

NGS' NG/LNG SNAPSHOT

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NATIONAL

CITY GAS DISTRIBUTION & CNG/AUTO LPG

- More electric buses, vans to ply in state, govt seeks Central aid
- CNG refilling fuel station inaugurated in Bengaluru
- Only 350 of Bengaluru's 73 lakh vehicles run on CNG
- Permits for 5,000 e-rickshaws, 25,000 CNG autos in 5 years in Bengaluru
- Strong gains in store for Gujarat Gas, IGL on quantum shift cleaner fuels
- KSRTC's first CNG bus on Thursday, March 22
- CNG stations to make debut in Patna
- Gasp for gas: CNG, PNG prices to increase 3-4% from April

see page 2 - 3

POLICY MATTERS/ GAS PRICING/ OTHERS

- Domestic Natural Gas price hiked marginally
- Costlier gas to affect consumers
- Prime Minister Modi to brainstorm on New India-2022 with PSU Chiefs
- India seen raising natural gas price to highest in two years
- Qatar Petroleum CEO completes working visit to India
- Last date of bidding for 55 oil and gas blocks extended

see page 5 & 6

NATURAL GAS/PIPELINES/COMPANY IN THE NEWS

- GAIL has received approval for pipeline to Guwahati: Dharmendra Pradhan
- RIL in deal to pare assets in second US shale gas project
- GAIL work in full swing in Malappuram, Kerala
- Reliance, Essar Oil, Great Eastern step up CBM gas production

see page 4

LNG DEVELOPMENT / SHIPPING

- GAIL's 'Meridian Spirit' arrives at Dabhol
- Russian Arctic LNG shipped to India
- After Gujarat Gas, will GSPC exit Mundra LNG?
- Gail India proposes 7 U.S. LNG cargo swaps from Cove Point facility
- Hiranandani family to invest Rs3,500 crore in LNG terminal business

see page 7

INTERNATIONAL

NATURAL GAS/CROSS COUNTRY AND TRANSNATIONAL PIPELINES

- The United States exported more natural gas than it imported in 2017
- China needs more space underground to store gas
- US coal production drops across all major basins as spring approaches
- South Korea fuel oil imports soar as coal, nuclear plants shut

see page 6

LNG DEVELOPMENT

- Global LNG-Asian spot prices for May slip as nuclear reactors restart
- B.C. government wants to move forward with LNG Canada project
- Singapore could still thrive as regional LNG trading hub
- Anadarko agrees Mozambique LNG export deal
- Indonesia expected to witness excessive supply of liquefied natural gas
- Merkel looks to LNG to cut Germany's dependence on Russian gas
- Japanese utility turns LNG seller after nuclear reactor restarts -sources
- LNG Canada aims for construction start this year
- Russian LNG exporter warns against 'vilifying' country's gas
- Japan's Inpex delays Ichthys LNG project; posts loss on Canada gas project

see page 8 - 10

NG/LNG UTILISATION- ROADWAYS

- SoCalGas assists fleets to fund new near-zero emissions natural gas trucks
- Sweden funds development of natural gas refueling network
- NGV option now available for all Volvo FE cab, chassis combinations
- Pennsylvania supports expansion of alternative fuel infrastructure
- New Volvo FM LNG now on sale - High performance, low emissions
- Spain: sporting goods retailer plans to cut emissions with LNG trucks
- Spanish natural gas refueling network expected to double in 2018
- New test center opens in Netherlands to enable more efficient use of LNG
- NGVA Romania presents national refueling project in Bucharest
- SEAT Spain: the natural gas option, in a strong phase of expansion
- NGV Global Technical Forum to discuss CNG vehicle inspections
- Salamanca, one of the cities with the most eco-friendly transport in Spain

see page 3, 11, 12 & 14

LNG AS A MARINE FUEL/BUNKERING/ LNG SHIPPING

- Japan's Sumitomo eyes ship-to-ship LNG bunkering in Tokyo
- Volkswagen starts building LNG-powered ships to transport its cars
- First LNG multi-fuel bunker vessel launched in southern Europe
- LNG fueled shuttle tanker duo to feature wide range of ABB solutions

see page 13

TECHNOLOGICAL DEVELOPMENT FOR CLEANER ENVIRONMENT

- Japan H2 Mobility alliance plans to install 900 refueling stations by 2030
- Gasum opens world's first natural gas station in conjunction with IKEA
- Air Products equipment bound for China Energy's first H2 fueling station

see page 14

More electric buses, vans to ply in state, Himachal govt seeks Central aid

After becoming the first state to launch electric vehicles on the eco-sensitive Manali-Rohtang route, Himachal has decided to purchase 100 battery-operated buses and vans in most of its tourist destinations. The state government has written to the Union Ministry of Heavy Industries to fund 50 electric buses so that more routes can be covered by electric buses. A total of 25 buses, each costing Rs 1.9 crore, are plying mainly in the Kullu-Manali area, following the directives of the National Green Tribunal (NGT). These buses will be funded by the Centre in the 60:40 ratio. As part of its preparedness, the Transport Department has asked Himachal Pradesh State Electricity Board (HPSEB) to set up charging points in most places for the smooth running of the buses. NGT, the green Bench had directed that Himachal should try and switch over to environment-friendly mode of transport. "There has not been much progress with regard to compressed natural gas (CNG) buses as there is no supply line and setting up of the mother and daughter stations at Una and Manali too is still pending," revealed an official of the Transport Department. Considering the success of the electric bus experiment, Himachal is contemplating shelving the idea of having CNG buses as having a CNG pipeline in the immediate future seems difficult.

<http://www.tribuneindia.com/news/himachal/more-electric-buses-vans-to-ply-in-state-govt-seeks-central-aid/563025.html>

CNG refilling fuel station inaugurated in Bengaluru

In a first, oil giants Bharat Petroleum Corporation Limited (BPCL) and Gail Gas Limited have come together to launch a CNG (Compressed Natural Gas) refilling station in Bengaluru. The station was inaugurated off Magadi Road on Sunday, March 25. A senior BPCL official said that it has been decided to open a total of 15 CNG stations in Bengaluru by December this year. Gail will be opening these stations in coordination with BPCL and Indian Oil. In the first phase, three such stations have been planned off Magadi Road, Jigani and Kodigehalli. These locations have been chosen because of the availability of pipelines. Eventually, the fuel stations will have pipeline and cas-

ket connections, he said. It has been observed in other big cities including Delhi, Mumbai and Pune, that once infrastructure for CNG is made available; people switch over to vehicles compatible with it. And that CNG is cost effective helps the cause, he said. Singh highlighted that CNG has the potential to become the fuel of choice for Bengaluru as it is much cleaner and cheaper compared to petrol and diesel.

<http://www.deccanherald.com/content/666550/cng-refilling-fuel-station-inaugurated.html>

Permits for 5,000 e-rickshaws, 25,000 CNG autos in 5 years

The Transport Department will issue permits for 5,000 e-rickshaws in an effort to encourage electric vehicles in the city, besides allowing another 25,000 auto-rickshaws over the next five years to cater to the rising floating population. Tuesday's notification increasing the auto-rickshaw quota for Bengaluru from 1.25 lakh to 1.55 lakh, however, comes with several conditions. Out of the 30,000 new permits, 25,000 will be issued to only auto-rickshaws fitted with LPG and CNG kits. Of them, 500 permits are reserved for women under a BBMP scheme. Under the 'Pink Auto' welfare programme, the BBMP plans to provide a subsidy of

Rs 80,000 to 500 auto-rickshaws. The autos should be fitted with GPS and a panic button to ensure the safety of the passenger as well as the driver. As per the Transport Department notification, the permits are "to be reserved for women drivers... as per the guidelines issued by BBMP, including the colour scheme." The 5,000 permits reserved for e-rickshaws are part of the state government's efforts to encourage electric vehicles with a new policy seeking to make Bengaluru the 'electric vehicle capital of India' and attract Rs 31,000 crore worth of investment in the sector. The department has allowed electric vehicle companies to get multiple e-rickshaw permits without submitting LPG/CNG/electric autorickshaw permits. "Individuals may not take to e-rickshaws. We hope companies will play the role of changemakers," an official said. However, officials now hope new vehicles in the market, with a speed limit of 40 kmph and higher range per charge might turn out to be suitable for the city roads.

