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Kolkata likely to get CNG stations by year-end

The eastern metropolis is likely to get CNG by end of this year, which would facilitate vehicles running on greener fuel, an official said. As a part of the 'Pradhan Mantri Urja Ganga' project, the Central government owned Gail (India) Limited was entrusted to develop city gas distribution (CGD) network in six cities - Patna, Jamshedpur, Ranchi, Bhubaneswar, Cuttack and Kolkata. However, state owned Greater Calcutta Gas Supply Corporation (GCGSC) was earlier authorised for city gas distribution in Kolkata and surrounding areas. Subsequently, it was decided the CGD in the eastern metropolis would be developed jointly. A joint venture (JV) company, Bengal Gas Company Ltd, has been formed for developing the city gas distribution, said Gail (India) Limited's Chief General Manager S. Bairagi at a road show for promoting 10th City Gas Distribution bidding round here. Incidentally, the gas major has been setting up Jagdishpur-Haldia-Bokaro-Dhamra pipeline to bring natural gas to eastern India. He indicated that before the pipeline connects Kolkata, the JV would try to transport gas through roadways to the eastern metropolis. "Due to land acquisition issues, we are planning to put up CNG stations at the retail outlets of oil marketing companies (OMCs). We shall try to open CNG stations this year itself if we get space at the outlets. The same model we have followed in Bhubaneswar and Cuttack. The estimated investment in first five years in Kolkata city gas project would be Rs 5,200 crore, the official said. The JV would distribute CNG and piped natural gas in the City of Joy and part of Howrah, Hooghly, Nadia and North and South 24 Parganas in West Bengal.

<https://energy.economictimes.indiatimes.com/news/oil-and-gas/kolkata-likely-to-get-cng-stations-by-year-end/67447769>

Piped gas supply in Patna from next month: Sushil Kumar Modi

Deputy chief minister of Bihar, Sushil Kumar Modi (SuMo) said supply of piped cooking gas to city households would begin from February. In his keynote speech at the 10th City Gas Distribution (CGD) bidding organized by PNGRB, SuMo claimed approximately 5,500 households in the city had already been connected with piped natural gas (PNG). "The state government has provided a 1.5 acre land

worth Rs 100 crore for Rs 48 crore for setting up a CNG station at Phulwarisharif. Three CNG stations will be set up in Patna by March and four others in 2019-20," SuMo said and added at least 50,000 households in the city were targeted to be connected with the PNG network over the next five years. "At present, CGD authorization has been given by the PNGRB in seven districts of Bihar. At least 21 more districts will be added to the network under the 10th bidding phase. After the 10th round, 28 of 38 districts in the state will be fully authorized for the development of CGD network. This is a remarkable feat in the field of natural gas distribution in Bihar," said a GAIL official. According to the Urja Ganga Gas Pipeline Project of the Union ministry of petroleum and natural gas, six cities, Varanasi, Bhubaneswar and Cuttack, Patna, Ranchi and Jamshedpur will be covered with piped cooking gas supply network. While the supply has been started in Varanasi, Bhubaneswar and Cuttack, the three remaining cities are targeted to be covered before March.

<https://timesofindia.indiatimes.com/city/patna/piped-gas-supply-in-city-from-next-month-sumo/articleshow/67371226.cms>

Adani Gas Limited revises CNG, PNG prices

Adani Gas Limited (AGL) has revised the prices of compressed natural gas (CNG) and piped natural gas (PNG) for residential and industrial consumers from January 1, 2018. While the city gas distribution company has raised CNG and do-

mestic PNG prices, it has reduced tariffs for natural gas supplied to its industrial customers. According to details on the company's website, the CNG price for Ahmedabad and Vadodara markets has been hiked by Rs 1 per kg to Rs 55/kg from Rs 54/kg, while PNG prices for residential consumers has been increased by Rs 13.2 per million metric British thermal units (MMBtu) or 1.97% to 682.50 per MMBtu from Rs 669.30 per MMBtu. The company had last revised these prices in October 2018. However, the company also reduced PNG price for its industrial consumers by Rs 28.02 per MMBtu or 2.68% to Rs 1,016.40 per MMBtu (for minimum guaranteed offtake-MGO) from Rs 1,044.42 per MMBtu. The Adani Group company serves about 2,85,000 households and 1,50,000 CNG users in Ahmedabad and Vadodara.

<https://timesofindia.indiatimes.com/city/ahmedabad/agl-revises-cng-png-prices/articleshow/67341133.cms>

All news and features carried in this NGS NG/LNG Update are compiled from various sources - print and web editions, and have been duly acknowledged.

PNGRB to hold roadshow for 10th City Gas Distribution bidding round at Jaipur

Petroleum and Natural Gas Regulatory Board (PNGRB), is organizing a roadshow on January 3, for promoting 10th City Gas Distribution (CGD) bidding round in Jaipur at Hotel Holiday Inn Jaipur City Centre. After the success of the recently concluded 9th CGD bidding round for 86 Geographical Areas (GAs) covering 174 districts in 21 states/ UTs which attracted great interest from investors across the sector, wherein total 406 bids were received from 38 organizations (including 8 new and 2 overseas investors). This round ensures remarkable minimum work commitment of 2.2 crore domestic PNG connections, 4600 CNG stations and 1.16 lakh inch-km of steel pipeline. The 10th CGD Bidding Round offering 50 (GAs) covering 124 districts in 14 states, was recently launched by Hon'ble Prime Minister, Shri Narendra Modi on 22nd November, 2018 at Vigyan Bhawan, New Delhi. This roadshow at Jaipur tomorrow is part of the series of roadshows planned by PNGRB across India over the next few weeks before the deadline for bid submissions end on 5th February 2019. Prior to this, a roadshow was held at Chandigarh which entailed great response from all the stakeholders.

<http://energyinfra.com/pngrb-hold-roadshow-10th-city-gas-distribution-cgd-bidding-round-jaipur/>

Government to launch 2nd round of oil block auction

The Open Acreage Licensing Policy bid round-II, with 14 blocks measuring 29,333 km² in aggregate area on offer, will be launched by Oil Minister Dharmendra Pradhan. After months of delay, India will launch the second auction of 14 blocks for prospecting of oil and gas in an attempt to raise domestic output to cut imports. Officials said the Open Acreage Licensing Policy (OALP) bid round-II, with 14 blocks measuring 29,333 square kilometres in aggregate area on offer, will be launched by Oil Minister Dharmendra Pradhan. India had in July 2017 allowed companies to carve out blocks of their choice with a view to bringing about 2.8 million sq km of unexplored area in the country under exploration. Under this policy, called OALP, companies are allowed to put in an expression of interest (Eoi) for prospecting of oil and gas in any area that is presently not under any production or exploration licence. The Eois can be put in at any time of the year but they are accumulated twice annually. The blocks or areas that receive Eois at the end of a cycle are put up for auction with the originator or the firm that originally selected the area getting a 5-mark advantage. The two window of accumulating Eois end on May 15 and November 15 every year. Eois accumulated till May 15 are supposed to be put on auction by June 30 and those in the second window by December 31. Eois for second round closed on May 15, 2018 and the blocks were supposed to be put for auction by June but the round was for reasons unknown delayed. In the meanwhile, Eois in the third window also closed on November 15, 2018 with as many as 11 blocks measuring 21,507 sq km and five coal-bed methane (CBM) blocks being sought for. Officials said after the delay in putting on offer the blocks sought in second window, it was expected that blocks in second and third window would be put on offer together. But the government appears to have gone with putting on offer only the 14 blocks sought in the second window. The blocks on offer in OALP-II include one in deep waters of Krishna Godavari basin and five shallow water blocks - two each in Andaman and Kutch basin and one in Mahanadi basin. Eight onland blocks - four in Mahanadi basin, two in Cambay and one each in Rajasthan and Cauvery are on offer. Officials said the 14 blocks are estimated to hold in-place resource of 12,609 million tonnes of oil and oil equivalent gas. In the third window, Eois have been put for one deepsea block in Mahanadi basin and one shallow water area in Kerala Konkan basin. Nine onland areas - three in Assam, two in Cambay and one each in Mahanadi, Rajasthan, KG and Bengal-Purnea basin have been sought.

<http://www.millenniumpost.in/business/govt-to-launch-2nd-round-of-oil-block-auction-today-335101>

Modi government may give freedom to PSUs to bring in private players

The move by the government to bring in private parties for the nomination blocks of state-run companies had raised protests among employees. Giving a major boost to government-owned Oil and Natural Gas Corporation (ONGC) and Oil India (OIL), the government is planning to come up with a new fiscal model giving 'special incentives' for fields that were given out on nomination to these companies. This will also give companies the freedom to bring in private players to ramp up the production. Petroleum minister said his government was working on giving "incentives to the E&P sector, especially those under the nomination regime and special incentives to difficult fields under that regime". This include blocks that were allocated to the two National Oil Companies (NOCs) - ONGC and OIL — to whom petroleum exploration licences (PEL) were granted on nomination basis prior to the New Exploration Licensing Policy (NELP) and OALP rounds. The move by the government to bring in private parties for the nomination blocks of state-run companies had raised pro-

tests among employees. "The freedom to bring in private players to increase production will be given to the boards of the respective companies," Pradhan added. The government launched the second round of OALP auction, which is likely to see investment to the tune of around Rs 40,000 crore.

https://www.business-standard.com/article/economy-policy/modi-government-may-give-freedom-to-psus-to-bring-in-private-players-119010700758_1.html

GAIL India may throw lifeline to Matix Fertilizers and Chemicals

Matix Fertilizers and Chemicals is banking on GAIL India's Pradhan Mantri Urja Ganga pipeline for restarting its idle coal-bed methane-fired fertiliser plant in West Bengal and escape insolvency resolution. The company, promoted by the Data-matics Group, which started defaulting on its Rs 4,305 crore loan exposure was recently dragged by IDBI Bank to the National Company Law Tribunal and rated defaulter by rating agency CARE. The Rs 7,000 crore plant has been lying closed for want of feedstock. "By July we would be able to take the Urja Ganga pipeline

to Matix's plant from where they would be able to get both natural gas as well as the coal-bed methane being produced by Essar at Ranigunj," S Biragi, chief general manager (marketing), GAIL India, said. The greenfield urea and ammonia plant need 2.4 MMSCMD, which was supposed to come mostly from Essar Oil and Gas Exploration and Production. The CBM production reportedly fell short of Matix's requirements while Essar officials had maintained that Matix's own production wasn't established, and the company had even supplied CBM for pre-commissioning activities of Matix. With the pipeline now turning into reality, production would now be scaled up by Essar. The pipeline would pick coal bed methane from Essar's operating field at Ranigunj along the way, and would be able to reach Matix's plant near Panagarh before reaching Haldia near the Bay of Bengal by December, the GAIL official said on the sidelines of a conference on gas sector organised by industry body Ficci.

