



Natural Gas Society

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NEWS BRIEFS

- Access code for new CGD operators
- Indian Gas Exchange (IGX) has secured PNGRB nod to operate as a Gas Exchange for 25 years
- Bengaluru will get five waste-to-energy plants to tackle its garbage woes.
- Intercontinental Exchange (ICE) launched West India Marker LNG (Platts) Futures Contracts.
- Japan's Sumitomo sells all of its stake in U.S. Marcellus shale gas project.
- World's largest hydrogen plant will supply carbon-free fuel for transport

NATIONAL NEWS

REGULATIONS AND POLICIES

The following main regulations and policies were notified during the year 2020.

E-bidding for market price:

In a step to further free India's gas market, the Cabinet Committee on Economic Affairs has given its nod for a methodology to determine the fuel price in future discoveries. The Cabinet has approved 'Natural Gas Marketing Reforms' that aim to prescribe a standard e-bidding procedure to discover the market price of gas through a transparent, competitive process. The current gas pricing formula will continue to be in force for production from existing discoveries awarded under the nomination regime. The price ceiling under the present gas price formula will also continue. The new e-bidding process will govern discoveries which came on stream from February 2019 onwards. Essentially, the new regime will be applicable to producers from the areas offered under the Open Acreage Licensing Policy (OALP) rounds. In this regime, producers have complete marketing and pricing freedom.

Access code for new CGD operators:

PNGRB has notified access codes for new city gas distributors that would help them transport, distribute and price natural gas. The move is expected to simplify gas pipeline tariffs and attract investment for building new gas infrastructure. The regulations will also increase competition in newer cities coming under gas distribution networks. As part of the open access code, brought out in a government notification, existing CNG stations operated by dealers and oil marketers won't be considered as "third-party shippers" to allow access in gas stations. This means, oil marketers already selling CNG won't be allowed to participate through the open access route or seek access to retail CNG on their own. The regulation also prevents existing oil marketers from setting up their own dispensing units in their network if they're let out to supply CNG to incumbent players.

KEY APPOINTMENTS



● GAIL CMD Manoj Jain was appointed Chairman of Mahanagar Gas as well.



● E.S. Ranganathan took over as the Director (Marketing), GAIL succeeding Gajendra Singh, who superannuated on June 30. Prior to his appointment Ranganathan was MD, Indraprastha Gas. Mr. Ranganathan was a senior member of the NGS Governing Council and contributed immensely to its development.



● MV Iyer took charge as Director (Business Development) at GAIL. Before this, he was working as executive director (projects) with GAIL.



● AK Jana took over as IGL's new Managing Director. Before joining IGL as Managing Director, Jana was Chief Executive Officer of GAIL Gas. He has taken over from ES Ranganathan who ceases to be a Director and Managing Director.



● M.V. Ravi Someswarudu took over as GAIL Gas CEO. Prior to this assignment, he was serving as Executive Director & Officer- In- Charge of the Petrochemical Project at GAIL, Pata. He has taken over the charge from AK Jana.

Any company can set up LNG station:

PNGRB announced that any entity can set up an LNG station in any geographical area or anywhere else, even if it is not the authorised entity for that GA. This announcement would facilitate LNG dispensing infrastructure across the country on major national highways and encourages OMCs, CGD entities or any interested parties to set-up such retail stations.

Unified Tariff for transmission pipelines:

PNGRB has simplified the country's gas pipeline tariff structure to make the fuel more affordable for distant users and to attract investment for building gas infrastructure. It has notified regulations for a 'unified' tariff structure for over a dozen pipelines that form the National Gas Grid which will lead to a

20-30 per cent rise in transportation charges paid by users near the source but a reduction for consumers in the hinterland. Currently, the tariff is levied in proportion to the distance transported - the longer the distance, the higher is the charge. This resulted in consumers away from the coast paying higher charges as compared to those near it. PNGRB has now notified a two-zone tariff structure - Zone-I will be 300-km from the source of gas (gas field or LNG import terminal) and Zone-II will be beyond that. PNGRB said the tariff for the first tariff zone will be 40 per cent of the tariff for the second zone. The increase will vary from pipeline to pipeline. The pipelines that will be part of the unified tariff plan include GAIL India Ltd-operated Hazira-Vijaipur-Jagdishpur (HVJ) and its supplementary Dahej-Vijaipur line and Dahej (in Gujarat) to Uran-Dabhol-Panvel (in Maharashtra) pipeline. Also, the line from Jagdishpur in Uttar Pradesh to Haldia in West Bengal, Bokaro in Jharkhand and Dhamra in Odisha (called the Pradhan Mantri Urja Ganga) and Dadri (Uttar Pradesh) to Bawana-Nalga and Dabhol-Bangalore pipeline would be part of it. Reliance Industries' subsidiary operated Shahdol-Phulpur line from its CBM block in Madhya Pradesh to Uttar Pradesh as also its formerly owned East-East pipeline from Kakinada in Andhra Pradesh to Baruch in Gujarat would also be part of the plan. GSPL's proposed Mehsana in Gujarat to Bhatinda in Punjab and onwards to Jammu/Srinagar as well as Mallavaram-Bhopal-Bhilwara-Vijaipur lines would also be part of it. Indian Oil Corp's (IOC) Dadri-Panipat pipeline is also part of the unified structure. PNGRB will now notify unified tariffs for each of these pipelines. The new tariff structure would help create a single gas market in the country by attracting investment to complete the gas grid and make it more easily accessible.