<http://www.deccanherald.com/content/666984/permits-5000-e-rickshaws-25000.html>

Strong gains in store for Gujarat Gas, IGL on quantum shift cleaner fuels

Expanding network, opportunities in newer markets are other key earnings drivers; GAIL to benefit on spike in transmission volumes. Gas distribution companies are likely to see higher investor interest going forward, as bidding for natural gas distribution in urban areas is catching pace. The shift to cleaner auto, cooking and industrial fuels has already become a priority area for governments, both Central and state, and this in turn is propping up prospects of city gas distribution (CGD) companies such as Indraprastha Gas (IGL), Gujarat Gas and Mahanagar Gas (MGL). Even GAIL, the country's largest gas transmission and marketing company, stands to benefit as improving gas demand will result in better transmission volumes and utilisation of its vast gas pipeline infrastructure. Analysts at Ambit Capital say that the Indian CGD space is an attractive play on growing energy consumption and anti-pollution drive in urban India. China's CGD achieved 15% compounded annual growth in volumes in the past decade led by its government's push for clean energy, a story India is likely to replicate, the analysts say. While IGL saw its total volumes grow by 14% year-on-year (up 1% sequentially) to 5.26 MMSCMD, Gujarat Gas saw an exceptionally strong quarter marking 19% volume growth largely led by higher demand from industrial sector. MGL too, clocked volumes of 2.7 MMSCMD up a decent 7% year-on-year, in the December quarter. The bidding in new geographies is an important growth opportunity for existing and new players.

http://www.business-standard.com/article/companies/strong-gains-in-store-for-gujarat-gas-igl-on-quantum-shift-cleaner-fuels-118031900173_1.html

KSRTC's first CNG bus on Thursday, March 22

Signalling a shift towards cleaner energy, Kerala State Road Transport Corporation (KSRTC) will start operating the first CNG (Compressed Natural Gas)-run bus in Kochi on March 22. Chief minister Pinarayi Vijayan will also launch four CNG refill stations on the city outskirts. "The bus will be deployed on the Vytilla-Vytilla circular route touching Edappally-Kaloor-Menaka and Kadavanthra," a senior KSRTC official said. Though the KSRTC purchased a CNG bus costing Rs 25 lakh in March, it was idling at the Central workshop at Thiruvananthapuram for nearly a year as CNG fuel was not available there. It was loaded in a huge truck and brought to the Muttom workshop last week. Indian Oil-Adani Gas Pvt Ltd (IOAGPL) constructed CNG stations at Kalamassery-FACT road, near KSRTC Garage at Muttom, on the national highway at Kalamassery and Kundanoor. As part of the Low Carbon bus project, the Kerala Urban Road Transport Corporation, a subsidiary of the KSRTC, plans to introduce 550 electric and CNG buses in Kochi. It has already identified 44 metro feeder routes in the port city and its nearby satellite towns. However, the project has made no progress with the KURTC yet to complete talks with a German Bank over the project funding.

<https://www.deccanchronicle.com/nation/current-affairs/200318/ksrtcs-first-cng-bus-on-thursday.html>

CNG stations to make city debut

Patna could soon see CNG filling stations to cater to people who want to opt for

cleaner, environment-friendly fuel to run their automobiles. A high-level meeting chaired by the chief secretary on March 23 will decide on providing space at two locations to GAIL in the city, state tourism minister Santosh Kumar Nirala said in the Legislative Council. Nirala was replying to a query raised by MLC Kedar Nath Pandey and added that the state government was considering "the proposal to provide 1.5 to 2 acres of land to GAIL at Phulwarisharif on the outskirts of Patna". GAIL has already identified five spots in Patna from where it will start providing CNG refilling services. All are on the outskirts of the city. Various legislators came up with rejoinders over the matter, the issue of plying vehicles more than 15 years old and pollution because of them. RJD MLC Subodh Kumar requested the transport minister to get the "city ride buses" checked as many of them were more than 15 years old and were spreading pollution unchecked. He also alleged that motor vehicle inspectors were permitting them to ply on roads in lieu of gratification.

<https://www.telegraphindia.com/states/bihar/cng-stations-to-make-city-debut-215953>

Gas for gas: CNG, PNG prices to increase 3-4% from April

With the central government set to hike the price of domestically produced natural gas, the retail prices of Compressed Natural Gas (CNG) and residential Piped Natural Gas (PNG) will also go up. The price hike is estimated at 3-4%. From the existing \$2.89, the price of domestic gas is expected to go up to a two-year high of \$3.06 per MMBtu from April 1. The revision is a part of the pricing formula to revisit domestic gas prices every six months based on the average price of key

gas trading hubs with a lag of one quarter. Retail selling price of CNG and PNG had gone up by 5-7% from October 2017 the wake of the hike in domestic gas from \$2.48 per MMBTU for the previous six-month period. Industry experts said that CNG and PNG prices could up by 3-4% because of the expected upward revision in gas prices. "City gas distribution companies will pass on the hike in input cost to the consumers. The revision can be expected in the range of 3-4%," said an industry official.

<https://www.nyoooz.com/news/ahmedabad/1066927/gasp-for-gas-cng-png-prices-to-increase-34-from-april/>

Only 350 of Bengaluru's 73 lakh vehicles run on CNG

It's been 18 months since the city got its first CNG station, yet only around 350 vehicles are currently plying on the alternative fuel. Bengaluru is home to 73 lakh vehicles. According to officials from GAIL Gas, which runs the station near Laggere, a majority of these vehicles are registered outside the state where CNG is popular; only 45 are registered in Karnataka. Industry sources say entry of electric vehicles, shortage of filling stations and lack of awareness have resulted in the low popularity of CNG vehicles. Three CNG filling stations meant exclusively for BMTC buses have been commissioned in the corporation's Sumanahalli, Hennur and Peenya depots but they lie unused. In 2014, the government had announced 271 CNG buses would be inducted into the BMTC fleet but now the corporation is keen on electric buses, which are cheaper and more environment friendly.

<https://timesofindia.indiatimes.com/city/bengaluru/only-350-of-blurus-73l-vehicles->

INTERNATIONAL: NG/LNG UTILISATION- ROADWAYS

Salamanca, one of the cities with the most eco-friendly transport in Spain

The City of Salamanca is enhancing the urban bus service by incorporating three new natural gas vehicles, which consolidates it as a city with one of the greenest bus fleets in the country. During the presentation of the vehicles, the Councilor for Development, Carlos Garcia Carbayo, stressed that this action ratifies the municipality's to the upgrading of public services and the environment, and recalled the many improvements that during this mandate have been introduced in public transport to modernize service and meet the demands of users. Recently, the Contracting Committee favorably ruled the renewal of 12 buses (with new NGVs) of the municipal fleet that will replace the vehicles that have completed the estimated useful life of 12 years. This action will have an investment of 3,058,200 euros. The city's public transport registered more than 12.8 million users in 2017, which represents an increase of almost 5% compared to those recorded the previous year, data that confirms the upward trend of recent years in this service public.

<http://www.ngvjournal.com/s1-news/c3-vehicles/salamanca-one-of-the-cities-with-the-most-eco-friendly-transport-in-spain/>

RIL in deal to pare assets in second US shale gas project

Reliance Industries (RIL) is selling some of the Eagle Ford shale gas project's 'assets' in the US for \$100 million to Sundance Energy, marking the company's exit from the second shale gas venture as it sharpens focus on telecom. The acreages and producing wells assets being hived off are located in Atascosa, La Salle, Live Oak and McMullen Counties of Texas and were not slated to be developed in the near term, the company said in a statement on Tuesday. RIL will retain its interest in the remaining core assets of the Eagle Ford project. RIL was the first Indian company to have invested in the US shale projects and holds the Eagle Ford assets through Reliance Eagleford Upstream Holding, a subsidiary of both Reliance Holding USA and the Mukesh Ambani-promoted parent. The Sundance deal is expected to close in the first quarter of 2018-19. In 2010, RIL pumped an aggregate amount of \$5.7 billion to acquire stakes in three ventures - 45% with Pioneer Natural Resources in the Eagle Ford shale play of Texas, 40% with Chevron and 60% with Carrizo Oil & Gas in the Marcellus Shale play in Pennsylvania.

<https://timesofindia.indiatimes.com/business/ril-in-deal-to-pare-assets-in-second-us-shale-gas-project/articleshow/63492945.cms>

GAIL work in full swing in Malappuram, Kerala

GAIL India's natural gas pipeline laying work is in full swing in Malappuram and Kozhikode districts with people's protests against the project subsiding. Protesters claimed that they were given assurances by the authorities that the project would not make any major disruptions to their lives. From grading and stripping to welding and trenching, more than 500 experts and labourers are working simultaneously at different places in Malappuram and Kozhikode. While working is progressing at eight places in Kozhikode, it is going on at six places in Malappuram. They said extreme care was being taken at all levels. A minimum one metre soil will be available above the pipeline, they said, allaying the fears of local people. Kalpataru Power Transmission Ltd (KPTL) is laying the pipeline in Malappuram and Kozhikode districts. Horizontal directional drilling (HDD) technology is being used to lay the pipeline across the rivers. GAIL India officials said that the pipeline would be at least five or six metres below the riverbed

so that sand-mining or any other activity in the river would not affect the pipeline. They said that HDD technology was being employed to lay the pipeline across major roads. They said the delays caused by the protests could easily be compensated and that the deadline could be met if the work proceeded at the current pace.

