Oil and Gas News Briefs
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Persian Gulf states face uncertain future amid energy transition

(The Associated Press; Oct. 27) - The global energy transition is perhaps nowhere more perplexing than in the Arabian Peninsula, where Saudi Arabia and other monarchies are caught between two daunting climate change scenarios that threaten their livelihoods. In one, the world stops burning oil and gas to cut down on heat-trapping emissions, shaking the foundation of their economies. In the other, global temperatures keep rising, at the risk of rendering unlivable much of the Gulf's already extremely hot terrain.

The political stability of the six Persian Gulf states — Saudi Arabia, the United Arab Emirates, Qatar, Kuwait, Bahrain and Oman — is rooted in profits from fossil fuels. This includes the exports that energy-hungry China and India will want even more over the next two decades. "Climate action, it's almost an existential problem for an absolute monarchy based on oil exports," said Jim Krane, author of "Energy Kingdoms: Oil and Political Survival in the Persian Gulf." He added, "They need climate action to succeed without wrecking the oil market. That's a tough needle to thread."

Gulf monarchies have used oil revenues to maintain domestic support, buy regional clout and expand influence. The money has built up national armies and provided citizens with cushy public sector jobs, free health care and higher education, subsidized fuel, land to build homes on, marriage dowries and generous pensions. Without this patronage system, Gulf monarchies might have to allow greater political participation or turn more repressive, said Krane, an energy studies fellow at Rice University's Baker Institute for Public Policy in Texas.

Investment fund co-founder warns high oil prices could lead to unrest

(Bloomberg; Oct. 26) - Blackstone co-founder Stephen Schwarzman said the world is facing energy shortages so severe they could cause social unrest. "We're going to end up with a real shortage of energy," he said at a conference in Saudi Arabia. "And when you have a shortage, it's just going to cost more and it's probably going to cost a lot more. And when that happens, you're going to get very unhappy people around the world, in the emerging markets in particular."

Larry Fink echoed those comments, adding that there is a high probability of oil soon reaching $100, especially with governments and investors pushing against investments in fossil fuels. "Inflation, we are in a new regime," said Fink, chairman of BlackRock, the world's biggest asset manager. "There are many structural reasons for that. Short-term policy related to environmentalism, in terms of restricting supply of hydrocarbons, has created energy inflation and we are going to be living with that for some time."

Commodities such as oil, gas and coal have soared this year as economies rebound from the coronavirus pandemic and amid supply disruptions. Brent crude is up 65% to above $85 a barrel. Several analysts have said that European countries could halt gas exports to neighbors if winter's colder than normal and prices keep rising. "We're not focusing on long-term solutions, we're not trying to change the world in a granular basis," said Fink. "We have these visions we could go from a brown world and we could wake up tomorrow there'd be a green world. That is not going to happen."

Saudi Aramco continues to call for more oil investment

(Bloomberg; Oct. 25) - Saudi Aramco said oil-output capacity across the world is dropping quickly and companies need to invest more in production. It's a "huge concern," CEO Amin Nasser said in an interview in Riyadh, Saudi Arabia's capital. "The spare capacity is shrinking." His comments come with crude prices having soared 70% this year to around $85 a barrel. Many major consumers, including the U.S., Japan and India, have called on producers to pump more.

The supply deficit in oil markets could worsen in 2022 if the coronavirus pandemic eases and more people fly, he said. "If there's aviation pickup next year, that spare capacity will be depleted," Nasser said. "It's now getting to a situation where there's limited supply — whatever is left that's spare is declining rapidly." Several oil and gas traders have criticized governments and climate activists for calling on companies to stop investing in fossil fuels, saying that will cause shortages in the coming decade.

Aramco, the world's biggest oil company, is investing billions of dollars to raise its daily capacity to 13 million barrels from 12 million. It expects to complete the project by 2027. Regardless of the Saudi warning, many Wall Street banks and OPEC+ members doubt there will be supply shortages next year. JPMorgan Chase has said markets will shift to a supply surplus of 1 million barrels a day by March from a deficit of 1.5 million now.

