



China ready to exempt U.S. LNG and crude oil from extra tariffs

The Chinese Government is open to applications for tariff exemptions on several U.S. products, including crude oil and LNG, starting from March 2, 2020. The long-anticipated announcement was widely welcomed by traders, though there are concerns about long-term demand destruction due to the coronavirus outbreak.

China had imposed additional tariffs on U.S. goods in retaliation to the U.S. Section 301 tariff measures. It had imposed a 10 percent tariff in September 2018 and increased the tariff to 25 percent from June 1, 2019, effectively halting gas trade between the two countries.

By granting exemptions on some retaliatory tariffs, Beijing strives to comply with commitments in latest Phase-1 trade agreement with Washington. The deal stipulates China will take an additional U.S. energy exports worth some \$18.5 billion this year and another \$33.9 billion in 2021.



Coronavirus curbs China's demand by 14 Bcm

Analysts anticipate this commitment will ultimately help rekindle Chinese demand for U.S. commodities, even though the coronavirus outbreak has seriously affected China's demand for oil and gas both from industry, transport and the power sector.

China's coronavirus health crisis has slashed the country's gas demand by 2 billion cubic metres (Bcm) by the end of the first week

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JKM-TTF gas price spread may turn negative this summer

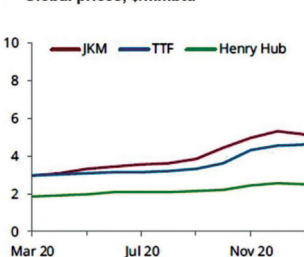
Pressure keeps piling up on the Northeast Asian LNG market as the coronavirus outbreak destroys demand. The Japan-Korea-Marker (JKM) for Apr-20 and Mar-20 delivery contracts trade at a discount to the Dutch TTF hub. For summer, Energy Aspects anticipates spreads as low as -0.15 \$/MMBtu.

For Qatari spot supply it is more attractive to head rather to European gas markets than to Asia. For US cargoes, a JKM premium at 0.51 \$/MMBtu would be still insufficient to offset the higher freight costs for US cargoes to go to Northeast Asia ahead of Europe.

The pace of recovery in Chinese LNG buying hinges on the ramp-up of economic activity in the coming weeks. Analysts anticipate a rather slow rebound which could leave gas demand subdued throughout most of the second quarter.

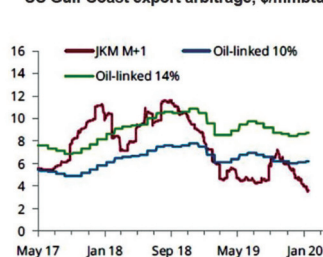
Though workers were to return to work on February 14, many factories appear to remain shuttered amid reports that many people are not returning

Global prices, \$/mmBtu



Source: CME, Energy Aspects

US Gulf Coast export arbitrage, \$/mmBtu



Source: Kpler, Energy Aspects

until March 1. Travel restrictions between affected provinces and quarantine measures are also greatly reducing demand for petroleum and natural gas.

Q2-2020 may be worst hit

With China's three main LNG importers all having declared 'force majeure' for Q1 delivery, between

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in February, mostly due to industry closures and quarantined workers. Anticipating a "limited resumption of economic activity," Wood Mackenzie says full-year 2020 gas consumption could be between 6 Bcm and 14 Bcm lower.

"LNG will bear the brunt of this reduction in domestic gas demand," analysts commented, estimating the downside impact to Chinese LNG demand as between 2.6 million tonnes (Mt) 'best case' with recovery by April, and 6.3 Mt in a more 'prolonged case' with a slower return to normal.

China imported 1.53 million tonnes of US LNG in 2017, and 1.64 mt in 2018 but imports plunged in 2019 to just 258,955 tonnes because of the trade war, while the Chinese purchased 60 mt from other countries. CNOOC, which has long-term offtake contracts, has been forced to swap U.S. cargoes for non-U.S. cargoes to avoid tariffs of 25 percent, sometimes at high premiums, because of uneconomic US-Asia arbitrage.