Draft regulation for tariff determination for transmission pipelines:

In September 2020, PNGRB released a draft regulation for determination of transportation rate for CGD companies, which came into being before the regulator PNGRB was set up. In this draft regulation, the PNGRB has selected the cost of service method, but based on a 12% post tax RoCE (16% pre-tax), which is similar to the rate at which transmission tariff is decided for the transmission pipelines of GAIL/GSPL.

Indian Gas Exchange (IGX) has secured PNGRB nod to operate as a Gas Exchange for 25 years:

IGX is India's first automated delivery-based gas trading platform. The IGX commenced its membership drive in February this year ahead of its formal launch. The online gas trading platform intends to offer transparency, competitive price of natural gas, 24x7 trade facility, delivery facilitation and ease of transaction to the market participants. PNGRB draft regulation has capped individual stake in gas exchange to 15%. For a member of the exchange, the shareholding has been restricted to 5% of the equity share capital, as per the draft, which caps the aggregate shareholding at 49% for all members.



City Gas Distribution & Auto LPG

- Torrent Gas has signed a pact with Tamil Nadu to invest Rs 5,000 cr on city gas distribution infra. The company will provide CNG and PNG in Chennai and Thiruvallur districts.
- Confidence Petroleum has secured the contract for the first MRU (Mobile Refueling Unit) for CNG distribution from MNGL. MNGL distributes gas in Pune and the award has been given for distribution of CNG in areas like Hinjewadi, Talegaon etc.
- Central Pollution Control Board (CPCB) has directed Delhi Pollution Control Committee (DPCC) and state pollution control boards of UP, Rajasthan and Haryana to allow only those new

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New launches



CNG

Maruti Suzuki launched natural gas version of the Celerio, the seventh BS6 S-CNG offering from Maruti Suzuki, offering a mileage of 30.47 km/kg. BS6 is the most stringent emission standard issued by the Government of India. Maruti Suzuki also launched BS6 CNG Super Carry small CV at Rs 507,000. Skoda has also announced the launch of Octavia G-Tec, which is designed to run on CNG. Hyundai India also launched CNG version of the BS6 Grand i10 NIOS. The new car features a bi-fuel (gasoline/natural gas) version of the 1.2-litre Kappa naturally aspirated four-cylinder engine.

Electric

Hyderabad based EV startup launched its electric bike Atum 1.0 at Rs 50,000. The cost-effective café-racer styled electric bike is available across India through Atumobile's online portal. The bike consumes around 1 unit per charge, which translates to Rs. 7-10 per day (for 100 km) as compared to the traditional ICE bikes, which cost almost Rs. 80-100 a day (for 100 km).



per cent and 57 per cent of their total CNG outlets, respectively).

- Digging norms have been eased for underground CNG, PNG and slurry pipelines along the roads in Maharashtra.



PNG/CNG and slurry pipelines have also been included in the list of the Forest (Conservation) Act, 1980, and now they do not need to get separate clearances and follow compensatory afforestation norms. Instead, in case laying such pipelines involves felling of any trees, the user agency will have to plant 10 trees for each tree marked for removal in consultation with the local forest department.



- PNGRB issued fresh force majeure guidelines for city gas operators amid a nationwide lockdown from March 25 and state-level lockdowns since June which hampered city gas projects. Due to this, piped gas suppliers saved on penalties for work delays triggered by the pandemic.

- International Road Federation (IRF), a global body dedicated to road safety, has urged India to establish technical requirements for retro-fitment of CNG kits in cars. Out of over 1.8 million CNG light vehicles which includes passenger vehicles and light commercial vehicles plying on the roads today, 60-65 per cent are retrofitted in the aftermarket.

- GAIL India has tied up with Tata group to supply PNG in around 23,000 apartments belonging to various Tata group and other companies in Jamshedpur.

- Adani Gas will change its name to Adani Total Gas to reflect French energy giant Total's stake in the firm.

Electric Mobility/Biogas/ Bio-CNG/Waste-to Energy

- A study by CEEW Centre for Energy Finance says that India would need Rs 12.5 lakh crore of investment to realise its 2030 EV targets. The Indian EV market could be worth around Rs 14.42 lakh crore if its 2030 EV targets are met at the above investment. At the end of March 2020, the total number of registered EVs in India stood at only half a million and the cumulative EV sales in all vehicle segments could cross over 100 million units by FY30, 200 times its current market size.

● Delhi EV Policy 2020:

Delhi approved Delhi Electric Vehicle Policy 2020 with an objective to establish it as the EV capital of India and accelerate the pace of adoption across vehicle segments, especially in the mass category of two-wheelers, public/shared transport vehicles and good carriers. The policy will remain valid for a period of three years.