Nigeria joins Saudi Arabia in resisting calls for more oil

(Bloomberg; Oct. 24) - Nigeria joined fellow OPEC+ member Saudi Arabia in saying the group must resist pressure to raise oil production faster until the coronavirus pandemic abates. The 23-nation cartel shouldn't yet change its strategy of increasing daily crude output by 400,000 barrels a month through next spring, according to Nigeria's Minister of State for Petroleum Resources Timipre Sylva.

The Organization of the Petroleum Exporting Countries and allies including Russia next meet on Nov. 4. With oil soaring 70% this year to $85 a barrel, some major consumers have called on the group to ease supply cuts it began last year more quickly. “We have to look at the situation closely before we take action,” Sylva said in an interview Oct. 24 in the Saudi capital of Riyadh, where he attended a climate conference. “It’s still very fragile. We must be very cautious before we take the next move.”

Saudi Energy Minister Abdulaziz bin Salman said to Bloomberg on Oct. 22 that oil producers shouldn’t take the rise in prices for granted because the virus could still hit demand. Sylva’s comments came on the same day Chinese officials said they expected COVID-19 infections to increase in the next week. “We’ve seen the slowdown in China,” Sylva said. “A lot of people are calling for more oil, but we’re looking at problems in some economies. We know that we haven’t completely opened up yet.”

Tight market pushes oil futures even higher

(Reuters; Oct. 26) - The scarcity premium embedded in the structure of Brent crude oil futures has widened to the most since 2013 this week, a sign of the tight market underpinning oil's rally that pundits increasingly predict will push the market to $100 a barrel. The premium over the immediate Brent crude contract price to the December 2022 price stood at $9.50 a barrel on Oct. 26 after reaching $9.87 on Oct. 25, which was the highest since 2013, Refinitiv Eikon data showed.

Brent's outright price has surged more than 60% this year, driven by a wider energy crunch as economies recover from the pandemic and the Organization of the Petroleum Exporting Countries and allies, known as OPEC+, raises output slowly. As well as OPEC+ supply restraint, surging natural gas prices, which have encouraged a switch to oil for power generation, have also spurred the rally. Brent hit $86.70 a barrel on Oct. 25, just 4 cents below its October 2018 high.

Larry Fink, CEO of the world's largest asset manager BlackRock, said Oct. 26 there is a high probability of oil reaching $100. Rystad Energy gave a similar view a day before. "A brief spike to $100 is not out of the question as oil becomes a viable substitute for heating and power, particularly in Asia," Rystad analyst Louise Dickson said. Goldman Sachs said a strong demand rebound could push Brent above its year-end forecast of $90, and gas-to-oil switching could add at least 1 million barrels per day to demand.

Oil storage at Oklahoma hub lowest in 3 years

(Reuters; Oct. 27) - Crude oil tanks at the Cushing, Oklahoma, storage and delivery hub for U.S. crude futures are more depleted than they have been in the past three years, and prices of further-dated oil contracts suggest they will stay lower for months. U.S.

demand for crude by refiners making gasoline and diesel has surged as the economy has recovered from the worst of the pandemic. Demand across the globe means other countries have looked to the U.S. for crude barrels, also boosting draws out of Cushing.

The oil hub is the largest, and for decades was the most significant storage facility for U.S. barrels. That has changed in recent years, as activity has shifted to the U.S. Gulf now that the United States exports roughly 3 million barrels of crude every day. Analysts expect the draw on inventories to continue in the short-term, which could further boost U.S. crude prices that have already climbed by about 25% in the past two months.

"Storage at Cushing alone has the potential to really rally the market to the moon," said Bob Yawger, director of energy futures at Mizuho. Cushing stockpiles have dropped to 27.3 million barrels, the lowest since October 2018, the U.S. Energy Information Administration said on Oct. 27, or about half of where inventories were a year ago. By contrast, Gulf inventories were at 247 million barrels at the end of last week, compared with 224 million barrels at the same time two years ago prior to the pandemic.

