# Oil and Gas News Briefs Compiled by Larry Persily April 21, 2022

#### Cargo of U.S. strategic reserves crude leaves Texas for Europe

(Bloomberg; April 18) - A cargo of crude from the U.S. Strategic Petroleum Reserve has left a Texas port for Europe, a signal of increasing market disarray as refiners shun Russian crude and prices surge. The rare export of strategic U.S. barrels is evidence of the ever-widening search for oil to replace Russian crude seven weeks after President Vladimir Putin's invasion of Ukraine triggered international revulsion and sanctions.

With the global oil benchmark trading above \$100 a barrel, traders and refiners also are trying to cope with a recent cutoff of Libya's biggest source of crude and little expansion in U.S. output. A tanker known as the Advantage Spring loaded low-sulfur crude originally pumped from the strategic reserve caverns in Southwest Louisiana at a port in Nederland, Texas, earlier this month, according to a person familiar with the matter.

The ship, chartered by an affiliate of French energy giant TotalEnergies, is bound for the European port of Rotterdam, according to ship-tracking data compiled by Bloomberg. President Joe Biden, along with several U.S. allies, recently offered a portion of their countries' strategic reserves for sale to help alleviate some of the global supply pinch and to help reduce prices to consumers. Total didn't respond to a request for comment.

# Russian crude exports declined 25% last week

(Bloomberg; April 19) - Seaborne flows of Russian crude oil declined by a quarter in the seven days to April 15. Volumes heading to Asia from ports on the Black Sea, Baltic and Arctic coasts plunged to the lowest in two months. A total of 30 tankers loaded about 21.8 million barrels from Russian export terminals, according to vessel-tracking data monitored by Bloomberg and port agent reports. That put average seaborne crude flows at 3.12 million barrels a day, down by 25% against the week ended April 8.

The decline in oil exports means reduced revenue for Moscow as the costs mount of Vladimir Putin's war in Ukraine and consequent sanctions on the Russian economy. At current export duties, the week's shipments will have earned the Kremlin about \$181 million — \$60 million less than the previous week. While the week-on-week drop is dramatic, it takes them back to the level in the week to April 1. The figures can swing depending on the timing of tanker sailings, which is influenced by the weather at ports.

Russia's crude oil export duty is set at \$61.20 a ton in April, equivalent to about \$8.30 a barrel. That's up from \$58.30 a ton, \$7.95 a barrel, in March and is calculated from an

average Urals price over the period from Feb. 15 to March 14. Export duty will fall to \$49.60 a ton, \$6.81 a barrel, in May.

### Rosneft offering a lot of Russian crude for quick sale

(Bloomberg; April 20) - Russia's state oil-producing giant Rosneft surprised traders in Europe and Asia with offers to sell large amounts of crude for quick delivery, as well as setting out significant changes to the payment process for at least some of the cargoes. The move is another sign of disruption to some of the firm's operations following Russia's invasion of Ukraine. There has been a growing pressure in Europe to place an embargo on Russian oil, creating a potential impetus to get purchases finalized quickly.

Rosneft offered as much as 37.4 million barrels of the nation's flagship Urals oil for sale from Russia's western ports for loading in May and June, a tender document seen by Bloomberg shows. That works out at about 40% of its daily seaborne exports of the crude last year. It separately offered 11 prompt cargoes of other grades for loading from the east of the country, according to traders. Both east and west sales are relatively immediate by the standards of the oil market, and traders said such large and short-term offers were an unusual departure for Rosneft from its usual way of doing business.

The terms of the sale of Urals, the nation's top export grade, stipulate that buyers could pay in dollars, euros, Chinese yuan, Turkish Lira or the UAE's dirham, although Rosneft's preference is rubles. That suggests one of the concerns roiling the gas market — Moscow's insistence on payment in Russian rubles — may not afflict oil just yet. Rosneft is seeking 100% pre-payment on the provisional value of any Urals cargoes.