<http://www.thehindu.com/todays-paper/tp-national/tp-kerala/gail-work-in-full-swing/article23249550.ece>

Reliance, Essar Oil, Great Eastern step up CBM gas production

Oil and gas companies are boosting production of coal bed methane (CBM) gas that they are free to sell at market prices. Natural gas price is capped at \$3.06 per MMBtu by the government, while CBM gas fetches \$5.7-\$10.64 per MMBtu. Among companies ramping up CBM output are Reliance Industries Ltd (RIL), Essar Oil Ltd, and Great Eastern Energy Corp. Ltd (GEECL). State-run Oil and Natural Gas Corp. Ltd (ONGC) has already begun test production from its CBM blocks. "The unconventional CBM gas comes as a replacement to expensive liquefied natural gas imports; so free marketing and pricing is a welcome move for CBM producers. We have to invest a lot in extracting the gas and freedom to market the same encourages us to do better. All CBM producers are ramping up production," said Vilas Tawde, director and CEO, Essar Oil and Gas Exploration and Production Ltd. Tawde believes the share

of CBM gas in India's natural gas basket will go up from the present 3% to 10% in four-five years. In March 2017, the government approved pricing and marketing freedom to CBM gas producers and also allowed them to sell the fuel to affiliates in case they cannot identify buyers. While RIL buys its own CBM gas at \$7.14 per mBtu for use at refineries, GEECL sells the same at \$10.64 per MMBtu. Essar Oil's sale price is \$8.08 per MMBtu and ONGC has fixed a price between \$6.14 per MMBtu and \$5.7 per MMBtu. Essar Oil will also double CBM production this fiscal from Raniganj block in West Bengal, up from 1 mmscmd (million standard cu. m per day), to nearly 2 mmscmd, added Tawde. Essar owns CBM mining rights in five coalfields with prospective resources of about 10 trillion cu. ft. Raniganj is one of the five CBM blocks Essar holds. Other four blocks are Rajmahal in Jharkhand, Talcher and Ib valley in Odisha and Sohagpur in Madhya Pradesh.

http://www.infosurhoy.com/cocoon/saii/xhtml/en_GB/news/reliance-essar-oil-great-eastern-step-up-cbm-gas-production/

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GAIL has received approval for pipeline to Guwahati: Dharmendra Pradhan

Oil regulator PNGRB has approved extension of state gas utility GAIL India Ltd's 'Urja Ganga' pipeline up to Guwahati in Assam, Petroleum Minister Dharmendra Pradhan said today. GAIL is currently laying a 2,655-km pipeline from Jagdishpur in Uttar Pradesh to Haldia in West Bengal and Bokaro in Jharkhand and Dhamra in Odisha at a cost of Rs 12,940 crore. "Petroleum and Natural Gas Regulatory Board (PNGRB) has accorded the Provisional Acceptance to GAIL on February 2 for the proposal for laying, building, operating or expanding Barauni-Guwahati natural gas pipeline as an integral part of Jagdishpur-Haldia-Bokaro-Dhamra natural gas pipeline," he said. In a written reply to a question in the Lok Sabha, he said the pipeline from Barauni in Bihar to Guwahati in Assam would be 672-km long and would be 24-inch in diameter. As per the MoU, "Government of Assam would facilitate GAIL (India) Ltd to obtain necessary permissions/registrations/approvals/clearances etc from the concerned departments/agencies/authorities of the state as per the existing policies/rules and regulations of the state government," he added. Jagdishpur-Haldia-Bokaro-Dhamra pipeline is being targeted to be completed by 2019-20.

<https://energy.economictimes.indiatimes.com/news/oil-and-gas/gail-has-received-approval-for-pipeline-to-guwahati-dharmendra-pradhan/63369796>

Domestic Natural Gas price hiked marginally

The government has hiked the price at which domestic producers in the country are allowed to sell natural gas to \$ 3.06 per MMBtu units from \$ 2.89 per MMBtu. The price ceiling for gas produced from Deepwater, Ultra Deepwater and High Pressure – High temperature areas has also been revised to \$ 6.78 per MMBtu from \$ 6.30 per MMBtu. A statement from the Petroleum Planning and Analysis Cell said that the revised prices are applicable for the April – September 2018 period. The marginally higher prices will aid domestic gas producers, namely public sector undertaking, Oil and Natural Gas Corporation and Oil India. Private players such as Reliance Industries Limited also stand to benefit. Industry watchers however maintain that the current prices are not remunerative enough to appropriately incentivise natural gas exploration in the country. This has pushed consumers towards more expensive import options such as Liquefied Natural Gas (LNG) and the first delivery of a long term, LNG supply contract from the US will be arriving to India on coming Friday, March 30. Pradhan said that India is ramping up gas consumption infrastructure, and the country will be considering further options to meet the growing demand. He said, “After the next round of bids for gas contracts are opened, half of the country will be connected by a city gas grid. Currently there are 92 City Gas Distribution (CGD) contracted areas in India that cover 150 districts. Another 200 districts will be added to this in 2018 alone that will cover 100 CGD areas; this is an indicator of an upcoming gas market in India.”

<https://www.thehindubusinessline.com/news/domestic-natural-gas-price-hiked-marginally/article23374128.ece>

Costlier gas to affect consumers

The hike in domestic natural gas prices to a two-year high of \$3.06 per MMBtu from April 1 can affect consumers as the input cost of power, fertiliser, piped natural gas and CNG would go up. However, the 6 per cent increase in prices would marginally benefit exploration firms such as ONGC as the appreciation in the rupee would reduce the extent of the hike. “From the consumers’ perspective, the increase in domestic gas prices is negative. The upward revision would increase the cost of

Prime Minister Modi to brainstorm on New India-2022 with PSU Chiefs

Prime Minister Narendra Modi will chair a meeting of heads of top state-run enterprises next month to chalk out a strategy for the functioning and role of CPSEs to realise the vision of a ‘new India’, officials said. Officials in the Department of Public Enterprises said the prime minister will preside over the conclave to be held on April 9 on the theme of redefining the role and functioning of CPSEs’ to realise the New India-Vision 2022. The PSU chiefs will make presentations before the prime minister on HR, innovation, finance, corporate governance, among others, and how these can be leveraged to improve the efficiency of state-owned enterprises to increase their contribution to nation building. The deliberations in the Conclave will lead to formulation of an actionable roadmap to achieve the target of a New India 2022, a senior government official told. Top officials from PSUs including NTPC, Indian Oil Corporation and GAIL (India) Limited will make thematic presentations, the official said. Besides, presentations will also be made on corporate governance by Energy Efficiency Services Limited (EESL) and People First: Reinventing Human Resource Management by National Backward Classes Finance & Development Corporation, sources said.

<https://energy.economictimes.indiatimes.com/news/power/prime-minister-modi-to-brainstorm-on-new-india-2022-with-psu-chiefs/63451807>

domestic gas-based power generation by about 3 per cent,” Prashant Vasisth, vice-president and co-head (corporate ratings), at Icra said. However, the impact on power tariffs will hardly be felt as less than 8 per cent of the total electricity comes from gas-fired plants. “As regards the impact on city gas distribution (CGD), the CGD players could increase CNG and PNG (domestic) prices by Rs 0.50-0.55 per kg and Rs 0.35-0.40 per standard cubic meter (scm), respectively,” he said. CARE Ratings said the raw material cost for the fertiliser industry could increase by 5 per cent.

<https://www.telegraphindia.com/business/costlier-gas-to-affect-consumers-219674>

India seen raising natural gas price to highest in two years

India is poised to lift its domestic natural gas price to the highest in at least two years, boosting earnings of producers like Oil and Natural Gas Corp., according to a survey of analysts and industry participants. The federal government will increase the price to \$3.2 per MMBtu for April to September, almost 11% more than the current price of \$2.89, according to an average of 10 estimates, compiled by Bloomberg. India sets the rate every six months and an announcement on the price is due next week. Higher gas prices may encourage producers to boost investment and production, and helping the country meet its goals of cutting energy imports and more than doubling the share of gas in the energy mix. The increase will boost the earnings of India’s

largest gas producer Oil and Natural Gas Corp. and Oil India Ltd., according to Gagan Dixit, an analyst at Elara Securities India Pvt. ONGC produced about 64 million cubic meters a day of natural gas in the first 10 months of the financial year that began in April, comprising about 72 per cent of India’s total gas output, according to Bloomberg calculations. ONGC spokesman Pallab Bhattacharya and oil ministry spokesman Prashant Pathrabe didn’t respond to emails seeking comment. Companies producing gas from some deep-water fields with high pressure and high temperature areas are allowed a higher tariff of about \$6.30 per MMBtu. That price is also due to be revised from April 1.

<https://www.hellenicshippingnews.com/india-seen-raising-natural-gas-price-to-highest-in-two-years/>

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.

Qatar Petroleum CEO completes working visit to India

The President and CEO of Qatar Petroleum, SaadSherida Al-Kaabi, has concluded a working visit to New Delhi, India. During the visit Al-Kaabi held talks with India's Minister of Petroleum, DharmendraPradhan, and discussed ways in which the two nations could bolster energy relations, particularly in the LNG sector. Al-Kaabi, and the accompanying delegation from Qatar Petroleum and Qatargas, held similar talks with senior leaderships of Indian Oil, GAIL, Petronet, and Reliance Industries. Commenting on the visit, Al-Kaabi said: "Qatar appreciates and values its long term and mutually beneficial relationship with India, and reiterates its commitment to effectively contribute to satisfying India's growing energy demand, including the reliable delivery of LNG and other hydrocarbons. I would like to thank the Indian government and all the executives and energy leaders we have met for their hospitality and con-

structive discussions. We look forward to more cooperation between our companies."

Qatar Petroleum sees India as a promising strategic partner; the South Asian country represents one of Qatar's largest markets, with over 10 million tpy delivered in recent years. Qatargas supplies multiple customers in India and is the single largest LNG supplier to the country. <https://www.hydrocarbonengineering.com/gas-processing/22032018/qatar-petroleum-ceo-completes-working-visit-to-india/>

Last date of bidding for 55 oil and gas blocks extended

The last date to bid for 55 exploration blocks under the first round of the open acreage licensing policy (OALP) has been postponed by a month, and bidders will now be able to submit bids till May 2, 2018, instead of April 3, 2018. The bidding process started three month ago in the middle of January. The Directorate General of Hydrocarbons in a notifica-

tion on its website said, "The competent authority has approved the request for extension of bid submission date under OALP Bid Round-I from April 3, 2018 to 1200 hrs IST on May 2, 2018." However, the one-line notification did not mention the reason. Also, there is no clarity as to when will the blocks be awarded under the revised time line. They were to be awarded by May 2018 as per the earlier plan. Under the OALP, six companies had submitted expressions of interest (EoIs) for the 55 blocks after studying data from the National Data Repository, and the blocks were put up for bidding through a secret mechanism on a platform hosted by mjunction Services, a joint venture between Tata Steel and Steel Authority of India. While no foreign company submitted EoI, Cairn India was the only private company to submit EoIs.