Qatar signs on with Exxon to explore offshore eastern Canada

(S&P Global Platts; Oct. 24) - QatarEnergy has entered an agreement with ExxonMobil to explore offshore of Newfoundland and Labrador, Canada’s most eastern province in the Atlantic, according to an Oct. 24 announcement from the Middle East gas giant. QatarEnergy will hold 40% of the farm-in exploration license and ExxonMobil Canada will own the rest, the state-owned Qatari firm said. The transaction, which is the latest in QatarEnergy's overseas expansion, has received all its necessary approvals from the Canada-Newfoundland and Labrador Offshore Petroleum Board.

The exploration site "represents our first entry into offshore Canada in an established producing basin with the leading producer in the area," Qatar Energy Minister Saad al-Kaabi said in the statement. The block is approximately 280 miles east of the city of St. John's in Newfoundland and Labrador, in water depths of approximately 3,600 feet, according to the statement. QatarEnergy has increasingly looked abroad for upstream assets in a global diversification push. Qatar produces about 600,000 barrels per day of crude and has LNG output capacity of about 77 million tonnes per year.

Bank says world needs 73 million tonnes new LNG supply by 2030

(Reuters; Oct. 25) - Demand for liquefied natural gas is expected to rise by 25% to 50% by 2030, making it the fastest growing hydrocarbon over the next decade, analysts from Morgan Stanley Research said in a note on Oct. 25. Morgan Stanley has raised its long-term LNG price outlook to $10 per million Btu, expecting spot prices of the fuel to average 40% higher over the next decade versus the past five years.

Asian spot LNG prices hit a record above $56 earlier this month as surging demand ahead of the Northern Hemisphere winter spurred by an economic rebound from the pandemic outstripped supply. Morgan Stanley said at least 73 million tonnes per year of new supply projects are needed to meet LNG demand by 2030. This will require an additional $65 billion of new projects, on top of the $200 billion of projects already under construction that were sanctioned since 2019.

“Contrary to investor expectations, the world is going to need more LNG in the initial phase of the energy transition,” the analysts said. “Competing technologies for natural gas are not being developed fast enough, and there are significant benefits in reducing coal consumption while greener fuels are commercialized.” LNG projects with lower emission intensity will be more sought after and are more likely to progress, they said.

Cheniere signs up commodity trader for 13-year LNG supply deal

(Bloomberg; Oct. 24) - Cheniere Energy, the largest U.S. producer of liquefied natural gas, has agreed to sell about 800,000 tonnes per year of the fuel to Glencore in the industry’s latest multi-year contract with a commodity trading house. The sale and purchase agreement will last 13 years starting in April 2023, Cheniere said Oct. 24 in a statement. The price Glencore will pay for the LNG will be indexed against the Henry Hub benchmark U.S. natural gas price.

Glencore, Gunvor and Vitol are among trading companies snapping up long-term accords with U.S. LNG exporters to give them flexibility on supplies in the years ahead. The current supply squeeze in the international market highlights the advantages of having contracted production to call on as needed. Nervous buyers have helped send spot-market prices to a record in recent weeks as they scramble to secure cargoes amid shortages in Asia and Europe.

Booming demand overseas is also a welcome opportunity for Cheniere and other U.S. exporters to lock in funding for capacity expansion. The Glencore contract adds momentum to Cheniere’s planned Stage 3 expansion of its Corpus Christi export plant in Texas. The company said it expects to make a final investment decision next year on the project, which is fully permitted and would boost Corpus Christi’s liquefaction production capacity by 10 million tonnes to a total 25 million tonnes per year.