UP leads in setting up biogas plants:

In the biogas plants being set up, 75 are being set up in Maharashtra, 59 in Haryana, 35 in Andhra Pradesh, 24 in Punjab, and seven in Delhi. The government has issued 515 letters of intent so far for setting up compressed biogas (CBG) plants across the country with a bulk of them - 126 - in Uttar Pradesh, according to official data. The estimated cost for the 515 plants is about Rs 18,000 crore.



- India will see an investment of Rs 2 lakh crore in setting up 5,000 plants that will produce gas from bio and crop wastes by 2023-24 with a production target of 15 million tonnes, according to Union Minister Dharmendra Pradhan. Letter of intent for 600 CBG plants have already been given and MoUs have been signed for 900 plants taking the total of 1500 CBG plants at various stages of execution.



- UP cabinet has approved road tax relief to EV manufacturers. There will be a 100% exemption in road tax on the first one lakh two-wheeler electric vehicles to be manufactured and 75% exemption for four-wheelers.

Tata Motors' Nexon EV has crossed 2000 unit sales. After rolling out its 1000th Nexon EV in August this year, the



company sold another 1000 units just in 3 months (Sept-Nov 2020). Tata Motors claims to have 74% market share in the electric passenger vehicle segment.

- Shiv Nadar University, research-focused university and an Institution of Eminence (IoE) introduced India's first lithium-sulphur (Li-S) battery technology for EVs. The research aims to assist in the production of more cost-effective, safer, more energy-efficient, and environment-friendly Li-S batteries, as a viable alternative to Lithium-ion batteries.

Hyundai, Kia and LG Chem join hands to invest in EV battery startups:

Hyundai Motor Group is planning to deploy 44 eco-friendly vehicles by the year 2025, which include 23 battery electric vehicles.

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MG Motor India partners with Tata Power to deploy Superfast chargers at select dealerships:

The company already has 10 SuperFast 50 kW charging stations across its dealerships in five cities - New Delhi - NCR, Mumbai, Ahmedabad, Bengaluru and Hyderabad. It signed an MoU with Tata Power to deploy 50KW DC Superfast chargers at select MG dealership locations which will be accessible by both MG ZS EV customers as well as other EV owners whose automobiles are compatible with the CCS / CHAdeMO charging standards.

- ADB has approved USD 2.5 million in technical assistance for advanced biofuel development in India. The technical assistance will support development of advanced bioethanol, bio-CNG, and biodiesel plants.
- Palanpur-based Banas Dairy opened its first bio-CNG outlet, after it began generating bio-CNG from dung. The dairy collects over 40 tonnes of dung every day from around 250 farms in 12 villages. Farmers are paid one rupee for every kilo of dung and the system of payment is the same as that for milk - money is credited into their accounts every fortnight.
- Indian Oil Corporation and Germany's Oil Talking company have jointly set up a bio-gas plant in Namakkal at the cost of Rs 34 crore. The plant is producing 2.4 MW of electricity.
- JBM Renewables has inked pact with the MoPNG to set up 500 compressed biogas (CBG) projects in India.

- Bengaluru will get five waste-to-energy plants to tackle its garbage woes. The plants will be set up in public-private partnership (PPP) model in and around the city and include two in Mavallipura and one each in Kannahalli, Doddabidarakallu, and Marenahalli areas which would help in the disposal of around 5,000 tonnes of daily waste generated in Bengaluru.



- IOC, NTPC and South Delhi Municipal Corporation have inked an MoU for a waste-to-energy plant at Okhla landfill site in Delhi using gasification technology. The plant will process 17,500 tpa of Refuse Derived Fuel (RDF) produced from combustible components of municipal waste to generate syngas which will in turn be used to generate electricity.



Natural Gas Exploration/ Company News/ Pipelines

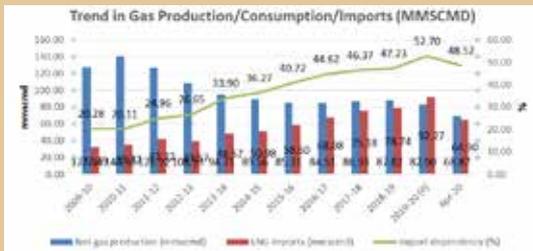
- Oil India Ltd has made a natural gas discovery at well Dinjan-1 in Tinsukia petroleum mining lease in the upper Assam basin. The well encountered about 10 meters of hydrocarbon-bearing sands. On testing, it produced gas at the rate of 115,000 standard cubic meters per day.



- RIL, BP start gas production at ultra-deep-water R-cluster field off Kakinada coast - Reliance Industries and BP Plc announced the start of production from the R-cluster, ultra-deep-water gas field in block KG D6 off the east coast of India in the second fortnight of December. This is a significant milestone in India's energy landscape, for a cleaner and greener gas-based economy. The commissioning of the R-Cluster is the first of three

deepwater projects. It is expected to reach plateau gas production of about 12.9 MMSCMD in 2021. The company will invest Rs 400 billion. The new investment is projected to help RIL and BP achieve peak output of around 28 MMSCMD by 2023-24.

