

LNG Unlimited

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LNG engineering sector senses revival before Technip-FMC deal

French company reports 10,000 people on site at Yamal LNG

Our Europe Editor

French energy and LNG engineering company Technip said it was advancing strongly towards its merger with US company FMC Technology as a recovery was sensed in the sector.

Technip reported stable revenues and progress on its Russian liquefied natural gas project and its two floating LNG ventures in the Asia-Pacific region.

Profits rise

Technip said third-quarter net income rose 12.4 percent and revenues were stable as it reported construction modules were on their way from Asia to the Yamal LNG export plant in Arctic Russia.

Technip posted third-quarter net income of 184 million euros (\$200M) as quarterly revenue was little changed from a year ago at 2.9 billion euros (\$3.16Bln) and order intake was 1.5 billion euros.

Thierry Pilenko, Chairman and Chief Executive, who will be Chairman of the merged Technip-FMC company said Technip experienced a "robust operational performance" associated with strong cost reduction measures and an adjusted margin on recurring operations nearing 10 percent.

"In addition, we have made considerable progress towards our merger with FMC Technologies passing major regulatory milestones," he said.

Technip said that as regards its LNG projects, all 78 modules of the Phase 1 construction of the Yamal LNG project sailed away



Doug Pferdehirt (left) of FMC will be CEO of combined Technip-FMC Technologies group and Technip CEO Thierry Pilenko will be Chairman

from China to the Siberian port of Sabetta on the Yamal Peninsula.

The plant is a joint venture between Russian natural gas company Novatek, French energy company Total and China National Petroleum Corp.

"A total of 75 modules have already been delivered to the site and three modules are currently passing through the Northern Sea Route," Technip added.

"Mobilization on site has also been impressive this year, with over 10,000 people now active on the site construction and hook-up," Technip said.

The plant will have a capacity of 16.5 million tonnes per annum of LNG and is scheduled to come on stream by the end of 2017 or early 2018.

"In the Asia-Pacific region, installation works were successfully completed for the Malikai tension leg platform offshore Malaysia, while the Petronas 'FLNG Satu' neared ready for start-up mode," the company said.

Technip said that at the Samsung Heavy Industries shipyard in South Korea integration and commissioning activities continued on the Prelude FLNG hull being constructed for Royal Dutch Shell for eventual

deployment offshore Northwest Australia.

CEO Pilenko was still upbeat on the market outlook and forthcoming merger with FMC, which will be voted on by both sets of shareholders in Paris and the US on December 5.

"Our teams are busy tendering on new projects, even if the picture is varied across geographic regions," he said.

"Onshore-Offshore remains quite robust and we continue to see opportunities to get involved early with customers, positioning ourselves for future projects.

"The resilience of this segment is underpinned by our long-lasting client relationships, our front-end presence and our proprietary technology," Pilenko stated.

Regarding the merger with FMC, Technip said that along with obtaining anti-trust clearance in most countries, foreign investment approval has been obtained in both the US and France.

"As a result, we confirm that both companies will hold their shareholders' meetings on December 5 and this would enable our merger to close in January, earlier than originally planned," Technip said.

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Japanese and US engineers compete for final Canadian Woodfibre LNG contract

Our Asia-Pacific editor

Energy and liquefied natural gas engineering companies JGC Corp. of Japan and KBR of the US are taking part in a front-end engineering and design run-off to win the final contract for the Canadian Woodfibre LNG project of Indonesian billionaire Sukanto Tanoto and his Pacific Oil and Gas company.

The scope of the competitive FEED tender includes development and engineering procurement and construction proposals and pricing for a liquefaction plant and export facility with 2.1 million tonnes per annum of capacity.

Mid-scale

The Woodfibre project is a mid-scale LNG facility located on a brownfield site of a former pulp mill on the shores of Howe Sound in the District of Squamish, north of Vancouver.

The liquefaction plant and infrastructure is on the traditional lands of the Squamish First Nation and they have been given some input on environmental issues and the cleanest technology choices.

In the engineering competi-

tion, separate FEED contracts have been awarded to both KBR and JGC. The two companies have also previously worked together on building LNG plants.

The two companies will conduct the engineering and design studies in parallel and will produce lump-sum, turn-key proposals for the final engineering, procurement and construction contract.

"KBR and JGC are world leaders in LNG engineering and design," said Byng Giraud, Vice President of Corporate Affairs for Woodfibre project company.