Asian buyers hurrying to lock in U.S. LNG cargoes through March

(Bloomberg; Oct. 26) - Asian liquefied natural gas traders are rushing to secure cargoes from the U.S., where the fuel is among the cheapest in the world despite what’s turning into the steepest price run in two decades. Firms in China and Japan, the two biggest importers, are seeking to procure LNG specifically from the U.S., and are in discussions with exporters and portfolio players to lock in deliveries through March, said traders with knowledge of the matter. The companies want LNG linked to the Henry Hub index, the U.S. natural gas benchmark that’s trading at a fraction of prices in Asia and Europe.

A global energy squeeze has sent prices for gas and coal surging from Australia to the Netherlands. Utilities are busy stocking up on fuel before winter descends on the Northern Hemisphere and heating demand soars. While U.S. natural gas prices have more than doubled this year, they still are much cheaper than overseas markets in large part because of the bounty of North American shale fields.

U.S. LNG sent to Asia this winter can turn an attractive profit, with the netback at roughly $25 to $26 per million Btu, according to analysis from BloombergNEF. That’s near the highest ever. It is also in stark contrast to the summer of 2020, when U.S. LNG shipments to Asia and Europe were not profitable as the COVID-19 pandemic dashed demand for the fuel. Margins are so good now that a single cargo from the U.S. is exchanging hands as many as eight times, as firms are eager to resell the same shipment and get a slice of the profit, according to traders.

Louisiana LNG developer asks FERC for permission to start work

(Reuters; Oct. 26) - Liquefied natural gas company Venture Global LNG on Oct. 26 sought permission from federal regulators to start early site work on the company's proposed Plaquemines export plant in Louisiana. Plaquemines will likely be the first and possibly the only U.S. LNG export project to go forward in 2021 after no U.S. projects started in 2020. A record number of North American projects started construction in 2019, according to analysts.

LNG prices were trading near record levels around the world as utilities scramble for supplies to meet dangerously low stockpiles in Europe ahead of winter and to meet insatiable demand for the fuel in Asia, where energy shortages have caused power blackouts in China. Venture Global asked the Federal Energy Regulatory Commission for permission by Nov. 25 to start installing piles and pile caps for a heavy haul bridge, to allow transport of heavy modules from offloading facilities on the Mississippi River.

In April, Venture Global said construction firm Zachry Group will work with engineering firm KBR to build the first phase. The venture will install modular liquefaction trains at Plaquemines that are similar to systems being installed at Venture Global's Calcasieu Pass LNG plant under construction in Louisiana. Venture Global said it expects a financial close on Plaquemines in the fourth quarter of 2021, which analysts said could allow the plant to produce its first LNG in 2024. Plaquemines would produce up to 20 million tonnes per year of LNG. Analysts have estimated the plant at $8.9 billion.

Japanese utilities try to switch from expensive LNG to oil

(Reuters; Oct. 27) - Japanese utilities have asked oil refiners for extra supplies to generate power as they try to switch from expensive liquefied natural gas, the head of the Petroleum Association of Japan (PAJ) said on Oct. 27. The petroleum executive's comments come after Japan's government warned that electricity supplies this winter may be at their tightest since the Fukushima disaster in 2011, amid a surge in global energy prices that is hampering recovery from the pandemic.

With winter around the corner, rising prices for LNG, along with coal, are pushing utilities around the world to switch to oil from gas. "Spot LNG prices have risen considerably and we have received requests from electric utilities that want to use oil as a substitute," PAJ President Tsutomu Sugimori told reporters. Asia spot LNG prices are off record highs but remain elevated as European utilities compete with those in Asia to boost their low gas storage levels while hopes fade for more gas supplies from Russia.

"We are not sure if we can respond to all requests as our supply chains, including ships, tanks and staff … have shrunk considerably as demand has been dropping," Sugimori said. Oil typically supplies only 3% of fuels used by the utilities. "But we'll try to respond as much as possible," he said. Japan's biggest generators operate stations with 22,000 megawatts of capacity that can burn crude in at least some of their boilers, but burning oil to make electricity — usually expensive and polluting — is generally a last resort.