<http://www.financialexpress.com/economy/last-date-of-bidding-for-55-oil-and-gas-blocks-extended/1108345/>

INTERNATIONAL: NATURAL GAS/ TRANSNATIONAL PIPELINES/COMPANIES/ OTHERS

The United States exported more natural gas than it imported in 2017

The United States exported more natural gas than it imported in 2017, marking the first time since 1957 that the United States has been a net natural gas exporter. The transition to net exporter occurred as natural gas production in the United States continued to grow, reducing pipeline imports from Canada and increasing exports, both by pipeline and as liquefied natural gas (LNG). The United States surpassed Russia in 2009 as the world's largest natural gas producer as shale gas production drove overall increases in natural gas production. Most recently, production increases have been concentrated in the Appalachia region—primarily the Marcellus and Utica shales. Natural gas production reached an average of 73.6 BCFD in 2017, a 1% increase from the 2016 level and just slightly lower than the 2015 record level. As the United States has produced more natural gas, particularly from the Appalachia region, pipeline imports from Canada have decreased. U.S. natural gas pipeline capacity into Mexico has also increased over the past few years, driven by growth in demand for natural gas from Mexico's power sector and favorable prices compared with natural gas supplied by LNG shipments. U.S.-Mexico natural gas pipeline capacity is currently 11.2 Bcf/d, with another 3.2 Bcf/d of capacity scheduled to be added later in 2018. Pipeline exports to Mexico have grown along with pipeline capacity, more than doubling since 2014 and averaging 4.2 Bcf/d in 2017. U.S. LNG exports increased dramatically over the past two years as new liquefaction capacity has come online. Four other LNG projects are under construction and expected to increase U.S. liquefaction capacity from 3.6 Bcf/d to 9.6 Bcf/d by the end of 2019, further increasing U.S. natural gas exports.

<https://www.hellenicshippingnews.com/the-united-states-exported-more-natural-gas-than-it-imported-in-2017/>

China needs more space underground to store gas

While China seeks more natural gas to meet booming demand from President Xi Jinping's clean-air drive, one part of the fuel's supply chain isn't growing fast enough to avoid a repeat of this winter's supply crunch. Large, underground storage caverns are coming into focus as the missing link that the world's biggest energy user needs to smooth out supply between weak consumption in the summer and surging demand in the winter. While China has plans to more than triple storage capacity by the end of next decade, that still might not be enough to keep pace with its growing appetite, according to analysts at IHS Markit Ltd. and Wood Mackenzie Ltd. Chronic gas supply tightness will continue to be around because storage capacity won't be increasing to the point needed to deal with winter peaks," Xizhou Zhou, an energy analyst with IHS Markit in Beijing, said by phone. China National Petroleum Corp., the country's biggest gas producer and importer, said last week that the country has storage space equivalent to about 3.3% of total demand. That's about 7.8 BCM, according to Bloomberg calculations. The government plans to increase that storage capacity to 14.8 BCM by 2020, and more than 35 BCM by 2030. That would amount to 4.8% and 5.8% of demand, based on forecasts from Sanford C. Bernstein & Co. The world average is 11.7 percent, CNPC said.

<https://www.bloomberg.com/technology> [Edited]

Russian Arctic LNG shipped to India

The first shipment of LNG from Russia's Yamal LNG has been delivered to India. India is one of Novatek's priority markets, according to the company's 2030 strategy, and more deliveries are anticipated. Over a million tons of LNG has now been shipped from Yamal. Four new LNG vessels have been built for the project and another 11 are under construction. The tankers are designed for year-round navigation without the escort of icebreakers through the Northern Sea Route. The first LNG train comprising 5.5 MMTPA commenced LNG production in the fourth quarter of 2017 with the loading of the inaugural tanker, the Christophe de Margerie. Novatek has also announced that it intends to build a comparable plant on the Gydan Peninsula, across the Gulf of Ob from Yamal LNG. The second facility – called Arctic LNG-2 – would be completed by 2023, and would export gas from Novatek's Salmanovskoye and Geofizicheskoye fields, along with production from new license areas as the firm continues exploration. Mikhelson has claimed that the combined plants could produce 70 MTPA, enough to rival world leader Qatar.

https://www.maritime-executive.com/article/russian-arctic-lng-shipped-to-india#gs.kPKy_t0

After Gujarat Gas, will GSPC exit Mundra LNG?

After selling its entire stake in Gujarat Gas to its subsidiary Gujarat State Petronet Limited (GSPL), debt-laden Gujarat State Petroleum Corporation (GSPC) is mulling sale of its stake in the Rs4,500 crore Mundra LNG project. GSPC holds 50% stake in the 5 MMTPA Mundra LNG terminals, while Gautam Adani - led Adani Group holds 25% stake. The remaining 25% stake is earmarked to be sold to a strategic investor. Even as GSPC's efforts to rope in a strategic investor for Mundra LNG have failed so far, the Indian Oil Corporation is expected to acquire a significant stake in the project. In fact, in August, the IOC board had approved acquisition of up to 50% stake in the project. The size of the proposed transaction is pegged at about Rs750 crore. A highly placed government official told DNA that they are waiting for IOC to get back to GSPC with the offer. However, looking at GSPC's precarious financial condition, there is a good chance that it may have to sell stake in the Mun-

dra project. Even after selling its 28.40% stake in Gujarat Gas to subsidiary GSPL for about Rs.3,200crore, GSPC will still have a debt of more than Rs13,000 crore. The high, and almost unsustainable, debt is largely because of the loans taken to meet expenditure of Rs23,000crore in its KG Basin project. Incidentally, GSPC sold 80% stake in the KG asset to ONGC for Rs7,738 crore last year, and booked loss for the remaining Rs15,000 crore. In the meanwhile, a GSPC LNG official said that construction of the terminal is complete, and only work related to the evacuation pipeline from Mundra to Anjar remains to be finished.

<http://www.dnaindia.com/business/report-after-gujarat-gas-will-gspc-exit-mundra-lng-2598138>

Gail India proposes seven U.S. LNG cargo swaps from Cove Point facility

Gail India proposes swapping seven LNG cargoes across May-October 2018, according to the tender document and traders. With few tankers to ferry the fuel to India, GAIL has already struck swap deals for a chunk of its Sabine Pass volumes, and is extending that programme to cover Cove Point output. Under the swap, Gail sells its share of output from U.S. export plant Cove Point on a free-on-board basis in return for taking delivery of equal amounts of LNG to India's Dahanu/Hazira import terminal. GAIL offers a Cove Point cargo loading in May 5-15 and asks for corresponding delivery to India on May 1-10. GAIL offers Cove Point cargo on June 15-25, July 5-15 and August 1-10 but dates for corresponding deliveries to India are yet to be finalised, according to the document. GAIL offers Cove Point cargo on Sept. 1-10 with corresponding Indian import scheduled for Sept. 1-15. GAIL offers Cove Point cargo on Oct. 1-10 with corresponding Indian import on Oct. 10-31. Participants must submit proposals on or before March 20 and the tender is valid until March 22.

[Source: LNG Global](#)

Hiranandani family to invest Rs3,500crore in LNG terminal business

Niranjan Hiranandani's family is investing around Rs3,500crore to build LNG terminals in Maharashtra and West Bengal, in a diversification for the Mumbai developer who built the iconic 250-acre Hiranandani Gardens township in sub-

urban Powai. Led by Darshan Hiranandani, Niranjan's son, H-Energy (formerly known as Hiranandani Energy) expects to start commercial operation of its first LNG terminal at Jaigarh in Maharashtra by October. The Hiranandanis are spending around Rs 1,700 crore in setting up the terminal and laying down a 60 km pipeline from Jaigarh to Dabhol that is expected to be ready by May 2018. The company is planning to start construction of its second LNG terminal at Digha in West Bengal with an investment of another Rs 1,700 crore. Darshan Hiranandani said, H-Energy has devised plans to ramp up the energy business and is looking to bring in more professionals at the senior level. It also expects to provide gas to retail outlets in the long term, he added.

<https://www.livemint.com/Companies/Uvx-VZYtaE2kpdVVKUWJal/Hiranandani-family-to-invest-Rs3500-crore-in-oil-and-gas-bu.html>

GAIL's 'Meridian Spirit' arrives at Dabhol

India's first LNG Cargo from USA under long term contract of GAIL (India) Limited was received at Dabhol, on Friday. This marks a new beginning in the Indo-US energy partnership and trade. Commencement of LNG supplies under the Henry Hub indexed contracts is significant for GAIL and the Indian markets as well. GAIL's first charter hired vessel - MV Meridian Spirit, arrived after 25 days voyage and docked for unloading in the presence of Dharmendra Pradhan, Minister, Petroleum & Natural Gas. Patrick Santillo, Minister Counselor for Commercial Affairs, US Embassy and B C Tripathi, CMD, GAIL were also present on this momentous occasion. Speaking on the occasion, Pradhan said that the government was working towards making India a gas based economy. He added that the arrival of the first LNG cargo from US was a significant milestone in the direction of realising adequate availability of natural gas through imports from diversified sources. He further stated that a shift towards a gas based economy would require augmenting domestic production as well as imports. He added that adequate investments in natural gas infrastructure including pipeline, LNG import terminal and City Gas Distribution network was also a focus area for the Government.