"We are very pleased that they are providing their world-class expertise to our project," Giraud added.

"By awarding the FEED contracts, we are also sending our strongest signal yet that the Woodfibre LNG Project is close to becoming a reality," Giraud stated.

"The decision on which group will be awarded the EPC contract will be based on their EPC proposals that will be submitted at the end of the parallel FEEDs," Woodfibre said.

JGC Corp. President Koichi Kawana, said the contract award



Asia-based Pacific Oil and Gas is developing Squamish plant

was a testament to the Yokohama-based company's history of bringing technical knowledge, modularization leadership and expertise to LNG projects across the globe.

"We look forward to working closely with the Woodfibre LNG team to deliver a project that achieves their business objectives and contributes to the responsible economic growth of the community and the region," Kawana added.

Farhan Mujib, President of KBR's Engineering & Construction business in the Americas, said the company was pleased to continue its work for Woodfibre.

The Woodfibre plant when completed will initially receive feed-gas from a Canadian utility, FortisBC, which will extend a pipeline to the plant.

The facility earlier in 2016

became the first LNG export project in the province of British Columbia to receive its full environmental approval from the federal ministry in Ottawa.

Woodfibre has already signed a contract to supply China's Guangzhou Gas Group with 1 MTPA of LNG over 25 years, starting in 2020.

Squamish First Nation Chiefs and the tribal council also voted on October 21 to select air cooling as the technique Woodfibre LNG will use to cool its natural gas in the LNG production process.

The choice of cooling technology is one of 13 conditions in the Squamish Nation's environmental assessment agreement for the proposed Woodfibre project.

The advance of engineering work was also linked to the decision by the Squamish First Nation to vote on its independent review of Woodfibre's preferred cooling technology from three options: seawater cooling, air cooling or air cooling with freshwater spray. The review incorporated scientific and environmental analysis alongside traditional culture.

Kobe Steel gets dual-fuel equipment order for Japanese-German LNG carrier

Kobe Steel of Japan said it received an order for two screw compressors for use with marine dual-fuel engines in a liquefied natural gas carrier being built for a joint venture involving two Japanese companies and Uniper Global Commodities of Germany.

Kobe Steel said this is the first time that screw compressors will be used to supply fuel to marine dual-fuel engines.

The compressors will be installed in an LNG carrier to be owned by a 50/50 venture between Mitsui OSK Lines and Itochu Corp. of Japan and Uniper, one of Europe's largest power and gas companies.

Kobe Steel explained that Uniper

would charter the new carrier for 20 years. Plans call for Kobe Steel to deliver the compressors in August 2017 to South Korea's Daewoo Shipbuilding & Marine Engineering, which is constructing the vessel.

"The market size of non-standard compressors for marine dual-fuel engines is forecast to total over 20 billion yen for the coming five years," according to Kobe Steel.

Kobe Steel said it aimed to secure over 50 percent of the market by 2020.

"Nonstandard compressors for marine dual fuel engines are generally used to compress vaporized LNG, namely boil-off gas (BOG), which is then sent to the engines.

"To date, marine dual-fuel engines have been of the middle speed, four-stroke type and driven predominantly by low gas pressure and the compressors for these engines have only been centrifugal compressors, which excel at low-pressure compression," the company explained.

"However, in recent years due to the need to save energy in ship operation and comply with stricter environmental regulations, dual-fuel, low-speed, two-stroke engines that offer high efficiency with a 10-percent improvement in fuel consumption have entered the market.

"In the future, this type

of engine will become the mainstream as its adoption is being considered for nearly all new vessels," Kobe said.

"These engines need to have their fuel gas (FG) pressure controlled within the allowable level of the load percentage of the engines.

"Screw compressors are highly suitable for these engines as they can keep pace with load fluctuations and operate most efficiently in the medium-pressure to high-pressure range," Kobe added.

"Owing to this feature, screw compressors have been adopted for use with marine dual fuel engines for the first time," it said.

European gas and LNG player Statoil posts wider loss

Norwegian energy company Statoil, operator of the only European LNG export plant, said its third-quarter losses widened compared with last year as results were hit by low oil and natural gas prices, extensive planned maintenance and expensive exploration wells from previous periods.

Statoil posted net losses of \$427 million compared with \$343M of losses in the same three months of 2015.

The company's results showed net operating income for Development and Production Norway (DPN) dropped more than 35 percent to \$1.06 billion compared to \$1.69Bln in the third quarter of 2015.