<https://www.dnaindia.com/business/report-gail-india-may-throw-lifeline-to-matix-fertilizers-and-chemicals-2706153>

Try diverting gas from non-core sectors to stuck power units: Panel

The government should explore diverting domestic gas allocation from non-core sectors to stranded gas-based power plants, a parliamentary panel has suggested, while asking the government to spell out the action taken against those responsible for the “gross miscalculation” of gas availability in KG D6. Calling for cost moderation of RLNG, the panel has also asked the government to rethink its plan of free market pricing of natural gas, saying it will be counter-productive and not in the public interest. The oil ministry’s proposal for removal of power sector from priority allocation should also be reconsidered and instead the government should restart its e-bid RLNG scheme to support these stranded plants with necessary exemptions, waivers and desired modifications, said the standing committee on energy in its report on stressed/non-performing assets in gas-based power plants. The financial support or subsidies required for the scheme may be sourced from Power System Development Fund, National Clean Energy Fund or budgetary grants for which the power ministry should pursue with the finance ministry, it said. We welcome these recommendations, with emerging energy mix of increasing renewables, it is imperative that the gas-based projects are saved from being mothballed as we need gas-based generation for grid balancing. We hope GoM will consider committee’s recommendations and operationalise these at the earliest,” Association of Power Producers director general Ashok Khurana said. The parliamentary panel has proposed that the government should hand-hold these stranded gas-based power plants and provide them requisite support to revive them. The ministry of petroleum & natural gas should come out with the reasons, in lucid terms, for zero production of gas from KG D6 against the estimated production of 80 MMSCMD that was envisaged earlier and the steps taken by the government against those who are responsible for this gross miscalculation, which has put the reliability of the ministry at stake,” the panel said.

<https://economictimes.indiatimes.com/industry/energy/oil-gas/try-diverting-gas-from-non-core-sectors-to-stuck-power-units-panel/printarticle/67410464.cms> [Edited]

Gas hub plan on hold

As both a marketer and a pipeline operator, GAIL in its current form has raised serious questions about conflict of interest in the business. The natural gas trading hub, which could help in better price discovery, is unlikely to be set up in the current fiscal as the oil ministry plans to first decide on splitting GAIL India into two separate entities — a gas marketing company and another a pipeline company. As both a marketer and a pipeline operator, GAIL in its current form has raised serious questions about conflict of interest in the business. Oil ministry officials said “for effective transparent functioning of the gas hub, there should be level playing field and equal access to the pipeline infrastructure and no scope of any favour or discrimination by the pipeline operator. So unbundling would ensure a level playing field”. The official, however, said the government is yet to take a final decision. GAIL has opened its network to private gas marketing companies. Pipelines are crucial to take natural gas to consumers across the country. Currently, the pipelines are concentrated in the western and northern parts of the country only. After initially resisting any split moves, GAIL has said separation could be done only after the gas market develops further. In mature markets, monopoly gas transporting and marketing companies have been unbundled or split after the share of natural gas in the energy mix has reached at least 15 per cent and a well-connected pipeline network built. Also, domestically produced natural gas forms bulk of consumption, Gail said. The share of natural gas in the energy mix of the country is currently about 6.2%. The official said the government also needs to decide on who would be the transmission system operator, apart from deciding on how much volume should be traded on the proposed exchange.

<https://www.telegraphindia.com/business/gas-hub-plan-on-hold/cid/1681059>

NATIONAL: CITY GAS DISTRIBUTION–RETAIL CNG/LNG & AUTO LPG

Kochi in need of more CNG outlets as gas sales surge

The demand for CNG is growing with business expanding 10 times after four CNG outlets were introduced in March 2018 in Kochi. Compared to the 1.5 tonnes sales recorded in April, IOC, which operates the pumps, reports that the sale has increased to 150 tonnes in December. “This can be attributed to the growing popularity of greener fuel among auto and cab drivers, who are making the switch for economic reasons. One kg of CNG retails for around `53, compared to `66 for diesel and `70.5 for petrol,” said P S Mony, Kerala Head, IOC. IOC says there are receiving requests for the expansion of CNG network across the city. Right now, four CNG-filling stations - two at Kalamassery, one at Aluva and one at Maradu - are operational. IOC is awaiting approvals for adding CNG dispensers at 20 of its outlets in Ernakulam with requests for NOCs having been submitted to the district administration in May. “The delays in the issue of NOCs are crippling us to cater to the growing demand. The state government should ensure that such licences are cleared with minimum red tape,” said Mony. He expressed hope that at least four outlets by IOC will start functioning by March at Karingachira, Thiruvankulam, Cheranallur and Chengamanad. The company says a delay in obtaining permissions from the corporation to expand into the city limits hampered the CNG network expansion.

<http://www.newindianexpress.com/cities/kochi/2019/jan/02/city-in-need-of--more-cng-outlets-as-gas-sales-surge-1919368.html>

Torrent Power seeks 5 LNG cargoes for 2019

The utility company is seeking cargoes for delivery over February, May, July, October and December.

India's Torrent Power is seeking five liquefied natural gas (LNG) cargoes for delivery in 2019, two industry sources said. The utility company is seeking cargoes for delivery over February, May, July, October and December, one of the sources said. The tender closed on Jan. 9 and is valid until Jan. 11. The February cargo will be bought at a fixed price while the others will be linked to Brent oil prices, the first source added. Torrent Power distributes electricity to over 3 million customers every year in India, according to the company's website.

<https://www.moneycontrol.com/news/business/torrent-power-seeks-5-lng-cargoes-for-2019-sources-3372751.html>

Stage set for Bengal's 1st LNG terminal

The terminal will have a capacity of 3 MMTPA but can be ramped up to 5 MMTPA. Decks have been cleared for the first LNG terminal in Bengal with Mumbai-based H-Energy planning to start construction of the Rs 1,500-crore project from June. The company, promoted by the Hiranandanis, last week received a favourable order to lay a pipeline from

Kukrahati, near Haldia, to Bangladesh border, enabling the 3 MMT terminal on the banks of the Hooghly river. The project will also involve a 10-km underwater pipeline connecting Kukrahati on the west bank of the Hooghly to Falta, a multipurpose special economic zone on the east. Moreover, this line will connect with the city gas distribution network that GAIL and Greater Calcutta Gas Supply Corporation plan to build to supply gas to homes and CNG for transportation. Our terminal will be up and ready by the end of 2020. The re-gassification terminal will entail an investment of Rs 1,500 crore and another Rs 2,200 crore for pipeline," Darshan Hiranandani, managing director and CEO of H - Energy, said in a seminar on the gas industry in Bengal organised by Ficci, which was attended by Bengal industry minister Amit Mitra and Vandana Yadav, managing director of the West Bengal Industrial Development Corporation. Mitra predicted that the state may attract an investment of Rs 50,000 crore in the natural gas sector, especially from exploration and production of shale gas by two existing coal bed methane producers — Great Eastern Energy Corporation and Essar. Y.K. Modi, chairman of GEECL, and his son Prashant Modi, who were also present at the seminar, batted for more time for existing CBM players to extract shale gas. Getting the approval of

the pipeline was crucial for the viability of the project as two-thirds of the gas is heading to Bangladesh. The company will source LNG from Petronas in Malaysia. It will also supply to the local industry at Haldia, apart from Falta. It will deploy a truck network to supply to small customers. H-Energy has a 2 MMTPA long-term supply contract with Bangladesh, which will start from 0.5 MMTPA and then go up subsequently.

<https://www.telegraphindia.com/business/stage-set-for-bengal-s-1st-lng-terminal/cid/1681328>

Shell completes acquisition of Total's 26% stake in Hazira LNG

Shell Gas, a subsidiary of Royal Dutch Shell, on Wednesday announced completion of its acquisition of 26% equity interest in the Hazira LNG and Port Venture in India from Total Gaz Electricite France, a unit of Total. With this, Shell now holds 100% in the venture. Hazira LNG and Port Venture includes two firms Hazira LNG (which operates a LNG regasification terminal in Gujarat) and Hazira Port (which manages a direct berthing multi-cargo port at Hazira). As reported earlier by FE, Shell plans to have an LNG truck-loading unit by 2019 for distribution of the fuel in off-grid areas where there are no gas pipelines. Shell India, also plans to enter LNG downstream business in the country. The company is of the view that LNG as truck fuel and LNG transported through trucks rather than pipelines are economical alternatives which are still to pick up in India which typically relies on diesel at the moment. The company plans to supply LNG loaded on trucks to industrial units such as power plants, fertilisers and petrochemicals, among others. Shell has already set up a team in Singapore to promote the gas market in India. "It (completion of acquisition) further enables Shell to contribute towards India's long-term need for more and cleaner energy solutions," stated Shell's statement. In India, Shell has a presence through a network of 250 retail fuel outlets across Karnataka, Tamil Nadu, Telangana, Maharashtra and Gujarat part from the LNG re-gasification terminal at Hazira.