<http://www.dnaindia.com/jaipur/report-gail-s-meridian-spirit-arrives-at-dabhol-2599611>

Global LNG-Asian spot prices for May slip as nuclear reactors restart

Asian spot liquefied natural gas (LNG) prices fell this week as demand eased in North Asia on expectations for higher temperatures in the region and as nuclear reactors restart in Japan, limiting the need for gas for power generation. Spot prices for May delivery LNG-AS slipped to around \$7.70 per MMBtu, said several trade sources surveyed by Reuters. That is the lowest since the week of Sept. 22. Japan's power utility Tohoku Electric Power Co Inc. bought a cargo for delivery in May at between \$7.75 to \$7.85 per MMBtu, which is lower than the \$8.30 to \$8.40 per MMBtu it paid for a cargo for April delivery. Japanese LNG trading giant JERA bought a cargo for May though price details were not immediately available, said three traders that participate in the market. It last bought an April cargo for about \$8.30 to \$8.50 per MMBtu. Japan's Kansai Electric Power restarted the No. 3 reactor at the Ohi nuclear plant earlier this week while Kyushu Electric Power's No. 3 reactor at the Genkai nuclear plant is expected to restart next week after maintenance. Still, Asian spot prices were higher than the same period last year buoyed by less supply from Papua New Guinea after a powerful earthquake in late February knocked out ExxonMobil's export facility. Demand for LNG from South Korea could increase as the country moves to shut coal-fired generators to control air pollution at the same time as nuclear reactors going into scheduled maintenance. In India, demand was also robust with Gail (India) seeking two cargoes for delivery over April to May and Bharat Petroleum Corp Ltd seeking a cargo for mid-April. Falling industrial demand has also turned China's energy giants into sellers of LNG in Asia for the first time since last year's massive import spree, which is also expected to weigh on prices.

<https://www.hellenicshippingnews.com/global-lng-asian-spot-prices-for-may-slip-as-nuclear-reactors-restart/>

Singapore could still thrive as regional LNG trading hub

Singapore's success as an evolving Asian LNG trading hub will likely rely on the growth of the small-scale LNG market in Southeast Asia over the medium term. The market size for Southeast Asia is forecast to grow by around 71 MMTPA by 2035 in an annual LNG outlook that Anglo-Dutch energy major Shell published in March 2018. Southeast Asia will become a net LNG importer by 2035, with Indonesia – the largest economy in the region – alone requiring 30 MMTPA by that year according to Shell. Many companies see the region as key to creating new LNG demand. Shell, Singapore-based Pavilion Energy as well as Japanese utilities Osaka Gas and Tokyo Gas are among those that have invested and signed collaboration agreements to develop the southeast Asian market. Small LNG vessels are needed to deliver to the remote areas not linked to a gas grid. An ideally placed receiving terminal that can break conventional-sized cargoes into smaller volumes to supply those areas is at an advantage. The Singapore LNG (SLNG) terminal is being heavily promoted as that connection point for southeast Asia. Singapore is already providing break-bulk, bunkering and reloading services. SLNG will expand its annual regasification capacity to 11 MMTPA when its fourth 266,000 cubic metre (cbm) storage tank comes on line in the second quarter of 2018. The terminal currently operates three 188,000 cbm tanks – one of which can conduct reloads. The second quarter of 2018 will see SLNG open terminal access to multiple third parties. The Energy Market Authority (EMA) has allowed companies to import

spot LNG into Singapore from 2018, but total quantity is capped at 10% of Singapore's long-term contracted pipeline gas and LNG supply.

<https://www.hellenicshippingnews.com/singapore-could-still-thrive-as-regional-lng-trading-hub/>

Indonesia expected to witness excessive supply of liquefied natural gas

Production of liquefied natural gas (LNG) in Indonesia is forecast to be oversupplied this year despite of rising domestic consumption. LNG outputs is estimated to be surplus about 3.2 MMT this year, senior analyst gas and power Asia Pacific Wood Mackenzie Edi Saputra disclosed on Tuesday (March 20). The analyst explained that the production of LNG is projected to be 18.5 MMT this year and a total of 12.5 million tons of them will be exported, and 2.8 MMT for domestic consumption. Last year Indonesia's domestic consumption of LNG reached 2.4 MMT as several power plants kicked off operation, according to him. Indonesia shipped LNG to East Asia market, including China, he said. Several contracts with foreign buyers, such as Japan and South Korea, which are not extended, have also factored to the restriction of exports, the analyst said. The analyst urged the authorities to expand shipments of LNG overseas to reduce the oversupplied products. Indonesia has a huge natural gas reserve of 104 trillion cubic meters, according to the country's upstream oil and gas regulator, SKK Migas.

<https://www.hellenicshippingnews.com/indonesia-expected-to-witness-excessive-supply-of-liquefied-natural-gas/>

B.C. government wants to move forward with LNG Canada project

The proposed liquid natural gas export terminal in Kitimat, British Columbia, Canada is back in the news, with Premier John Horgan announcing plans to move forward with tax breaks for the proposed LNG project, even though it will create more pollution. Potential opportunity is extraordinary. Potential risks are significant," Horgan said. "I believe LNG Canada is working diligently to address those risks and I believe it's the responsibility of the government to make sure we're working to develop those opportunities for all British Columbians." As part of the new financial arrangement, LNG companies would receive relief from provincial sales taxes with repayment in the form of an equivalent operational payment. However, they will be subject to the same electricity rates as other industries in the province but will have to abide by new greenhouse gas emission standards. Horgan said the LNG projects will be subject to provincial review under four provisions, with all LNG projects guaranteeing a fair return for B.C.'s natural resources, guaranteed jobs and training opportunities for British Columbians, respect, and partnering with First Nations, and must meet the province's climate commitments.

<http://www.digitaljournal.com/tech-and-science/technology/b-c-government-wants-to-move-forward-with-lng-canada-project/article/518380>

Merkel looks to LNG to cut Germany's dependence on Russian gas

Angela Merkel's government is seeking to build a liquefied natural gas industry in Germany basically from scratch to reduce the nation's dependence on supplies arriving by pipeline from Russia and Norway. With gas reservoirs depleting from the U.K. to the Netherlands, Germany is becoming increasingly reliant on Russia for its energy needs at a time when political tensions are mounting with Vladimir Putin's government in Moscow.

That's prompting Merkel to think again about LNG as an option, building terminals on the North Sea and Baltic Sea that could import the fuel and bypass facilities in the neighboring Netherlands, Poland and Belgium. Her newly formed coalition has a "coalition contract" that among other policies sets out an energy agenda including LNG for the next four years. Merkel backs "all initiatives supporting further diversification of gas supply -- whether from different regions or means of transporting gas," Economy and Energy Ministry spokeswoman Beate Baron said in a note. Less polluting than coal and oil, natural gas is taking a central role in Germany's effort to make the economy carbon neutral by 2050. That also involves closing coal plants and investing in wind and solar farms. Across Europe, LNG use is on the rise. Imports to the 28 member states increased an annualized 22% at the end of the third quarter, with nations such as the U.K. and Spain in the lead in developing import capacity. Still, most terminals in northwestern Europe are underused.

Merkel also is allowing German companies to promote the Nord Stream 2 pipeline, an expansion of an existing route for gas to flow from Russia to Europe under the Baltic Sea. Merkel's coalition sees a potential for using LNG in ships and heavy trucks, said Baron. Her ministry "strongly backs private initiatives to build a terminal -- including current efforts to do so in Brunsbuettel near Hamburg."

[Source: LNG Global \[Edited\]](#)

Anadarko agrees Mozambique LNG export deal

According to the latest Reuters report, Anadarko Petroleum's plans to export LNG from Mozambique have advanced a step closer to completion after the signing of a 15-year LNG sales and purchase agreement (SPA) with Electricite

de France (EDF). The French utility has agreed to purchase 1.2 million tpy of LNG from the Mozambique Area 1 marketing venture led by Anadarko and consisting of Mitsui, ONGC Videsh and PTT (among others). In all, Anadarko has reportedly agreed commercial terms for 5.1 million tpy of LNG off-take deals from Mozambique, closing in on its 8.1 million tpy target needed to trigger a final investment decision (FID).

<https://www.lngindustry.com/liquid-natural-gas/20032018/anadarko-agrees-mozambique-lng-export-deal/>

Japanese utility turns LNG seller after nuclear reactor re-starts -sources

A Japanese utility that buys LNG to feed power plants has turned seller of the super-chilled fuel after it restarted a nuclear reactor, reducing its need for gas and potentially driving down spot LNG prices, trade sources said. With more reactors that have been shut since Japan's 2011 Fukushima disaster seen restarting this year, LNG demand could be further curbed in the country that is the world's biggest LNG importer of the fuel, they said - causing supplies to swell and prices to wilt. Kansai Electric Power Co has

offered a spot LNG cargo for loading in May, three trade sources said on Monday (March 19), with the sale taking place via a private negotiation process. The company offered the cargo on a free-on-board (FOB) basis to be loaded on May 21-22, one of the people said, speaking on condition of anonymity because he was not authorized to speak with the media. Kansai Electric did not immediately respond to Reuters' requests for comment on the matter. Japan's nuclear restart process has been riddled with delays due to technical trouble and legal challenges, making it difficult for utilities to know whether they will need replacement fuels like thermal coal or LNG. Kansai Electric restarted the No. 3 reactor at its Ohi plant on March 14 after a delay of about two months. More shifts in Japanese utilities' LNG needs are expected within the energy industry as 2018 proceeds. Masakazu Toyoda, chairman and chief executive of the government-associated Institute of Energy Economics, Japan, said in October last year that about five more nuclear reactors will restart by early next year, increasing nuclear's share of Japan's energy mix to 6 percent to 7 percent.

