LNG Unlimited

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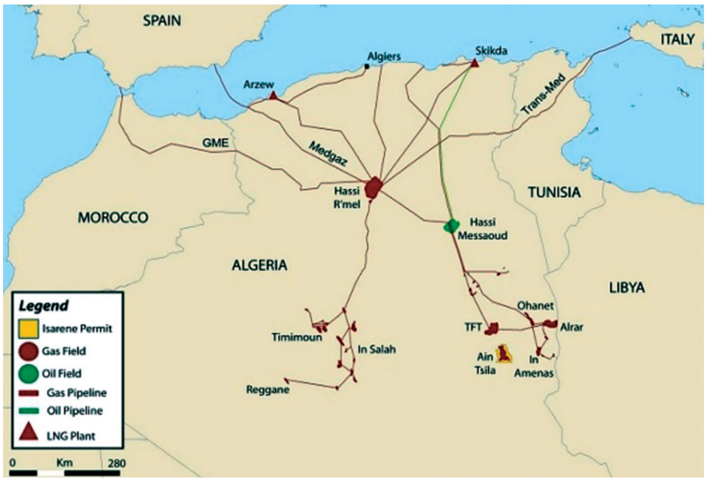
Sonatrach and Total natural gas deal will help underpin LNG ties

Algerian state-run energy company and French partner will develop the Erg Issouane gas field

LNG Journal editor



Total's Algerian assets include gas stakes and LNG volumes

French energy major Total and Algerian oil and gas company and liquefied natural gas producer Sonatrach have signed a new gas agreement and concession contract as part of their existing partnership and closer LNG ties through Total's acquisition of Engie assets.

The contract is for joint development of the Erg Issouane gas field located on the Tin Fouye Tabankort (TFT) Sud permit, signed by Sonatrach, Total and the Algerian upstream regulator, the National Agency for the Valorization of Hydrocarbon Resources.

Joint ventures

The TFT Sud permit is located south of the existing fields in which Total is a long-standing partner.

"The strategic partnership between Sonatrach and Total continues to develop the country's gas reserves by providing the best of our technological expertise," said Patrick Pouyanné, Chairman and Chief Executive of Total.

Sonatrach (51 percent) and Total (49 percent) will develop the reserves of Erg Issouane estimated at more than 100 million barrels of oil equivalent.

The development, representing an investment of around US$400 million, will be tied back to the existing TFT gas treatment plant by a 22-kilometre pipeline. First gas is expected late 2021.

"The partners have also signed a gas marketing agreement. The concession contract will become effective upon approval by the Algerian authorities," said Total.

Total had previously signed a new concession contract for a period of 25 years to extend the exploitation of the TFT field, giving Total a 26.4 percent interest alongside Sonatrach (51 percent) and Repsol of Spain (22.6 percent).

It was noted by Total that this contract has just received the approval of the Algerian government.

Total started up production from the Timimoun gas field in southwest Algeria in March 2018. The Group has a 37.75 percent interest in the field, which has a production capacity of 5 million cubic metres of gas per day.

The French company also holds a 12.25 percent interest in the El Merk, Hassi Berkine and Ourhoud oil fields in Algeria, acquired from Maersk Oil in March 2018 and which have a combined production capacity of 400,000 boe per day.

Total last year acquired the upstream LNG assets of French utility Engie. This transaction added 4.6 million tonnes to the group's global LNG portfolio through supply agreements with Sonatrach.

Algerian LNG exports increased last year to 12.34MT from 11.44MT the previous year as Sonatrach continued to experience feed-gas shortages at its two liquefaction plants at Skikda and Arzew.

French shipments

France slipped to second place as a recipient of Algerian LNG with 3.25MT imported last year compared with Turkey's 3.29MT and 2.00MT shipped to Spain. The other main European importer was Greece with 940,000 tonnes.

Small LNG volumes were also shipped from Algeria to nations outside Europe, including countries such as Egypt and Kuwait as well as India and South Korea.

Algeria remains a substantial pipeline exporter of natural gas to Europe, though it also has room for much improvement to boost capacity and production with more investment in its ample resources.