However, China's gas demand growth started to tumble even prior to the outbreak due to the slowing economy. Given that 60

percent of Chinese gas demand comes from power and industry, the coronavirus infections impact the gas market at a time of underlying weakness.

Assuming a relatively quick containment of the virus, Wood Mackenzie expects slower Q1 economic growth in China at 5.8 percent year-on-year, before a notable rebound to 6 percent in Q2. In contrast, the China Academy of Social Sciences warned that economic growth could fall below 5 percent in the short run, which would be much more damaging to the global economy. ■

Shell, Total dismiss CNOOC's 'force majeure' to cancel LNG deliveries

Royal Dutch Shell and Total have rejected China National Offshore Oil Corp's (CNOOC) move to invoke 'force majeure' to cancel LNG import contracts. Though CNOOC can still cancel delivery of spot cargoes, the two European suppliers threatened to seek compensation.

CNOOC took the drastic step encouraged by the Chinese government, which said it would hand out 'force majeure' certificates to domestic companies if they cannot fulfill their offtake obligations as the coronavirus crisis accelerates. Beijing apparently tries to mitigate potential losses of state-owned gas companies.

PetroChina and Sinopec are also understood to be considering invoking 'force majeure' on some contracts, given that they cannot get enough workers to run their regasification and import terminal at full capacity.

"Those of a more cynical disposition would say this may be an attempt to unwind long-term LNG sales and purchase contracts using force majeure as an excuse, on the basis the LNG spot market prices are significantly lower and there is excess supply in the market right now, with potentially new suppliers whispering in the ear of the buyers that they can achieve same volumes at

much lower prices," commented Myles Mantle, partner at law firm Haynes and Boone.

Force majeure is usually aimed at dealing with events such as unforeseen operational outages, rather than changes in broader economic circumstances in which case the risk lies with the buyer. Most long-term LNG purchase contracts include take-or-pay obligations, which require a buyer to pay for a certain quantity of LNG even if it doesn't take, on the understanding that the buyer can receive some of the volume at a reduced price in the future.

Short-sighted cancellations damage relations

Cancelling contracts outright could be "short-sighted," analysts noted, as spot market does are not significantly developed to be able to cover the volumes required by Chinese buyers, at normal times.

Should more Chinese importers invoke 'force majeure', this would "severely damage relationships and willingness of suppliers to enter into long-term contracts in the future," Mantle noted. Particularly, where U.S. suppliers have used those long-term

contracts as a basis of FID and financing for their liquefaction and export facilities.

Analysts agree it might take time for to justify this virus outbreak as force majeure. "While it might affect a buyer's ability to fulfill its contractual obligations, most of the long-term contracts have an annual volume commitment that can be postponed to later in the year," S&P Global Platts said, suggesting "it might be early for Chinese companies to justify and obtain reliefs from performance."

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35 and 50 February cargoes could be at risk. Suppliers are struggling to offload the contracted cargo elsewhere in an oversupplied market.

Total and Shell have rebuked the 'force majeure' measures, suggesting the Chinese state buyer might be trying to forego their contractual offtake commitments to be able to buy cheaper gas on the spot market.

Kpler data indicates some cargo diversions away from China as well as eight cargoes

held as floating storage in the Pacific basin.

Demand destruction might continue if the spread of the virus is not contained in due course. Though China has been claiming a slowdown in the number of new cases in recent days, the World Health Organisation (WHO) warned the infection rate could again accelerate. In this event, the second quarter would see gas demand destruction on an even larger scale than at the start of this year. ■

Germany seeks hydrogen export deal with West African states

The German government plans to set up a production and import chain for renewable hydrogen from West African countries, where it can be produced cheaper due to better wind and solar condition. Once liquefied and shipped to a German port, the green hydrogen would help decarbonize the country's energy-intensive industry and transport sector.