[Source: LNG Global](#)

LNG Canada aims for construction start this year

In 2016, when LNG Canada hit the pause button on its multi-billion dollar LNG project in Kitimat, CEO Andy Calitz made it clear the project was "delayed, not cancelled." At a Globe conference forum on energy transition March 14, Calitz confirmed the company plans to seek a final investment decision from the main partners, which includes Royal Dutch Shell, this year. Despite skepticism that a large LNG project will ever be built in B.C., both Calitz and Shell senior executives have been telegraphing their intent to move ahead with LNG Canada project for months now, and have said they expect to make a final investment decision in 2018. Calitz went a bit further last week, saying the goal was to start construction this year. When we paused LNG Canada in 2016, when oil prices were \$35 and there was no market for LNG in Asia, at the time we said we wanted to be in construction in 2018," Calitz said, in answer to a question about the timing of a final investment decision. Those stakeholders include Shell, and three of Asia's biggest companies: PetroChina, Kogas and Mitsubishi. LNG Canada originally had planned to make a final investment decision in 2016. The project has all of its environmental approvals in place, as well as agreements with First Nations. "LNG Canada will be the largest infrastructure project ever launched in this country, and there is no shortage of funding for it for the so many reasons that it makes sense," Calitz said at last week's energy transition forum. One of the hurdles the company still faces is at the federal level. Last year, Canada slapped tariffs on fabricated steel imports from China, South Korea and Spain.

<http://www.jwnenergy.com/article/2018/3/lng-canada-aims-construction-start-year/>

Russian LNG exporter warns against 'vilifying' country's gas

Russia's political tensions with Europe and the U.S. should not be a reason to denounce the nation's energy supplies, which are just as essential for the global market as anyone else's, according to liquefied natural gas exporter Novatek PJSC. "We don't understand why cargoes now have a DNA attached to them," Mark Gyetvay, Chief Financial Officer for Novatek, said in a Bloomberg television interview with Guy Johnson and Matthew Miller. The furor between Russia and the U.K. in the wake of the nerve-agent attack earlier this week prompted Prime Minister Theresa May to retaliate by expelling Russian diplomats and seeking alternatives to Russian gas, including LNG produced by Novatek. This followed shipments earlier this year to the U.S., which

drew attention because some of the LNG was produced at the Arctic plant that's been under U.S. financial sanctions. All cargoes are supplied by traders who choose the most profitable destination, this is how commodities markets work, Gyetvay said. Novatek Yamal's gas was sold free on board from the LNG plant "to a trader who then sold it off to another trader who took it to the market where they felt they could receive the highest netback," he said. Novatek, whose largest shareholders include Russian billionaires Leonid Mikhelson and Gennady Timchenko, as well as French energy giant Total SA, last year outlined plans for some \$60 billion of investment to become a global force in the LNG market and the biggest producer of the fuel in Russia.

<https://www.hellenicshippingnews.com/russian-lng-exporter-warns-against-vilifying-countrys-gas/>

Japan's Inpex delays Ichthys LNG project; posts loss on Canada gas project

Japan's Inpex Corp says to delay start-up of Ichthys LNG project in Australia to April-May from by the end of March due to bad weather such as cyclones. Inpex says the project's Central Processing Facility would complete trial operations in April-May, start gas production from the well; production of condensate, LNG and liquefied petroleum gas (LPG) would follow after that in that order. Inpex says to book a 76 billion yen (\$723 million) special loss on impairment charges this business year ending March 31 related to its Canada shale gas project. Inpex revised its profit estimates for this business year downwards due in part to the charge.

<https://www.hellenicshippingnews.com/japans-inpex-delays-ichthys-lng-project-posts-loss-on-canada-gas-project/>

INTERNATIONAL: NATURAL GAS/ TRANSNATIONAL PIPELINES/COMPANIES/ OTHERS

US coal production drops across all major basins as spring approaches

Weekly US coal production totaled an estimated 14.81 million st in the week ended March 10, down 1.9% from the prior week but up 2.4% from the year-ago week, US Energy Information Administration data showed Thursday, March 15. Production estimates peaked in the week ended February 3 at 15.87 million st and have largely declined since, with the most recent estimate being the weakest since the early February peak. Production estimates were down across all major basins as natural gas prices struggle to reach \$3/MMBtu as weak demand continues despite cold weather. The NYMEX April gas futures contract settled Thursday at \$2.681/MMBtu, down 5 cents from Wednesday. Based on EIA estimates through the first 10 weeks of the year, annualized US coal production in 2018 would total 765 million st, down 0.7% from last year. For the recently concluded week, coal production in Wyoming and Montana, which primarily consists of coal from the Powder River Basin, totaled an estimated 6.68 million st, down 2.1% compared with last week but up 3.8% from the year-ago week. On an annualized basis, coal production in Wyoming and Montana would total 333 million st, down 5.8% from last year. In the Illinois Basin, weekly coal production totaled an estimated 2 million st, down 2.2% from last week and 2.2% from last year. Annualized production would total 104.32 million st, up 0.9% from 2018.

<https://www.hellenicshippingnews.com/us-coal-production-drops-across-all-major-basins-as-spring-approaches/>

South Korea fuel oil imports soar as coal, nuclear plants shut

South Korea's move to shut coal-fired generators to control air pollution at the same time as nuclear reactors are going into scheduled maintenance is resulting in surging fuel oil imports, as utilities burn the dirty feedstock to meet power demand. South Korea's trade ministry said it would suspend five coal-fired power plants, with a combined capacity of 2.32 GW, from March to June, part of a broad campaign to reduce pollution. That plan may backfire, at least in the short-term. A cold winter has raised power and heating demand, forcing utilities to burn more fuel oil in order to meet demand. "Both from a pollution reduction and cost reduction perspective, it does not make sense to burn fuel oil," said Bikal Pokharel, principal analyst at Wood Mackenzie. While carbon emissions from fuel oil are just around 10 percent less than coal, the operating cost of fuel oil is almost three times that of coal, Pokharel said, while LNG fired plants emit half the carbon compared to coal but cost almost twice as much to operate at current fuel prices. Fuel oil imports by power producers into Asia's fourth-largest economy have jumped to 200,000 tonnes in March so far, up from 92,000 tonnes in February, tender data compiled by Reuters showed. First-quarter fuel oil imports are expected at 417,000 tonnes, up 28 percent from a year ago and already more than 60 percent of the 660,000 tonnes taken for all of last year. Only two of South Korea's major utilities, Korea East-West Power Co Ltd (EWP) and Korea Western Power Co (WP), issue tenders for fuel oil for power generation, mostly during peak summer and winter demand, data on Thomson Reuters Eikon shows. Coal power generates about 40% of South Korea's total electricity needs, nuclear around 30%, and natural gas meets 20%. The rest comes from oil and renewables.

<https://www.hellenicshippingnews.com/s-korea-fuel-oil-imports-soar-as-coal-nuclear-plants-shut-2/>

Sweden funds development of natural gas refueling network

Gasum, the Finnish energy gas company, has been granted an investment subsidy of EUR 9.3 million by the Swedish Environmental Protection Agency, under the Climate Leap ('Klimatklivet') program. The subsidy is a significant step in Gasum's pursuit of building a Nordic gas infrastructure that will, for example, expand the use of LNG in heavy-duty vehicles. The investment subsidy will help in opening up to 16 new natural gas stations around Sweden in the coming years. In the future, natural gas will play a major role in the transition to a carbon neutral society. Across the next few years, Gasum will widen the company's LNG station network in Finland, Sweden and Norway. New stations will be positioned at strategically relevant locations, expanding the driving range of LNG vehicles even further in the Nordic countries. With the investment subsidy granted by the Climate Leap program, Gasum will build up to 16 new natural gas stations in 13 Swedish regions.

<http://www.ngvjjournal.com/s1-news/c4-stations/swedish-government-funds-development-of-natural-gas-refueling-network/>

NGV option now available for all Volvo FE cab, chassis combinations

Volvo Trucks extends the low-entry cab range for the Volvo FE with several new features, for demanding transportation in urban areas. Most of the features are about improved safety and productivity for drivers. At the same time, natural gas-powered engines are now available for all Volvo FE cab and chassis combinations. All this makes the Volvo FE a suitable choice for demanding urban transports tailored to operator's specific needs. In refuse operations, city distribution and inner-city construction transports – a low-entry cab offers safety and productivity advantages that address even the most demanding conditions in urban operations. Firstly, the low driving position enhances all-round visibility. Secondly, the low instep lets the driver work more efficiently and at the same time it reduces the risk for knee and ankle injuries. The Volvo FE now offers powertrain options to fit every requirement for performance and a wide range of local environmental incentives and regulations. In addition to diesel engine option, the Volvo FE features an NGV version that

can now be combined with all cab versions – including the new low-entry cab. The Volvo FE CNG offers low emissions and can run on biogas.