- The government has simplified procedures for oil and gas exploration and production by providing for self-certification for a host of compliance, such as discovery notification and deemed consent for investment in fields in a



stipulated time. Field development plans will be deemed to be approved on the expiry of 30 days of submission of documents under self-certification. With a view to make it easier to do business, the government has provided that notification of a discovery and tests to confirm them will not require approval and documents will be accepted on self-certification basis, according to the notification issued on April 25.

- The much-delayed Kochi-Mangalore natural gas pipeline project is finally ready for commissioning as GAIL India has completed the final 540-metre treacherous stretch across the Chandragiri river in northern Kerala. The 444-km long natural gas pipeline was launched in 2009 at an estimated cost of Rs 2,915 crore and was to be commissioned in 2014.



- A total of 11 blocks in 8 sedimentary basins covering a total acreage of 19,789.04 square km has been awarded under OALP Bid Round 5, with Rs 465 crore of immediate exploration work commitment. The ONGC has been awarded 7 blocks while 4 blocks went to the Oil India Ltd (OIL).



- ONGC awarded 49 marginal producing oil and gas fields to seven companies under a government plan to raise production from these acreages. The winners were selected through an international competitive bidding.

- The government announced 1656 km pipeline for Northeast which will connect cities like Guwahati, Shillong and Aizawl among others. It approved a Rs 55.59 billion viability gap funding for the proposed northeast gas grid to be implemented by Indradhanush Gas Grid.

Gas Pricing/Consumption



- Intercontinental Exchange (ICE) launched West India Marker LNG (Platts) Futures Contracts. This futures contract settles against the S&P Global Platts daily assessment price for the LNG West India Marker (WIM) for spot physical LNG cargoes delivered into ports in India, Dubai and Kuwait. JKM reflects cargoes delivered into ports in Japan, Korea, Taiwan and China, while the WIM reflects cargoes delivered into the ports of India and the Middle East.

- Indian power plants consumed the highest quantity of gas in at least 3-1/2 years in the June quarter, as operators along the west coast snapped up cheap LNG imports to become more competitive against coal.

LNG Development/Pricing

LNG recovery in Asia depends on China, India policies:

The latest International Energy Agency (IEA) report released on June 10 on the global natural gas market makes sombre reading, especially for current and would-be producers of LNG. According to the report, global natural gas demand will drop by 4% or 150 billion cubic metres (bcm) in 2020 as consumption takes a hit from the economic impact of the novel coronavirus. The IEA forecasts a gradual recovery in demand in 2021 and 2022, but the impact of the coronavirus will be long lasting, increase uncertainties and dampen growth rates. What recovery is there in demand is likely to be led by LNG and will be led by Asian countries, the IEA said. This may sound encouraging for the LNG industry, but there are some caveats around the IEA's forecasts for Asia.



- Petronet announced setting up 1,350 LNG dispensing stations across major highways after the government allowed marketing and distribution of LNG by any entity. In the first phase, the company would put up 50 stations on five major highways, which include Western Corridor and Southern Corridor, by 2021. In the second phase, it plans to set up around 300 LNG dispensing stations on all highways and in the third phase it will set up 1,000 stations.
- The Gopalpur Port Limited (GPL) in Odisha announced plans to set up a LNG terminal and an investment of Rs 2,000 crore for setting up fertiliser and petrochemical industries.

- GAIL issued a swap tender offering LNG cargoes for loading in the US and seeking cargoes for delivery into India, in 2022. It has offered to swap one cargo a month in 2022 in a tender that closed in July. The cargoes it offered will load from the Sabine Pass plant on a free-on-board (FOB) basis and the cargoes it sought will be delivered into India on a delivered ex-ship (DES) basis.

- Norway's Hoegh LNG Holdings, a provider of specialised vessels for importing LNG entered a binding commitment to supply India's H-Energy with a floating storage and regasification unit (FSRU). This will be the first FSRU to start operations in India, which has six land-based LNG import terminals. Hoegh will supply the Indian natural gas company with the FSRU in Jaigarh, Maharashtra, from as early as first quarter 2021. The final agreement will be for 10 years with annual termination options after the fifth year.

- GAIL India pumped RLNG from Kochi to Mangaluru through its newly constructed 438 km Kochi-Koottanad-Mangaluru pipeline thereby heralding the green initiative in the coastal region.

- Indian Company, Pearl Energy (Pvt) Ltd., signed the agreement with the Board of Investment of Sri Lanka to launch 'Hambantota LNG Hub' - a floating storage LNG trading facility at the Port of Hambantota, bringing LNG to the doorstep of Sri Lanka, with a primary aim of trading LNG in the region utilizing the strategic location of Hambantota.