The Netherlands plans to get off natural gas

(BBC; Oct. 26) - Natural gas has provided the Netherlands with cheap heat for generations. Now, as the country's largest gas field slowly closes down, a wealth of clean alternatives will be needed to keep homes warm. In the Netherlands, the rising outcry over the danger of earthquakes from Groningen gas field sealed the decision in 2019 to close the field in 2022, eight years earlier than the scheduled closure in 2030.

Communities are faced with deciding how to replace natural gas. Loppersum village is one of 50 "natural gas-free districts" piloting alternative low-carbon technologies, helped by $460 million in government funding to 2030. With the initial goal of converting 50,000 houses by 2028, the government hopes that these pilots will show the country how to meet its goal of getting every house off fossil fuels by 2050 — all 8 million of them.

It will be an immense shift, said Casper Tigchelaar, senior researcher on energy in the environment at the Dutch Organization for Applied Scientific Research. The Netherlands has a near-total dependence on gas as its energy source for heat. According to the Dutch Central Bureau of Statistics, 92% of households use the gas for heating.

The country has proposed a raft of ambitious heat policies, aiming to achieve an overall 49% reduction in CO_2 emissions across its economy by 2030 compared with 1990.

Back in 2018, the government ruled that no new houses could be connected to the gas grid. By 2030, 1.5 million existing homes must switch their heat source. All buildings in the Netherlands must be using a low-carbon alternative to fossil fuels by 2050.

Kenya looks to convert oil-fired power plants to LNG

(Bloomberg; Oct. 27) - Kenya plans to retire or convert heavy fuel oil-fired power plants to use liquefied natural gas by 2030 as the nation pursues a cleaner energy path to a 100% climate-friendly grid. State-owned Kenya Electricity Generating will study the feasibility of reconfiguring the thermal power plants that currently account for about 7% of the grid load, said Isaac Kiva, renewable energy secretary at the Energy Ministry. The move is part of the nation's target to reach net-zero carbon emissions by 2050.

"We won't be using heavy fuel oil anymore," Kiva said in an interview. "The idea is that those thermal power plants (with contracts) going beyond 2030 will be converted to use LNG." The plan seeks to consolidate Kenya's position as a leader in clean energy, with 90% of its grid already renewable, and is in line with President Uhuru Kenyatta's push for investment in a sector that's based on expensive technology.

Africa has suffered the brunt of climate change, despite producing less than 5% of the world's greenhouse gases. As the continent's geothermal leader, Kenya produces more than 40% of the electricity on its national network from underground steam. Hydropower contributes a quarter of the power on the grid, while wind sources account for almost 22% and solar 1.3%, according to a September report by energy regulators.

LNG could have strong future as marine fuel

(Bloomberg; Oct. 26) - Liquefied natural gas has a strong future as a marine fuel, even if shipping's global regulator adopts stricter emissions targets. That's according to DNV AS, which sets ship safety standards. It sees LNG as having a significant role in fueling the industry that transports more than 80% of world trade because it's less polluting than oil, and there's potential for cleaner versions, such as bio-LNG. That would still be the case if the International Maritime Organization ups its emission-reduction goal.

"The ships that are being built with LNG today — and we expect that many more will come in the next five to 10 years — they definitely have a future," said Christos Chryssakis, business development manager at DNV. "Eventually, we will have to turn from fossil LNG to cleaner versions." LNG's future in today's oil-dominated marine fuel market is a controversial subject. It's been criticized for causing methane to leak into the atmosphere. Container shipping giant Moller-Maersk has dismissed it as "another fossil fuel," and the World Bank has noted its "uncertain" greenhouse gas benefits.

LNG cuts carbon dioxide emissions by 25%, much less than some alternatives like clean methanol. But that can be improved by ship design and slower sailing. That gives it a future as a marine fuel, especially as the fossil-based version can be replaced with a bio-equivalent in the long term, Chryssakis said. It's also getting more popular, with 300 ships burning or ready to use LNG last year, up from about 80 in 2015, DNV data show.