<http://www.ngvjjournal.com/s1-news/c3-vehicles/natural-gas-engines-now-available-for-volvo-fe-cab-and-chassis-combinations/>

Pennsylvania supports expansion of alternative fuel infrastructure

A CNG fueling station will help reduce air pollution from trucks traveling along Interstate 80, thanks to a grant from the Pennsylvania Department of Environmental Protection. The CNG Fuel LLC station in Shippensburg, Clarion County, is the recipient of a \$178,785 grant through the Alternative Fuels Incentive Grant (AFIG) FAST Act program. "This grant will promote more use of CNG tractor trailers along I-80, which will remove hundreds of thousands of pounds of air pollution," said DEP Secretary Patrick McDonnell. The project, once completed, will displace an estimated 116,650 gallons of diesel fuel per year, as more tractor trailers equipped to run on CNG will utilize the facility and travel on the I-80 corridor. The reduction in diesel use will result in reductions of more than 86,000 pounds of carbon dioxide and more than 322,000 pounds of nitrous oxide. The funding is made possible through the AFIG Program in support of FAST (Fixing America's Surface Transportation) Act corridor designations in Pennsylvania. The program provides up to a 50% reimbursement grant to install public refueling infrastructure along the highway corridors in Pennsylvania design-

nated as alternative fuel corridors by the FAST Act as "Signage Ready" or "Signage Pending" by the Federal Highway Administration. The designated corridors in Pennsylvania are I-76, I-276, I-476, I-95, and I-80.

<http://www.ngvjjournal.com/s1-news/c4-stations/pennsylvania-supports-expansion-of-alternative-fuel-infrastructure/>

New Volvo FM LNG now on sale – High performance, low emissions

Swedish vehicle manufacturer AB Volvo, through its Volvo Trucks division, introduced the Volvo FM LNG prototype to the market in October 2017, advising "sales to start in the Spring". True to its word, the Liquefied Natural Gas powered truck, suitable for long distance freight haulage, is now on sale. The natural gas-powered Volvo FM LNG emits 20% less CO2 than a regular Volvo FM, allowing transport operators to take big steps towards sustainable transport. When fuelled with bio-LNG, CO2 emissions can be reduced by 100% (tank-to-wheel). It is powered by a 420 or 460 hp engine that delivers performance and productivity on par with a regular Volvo FM with the same power rating. That means the Volvo LM FNG has enough fuel on board to drive heavy regional and long-haul transports. The LNG truck is a perfect option for customers who really care for the environment, without compromising high-performance and productivity."

<http://www.ngvglobal.com/blog/new-volvo-fm-lng-now-on-sale-high-performance-low-emissions-0317>

SoCalGas assists fleets to fund new near-zero emissions natural gas trucks

Southern California Gas Co. (SoCalGas) has assisted California fleets to get more drivers behind the wheel of new near-zero emissions heavy-duty natural gas trucks. The effort is part of a \$21 million Prop 1B incentive pool administered by the South Coast Air Quality Management District (SCAQMD). SoCalGas representatives provided assistance on 400 Prop 1B applications throughout its service territory. If all these applications are accepted and receive funding, SoCalGas customers will replace at least 400 diesel trucks with near-zero natural gas trucks. Replacing 400 diesel trucks with near-zero natural gas trucks is the equivalent of taking more than 22,000 passenger cars off the road. The Prop 1B Program is intended to reduce diesel air pollution from goods movement operations and achieve the earliest possible health risk reduction in nearby communities. Fleet owners seeking to replace diesel trucks may be eligible for up to \$100,000 towards the purchase of a new natural gas truck. "SCAQMD is appreciative of SoCalGas' efforts to help reduce harmful diesel emissions to help clean the air in the Southland," said SCAQMD Executive Office Wayne Natri. "Through technology advancement programs, industry, partnerships, and incentive programs, we will continue to make substantial progress to reduce air pollution."

<http://www.ngvglobal.com/blog/socalgas-assists-fleets-to-fund-new-near-zero-emissions-natural-gas-trucks-0328>

Spain: sporting goods retailer plans to cut emissions with LNG trucks

Decathlon will reduce the carbon dioxide emissions generated in its transport operations with LNG-powered trucks. These trucks will cover approximately 1,000 journeys a year between the company's continental logistics center in El Prat de Llobregat and its regional logistics center in SantEsteveSesrovires, in the province of Barcelona, to transfer stock between centers, as well as journeys made between the latter and two of its stores in the city of Barcelona. In addition, Decathlon will use LNG trucks on trips between its regional logistics center in Seville, stores in the same province and a store in the province of Murcia, and on trips between its regional logistics center in Getafe and several stores in the area of Levante. Thus, the company will reduce carbon dioxide emissions by 36% per year in each of the routes covered with a natural gas-powered fleet. Decathlon is committed to the design, manufacture and distribution of environmentally sustainable products, a commitment that makes special sense in the cities with the highest population and pollution.

<http://www.ngvjournals.com/s1-news/c3-vehicles/spain-sporting-goods-retailer-plans-to-reduce-emissions-with-lng-trucks/>

New test center opens to enable more efficient use of LNG

DNV has opened an LNG test center, located at the organization's existing renewable energy technology and gas laboratory site in Groningen, the Netherlands, which will enable safer and more efficient use of LNG by supporting stakeholders across the value chain with operational experience and intelligence in addressing the large variations in the properties, density and calorific values among LNG sources globally. The center is the first type of facility with a capacity compatible for the downstream sector. Its capacity is up to 250kg of LNG and boasts a heat exchanger that allows the temperature of the LNG and therefore its boil-off to be precisely regulated. Johan Holstein, Head of gas testing and analysis at DNV GL Oil & Gas, said the testing of new sensor technology to rapidly identify the composition of LNG would be a priority. "The current accredited technology, gas chromatography, can take 3-5 minutes to show the composition of LNG," he explained. The ability to monitor the

Spanish natural gas refueling network expected to double in 2018

Gas Natural Fenosa will increase its number of CNG vehicle refueling stations in Spain. The energy company plans to open 50 supply points in the country, in a number of cities including Madrid, Barcelona, Bilbao, Valencia, Zaragoza, Seville, Málaga, Murcia, Alicante, Córdoba, Valladolid, Vigo, Gijón, La Coruña and Santander. The opening of these points will bring the total number of the company's public CNG stations in Spain to 100. The company is developing a plan to encourage mobility aimed at using natural gas as fuel as the best sustainable alternative, compared with petroleum-based fossil fuels. Over the course of the year, it intends to reinforce the structure already in place in Madrid and Barcelona, and open new stations in Spain's major cities. Gas Natural Fenosa currently has 31 public natural gas stations operating in Spain, out of a total of 57 in operation nationwide. Over the past year, sales of natural gas-driven vehicles and trucks have increased by 50%, thereby underpinning use of this fuel in Spain. This, combined with the energy company's strategic alliance with SEAT, is spurring GNF to accelerate its plan to encourage mobility and keep the expansion of refuelling infrastructures going over the coming years.

<http://www.ngvjournals.com/s1-news/c4-stations/spanish-natural-gas-refueling-infrastructure-expected-to-double-in-2018/>

composition of LNG in real time (combined with advances in flow metering) could also improve pricing transparency in bunkering, which has traditionally relied on mass alone rather than mass and energy content. The impact of changing LNG composition on engine performance can also be studied at the Groningen site. For LNG fuel quality testing, DNV GL has engaged in a strategic partnership with Veritas Petroleum Services (VPS) to further develop procedures and practices to ascertain and monitor LNG quality. DNV GL and VPS aim to develop a set of validated tools and measurement methods to provide the LNG industry with accurate, reliable and cost-efficient tools which will help break down the perceived barriers to LNG adoption.

<http://www.ngvjournals.com/s1-news/c7-lng-h2-blends/new-test-center-opens-to-enable-more-efficient-use-of-lng/>

NGVA Romania presents national refueling project in Bucharest

Denisson Energy, a member of Antares Group, and the Natural Gas Vehicles Association NGVA Romania will present CNG Romania project at the Bucharest International Motor Show – SIAB 2018, from March 23 to April 1. Participating in this event is part of the project's promotion and dissemination activities, presenting optimal solutions for switching from traditional fuels to alternative fuels and their significant benefits. SIAB 2018 will also feature the Conference "Nation-

and Local Programs for the Reduction of Pollution" on March 28. As part of this conference, President of NGVA Romania Dumitru Becşenescu will deliver the presentation "Compressed natural gas the viable green mobility solution. The importance of the CNG Romania project in the context of domestic and international trends."

<http://www.ngvjournals.com/s1-news/c1-markets/ngva-romania-presents-national-refueling-project-in-bucharest/>

SEAT Spain: the natural gas option, in a strong phase of expansion

SEAT is clearly committed to its bi-fuel CNG/gasoline technology (TGI) as the best alternative for ecomobility in the market. Precisely, due to the clear advantages offered by this technology, compared to petrol, diesel, LPG and even non-plug-in electric hybrids, SEAT's TGI range begins a clear growth towards its consolidation in the market, with an incredible increase of sales thanks to the confidence of the public. In the first two months of the year, SEAT has sold 557 units of its TGI range, or what is the same, sales have multiplied by ten compared to the same period last year. The cumulative sales of 2018 have already exceeded the registrations made during the first nine months of last year.