Cash flow from operations amounted to \$7.0Bln after tax in the first nine months of 2016 compared with \$11.4Bln in the same period last year.

The LNG plant at Hammerfest provides only a small fraction of overall income from its single Train producing around 4.2 million tonnes per annum.

Natural gas sales volumes in the third quarter amounted to 10.5 billion cubic metres, down 14 percent compared with the same quarter of 2015.

The decrease was due to lower Statoil entitlement production mainly on the Norwegian continental shelf.

Statoil said average daily overall production of liquids and natural gas decreased by 12 percent to 1,034 million barrels of oil equivalent per day.

Statoil posted net operating income of \$737 million and adjusted earnings of \$636M in the three months to the end of September.

As of the end of September, Statoil said it had completed 21 exploration wells.

Global LNG Exchange in countdown to London and Singapore auctions

Our Asia-Pacific editor

The Australian-run Global LNG Exchange is progressing with its plans to facilitate spot cargo sales during Singapore and London business hours whereby parties will initiate an auction, set the commercial terms, including a reserve price and select the counterparties they wish to invite.

GLX also plans to support the development of transparent regional price benchmarks for the commodity.

Open to all

The platform is open to all buyers and sellers of LNG to trade single cargoes and will commence operations in early 2017.

GLX founder and Chief Executive Damien Criddle said the LNG market had grown substantially in recent years, with about 75 sellers and 75 buyers engaged in the worldwide trade.

The Perth-based executive, a former Royal Dutch Shell lawyer, has launched the GLX platform with other energy executives, including Rob Cole, an ex-Woodside Petroleum director who is company Chairman.

The exchange was conceived by Criddle who hopes the online auctions will replace the current system of buy and sell tenders that

are issued and bid on by traders through e-mails, instant messages and phone calls.

The parent company GLX Holdings is based and registered in Perth, while the online exchange would operate from Singapore.

GLX was set up a year ago and is formally registered as an Australian private company.

"A global exchange for LNG means sellers can be satisfied they are securing fair market prices for their spot cargoes, rather than relying on their own market intelligence and the strength of their relationships," Criddle said.

"Equally, buyers of LNG can now go to the exchange and secure a cargo from anywhere in the world by simply registering their interest and eliciting the best value bid from a range of suppliers.

"GLX will provide a greater level of transparency for market participants and provide buyers and sellers of LNG with greater assurance that spot cargoes are being traded for their true market value.

"Importantly, GLX will also allow LNG sales to be conducted with speed and simplicity," stated Criddle.

The GLX platform was developed in Australia by LNG industry professionals who saw the opportunity for LNG trading to undergo a technological transformation.

Development of the platform was undertaken in consultation with a number of sellers and buyers in the sector, with the feedback being incorporated into the final design.

GLX will operate the platform in Singapore, with auctions being conducted based on either Singapore or London time.

"Parties initiating an auction set the commercial terms, including a reserve price, and select the counterparties they wish to invite into the auction. Successful auctions result in binding sales contracts," GLX explained.

The company pointed out that short-term sales now represent nearly 30 percent of the global LNG trade, or about 1,200 cargoes per year.

GLX Chairman Cole said the company had consulted extensively with LNG sector participants, industry commentators and interested governments to create an exchange which was deliberately unaligned with any market or regional interests.

"We have sought to create a truly independent platform which serves the interests of all participants, which is a market operating on demand and supply fundamentals and based on fair and transparent pricing," Cole said.

"The global LNG industry has matured sufficiently to move to a digital platform for spot sales which can support growth in supply and demand.

"Other globally traded commodities such as coal and iron ore have moved to online platforms and we believe the time has come for the LNG industry to embrace this technology," said Cole.

Approved LNG companies are undertaking trials of the platform to ensure they are familiar with its operation before live trading commences.