Canadian natural gas exports to U.S. highest since 2018

(Reuters; Oct. 25) - Demand has jumped for relatively cheap Canadian natural gas, driving exports to the United States to three-year highs and prompting producers in Canada to boost capital spending and drilling activity. Global gas prices have hit multi-year highs as world economies recover from last year's slowdown amid the pandemic. Gas stockpiles in Europe are dangerously low and demand in Asia has been insatiable, so utilities around the world are competing for liquefied natural gas exports.

Canada's gas is remote, and prices at the hub in Alberta are among the cheapest in North America, with production far from major U.S. demand centers and LNG export terminals on the U.S. Gulf Coast, some 2,500 miles away (Canada has no LNG export terminals of its own.) At around C$5 ($4.12) per million Btu, prices are well above their 2021 year-to-date average of C$3.38 ($2.73), though cheaper than U.S. gas, and some of Canada's largest gas producers including Tourmaline Oil are seeking to capitalize.

"A number of producers are accelerating capital into Q4 (fourth quarter) to add production volumes into the higher-priced winter market," said Matt Murphy, an analyst at Tudor, Pickering, Holt & Co. in Calgary. Gas going into TC Energy's pipeline system in Alberta hit an all-time high of 12.75 billion cubic feet a day in mid-October, according to Tudor records dating from 2013. The system is the main artery for Canadian gas. About two-thirds of the gas has been going to the U.S., the highest volume since 2018.

Quebec intends to ban fossil fuel production, LNG exports

(Natural Gas Intelligence; Oct. 21) – The province of Quebec said it plans to ban fossil fuel production and liquefied natural gas exports. "The government of Quebec has taken a decision to renounce, definitively, extraction of hydrocarbons in its territory," Premier Francois Legault said in his yearly address to the provincial assembly. He described the prohibition as a recipe for prosperity in an age of international consensus on preventing drastic climate change by cutting carbon emissions blamed for global warming.

The premier predicted a transition to electricity would grow government-owned Hydro Quebec's zero-emission power dams as a supplier to Canadian markets and exporter to New England and New York. "It is necessary to bet on our trump cards in profoundly transforming our economy," said Legault. Hydroelectric dams "enable us to attract investment because, in future, enterprises that want to produce goods without emitting greenhouse gases are going to find in Quebec an incomparable land of opportunity."

Legault's Cabinet recently rejected the proposed Energie Saguenay LNG export terminal and Gazoduq pipeline, which would have moved Western Canadian gas through Quebec to overseas markets. Quebec has no oil or gas output. A 2018 ban on hydraulic fracturing used in unconventional production ruled that the Utica Shale formation, which extends into the province, was off-limits. The fossil fuel exclusion would stop short of ending Quebec oil and gas refining, distribution and retailing.

Europeans interested in Quebec's hydro power to make hydrogen

(Bloomberg; Oct. 26) - The abundance of cheap hydroelectric power that made Quebec a haven for cryptocurrency miners and data centers is now attracting other potential power-thirsty buyers: European green hydrogen producers. "We have people right now in Europe who want to decarbonize. They are very interested in coming to Quebec to produce green hydrogen from green electricity, to put that on a boat, and go back," Sophie Brochu, the chief executive officer of power utility Hydro-Quebec, said in an interview. "They are ready to pay a fortune to decarbonize."

With the world confronting the challenges of transitioning to cleaner energy this winter as natural gas shortages cripple countries from the U.K. to China, Quebec is in an enviable position. Home to 50 power-intensive data centers for companies including Amazon and Microsoft, the province also has large contracts to export its electricity to New York and Massachusetts. "Appetite for our electricity has never been higher," said Brochu, who took over the government-owned company in the early weeks of the pandemic. "We're not saying 'Oh my God, where do we push our electricity right now?'"

