefied natural gas imports dropped by 24 percent in May at prices lower than a year ago to reverse April's brief rebound as domestic gas production was also flat while the start of the monsoon season in June has coincided with higher cargo prices.

Deliveries of LNG for the month of May came to 1.65 million tonnes, or 24 cargoes, compared with the same month of the previous year when 2.17MT, or 32 shipments, were unloaded, according to provisional data from India's Ministry of Petroleum and Natural Gas.

Imports for the first two months of the fiscal year decreased by 5.4 percent to 3.51MT versus 3.71MT in April and May last year.

Deliveries to India's regasification network had risen by 6.5 percent to 1.64MT in the previous month of April compared with 1.54MT in April 2022.

Analysts note that LNG prices are starting to increase in June for the Indian sub-continent market.

The regional spot price, the West India Marker (WIM), was last at \$12.468 per million British thermal units MMBtu for August deliveries.

LNG deliveries to Indian terminals come from Qatar, which provides over one-third of volumes, as well as West Africa, the US, Asia-Pacific nations, the spot market while Russian deliveries have also resumed in 2023.

The May decline in Indian LNG imports coincided with the commissioning of the country's seventh LNG import terminal at Dhamra in the East Coast state of Odisha.

Japanese LNG importer Inpex raises profile in Japan with terminal tours

LNG News Editor

Inpex Corp., the leading Japanese liquefied natural gas developer and operator in the Asia-Pacific region, is focusing on re-assuring shareholders and the public in Japan on the company's safety and security by organising facility tours of the Naoetsu LNG Terminal in Joetsu City in Niigata Prefecture.

The facility tours have taken place over two days and Inpex issued photographs of groups of people enjoying their visits.

Close-up views

"During the facility tours, participants enjoyed close-up views of the LNG tanks at the Naoetsu Terminal and also visited the Inpex Museum, an interactive exhibit featuring a panoramic video presentation on natural gas and LNG," Inpex explained.

"The participants also visited and inspected the pipeline monitoring center," Inpex added.

"Feedback from participants included the following statements:



LNG tanks were popular with visitors for photographs

"It was impressive to see the (huge) size of the LNG tanks with my own eyes' and, 'I was able to understand Inpex's high level of safety awareness' during the tour," the company revealed.

The Naoetsu terminal is already a landmark in Joetsu City since it was inaugurated in December 2013 as Japan's 31st facility in the national import network, including satellite terminals.

The terminal has two above-ground LNG tanks, each with storage capacity of 180,000 cubic

metres, and a berth for 210,000 cubic metres capacity Qatari Q-Flex class LNG carriers.

It received a commissioning cargo at the end of August 2013 and started commercial operations on December 1 that year.

Inpex said the latest tours were a success and it planned to continue to organize them to "deepen shareholder understanding" and to foster the continued support of its shareholders and the public.

South Korea freezes power prices even as LNG values start to rise

South Korea, the third-largest Asian liquefied natural gas importer, has decided to freeze electricity prices even as liquefied natural gas costs for gas-fired power generation have begun to increase and to overtake European LNG cargo values.

The planned freeze came after the government had increased electricity rates by 5.3 percent for the first and second quarters of 2013 due to high global energy costs and the mounting losses at Korea Electric Power Corp. (KEPCO), the state-owned power company.

KEPCO charges

KEPCO said it had now decided to fix the adjusted unit fuel cost at 5 South Korean won (US\$0.004) per

kilowatt hour (kWh) for July until the end of September, meaning it would be unchanged from the previous three months.

Global natural gas and LNG prices steadily fell after the Northern Hemisphere winter to under US\$9 per million British thermal units at the end of May.

However, the Japan-Korea Marker price for spot LNG cargoes has rebounded to be quoted at around \$13.00 per MMBtu or more in June.

The nation's LNG cargo imports are currently running at around 50-plus shipments per month with 12 deliveries expected this week through June 25 versus 13 cargoes in the previous week.

Analysts noted that the South

Korean government had been unable to curb the rising costs of electricity charged to consumers in the first half of 2023 because of high oil and gas import costs, inflation and an economic slowdown.

The electricity rates had even dropped below production costs leading KEPCO to report record operating loss of 32.63 trillion won (\$23.3 billion) in 2022, more than four-times higher than in the previous year.

KEPCO, which is 51 percent owned by the Government, then managed to narrow the first-quarter 2023 net losses from the same three months of 2022 due to the government's agreement to raise prices.