GLX founder and CEO Damien Criddle gives more details



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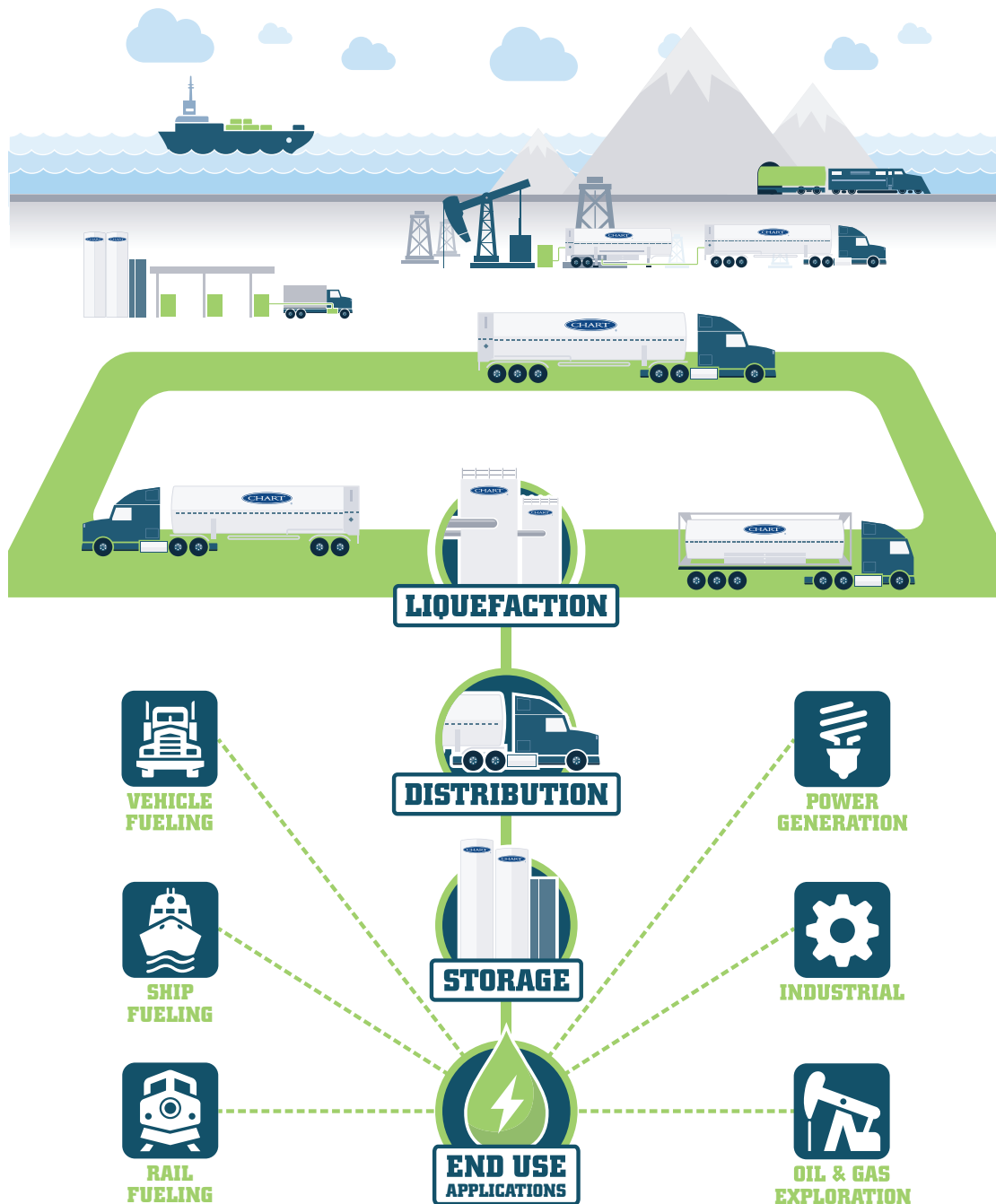


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NEWS NUDGES

Amec FW progresses

Energy and LNG engineering company Amec Foster Wheeler said it was making good progress in defining strategies for a new market-led operating structure amid cost savings and strong trading. "We are on course to deliver resilient trading results for this year and next despite the continuing weakness in some of our key markets," said Jon Lewis, Chief Executive of Amec FW. "This is only possible due to the diversity of our business and the initial contribution from additional sustainable cost savings we started in June. The review has also confirmed a number of challenges and highlights a range of new opportunities across our markets," he added.

Santos gas asset sale

Australian Asia-Pacific LNG project stakeholder Santos announced the sale of assets in the state of Victoria to Cooper Energy for A\$82 million (US\$63M) in cash. The sale, which included a 50 percent interest in the Casino-Henry gas project and 50 percent of the Sole gas field and the Orbost gas plant, will result in Santos exiting from its projects offshore Victoria. Santos, operator of the Gladstone LNG project in Queensland, has already sold the Kipper natural gas field for A\$520M.