## India increases its purchases of Russian crude

(Bloomberg; April 19) - India is doubling down on Russian crude oil purchases despite warnings from the U.S., snapping up every major grade from the OPEC+ producer as its war in Ukraine nears a third month. India's state-run oil refiners are now looking at privately negotiated deals instead of buying through public tenders in order to get better prices, according to refinery officials and traders. The South Asian nation has purchased everything from flagship Urals that ships from ports in the west, to a rare cargo of ESPO from the Far East, typically favored by China.

India has a longstanding relationship with Russia that includes buying weapons. Purchasing more oil adds to the Kremlin's coffers. President Joe Biden last week told Prime Minister Narendra Modi that the U.S. was ready to help India diversify its energy imports, but self-sanctioning of Russian crude by many buyers is making it cheap and alluring for those willing to buy.

India has bought millions of barrels of Urals crude in the spot market since the end of February, according to data compiled by Bloomberg, along with an ESPO cargo currently making its way to Sikka in the country's west. It's rare for the nation's refiners to take the Far East grade because it's transported in smaller ships and voyages are relatively long, making it less economical.

#### Indonesia looks to buy Russian oil at 'good price'

(Nikkei Asia; April 19) - Indonesia's plan to buy oil from Russia amid the war in Ukraine has ignited an argument over where the country should come down on global issues. The Southeast Asian nation, which desperately needs cheap oil to tame inflation, regardless of where it comes from, has attracted strong criticism and accusations that buying from Russia will only fill Vladimir Putin's war chest.

President Joko Widodo has long prioritized domestic issues over global concerns, placing a heavy focus on infrastructure development and building the country's minerals processing industry. But as this year's G-20 chair and an emerging economy leader, he might now feel some added pressure regarding his government's policies. Indonesia's energy ministry said the country has not imported oil from Russia in recent years. But moves are afoot to do just that. Pertamina President Nicke Widyawati on March 28 sought lawmakers' permission to buy Russian oil at a "good price."

She made the request during a parliamentary session. "Politically, there's no problem as long as the company we are dealing with was not sanctioned," she said. "We have also discussed the payment arrangement, which may go through India." Yuddy Chrisnandi, a professor and former Indonesian ambassador to Ukraine, told local news media that purchasing Russian oil would mean "the country is helping indirectly to buy bullets, bombs — all materials and war machines — to continue to invade."

### North Dakota expects only small boost in output, even at high prices

(Minneapolis Star Tribune; April 19) - North Dakota oil production was flat in February — despite high crude prices — and output is expected to grow only slightly this year. Limited partly by weather, North Dakota pumped out 1.09 million barrels of oil a day in February, about the same as the previous month, according to state data released April 19. "The weather was bad, production was not too bad and the prices were amazing," Lynn Helms, North Dakota's mineral resources director, told reporters.

North Dakota's light sweet crude stood at \$86 per barrel on average in February, well above the state's oil tax revenue forecasts. This week, that price is around \$110. While oil prices have been strong for at least six months, production in North Dakota has been sluggish. Since disruptions caused by the pandemic caused U.S. oil output to crash in

2020, the industry's recovery has been led by the nation's largest and most costefficient shale oil patch: the Permian Basin in Texas and New Mexico.

North Dakota's oil production is expected to grow conservatively in 2022. Helms said oil companies have said they see 1% to 2% growth, but not until the third quarter. Drillers and frackers are limited by constraints from their shareholders and the labor market. "It is difficult to get a workforce," Helms said. "It is difficult to get capital." A lot of oil field workers left the state during the COVID-19 downturn and have not returned. Operators have increased hourly wages by \$10 an hour, "and that has not flipped the switch," he said. "We are going to have to train our North Dakota youth to be our workforce."

#### Political turmoil shuts off 500,000 barrels a day of Libya's production

(Bloomberg; April 18) - Libya's oil production has fallen by more than half a million barrels a day as a wave of political demonstrations engulfs the OPEC member's energy industry. The Sharara field in the west of the country, which can pump 300,000 barrels a day, was closed after protesters gathered at the site and demanded Prime Minister Abdul Hamid Dbeibah quit, according to sources. That came after the nearby El Feel deposit, with a daily capacity of 65,000 barrels, was halted for the same reason.