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"Green hydrogen is tomorrow's oil and offers huge opportunities," research minister Anja Karliczek said after a meeting with her colleague from Niger, Yahouza Sadissou. The ministry is surveying 15 states in search of suitable production locations and is prepared to invest 30 million Euros to initiate a "true cooperation" with African partner states.



World's first liquefied hydrogen carrier, Suiso Frontier

From West Africa, hydrogen would need to be shipped to a German port as a liquid in super-insulated, cryogenic tanks. Kawasaki Heavy Industries in December launched the world's first liquefied hydrogen carrier, featuring a 1,250 cubic meters hydrogen storage tank. The first tanker is currently used to ship liquefied hydrogen produced in Australia to Japan.

Aiming for 20% green hydrogen by 2030

The German coalition government in Berlin is working on a hydrogen strategy that will specify how renewable hydrogen could become a cornerstone of country's decarbonisation efforts. The draft document says that by 2030 about 20 percent of hydrogen could be produced from wind and solar power. However, Germany is unable to cover its expected demand for green hydrogen itself, so additional volumes need to be

imported from Africa or possibly Australia.

Ultimately, hydrogen is meant to replace oil and natural gas in cases where other decarbonisation measures are difficult to apply, for example in aviation or in energy-intensive industries.

Few new pipelines needed to build hydrogen network

Germany's gas industry plans to establish a 5,900 kilometres pipeline network to enable the large-scale use of hydrogen use. FNB Gas, representing German gas TSOs, intends to use mainly existing infrastructure to transport hydrogen from future generation sites in the north of the country to industrial centres in the west and south.

More than 90 percent of the hydrogen grid planned by the operators is based on the existing network used for transporting natural gas. The hydrogen grid would also allow for the import of hydrogen via ships or pipelines. ■

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"Transmission grid operators are committed to also using the existing gas infrastructure for hydrogen. We are working at full speed on concrete technical and network planning solutions to ensure that the integration can be successful," FNB Gas head Ralph Bahke told the German business daily Handelsblatt.

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Natural gas will continue to play a key role in electricity generation, heating, and industry for many years to come in Germany. But because the country aims to be climate-neutral by 2050, most experts believe it will be gradually substituted by hydrogen, which could eventually become carbon-neutral if made with renewable power using electrolysis.

The German government plans to present its highly anticipated plans for a "hydrogen economy" in the coming weeks.

Liquid ammonia more lucrative than hydrogen

Power-to-X through electrolysis can swiftly utilize large overcapacities of wind and solar power, helping to balance the grid. Producing ammonia – a hydrogen liquid – is more attractive than hydrogen gas, the World Energy Council (WEC) says, given its energy density is higher by a factor 300.

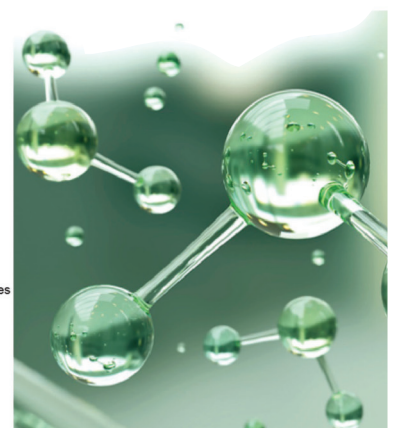
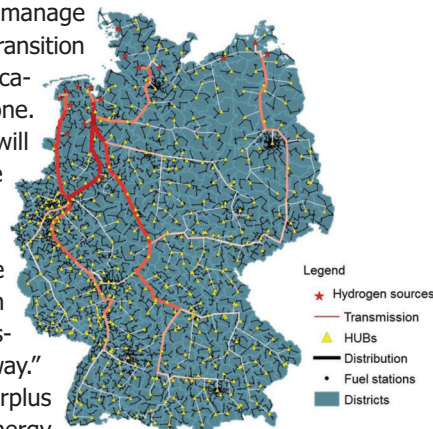
Liquid ammonia is easy to transport and a substantial supply chain already exists.