Total is a shareholder in the fourth and newest French import terminal at the Channel port of Dunkirk. ■

UNLIMITED AGENDA

JGC Corp. CEO says LNG and energy business set for big increase in projects and investment

LNG Journal editor

JGC Chairman and CEO Masayuki Sato makes his points

JGC Corp Chairman and Chief Executive Masayuki Sato, whose company was awarded the LNG Canada contract, said the engineering, procurement and construction business was now surging ahead and a high level of performance was crucial for all contractors worldwide.

"As crude oil prices have topped US$70 a barrel this year, we sensed that international oil companies (IOCs), the oil majors, and national oil companies (NOCs), the state-run oil companies, are becoming more open to capital investment," said Sato.

Resuming

"Large LNG projects are a good example, an area where the market has been stagnant for years. We see signs that these projects are now resuming, driven by increased LNG demand in China, India and Southeast Asia," stated Sato.

The Japanese company is a world leader in building liquefaction plants and has worked on the leading plants worldwide, most recently in constructing the Gorgon and Ichthys LNG plants in Australia and the Yamal LNG facility in Arctic Russia. "Refinery and petrochemical investment continues to rise in Southeast Asia," said the JGC CEO.

"The tide has turned and the plant market is emerging from a long slump. Looking forward to a full market recovery, we aim to secure JGC's highest level of orders ever, at 1 trillion yen ($8.82 billion) with 850Bln yen in overseas orders," he added.

"LNG Canada is a 'lump-sum' contract, and we recognize that monetary amounts for this size of project do carry considerable risk,' said Sato in the JGC annual report in reference to the order won with Fluor Corp. of the US.

"By its very nature, our work in the Engineering, Procurement and Construction business area fulfils a direct role in creating value for society and the environment," explained Sato.

"The issues we can help solve through the JGC business, and the social and environmental value that is created, will provide greater access to energy in a world where energy needs are growing," he said.

"By contributing to economic and industrial development in emerging economies and resource-producing countries, we play a role in bridging the economic gap between developed and developing countries. This also calls for fostering a sustainable, low-carbon society," added Sato.

Tadashi Ishizuka, President and Chief Operating Officer said he had taken part in this LNG Canada project from the proposal stage and spent some time broadly assessing risks.

"Our accumulated expertise and experience from the Ichthys LNG and Yamal LNG projects were applied in the evaluation of construction methods for module fabrication. We took the utmost care in risk profiling," said Ishizuka.

For the Yamal project in Russia JGC had the modules constructed in China and has a cooperation deal with China Offshore Oil Engineering Co.

The Chinese firm constructed the core modules for JGC for the Yamal liquefaction plant near the port of Sabetta in Siberia as part of a contract awarded in 2014 and worth more than $1.64 billion.

"Effective project execution is a matter of mitigating risk," stated the JGC President.

"We have seen positive results from the changes in awareness and risk profiling that we began emphasizing last year to sharpen our sensitivity to project risks," he explained. ■

Shell to make more moves in natural gas sector with ventures like LNG Canada to meet global needs

Royal Dutch Shell has outlined the main reasons why it had a compelling case for proceeding with the LNG Canada export project in British Columbia and it would come on stream at the site in Kitimat at a time of high global demand.

Speaking at a conference in London, Shell Chief Executive Ben van Beurden said that natural gas was extremely important even at a time of change in the global energy system.

He said that Shell's core business is, and will be for the foreseeable future, very much in oil and gas, and particularly natural gas.

"Oil is going to be needed by this world for a long time to come, and gas even more so. And yes, we have made a few big moves into gas," said Van Beurden.

"It is time for me to talk about LNG Canada. Because if anything shows you that Shell means business when it comes to gas, it is this project," stated the Shell CEO.

"We have taken a final investment decision with our joint venture partners and construction on the plant is starting immediately. We expect our first LNG by the mid-2020s," explained Van Beurden.

"The site has access to abundant and low-cost gas. And a lot of the infrastructure is already there: an ice-free port, roads, railway and power," said the CEO.

"LNG from the project will be able to reach Tokyo in half the time of a cargo from the Gulf of Mexico," he stated.