<https://www.financialexpress.com/industry/shell-completes-acquisition-of-totals-26-stake-in-hazira-lng/1439238/>

Budget call on LNG duty cut

India, the world's 4th-biggest importer of LNG, does not have a free market regime for gas. The oil ministry is hopeful of a cut in customs duty on liquefied natural gas (LNG) to zero per cent from 2.5 per cent in the interim budget on February 1. Officials said there was a possibility of a reduction in the customs duty on LNG as it would help in the government's effort to increase the use of clean fuel. The oil ministry has taken up the issue with the finance ministry. Currently, LNG attracts an import duty (basic customs duty) of 2.5 per cent plus social welfare surcharge of 10 per cent, taking the effective customs duty to 2.75 per cent. However import by power generators for domestic distribution is exempt from the duty, though other sectors such as fertiliser, LPG, CNG, PNG and petrochemical pay the effective duty. Since the domestic production of natural gas is not enough to cater to the increasing demand, import of LNG at a large scale is required to augment the supply of natural gas to priority sectors such as fertiliser, CNG, LPG and PNG. According to the International Energy Agency, demand in India is projected to grow at an average of 6% per year to around 80 BCM by 2022 from 55 BCM now. India, the world's fourth-biggest importer of LNG, does not have a free market regime for gas. Natural gas is sold on the basis of a government-mandated formula that links the local price to international rates, while most long-term import contracts are linked to crude oil. Increase in demand and fall in domestic production has led to an increase in imports of LNG by 12.7% in the current fiscal. During the year, the country imported LNG mainly from Qatar (47%), Nigeria (17%) and the US (6%), Angola (6%) and Australia (6%).

<https://www.telegraphindia.com/business/budget-call-on-lng-duty-cut/cid/1681805>

IOC to commission Ennore LNG terminal this month

IOC Chairman Sanjiv Singh said the Rs 5,151-crore terminal is complete and would be commissioned after completion of dredging of the channel that will bring cryogenic ships carrying natural gas in its liquid form to the port. This is the first LNG import terminal IOC has built on its own. It has also booked capacities in upcoming terminals on both east and west coast. The dredging is being carried out by Ennore Port Trust. Asked about diluting stake the Ennore project, he said nothing has been finalised as yet. "There are a lot of people who have shown interest," he said. Malaysian state-owned oil and natural gas producer Petrolim Nasional Bhd, or Petronas, as also Petronet LNG, India's biggest LNG importer, have expressed interest in taking a stake in the Ennore plant. IOC holds 95% stake in the Ennore LNG import terminal. Tamil Nadu Industrial Development Corporation (TIDCO) has 5%. The state-owned refiner wants to retain a minimum 50% stake in the project and so, practically 45% stake is available for the taking. Going by a back-of-the-envelope calculation, roughly 30% of the Rs 5,040-crore project cost is equity and IOC will pay for half of that. As the second-largest natural gas player in the country, IOC is making significant investments in natural gas infrastructure and marketing, in line with the country's changing energy mix. IOC plans to connect the Ennore terminal to its Chennai Petroleum Corporation Ltd (CPCL)

refinery apart from facilities of Madras Fertilisers, Tamil Nadu Petro Products, Manali Petrol Products, and other customers in the area. The firm is also working on laying a 1,385 km natural gas pipeline originating from the Ennore terminal to Nagapattinam in Tamil Nadu via Puducherry. Also, branch pipelines will be laid in Madurai, Tuticorin, and Bengaluru to meet the demand from multiple LNG consumers in the region.

<https://www.hellenicshippingnews.com/ioc-to-commission-ennore-lng-terminal-this-month/>

BPCL looks to revive plan to build terminal for imported LNG

State-run Bharat Petroleum Corp. Ltd (BPCL) may revive its plan to build a terminal for imported LNG amid rising domestic demand for the clean fuel, two people aware of the development said. The regasification liquefied natural gas (R-LNG) terminal with a capacity of 1-to-3 MMTPA, was planned to be expandable to 5 MMTPA later. The public sector oil marketer may consider Kakinada, Krishnapattanam, Mangalore or Gangavaram for the terminal, the first official mentioned above said. BPCL's plans to have its own LNG terminal, now five years in the making, have not made much headway. In 2017-18, BPCL formed a wholly owned gas subsidiary Bharat Gas Resources Ltd with a view to focus on natural gas as a separate business. BPCL, said the second official, may also look at booking capacity

in the LNG terminals in the country. Given the government's focus on increasing the share of gas in India's overall energy mix, and the development of infrastructure in terms of LNG terminals and pipeline connectivity, demand for LNG is positive over the medium to long term, encouraging companies including BPCL, IOCL and HPCL to expand their natural gas businesses. All three are promoting city gas distribution, setting up LNG terminals and marketing natural gas. During April-October 2018, natural gas consumption rose 17.1%. During the same period, LNG imports increased 12.7% due to higher demand and lower domestic production.

<https://www.livemint.com/Companies/n8HL-JAZtFouVkpFg3PnJZP/BPCL-looks-to-revive-plan-to-build-terminal-for-imported-LNG.html>

India seeks spot LNG cargoes -traders

India's state-run Gujarat State Petroleum Corp (GSPC) opened a tender to buy a cargo of liquefied natural gas (LNG) on Jan. 5, two trade sources said. The tender closes on Monday, with validity until Jan. 8. The delivery window is between Jan. 20 and Feb. 10. Indian state refiner Indian Oil Corp (IOC) is also looking for a spot cargo, one of the sources said. India is expected to continue regular spot LNG purchases during this winter, but is unlikely to have significant demand spikes, the source added.

<https://www.hellenicshippingnews.com/india-seeks-spot-lng-cargoes-traders/>

TECHNOLOGICAL DEVELOPMENT FOR CLEANER AND GREENER ENVIRONMENT HYDROGEN & BIO-METHANE

Nafed to set up 100 bio-CNG plants with Rs 5k cr investment

In a major move that may help in increasing the income of farmers apart from protecting the environment, the National Agricultural Cooperative Marketing Federation of India (Nafed) has decided to set up 100 bio-CNG manufacturing units using agricultural waste such as stubble, sugarcane waste, municipal waste, etc in the next couple of years. According to Nafed managing director Sanjeev K Chadha, the manufacturing facilities would be set up through public-private partnership (PPP) with an estimated investment of Rs 5,000 crore. The first three centres will come up in Muzaffarnagar in Uttar Pradesh, which is the largest sugarcane producing state where waste from sugar mills is available in abundance. We have signed an agreement with private players for establishing the manufacturing centres in NCR region," Chadha said. In reply to a question as how Nafed would raise the estimated Rs 5,000 crore fund, Chadha said, "An agreement has already been signed with 4-5 private investors like Reliance, United Nations Environment Programme (UNEP) and technology provider. Initially, 100 units will be set up across the country with an estimated cost of about Rs 5,000 crore." He also said that Nafed would not go and search for a buyer as an agreement has been signed with Indian Oil Corporation for the purchase of bio-CNG from our plants at a rate of Rs 48 per kg. The biofuel would be much cheaper as at present Indian Oil is importing it at a rate of about Rs 63 per kg, he added. On the availability of raw materials, Chadha said, "The Nafed is mapping the farm waste resources at sugar mills, mandis and other areas to ensure assured supply. Farmers' aggregators will also be identified from whom the agri-waste will be purchased, and they (farmers) would be paid upto Re 1 for their agricultural waste." The work has already started for setting up of first three units in Muzaffarnagar, which is expected to be completed in next six months, he said, adding that each unit will have a capacity to process at least 100-300 tonne agri-waste, from which one-tenth of the CNG would be produced. The cooperative said it had achieved a gross profit of Rs 252 crore during 2017-18 fiscal with a turnover of Rs 3,213 crore.

<http://www.millenniumpost.in/business/nafed-to-set-up-100-bio-cng-plants-with-rs-5k-cr-investment-334989>

Russia produces record volumes of oil, gas in 2018

Russia produced record volumes of oil and gas in 2018, Energy Minister Alexander Novak said. He told Russian President Vladimir Putin at a meeting that last year Russia's crude oil output rose by 1.6 percent, or 10 MMT from 2017 to 556 MMT, according to a Kremlin transcript of minutes of the meeting. The increase was attributed to the operation of 54 new oil fields, including several major ones in the Krasnoyarsk region and the Yamalo-Nenets region. Last year's natural gas output hit a record in 18 years with 725 billion cubic meters, up about 5% from 2017, Novak said. Russia's gas exports rose by 20 BCM to nearly 225 BCM last year, with pipeline deliveries up 4.1%, and liquefied natural gas (LNG) exports up 70% to nearly 26 BCM after new facilities of the Yamal LNG plant were put into operation, he said. The energy sector accounted for 25% of Russia's gross domestic product and nearly 45% federal budget revenues, according to Novak.