"We cannot manage the energy transition with electrification alone.

Molecules will play a huge part (...) and we can produce those molecules in an increasingly green way."

Storing surplus renewable energy as hydrogen or

ammonia is more lucrative than curtailing the capacity of offshore wind and solar at times of peak production. Green hydrogen is deemed to become the "backbone of future, largely decarbonized power generation," a Siemens white paper finds. This is because chemically stored electrical energy is, to date, "the only way to overcome renewable sources or times where there is little or no wind or sunshine." ■



Germany hydrogen network

Saudi Arabia plans to “soon” start exporting gas and petrochemicals

Saudi Arabia, the world's largest crude oil exporter, is gearing up to selling also natural gas and petrochemicals to global markets in a bid to diversify its economy. The Kingdom has been investing in gas exploration and recently made a large discovery in the Red Sea.

“Soon you will hear about the ability of the kingdom to be a gas exporter and a petrochemical exporter,” Prince Abdulaziz bin Salman said in a televised speech, without disclosing further details.

Red Sea gas discovery

Large gas reserves have been found the Red Sea last year, which could soon be developed by the state-run energy giant Saudi Aramco, the world largest oil producer.

More rigs have been drilled for natural gas than for oil for the first time in seven years, in line with so-called ‘localisation efforts’. Saudi Aramco has set a production target of 23 billion cubic feet a day (cf/d) of gas by 2030, up from around 14 billion cf/d currently, and the energy giant has undertaken key projects to boost output from conventional gas fields.

Ending oil-fired generation

Striving for a more sustainable power sector, the Saudi Kingdom wants to generate 70 percent of its electricity from gas and 30 percent from renewable energy sources, the Saudi energy minister, Prince Abdul Aziz bin Salman said. Simultaneously, strives to use domestic gas as a feedstock for its largest petrochemicals industry. Any excess gas production will be exported.

Saudi Arabia is one of a handful of countries that burn crude oil directly for power generation. Normally, countries avoid burning expensive oil and turn to gas or coal for power generation. However, Saudi Arabia has no domestic coal production, and most



Satellite view of the Red Sea

of its natural gas is associated gas, which is produced along with oil from the same wellbore.

By 2030, the Saudis’ electricity demand is seen to more than double, and by then up to 60 percent of the ageing oil-fired capacity is meant to be replaced by gas generation: This ambitious plan requires an investment of up to \$18 billion. ■

Gazprom agrees gas pricing protocol with Belarus

Alexey Miller, CEO of Gazprom, and the Government of Belarus have agreed on the pricing of Russian gas deliveries until the start of 2021. The transit volume of Russian gas is understood to remain at the same level, ensuring stable onward deliveries to Germany via the Belarus-Poland pipeline.

Beltransgaz, now renamed Gazprom Transgaz Belarus, needs to renegotiate terms of Russian oil and gas deliveries every year on December 31 – the very date when Gazprom’s transit agreement with Ukraine also comes to an end. However, while Naftogaz Ukrainy and Gazprom are embroiled in a lengthy dispute over gas supply, pricing and payment, Russia’s energy relations with its western neighbour Belarus have been very smooth sailing given that the long-serving Belarusian President is a political ally of Russia.

The latest deal is vital for European security of supply because the Belarus-Poland pipeline link is one of Gazprom’s three main arteries of supplying Russian gas onwards to Germany and beyond. Russia currently supplies one-third of Europe’s natural gas and wants to maintain its export at this level, which is why it is pressing ahead with the completion of Nord Stream 2, the second pipeline leg of a major interconnector through the Baltic Sea to Greifswald in northeast Germany.

Pipeline politics

Once Nord Stream 2 is in place and fully operational — and provided gas transits via the Belarus/Poland route resume — Gazprom would no longer need to use the route through Ukraine which would jeopardize supply security in Ukraine itself and in several eastern European countries.