The country's output is down by 535,000 barrels a day and is bound to fall further, one of the people said. Daily production was as much as 1.1 million barrels as of April 17. State-owned National Oil Corp. formally suspended loadings from the eastern port of Zueitina on April 18 and said it was the "start of a painful wave of closures." The NOC has also declared force majeure — a clause in contracts allowing exports to be stopped — at Mellitah, a western port fed by Sharara and El Feel, according to the sources.

The shutdowns are the latest in a series of disruptions to hit Libya's energy sector amid the worsening political crisis. Oil prices climbed early on April 18 partly because of the interruptions. They come at a delicate time for global commodity markets. Oil supplies have tightened since Russia's invasion of Ukraine. Brent has again soared above \$110 a barrel. Libya, mired in conflict since the 2011 fall of dictator Moammar Al Qaddafi, is facing a standoff between rival politicians.

### **Qatar considers further expansion of LNG production capacity**

(Bloomberg; April 20) - Qatar is sounding out buyers about a further expansion of its liquefied natural gas production capacity, according to people familiar with the matter, as Europe rushes to secure supplies in the wake of Russia's war in Ukraine. State-run Qatar Energy is talking to gas buyers about whether to further enlarge a \$30 billion project started in 2021 to build even more liquefaction units, the people said, asking not

to be identified. The company is assessing the cost of adding at least one more unit and how much interest there is for additional gas from customers, including some in China.

The talks are at an early stage and QE may stick with its existing plan, which will boost its maximum annual output by 60% to almost 130 million tonnes by 2027. The first gas isn't expected to hit the market until 2025. Qatar's discussions underscore how quickly the long-term outlook for LNG has changed since Russia's invasion. Europe is desperate to reduce its reliance on Russian energy.

Senior European Union officials have traveled to Qatar in the past month to discuss gas supplies. Germany's economic minister said the nation's utilities should start negotiating multiyear contracts with the Persian Gulf state, which is the world's biggest LNG exporter. Qatar's expansion, the largest in LNG market history, was met with skepticism when it was announced in 2019. Some analysts said demand would drop rapidly in the coming decades as the world transitioned from fossil fuels to renewable energy.

The coronavirus pandemic caused gas prices to sink to record lows, but prices have rebounded almost to all-time highs. Morgan Stanley forecasts global LNG consumption will rise 60% through 2030, mostly due to Europe's pivot away from Russian energy.

#### Cheniere's Louisiana LNG terminal sends 75% of cargoes to Europe

(Houston Chronicle; April 18) - Cheniere Energy's Sabine Pass LNG terminal in Louisiana was already bustling before Russia invaded Ukraine, jeopardizing relationships between European countries and Russia, which had been their primary supplier of natural gas. Now, roughly 75% of the terminal's cargoes are bound for Europe, the Houston-based company said, up from 38% a year ago.

The Gulf Coast's liquefied natural gas industry is playing a leading role in meeting Europe's energy needs — vindication for a segment of the industry working to justify expensive projects. Last month, the Biden administration issued two emergency orders allowing Cheniere to export an additional 0.72 billion cubic feet per day of gas as the administration scrambles to help Europe find alternative sources of fuel.

Cheniere is the largest LNG exporter in the U.S. and its Sabine Pass facility is the world's second-largest LNG hub. Still, the market is calling for more LNG than Cheniere and its peers can provide, Cheniere CEO Jack Fusco said last month, calling his company's LNG production "maxed out." At Cheniere's facility, Anatol Feygin, the company's chief commercial officer, pointed to 500 acres on the other side of Lighthouse Road. "That is penciled in as an expansion opportunity," he said.

# U.S. gas producers need to step up output to handle LNG demand

(Bloomberg analysis; April 19) - The law of energy is ingrained in every high school science student: Energy can't be created or destroyed, only transformed or transferred. The global gas market represents the political version of that tenet of thermodynamics. Europe's demand for liquefied natural gas to replace Russian imports has now been transferred to the U.S. Until now, shipping U.S. LNG into Europe has won accolades for President Joe Biden. Politically, it helped contain Vladimir Putin, and economically, it boosted the U.S. energy industry. It has also helped to rebalance the trade deficit.