http://www.xinhuanet.com/english/2019-01/11/c_137734660.htm

China says Turkmenistan gas supply has returned to normal after Nov hiccup

Natural gas supplies to China from Turkmenistan's state-owned energy major Konzern were expected to return to planned levels from Jan. 8, after a supply disruptions in November, the Chinese state planner said. Gas imports from China's largest supplier of piped natural gas fell several times in November, but the volumes and durations were small, the National Development and Reform Commission (NDRC) said on its website. "Supplies from Konzern were unstable in November, but it had limited impact on domestic gas," the NDRC said, adding that supplies would soon return to planned levels. It denied a report in Chinese media that Konzern would slash gas exports by 35 MMSCMD from Tuesday, January 8, which could drive up prices. Later on Wednesday, top state oil and gas producer PetroChina said on its social media blog that gas supplies from Turkmenistan have been restored to normal rates in the morning, adding that the recent supply fluctuations were only 1% of the pipeline system's monthly average volumes. PetroChina also said it will cap its domestic sales prices for liquefied natural gas (LNG) below the peak levels re-

China's CNOOC to build pipeline linking coal-to-gas project to supply grid

China National Offshore Oil Corporation (CNOOC) is planning to build a pipeline to supply fuel from a coal-to-gas project to the Hebei-Beijing-Tianjin area, top consuming region for natural gas, CNOOC said on its website on Wednesday, January 9. Huabei Pipeline Company – to be set up with CNOOC's Gas and Power unit holding a controlling stake – will build the 382 km (237 miles) pipeline by end-November 2020 to supply the new economic zone Xiongan in Hebei province, near Beijing, it said. Other investors in the pipeline company include Hebei Natural Gas Company and Beijing Gas Group, CNOOC said. Huabei Pipeline will eventually build 1,279 km of pipelines with annual transport capacity of 20 BCM, linking coal-to-gas projects in northern China's Inner Mongolia region and Shanxi province to a gas supply grid also fed by CNOOC's LNG receiving terminal at the port of Tianjin, CNOOC said earlier on its website. Following a severe gas supply crunch during the winter of 2017/18, China's national energy companies have been adding pipelines to connect grids operated by different companies and fed by different supply sources to boost supply security.

<https://www.hellenicshippingnews.com/chinas-cnooc-to-build-pipeline-linking-coal-to-gas-project-to-supply-grid/>

corded in the last heating season. Earlier on Wednesday, Sinopec said would put a ceiling on prices of LNG sold from its Qingdao and Tianjin import terminals. Domestic gas consumption has been robust this winter as China keeps up a campaign to switch household and industrial coal boilers to gas. Daily consumption reached a peak of 1.037 BCM for two consecutive days in November, the NDRC said. Energy majors PetroChina, Sinopec and CNOOC had 9 BCM of gas stored in underground tanks and LNG storage facilities by Tuesday, the agency said.

<https://www.hellenicshippingnews.com/china-says-turkmenistan-gas-supply-has-re-turned-to-normal-after-nov-hiccup/>

How Greece will benefit from East Med Gas Pipeline

The proposed pipeline will transport natural gas from the eastern Mediterranean to Europe. The cooperative agreement was recently signed by Greek Prime Minister Alexis Tsipras, Israeli Prime Minister Benjamin Netanyahu and Cypriot President Nikos Anastasiades. Talks between the three nations on the issue began in 2015 and have progressed to a solid alliance, according to Handelsblatt. The three Mediterranean countries aim to intensify their cooperation and make it permanent with the establishment of a joint secretariat based in Cyprus. The newspaper notes that the enormous reserves of natural gas believed to be under the eastern Mediterranean seabed could contribute substantially to the energy supply of the whole of Western Europe.

However, the issue of how to transport the resource from the drilling areas to Western Europe remains in question. The East Med Pipeline project currently under discussion foresees the construction of a 1,900-km (1181-mile) pipeline along the eastern Mediterranean. The pipeline will begin in the natural gas fields off the coast of Israel, and will lead through the islands of Cyprus and Crete to the Peloponnesian peninsula of Greece. The route will then continue on mainland Greece, where the pipeline will meet the planned "Poseidon" pipeline which will end in Oradea, Italy. The natural gas can flow from there into the European grid. A full 1,300 km (808 miles) of the 1,900 km of pipeline will run underwater. All parties involved in the project are agreed that this presents a great technical challenge, since the Mediterranean in those areas can reach depths of up to 3,000 meters (9843 feet, almost two miles). The Handelsblatt report says that Greece could not only collect gas transport fees and strengthen its role as an energy hub, but also exploit the pipeline to meet its own needs. Furthermore, according to U.S. Ambassador to Israel David Friedman, the pipeline has enormous geostrategic importance apart from the economic benefits to the countries involved. The East Med Pipeline, although shorter than Russia's North Stream line, will undoubtedly have the effect of limiting Russia's role as a natural gas supplier to Europe as a whole.

<https://greece.greekreporter.com/2019/01/01/how-greece-will-benefit-from-east-med-gas-pipeline/>

PetroChina's 2018 shale gas output up 40 percent vs 2017

Top Chinese oil and gas producer PetroChina pumped 4.27 BCM of shale gas in the southwestern province of Sichuan in 2018, up 40% from 2017, parent company CNPC said on its website on Monday, January 7. PetroChina's shale gas output compared to around 6 BCM pumped by domestic rival Sinopec Corp last year. Sinopec is the country's leading shale gas player developing its flagship Fuling field in southwest China's Chongqing region, also in the Sichuan basin. PetroChina also racked up record daily sales of natural gas, including mostly conventional gas supplies, at 703 million cubic metres on Dec. 29 last year, when residential heating demand surged amid massive temperature drops during winter, CNPC said on its website. Gas supplies out of PetroChina's storage also hit a record 78.07 million cubic meters on the same day.

[Source: LNG Global](#)

Natural gas mobile pipelines gain momentum in North America

Hexagon Composites' subsidiary Hexagon Lincoln has been awarded an order for TITAN® gas transport modules from Certarus Ltd., the North American market leading provider of fully integrated CNG delivery solutions, with a total value of USD 8.1 million. Deliveries of the TITAN® 4 modules are scheduled to commence in the first quarter of 2019 and continue through second quarter of 2019. The Mobile Pipeline® modules will support Certarus' expansion in the U.S. and Canada bolstering natural gas supply to domestic and industrial users. When pipeline transmission is unexpectedly interrupted, additional natural gas is needed to supplement the winter energy needs of home owners and businesses. Transporting CNG by truck ensures that concerned residents keep their homes warm and businesses have the energy required to

maintain operations. Certarus fills its Mobile Pipeline® trailers from pipeline with excess capacity and transports the gas by truck before re-injecting it into constrained or under-served areas on the gas grid to establish a virtual interconnect. The flexibility of Mobile Pipeline® also allows Certarus to reach customers beyond the gas grid ensuring that more and more people have access to clean and affordable natural gas.

<http://www.ngvjournals.com/s1-news/c5-products/natural-gas-mobile-pipeline-gain-momentum-in-north-america/>

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INTERNATIONAL: GLOBAL LNG DEVELOPMENT

Global LNG-Prices slide in well-supplied, quiet market and mild winter

Asian spot prices for liquefied natural gas (LNG) slid to an eight-month low this week amid milder winter weather, which has curbed prompt demand growth in the region. Spot prices for February delivery to Asia LNG-AS this week dropped to \$8.50 per MMBtu, lowest since mid-May, industry sources said. Prices for cargoes to be delivered in March were estimated at about \$8.30 per MMBtu, they added.

The above fall was further to the fall last week although few cargoes were heard to swap hands in a well-supplied market with some traders still on their New Year's break. Spot prices for February delivery to Asia LNG-AS were assessed at \$8.75 per MMBtu compared to \$9.10 last week, industry sources said, citing low liquidity as the reason for the fall. Trading activity started to rise towards the end of the week and was mainly focused on late January and February cargoes, with nothing yet heard for March volumes, traders said. Tumbling shipping charter rates, however, were expected to boost liquidity next week, they said. Pakistan sought five cargoes for delivery over March to April, with offers due by Jan. 30, according to documents. Mexico's CFE sought five cargoes to be delivered to its Manzanillo terminal between February and April in a tender due by Monday, January 7, traders said. CFE also purchased a cargo in a tender for mid-January delivery. China's Unipec will load a cargo from Australia in February, having arranged a spot vessel for that shipment. On the supply side, a number of cargoes in Southeast Asia and the Middle East have been offered. Kuwait Foreign Petroleum Exploration Co (KUFPEC) will close on Monday, Jan 7, a tender for mid-February loading from the Wheatstone plant in Australia. Exxon closed a tender for a spot vessel to load February volumes from Australia's Gorgon plant. Malaysia's Petronas sold at least two January cargoes from the Bintulu plant, with prices at around \$8.50-\$8.70/MMBtu free-on-board (FOB). A spot FOB cargo is being marketed from Qatar's Ras Laffan plant for mid-January loading. Gunvor will lift a spot cargo from Oman's Qalhat plant this month, having chartered the Gaslog Singapore for the loading. Gunvor has also chartered the Flex Rainbow, which it will likely use to load a U.S. cargo, sources said. LNG delivery volumes into Northeast Asia accelerated in December, exceeding 20 MMT and setting a new record, Refinitiv Eikon data showed. Deliveries into China, Japan, South Korea and Taiwan are set to be robust in January with 7.4 MMT, or 114 cargoes, already scheduled to arrive, according to the data. Lower shipping rates are aiding flows into the region, industry sources said, although the flow of Atlantic cargoes to the Far East is unlikely to resume soon, with closed arbitrage. Spot charter rates for a vessel with modern propulsion dropped to about \$80,000 to \$85,000 per day this week from \$110,000 to \$120,000 the previous week and could fall further as more vessels are becoming available. On Friday, Jan 4, seven ships were open for a spot charter, which could grow to 10 by the end of next week, shipbrokers said.

<https://www.hellenicshippingnews.com/global-lng-prices-slide-in-well-supplied-and-quiet-market/LNG-Global>

Germany's Altmaier: Ready to build infrastructure for U.S. LNG

German Economy Minister Peter Altmaier on Monday said Europe was ready to build up an infrastructure for liquefied natural gas (LNG) from the United States, in Europe and in Germany. "Then it will be up to the U.S. to offer prices which are competitive", he told broadcaster Deutschlandfunk.