"And it is due to come on stream at exactly the time when we expect demand for LNG to be outstripping supply," he added.

Van Beurden told his audience that LNG Canada was right in two other ways. Both of them crucial to the future of the whole gas industry. "The first of them is that LNG Canada is right on costs. Everything has been done to bring costs down to the minimum without compromising safety," said Van Beurden.

"From using tried and tested modular construction methods to the decision to avoid over-complicating things on a technical level," he added.

The CEO of the Anglo-Dutch company said that the fiscal framework provided by the Canadian government also helped ensure the project could go ahead. ■

Australian state Victoria to have full regas review

The Australian state of Victoria has delayed an LNG regasification project planned by AGL Energy to end energy shortages because the Labor-run government has ordered a full environmental assessment of the venture ahead of November elections.

The AGL joint venture to be located at Crib Point, about 90 kilometres south of Melbourne, had been on track to be the first of several proposed LNG import projects proposed to meet a natural gas supply shortfall expected in southeast Australia from 2021.

The Crib Point project and others proposed to supply the southeast market include shipping LNG cargoes within Australia or from outside sources.

The Labor party government's planned review process will take up to 12 months and means that AGL will have to delay its final investment decision planned for June 2019.

AGL had planned to bring a floating storage and regasification unit (FSRU) to the project at Crib Point.

The company has also signed a berthing lease and jetty agreement with the Port of Hastings Development Authority for the long-term use of Crib Point Jetty Berth 2.

AGL has yet to comment on the delays from the environmental reviews decision, though its shares declined by a quarter of a dollar on the Australian Securities Exchange to A$19.39.

While the AGL project plans to supply the Melbourne region with gas, a second LNG project is aimed at New South Wales and the Sydney area.

It is being developed by Australian Industrial Energy, part of the Minderoo Group, and Japanese companies Marubeni Corp. and Jera Co. Inc.

■

Flex LNG set to acquire five more carriers after share placement

LNG Journal editor

Flex LNG, the growing LNG shipping company listed on the Oslo bourse with shareholders including trusts connected to Norwegian shipping magnate John Fredriksen, is set to acquire five newbuilds at a cost of under $1 billion, partly financed with a private share placement.

Flex had more than doubled first-half 2018 revenues compared with the year before, though reported a loss as it awaited more of its own ships to increase charter operations.

John Fredriksen's Geveran Trading guaranteed transaction

Newbuilds

The five LNG newbuilds comprise three ships with M-type, electronically-controlled, gas injection (MEGI) engines currently under construction at Daewoo Shipbuilding and Marine Engineering Co. in South Korea.

The three vessels are scheduled for delivery in 2020. A further two vessels with dual-fuel propulsion being built at Hyundai Samho Heavy Industries for Fredriksen's Geveran Trading and due for delivery in 2021 are also set to come under Flex ownership. Flex said the five vessels could be acquired for about $918 million. The purchase price includes $180M per carrier on a delivered basis, including supervision costs, plus $6M for each of the DSME carriers for the addition of full reliquefaction systems.

The company completed its private placement of shares on October 11 and said it would proceed with the carrier purchases.

Flex's share placement involved new ordinary shares for gross proceeds of 2.46 billion Norwegian crowns, or around $300M.

The subscription price for the shares was determined by the Board based on an accelerated book-building process," explained Flex. "The net proceeds from the placement will be used to partially fund instalments on the acquired vessels and for working capital and general corporate purposes," it added.

Fredriksen's Geveran Trading, Flex's largest shareholder, guaranteed that the share placement was fully subscribed.

Geveran was allocated 57.64 million shares at 14.25 crowns each and amounting to around $100M. The Fredriksen company retains 44.6 percent ownership of Flex following the placement.

Flex had retained mainly Nordic financial institutions and brokers for the share transaction.

■

Kosmos reports FLNG progress for Senegal and Mauritania Hub

Kosmos Energy, the US exploration and production company based in Dallas, said it was making more progress on developing multiple African liquefied natural gas production hubs offshore Senegal and Mauritania with UK partner BP and an investment decision was due soon.