Gazprom said is striving to complete construction of the Nord Stream 2 and TurkStream pipeline

projects in 2020. Over the past few months, Gazprom has already substantially reduced the volumes of gas it transits across Ukraine, and seeks reduce the level further by ramping up export volumes through Nord Stream and Turkish Stream instead. The Ukrainian state is at risk of losing roughly \$3 billion gas-transit fees — about 3 percent of national GDP.

Rumours of Russia-Belarus ‘merger’

The Belarusian President Alexander Lukashenko has rebuked „peculiar hints” from the Russian President Vladimir Putin that the two countries could merge into a new “Union State” in return for cheaper oil and gas supplies.

For Putin, the creation of a new “Union State” would allow him to remain in power even after his presidential term comes to an end. Absorbing Belarus would extend Russia’s political reach towards the west, but Lukashenko stressed he is neither the Belarusian people nor the Russians “want to go this way.” ■



Karpowership Aysegül Sultan, moored off Dhakar

Australian PM lends support to Santos' Narrabri gas project

Scott Morrison, the Australian Prime Minister, has singled out natural gas as the "only credible route for pursuing an energy transition." To enact his gas-led energy policies, the PM seeks to double gas production in New South Wales which hinges on Santos going ahead with the Narrabri gas project.

The Narrabri coal seam gas project spans around 95,000 hectares in the Pilliga forest in the north-western part of New South Wales (NSW). Santos is seeking approval to drill up to 850 natural gas wells on no more than 425 sites, as the developer believes the prolific acreage could hold supply up to 50 percent of NSW natural gas needs.

Prime Minister Morrison just entered an agreement with the Premier of NSW to double local gas production and to jointly underwrite the projected gas interconnectors between the Snowy area and Sydney. The deal involves Commonwealth funding for renewables and power grid upgrades in return for the NSW Government setting a target of delivering 70 petajoules a year of new gas into the market. Strikingly, that is almost exactly the estimated output of the Narrabri project.

Dispute over cost estimate

The aim is to lower energy bills by making use of comparatively cheap domestic gas resources and gradually replace coal use in the power sector to reduce emissions. Critics warn, however, that the Narrabri gas is relatively expensive to produce. According to an estimate from the Australian Energy Market Operator (AEMO), the cost at the well head is \$7.40 a gigajoule.

Santos CEO Kevin Gallagher disputes the AEMO's estimate of gas production cost at Narrabri, claiming these were "based on old data and simply wrong."

The Prime Minister has pledged NSW will receive A\$960 million in federal funding to upgrade the energy grid and invest in coal-to-gas switching. Another A\$2 billion co-in-



Santos coal seam gas drill rig in the Pilliga, NSW

vestment will go towards clean technology, hydro research development and commercialization as well as energy efficiency to reduce power bills.

"Working with the states is absolutely critical. The NSW deal commits both governments to do even more to encourage investment in reliable energy generation and transmission, I should stress, in transmission," the PM explained.

Next in line seems to be the state of South Australia, where the state premier Steven Marshall plans to release a strategy on how the state will achieve emission reductions. ■

German coal exit comes "too late" to meet 2030 climate goals

Germany must exit coal-fired power generation much faster than planned to comply with the Paris Climate Agreement, the German Institute for Economic Research (DIW) finds. To meet climate goals, a coal phase-out would have to be completed by 2030, or better before.

If enacted early, the complete coal-to-gas and a faster renewable energy build-out switch could curb CO₂ emissions by some 1.8 billion tonnes and thus help Germany to meet its Paris climate targets.

"Raising the 2030 emission target by at least 10-15 percent, in line with the European Commission's plans, would be a first step in this direction," the DIW report reads. It recommends and tightening up the country's current target to lower emissions by 65 percent by the end of the next decade.

Critics dismiss late lignite shut-downs

The agreed coal exit schedule means the energy industry would use up Germany's emissions budget prematurely, the report's co-author Claudia Kemfert warned. The draft law, in her view, translates into additional emissions of about 134 million tonnes in comparison with the recommendations of

the country's coal commission.