<https://www.hellenicshippingnews.com/germanys-altmaier-ready-to-build-infrastructure-for-u-s-lng/>

Russia eyes island storage for Arctic LNG amid China demand boom

Russia's Novatek PJSC is looking at storing LNG produced in the Arctic on Japan's southern island of Kyushu so it can better meet spot demand from China and cut shipping costs. Saibu Gas Co., which last month signed a preliminary deal to allow Russia's biggest LNG producer to use its storage facilities, said Wednesday, January 9, it may build two additional LNG tanks and upgrade its re-exporting capability. That infrastructure would offer Novatek greater flexibility to meet Chinese and South Korean demand and cut freight costs, according to Wood Mackenzie Ltd. Russia's Novatek aims to cut delivery times to Asia through the Northern Sea Route. Given its LNG sources are very far from Asia, storage and re-loading will enable it to capture shorter-term arbitrage opportunities," said Nicholas Browne, an analyst with the energy consultant in Singapore. "Keeping gas in storage could ultimately reduce its costs in supplying Asian markets" because shipping is more expensive from the Arctic when ice cover increases. The ability to meet spot LNG demand in China may grow in importance as the Asian nation ramps up efforts to use gas in place of coal to clean up polluted urban skies. The country's LNG deliveries may achieve 22% compounded annual growth from 2017 to 2020, according to Bloomberg Intelligence analyst Lu Wang. Novatek's agreement with Saibu shows it's prioritizing the Asia Pacific region as it optimizes its LNG portfolio, Rystad Energy analyst Xi Nan said in an email. It takes about 15 days to ship LNG from the company's Yamal project in the Arctic to Asian markets via the Northern Sea route compared to about 30 days by a southern path that travels through the Suez Canal, she said.

"The long-term success of Arctic LNG projects depends on routine, commercial navigation of the Northern Sea Route to reach key Asian markets," said James Taverner, a London-based analyst at the industry consultant IHS Markit Ltd. "A key strategy for Arctic LNG projects is access to reloading and storage facilities close to end-user markets. This allows supply to be quickly and flexibly delivered to Asian buyers."

<https://www.bloomberg.com/news/articles/2019-01-12/russia-eyes-island-storage-for-arctic-lng-amid-china-demand-boom>

Australia's east coast ships record LNG volume in 2018 as China's appetite grows

Australia's three east coast LNG export plants in Gladstone, Queensland, together shipped a record 20.58 MMT of the fuel in 2018, up 2% from 20.21 MMT in 2017, as falling export volumes to Japan and South Korea were more than offset by growing appetite from China. Exports to China surged 23% year on year from 11.59 MMT to 14.25 MMT, while year-on-year exports to South Korea and Japan were down 18% and 40%, respectively, according to data released by the Gladstone Ports Corporation. Looking forward,

China's LNG demand growth is expected to slow down in 2019 following a series of gas policies in 2018 aimed at relieving supply tightness and import dependency. S&P Global Platts Analytics forecasts China's 2019 LNG imports at around 58 MMT, up 14% from 2018. The country sustained an average growth rate of 40% over 2017 and 2018. "China's natural gas demand will continue to climb, but other sources of supply such as domestic production and pipeline imports from Russia will help shoulder the load. However, we still expect Chinese LNG imports to continue to represent a significant portion of the global demand growth in the next several years," said Jeff Moore, Manager, Asian LNG Analytics. Among other countries, Malaysia imported 876,663 tonnes of LNG from Gladstone in 2018, up 26%, while Singapore bought 467,134 MT, down 20% from a year ago. For the month of December, Gladstone shipped 1.77 million mt of LNG, down 11% year on year and 8% month on month. There are three LNG export facilities in Gladstone: the Origin-ConocoPhillips Australia Pacific LNG, the Santos-led Gladstone LNG and Shell's Queensland Curtis LNG.

<https://www.hellenicshippingnews.com/australias-east-coast-ships-record-lng-volume-in-2018-as-chinas-appetite-grows/>

Why U.S. imports LNG from Nigeria, Russia

More than a decade, the United States shale boom keeps breaking output records, with fields from Pennsylvania to Texas producing more natural gas than the country needs. That has triggered billions of dollars of investments to ship LNG overseas. Yet the U.S. is still importing LNG from countries such as Nigeria and Russia. There are two reasons for that: pipeline bottlenecks and the requirements of a 1920 law meant to support a robust U.S. shipping industry. Gas production jumped 12% last year to a record 89.6 BCF a day while consumption was 81.7 BCF per day, according to the U.S. Energy Information Administration. The problem is getting it to the right places at the right time because of insufficient pipeline capacity near big metropolitan centers. Pipelines historically have been designed to operate at a reduced rate for most of the year so that when a cold snap hits, there's space for a surge in demand. But with the shale boom, many households, power plants and factories have switched from fuels such as heating oil and coal to take advantage of cheap gas. This added consumption means that some lines are close to full year-round and are thus unable to cope when demand peaks. Gas shortages occur mostly in the Northeast. The region was the destination of most of the 200 MMSCFD of LNG the U.S. imported in the first 10 months of 2018. In January 2018, frigid weather sent New York City spot gas to a whopping \$175 per MMBtu, compared with less than \$3 elsewhere in the country, as gas distributors engaged in bidding wars for pipeline space. Surplus U.S. gas supply allowed America's booming LNG industry to ship 2.8 BCF a day to overseas markets during the first 10 months of 2018, according to the EIA.

<http://thenationonlineng.net/u-s-imports-lng-nigeria-russia/>

Will Exxon greenlight this huge LNG project?

Exxon has secured long-term purchasing commitments for LNG from its Rovuma project in Mozambique, moving closer to a FID on a facility that will add as much as 15.2 MMT of LNG to global capacity. In a statement, the oil supermajor, said the commitments are awaiting finalization and will then need to get the approval of the government of Mozambique. Once this is done, Exxon and its partners in the project will move forward with the FID on the project. Production is slated to begin in 2024. According to the company, it has stakes in LNG capacity totaling more than 65 MMTPA. Mozambique is a hot spot for LNG hopefuls right now, with the country believed to be home to some of the most abundant natural gas reserves. S&P Global Platts reports that Mozambique could become the third-largest LNG producer in sub-Saharan Africa in a few years, with total planned capacity to be added standing at 25 MMTPA, as per Wood Mackenzie calculations. In the Rovuma project, Exxon has partnered with Italy's Eni, China's CNPC, and the Mozambican state oil and gas company with a minority stake. It is in direct competition with a U.S. oil independent, Anadarko, which is also set to make a FID on its Mozambican venture, Area 1, in 2019.

<https://oilprice.com/Energy/Natural-Gas/Will-Exxon-Greenlight-This-Huge-LNG-Project.html>

Alaska shakes up LNG project leadership

The Alaska Gasline Development Corp. board fired CEO Keith Meyer on Thursday and replaced him with Joe Dubler, a previous AGDC vice president, as acting CEO, the board said. Meyer's departure was not unexpected and is one of a series of changes new Alaska Governor Mike Dunleavy is expected to make in the state-owned gas corporation. AGDC is managing development of Alaska LNG, a proposed \$43 billion project to bring 35 Tcf of confirmed North Slope gas to market. The project includes an 800-mile, 42-inch-diameter pipeline from northern to southern Alaska, a gas treatment plant on the North Slope and a large LNG project at Nikiski, in southern Alaska. If built, the project would export up to 20 MMTPA of LNG, mostly to Asian markets. Dubler has an extensive background in public finance with Alaska Housing Finance Corp., the state housing corporation, and worked as commercial lead for AGDC from 2010 to 2016 when the state corporation was a one-fourth partner with three North Slope producers in the Alaska LNG Project. BP, ConocoPhillips and ExxonMobil have since withdrawn from participation, leaving the state corporation as leader of the project. The producers have agreed to sell gas to Alaska LNG. In late 2017, Alaska signed agreements to negotiate for sales of LNG and equity investment with three Chinese companies, Sinopec, Bank of China and China Investment Corp. Agreements were to have been concluded by December 31, 2018, but the deadline has been extended to June 2019, partly because of ongoing U.S.-China trade disputes.

<https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/011019-alaska-shakes-up-lng-project-leadership>

Putin inaugurates Kaliningrad LNG terminal

Run by the State controlled company Gazprom, the terminal aims at further enhancing energy security in the Kaliningrad Region. Russia's president Vladimir Putin inaugurated a LNG import terminal in Kaliningrad, on the Baltic Sea. Run by the State controlled company Gazprom, the terminal aims at further enhancing energy security in the Kaliningrad Region. A key component of the terminal is a fixed marine berth with a breakwater. The berth is a 125.5-meter monolithic slab of high-strength concrete resting on 177 piles. Special equipment for receiving gas is installed on top of the slab along with mooring devices. "The floating storage regasification platform is currently moored at the receiving terminal; that platform will convert LNG into gas to pump into the underground facility and to supply to consumers in Kaliningrad Region," says Gazprom CEO Alexei Miller.