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NEWS BRIEFS

US DoE ruling

Energy Transfer, the owner of pipeline and other assets in the Permian Basin and other shale basins in the Gulf Coast states as well as the Cushing crude oil delivery system, has learnt from regulators that its Lake Charles LNG project would not be proceeding as planned. The DoE has released a statement saying it would not rehear pipeline operator Energy Transfer's request for a second extension of its permit to export cargoes from its Lake Charles LNG export project.

Lithuania LNG pause

Klaipeda Nafta (KN), the Lithuanian energy company and operator of the floating storage and regasification unit (FSRU) "Independence" berthed at the Baltic port of Klaipeda, said the vessel would be entering drydock for inspection and repairs before Lithuania takes over ownership at the start of 2024 from Høegh LNG. "Since the size of the vessel 'Independence' requires a large dock, which is not available in Klaipeda and neighbouring ports, it will be sent to one of the southwestern European ports," said the company.

Japan gas test plant

Chiyoda Corp., the Japanese energy and LNG project engineer, was awarded an engineering, procurement and construction (EPC) contract by oil and gas and LNG market participant Inpex Corp. for a methanation test plant. The plant is part of a technology development project being conducted by Inpex and LNG importer and utility Osaka Gas, under a Japanese New Energy and Industrial Technology Development Organization (NEDO) grant, to demonstrate the practical application of a CO₂-methanation system for the carbon neutralization of gas.

Civitas Resources of US buys Permian Basin assets for \$4.7Bln as M&A activity continues in prime shale areas

LNG News Editor

Civitas Resources Inc., the US oil and natural gas company headquartered in Denver, has made a "transformative" entry into the Permian Basin by acquiring assets of two companies for \$4.7 billion with a mixture of debt, stock and cash in the latest round of merger and acquisition activity in the sector.

Civitas, which is the largest Denver-Julesburg Basin pure-play natural gas and oil producer in Colorado, signed the deals with privately held Hibernia Energy III LLC and Tap Rock Resources LLC.

Permian acquisitions

Both are portfolio companies of funds managed by NGP Energy Capital Management LLC.

The West Texas and southeast New Mexico assets include acreage in both the Midland and Delaware sub-basins.

Civitas said that the combined transactions would add around 68,000 net acres in the Midland and Delaware basins and would add combined proved reserves of approximately 335 million barrels of oil equivalent.

The Civitas deals are the latest in US energy merger and acquisition activity for assets close to the US Gulf Coast LNG export hub and the Permian Basin.

Chevron Corp. agreed in May 2023 to acquire Nasdaq-listed PDC Energy in an all-stock transaction valued at \$6.3Bln and boosting the US major's holdings in US strategic basins such as the Permian.

The acquisition of PDC provided San Ramon, California-based Chevron with high-quality assets expected to deliver higher returns.

The Chevron acquisition followed Vital Energy and Northern Oil and Gas Inc. jointly buying the assets of Forge Energy II Delaware LLC, an EnCap Investments portfolio company based in the Per-



Colorado company in breakout with 'transformative' southwest deals paid in debt, stock and cash

mian Basin, in a \$540M all-cash transaction.

Civitas said that its double transaction would increase the company's existing production by 60 percent, adding around 100,000 barrels of oil equivalent per day (54 percent oil) of current production with the acquired assets expected to average approximately 105 Mboe per day from the close through to year-end 2023.

"These accretive and transformative transactions will immediately create a stronger, more balanced and sustainable Civitas," said Chief Executive Chris Doyle.

"By acquiring attractively priced, scaled assets in the heart of the Permian Basin, we advance our strategic pillars through increased free cash flow and enhanced shareholder returns," Doyle stated.

"We will soon have nearly a decade of price-resilient, high-return drilling inventory. Our strong capital structure allowed us to capture these transformational assets, and, importantly, behind the strength of the pro forma business, we have a clear path to reduce leverage and maintain long-term balance sheet strength," Doyle stated.

An outline of the deal shows

that Civitas has agreed to purchase a portion of Tap Rock's Delaware Basin assets for \$2.45Bln, which includes \$1.5Bln in cash and 13.5 million shares of Civitas common stock valued at \$950 million.

Deals outlined

Tap Rock will retain its ownership of the Olympus development area.

"The assets include approximately 30,000 net acres, primarily located in Eddy and Lea counties, New Mexico, an area widely considered to be the core of the Delaware Basin," said Civitas.

Civitas has also agreed to purchase Hibernia's Midland Basin assets for \$2.25Bln in cash, subject to customary purchase price adjustments.

"The assets include about 38,000 net acres in Upton and Reagan counties in Texas, an active and well delineated area in the Midland Basin," Civitas said.

First-quarter 2023 average production was approximately 41,000 Boe per day of which 56 percent was oil.