"The company continues to make progress in Senegal and Mauritania with the Tortue LNG development," said Kosmos in a third-quarter update on its activities.

"The first phase Unit Development Plan has been submitted to the energy ministries of both countries and all parties are aligned and actively working to achieve a final investment decision (FID) around year-end," stated Kosmos.

The Greater Tortue project is aiming for first gas in late 2021 and Golar LNG, the Bermuda-based fleet operator and project company, signed a preliminary charter agreement on the provision of at least one floating LNG production hull.

The first gas from the Kosmos-BP floating LNG Train 1 is scheduled for 2021 and the start of a second FLNG Train is set for 2023.

Golar is carrying out front-end engineering design on behalf of BP's two project companies set up with minority partner Kosmos, BP Mauritania Investments and BP Senegal Investments.

The agreements commit the parties to negotiate future commercial terms for the development of the first phase of the Greater Tortue-Ahmeyin natural gas field on the offshore maritime border between Mauritania and Senegal.

Kosmos has estimated that the Greater Tortue Complex has resources for LNG production of around 25 trillion cubic feet of feed-gas and an additional 15 Tcf is contained in nearby fields.

■

Advertorial

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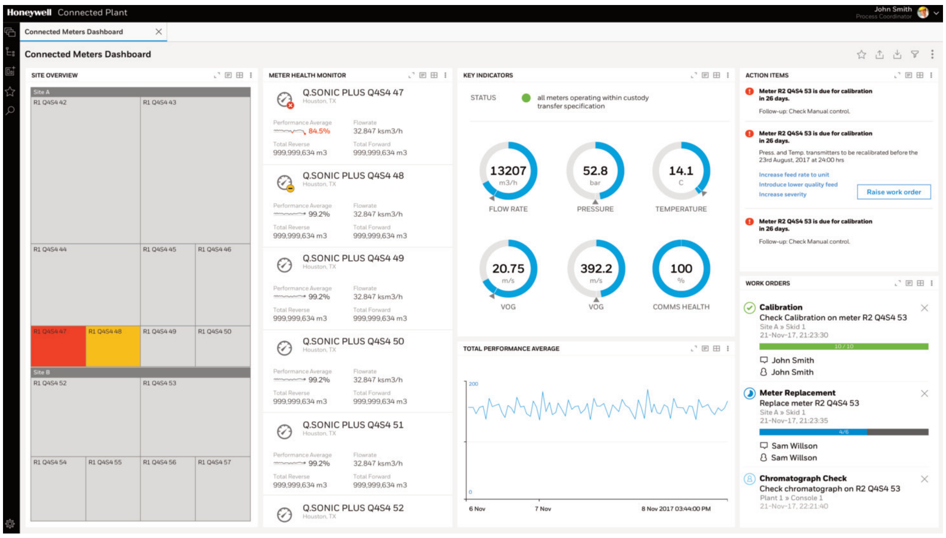

Measurement IQ for Gas Dashboard

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NEWS NUDGES

LNG shipping ceremony

AET, one of the leading petroleum and chemical tanker owners and operators, has named its first LNG dual-fuelled Aframax vessels “Eagle Brasilia” and “Eagle Bintulu” in a ceremony at Samsung Heavy Industries shipyard in Geoje, South Korea. “Both vessels have been taken on long-term charter by Shell International Trading and Shipping Co, primarily for operations in the Atlantic Basin,” said AET, a subsidiary of the Malaysian shipping line MISC Berhad. “The vessels are equipped with conventional single-screw propulsion with a two-stroke main engine, three auxiliary engines and two auxiliary boilers, all equipped for LNG dual-fuel capability,” added AET.

LNG Canada sales deals

Buyers in Japan are seeking LNG Canada volumes. Japanese utility Toho Gas Co. has signed a preliminary sales agreement with a subsidiary of Mitsubishi Corp. for 300,000 tonnes per annum of LNG shipments for 15 years from fiscal 2024 from the Royal Dutch Shell-led LNG Canada project in British Columbia. The proposed sale of the LNG Canada volumes is on an ex-ship (DES) basis whereby Mitsubishi arranges LNG shipping to the Toyo import terminal in Japan.