<http://www.ngvjournals.com/s1-news/c3-vehicles/seat-spain-the-natural-gas-alternative-in-a-strong-phase-of-expansion/>

Volkswagen starts building LNG-powered ships to transport its cars

After a few months of preparation, the stage has finally been reached: work has started on the construction of LNG-powered vessels for logistics within the Volkswagen Group. Volkswagen Group Logistics, the operator Siem Car Carriers and the shipyard Xiamen Shipbuilding celebrated the “steel cutting” (equivalent to foundation laying in the shipbuilding industry) with an official ceremony in the Chinese city of Xiamen. From 2019, the two ships powered by natural gas will carry Volkswagen Group vehicles from Europe to North America. Markus Lange, Head of Vehicle Logistics of Volkswagen Group Logistics, said: “Greater sustainability in logistics is a key issue for us. The use of two LNG-powered ships for transporting vehicles is a major step forward which we can only take together with our strong partners.” Over the coming months, the shipyard, Xiamen Shipbuilding Industry, will build the two ships which will then be operated by Siem Car Carriers and chartered by Volkswagen Group Logistics. The engines for the ships will be supplied by MAN Diesel & Turbo. <http://www.ngvjournal.com/s1-news/c7-lng-h2-blends/volkswagen-starts-building-lng-powered-ships-to-transport-its-cars/>

First LNG multi-fuel bunker vessel launched in southern Europe

Cepsa of Spain presented in the Port of Huelva the first multi-product marine fuel supply vessel in southern Europe. The vessel will provide ship-to-ship LNG, in addition to traditional fuels: fuel oils and

diesel. State-of-the-art technology has been used in its construction including a new fuel measurement system, based on Mass Flow Meters technology, which guarantees the accuracy in the supply of fuel to vessels. The multipurpose vessel (OIZMENDI), which will operate in Huelva, has an LNG load capacity of 600 m³, 1,900 tons of fuel oil and 470 tons of diesel. This new initiative is part of the CORE LNGas Hive project, launched by the European Commission to promote the use of gas as a fuel for transport contributing to the reduction of CO₂ emissions in the Atlantic and Mediterranean European maritime corridors. The company starts supplying LNG ship-to-ship, consolidating its leadership in bunker supply in Spain, where Cepsa sells more than 11,000 tons annually, representing a market share of over 50%, with a milestone that strengthens Cepsa’s position at a national and European level. Cepsa begins LNG supply operations in response to the anticipation of increased demand for this type of fuel, which has a lower environmental impact. Meanwhile, Cepsa anticipates changes in the European emission control regulations where the International Maritime Organization (IMO) has set a limit of 0.5% of sulfur in bunker by 2020. In this regard, LNG generates approximately 30% less CO₂ emissions than traditional fuels and eliminates SO_x emissions.

<http://www.ngvjournal.com/s1-news/c7-lng-h2-blends/first-lng-multi-fuel-bunker-vessel-launched-in-southern-europe/>

LNG fuelled shuttle tanker duo to feature wide range of ABB solutions

ABB has won an order from shipbuilder Samsung Heavy Industries to equip two

new shuttle tankers, contracted to Statoil, with a range of future-proof solutions designed to deliver greater efficiency and lower emissions than any comparable tanker. The main and auxiliary engines of the tankers will be dual-fuel units, which will allow them to operate on liquefied natural gas (LNG), as well as traditional fuel. ABB power and automation solutions to be fitted in the two specialist DP2 offshore loading shuttle tankers including the Onboard DC Grid power distribution system. The system is highly configurable and well suited to the integration of variable speed generators, energy storage and new energy sources such as fuel cells. The two twin-skeg 125,000 DWT vessels will be delivered by the South Korean shipyard 2019. Ordered by AET, they will transport oil from the Statoil fields on the Norwegian and U.K. continental shelves to land-based terminals. ABB says that its integrated power and automation solutions can contribute to annual fuel savings of up to 1,000 tons on the 8,000-9,000 tons of fuel a year a shuttle tanker of similar tonnage would normally use. Twin two-stroke engines will act as the main source for all power utilizing the Onboard DC Grid shaft generator solution for all of the operational modes. The combination of the Onboard DC Grid system and the two-stroke engine shaft generator will result in the vessels burning less fuel and generating lower emissions, compared with the more traditional alternative that relies on four-stroke auxiliary engines.

http://www.marinelog.com/index.php?option=com_k2&view=item&id=28675:lng-fueled-shuttle-tanker-duo-to-feature-wide-range-of-abb-solutions&Itemid=257

Japan’s Sumitomo eyes ship-to-ship LNG bunkering in Tokyo

Three firms will jointly study the commercial feasibility of services using LNG bunkering vessels, Sumitomo said in a statement. Japanese trading house Sumitomo Corp says it signed a memorandum with Uyeno Transtech Ltd and Yokohama-Kawasaki International Port Corp for a joint study on ship-to-ship liquefied natural gas (LNG) bunkering in Tokyo Bay. * The three firms will jointly study the commercial feasibility of services using LNG bunkering vessels, Sumitomo said in a statement

- The firms would remain open to the possible participation in such a business venture of other LNG-related companies, it said
- LNG has been promoted as a more environment-friendly alternative to bunker fuel oil for shipping lines facing a 2020 deadline to meet new international standards on sulphur emissions.

<https://energy.economicstimes.indiatimes.com/news/oil-and-gas/japans-sumitomo-eyes-ship-to-ship-lng-bunkering-in-tokyo/63526416>



Japan H2 Mobility alliance plans to install 900 refueling stations by 2030

Air Liquide and 10 Japanese companies, representing several industries and finance, announced the creation of the "Japan H2 Mobility" consortium for the purpose of accelerating the deployment in Japan of hydrogen stations and fuel cell vehicles. The 11 founding companies will



contribute, in connection with the stated ambition of the Japanese government, to the development of a large-scale hydrogen infrastructure in order to build a network of 320 stations by 2025, and 900 by 2030. Today, there are about 100 stations already in operation in Japan. Initially, the 11 member companies of the "Japan H2 Mobility" consortium will target to provide 80 new hydrogen stations, over the next four years, which will serve to refuel a fleet of nearly 40,000 hydrogen-powered cars. Air Liquide for its part will install and operate around 20 stations by 2021..

<http://www.ngvjournall.com/s1-news/c4-stations/japan-h2-mobility-alliance-plans-to-build-900-refueling-stations-by-2030/>

Air Products equipment bound for China Energy's first H2 fueling station

Air Products, a world-leading industrial gases company, has signed an agreement with state-owned Shenhua New Energy Co. Ltd. (New Energy), a subsidiary of China's energy conglomerate China Energy Investment Group Co., Ltd. (China Energy), to provide two hydrogen dispensers to China Energy's first commercial hydrogen fueling station project in Rugao City of Jiangsu Province, eastern China. Air Products' global leading and proprietary SmartFuel® hydrogen dispenser will be supplied for the project for fueling the hydrogen fuel cell powered vehicles. The fueling station is expected to be one of

the largest in China in terms of fueling capacity when it becomes operational in mid-2018. China Energy was established in November 2017 by the merger of energy company Shenhua Group and China's power giant China Guodian Corporation. As part of its efforts to support China's hydrogen energy industry, Air Products announced it has joined the National Alliance of Hydrogen and Fuel Cell (NAHFC) organization, which was co-initiated by China Energy and officially established in Beijing in February. The alliance is a government-backed national platform to develop the hydrogen and fuel cell industry by consolidating resources and innovative technologies from key industry players and institutes. As a key member in the alliance, Air Products will leverage its leading expertise in hydrogen production, storage, transportation and dispensing infrastructure to support the hydrogen energy blueprint outlined in China's 13th Five-Year Plan.

<http://www.ngvglobal.com/blog/air-products-equipment-bound-for-china-energy-s-first-h2-fueling-station-0322>

Gasum opens world's first natural gas station in conjunction with IKEA

Gasum of Finland has now opened its first natural gas filling station in conjunction with the IKEA store in Lommila, Espoo. The new facility is part of the circular economy collaboration between Gasum and IKEA Finland where biogas is produced from food waste of Finland's IKEA restaurants. In this context, NGV stations are also introduced at IKEA stores, enabling the use of biogas in IKEA Finland's own operations as well as for its transport partners and consumers. The number of NGVs is increasing at a record rate in Finland, and Gasum is promoting cleaner transport by expanding the biogas and natural gas station network. The company is planning to open a total of 35



new filling stations in the next few years, with seven of these already open. At the moment, new stations are being planned in the Helsinki Metropolitan Area, Turku, Oulu, Lahti, Seinäjoki and Kuopio. At the moment there are almost 40 gas filling stations in Finland, with 26 of these operated by Gasum. The cooperation between Gasum and IKEA Finland will result in the production of biogas from food waste generated in all of Finland's IKEA restaurants. In addition, the cooperation aims to increase the distribution of the environmentally-friendly fuel to serve the needs of consumers and enterprises alike in conjunction with IKEA stores in Finland. The facility opened in Espoo is the world's first natural gas station opened in conjunction with an IKEA store. The Finnish IKEA stores are the first IKEA units at which natural gas stations are introduced. <http://www.ngvjournall.com/s1-news/c4-stations/gasum-opens-worlds-first-natural-gas-station-in-conjunction-with-ikea/>

INTERNATIONAL:NG/LNG UTILISATION-ROADWAYS

NGV Global Technical Forum to discuss CNG vehicle inspections

A new Technical Forum planned by NGV Global will address the evolving safety paradigm of natural gas fuel systems for vehicles. Planned to run in conjunction with ACT Expo in Long Beach, California, the event is entitled Guaranteeing Safety in CNG Vehicles: Inspections, Improvements and Innovations. It will provide participants an opportunity to learn from and discuss with global experts issues of relevance to natural gas vehicle (NGV) inspection practices.

<http://www.ngvglobal.com/blog/ngv-global-technical-forum-to-discuss-cng-vehicle-inspections-0323>

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.