LNG carrier transfer deal

GasLog Partners and affiliate GasLog Ltd have entered into an agreement for the partnership to purchase the "GasLog Seattle" carrier for \$189 million. This is the third vessel transfer between the firms. GasLog Partners expects to finance the acquisition with cash on hand, including proceeds from its recent equity offering.

Fench LNG tanks technology firm GTT will equip Maran Gas carriers

Our Europe editor

Gaztransport and Technigaz, the French maritime storage tank technology company, has received an order to provide tanks for two carriers being built in South Korea for Maran Gas as the Greek shipping operator continues to increase its LNG fleet.

GTT said its orders came from Daewoo Shipbuilding & Marine Engineering for the Maran Gas newbuilds at the Geoje shipyard in Korea.

Membrane

The two ships will be equipped with GTT's No. 96 cryogenic membrane containment system and are scheduled to be delivered by 2019.

"This order reinforces our long-standing relationship with DSME who have already received 147 ship orders with the No. 96 technology," said GTT Chairman and Chief Executive Philippe Berterottiere.

"With a fleet of 20 vessels, entirely equipped with membrane solutions, Maran Gas is a major player of the maritime industry.

"This new contract reflects the level of confidence between Maran



Maran Gas carrier newbuild traverses the Panama Canal

Gas, the Korean shipbuilding industry and GTT," the GTT CEO added.

GTT explained that with 143 vessels equipped in the world, and 59 on order, the No. 96 storage tank range is regarded as "sea proven."

The French company said that since the tank's commercial launch in 1996, it has constantly been developed by GTT "on the basis of significant feedback from operational experience" at sea.

"These evolutions allow, among other things, the matching of the requirements of the latest propulsion systems," GTT added.

The company last received an

order on October 11 for two 180,000 cubic metres capacity LNG carriers being built at the Korean yard of Samsung Heavy Industries for Monaco-based shipping company GasLog.

The ships being built at SHI are being fitted with the more modern Mark V tanks.

GTT is listed on the Euronext exchange and its stock was last trading at 30.35 euros per share on October 25, which is about 50 percent higher than the 2016 low of 20.62 euros hit on February 12 because of the malaise in the shipbuilding industry.

LNG technology enables opening of US surge by shale-gas derivative

Indian group Reliance Industries has taken delivery of the world's very first two ethane carriers to feature the storage technology previously only provided by French company GTT for liquefied natural gas carriers.

Reliance will use the vessels to transport ethane exports derived from shale gas from the US to India.

The Reliance ships were at the centre of a hand-over ceremony at the South Korean shipyard at Geoje operated by Samsung Heavy Industries.

The vessels, named "Ethane Crystal" and "Ethane Emerald", are the world's first ethane carriers to feature GTT's membrane storage technology.

GTT noted that the "flexibility

and the intrinsic characteristics offered by the GTT membrane solutions allowed this technological leap" and that the ethane carriers can be converted to transport LNG if so required in the future.

As the US prepares to export large volumes of LNG in the next few years, the availability of low-cost US ethane from the huge shale-gas reserves has revitalised America's chemical industry.

The shale-gas derivative is also much sought after abroad by foreign chemical companies as a less expensive alternative to naphtha, the oil-based feedstock to make chemicals.

To date fewer than 30 ethane carriers have been contracted to

lift US cargoes and the first five transatlantic vessels are already in service shipping ethane to Europe.

For transport by sea ethane must be either fully refrigerated or have both temperature and pressure controlled in storage.

The French company said the vessels are the first of a series of six ordered by Reliance in 2014, which will be fitted with GTT's membrane containment systems.

With a capacity of 87,000 cubic metres, these two vessels are the largest ethane carriers ever built. They feature a GTT Mark III Flex membrane containment system which is the key equipment of the vessels.

Egypt tenders for almost 100 LNG cargoes to meet demand before Zohr field is on stream

Our Middle East editor

State-run Egypt Natural Gas Holding Co. has released tender documents to secure almost 100 LNG shipments in 2017-2018 to meet rising demand before offshore pipeline supplies come on stream from the world-class Zohr natural gas field.

Egypt has launched what is one of the largest LNG cargo tenders for 96 shipments. EGAS, in announcing the purchasing process, said it had also included 12 optional cargoes in the tender.