Now comes the greater test. As the U.S. gas market begins to connect with the European one, the high prices in Europe are crossing the Atlantic. On April 18, the price of benchmark U.S. gas surged to a 13-year high, exceeding \$8 per million Btu, more than double the 2010-2020 average Americans paid of about \$3.30 per million. Though still a fraction of the more than \$30 per million Btu that European consumers are paying, American prices are already feeling the tug of demand in the continent.

Gas markets have historically tended to be regional. Until recently, the U.S. market was almost an island, connected only to Mexico and Canada. But in the past six years, the U.S. gas industry has slowly linked up to the rest of world as liquefaction facilities have proliferated. The U.S. exported 17% of its gas production in January. By next winter, the U.S. Energy Information Administration expects one-in-five molecules of gas produced in the U.S. will be sold overseas. Two decades ago, the U.S. barely exported any gas.

U.S. gas output has not kept pace with the surge in exports and stronger-than-expected domestic demand. Biden should not waver in its support for U.S. LNG exports, even if that means higher prices. But he needs help from the shale industry. The White House has secured a new market for U.S. gas in Europe. All that's needed is the extra gas.

## China boosts coal, natural gas production to record levels

(Bloomberg; April 18) - China boosted its coal and gas output to record levels in March, as the nation turned to its domestic producers for security of supply after international prices skyrocketed in the wake of Russia's invasion of Ukraine. Coal production increased 15% on year to 396 million tons, while natural gas rose 6.3% to almost 700 billion cubic feet, according to data from the statistics bureau on April 18.

Crude output rose 3.9% to almost 130 million barrels, its highest since December 2015, although refining activity retreated as demand remained fragile due to a resurgent coronavirus. China has gone all out to lift coal production in particular after an unprecedented power crunch wracked the economy last fall. But the effort to wring more output from miners may have reached its limit, an industry official said, warning that the extra supply may not prevent a return to electricity shortages in key industrial regions.

Although Beijing wants to add another 300 million tons of coal production capacity, ostensibly to cut imports, it hasn't given a timeline for the expansion. In any case, the government will soon be running up against its mid-decade deadline for cutting consumption in order to meet its climate goals.

#### China reduces coal and LNG imports

(Bloomberg; April 19) - Record coal and natural gas production and consumption-sapping COVID lockdowns are slashing China's import demand and helping loosen global fuel markets. Domestic output is soaring after Beijing pressured state-owned producers to boost activity to ensure energy security after shortages last year and to insulate it from the surge in global commodity prices. Coal imports are down 24% and liquefied natural gas by 11% over the first three months of the year.

In the wake of Russia's invasion of Ukraine, a fossil-fuel production boom by the world's largest energy importer is just what global markets need to help ease supply pressures. With most exporters producing at full capacity, China could be a "game changer" if it cuts back on overseas purchases, Citigroup analysts including Ed Morse said in a research note last week. "China's desire to walk away from seaborne coal imports by boosting domestic coal output should pose major downside risks to global fossil-fuel prices over the next few years," Morse wrote.

While China is well-known as the world's biggest energy consumer, its producers are no slouches either. It mines half the world's coal and is No. 4 and No. 6 in the rankings of global gas and oil. Growing coal output has been an obsession of Beijing's since a shortage of the fuel caused widespread power outages in the fall.

## China boosts purchases of steel-making coal from Russia

(Bloomberg; April 20) - China more than doubled imports of steel-making coal from Russia in March, buying the fuel at a discount as other nations move to ban deliveries due to the war in Ukraine. Coking coal imports from Russia jumped to 1.4 million tons in March, compared to 590,000 tons for the same month last year and 1.1 million tons in February, according to Chinese customs data. Imports of thermal coal, used for power generation, fell as mild weather curbed demand and China boosted domestic output.