"The company will have an inventory of approximately 450 high-quality locations on a contiguous acreage position in the Midland Basin," Civitas stated.

US LNG price and cargo data shows German deliveries halved after winter as gas still flows

LNG News Editor

The US Department of Energy has published its latest LNG export data showing that shipments to Germany halved when the winter season ended and during 2023 US export facilities delivered 21 shipments to German import terminals through April 2023, while the UK, Spain and France extended their lead over China as cargo destinations.

The June 2023 DoE data report just issued gives the prices, numbers and trends for April 2023.

Volumes

It showed that the total number of US cargoes delivered worldwide since March 2016 now amounted to 4,690 shipments, or 14,998.8 billion cubic feet of natural gas.

A further 1,383 ISO containers of LNG have been shipped to nations in the Caribbean and Latin America from ports in Florida and from Puerto Rico.

The seven operating US LNG export plants dispatched 111 full LNG cargoes in April 2023 versus 121 in the previous month of March and 107 shipments in April 2022.

The Sabine Pass plant in Louisiana remained the volume leader in April 2023 supplying 39 cargoes followed by the now combined Cameron export point's 29 shipments from Louisiana. This in-



The German floating LNG import facilities at Wilhelmshaven

cluded 17 cargoes from Cameron LNG and 12 from Calcasieu Pass.

Freeport LNG in Texas dispatched 18 cargoes, the Corpus Christi facility in Texas shipped 16 cargoes, Cove Point in Maryland sent out seven shipments and Elba Island in Georgia saw two departures.

Shipments from the Cameron export point in Louisiana cost the most for a 13th straight month through April 2023.

In the DoE data the two separately operated export plants are California-based utility Sempra's Cameron LNG and Arlington-based Venture Global's Calcasieu Pass.

Cargoes lifted from the Cameron facilities near Lake Charles cost an average of \$9.86 per million British thermal units in April 2023, which was lower than the Cameron price in the previous month of March of \$11.65 per MMBtu.

The Cameron and Calcasieu Pass plants supplied a varied array

of customers. Sempra's 17 shipments in April from the Cameron plant comprised six cargoes for France, three for Japan, two for the UK, one for Italy, one for Germany, one for Greece and one for Lithuania. Completing the list one Cameron shipment was delivered to the Dominican Republic in the Caribbean and one to South Korea.

The 12 liftings from Venture Global's Calcasieu Pass plant in April saw three directed to the UK, three to France, two to Argentina, one to Italy, one to Spain, one to the Netherlands and one to the Dominican Republic.

The Cameron export point price in September 2022 had hit a record US high of \$19.89 per MMBtu.

The combined average April price for all the seven plants combined was \$6.60 per MMBtu versus \$7.67 per MMBtu for the previous month.

The year-to-date price in April 2023 for all of the plants was

\$11.38 per MMBtu. The average prices for each of the five other plants (from the export point) from highest to lowest in April 2023 were: Cove Point (Maryland) \$6.55 per MMBtu (\$6.96, March); Corpus Christi in Texas \$5.51 per MMBtu (\$6.26 March); Sabine Pass (Louisiana) \$5.45 per MMBtu (\$5.86, March); Freeport LNG (Texas) \$5.34 per MMBtu (\$6.14, March); and Elba Island (Georgia) \$4.75 per MMBtu (\$7.54 March).

European deliveries

New LNG importer Germany received four cargoes in April, just half of its total of eight US cargoes in March.

The Top Five countries of destination, representing 61.8 percent of total US LNG exports in April 2023, were the United Kingdom (75.8 Bcf, 23 cargoes), the Netherlands (61.0, 17 cargoes), France (53.2 Bcf, 15 cargoes) and Italy (17.4 Bcf, five cargoes).

The list of the Top 10 countries of destination overall since 2016 through April 2023 showed two Asian nations, South Korea and Japan, leading and with Spain consolidating its third-placed position.

The UK and France have also overtaken China in recent months to take fourth and fifth places respectively while the Chinese drop to sixth. Turkey has now also advanced in the US list and has overtaken India.

The top 10 recipients of US LNG by overall numbers of cargoes at the end of April 2023 were: 1) South Korea 520 cargoes; 2) Japan 384; 3) Spain 383; 4) the UK 383; 5) France 345; 6) China 297; 7) the Netherlands 277; 8) Turkey 210 9) India 199; and 10) Brazil 219 - including split cargoes.

Vessel-borne delivery prices are also given for the US territory of Puerto Rico.

Shipments to Puerto Rico in April 2023 had cost an average of \$7.31 per MMBtu, down from \$7.59 per MMBtu in March.