Noted

EGAS noted in its documents that the payment period in which suppliers can expect to get paid in US dollars has been extended from 90 days after the date of delivery to between 120 and 180 days, reflect-

ing Egypt's tight currency reserves.

EGAS tendered for 45 LNG cargoes in October 2015 and received competitive bidding from seven international suppliers.

The same companies will be involved again with others and will likely include Royal Dutch Shell, BP of the UK, France's EDF Trading, Spain's Gas Natural, PetroChina and international commodities companies Vitol and Trafigura.

The cargoes will be directed to the Egyptian LNG import terminal port of Ain Sokhna, located in the Gulf of Suez, where cargoes from as far away as Australia have been received.

Egypt has two Floating Storage and Regasification Units deployed at Ain Sokhna to handle imports to satisfy its demand.

The Egyptians began importing

LNG in April 2015 to satisfy natural gas consumption, which increased by an annual average of 7 percent over the previous 10 years.

One of the FSRUs is at Ain Sokhna under a five-year charter from Hoegh LNG of Norway and the other import facility was supplied by Singapore-based BW Gas.

While issuing the LNG cargo tender, EGAS is also counting on the fast-track development by Italian energy company Eni of the Zohr natural gas field offshore the East Mediterranean coast with confirmed resources in place of 30 trillion cubic feet.



Egypt natural gas firm tries to keep pace with demand

Eni was given the go-ahead in February 2016 by the Egyptian Ministry of Petroleum and Mineral Resources to develop the Zohr field, discovered in its Shorouk block licence area.

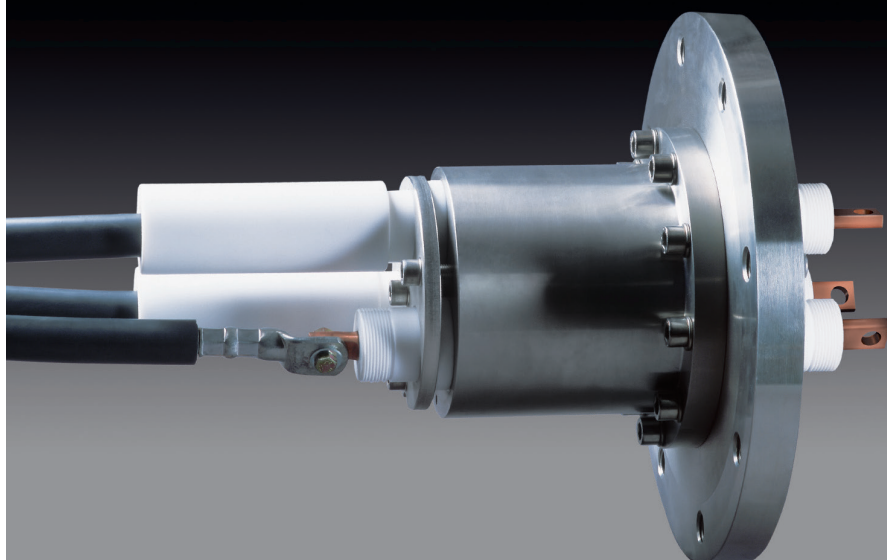
The Eni discovery will go some way to satisfying Egypt's domestic natural gas needs, while possibly helping to revitalize its two LNG gas export plants.

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Shipments to China almost double on new volumes

Chinese liquefied natural gas imports almost doubled in September as supplies expanded and flowed wider in Asia from new liquefaction and export volumes in Australia.

China's import terminals received 2.53 million tonnes of LNG in September, a 95.5 percent rise on the 1.29MT imported in the same month of 2015, according to data from the General Administration of Customs.

More LNG arrived in China from the new export plants in Queensland, which use coal-seam-gas to make LNG at three plants at Curtis Island near the port of Gladstone.

China had received one LNG cargo in August from the US plant at Sabine Pass in Louisiana but none in September.

The vessel involved was the 161,870 cubic metres capacity "Maran Gas Apollonia", which unloaded its shipment on August 21 at the Guangdong Dapeng Bay LNG terminal on the Pearl River delta. The facility is owned and operated by China National Offshore Oil Corp.

The Chinese received 20.02MT for all of 2015 at its network of terminals, now numbering 14 facilities. The total of annual imports for 2016 is likely to be little changed from last year.

China also has a large domestic natural gas supply base from its own production as well as imported pipeline gas supplies, so the fall in LNG shipments has to be viewed in that context.