<http://www.themeditelegraph.com/en/markets/2019/01/10/putin-inaugurates-kaliningrad-lng-terminal-reEo5adzbVmE2ZrLHMZgWP/index.html>

Phoenix Petroleum gets green light for Philippines' first LNG terminal

Philippines firm Phoenix Petroleum said it has won government approval to build the country's first liquefied natural gas (LNG) import terminal in partnership with China National Offshore Oil Corp (CNOOC). Phoenix, a fuel retailer, said it plans to break ground this year for the LNG regasification and receiving terminal south of the capital Manila, in a country that still relies heavily on coal as a fuel source. The company said its Tanglawan Philippine LNG Inc unit, which will undertake the project, is partnering with a unit of CNOOC Gas and Power Group Co. Ltd., China's largest LNG importer and terminal operator. The LNG facility is expected to have a capacity of 2.2 MMTPA, with commercial operations targeted to start by 2023, Phoenix said in a regulatory filing. The Philippines has been looking to start importing LNG to feed gas-fired power plants in Batangas, south of the capital, as domestic gas supplies from its Malampaya field are set to run out in 2024 at the earliest. Phoenix, owned by local businessman Dennis Uy who helped bankroll Philippine President Rodrigo Duterte's 2016 election campaign, also plans to build a 2,000-megawatt gas-fired power plant as part of the integrated project in Batangas province.

Phoenix did not say how much the LNG project would cost, but the Department of Energy (DOE) previously estimated total investment for such a facility could reach \$2 billion. The Malampaya gas field, which lies near the disputed South China Sea waters and is operated by a unit of Royal Dutch Shell Plc, fuels plants that supply about 40 percent of the power for the main Luzon island.

<https://www.hellenicshippingnews.com/phoenix-petroleum-gets-green-light-for-philippines-first-lng-terminal/>

All news and features carried in this NGS NG/LNG Update are compiled from various sources - print and web editions, and have been duly acknowledged.

NGVAmerica publishes new fact sheets to promote adoption of NGVs

NGVAmerica has released four new fact sheets regarding the benefits of using natural gas for heavy-duty trucks, school buses, refuse and transit vehicles. The new information comes as states are beginning to distribute their share of the \$2.9 billion Environmental Mitigation Trust funding established as part of the Volkswagen emissions settlement. "Volkswagen Trust funding offers a game-changing opportunity to accelerate the adoption and use of the cleanest medium- and heavy-duty engine on the market today, fueled by American natural gas," said Daniel Gage, NGVAmerica President. "These public/private investments should be prioritized to achieve the greatest and most cost-effective reductions in NOx emissions to offset the environmental damage done, replacing dirty Class 4-8 diesel-powered trucks and buses with zero emission equivalent Ultra Low-NOx vehicles powered by geologic and renewable natural gas." 47 states have issued fund distribution plans to date; 38 are final. Several states have already opened applications for VW grant programs using the \$2.9 billion in avail-

able resources for new vehicle purchases and replacements. First round funding applications are currently being accepted in Idaho, Iowa, Maryland, Michigan, Missouri, and New Jersey.

<http://www.ngvjournal.com/s1-news/c1-markets/ngvamerica-publishes-new-fact-sheets-to-promote-adoption-of-ngvs/>

Egypt funds thousands of vehicle conversions to CNG

Egypt's Micro, Small, and Medium Enterprises Development Agency (MSMEDA) has signed two contracts to convert 4,000 cars from diesel to CNG fuel. The contracts were signed by Engineer Tarek Al-Mulla, Minister of Petroleum and Mineral Resources, Mrs. Niven Jameh, CEO of the SME Development Agency and representatives of Cargas and Gastec. The contracts are valued at EGP 20 million (USD 1.12m) and arise out of the government initiative "Towards Natural Gas". The initiative aims to provide support and funding for the expansion of vehicles switching to CNG. After the signing, Mulla said that the Ministry of Petroleum's intention to expand the nation's fleet of natural gas vehicles comes from its commitment to develop and facilitate services for citizens and to provide different types of fuel to the consumer in the local market, includ-

ing natural gas, which is characterized by low cost compared to gasoline and diesel. The Ministry press release states the use of natural gas is highly acceptable for its multiplicity of advantages. Mullah said that the wider use of natural gas as a fuel for cars contributes to reducing pressure on imported gasoline and diesel. Furthermore, the support of the State is justified by the added value brought to the community through the establishment of manufacturing industries that serve this activity and new stations and conversion centers. The natural gas vehicle (NGV) population in Egypt is approximately 248,000. The conversion program aims to lift the conversion rate of vehicles to about 2,600 per month by encouraging owners to take advantage of low-cost advantages and access to finance for the facilitation and expansion of infrastructure of natural gas fueling stations and conversion centres. She pointed out that the initiative "Towards Natural Gas" launched in 2018 in cooperation with the Ministry of Petroleum aims to finance the conversion of 10 thousand vehicles to operate with natural gas and the establishment of 50 CNG stations. The Egyptian International Gas Technology (Gastec) is one of the pioneering companies in the field of establishing and operating CNG fueling stations and conversion centers of vehicles to run on natural gas in Egypt and Middle East. Car Gas (Cargas) is an affiliated company to the Egyptian Ministry of petroleum, working in the field of conversion and refueling of all types of vehicles to be powered by natural gas as an additional fuel.

<http://www.ngvglobal.com/blog/egypt-funds-thousands-of-vehicle-conversions-to-cng-0110>

CLEANCOR enhances CNG/LNG solutions capacity with Greenfix asset acquisition

CLEANCOR Equipment Solutions LLC has acquired substantially all of the assets of GreenFix America, LLC, a Palm Springs, California-based company. The acquired equipment will further CLEANCOR's ability to offer turnkey LNG and CNG solutions for use by truck fleets and other applications. In conjunction with the transaction, GreenFix America Managing Member Mark Kimberlin has been hired as Chief Operating Officer of CLEANCOR LNG LLC, a subsidiary of CLEANCOR. CLEANCOR LNG distributes LNG and provides technical support to help its customers nationwide seamlessly transition to a cleaner, lower cost fuel. "Our goal is to build a comprehensive LNG and CNG supply and services business that annually displaces millions of gallons of diesel fuel and propane with reliable and more sustainable natural gas fuels," said Jeff Woods, CEO of CLEANCOR. "This acquisition, and the hiring of Mark, with his extensive background in design, construction, operations and maintenance of LNG and CNG fueling stations and support equipment, are important steps in facilitating our growth." CLEANCOR Equipment Solutions LLC is a subsidiary of CLEANCOR Energy Solutions, which in turn is a wholly owned subsidiary of SEACOR Holdings Inc.

<http://www.ngvglobal.com/blog/cleancor-enhances-cng-lng-solutions-capacity-with-greenfix-asset-acquisition-0111>



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SEAT improves CNG version of the Leon with new 1.5 liter TGI engine

SEAT is enhancing the CNG variant of the popular Leon with a new 1.5 liter TGI engine and increased CNG range with the integration of three gas tanks. The new Leon TGI Evo – built at SEAT's Martorell facilities – continues the success of the Leon TGI and Leon ST TGI but advances the technology to make it even more relevant to the market and further push the uptake of CNG vehicles. SEAT is at the heart of the CNG trend, with NGV variants of the Ibiza, Mii and recently released Arona pushing adoption, and now joined by the Leon TGI Evo and Leon ST TGI Evo. As with other vehicles in the SEAT CNG line-up, the Leon TGI Evo only uses petrol as an alternative fuel when the CNG tanks are empty, but there is now even greater CNG storage capacity as the SEAT Leon TGI Evo benefits from three gas tanks – two of which benefit from advanced lightweight carbon fiber composite construction. The Leon TGI Evo has a gas capacity of 17.7kg giving a range of 500km in CNG mode, and, thanks to the automatic switch to petrol, the range is extended by an additional 150 km. The Leon TGI Evo is thus cleaner and even better value for money, helped greatly by CNG's efficiency over other fuels: the energy generated by 1kg of CNG is equivalent to 2 litres of LPG, 1.3 liters of diesel and 1.5 liters of petrol.

<http://www.ngvjournal.com/s1-news/c3-vehicles/seat-improves-cng-version-of-the-leon-with-new-1-5-liter-tgi-engine/>

British supermarket opens first CNG station and unveils biogas truck fleet

Online supermarket Ocado has opened its first natural gas refueling station at its Hatfield Customer Fulfilment Centre. Ocado is the first UK retailer to self-fund the purchase of an onsite grid connected station outright. The site launched with 29 trucks powered by blended biomethane, totaling an investment of £3 million. The replacement of the existing diesel vehicles represents 20% of the online retailer's fleet, an industry-leading figure. Ocado's CNG refueling station has been designed and built by Gasrec. The businesses have agreed a 10-year support and maintenance contract, with Ocado also announcing plans to invest in natural gas technology at future sites. The investment in natural gas is part of Oca-

do's wider strategy to explore and invest in carbon-friendly alternatives to diesel fuel. Environmental benefits of switching to natural gas include 99% fewer particulate emissions and 70% less nitrogen oxide than the latest diesel standard. The trucks are on average 50% quieter than diesel vehicles, so are kinder to residential areas. The new vehicles will reduce the Ocado HGV fleet CO2 emissions by 29% annually. Graham Thomas, Fleet Services Manager at Ocado, also commented: "By investing in natural gas-powered vehicles, and in our first onsite refueling station, we're future-proofing our fleet and our business. Emissions from CNG are cleaner than Euro VI standards which start to take effect with the London Low Emissions Zone from April, and will soon be followed by a further 32 Clean Air Zones."