Pluto LNG contract

Woodside Petroleum, the operator of the North West Shelf and Pluto LNG plants in Western Australia, said it had selected US LNG engineer Bechtel Inc. as the preferred contractor for the proposed expansion of its single-Train Pluto facility.

Nordic energy and LNG overhaul as Lyse gives Gasum all of Skangas

LNG Journal editor


Skangas assets include the small-scale Risavika plant

Lyse Group, the Norwegian company owned by 16 municipalities that first acquired waterfall rights one hundred years ago to help develop hydro-electric power stations, has sold its remaining 30 percent in Nordic LNG company Skangas to majority-owner Gasum of Finland.

The transaction agreement was signed in the Norwegian port of Stavanger and now leaves Finnish natural gas network owner Gasum with 100 percent of Skangas.

Leader

Among its activities, Skangas parent company Gasum imports LNG to Finland and also promotes the processing of waste to produce biogas in Finland and Sweden.

Skangas has become a leading Nordic LNG supplier and continues to strengthen its position with regasfication and bunkering assets to cater for various LNG markets from shipping to the industrial sectors in Finland, Sweden and Norway. It also owns the small-scale Risvika liquefaction plant in Norway.

Gasum first increased its shareholding in Skangas in June 2017 to 70 percent by buying more shares from Lyse.

“Lyse has through Skangas contributed to environment friendly energy solutions and to establish lasting jobs in the region,” said a Lyse statement.

“The investment has given a good return for Lyse,” it added, without disclosing the value of the sale of its final 30 percent stake to Gasum.

“Lyse with this transaction has exited LNG and will in the energy segment going forward mainly focus on its strategy related to efficient utilization of adjustable hydropower,” said the company.

“The new Lysebotn hydropower station, which was opened last month, positions Lyse well for hydropower's new role in Europe,” it added.

“Gasum will through its 100 percent ownership in Skangas be even stronger positioned to build and develop the Nordic gas ecosystem and to respond to growing demand for cleaner fuel solutions,” stated Lyse.

Skangas owns the Finnish LNG import terminal at the port of Pori.

Nova Scotia LNG plant with German supply deal avoids First Nation case

A review board in the Canadian province of Nova Scotia has cancelled a hearing on whether the Goldboro LNG export project being developed by Calgary, Alberta-based Pieridae Energy should consult with native North American First Nations.

The Nova Scotia Utility and Review Board (UARB) said it had cancelled the hearing scheduled for October 15 to review a complaint by a branch of the province’s Mi’kmaq community, part of the Sipekne’katik First Nation.

The hearing’s cancellation followed a letter to the UARB from tribal chief Michael Sack, who formally withdrew objections to the Goldboro project.

“Sipekne'katik is satisfied that any aboriginal and treaty rights of Sipekne'katik will not be diminished nor impinged,” stated Sack in withdrawing his objection.

“No other First Nation or body in Nova Scotia has raised any concern,” said a statement on the issue from the UARB.

“The board will now proceed with the permit-to-construct application,” it added.

Pieridae will now progress towards building the LNG plant with plans to export volumes to Europe and elsewhere under an agreement with German utility Uniper.

The Canadian company has also embarked on a strategy of securing natural gas reserves for liquefaction.

Pieridae noted in its latest earnings report that owning its own reserves was important to provide feed-gas for the Nova Scotia plant to produce 10 million tonnes per annum.

Pieridae has signed a 20-year supply agreement with Uniper for 5 MTPA of its production and is expecting German help with underwriting project financing.

The LNG export plant developer earlier in 2018 agreed to acquire an Alberta natural gas producer, Ikkuma Resources, ahead of its final investment decision on constructing the Goldboro plant.

IMO set to finalize action plan for sulfur cap that will boost LNG and cleaner fuel for shipping

LNG Journal editor

The International Maritime Organization committee overseeing the sulfur cap for shipping from 2020 that is encouraging the change-over to LNG and alternative ship fuels with lower emissions is set to meet in London from October 22-26 to decide a final action programme.