The big three Chinese national oil companies, China National Offshore Oil Corp., PetroChina and Sinopec are not presently able to absorb all of their contracted LNG supplies and are sellers of uncontracted volumes.

Overall, the 14 LNG import terminals have a utilization rate of only 50 percent at present.

South Korean shipyard advances with ClassNK on LNG bunker ship

Our Asia-Pacific editor

Japanese marine classification society Nippon Kaiji Kyokai, which has almost 60 liquefied natural gas carriers on its books, has issued an approval in principle for an LNG bunkering vessel to be built in South Korea.

The society, known as ClassNK, issued the approval for a 7,500 cubic metres capacity LNG bunkering ship designed by Hanjin Heavy Industries and Construction Co., based at the South Korean port of Busan.

Research

The design is the result of joint research carried out by Hanjin Heavy and ClassNK to improve the efficiency of LNG bunkering vessels.

"The choice of LNG as ship fuel has become increasingly prevalent in the industry and is expected to become one of a primary source of fuel in the near future," the class society said.

"However, LNG fueled vessels are currently largely dependent on existing infrastructure comprised mainly of fixed bunker locations at ports, potentially limiting their operations," ClassNK pointed out.

The Japan-South Korea project was set up because of the need for greater flexibility that LNG bunkering vessels could provide through ship-to-ship bunkering.

Hanjin Heavy and ClassNK have, therefore, worked together to improve the viability of the ship technology.

The shipbuilder is the fourth-largest in South Korea, which has led the world in recent vessel construction through Hyundai Heavy Industries, Daewoo Shipbuilding and Marine Engineering and Samsung Heavy Industries.

The Hanjin Heavy design employs type-C bi-lobe tanks, improving on cargo capacity to allow for greater efficiency and productivity.

The AIP was granted after con-

firmed the design complies with ClassNK's Rules and Guidance for the Survey and Construction of Steel Ships.

This approval also allows the design to be considered for further individual projects, whereby tests on the hull structure and direct stress analyses will be carried out to ensure it is in line with classification rules and the International Code for the construction and equipment of ships carrying liquefied gases in bulk (IGC Code).

"Hanjin Heavy Industries and ClassNK have always enjoyed close cooperation and this design is just one of the fruits of our relationship," said Takashi Nishibashi, ClassNK's Manager for South Korea.



Executives from ClassNK and Hanjin Heavy Industries

Japanese LNG imports fall amid fewer Middle East cargoes and more coal

Japanese liquefied natural gas imports dropped last month as the nation imported more thermal coal for power generation and took additional LNG shipments from Australia and Russia and fewer from the Middle East.

Japan's shipments last month amounted to 6.67 million tonnes, a decline of 3.5 percent compared with 6.91MT imported in the same month of 2015.

There were also fewer spot cargoes as Japan couldn't even publish a spot cargo price in September for delivered cargoes as there were fewer than the required two deals reported.

The monthly imports cost 249.07 billion yen (\$2.29Bn) compared

with 416.11Bn yen (\$4.02Bn) in September 2015.

This means that LNG costs for Japan have fallen by around 40 percent in the past year as even long-term, oil-linked contract terms have softened.

Current average prices paid by Japan are around an estimated \$6.63 per million British thermal units compared with \$11.23 per MMBtu a year ago, including oil-linked volumes.

Thermal coal imports rose by the corresponding amount of the fall in monthly LNG shipments, increasing 3.5 percent to 10.12MT.

Japanese LNG shipments for August had unexpectedly surged 9.4 percent after falling in the

previous four months as lower prices stimulated demand at the expense of thermal coal.

The August 2016 deliveries were 7.72MT in total compared with 7.06MT in the same month of 2015.

The import figures from the Ministry of Finance showed that total shipments of LNG from the Middle East plunged 11.1 percent year-on-year.

Deliveries from countries like Qatar, the United Arab Emirates and Oman amounted to just 1.51MT.

Asian deliveries in September rose by 2.6 percent from a year ago from nations such as Malaysia and Indonesia, Papua New Guinea and Brunei. The shipments last month amounted to 2.03MT.

Kinder Morgan prepares to start building US export plant on Atlantic coast of Georgia

Our North America editor in New York

Kinder Morgan, the largest energy infrastructure company in North America, is making preparations for the expected start in 2017 of construction work to transform the Elba Island liquefied natural gas terminal on the Atlantic coast of Georgia into an export plant.