<http://www.ngvjournal.com/s1-news/c4-stations/british-supermarket-opens-its-first-cng-station-and-unveils-biogas-truck-fleet/>

Pioneering LNG truck fleet refuels for the very first time in Argentina

The successful refueling of LNG took place at the Anchoris Thermoelectric Power Plant, Mendoza province, and the fleet consists of six Scania G340 trucks specially equipped to run on this green fuel. It is the first time that a truck fleet refuels LNG in the country. Owned by the Mendoza-based carrier Andreu, the new fleet will transport the trailers of the Virtual Gas Pipeline, the system with which Galileo Technologies distributes natural gas in a liquid form. Equipped with two cryogenic fuel tanks that allow to refuel 265 kilograms of LNG, the trucks have a range of 1,100 kilometers. During their trips, which include mountain and gravel routes, the new trucks will tow the trailers with which Galileo takes LNG from wells scattered in Mendoza and Neuquén to the recently opened Anchoris Thermoelectric Plant, which uses it as fuel. With the replacement of diesel trucks with new ones powered by LNG, Galileo Technologies expects to achieve higher levels of environmental and economic efficiency in each trip, such as lower exhaust emissions and lower fuel costs, which will be reduced by up to 50%. Andrés Leonard, General Director of Scania Argentina, also commented: "It is the first time that heavy vehicles running solely on natural gas, and more specifically on LNG, enter the country. We are proud to be pioneers not only of introducing a new technology

to the country, but also because it collaborates directly with the reduction of environmental impact." "Committed to innovation and being more efficient and sustainable, we decided to invest in the purchase of these trucks accompanying Galileo in this challenge," added Eduardo Andreu, Director of Transportos Andreu. In the medium term, Galileo Technologies will launch a Blue Corridor of LNG stations so that the fuel is available on the Argentine routes. The plan will include the supply of LNG dispensers for logistics centers. These dispensers will operate without connection to the natural gas grid and will be supplied by Galileo's Virtual Pipeline, under a SCADA remote monitoring system.

<http://www.ngvjournal.com/s1-news/c3-vehicles/argentinas-first-refueling-of-lng-truck-fleet-successfully-completed/>

Cairo transport agency gets first CNG buses from MAN dealer in Egypt

Kastour Egypt for Industry & Trading, MAN Truck & Bus' exclusive importer in Egypt, has delivered the first two K335-CNG buses for the Cairo Transportation Authority (CTA) with 120 buses more due to follow in 2019. The next batch will be delivered in July 2019 and the delivery of the last 60 units is planned for the first quarter of 2020. To be selected for this city bus tender, Kastour Egypt for Industry & Trading together with the Bus Management of MAN Center Importer NWC Africa decided to build this vehicle on the basis of a MAN A69 CNG chassis. This chassis is powered by a MAN CNG engine which has 12.8 L volume delivering 310hp and 1250 Nm with exhaust norm of EEV. Kastour Egypt for Industry & Trading together with MAN Bus Bodybuilder management developed a body for a low entry bus corresponding exactly to the CTA requirements: 12.5 m length, 2.55 m width and 3.57 m height. "This contract illustrates the great cooperation between MAN and its local partners. The chassis A69 CNG matches perfectly with the customer's requirements and our partners' capability, Kastour Egypt for Industry & Trading was able to develop a robust and modern body adapted for this chassis in a few months," said Adel Lünz, Head of Center Importer NWC Africa.

<http://www.ngvjournal.com/s1-news/c3-vehicles/cairo-transport-operator-receives-first-cng-buses-from-man-dealer-in-egypt/>

Ship shortage threatens Asian LNG market growth

In the growing market for liquefied natural gas, driven mainly by Asian demand, a shortage of transport vessels could become a bottleneck. While demand for LNG shipments to China is steadily growing as the country increases its consumption of eco-friendly natural gas, the supply of ships is not keeping pace with growing demand for spot charters. Spot charter rates for LNG carriers with a tank capacity of 150,000-170,000 cu. meters stood at the \$190,000 per day range in November, five times higher than in early May. The market environment has changed considerably since 2015-2016, when the rates were around \$20,000-30,000 per day amid anxiety about a glut of vessels. "We did not expect that we would run short of vessels so quickly," said a person in charge of LNG carriers at a major Japanese shipping company. A major reason behind the high charter rates is a surge in gas demand in China. In a drive to reduce serious air pollution, China is rapidly switching from coal to natural gas for power generation. Energy companies and trading houses in China are securing LNG carriers earlier to import LNG stably over the long term. Other countries in Asia are also turning to the consumption of natural gas. In 2018, Bangladesh began importing LNG and the Philippines also revealed plans to build its first LNG import terminal by investing more than \$700 million. Energy research firm Bloomberg New Energy Finance estimates that global LNG demand will grow to 450 million tons by 2030, from 284 million tons in 2017, with Asia driving the growth. About 600 LNG ships are in use worldwide, and about 40 new vessels are expected to go into service in 2019. However, according to Nippon Yusen, most of the vessels are chartered exclusively for new projects under long-term contracts and only a limited number of them flow into the spot charter market. Spot LNG sales are increasing as natural gas, including American shale gas, which does not necessarily involve long-term contracts, has come to be exported on a full-scale over the past several years. LNG trading practices that have been rigid and characterized by long-term contracts covering a period of over 10 years are changing, but the insufficient transportation infrastructure, or carrying vessels, will become an obstacle. The International Energy Agency said in a recent report: "The risk of a lack of timely investment in the LNG carrier fleet could pose a threat to market development and security of supply, which could materialize even earlier than the risk of insufficient liquefaction capacity."

<https://asia.nikkei.com/Business/Markets/Commodities/Ship-shortage-threatens-Asian-LNG-market-growth>

Polskie LNG plans LNG bunkering in new Swinoujście terminal expansion

Polskie LNG of Poland has launched a tender procedure to select the contractor of the fourth project under the LNG Terminal Expansion Program, being the construction of an additional jetty. The additional facility will include measures to allow for the introduction of LNG bunkering to meet the increased opportunity from natural gas-fuelled shipping. The project is implemented in cooperation with the Szczecin and Świnoujście Sea-ports Authority. The contractor selection procedure is due to be completed by the end of 2019, whereas the construction of the new jetty is planned to be completed in 2023. The contract notice published on 2 January 2019 officially commences the tender procedure aimed at selecting the contractor for one of four projects under the expansion program of the President Lech Kaczyński LNG Terminal in Świnoujście, i.e. the construction of the second jetty. The deadline for submitting requests to participate in the tender is 7 February 2019. The new jetty will enable the provision of new crucial services at the LNG Terminal in Świnoujście, including methane carriers loading and unloading, LNG transshipment and loading LNG bunkers, as well as bunkering service. These services follow the recent trend in Small Scale LNG (SSLNG) development owing to which the LNG Terminal in Świnoujście will be able to satisfy

the growing market demand as well as to respond to a number of European regulations including climate and environmental laws which stimulate the transition towards low-emission fuels.

<http://www.ngvglobal.com/blog/polskie-lng-plans-lng-bunkering-in-new-swinoujście-terminal-expansion-0111>

Construction advances on Brittany Ferries' new LNG-powered ship

Brittany Ferries' radical new LNG-powered ship Honfleur took a dramatic step closer to completion when almost her entire superstructure was craned aboard in two gigantic blocks weighing up to 2,000 tons each. The spectacular operation marked the end of a milestone week in the cruise-ferry's construction. Just days before the first block was lifted into place, crowds gathered to see Honfleur's 10,000-ton hull make the backwards slide down a slipway and into the Baltic Sea. "In just seven days Honfleur has taken to the water for the first time, grown in height by around 20 meters, and acquired her distinctive profile," said Christophe Mathieu Brittany Ferries CEO. "From here on, the story begins to move from the development of her innovative LNG infrastructure and hydrodynamic hull to focus on the richness of the passenger experience. This includes restaura-

rants, cinemas, cafes and boutiques, as well as a range of digital and immersive spaces to be savored on board." Each block is five decks high, over 40 meters long and spans Honfleur's full 31-meter width. They house Honfleur's airy public areas, her 261 passenger cabins and her bridge. They were constructed in Poland's historic Gdansk shipyards, which now also build luxury yachts and cruise liners, before being towed on barges to the FSG yard in Flensburg in northern Germany where her hull was built. The blocks were placed on the hull by Gulliver, a 22,400-ton heavy lift vessel operated by Scaldis. Her twin cranes soar 100 meters into the sky, and are capable of lifting a 4000-ton load to a height of 78 meters. After picking each block up from its barge, thanks



to 16 cables attached to 'grab handles' welded to the top deck, Gulliver backed slowly away. She then turned towards Honfleur's hull where blocks were inched downwards into position.

<http://www.ngvjournals.com/s1-news/c7-lng-h2-blends/construction-advances-on-brittany-ferries-new-lng-powered-ship/>

Shipbuilders to benefit from LNG ship orders in 2019

South Korean shipbuilders are expected to continue to benefit from a growing number of liquefied natural gas (LNG) ship orders this year, people in the industry said. In 2019, the world's overall LNG ship orders are likely to reach 69, rising from 65 in 2018 and 17 in 2017, according to data compiled by the London-based shipping group Clarkson Research. Rising demand for LNG ships is partly due to China's policy to encourage businesses to use LNG, an eco-friendly fuel, a shipbuilding official said. Helped by robust LNG ship orders, South Korea's three biggest shipbuilders — Hyundai Heavy Industries Co., Samsung Heavy Industries Co. and Daewoo Shipbuilding & Marine Engineering Co. — achieved their order targets for 2018. Hyundai Heavy received US\$13.3 billion worth of orders last year, higher than its goal of \$1.32 billion. Samsung Heavy bagged \$5.7 billion worth of orders, exceeding its target of \$5.1 billion. Daewoo Shipbuilding earned \$6.81 billion in orders, higher than its target of \$6.6 billion, the companies said. The three shipbuilders are the world's three biggest shipbuilders by orders. In contrast, a rebound in offshore facility orders is unlikely this year as global oil majors remain cautious about investing in oil exploring ships due to declining oil prices, the official said.

<https://www.hellenicshippingnews.com/shipbuilders-to-benefit-from-lng-ship-orders-in-2019/>

LNG is the ideal 'transition fuel' for the marine sector

Liquefied natural gas (LNG) is comfortably the frontrunner in the race for alternative fuels that comply with the post-2020 emissions targets – but LNG may not be the right fuel for the tougher standards applying from 2050.