"A quick shutdown of hard coal-fired power plants reduces emissions in the short term. However, due to the late shutdown of dirtier lignite-fired power plants, they are then significantly higher than targeted after 2030," she said. Moreover, commissioning of the

controversial hard coal-fired power plant Datteln IV alone will cause an additional 40 million tonnes of carbon emissions.

The German cabinet adopted the coal exit law in January, more than one year after the multi-stakeholder coal exit commission recommended an end to coal-fired power generation in the country by 2038 at



RWE's lignite power plant in Neurath

the very latest. The coal exit law – now to be debated in parliament – translates the coal exit commission's energy policy recommendations into German law.

But some former commission members are discontent with the latest roadmap, claiming it "violates the original coal compromise." ■

Battery energy storage to see dazzling 47.6% growth

Global market for battery energy storage is seen surge at a dazzling rate of 46.7 percent to reach \$111.34 million by 2026. Data Bridge market research sees growing demand for grid-connected lithium-ion batteries to back up intermittent electricity supply from wind and solar power sources.

High capital investment required for the deployment of energy storage systems, however, limits the number of projects that are actually carried out. The lack of project financing, in particular, is making it difficult for smaller players to gain access to debt funding to realize energy storage projects.

At grid level, batteries have three key functions notably peak shaving and load leveling, voltage and frequency regulation as well as emergency energy storage.

Trade-off between technologies

"Battery energy storage technologies with rapid response, low cost, long lifetime, high power, and energy efficiency can be distributed throughout the grid and therefore are desirable for utilization in grid-level electrical energy storage," researchers at China's Tianjin University noted. "However, some trade-offs often exist among different properties and no existing batteries can meet all the requirements."

Researchers have analysed a wide range of battery technologies including lead-acid,



Typical-lithium-ion-battery-system

nickel cadmium, nickel metal hydride, sodium-sulfur, lithium-ion and flow batteries of various chemistries. In conclusion, they recommend focusing R&D efforts on batteries based on cheap, abundant materials – such as sodium-ion in order to keep costs under control.

Key developers of battery energy storage systems are LG Chem., ABB, AES Energy Storage, BYD Company, Convergent Energy and Power, Greensmith Energy Management Systems, Eos Energy Storage, Seeo, S&C Electric Company, Schneider Electric and many more smaller players. ■

MAN launches digital platform to help operators exchange data

Mýa, a digital interface launched by MAN Energy Solutions, enables the exchange of data in a controlled and secure manner among participating Original Equipment Manufacturers (OEMs), power plant operators and asset owners. The aim is promote collaborations among the marine, power generation, and energy industries.

Power plant work with many OEMs and their respective platforms, so they are often faced with a complicated and uncoordinated view of the various equipment that they operate and maintain.

"We want to reduce complexity for our customers and for other OEMs alike and to lower the hurdles for getting payback from

data," said MAN ES' head of digital and strategy, Per Hansson.

Members of mýa can access their digital assets via a single interface, which bundles their OEM data streams into one complete system view. Hanson underlined that "all data exchanges are of course strictly subject to permissions given by the respective users and members."

and compliance interests, the sharing needs to be controlled," mýa states on its website.

Swiss funding

mýa Connection GmbH, headquartered in Switzerland, invested to kick start the initiative with the aim of developing the platform into an independent non-profit organization.

"Once more companies get engaged, the organization will take direction from its members, OEMs and equipment users alike. The intent of mýa is to remove friction points and help the industry to operate more efficiently, ultimately saving resources," explained Dr Alan Atkins, Chief Executive Officer of the newly founded mýa Connection.

Atkin stressed the group is looking for additional founding partners who can "take a seat at the table and define the direction and development of the mýa platform and shape the future of data usage." ■



Marubeni, ADPower co-develop 2.4 GW Fujairah IPP by summer 2022

Japan-based Marubeni, together with Engie of France, have formed a consortium with Abu Dhabi Power Corp (ADPower) to develop the Fujairah F3 independent power project. Construction is due to start “swiftly” for the plant to generate “early power” by summer 2022, and reach full operation by summer 2023.