Europe's goal to rely on hydrogen produced without fossil fuels has prospective power customers knocking on Hydro-Quebec's door. The idea would be to produce the clean-burning hydrogen gas in Quebec — using electricity to break water molecules — and then ship it across the Atlantic.

Coal inventories at U.S. power plants lowest in 24 years

(Bloomberg; Oct. 26) - Coal stockpiles at U.S. power plants plunged to the lowest in at least 24 years as electricity generators burn the fuel faster than miners can dig it out of the ground. Inventories fell to 84.3 million tons in August, according to government data released Oct. 26. That's the lowest in records going back to 1997. As recently as the start of this year, stockpiles stood at 125 million tons.

As the global economy recovers from the pandemic, demand for electricity — and the fuels used to produce it — is surging around the world. That's pushed natural gas prices to all-time highs in some regions and the knock-on effect has been that utilities are burning more coal as a less-costly alternative. In the U.S., power producers are on track to burn 19% more coal this year, but miners have been curbing production capacity for years, which will limit 2021 output growth. That's forcing generators to burn through reserves of the dirtiest fossil fuel, and heightening concerns about supplies.

"Coal stocks for our customers are at critically low levels," said Joe Craft, CEO for Oklahoma-based miner Alliance Resource Partners, during a conference call Oct. 25. The decline came on quickly as the global energy crisis took root. Stockpile trends didn't look unusual in the first half of the year, but fell 13% in July from June and then another 13% in August. Inventories could shrink to 50 million tons by the end of the year, said Matt Preston, director of North American coal markets research for Wood Mackenzie.

Saudis will focus gas field development on hydrogen production

(Bloomberg; Oct. 24) - Saudi Arabia said a key focus of one of the world's biggest natural gas projects would be on manufacturing blue hydrogen, as the kingdom steps up its efforts to export a fuel seen as crucial to the green-energy transition. A large portion of gas from the $110 billion Jafurah development will be used for blue hydrogen, according to Energy Minister Abdulaziz bin Salman. The fuel is made by converting natural gas and capturing the carbon dioxide emissions.

"We are the biggest adventurers when it comes to blue hydrogen," Prince Abdulaziz said at a climate conference in Riyadh on Oct. 24. "We're putting our money where our mouth is on hydrogen. We have a terrific gas base in Jafurah we will use it to generate blue hydrogen." The comments underscore how the kingdom is moving away from previous plans to become an exporter of liquefied natural gas, a fuel that's cleaner than oil and coal but which some governments have said they want to phase out.

A market for hydrogen barely exists today, but could be worth $700 billion annually by 2050 if producers can bring down costs, according to BloombergNEF. Saudi state energy company Aramco is considering opening up the Jafurah field in the east of the country to foreign investors, Bloomberg reported last month. Aramco is working with an adviser as it mulls raising equity or debt for the vast site, according to people familiar with the matter. Jafurah is estimated to hold 200 trillion cubic feet of gas.

Oil field service companies raise their prices, too

(The Wall Street Journal; Oct. 22) - The latest shortages come from the oil field service industry, which has less equipment and fewer employees after years of austerity. All three major servicers — Halliburton, Schlumberger and Baker Hughes — said in their earnings calls this week that they are negotiating price hikes with their customers as a result. Higher labor costs, stretched supply chains and inflation are feeding into those price increases.

Equipment supply is tight enough, and oil and gas prices high enough, that some customers are starting tenders for services earlier than usual. The equipment shortage isn't likely to get better soon. Service companies tightened their belts earlier than their clients and all now plan to continue their spending discipline. Halliburton's capital budget is roughly a quarter of what it was seven years ago, the last time Brent crude touched $85. It plans to keep capital spending capped at 5% to 6% of revenue.

Notwithstanding short-term hiccups, a tight market with increasing demand is a sweet spot for services firms. The shock of 2020 forced them to learn new capabilities such as remote monitoring for drilling. Schlumberger in the third quarter squeezed out more net income than the second quarter of 2019 on a revenue base that is 30% lower.