Natural Gas / Transnational Pipelines/ Others

- BP: Fossil fuel consumption is set to shrink for the first time in modern history as climate policies boost renewable energy while the coronavirus epidemic leaves a lasting effect on global energy demand, BP said in a forecast. BP expects global economic activity to only partially recover from the epidemic over the next few years as travel restrictions ease. BP this year extended its outlook into 2050 to align it with the company's strategy to slash the carbon emissions from its operations to net zero by the middle of the century. It includes three scenarios that assume different levels of government policies aimed at meeting the 2015 Paris climate agreement to limit global warming to "well below" 2 degrees Celsius from pre-industrial levels.
- Saudi Arabia announced discovery of two new oil and gas fields, Hadat Al-Hajrah gas field in the Al-Jawf region and Abraq Al-Talul oil field in the northern border region, by Saudi Aramco.
- Turkey has discovered energy in the Black Sea, most likely natural gas, two people with direct knowledge of the matter said, but gave no indication of the size and depth of the find, nor how difficult it will be to extract.



- Greece on June 1 attacked Turkey's plan to carry out oil drilling in the eastern Mediterranean, describing it as "a new provocation". It is the latest in a series of rows that has caused tensions to rise between the two neighbouring countries in recent months. Turkey's announcement came after Ankara signed a controversial agreement last year with Libya's UN-recognised government in Tripoli, which claimed extensive areas of the sea for Turkey.

The agreement has raised hackles in neighbouring countries, including Greece which has said the deal fails to take into account the island of Crete. EU member Cyprus has also expressed anger that Turkey has sent ships in search of oil and gas off the divided island. The EU has repeatedly called on Turkey to end its energy exploration off the coast of Cyprus, arguing that the drilling is illegal because it infringes the island's exclusive economic zone.

- Japan's Sumitomo sells all of its stake in U.S. Marcellus shale gas project. Sumitomo bought a 30 per cent stake in the project in 2010 from Rex Energy Corp, which went bankrupt in 2018. The project is now 70 per cent owned and operated by PennEnergy Resources.
- The Israeli government approved an agreement with European countries for the construction of a land/subsea 1900 km pipeline that would supply Europe with natural gas from the eastern Mediterranean. The Eastmed pipeline, which has been in planning for several years, is meant to transport gas from offshore Israel and Cyprus to Greece and on to Italy.
- A delayed sub-sea pipeline connecting a terminal owned by private Chinese gas distributor ENN Group and a provincial gas grid has been completed, paving the way for more imports into China's first major independent LNG terminal. The \$848 million import facility located on Zhoushan Island in eastern China's Zhejiang province started operations in 2018 but the delay in the pipeline's launch, meant to take place last year, has limited its use.

China has launched 1,100 km section of China-Russia East gas pipeline. Operations have started on the middle portion of the China-Russia East natural gas pipeline, allowing natural gas from the Power of Siberia system in Russia to be transmitted to the smog-prone Beijing-Tianjin-Hebei region in northern China. The pipeline also connects the existing gas pipelines in northeastern and northern China, as well as the gas storage projects in Dalian, Tangshan and Liaoh.



INTERNATIONAL NEWS

Global LNG Development

Global LNG Asian prices rise to over two-year high driven by heating demand:

Asian spot prices for LNG rose in the week (Dec 6-12) to the highest since Sept. 2018 due to high demand for heating, a supply crunch and increasing freight rates. The average LNG price for January delivery into northeast Asia LNG-AS was estimated at around \$11.10 per MMBtu, up \$3.00 from the previous week. Prices for February delivery were estimated at around \$10.50 per MMBtu. The rise in imports in China, as the economy recovers, and the lack of shipping availability is also helping to push prices up. PetroChina and China National Offshore Oil Corp (CNOOC) will invite global bids for LNG in Shanghai. A recent tender by Pakistan LNG to buy six spot



cargoes for January only garnered interest for half of the requirements, showing how tight the supply situation is. Production issues in Australia and Malaysia, two of the top four largest exporters, and delays in the Panama Canal, through which U.S. ships part of its liquefied gas, are adding to tighter supply. Prices are expected to stabilize in the second half of January with record volumes coming from the U.S, where natural gas prices are below \$3, making exports profitable, traders said. LNG prices in Asia have increased by more than a five-fold since June, when lower demand due to the coronavirus pandemic drove them below \$2.00/MMBtu.

- China's Shanghai Petroleum and Natural Gas Exchange (SHPGX), a national energy trading center, started the trial run of its online platform for international LNG trading. China's oil giants Sinopec and CNOOC respectively reached LNG purchase deals with their foreign counterparts through the trading platform, with total trading volume at 130,000 tonnes.

- Italian energy group Eni has struck deals with Spanish gas firm Naturgy and Egyptian partners to resolve disputes over a shuttered gas plant it part owns in the port city of Damietta in northern Egypt. It plans to restart operations by the first quarter of this year.

- A unit of Japan's Inpex Corp has made an agreement to sell natural gas from its Masela gas project to Indonesia's gas utility company PT Perusahaan Gas Negara.

- LNG investments vanished in 2020 as coronavirus slashed oil and gas prices. No new LNG export projects could be approved this year for the first time in at least two decades, banking and industry sources said, after the COVID-19 pandemic drove down energy demand and knocked prices to all-time lows during the year.