The US Federal Energy Regulatory Commission has issued a notice to proceed to Kinder Morgan subsidiaries, Elba Liquefaction Co. and Southern LNG, with work related to the South Channel Barge Dock construction.

Dredging

The work includes dredging and in-water pile driving on land near the existing import terminal so that materials can eventually be brought in for the export plant construction project.

The South Channel Barge Dock is on an adjacent water-

way behind the turning basin of the import terminal.

The Elba liquefaction project, in which Royal Dutch Shell was previously a partner, will include the installation of 10 small-scale liquefaction units for an output capacity of around 2.5 million tonnes per annum of LNG and modifications to the terminal.

Under the current schedule, the Georgia liquefaction plant could be producing LNG by the start of 2018.

Kinder agreed in July, 2015,

to buy Shell's 49 percent stake in the Elba Island terminal, leaving the pipeline company with 100 percent of the facility through its subsidiaries.

While Shell sold its stake in the terminal, the Anglo-Dutch company remains as a future customer of the plant.

In April 2016, Kinder awarded the engineering, procurement, construction, commissioning and start-up contract to the US subsidiary of Japan's IHI Engineering & Construc-

tion, based in Houston, Texas.

The Elba export project would use the existing South Channel Barge Dock to transport materials and equipment to the island for building the new infrastructure.

The existing terminal on Elba Island is about eight miles upstream from the mouth of the Savannah River. It was first authorized by the FERC in 1972 as an import facility.

Changes to the Elba Island terminal include the installation of the small modular liquefaction units, a flare system, as well as other infrastructure and modifications to the piping system.

"The applicant is proposing to modify the existing barge dock to include repair of the existing bulkhead; dredging to the authorized depth of -8 feet plus 2ft of allowable over-dredge; removal of existing isolated piles and pile clusters and the installation of breasting dolphins," it was noted.



Elba Island LNG terminal to start export plant transition

Australian company Santos benefits from LNG ramp-up at Gladstone and sales in PNG

Australian energy company Santos said its liquefied natural gas sales volumes more than doubled to 755,500 tonnes, reflecting the ramp-up of the Gladstone LNG plant in Queensland and a strong performance from Papua New Guinea LNG.

Santos said the GLNG plant on Curtis Island, whose shareholders also include Malaysia's Petronas, French energy group Total and Korea Gas Corp. produced 1.3 million tonnes of LNG in the quarter and shipped 21 cargoes.

Volume shares

The Adelaide-based company, which also has a stake in the Darwin LNG plant in the Northern Territory operated by ConocoPhillips, said its share of LNG sales income amounted to US\$227 million com-

pared with US\$148M in the same quarter of 2015 when volumes were less than half what they are now.

In 2016 so far, Santos has received US\$617M from sales of 2.05 million tonnes of LNG.

Santos said the average LNG price received for its volumes was US\$5.72 per million British thermal units compared with US\$8.47 per MMBtu in the year-ago quarter.

Over the past year the GLNG has increased production and brought on stream its second liquefaction Train.

Santos said that in its overall energy business third-quarter production rose 7 percent to 15.5 million barrels of oil equivalent.

The company also said it had started transactions under a new oil price hedging policy

Santos Managing Direc-

tor and Chief Executive Kevin Gallagher said the company continued to focus on driving down costs and applying available cash flow to reduce debt.

"We are taking the right steps to ensure Santos becomes a strong and sustainable business, and that mindset guides our decision making as we continue to reduce costs and maintain a strong capital discipline.

"Furthermore, our decision to commence oil price hedging reflects our desire to reduce the effect of commodity price volatility," Gallagher said.

In project reports, Santos explained that feed-gas delivered to the GLNG plant during the quarter was 80.1 petajoules of indigenous production, including from the Santos portfolio and

third-party purchased quantities.

The LNG plant has shipped a total of 60 LNG cargoes since it started up in September 2015.

A planned three-week statutory inspection shutdown of LNG Train 1 commenced in early October.

Santos added that the planned shutdowns of the Fairview feed-gas hubs 4 and 5 have been aligned with the Train 1 shutdown.

As regards the PNG LNG plant operated by ExxonMobil and in which Santos has a stake, the facility produced 2 million tonnes of LNG in the quarter and shipped 27 LNG cargoes.

The Darwin LNG plant produced 830,000 tonnes in the quarter and shipped 13 cargoes.