China is taking advantage of steep discounts to Russian coal, as other buyers — like Japan and the European Union — move to ban imports of the fuel. While Russian coal prices increased modestly in the past year, they're still well below rates from other suppliers, like Indonesia and Mongolia. Asia's biggest economy has signaled that it is interested in purchasing more Russia energy despite roadblocks from international banks and shipowners after the invasion of Ukraine.

While China is moving to drastically increase its own domestic coal output, the nation's mines produce fuel that is low quality and unsuitable for steel mills. That means steel-makers are still dependent on overseas suppliers for coking coal.

#### Putin says Russia will 'forge ahead' on Arctic energy projects

(The Barents Observer; Norway; April 18) - Logistics chains falter, investors flee and foreign markets vanish. But President Vladimir Putin argues that Russia, together with countries from "outside the region," will forge ahead with Arctic oil and gas and coal development. "In the Arctic ... are concentrated practically all aspects of our country's national security," he said as he opened last week's meeting on Arctic development.

Despite the isolation from the international community, Putin insists there must be no backtracking on ambitions. "I want to underline that considering the various external limitations and pressure from sanctions, we now must devote special attention to all the projects and plans connected with the Arctic," he said. "There can be no delays, no postponement." He admits that actions by "unfriendly countries" have led to disruption of transportation and logistical chains, but Russia will find alternative solutions that in the long-term perspective will only "strengthen our independence from outside factors."

He added, "We must more actively engage in Arctic cooperation with countries and alliances from outside the region." No specific country was mentioned, but Putin is likely to have in mind China and India, two countries that continue to have working relations with Moscow. Chinese state companies hold stakes in several major energy projects in the Russian Arctic, among them Yamal LNG and Arctic LNG-2. Indian companies, including ONGC Videsh, are represented in Russia, and Moscow has promoted projects like the Vostok Oil and the Syradasaysky coal mines to Indian investors.

## Germany's employers, union oppose immediate ban on Russian gas

(The Associated Press; April 18) - Germany's employers and unions have joined together in opposing an immediate European Union ban on gas imports from Russia, saying such a move would lead to factory shutdowns and the loss of jobs. "A rapid gas embargo would lead to loss of production, shutdowns, a further deindustrialization and the long-term loss of work positions in Germany," Rainer Dulger, chairman of the Confederation of German Employers' Associations, and Reiner Hoffmann, chairman of the German Trade Union Confederation, said in a joint statement April 18.

The statement comes as European leaders are discussing possible new sanctions against Russian oil, following a decision April 7 to ban Russian coal imports beginning in August. Ukraine's leaders say revenues from Russia's exports are financing the

destructive war on Ukraine and must be ended. That won't be easy to do. The EU's 27 nations get about 40% of their gas from Russia and about 25% of their oil. Gas would be the most difficult do without, since most of it comes by pipeline from Russia and supplies of liquefied natural gas are limited amid strong demand worldwide.

Germany, a major manufacturing hub, has so far resisted an immediate shutoff of Russian gas and said it plans to instead phase out Russian oil by the end of the year and most Russian gas imports by mid-2024. The EU's executive commission has outlined steps to cut the consumption of Russian gas by two-thirds by year's end through using more pipeline gas from Norway and Azerbaijan, importing more LNG, accelerating the deployment of wind and solar projects and intensifying conservation.

### Germany will be hard-pressed to build LNG import terminals quickly

(Reuters analysis; April 19) - Even if Germany can deliver on its aim to build two liquefied natural gas import terminals in a speedy two years, Europe's biggest economy will be barely off the starting line in its race to replace Russian gas. The terminals could regasify enough LNG to meet perhaps about a third of the supply Germany now receives by pipeline from Russia, but Berlin also needs to secure supply in an already tight global LNG market to feed the terminals.

Economy Minister Robert Habeck said last month the terminals would have to be built at "Tesla speed." referring to how the electric vehicle pioneer built its gigafactory near Berlin in two years. To help the process, Germany is backing two LNG terminals, one in the North Sea port of Wilhelmshaven and one in Brunsbuettel near Hamburg. Yet the challenges are plain, including Germany's bureaucratic red tape and environmental rules, prompting doubts about the timeline among economists and even policymakers.