- Greece and Bulgaria have signed an agreement which will allow Bulgaria to participate in a planned LNG terminal in northeastern Greece. This way both are trying to reduce their reliance on Russian gas. The project, which has strong support from the US, is aimed at boosting energy diversification in southeastern Europe, a region largely reliant on Russian natural gas. Bulgaria's state-controlled Bulgartransgaz will acquire a 20% stake in the Greek company, Gastrade that is developing the LNG terminal outside the Greek city of Alexandroupolis.

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- Glenfarne Group, LLC has completed the acquisition of Magnolia LNG, a planned 8 MMTPA LNG export terminal in Lake Charles, Louisiana, through Glenfarne's newly formed subsidiary Magnolia LNG Holdings, LLC. Glenfarne is a privately held energy and infrastructure development and management firm based in New York City. The transaction was signed and closed

on May 26th, 2020 for a cash price of US \$2.0 million.

- Japanese utility Tokyo Gas and trading house Marubeni will build a LNG-fired power plant in Vietnam and have signed a MoU with Vietnam's Petrovietnam Power and a local construction company for the project with an estimated total investment of 200 billion yen (\$1.93 billion).

Bombshell report pours cold water on global LNG outlook:

When the European Union tied its pandemic relief plan to renewable energy generation and emissions reduction targets, analysts sounded an alarm for LNG as the production of the superchilled fuel involves a certain amount of greenhouse gas emissions. Now, Wood Mackenzie is warning that global energy transition goals could threaten more than two-thirds of the world's supply of LNG, leaving trillions of cubic meters of gas in resources stranded. This forecast is a stark departure from pretty much all gas demand projections, including from energy industry majors such as BP, which invariably see this demand growing as gas replaces oil as a less polluting fossil fuel, especially in developing economies. LNG is a form of natural gas that many believe is set for particularly strong demand growth because

of its supply flexibility: while natural gas needs pipeline infrastructure, limiting options, LNG can be bought from anywhere in the world and delivered to a port with a regasification terminal. But if governments decide to double down on their climate change targets and start aiming for the more ambitious 2-degree scenario under the Paris Agreement, LNG growth will suffer. The so-called 2-degree scenario refers to efforts aimed at curbing the rise in average global temperatures to 2 degrees Celsius. A more realistic scenario is limiting this rise to 1.5 degrees Celsius. According to the U.N. Framework Convention on Climate Change's Conference of the Parties (COP21), the 2-degree scenario was economically feasible and cost-effective in 2015. Since then, however, doubts have arisen as this scenario would require cutting the world's emissions by as much as 70 percent by 2050. (Sourced from oilprice.com)

Natural Gas/ LNG Utilization



- Europe's first carbon neutral LNG fueling station opened in Rostock, Germany by Novatek.

Novatek plans to build a network of LNG fueling stations in Europe to provide heavy duty transport with clean fuel at key transport connecting points between Germany and Poland. Currently, the company operates a network of six LNG stations in the European market as well as 19 regasification facilities.

- Turkish capital Ankara has received a €57.1 million loan from the European Bank for Reconstruction and Development (EBRD) to replace its polluting diesel buses with 254 natural gas vehicles and install a CNG station. The agreement confirmed Ankara as the 44th member of EBRD Green Cities and second city in Turkey joining EBRD Green Cities following Izmir.

- Thirteen commercial transportation organizations

INTERNATIONAL NEWS

in British Columbia (BC) adopted a combined 144 vehicles fuelled by FortisBC's natural gas in 2020. In total, these organizations are expected to reduce more than 2,000 tons of CO2 equivalent in emissions annually, about the same as removing just over 430 gasoline vehicles off BC roads each year.

- Onboard Dynamics, US announced the launch of their new GoFill™ refueling system. It is an instant and nimble drying and dispensing unit for refueling CNG vehicles.



The new product eliminates infrastructure barriers for fleet operators who immediately need an easy CNG station setup to refuel their commercial trucks. The GoFill will be providing natural gas for refueling CNG into a Hylion low-emission Class 8 truck for long and heavy hauls. The program provides fleet operators a short-term, no-cost demo period to experience the vehicle.

- Chinese manufacturer Shacman, world leader in the production of cargo trucks chose Mexico to install a new production plant and officially launched its range of trucks with natural gas engines (CNG and LNG) that generate fuel savings of up to 40%, as well as a maximum range of 1,200 km.
- Agility® Fuel Solutions, a business of Hexagon Composites, received a substantial order from longtime customer Anheuser-Busch of US. Over 180 new trucks equipped with Agility's ProCab® 175 CNG Fuel Systems will be joining the fleet. The estimated total value of the order is over USD 8.0 million.
- Dallas Fort Worth International (DFW) Airport in the US has taken its commitment to sustainable

initiatives to new levels by becoming the first airport in the world to reach newly established carbon neutral levels announced by Airports Council International (ACI). Already recognised as the first carbon neutral airport in North America in 2014, DFW Airport became the first airport to merit the new 4+ level in ACI's global Airport Carbon Accreditation (ACA) program.