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Africa's next gas producer is awaited

Australia's Invictus Energy, is optimistic about the southern African nation of Zimbabwe becoming an oil and gas producer from onshore resources in the Cabora Bassa project in northern Zimbabwe.

Invictus has recently raised A\$35.4 million (\$24.24M) through a share purchase plan and private placement to fund the second phase of its onshore Cabora Bassa exploration and appraisal campaign.

Zimbabwe is the latest country in the region to be pursuing the development of its resources following neighbouring Mozambique becoming an LNG exporter and Tanzania to the North planning an LNG export venture from their offshore natural gas discoveries.

Invictus disclosed in May 2023 that a mud gas analysis from its Mukuyu-1 exploration well drilled last year confirmed the presence of light oil, gas condensate and helium at the Cabora Bassa project.

Invictus now intends to start drilling a second well, Mukuyu-2, during the third quarter of 2023.

"If this appraisal well confirms that the discovery can be exploited profitably, the company plans to bring new partners into the project," Invictus explained.

The SG 4571 licence is for 250,000 acres located in the most prospective portion of the Cabora Bassa Basin.

Invictus explained that the licence was currently in the second exploration period which runs to June 2024.

Analysts note that while Zimbabwe's prospective resources are far less in scale than those offshore Mozambique, they would still provide feed-stock for refining and reduce the nation's petroleum import bill.

Woodside decides to proceed with US\$7Bln Gulf of Mexico venture

LNG News Editor

Woodside Energy, the operator of the Northwest Shelf and Pluto LNG export plants in Western Australia, is widening its oil and gas activities in the Gulf of Mexico by moving forward with a joint venture costing more than US\$7 billion in partnership with Petróleos Mexicanos (Pemex), the state-owned energy company.

Woodside has just made a final investment decision to develop the large Trion resource in Mexican waters of the GoM.

Value venture

"The expected returns from the development exceed Woodside's capital allocation framework targets and deliver enduring shareholder value. First oil is targeted for 2028," stated Woodside.

Woodside is operator of Trion with a 60 percent participating interest and the Pemex exploration and production unit holds the remaining 40 percent.

The Perth-based company said



Trion field is located about 180km off the Mexican coastline

that of the forecast total capital expenditure of US\$7.2Bln, Woodside's share is US\$4.8Bln, including capital-carry for Pemex of around US\$460 million.

The Trion field is located in the Perdido Fold Belt at a water depth of 2,500 metres and is located 180km off the Mexican coastline and 30km south of the US-Mexico maritime border.

Trion is a greenfield development that represents the first oil production from Mexico's deepwater with potential for future discoveries to be tied back to Trion facilities.

The Trion project was discovered by Pemex way back in 2012 and in 2017 BHP Petroleum, which is now part of Woodside after a takeover, signed an agreement with Pemex for the development of the Trion discovery.

"The development is expected to deliver strong returns to Woodside shareholders as well as economic and social benefits to Mexico," Woodside stated.

The Trion project is subject to regulatory approval of the field development plan which is expected in the fourth quarter of 2023.

Baker Hughes awarded contract in Côte d'Ivoire for key African hub

Baker Hughes, the US energy technology company and LNG equipment supplier, has been awarded a major contract in the Côte d'Ivoire in West Africa where the Baleine project for offshore oil and associated gas is currently moving forward to maintain the country's status as an African energy hub.

Baker Hughes was chosen for the contract by Italian oil and gas company Eni and the African nation's state energy company, Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (Petroci).

Baleine field

Eni and Petroci are initiating Africa's first Scope 1 and 2 carbon-dioxide emissions reduction plan

as part of the Baleine oil and gas field Phase 2 development.

The Baleine field, taking its name from the French word for "whale", was discovered in 2021 as the largest commercial discovery in the country in the last 20 years and will contribute to boosting energy production in Côte d'Ivoire.

The Côte d'Ivoire's mainly oil production has varied significantly over the past two decades as existing fields have become depleted, closed for maintenance or development works and as new discoveries have lacked investment.

"This award, which includes eight deep water trees, three Aptara™ manifolds, the relevant subsea production control system,

and flexible risers and jumpers, strengthens Baker Hughes' presence in West Africa and unlocks considerable growth potential in the country," explained the Houston, Texas-based company.

"Baker Hughes will deliver a configured-to-order product portfolio across subsea production and flexible pipe systems, designed for optimum cost effectiveness, installation and life-of-field value," added the company.

Baker Hughes said that these deepwater trees and manifolds, supplemented with subsea production controls and flexible pipe systems, are aimed at providing efficiency and cost-effectiveness under demanding conditions.