The IMO, which is part of the United Nations and whose headquarters are in the UK capital, said its Marine Environment Protection Committee (MEPC) would hold its 73rd session under Chairman Hideaki Saito over five days.

Programme

"The MEPC is expected to develop and agree a programme of actions to implement the initial IMO strategy on reduction of greenhouse-gas (GHG) emissions from ships, which was adopted in April 2018," it said.

The 2020 implementation date was adopted in 2008 and confirmed by the IMO in October 2016, giving certainty to refineries, bunkering and shipping sectors.

The IMO said that this review could lead to a tightening of requirements for certain new ships.

IMO members to hold talks at London headquarters

The new lower 0.5 percent limit on sulphur content in ship fuel oil will come into force under IMO's MARPOL treaty, with benefits for the environment and human health.

"The new limit will be applicable globally - while in designated emission control areas (ECAs) the limit will remain even lower, at 0.10 percent," said the IMO.

The IMO said it had been working with member states and the industry to support implementation of the new limit.

The MEPC London meeting is also expected to approve ship implementation planning guidance as well as best practice guides for member states and coastal states and for fuel oil suppliers.

"Enforcement, compliance with and monitoring of the new sulphur limit is the remit and responsibility of states party to MARPOL Annex VI," said the IMO.

"The MEPC is expected to adopt a complementary MARPOL amendment, which will prohibit the carriage of non-compliant fuel oil - unless the ship has an exhaust gas cleaning system (scrubber) fitted," it stated.

"Adoption of this amendment would not change in any way the entry into force date of the 0.5 percent limit from 1 January 2020," the IMO explained.

"It is intended as an additional measure to support consistent implementation and compliance and enforcement by states, particularly port state control," it added.

The IMO said that most ships are expected to utilize new blends of fuel oil which will be produced to meet the 0.5 percent limit on sulfur.

Other vessels will have switched to LNG, though the switch-over is a slow process and mostly involved LNG-powered newbuild ships coming into service now or in the future, or dual-fuel vessels.

Currently, the maximum sulfur limit in fuel oil is 3.50 percent globally.

However, it is 0.10 percent in the four ECAs: the Baltic Sea area, the North Sea area, North America (covering designated coastal areas off the United States and Canada) and the US Caribbean Sea area around Puerto Rico and the Virgin Islands.

Japan spot LNG cargo prices rise on back of oil

Japanese spot LNG cargo prices last month on a contracted basis averaged $10.60 per million British thermal units, up 55 percent or $3.70 per MMBtu from September 2017, as the nation's year-on-year fuel costs continued to rise on the higher oil price.

However, spot LNG was little changed on a month-by-month basis and had cost Japan $10.70 per MMBtu in August 2018 compared with $6.90 per MMBtu in September 2017 and $5.80 per MMBtu for delivered cargoes.

The average price of spot cargoes that actually arrived in Japan in September 2018 was $10.10 per MMBtu versus $9.80 per MMBtu in August 2018.

Japanese spot LNG prices have been driven higher by more competition for shipments in North Asia, particularly from China.

The North Sea Brent crude oil price that influences Japanese long-term contract prices also impacts spot LNG and other energy markets and was around $84 per barrel in September.

The spot cargo numbers come from the commerce division of the Japanese Ministry of Economy, Trade and Industry and are only issued if a minimum number of two trades are recorded.

The Ministry emphasizes that "spot LNG" refers to fuel traded on a cargo-to-cargo basis and does not mean shipments under contracts on a short-term, medium-term or long-term basis. The statistical accounting of the spot prices started in March 2014.

Overall Japanese imports rose by 4.4 percent in August compared with the year-ago period even as more nuclear power was on line as LNG cargo costs jumped by more than 28 percent and thermal coal imports increased. ■

UK LNG firm Calor leads way with fuel network and cities initiative

LNG Journal editor

Calor, one of the main providers in the UK of liquefied natural gas and liquefied petroleum gas at filling stations, will showcase its fuel offerings at an exhibition in London as it increases the availability of LNG across the country as part of a government-backed initiative for clean fuel use in British cities.