That is the view of Dutch tanker operator Spliethoff's vice-president of business development, Sjaak Klap, who sees LNG as "an excellent choice as a transition fuel for the [current] generation of ships and over the next decade." Speaking ahead of the LNG bunkering summit due to start on 29 January, Mr Klap pointed out that, while LNG's CO2 emissions are about 25% lower than fuel oil and marine gas oil, they are still too high to meet the 2050 targets. However, the development of alternatives such as biofuels, methanol, ethanol, hydrogen, ammonia and electricity continues to lag behind that of LNG, in some cases far behind. And only three of these – methanol, hydrogen and electricity – have so far been taken seriously into consideration, he adds. Indeed, only two shipping companies in the world use methanol as a marine fuel. There are continuing problems with the three main alternatives, according to Mr Klap. An unforeseen issue with methanol is that, aside from technical and financial limitations, it cannot yet be produced in a sustainable way. Also, there's not nearly enough methanol for marine use. The marine industry consumes about 320 million tonnes of fuel a year, which com-

pared with total global methanol production of less than 100 MMT, equivalent in terms of energy to just 50 MMT. "Therefore, scaling up [methanol] production would be an enormous task, particularly as the majority of methanol is currently used as a feedstock for the chemical industry," he explained. As for hydrogen, despite testing by Norway and Japan, "there has been minimal progress in this area." Also, although hydrogen is theoretically carbon-free, most hydrogen is produced from natural gas in a process that releases CO2 into the atmosphere. "Hydrogen can only be produced in a sustainable manner when this CO2 is captured and stored, or by electrolysis using wind or solar electricity," he said. Another significant problem with hydrogen is that its storage would take up far too much cargo space. And although diesel-electric hybrid power has overcome some of the distance limitations of battery-driven vessels, "electricity cannot reasonably be considered as a fully-fledged alternative to LNG." Finally, said Mr Klap, the alternative fuels are prohibitively expensive compared with current fuels as well as LNG. Any viable alternative to LNG "will take decades," he concluded.

https://www.lngworldshipping.com/news/view/lng-is-the-ideal-transition-fuel_56324.htm

New LNG-powered container vessel will serve European ports and trade

Containerships announced the delivery of M/S Containerships Nord, its first LNG-powered container vessel. She was delivered to Containerships at Wenchong Shipyard, China, in December. The company's LNG-story started in 2013, when the decision to build the new environmentally-friendly LNG-powered vessels was taken. These vessels would be the first newbuilds based on this technology to serve regularly European ports and trade. Containerships' LNG-concept spreads out from sea to land; target is to create a complete, LNG based door-to-door supply chain in Europe. In addition to LNG-powered vessels, company looks for constant growth of LNG-fueled transport capacity on land logistics by investing in LNG trucks. M/S Containerships Nord started sailing towards Europe soon after her delivery. Her sister vessels, three more in total, are scheduled for delivery during the first half of 2019. All vessels hold a capacity of 1,400 TEU. After the delivery of Containerships' first three LNG-powered vessels, the company will offer its customers a service based on LNG in large extend. Until then, Containerships' parent company, CMA CGM also very committed to environmentally friendly LNG-technology – has sublet M/S Containerships Nord for its trade lanes. "CMA CGM is the first deep sea shipping line that has made public its commitment to LNG. There is a great synergy in our environmentally-friendly visions, which naturally gives us even more courage to continue on the chosen path", added Laaksonen.

<http://www.ngvjournal.com/s1-news/c7-lng-h2-blends/new-lng-powered-container-vessel-will-serve-european-ports-and-trade/>



IOT Infra plans to manufacture bio-CNG in Tamil Nadu

IOT Infrastructure and Energy Services, a joint venture of state run-Indian Oil Corporation and Oiltanking GmbH of Germany, is tweaking its biogas plant to manufacture bio-CNG for vehicles and has plans to set up more greenfield projects for the clean auto fuel. We have been running a power plant on biogas and realised that if we managed to increase its methane concentration, we could convert it into bio-CNG for automobiles. This would directly help in reducing India's dependence on liquid fuel," Vivek Venkatachalam, managing director, IOT, told ET. IOT, a 50:50 joint venture, has been generating power from biogas at its plant at Namakkal. Now, with an investment of Rs 25 crore, and implementation of a technology developed by IOC's research and development team, the plant will be converted to a bio-CNG unit with a daily output of 12,000 kg. Our Namakkal unit would start selling bio-CNG from July. Besides this plant, we are looking to set up another five greenfield projects in the next 2-3 years, for which we are in talks with companies which have agri waste that can be our feedstock," Venkatachalam said. The cost of each of these units would be Rs 50-65 crore, he said. We are also talking to oil marketing companies to sell the bio-CNG. The idea is to set up the manufacturing units in clusters where feedstock is available and then sell the product in areas close to it," Venkatachalam.

<https://economictimes.indiatimes.com/industry/energy/power/iot-infra-plans-to-manufacture-bio-cng-in-tamil-nadu/article-show/67358665.cms>

Thailand: new facility opens to produce, store and deliver biogas

Cenergy Solutions has completed the installation of their first Adsorbent Natural Gas (ANG) Biogas Cleaning, Storing and Utilization System at a pig farm in Thailand that has been venting biogas for over 30 years. The biogas is cleaned with Cenergy's Biogas Upgrading System, compressed in the CS-180 compressor which fills Cenergy's ANG tanks. The captured and cleaned biogas in these ANG tanks will be used to replace LPG usage in neighboring homes. This Thai farm can now utilize renewable energy to help their community be energy independent and generate income. The 11,200 cubic

feet of biogas that was previously vented into the atmosphere each day can now give 1,400 homes enough gas to cook with each day. The village also received a government grant to bring biogas from neighboring farms which will almost double their biogas distribution. Gary Fanger, Cenergy's CEO/CTO said, "There are millions of farms releasing biogas around the world, it is harmful to our environment and wasting a valuable resource. This includes the biogas that could be produced and utilized from farms, wastewater treatment plants and landfills. In the past it was too expensive to clean and store this biogas but that has now changed with Cenergy Solutions' patented low pressure ANG System that can store and help utilize this wasted renewable energy". Cenergy Solutions' patented Biogas Capture and Utilization System (BCU System) can economically compress and store biogas in low pressure ANG tanks to be efficiently distributed to rural areas that are now cooking with LPG, wood, or other biomass that is harmful to individuals and the environment. ANG tanks (similar in size and weight to LPG tanks) can be filled with cleaned biogas to be used in place of LPG in almost any propane appliance or application. Cenergy's BCU System is dependable, easy to set up, and can save money and generate income while helping the environment and communities with their energy needs.

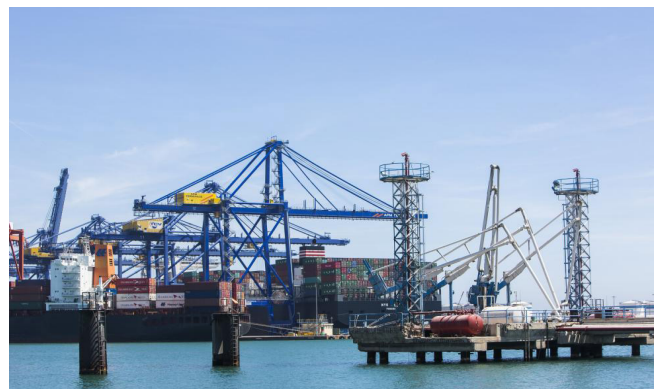
<http://www.ngvjournals.com/s1-news/c1-markets/new-facility-opens-to-produce-store-and-deliver-biogas-in-thailand/>

Valencia will be Europe's first port to use hydrogen at its terminals

Valencia may become the first port in Europe to incorporate hydrogen energy to reduce the environmental impact of its operations. A reach stacker for loading/unloading and transporting containers and a terminal tractor for ro-ro operations will be the first machines powered by hydrogen fuel cells that will operate in real conditions in the harbor. The initiative is promoted by Valencia port and is part of its strategic plan for the development of renewable energy. The pilot

project, called H2Ports, also includes the installation of a mobile hydrogen supply station which in the initial phase of the project will work in the Valencia Terminal Europa and MSC terminals of the port. This station will be developed with criteria of safety and economic profitability with the aim of contributing to the decarbonisation of the logistic-port chain. The H2Ports project will entail a total investment of 4 million and will involve the participation of Valencia port authority, the Valenciaport Foundation, the National Hydrogen Center, and the private companies MSC Terminal Valencia, Grimaldi Group, Hyster-Yale, Atena, Ballard Power Systems Europe and Enagas. The project has received funding from the Fuel Cells and Hydrogen Joint Undertaking (FCHJU) initiative, a public-private partnership that promotes the adoption of hydrogen as a low-emission alternative and receives support through the Research and Innovation programs Horizon 2020 of the European Union. Within the framework of its energy strategy, the port of Valencia incorporated in 2017 the use of hydrogen and fuel cells as alternative energy source, in order to enhance the continuous reduction of emissions and the so-called Carbon Footprint. The H2Ports project will allow to demonstrate the use in real operations of these new prototypes in the Grimaldi and MSC terminals, thus becoming the first European port facilities that will use hydrogen-fueled machinery. With the implementation of the actions derived from the H2PORTS project, the Valencia port authority and port community continue on the path of finding less polluting fuel for their use in ports and thus contribute to the decarbonization of transport activities.

<http://www.ngvjournals.com/s1-news/c7-Ing-h2-blends/port-of-valencia-becomes-the-first-european-port-to-use-h2-at-its-terminals/>



project of renewable energy. The pilot