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DNV and world's largest shipbuilder CSSC unveil Shanghai Innovation Centre for global shipping

LNG News Editor

European maritime classification society DNV has established a Future Ship Joint Innovation Centre in Shanghai in partnership with China State Shipbuilding Corp. (CSSC), the world's leading shipbuilding group.

DNV and CSSC said the facility would allow both companies to cooperate on ship and offshore field technical innovation and to advance digitalization while providing technical support and general solutions for the maritime industry.

The new Innovation Centre was formally opened by CSSC Vice President Sheng Jigang and DNV Maritime Chief Executive Knut Ørbeck-Nilssen.

DNV joint operator

The CSSC yards include China's leading LNG carrier builder Hudong-Zhonghua Shipbuilding of Shanghai.

Its current orders include



DNV and CSSC executives and other participants launch the Future Ship Joint Innovation Centre in Shanghai

building six LNG carriers for a partnership including Japanese shipping company Mitsui OSK Lines and China's Cosco Shipping to be delivered in 2025.

DNV will operate the Innovation Centre with the Shanghai Merchant Ship Design and Research Institute (SDARI) and the cooperation accord was signed by SDARI's President Lv Zhiyong and DNV's Senior Vice President and Regional Manager Norbert Kray.

The Centre will set up three joint work groups on reducing carbon-dioxide and promoting digital and smart shipping.

"The establishment of this Centre is an important step for a deepened strategic cooperation between CSSC and DNV, China and Europe," stated CSSC VP Sheng.

"Additionally, the mutual trust and advantages gained will pave the way for an in-depth technical exchange between SDARI and DNV

China, accelerating research on green and intelligent shipping technology towards a global maritime transformation," Sheng added.

DNV Maritime's CEO Ørbeck-Nilssen said it was a great honour cooperate with CSSC and SDARI to establish the Centre.

Support

"DNV will support the Centre with its full global expertise. Together we will work to ensure it will become a model for the maritime industry's proactive response to decarbonization and digital transformation," Ørbeck-Nilssen declared.

Others who attended the ceremony included CSSC's Assistant President and Director General of Technology Division Xu Miao, SDARI's Vice President Li Lu and DNV's Senior Vice President and Regional Strategic Business Development Director James Huang.

LNG carrier 'Lobito' departs to start celebration of 10th anniversary at clean fuel leader Angola LNG

The LNG carrier "Lobito" with 160,000 cubic metres capacity has just lifted the 400th cargo from the Soyo LNG export plant in Angola that has made the southwest African nation a key global supplier for the past 10 years and an example of how oil and gas and LNG can change lives in developing economies.

Angola LNG is celebrating its 10th anniversary since the first ever shipments was delivered to Brazil in 2013.

The joint venture company supplies buyers through spot sales and a portfolio of mid-term sales comprised of a variety of different counterparties and a main customer has been India.

About 60 percent of Angola's LNG cargoes have been delivered to India since the start-up of the

plant that uses associated gas from offshore oil fields and is located in the northwest of the country, just south of the Congo River Basin.

"Our plant is strategically located and is one of the world's most modern LNG processing facilities," said Angola LNG.

"More recently, and for much of 2022, Europe has been an increasingly important market for Angolan cargoes," it added.

Committed

"Angola LNG is now celebrating the loading of our 400th LNG cargo and 10th anniversary of shipping our first cargo. Throughout this period, we have stayed committed to a culture of safety and teamwork and we are proud of our reputation as a valuable community

partner and a role model for sustainable development in Angola," the company declared.

"As a trusted partner to our buyers, Angola LNG is playing its part in unlocking gas reserves to provide clean and reliable energy, connecting resources with the right markets to help meet worldwide energy demands," Angola LNG said.

Angola LNG project:

1. At \$12 billion, the Angola LNG project, was built to create value from offshore gas resources and is one of the largest ever single investments in the Angolan oil and gas industry and the sale of gas has promoted economic growth in Angola.

2. Angola LNG built one of the world's most modern LNG processing facilities and is the world's

only plant operating entirely from associated gas from offshore oil blocks, located 350km north of Luanda in Soyo, at the mouth of the Congo River.

3. We have delivered 400 LNG cargoes and cargoes have been delivered to about 30 countries worldwide and have covered more than 2,800,000 nautical delivery miles.

4. India has been our most important market and, over the last few years, though more recently Europe has been an increasingly important market.

5. Angola LNG maintains an annual environmental and social programme fund and \$590M has been invested in the local community of Soyo and Zaire province since 2013.



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

JILL EVANKO / CEO / CHART INDUSTRIES

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