"Committed to supporting the growth of LNG with the infrastructure and support needed, Calor operates the UK's largest national network of LNG refuelling stations, with stations in Lockerbie, Castleford in West Yorkshire, Lymm in Warrington, Grantham, Wolverhampton and Bristol," said Calor.

Calor trucks load LNG at the Isle of Grain terminal in Kent

Deliveries

"LNG is also ideally suited to urban deliveries," explained the UK company.

"A vehicle running on LNG is far quieter than one that burns diesel in the combustion engine, which means they can operate in inner-city areas where strict noise restrictions may apply," it stated.

Mark Gilks, Transport Specialist at Calor, said: "Our alternative gas solutions emit substantially less carbon-dioxide emissions than conventional fuels such as diesel, while also producing significantly less harmful particulates."

Calor is a leading supplier of LNG and also the sole supplier of new BioLPG and delivers gases and fuel in bulk and by cylinder loads to more than over 350,000 commercial premises across the UK.

"However, it's not just the fuels' green credentials that is driving growth in the freight market," said Calor.

"Competitively-priced and efficient, the ease of switching from diesel to gas is making BioLPG and LNG an attractive proposition to UK hauliers," stated Gilks, whose company will be present at the "Freight in the City 2018" exhibition taking place from November 6 at Alexandra Palace in London.

"We will be promoting our alternative fuel offering for freight operators looking to meet the ambitions of the government's recently launched 'Road to Zero' fuel strategy," explained Calor.

The company said many manufacturers, including Volvo Trucks, Iveco and Scania, are now choosing to fuel their vehicles with LNG. ■

Baltic LNG export plant framework agreement signed by Shell-Gazprom

Royal Dutch Shell has signed a further agreement with Russian natural gas company Gazprom to make progress on plans to build a liquefied natural gas export plant on the northwest Russian coast to supply global markets.

Shell and Gazprom executives signed a framework agreement on the joint design concept for the proposed Baltic venture at a gas forum in Russia.

Gazprom said Vitaly Markelov, Deputy Chairman of Gazprom, and Maarten Wetselaar, a member of the executive committee of Shell, signed the accord in St. Petersburg.

The Baltic proposal that has been around for several years in the study and pre-front end engineering stages, envisages an export plant near the port of Ust-Luga on the Baltic Coast.

The latest Shell-Gazprom signing ceremony was also attended by Alexey Miller, Chairman of Gazprom.

"The document outlines the next stage of the Baltic LNG project in the lead-up to the FEED stage," said the Russian company.

"During the signing process, the parties noted that the joint feasibility study had been successfully completed," it added.

The study relates to a joint venture supplied by pipeline gas and comprising a liquefaction plant to produce an initial 10 million tonnes per annum with an export terminal located about 110 kilometres west of Saint Petersburg.

Gazprom and Shell said they would take further steps in the implementation of the Baltic project.

Gazprom and Shell are already shareholders in the Sakhalin LNG plant in the Russian Far East where two Trains process over 10 MTPA of LNG.

Both companies are also considering construction of a third production Train at the plant as well as the expansion of their joint project portfolio. ■

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LNG producer Abu Dhabi National Oil joins with Baker Hughes-GE in Mideast operations

LNG Journal editor

Abu Dhabi National Oil Company (ADNOC), the leading energy group in the United Arab Emirates and a long-standing LNG exporter with investment plans in downstream projects to boost natural gas production, has signed a deal to allow US energy services firm Baker Hughes-GE to acquire a stake in subsidiary ADNOC Drilling.

BH-GE, listed on the New York Stock Exchange, said it would support the growth and development of ADNOC Drilling into a fully integrated drilling and well construction provider.

Stake

"As part of the agreement, BH-GE will acquire a 5 percent stake in ADNOC Drilling. The transaction values ADNOC Drilling at approximately $11 billion," stated the US company.

The partnership represents the first time that ADNOC has brought an international strategic partner to acquire a direct equity stake in one of its existing services businesses.