"The timeframes for project development are going to be tough to meet," said Greg Owen, vice president of business development at energy consultancy GLJ. "Massive streamlining of regulatory approvals and social acceptance will be required for these projects to start. Given legislative uncertainty, companies may need incentives and guarantees to invest," he said. It usually takes two to three years to build a regas terminal after a final investment decision is made. Owen said.

# **Germany commits \$3.24 billion to floating LNG import terminals**

(Euractiv; April 18) - Germany has released nearly €3 billion (US\$3.24 billion) to acquire floating liquefied natural gas import terminals, the finance ministry said April 15, as it seeks to move away from its reliance on Russian gas. "Dependence on Russian energy imports must be reduced quickly and sustainably," tweeted Finance Minister Christian

Lindner. "Floating LNG terminals make an important contribution to this, for which we must provide funding," he added.

The money is to lease LNG carriers, which would be converted to accept LNG deliveries, store the fuel and then regasify it for injection into the nation's gas pipeline grid. Europe, and Germany in particular, is counting on LNG to reduce its dependence on Russian gas imports after Moscow's invasion of Ukraine. The mobile terminals are known as floating storage regasification units, which can be moved into place shoreside and put to work much faster than building a traditional onshore LNG receiving terminal.

Germany, France and Italy are all planning to rent or acquire FSRUs to increase import capacity. In recent years, Germany has imported an average of 55% of its gas from Russia via onshore pipelines. This share was reduced to 40% by the end of the first quarter of 2022, in favor of higher imports from the Netherlands, Norway and from LNG, according to the economy ministry. Unlike several European countries, however, Germany does not have an onshore terminal to process imported liquefied gas. For the time being, it relies on terminals in other EU countries, which limits its import capacity.

#### German bank may loan \$1 billion for Turkey to buy imported LNG

(Bloomberg; April 20) - Turkey and Germany's Deutsche Bank are in the final stages of talks for a pioneering 1 billion euro (\$1.1 billion) loan to finance liquefied natural gas purchases that will reduce the country's reliance on Russian imports. Boru Hatlari ile Petrol Tasima, the state-owned pipeline operator known as Botas, will use the money to buy LNG from U.S. producers and from traders in Europe, according to people with direct knowledge of the matter.

The transaction marks the company's first loan to buy LNG imports and paves the way for similar deals that will allow Botas to diversify supplies dominated by Russia and Iran. The expected signing of the deal within weeks comes at a crucial time for the Turkish company, which has been hit by rising gas prices. The government pumped more cash into Botas during the first quarter than it did in the whole of 2021 to keep it running.

The loan guaranteed by Turkey's Treasury and Finance Ministry is expected to have a maturity of as long as five years and can be doubled in size, sources said. At current LNG prices, the funding could fetch about 35 billion cubic feet of gas, a fraction of Turkey's consumption of more than 2.1 trillion cubic feet last year. Finance deals backed by Western financial institutions would help Turkey fund costlier LNG purchases while reducing reliance on Russia, which meets more than half of Turkey's gas needs.

Dutch government sticks with decision to close down gas field

(Natural Gas Intelligence; April 20) - The Netherlands will rely on increasing liquefied natural gas imports instead of counting on domestic gas production from the Groningen field to help replace Russian imports. The Dutch government has decided against increasing output from Groningen, which was under consideration as a way for Europe to refill natural gas storage and displace Russian supplies.

"This is the last normal gas year for Groningen," said Jules van de Ven, spokesperson for the Dutch Ministry for Economic Affairs and Climate Policy. "The field will remain available in case of emergency starting October 2022 with only a minimal flow" of 50 billion cubic feet a year, van de Ven said. "We're planning to permanently close down the field in either 2023 or 2024 ... and all gas wells will be abandoned and cleaned up."

Europe has depended on production from Groningen for decades. It was once one of Europe's largest gas fields, reaching peak output of 3.1 trillion cubic feet in 1976. It was producing nearly 1 tcf as recently as five years ago. The field had been slated for closure this year after years of earthquakes, but a cold winter left Europe's storage inventories depleted and Russia's invasion of Ukraine stoked further supply concerns.