Once fully up and running, the 2,400 MW combined-cycle gas power plant will be capable to power the equivalent of 380,000 households in the UAE.

To win the Fujairah F3 IPP contract, Marubeni participated in a competitive tender and submitted the best bid for the development, financing, construction, operation, maintenance and ownership of a combined-cycle gas turbine (CCGT) power plant.

EWEC received 30 expressions of interest from potential bidders for the Fujairah F3 IPP project, of which 20 were qualified to bid after submitting statements of qualification. The project received final six bids out of which Marubeni was selected.



Fujairah F3 IPP will be built next to EWEC's F2 power and water plant

Boosting Fujairah complex output beyond 20 GW

The F3 unit will be built by Marubeni at EWEC's Fujairah power and water complex, situated 302 kilometres north of Abu Dhabi. Situated between the existing F1 and F2 water and electricity plants, the F3 IPP will add some 2.4 GW of contracted electricity output. This will boost ADPower's overall power output at the Fujairah complex to 20.4 GW.

All electricity produced at the F3 IPP unit will be sold to Emirates Water and Electricity Company (EWEC). The new unit will be

driven by “one of the most efficient and advanced CCGT technologies available in the region,” EWEC chief executive Othman Al-Ali pointed out. As part of the tender process, EWEC conducted a robust due diligence exercise to select the most attractive technical and commercial bid for this project.

Once operational, the 2.4 GW Fujairah F3 power plant will play a key role in securing the future electricity needs of Abu Dhabi and the northern emirates region. The F2 project, a 2 GW combined-cycle power plant, had been built by Fujairah Asia Power Co and Alstom Switzerland. ■

New Fortress to fuel and develop 300 MW power plant in Nicaragua

New Fortress Energy (NFE), the owner of gas liquefaction facilities in Florida, has agreed to supply LNG to Nicaragua as part of a power plant venture. Under the deal, NFE will build a floating LNG import unit and a 300 MW gas-fired power plant by the second half of 2021.

New Fortress pointed out the project will be “funded with cash on hand and funds from operations.” Both the FSRU and the gas-fired power plant are slated to start commercial operations in the second half of 2021, subject to obtaining all necessary licenses and permits.



One of NFE's existing operations

25-year PPA in place

All electricity produced at the 300 MW plant will be sold by NFE to Nicaragua's electricity distribution company DisNorte under a 25-year Power Purchase Agreement (PPA). The gas-fired plant will assist Nicaragua's transition to cleaner-burning fuels while supporting the country's economic development.

To fuel the plant, New Fortress will deploy an offshore LNG receiving, storage and regasification terminal off the coast of Puerto Sandino. Under the terms of the PPA, New Fortress is expected to provide more than 21 trillion British thermal units (BTU) of

natural gas per year over 25 years, the equivalent of approximately 700,000 gallons of LNG (60,000 MMBtu) per day.

From its 100,000 gallons per day liquefaction and export plant in Miami, NFE produces LNG for export in intermodal ISO containers to the Caribbean and to small-scale customers in southern Florida. It operates a floating LNG import terminal in Montego Bay, Jamaica, along with a fuel-handling facility and an associated import contract in Puerto Rico. ■

Wärtsilä to power industrial park Bangladesh

Jamuna Group, one of Bangladesh's largest industrial conglomerates, has placed an order with Wärtsilä to supply and install a 78 MW engine power plant to electrify an industrial park in the north-east of the country. The plant will operate on eight 34SG engines fuelled by gas.

The industrial park is currently operating on electricity from the national grid. However, as more and more factories are being built, independent on-site power generation is needed to ensure a reliable electricity supply, and to control the cost of that supply.

Delivery of the equipment will be completed during the first half of 2020, Wärtsilä said, and the aim is to get the plant fully operational in early 2021. ■

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