The UAE is located in one of

BH-GE CEO Simonelli signs with ADNOC CEO Al Jaber

the world's largest hydrocarbon super-basins with significant potential to tap its undeveloped reservoirs and further develop its existing resources.

"ADNOC Drilling is the largest drilling company in the Middle East and the sole provider of drilling rigs and associated services to ADNOC Group companies," BH-GE noted.

ADNOC's sizeable downstream portfolio comprises eight companies processing 10.5 billion standard cubic feet of gas per day, and with a refining capacity of 922,000 barrels per day of condensate and crude.

They also produce some 40 million tons per year of refined products. The UAE is also one of the oldest LNG producers from the Das Island plant offshore Abu Dhabi consisting of three Trains that process an average of 8 million tonnes of LNG per annum from associated and non-associated gases.

The Das Island LNG plant, commissioned in 1977, is run by Adgas, a subsidiary of ADNOC, and mainly supplies Japan.

The UAE is also an LNG importer at facilities in Dubai and Ruwais to help meet its own domestic gas needs.

At the same time moves are now under way to boost Abu Dhabi's gas production with a planned offshore sour gas mega-project, consisting of the Hail, Ghasha and Dalma fields.

The Hail-Ghasha-Dalma project is forecast to produce about 1 billion cubic feet of sour gas per day when completed.

Under the deal between ADNOC Drilling and BH-GE they will set up an advisory board with representation from both companies to oversee the implementation and ongoing operations, and BHGE will join ADNOC Drilling's Board.

The two partners will be able to leverage ADNOC Drilling's existing rig fleet capacity with limited capital expenditure outlay.

The partnership additionally plans to gain significant new business opportunities, including the potential to offer integrated drilling services beyond the UAE's borders.

"We are very pleased to be partnering with BHGE in ADNOC Drilling, in line with our wise leadership's guidance to create and enhance value across our business by forming strategic partnerships," said Ahmed Al Jaber, UAE Minister of State and the ADNOC Group's Chief Executive.

Future LNG exporter Argentina hosts Qatari visit to finalize shale and energy investments

Leading LNG exporter Qatar discussed its position in shale-gas development in Argentina as the Gulf state's Emir Tamim Bin Hamad Al Thani completed a state visit to the South American nation when energy investments headed the agenda.

The Emir and his delegation met with Argentine President Mauricio Macri and his government to discuss all aspects of bilateral relations, including Qatar Petroleum's stake in the Vaca Muerta Shale play and other energy plans.

Argentina itself is set to become an LNG exporter using its shale-gas resources from its current position as an importer.

Qatar Petroleum, owner of the LNG production complex at Ras Laffan with minority partner ExxonMobil Corp., signed an agreement in June 2018 with the US major to purchase a large stake in ExxonMobil's Argentine shale assets in the prolific Vaca Muerta Shale.

The Vaca Muerta formation, within the onshore Neuquen Basin in northwest Argentina, has similar geological properties to the US Eagle Ford shale play in Texas in terms of its depth, thickness, pressure and mineral composition.

Argentina is still on track to cease LNG imports and become an exporter as substantial shale-gas supplies from its estimated 308 trillion cubic feet of technically recoverable gas resources begin to flow in large quantities from the Vaca Muerta area by 2022.

Argentina is one of the few countries in the world after the US, Canada, China and to a limited extent Australia, to have begun commercial development of shale gas.

Qatar Petroleum has agreed to purchase 30 percent of the hydrocarbon licences for seven blocks in the Vaca Muerta play held by ExxonMobil.

ExxonMobil launched a project in the Vaca Muerta in October 2017 involving the staged development of about 300 horizontal wells with possible production of 11 million cubic metres per day.

The Neuquen Province in Argentina approved ExxonMobil's investment plan for the Los Toldos I South Block under a 35-year unconventional exploitation concession granted to the US major.

Analysts point out that the Argentine shale stake is Qatar's first investment in South America as well as its first significant foray into unconventional oil and gas resources as it seeks to boost its international resources outside of the Arabian Gulf.

The visit by the ruler of the world's largest LNG exporter comes as Argentina itself has initiated a study on developing its first liquefaction and export venture with US floating project specialist Excelerate Energy.