A new coalition government was left with the decision whether to increase Groningen's gas output to help replace Russian gas imports after Dutch citizens were promised the Groningen field would cease gas production, given the earthquakes. "The Netherlands is only 15% dependent on Russian gas imports," den Haak said. That would require about one LNG carrier delivery a week to replace the Russian gas.

#### Denmark sees renewables, North Sea gas replacing Russian imports

(Reuters; April 19) - Denmark's government on April 19 said it aimed to significantly boost renewable energy supply and temporarily increase production of natural gas from its fields in the North Sea, in a move to rapidly become independent of Russian gas supplies. "We will increase production of natural gas in the North Sea for a limited time period," Prime Minister Mette Frederiksen told reporters during a briefing.

"We are convinced it's better to produce gas in the North Sea than buying it from Vladimir Putin," Frederiksen said. He said Denmark could effectively become independent of Russian gas next year with supplies from the North Sea. "But since we are part of the European gas network, we also need the other countries to become independent," she said.

The government also presented plans to drastically increase power production from renewable energy sources, such as wind and solar power, as well as introducing a uniform carbon tax on companies' emissions. The government aims to increase production from land-based wind and solar power fourfold within eight years and boost offshore wind power production by between one gigawatt and four gigawatts.

#### Cheniere will track its methane leaks for European LNG buyers

(Bloomberg; April 19) - Cheniere Energy, the largest U.S. exporter of natural gas, is part of a high-stakes campaign to show Europe that it can substitute U.S. gas for Russian supply without fear of environmental damage. Their job is to find the most efficient leak detection system. U.S. gas liquefied for export requires a lot of infrastructure, such as terminals, and is susceptible to more leakage points than a single pipeline delivery.

The move to take more U.S. LNG poses a challenge to Europe's obligations under the Global Methane Pledge, which the EU, U.S. and other countries committed to at last year's climate talks in Glasgow. The goal is to reduce all man-made methane emissions by 30% by 2030 compared to 2020 levels. Before the war, French company Engie halted a \$7 billion deal in 2020 to buy LNG from a proposed export project in Texas amid concerns about methane releases during gas production.

Now, under a deal signed last month, Engie requires Cheniere to disclose the carbon intensity of every cargo it sells and quantify emissions starting from the wellhead. Cheniere plans to start disclosing cargo emissions to its customers this year. The U.S. has a two-fold problem: unchecked leaks, and even if they're all plugged, companies are still selling a fossil fuel that is almost pure methane. Burning that methane produces carbon dioxide, which takes hundreds of years to eliminate from the atmosphere.

## Houston sees future as hydrogen production hub

(Houston Chronicle columnist; April 18) - The world is determined to move away from fossil fuels, but Houston could remain the energy capital of the world with a coalition of Texas businesses and nonprofits betting on hydrogen helping the city retain the crown. The gamble is sound. Climate activists agree that hydrogen molecules in gas or liquid form will help replace oil, gas and coal where electrons are impractical. The U.S. Department of Energy has promised \$9.5 billion to help cities develop hydrogen hubs.

The Texas Gulf Coast is already home to 48 hydrogen production plants and 900 miles of hydrogen pipelines, which should make Houston a shoo-in for a few billion of the federal development dollars. But the journey to a clean hydrogen future could be far more circuitous than expected, and Houston's future role will rely on a commitment to clean energy. Hydrogen atoms are plentiful in the universe, but most of it is bound to other elements, mostly famously oxygen to create water. Hydrogen also binds with carbon to make fossil fuels, such as oil and natural gas.

Chemists have developed several techniques for breaking hydrogen atoms free, but each has a drawback. Using steam to release hydrogen from gas releases carbon dioxide. Using electricity to break apart water molecules is expensive. Today, hydrogen

is made almost exclusively for industrial use from gas. Environmentalists want governments to support so-called green hydrogen made from water using electrolysis, and researchers at hundreds of companies are working to bring down electrolysis costs.