- UK's Primark, the value fashion retailer, committed to sustainable mobility with introduction of a brand-new fleet of 15 Longer Semi Trailers (LSTs) which will help to significantly reduce the environmental impact of the company's logistics operations in the UK. In addition, they will take delivery of 10 new Iveco Stralis AS440S46T/P NP tractors which will be fueled by LNG. Each of these new trucks will cover approximately 200,000 kms per year, enable quieter urban deliveries and further reduce the environmental impact of the company's logistics operations.
- Hermes will be taking delivery of a further seven 400HP IVECO Stralis Natural Power (AS440S40T/P NG) 4×2 trucks into its 400 strong fleet of tractor units, and now runs the largest CNG powered fleet in the UK of 90 vehicles, all of which are IVECO.
- Chinese manufacturer Yutong has recently supplied 760 new natural gas buses to Kazakhstan. Of these vehicles, 590 were purchased by the Shymkent municipal government, while the remaining 170 units will be put into service in Atyrau city.
- Spain's Redexis has launched a new network of seven natural gas stations in order to supply the Murcia's Health Service (SMS, as in its Spanish acronym) ambulance fleet, made up of nearly 400 vehicles.
- Renewi, Nordsol and Shell have started the construction of the first bio-LNG installation in Amsterdam Westport. The new facility is an extension for the current processing of, among other things, outdated products from the supermarkets. With an investment of several millions, the technical partner Nordsol will be the first to produce bio-LNG in the Netherlands. The three initiators each fulfill a unique role in the new waste-to-energy chain. Renewi collects organic waste throughout the Netherlands, such as expired

products, processes this waste and converts it into biogas during its fermentation. The Nordsol installation then processes this biogas into bio-LNG. Finally, Shell sells this bio-LNG at its filling stations.



- HAM Group has opened a service station in HAM Irún, in Gipuzkoa (Spain), which is the first LNG-CNG station in Europe with a buried tank. The opening of this new facility has been possible thanks to the development of the Yellow Project, which has allowed the installation of an Ultra-compact Gas Station.
- Egypt will grant licenses to new vehicles only if they can operate on the bi-fuel system. New gasoline vehicles will not be licensed, unless they can also operate on natural gas. The country has adopted a plan to expand the use of natural gas as vehicle fuel and encourage motorists to convert their cars to the bi-fuel system, which can run on both natural gas and gasoline.

- Nigeria launched its ambitious plan to convert car fleet to gas. It will offer free conversion to enable some cars to run on gas, and its Central Bank will make some 250 billion naira (\$656.69 million) available for infrastructure in a bid to expand gas use and cut reliance on imported fuel. Africa's largest oil exporter is aiming to have 1 million gas-powered cars by 2021, and to convert of 40 per cent of its fleet within 10 years.



LNG as a Marine Fuel/ Shipping

- Shipbuilders in Korea, China, and Japan are having fierce competition in order to take a bigger share of the global LNG-powered vessel market. As the global energy demand is shifting to eco-friendly sources, the shipbuilding market is shifting its focus to LNG-powered ships from those powered by coal and oil. For now, Korean shipbuilders have taken the lead in terms of LNG-powered ship order intake. However, Chinese shipbuilders, who are enjoying full support from the Chinese government, are mounting a serious challenge.
- World's largest LNG bunkering operation took place in Rotterdam. The CMA CGM JACQUES SAADE, the world's largest containership powered by LNG and the CMA CGM Group's flagship, began its first LNG bunkering operation in the Port of Rotterdam, which will play a key role in refueling the group's LNG-powered fleet that operates regular services between Asia and Europe. Total's bunker vessel Gas Agility started bunkering the container ship Jacques Saade with 18,000 m³ of LNG. The operation took around 16 hours to complete. Gas Agility, the world's largest LNG bunker vessel, was built especially to supply ULCVs (Ultra Large



- LNG bunkering expanded to German ports of Emden and Brunsbüttel. Titan LNG chartered the Engie Zeebrugge and loaded LNG in Rotterdam. Then the vessel arrived in the port of Emden where Titan LNG delivered just over 1,000 tons of LNG to the car carrier Siem Confucius, owned by Siem Car Carriers and chartered by Volkswagen.

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Container Vessels) like Jacques Saade with LNG while they are loading or unloading their cargo. Jacques Saade is the first LNG-powered container vessel with a capacity of over 23,000-TEU containers.

- A maritime coin ceremony tradition took place at the Chantiers de l'Atlantique shipyard in Saint-Nazaire, France when the keel was laid for MSC Cruises' first LNG-powered ship, MSC World Europa. The 200,000-plus GT ship is scheduled to enter service in 2022 and be one of most technologically- and environmentally-advanced LNG-powered cruise vessels in its class, and the first ever to be built in France.



- A unique new research vessel is being built in Germany at Fassmer shipyard in Berne/Motzen, Germany. The Atair, which will be operated by Germany's Federal Maritime and Hydrographic Agency (BSH), is the world's first LNG-fueled research vessel and will be the largest research vessel operated by Germany.

- For the first time, Volkswagen vehicles were transported from Europe to North and Central America on a car freighter powered by LNG. The SIEM CONFUCIUS with more than 4,800 vehicles for North America left Emden, in Germany for Veracruz in the Gulf of Mexico. By 2025, in accordance with the environmental mission statement "goTOzero", Volkswagen Group aims to reduce its total net CO2 emissions by 30% and get CO2-neutral in 2050.

- Hyundai Heavy Industries Group and Daewoo Shipbuilding's largest shareholder Korea Development Bank (KDB) signed a conditional MOU under which Hyundai Heavy Industries Co. will split into a holding company and an operating company. The holding company will buy KDB's



55.7 percent stake in Daewoo. Qatar has signed a deal worth around \$20 billion to secure more vessels from South Korean shipbuilders to help cement its position as the world's largest producer of LNG.

- Total and Sonatrach have signed an agreement which extends the existing supply contracts for 3 additional years in order to provide 2 MTPA of Algerian LNG to the French market, primarily through the LNG terminal at Fos Cavaou.

- Anglo American announced the award of a 10-year charter contract for four LNG-powered capesize+ vessels, introducing natural gas into its chartered fleet for the first time. Designed to be larger than, but remain as flexible as, a conventional capesize vessel, the new builds will optimize cargo transport by increasing load and improving overall cost effectiveness. U-Ming Marine Transport will own the newly designed 190,000-deadweight ton LNG-fueled bulk carriers. The fleet will be built by Shanghai Waigaoqiao Shipbuilding in China and is expected to be delivered in 2023.



Technological Development for Cleaner and Greener Environment

Dozens of oil and gas companies such as BP, Royal Dutch Shell, Eni, Equinor and Total have committed to report more accurately on and, ultimately, reduce emissions of methane which leaks from oilfields and pipelines. The companies have signed up for the Oil and Gas Methane Partnership (OGMP) under the umbrella of the United Nations, the European Union and non-governmental organisation (NGO) the Environmental Defense Fund. Methane has over 80 times the heat trapping potential of carbon dioxide during its first 20 years in the atmosphere and recent analysis of satellite data suggests leaks from the oil and gas sector are much bigger than initially thought. The new standard aims to deliver a 45 per cent reduction in the industry's methane emissions by 2025, and a 60-75 per cent reduction by 2030.

HYDROGEN

World's largest hydrogen plant will supply carbon-free fuel for transport:



- Air Products, in conjunction with ACWA Power and NEOM, announced the signing of an agreement for a \$5 billion world-scale green hydrogen-based ammonia production facility powered by renewable energy. The project, which will be equally owned by the three partners, will be sited in NEOM, a new model for sustainable living located in the North West corner of the Kingdom of Saudi Arabia.

- France's Dijon deployed complete zero emission hydrogen mobility chain. ROUGEOT Energie, operating as general contractor EPC on behalf of Dijon Métropole Smart EnergyHy (DMSE), has selected McPhy's hydrogen production, compression and distribution solution to supply the metropolitan fleet of heavy (buses, garbage trucks) and light (utility and passenger cars) vehicles.
- Clean Energy Fuels Corp. has been contracted by New York Metropolitan Transportation Authority (MTA) in the US to provide its Redeem™ renewable natural gas to power the MTA's 800 natural gas transit buses.
- FortisBC is teaming up with REN Energy International Corporation (REN Energy) to offer renewable natural gas produced from wood waste to its customers. The innovative project features technology being used for the first time in North America.

- Nikola Corporation, a hybrid truck manufacturer based in Phoenix, Arizona, signed a purchase order with Nel ASA for 85-megawatt alkaline electrolyzers supporting five of the world's first 8-ton per day hydrogen fueling stations. Together, these electrolyzers may produce over 40,000 kgs of hydrogen each day.



BIO GAS /RENEWABLE

- The Los Angeles County Sanitation Districts (Sanitation Districts), US recently started a biogas purification system to recycle food waste (from grocery stores and restaurants) into renewable vehicle fuel. The Sanitation Districts are a regional public agency that serves the wastewater

INTERNATIONAL NEWS



Newly operational biogas purification system at Sanitation Districts' JWPCP. Photos courtesy of Los Angeles County Sanitation Districts.

- and solid waste management needs of 78 cities and unincorporated areas in Los Angeles County.
- Finland's Gasum' first liquefied biogas production plant started operations. The company completed the modernization of its biogas plant in Turku, Finland, the country's first to produce bio-LNG for transport, industrial and maritime needs. The plant will process around 130,000 tons of biomass a year, to produce around 60 GWh of bio-LNG a year, which corresponds to the annual fuel consumption of 125 heavy-duty vehicles or 5,000 cars. It will also produce around 4,000 tons of ammonia water for use as a recycled nutrient.

- Fleet of 40 biomethane buses began operations in eastern Sweden. Solaris Sweden AB signed a contract for the supply of low- and zero-emission buses to transport operator Vy Buss AB in March 2019.

- Biomethane has been connected to the UK gas network for the first time. Renewable biomethane has been produced by Biocow Ltd's Murrow anaerobic digestion plant in Cambridgeshire from cattle manure and straw. Britain's National Grid has said that biomethane has been connected to the transmission system for the first time, as part of efforts to decarbonise the gas network.



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